

PREPARED FOR  
CITY OF HOLLYWOOD, FLORIDA

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# RFQ-041-23-JJ Water Treatment Plant and Wastewater Treatment Plant Projects

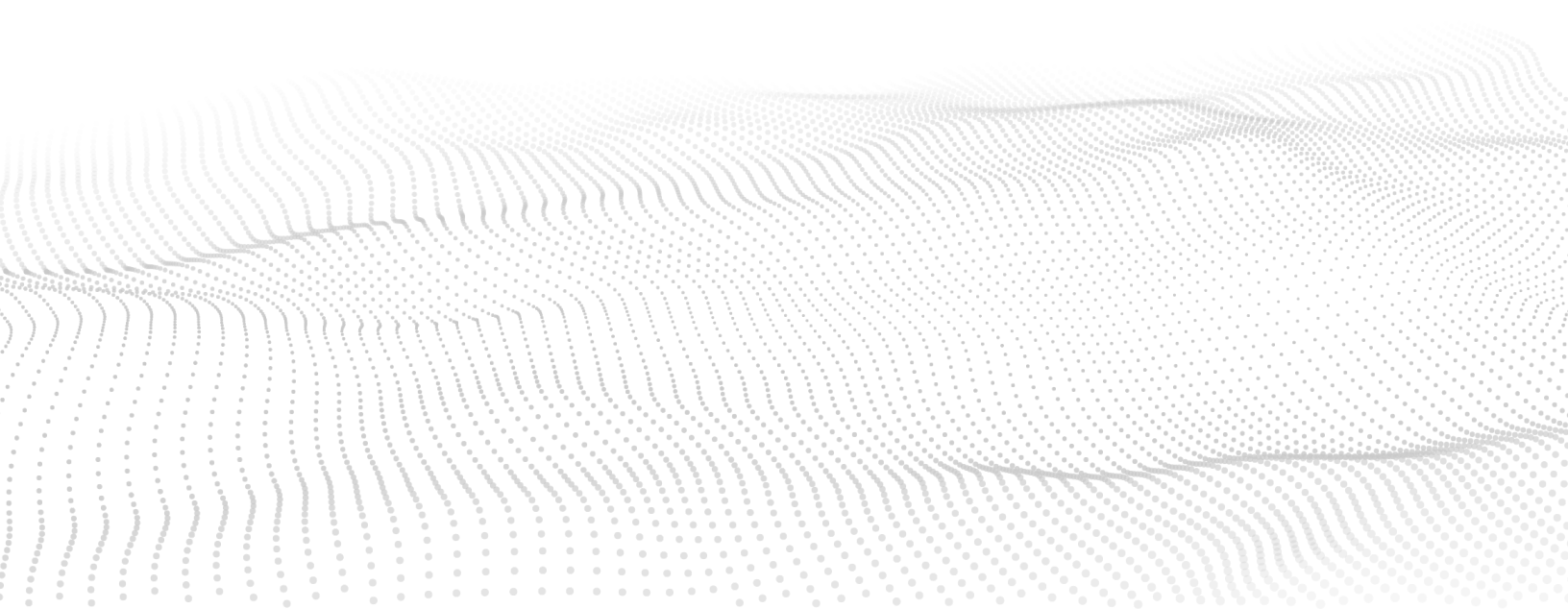


FEBRUARY 28, 2023



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Sunbiz FEIN	
Corporate License	
Broward License	
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2728 North University Drive, Suite 2700  
Coral Springs, Florida 33065  
P: 954.837.0030  
[carollo.com](http://carollo.com)

February 28, 2023

Jean Joinville, Senior Purchasing Agent  
The City of Hollywood  
2600 Hollywood Boulevard  
Hollywood, FL 33020

Subject: Qualifications for Water Treatment Plant and Wastewater Treatment Plant Projects -  
RFQ-041-23-JJ

Dear Selection Committee Members:

Carollo Engineers appreciates the opportunity to submit our Statement of Qualifications (SOQ) for the City of Hollywood's Continuing Contract for Water Treatment Plant and Wastewater Treatment Plant Projects. We are committed to bring the breadth and depth of our experience, together with the dedication of our team members, to any project that we are fortunate to work on.

Carollo has been serving Florida for 22 years, delivering quality projects, innovative ideas, and responsive services to utilities just like yours. We currently have 133 individuals throughout Florida, with 60 of those located in our three South Florida offices, all dedicated to Carollo's single focus – water and wastewater, providing perfect alignment and strong value to your Projects.

Like many of our Florida clients, the City of Hollywood is likely facing many interrelated challenges, including population growth, compliance with existing and future regulations, maintaining and upgrading existing infrastructure and facilities, and planning for the future. Access to experienced, reliable, and responsive professional engineering services is critical to the City in addressing these challenges. Furthermore, for you to succeed in achieving your goals and meeting your expectations, you need engineers who will put you first and that you can rely on. Our exceptional client service gives us nearly 100 percent repeat business because we live and die by our reputation in the water industry.

As you review our qualifications, we encourage you to ask yourself: "Why have so many clients across Florida turned to Carollo for their most important water and/or wastewater projects?" We are convinced it is because of our proven ability to creatively identify and cost-effectively implement the best solutions. We've always believed that this creativity and innovation is not a process, but rather the natural outcome of the enthusiasm of each Carollo employee – where we challenge ourselves to **"think differently"** when solving our clients' needs. This philosophy evolved out of necessity during our initial years as a company, around the great Depression of the 1930s, and has become the cornerstone of our culture.

We appreciate the opportunity to submit our Statement of Qualifications and look forward to further discussions.

Sincerely,

CAROLLO ENGINEERS, INC.

A handwritten signature in blue ink that reads "Lyle Munce".

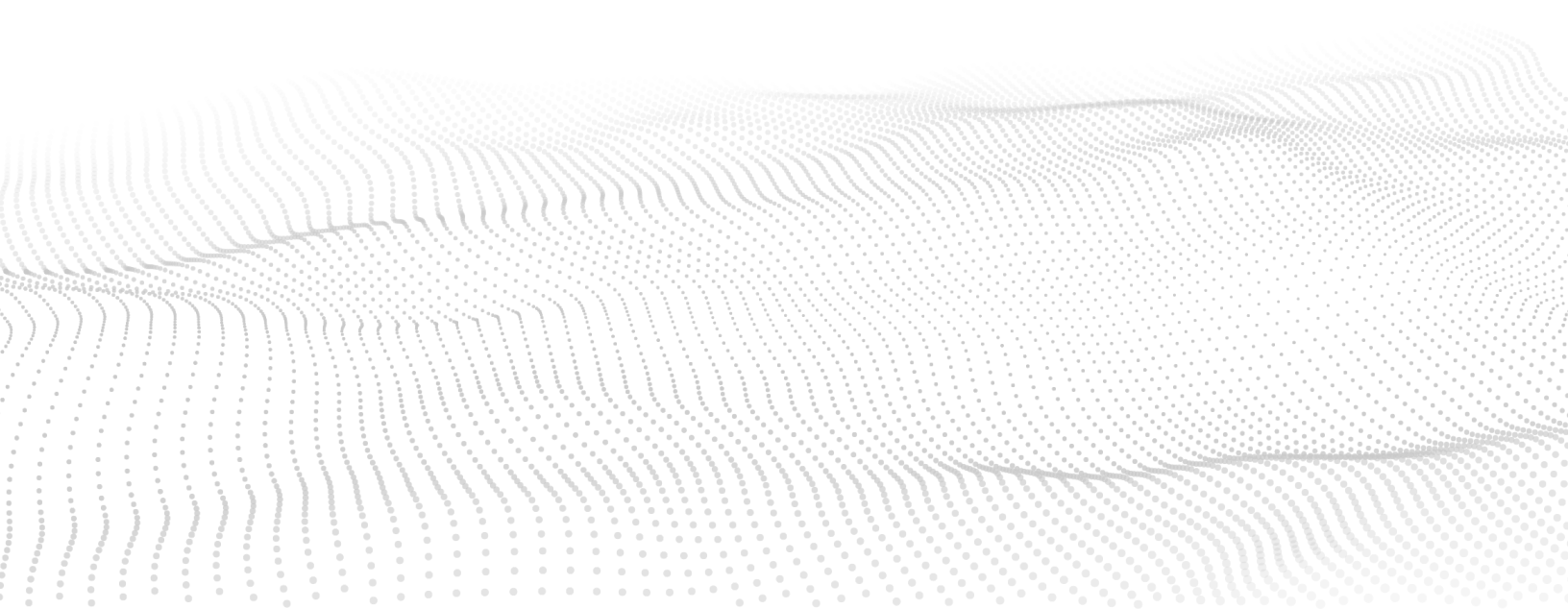
Lyle Munce, PE  
Contract Manager





# Tab B:

## Executive Summary



# Executive Summary

TAB B

In a world of generalists, a **Water Specialist** provides great value by delivering a **focused expertise** not available from other firms. At Carollo, **Water Is All We Do**. This unwavering commitment to the water industry has been the hallmark of the company since our inception in 1933.

## FIRM BACKGROUND

Carollo Engineers, Inc., is a nationally recognized firm that was established in 1933 to solely provide water, wastewater, stormwater, and reclaimed water-related services. Our Florida staff brings expertise on national technical and regulatory issues gathered from addressing the day-to-day needs of numerous utilities throughout the United States.

## WATER OUR FOCUS OUR BUSINESS OUR PASSION

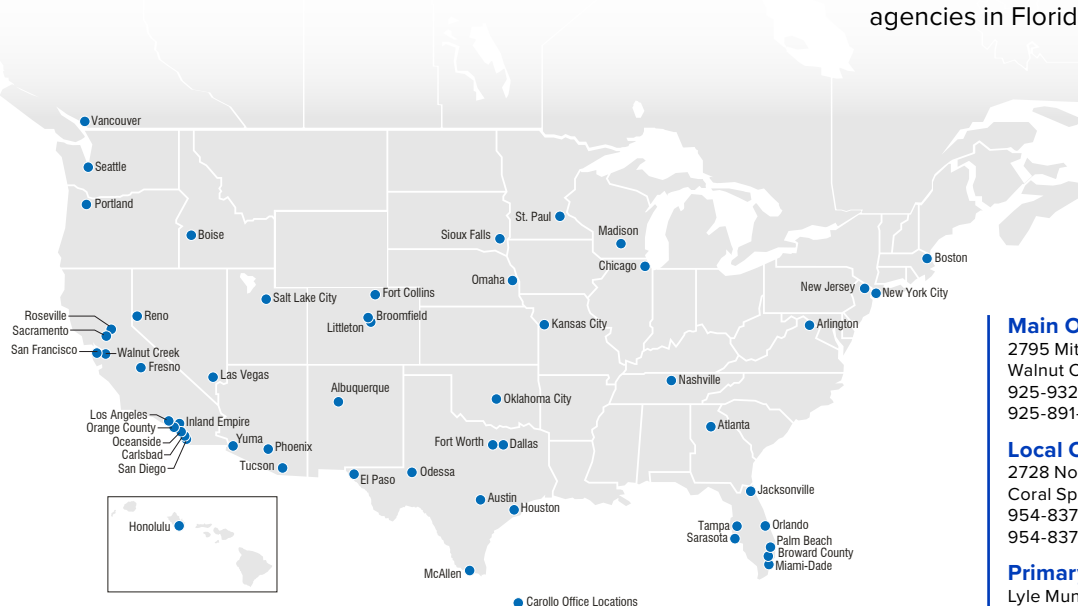
During our 90-year history, Carollo has completed more than 25,000 projects for public sector clients. Unlike the majority of our competitors, Carollo only provides water engineering services.

Over the decades, this singular focus has allowed us to make some unique commitments to both our clients and staff. It has opened the door to the very best talent in the water industry, helping us deliver innovative water solutions with unparalleled client service, and, while maintaining a collaborative and collegial working environment.

## Water and Wastewater Experts

Carollo Engineers is an environmental engineering firm specializing in the planning, design, and construction of water and wastewater facilities. Carollo's reputation is based upon client service and a continual commitment to quality. Consistent with our brand, we remain responsive to the needs of our clients as the industry leader in planning, permitting, design, and construction of facilities that reliably convey water across the United States.

Carollo is exclusively dedicated to water and wastewater engineering services, with more than 98 percent of our work completed for municipal client just like the City of Hollywood. We provide services similar to your professional services agreement for most of the major Water and Wastewater agencies in Florida.



### Main Office

2795 Mitchell Drive  
Walnut Creek, California 94598  
925-932-1710 (Ph)  
925-891-9107 (Fax)

### Local Office

2728 North University Drive, Bldg. 2700  
Coral Springs, Florida 33065  
954-837-0030 (Ph)  
954-837-0035 (Fax)

### Primary Contact

Lyle Munce, PE  
954-868-6404  
lmunce@carollo.com

## WHY ARE WE THE RIGHT TEAM FOR THE CITY?

### Key Project Team

Our team will deliver innovative water solutions with unparalleled client service. We are pleased to offer the following key staff, with over 200 years of combined experience to support your project.



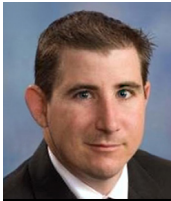
**Lyle** Munce, PE  
Contract Manager

38 Years of Experience  
Palm Beach, FL



**Bob** Ortiz, PE  
Project Manager Wastewater

46 Years of Experience  
Miami, FL



**Brian** LaMay, PE  
Lead Engineer Wastewater

25 Years of Experience  
Coral Springs, FL



**Chris** Reinbold, PE  
Project Manager Water

29 Years of Experience  
Palm Beach, FL



**Mike** Boaz, PE  
Lead Engineer Water

6 Years of Experience  
Palm Beach, FL



**Angelica** Gregory, PhD, PE  
Project Manager Infrastructure

20 Years of Experience  
Coral Springs, FL



**Lisa** Arroyo, PE  
Lead Engineer Infrastructure

21 Years of Experience  
Palm Beach, FL



**Gerry** Torres  
Project Manager QA/QC // Value  
Engineering and Construction Services

22 Years of Experience  
Tampa, FL

### OUR APPROACH

Our vision for this contract is to provide the City with the best and most innovative coverage of your needs. Through our 90-year history of providing engineering services to municipal water/wastewater utilities, we have developed an effective and unique business philosophy and approach to successfully delivering high quality projects that meet or exceed our clients' expectations. Here are a few examples of what sets us apart:

- **We step-in when you need us the most.** Our commitment to our clients extends to delivering fast-tracked and emergency projects, such as emergency response support after hurricane Ian and Michael.

- **We are at our best when we deliver projects that are not in your standards.** We bring innovative solutions to solve complex problems. We don't take a "cookie-cutter" approach on our projects.
- **We design using the RELI philosophy for long-term success.** RELI stands for Robust, Easy to operate and maintain, Logically laid out, and Innovative. Using the RELI design approach, we will deliver design excellence to your projects.

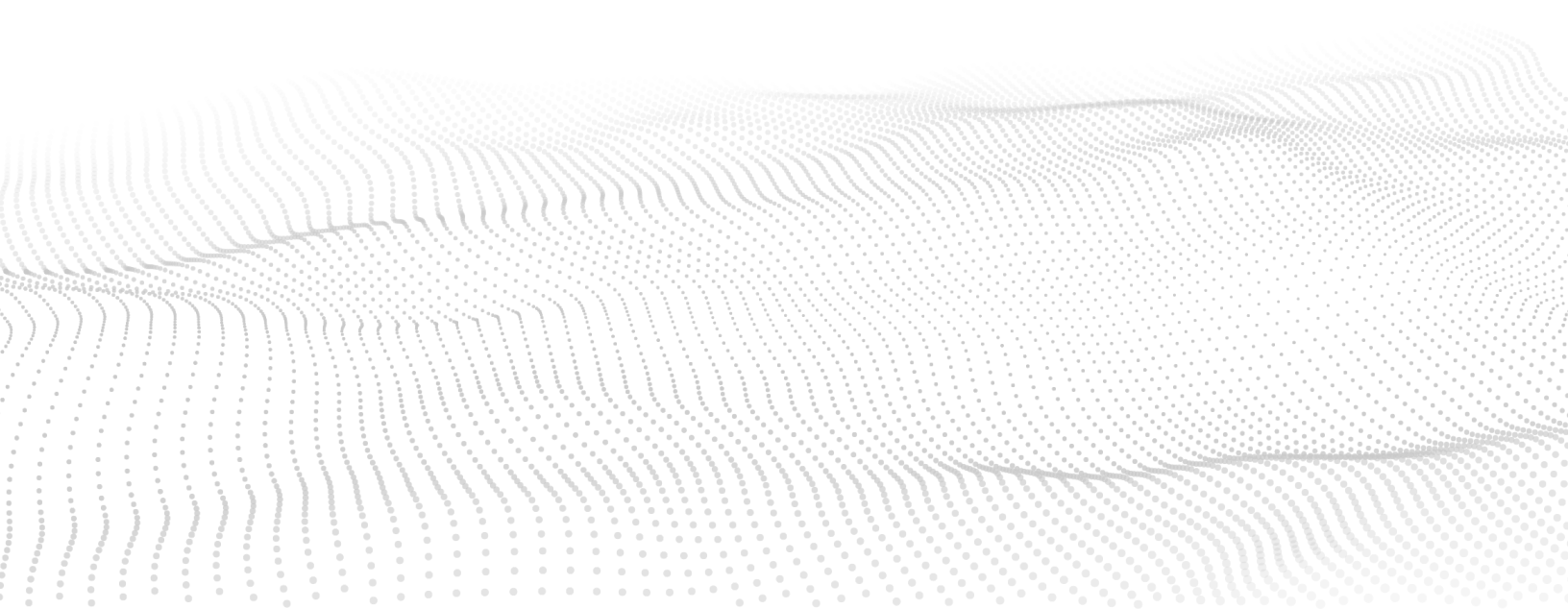
### Our References

Our clients say it best. We have not only provided references, but also included quotes from our clients and reference projects to demonstrate our experience, innovation, and dedication we bring to our projects.



# Tab C:

## Firm Qualifications and Experience



# Firm Qualifications and Experience

TAB C

**Carollo meets and exceeds the minimum requirements of this RFQ,** bringing over 90 years of experience serving public and private clients in the water and wastewater industry. Through our seven offices in the State of Florida, backed by additional offices and experts throughout the country, Carollo can provide a level of service, attention to detail, and knowledge of water and wastewater issues unique to Florida few can match.

## FIRM BACKGROUND

Carollo Engineers is a nationally recognized firm that was established in 1933 to solely provide water, wastewater, reclaimed water, and stormwater-related services.

**Unlike the majority of our competitors, Carollo only provides water engineering services.** We recruit nationwide and hire technical staff with extensive background and training specific to this field. For that reason, the quality and professional standing of our core group of water professionals equal or exceed that provided by some of the largest engineering firms in the country.

## EXTENSIVE ON-CALL ENGINEERING EXPERIENCE

Delivering engineering services through on-call continuing contracts is what we do. In fact, more than 80% of our Florida business is provided to municipal clients through on-call contracts similar to yours. We understand that the City is looking for a full range of professional engineering services to support the design and construction of various water and wastewater treatment projects, infrastructure projects and QA/QC and value engineering services. Carollo excels at delivering exceptional value for these types of assignments.

## WE MEET YOUR MINIMUM QUALIFICATIONS

- ✓ Carollo is a **Corporation** with 90 years in the industry
- ✓ Carollo is **Registered with the State of Florida**, Division of Corporations to do business in Florida
- ✓ **Broward County office is located at:** 2723 North University Drive, Bldg. 2700, Coral Springs, Florida 33065
- ✓ **Primary Contact is** Lyle Munce, Contract Manager  
(P) 954-837-0035, (F) 954-837-0035  
LMunce@carollo.com
- ✓ **Carollo website is** carollo.com
- ✓ **50+ Offices Nationwide, 7 offices in Florida**
- ✓ 1300+ employees nationwide, including **130 employees in the State of Florida**
- ✓ Carollo is **NOT submitting as a Partnership or LLC**



DELIVERING WATER /  
WASTEWATER SOLUTIONS



INCLUDING  
130+ EMPLOYEES IN FLORIDA



NATIONWIDE  
7 IN FLORIDA



WORKING IN  
SOUTH FLORIDA



FOCUSING SOLELY ON  
WATER / WASTEWATER

**We see water differently.**

## CAPABILITIES

With more than 1,300 employees in 50+ offices throughout the US, Carollo has successfully completed more than 25,000 projects for utilities like the City of Hollywood. Our staff includes civil, sanitary, environmental, electrical, mechanical, chemical, structural, and control system engineers, as well as architects, planners, and construction managers.

Many of our projects have been award-winning, comprehensive designs for agencies facing complex issues such as plant expansion and upgrades without interrupting plant operations, permit requirements, and efficient use of budget.

### Florida Presence

As illustrated in the map on the next page, Carollo has provided or is currently providing similar continuing engineering services for utilities throughout Florida.

### What Carollo Brings to the Table

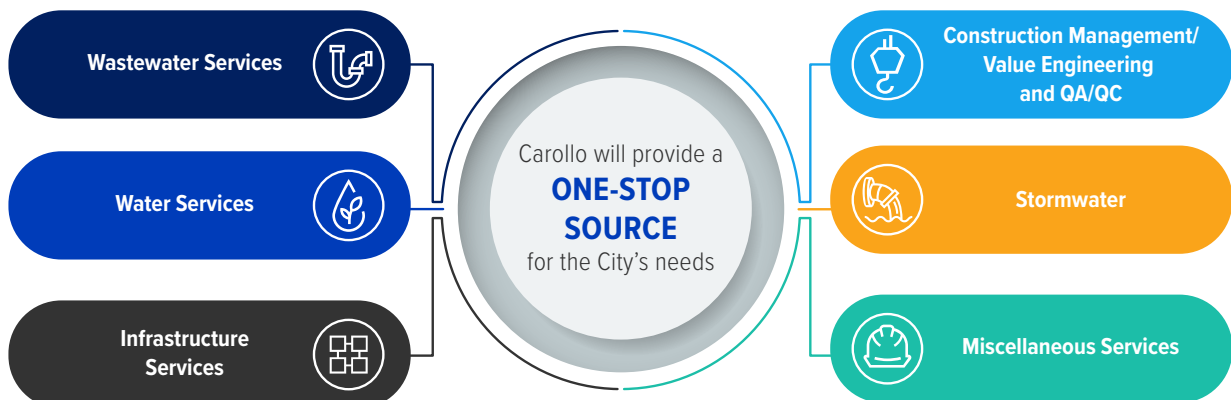
Carollo has experienced unprecedented growth nationally and throughout Florida; growth we believe is driven by our approach to client service and the innovative solutions we consistently bring to the table.

This growth is fueled by our ability to listen to our clients' needs and then respond with innovative solutions that ultimately solve the technical problem while reducing capital and operating costs as well as risk. When you contact our references, we are confident you will hear phrases that include the words "innovation," "responsiveness," and "integrity."

The best indicator of our ability to exceed the expectations of our clients is the fact that over 80% of our work comes from "repeat" clients. Exceeding expectations requires that project teams have multiple skills: technical knowledge, understanding of local issues, and a drive for **"OUT-OF-THE-BOX THINKING"** to find the best solutions.

## ENGINEERING SERVICES PROVIDED BY CAROLLO

- Master and Facility Planning
- Asset Management
- Vulnerability Assessments
- Hydraulic Modeling
- GIS
- Water and Wastewater Treatment Design
- Water and Wastewater Treatment Plant Optimization
- Multi-disciplinary Design
- Lime Softening
- Ozone/BAF
- Membrane Treatment
- Infrastructure Design
- Pumping System Design
- Water Supply
- Applied Research and Pilot Studies
- Water Reuse
- Renewable Energy Technologies
- Cost Estimates
- Electrical and Arc Flash Studies
- Instrumentation & Controls
- Structural Engineering
- Mechanical Engineering
- Financial Analysis
- Permitting Support
- Operations Support
- Grant Funding Assistance
- Construction Management





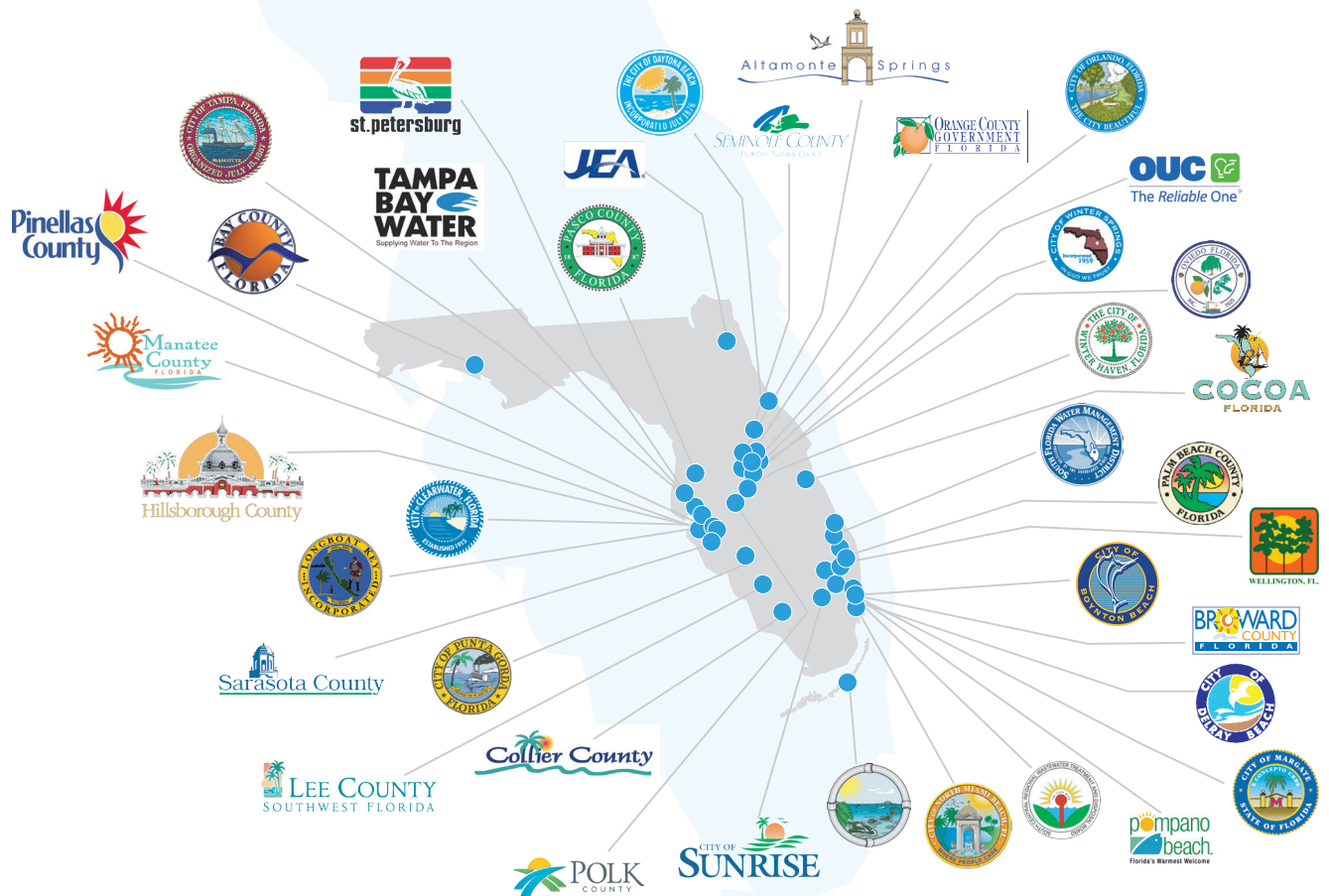
## SOLVING FLORIDA NEEDS WITH NATIONAL EXPERTISE

Carollo's recent relevant Florida water experience is broad, comprehensive, and brings valuable insights to your projects.

Since 2001, we have been providing study, design and construction management services throughout Florida, becoming the "go to" consultant for the most challenging assignments.

Frankly put, we are responsive to the needs of our clients, we customize our solutions to fit their needs (no cookie-cutter approach), and we listen carefully to learn from their experiences and to understand their preferences.

## CAROLLO PROVIDES SIMILAR PROFESSIONAL ENGINEERING SERVICES FOR NUMEROUS UTILITIES THROUGH FLORIDA



**CAROLLO'S CURRENT ONGOING PROFESSIONAL SERVICES LIBRARY  
CONTRACTS IN THE STATE OF FLORIDA**

Contract Name	Reference	Type of Service(s) Provided		
		Water Treatment	Wastewater Treatment	Distribution/ Collection/ Pumping
City of Boynton Beach – WTP Improvements and General Consulting Services	Colin Groff, Assistant City Manager Ph: 561-742-6401   groffc@bbfl.us	•	•	•
Broward County – Pump Stations and Storage Tanks	Rolando Nigaglioni, Planning and Development Manager Ph.: 386-671-8825   pointzs@codb.us	•		•
South Central Regional Wastewater Treatment and Disposal Board General Engineering Consulting Services Wastewater	Doug Levine, Chief of Operations Ph: 561-272-7061   dlevine@scrwwtp.org		•	
Florida Keys Aqueduct Authority General Engineering Services	Joshua Peele, Engineering Projects Administrator Ph: 305-809-2636   jpeele@fkaa.com			•
City of Pompano Beach Engineering Services for W/ Water Reuse (2015)	Randy Brown, Utilities Director Ph: 954-545-7044   randolph.brown@copbfl.com	•		•
City of Punta Gorda Eng-Library / 1011	Steve Adams, Utility Engineering Manager 941-575-3325   SAdams@cityofpuntagordafl.com	•	•	•
Hillsborough County 2016 Bond Engineer Contract	George Cassady, Utility Director Ph: 813-272-5977   cassadyg@hillsboroughcounty.org	•	•	•
JEA General Engineering Services for Water, Wastewater, and Reclaimed Water Projects	Deryle Calhoun, Director of Water & Wastewater Treatment Ph: 904-665-8455   calhdi@jea.com	•	•	•
Lee County Engineer-of-Record – Water and Wastewater Services	Charlie Duverge, PE, Project Manager Ph: 239-533-8181   cduverge@leegov.com	•	•	•
Town of Longboat Key 2016 Professional Engineering Services Library	Bert Warner, Public Works Utilities Manager Ph: 941-316-6411   bwarn@longboatkey.org	•	•	•
Manatee County 2016 Engineer-of-Record Contract	Jeffrey Goodwin, Division Director Ph: 941-792-8811   jeff.goodwin@mymanatee.org	•	•	•
Margate General Engineering Services for Water and Wastewater	Reddy Chitepu, Director Ph: 954-979-1872   rchitepu@margatefl.com	•	•	•
Orange County Utilities Water/Wastewater Facilities Program Management	Mark Ikeler, Chief Engineer Ph: 407-254-9705   markc.ikeler@ocfl.com	•	•	•
City of Orlando 2015 Continuing Professional Wastewater Engineering Services	Kristi Fries, Project Manager Ph: 407-246-3353   kristina.fries@cityoforlando.net		•	•
City of Oviedo Continuing Engineering Services Contract	Bobby Wyatt, Public Works Director Ph: 407-971-5648   bwyatt@cityofoviedo.net	•	•	•
Pasco County Continuing Professional Services – RSQ-SS-15-034	Sarah Rodriguez, Engineering Manager Ph: 727-464-5209   dglaser@pascocountyfl.net	•	•	•
Pinellas County Utilities Engineering Consulting Services	Daniel Glaser, PE, Senior Engineer Ph: 727-453-3019   mengelma@pinellascounty.org	•	•	•
Polk County SCADA Continuing Services	Mark Addison, Utilities Environmental Manager Ph: 863-298-4214   MarkAddison@polk-county.net	•	•	•
Sarasota County 2015 Engineering Services – Utilities	Greg Rouse, Manager, Utilities/Environmental Ph: 941-861-0548   grouse@scgov.net	•	•	•
City of Daytona Beach – Continuing Professional Engineering Services for Potable Water and Wastewater	Shannon Ponitz, Utilities Engineering Manager Ph.: 954-831-0882   rnigaglioni@broward.org	•	•	•

## CAROLLO'S EXPERIENCE WITH WATER TREATMENT

Client / Project Name	Relevant Experience			
	Rated Capacity (mgd)	Design	Operations	Maintenance
City of Boynton Beach, FL – WTP Plants Improvements	20	🔵	🔵	🔵
Broward County, FL – Potable Water Storage Tanks and Pumping Station	Various		🔵	🔵
City of Sunrise, FL – Springtree WTP Improvements	25	🔵	🔵	🔵
City of Sunrise, FL – Springtree 4–log Compliance for RO WTP	25	🔵		
City of Sunrise, FL – Springtree WTP and Sawgrass WTP Expansions	49 (comb)	🔵	🔵	
City of Pompano Beach, FL – Nanofiltration vs. Softening Evaluation	10	🔵	🔵	🔵
City of Pompano Beach, FL – Concentrate Disposal	10		🔵	🔵
City of Pompano Beach, FL – Transfer Pump Station Expansion	10		🔵	🔵
City of Pompano Beach, FL – WTP Electrical System Master Plan and Upgrades	10	🔵	🔵	🔵
City of Delray Beach, FL – Filter Valves and Clarifier Upgrade	12	🔵		🔵
Palm Beach County WUD, FL – WTP No. 2 Filter Replacement and Ion Exchange	16	🔵	🔵	
South Florida Water Management District, FL – L–8 Reservoir Pump Station	290		🔵	🔵
South Florida Water Management District, FL – S–470 Reservoir Pump Station	970		🔵	🔵
City of North Miami Beach, FL – Lime Feed Improvements	15			🔵
Miami–Dade Water and Sewer Department, FL – Preston Hialeah WTP Improvements	225	🔵	🔵	🔵
Miami–Dade County, FL – Hialeah & Preston WTPs Comprehensive Study	225		🔵	
Miami–Dade County, FL – Design of New 165 mgd NF WTP in NW Wellfield	165	🔵		
Palm Beach County, FL – WTP No. 2, 3, 8 & 9	103 (comb)		🔵	
Sarasota County, FL – Dona Bay Treatability Study	N/A		🔵	
Manatee County, FL – Lake Manatee WTP Filter Upgrade	54	🔵	🔵	🔵
Tampa Bay Water, FL – Engineered Biofiltration Pilot Study	N/A			
Southern Nevada Water Authority, NV – Alfred Merritt Smith WTP	624	🔵	🔵	🔵
City of Los Angeles DWP – Los Angeles, CA – Aqueduct Filtration Plant	600	🔵	🔵	
Metropolitan Water District of Southern California, CA – Weymouth WTP	520	🔵	🔵	🔵
City of Houston, TX – Northeast Water Purification Plant	400 (ult)	🔵		
City of Austin, TX – WTP 4	300	🔵	🔵	
City of Tacoma, WA – Green River WTP	190	🔵		🔵
Dallas Water Utilities, TX – Bachman WTP	160	🔵	🔵	
City of Phoenix, AZ – Union Hills WTP	160		🔵	🔵
Metropolitan Water District of Salt Lake and Sandy, UT – Point of the Mountain WTP	150 (ult)	🔵		🔵
City of Oklahoma City, OK – Lake Stanley Draper WTP	150	🔵	🔵	
City of Scottsdale, AZ – Central Arizona Project and Chaparral Surface WTPs	130	🔵	🔵	🔵
Central Utah Water Conservancy District, UT – Utah Valley WTP	120		🔵	
Kern County Water Agency, CA – Henry C. Garnett WPP	105	🔵	🔵	
City of Phoenix, AZ – Deer Valley WTP	100	🔵	🔵	🔵
City of Arlington, TX – John F. Kubala WTP	97.5	🔵	🔵	



## CAROLLO'S EXPERIENCE WITH WASTEWATER TREATMENT

Client / Project Name	Relevant Experience		
	Design	Operations	Maintenance
Miami–Dade Water and Sewer Department, FL – South District WWTP	●	●	●
City of Pompano Beach, FL – Reuse Treatment Plant	●	●	●
City of Del Ray Beach, FL – South Central Regional WWTP		●	●
Sarasota County, FL – Central County WRF Phase 2 Expansion	●	●	●
Sarasota County, FL – Central County WRF Phases 3 & 4 Expansion	●	●	●
MSKP Town and Country, FL – Babcock Ranch WRF	●	●	
Manatee County, FL – Southwest WRF Facility Optimization, BNR Training, and EOM	●	●	●
Toho Water Authority, FL – Sandhill WRF	●	●	●
Toho Water Authority, FL – South Bermuda WRF Expansion from 14 to 16-mgd	●	●	●
City of Daytona Beach, FL – Westside Regional WRF Improvements	●	●	●
Pasco County, FL – Wesley Center WWTP Rehabilitation and Expansion	●	●	●
Collier County, FL – Northeast WRF	●	●	●
City of Chandler, AZ – Ocotillo WRF Process Improvements	●	●	●
City of Leesburg, FL – Turnpike WWTP	●		
City of Margate, FL – East WWTP	●	●	●
City of Margate, FL – West WWTP	●	●	●
City of Orlando, FL – Conserv II WRF	●		
City of Orlando, FL – Iron Bridge Regional WRF	●		
Hillsborough County, FL – Valrico Advanced WWTP	●	●	●
Regional San, Sacramento, CA – EchoWater Tertiary Treatment Facilities	●	●	●
MWRD, Denver, CO – North and South Secondary Treatment Complexes	●	●	●
OCSD, Fountain Valley, CA – Plant No. 2 Headworks Replacement	●	●	●
NTMWD, Wylie, TX – Wilson Creek RWWTP Expansion	●	●	●
City of Casa Grande, AZ – WRF Expansion	●	●	●
City of Mesa, AZ – Greenfield WRP Phase III Expansion	●	●	
Pasco County, FL – Wesley Center WWTP Expansion and Rehabilitation	●	●	●
City of Mesa, AZ – Northwest WRP Tertiary Filter Design	●	●	●
NTMWD, Wylie, TX – Panther Creek RWWTP Expansion	●	●	●
City of Sedona, AZ – WWRP Tertiary Filter Predesign	●	●	●
NTMWD, Wylie, TX – Stewart Creek West WWTP Expansion	●	●	●

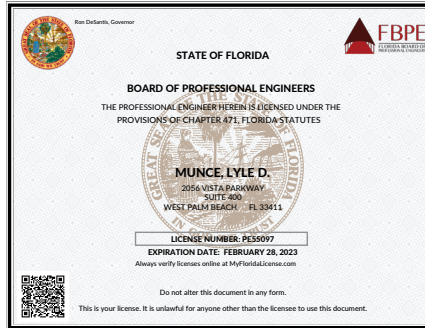
**CAROLLO'S EXPERIENCE WITH WATER DISTRIBUTION,  
WASTEWATER COLLECTION, PUMPING FACILITIES  
AND MODELING**

Client / Project Name	Relevant Experience			
	Water Distribution	Wastewater Collection	Pumping Facilities	Modeling
Florida Keys Aqueduct Authority, FL – Grass Key Transmission Main Replacement	●			●
Florida Keys Aqueduct Authority, FL – CR-905 and Reef Road/US 1 Crossing		●		
Toho Water Authority – FL LS57 Force Main		●		●
Florida Keys Aqueduct Authority, FL – Trumbo Point Pump Station and Tank Replacement			●	
Florida Keys Aqueduct Authority, FL – Stock Island Distribution Pump Station			●	
City of Sunrise, FL – Sawgrass WTP Rerate Improvements			●	
City of Sunrise, FL – Springtree WTP Operations Building and HSP-A			●	
Broward County, FL – Districts 1B1 and 3A: High Service Pump Stations and Ground Storage Tanks			●	
Palm Beach County, FL – WTP 2 Filter Replacement			●	
Sarasota County, FL – MLK, Way FM Replacement		●		
Pasco County, FL – SEWWTP Improvement and Expansion		●		
King County WW Treatment Division, WA, Eastside Interceptor Rehab		●		
Albuquerque Bernalillo County Water Utility Authority, NM – Large Diameter Interceptor Rehabilitation		●		
City of Las Vegas, NV – Downtown Interceptor Sewer Condition Assessment and Rehab		●	●	●
City of Kansas City, MO – Second Creek Interceptor Sewer		●	●	
City of Modesto, CA – Carpenter/Emerald Road Trunk Relief		●		
City of Kansas City, MO – Santa Fe Pump Station CSO Improvement			●	
City of Henderson, NV – Effluent Pump Station			●	
City of Riverside, CA – Sewer Force Main Emergency Repair and Rehab			●	
King County WW Treatment Division, WA – Large Force Main Emergency Repair		●		
Trinity River Authority, TX – Elm Fork Interceptor Rehab		●		
City of Santa Cruz, CA – Brommer/Hidden Beach Pump Station			●	
Sausalito-Marín City Sanitary District, CA – Main Street Pump Station Rehabilitation			●	
City of Simi Valley, CA – Sanitation Sewer Trunk Rehabilitation Capital Improvements		●		
City of Fresno Fruit Ave & Illinois/Recreation Ave Sewer Rehab, CA		●		
Clark County Water Reclamation District, NV - Laughlin Lift Stations No. 1 and 3 Rehabilitation			●	
City of Stockton, CA – Stockton Westside Sewer Improvements			●	
City of Modesto – River Trunk Rehab		●		
City of Modesto – River Trunk Gravity Sewer Improvements		●		
Central Contra Costa Sanitary District, CA – Line Relief Interceptor Phase 2A, CA		●		

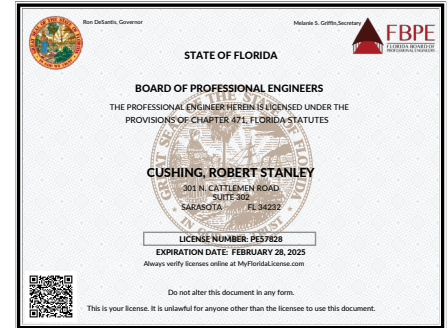
# LICENSES AND CERTIFICATIONS

Carollo

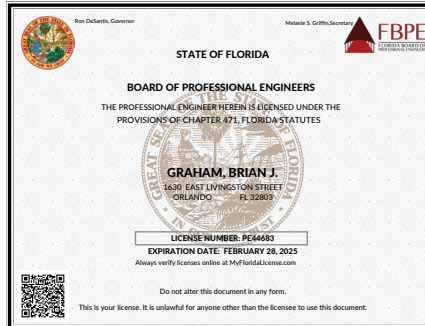
All team members have a current PE license. Some are in the process of being renewed at time of submission.



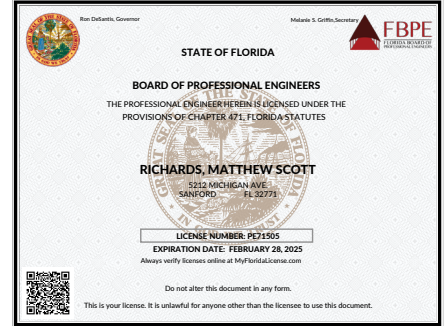
Lyle Munce PE55097



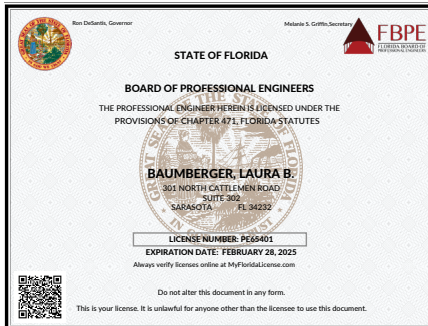
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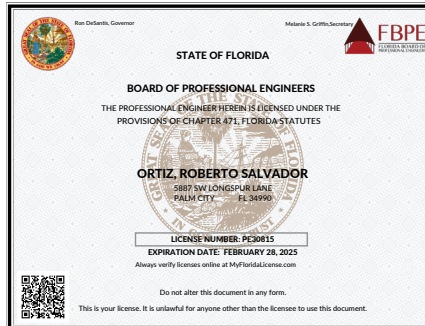
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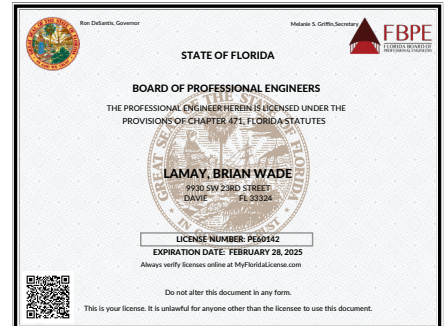
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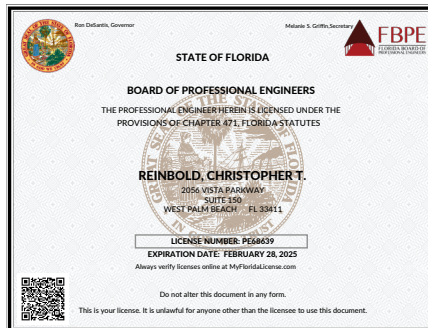
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Bob Ortiz PE30815



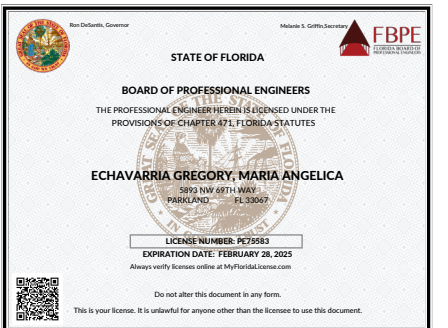
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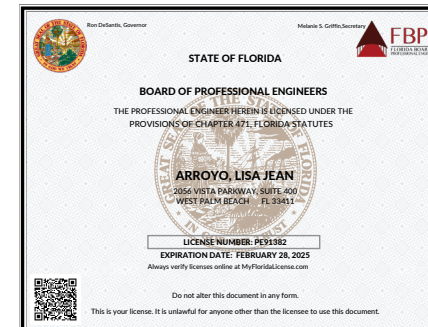
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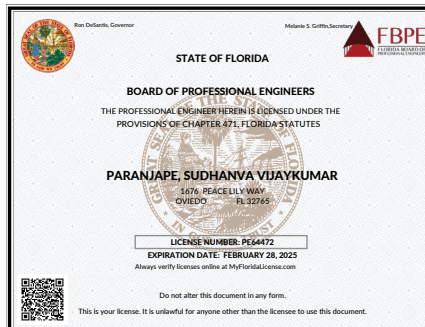
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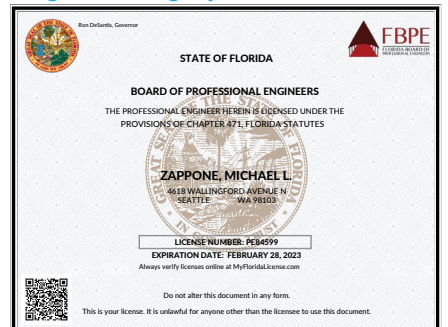
Angelica Gregory PE64472



Lisa Arroyo PE91382

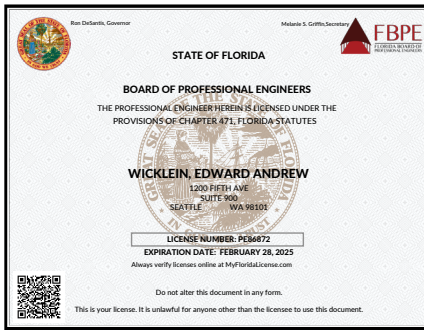


Sudhanva Paranjape PE64471

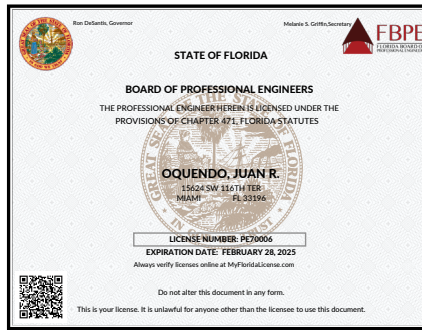


Mike Zappone PE84599





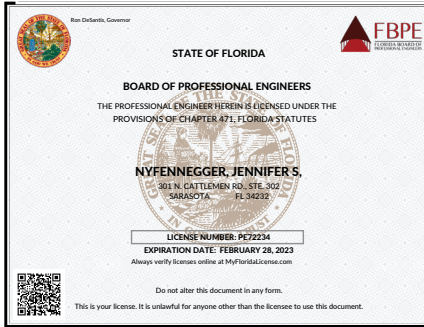
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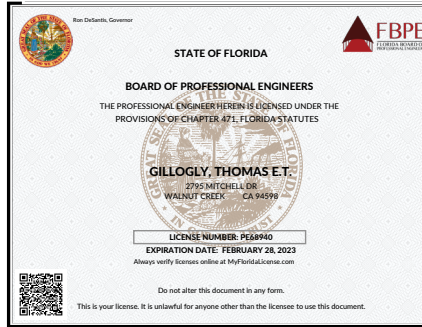
Juan Oquendo PE70006

Licensee Information	
Name:	HOUGH, STEPHEN G. (Primary Name)
Main Address:	9892 DEERHAVEN DRIVE SANTA ANA California 92705
County:	OUT OF STATE
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License Type:	Professional Engineer
Rank:	Prof Engineer
License Number:	77119
Status:	Current/Active
Licensure Date:	01/24/2014
Expires:	02/28/2025

Steve Hough PE77119



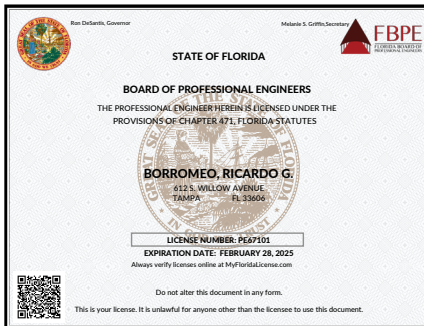
Jennifer Nyfennegger PE72234



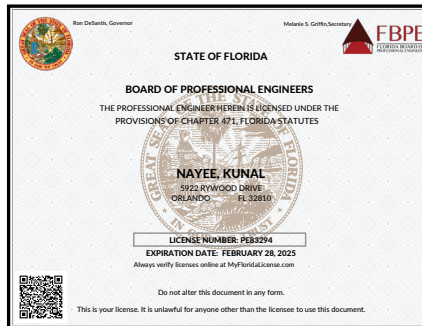
Thomas Gillogly PE68940

Licensee Information	
Name:	YALLALY, BRANDON CHARLES (Primary Name)
Main Address:	1025 N. PINNACLE WAY EAGLE Idaho 83616
License Information	
License Type:	Professional Engineer
Rank:	Prof Engineer
License Number:	60307
Status:	Current/Active
Licensure Date:	06/23/2003
Expires:	02/28/2023

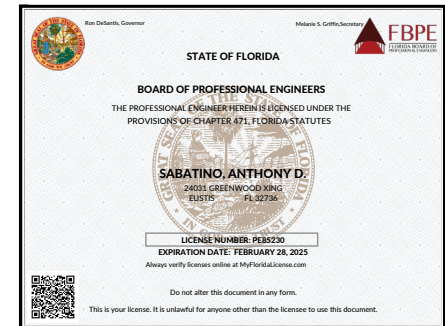
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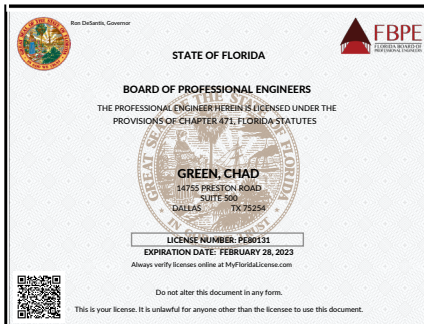
Ricardo Borromeo PE67101



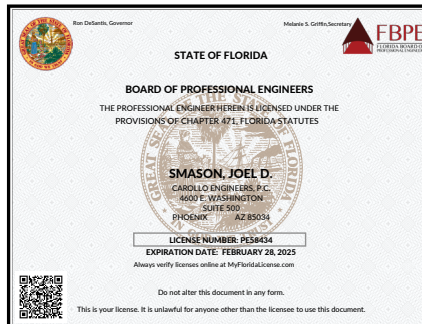
Kunal Nayee PE83294



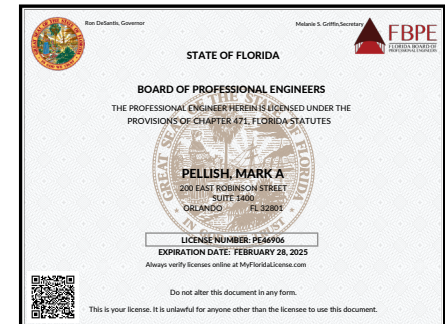
Tony Sabatino PE85230



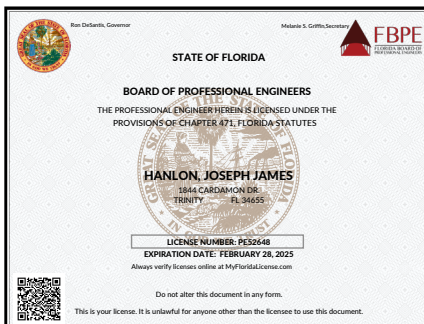
Chad Green PE80131



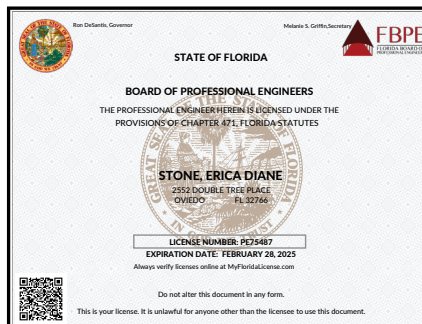
Joel Smason PE58434



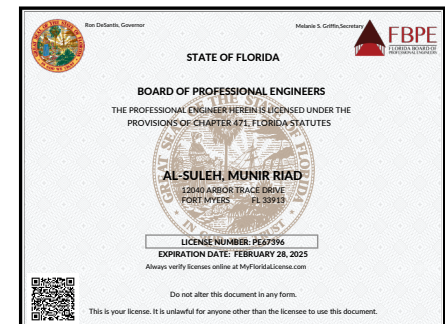
Mark Pellish PE46906



Joseph Hanlon PE52648



Erica Stone PE75487



Munir Al-Suleh PE67396

# LICENSES AND CERTIFICATIONS

## Subconsultants

### Engenuity Group

Detach Here

Florida Department of Agriculture and Consumer Services  
Division of Consumer Services  
Board of Professional Surveyors and Mappers  
2005 Apalachee Pkwy Tallahassee, Florida 32309-6500

License No.: **LB6603**  
Expiration Date: February 28, 2025

**Professional Surveyor and Mapper Business License**  
Under the provisions of Chapter 472, Florida Statutes

ENGENUITY GROUP INC.  
1280 N CONGRESS AVE STE 101  
WEST PALM BEACH, FL 33409-6377

*Nicole Fried*  
NICOLE "NIKKI" FRIED  
COMMISSIONER OF AGRICULTURE

This is to certify that the professional surveyor and mapper whose name and address are shown above is licensed as required by Chapter 472, Florida Statutes.

### Tierra South Florida

STATE OF FLORIDA

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

**KRISHNASAMY, RAJ**  
2745 VISTA PARKWAY, SUITE 9  
WEST PALM BEACH, FL 33411

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### Raj Krishnasamy PE35567

### Tetra Tech

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**CASHE, RODERICK KENNETH**  
1219 RED DANDY DRIVE  
ORLANDO, FL 32818

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### Kenneth Roderick PE45169

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**CHRISTOPHER, JAMES EDWARD**  
2175 DEER HOLLOW CIRCLE  
LONGWOOD, FL 32776-0000

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### Edward Christopher PE34204

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**KINSLAW, JARRETT KARL**  
1899 POWERS LANE RD SE  
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ATLANTA, GA 30339

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### Karl Kinslow PE63900

8/24/2021 Related License Information [Print](#)

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Rank:	<b>Registry</b>	License Expiration Date:	
Primary Status:	<b>Current</b>	Original License Date:	<b>05/10/1977</b>

Related License Information

License Number	Status	Related Party	Relationship Type	Relation Effective Date	Rank	Expiration Date
70052	Current, Active	BROWNLEE, WILLIAM ROBERT	Registry	08/11/2009	Professional Engineer	02/28/2023

STATE OF FLORIDA

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**KEENAN, BRENDA L**  
14430 GOLDEN RAIN TREE BLVD  
ORLANDO, FL 32828

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### Brenda Keenan PE69271

### Water Science Associates

**State of Florida  
Department of State**

I certify from the records of this office that WATER SCIENCE ASSOCIATES, INC. is a corporation organized under the laws of the State of Florida, filed on August 9, 2013.

The document number of this corporation is P1300066587.

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 11, 2022, and that its status is active.

I further certify that said corporation has not filed Articles of Dissolution.

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

*Randy Rife*  
Secretary of State

Tracking Number: 21172596SC  
To authenticate this certificate, visit the following site, enter this number, and then follow the instructions displayed.  
<https://services.sunbiz.org/Filings/CertificateOfStatus/CertificateAuthentication>

STATE OF FLORIDA  
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION

BOARD OF PROFESSIONAL GEOLOGISTS  
THE PROFESSIONAL GEOLOGIST HEREIN IS LICENSED UNDER THE PROVISIONS OF CHAPTER 492, FLORIDA STATUTES

**MARTIN, WILLIAM KIRK**  
CDM SMITH INC  
WATER SCIENCE ASSOCIATES, INC.  
11819 NW 27TH PL  
CAPE CORAL, FL 33913

LICENSE NUMBER: PG79  
EXPIRATION DATE: JULY 31, 2024  
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### Kirk Martin PG79

**SOUTH FLORIDA WATER MANAGEMENT DISTRICT**

March 27, 2020

REGISTERED VENDOR NO.: 120107

CERTIFICATION EXPIRATION DATE  
March 27, 2023

Tracy Russell, Office Manager  
Water Science Associates, Inc.  
13620 Metropolis Ave # 110  
Fort Myers, FL 33912

Dear Ms. Russell:

Congratulations, the South Florida Water Management District (District) has recertified your firm as a Small Business Enterprise (SBE). This certification is valid for three (3) years and may **only** be applied when business is conducted in the following area(s):

**Professional Engineering & Geological Consulting Services**

Your submittal of bids or proposals to supply other products or services outside of the specialty area(s) noted above will not count toward SBE participation. If you require certification in other specialty areas, please contact the Procurement Bureau, SBE Section, for additional information.

Renewal is required every three (3) years and should be requested a minimum of 45 days prior to the above expiration date.

If any changes occur within your company during the certification period such as ownership, affiliate company status, address, telephone number, licensing status, gross revenue, or any information that relates to your SBE Certification status, you must notify this office in writing immediately. It is imperative that we maintain current information on your company at all times. **FAILURE TO REPORT CHANGES MAY RESULT IN DECERTIFICATION.**

Certification is not a guarantee that your firm will receive work, nor an assurance that your firm will remain in the District's vendor database.

We look forward to a mutually beneficial working relationship.

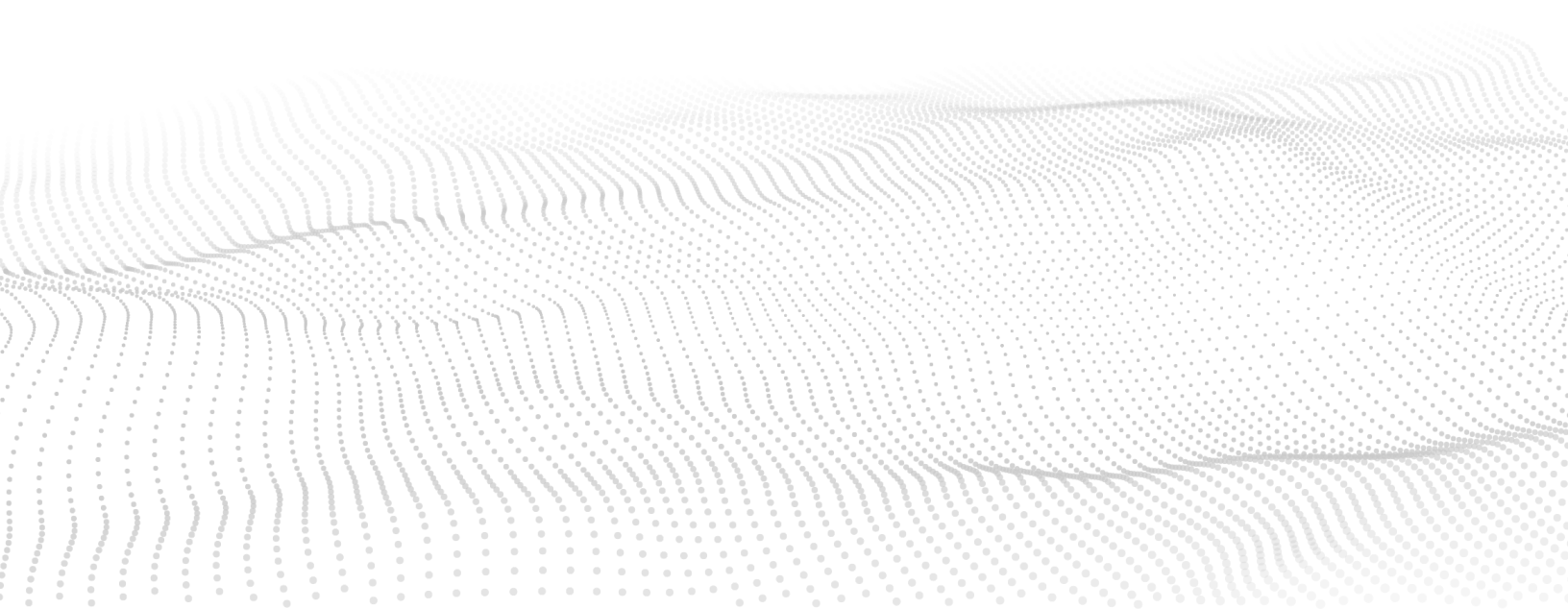
Sincerely,

Joni Lynn Fox  
Sr. Contract Compliance Specialist  
Procurement Bureau

JLFFk



## **Tab D:** Organizational Profile and Project Team Qualifications

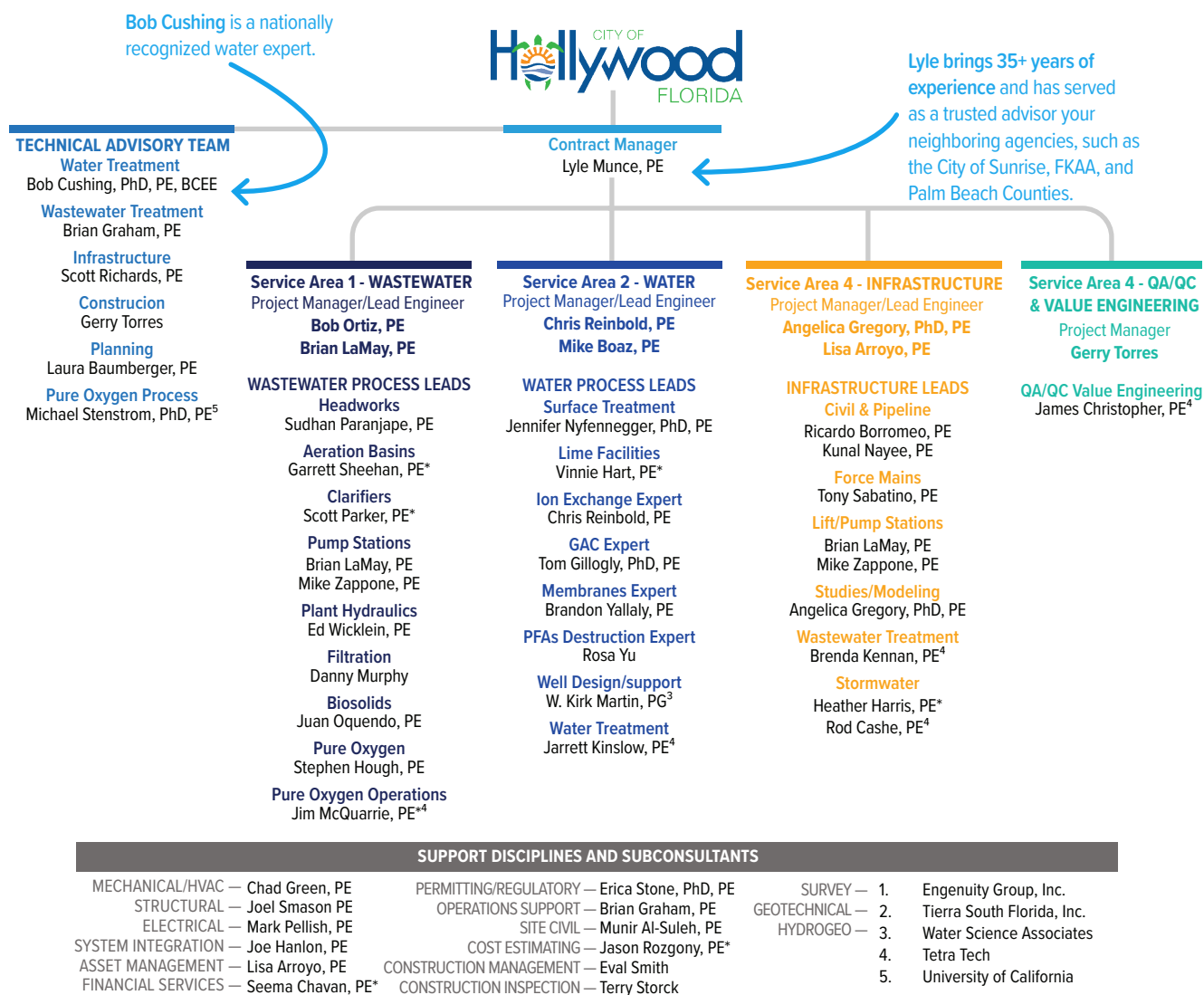


# Organizational Profile and Project Team Qualifications

TAB D

**A Team of specialized experts dedicated to the City.** Carollo assigns personnel to a project who possess specific experience related to that project and whose availability you can count on from the onset of the work through successful completion.

With a singular focus on the water industry, Carollo has a depth of talent that is second to none. We provide a local team with extensive experience delivering successful projects for utilities throughout South Florida. The Carollo team has dedicated professionals in all key areas and blends local knowledge and responsiveness with nationally recognized expertise.



CITY OF HOLLYWOOD // WATER TREATMENT PLANT AND WASTEWATER TREATMENT PLANT PROJECTS

## KEY PERSONNEL

We have the breadth of experience needed to meet the upcoming needs of your continuing services contracts. The team will be led by our **Contract Manager, Lyle Munce**. Lyle, a Senior Vice President with Carollo, has 35 years of experience (16 with Carollo in our Palm Beach office) in municipal water and wastewater systems in the state of Florida. He has a proven track record of managing water and wastewater treatment and infrastructure projects and continuously demonstrates his ability to coordinate project team members to meet schedules on challenging projects.

As Contract Manager, Lyle will commit Carollo's resources, promote a strategy that meets project schedule and budget, review all work deliverables to ensure that technical quality and the City of Hollywood's standards are met, and maintain good communication with the team that incorporates the City's input.

Our job is to identify your project expectations and determine the best way to deliver them to you.

## Management Plan

Carollo's management philosophy is founded on simple precepts:

### Hire and hold on to the best people in the business.

The most critical element for a successful project is the individuals doing the work. Carollo aggressively recruits highly experienced and successful engineers along with the top engineering graduates entering the work force. Our training and mentoring process allows younger engineers to become industry leaders. We also create successful teaming environments by developing communication skills and a commitment to building and maintaining lasting client relationships.

### Specialize in the planning, design, and construction management of water projects.

This is our core business. Our success hinges solely upon our ability to provide cost-effective and responsive service to our clients.

**Focus on client service.** Carollo knows the value of listening to our clients and recognizes that successful projects result from our staff working as an extension of your staff. This commitment to listening and valuing client input is the cornerstone of Carollo's 90 years of success. We take pride in the large number of clients with whom we have maintained continuing relationships. We have worked with some clients for over seven decades—validating the quality of our work, cost control, and ability to meet schedules. We strive to live up to our mission statement, "Dedicated to creative, responsive, quality water solutions to those we serve."



# Team Member Resumes

## Carollo Resumes



## Lyle Munce, PE

CONTRACT MANAGER

### YEARS WITH FIRM

16 years (38 years total experience)

### REGISTRATION / LICENSES

Professional Registration, FL #55097

### EDUCATION

MS Sanitary Engineering  
BS Civil Engineering

### OFFICE LOCATION

West Palm Beach, FL

### AVAILABILITY

85%

Lyle has 38 years of environmental/civil engineering experience, with an emphasis on municipal water systems. Throughout his career, he has served as client manager, project manager, project engineer, quality control coordinator, technical reviewer, and construction manager for numerous multi-disciplinary water related projects. He has a successful track record managing large, complex projects for clients throughout Southern Florida.

### RESPONSIBILITIES

Lyle will serve as the contract manager. He will make sure that the work plans and quality assurance/quality control (QA/QC) processes are followed and that project staffing commitments are in place. As a Senior Vice President, Lyle has the authority to dedicate all necessary firm-wide resources for the projects under this contract.

### RELEVANT PROJECTS

#### **Fiveash Water Treatment Plant Granular Activated Carbon and Plant Evaluation // City of Fort Lauderdale, FL**

Project manager. Project consists of an evaluation of the existing treatment plant to determine best treatment options to meet future potable water demand. Project includes condition assessment of existing facilities, bench-scale treatment studies, alternate facility location study, water supply evaluation, and cost estimating.

#### **Springtree Water Treatment Plant Improvements // City of Sunrise, FL**

Project manager. Project elements include general renewal and replacement of the 24-mgd lime softening facility, design of a fluidized bed ion exchange treatment system, a 1.5-mgd reverse osmosis treatment system and the re-purposing of an existing aquifer storage recharge (ASR) well to a Floridan production well. General site improvements included stormwater management system redesign.

#### **Kermit H. Lewin Reverse Osmosis Facility // FKA, FL**

Principal-in-charge/project manager. Conceptual, preliminary, and final design, engineering services during construction, start-up, and commissioning for the new RO facility constructed at the current FKA Stock Island utility site. The new facility will replace the existing 2-mgd seawater desalination plant with a new 4-mgd facility.

#### **Water Treatment Plant Magnetic Ion Exchange Treatment System No. 2 // Palm Beach County WUD, FL**

Project manager. Responsible for design of a 16.4-mgd MIE treatment system to achieve color reduction and dissolved organic carbon removal from the source water, as well as reduce disinfection byproducts (DBPs).



## Bob Ortiz, PE

PROJECT MANAGER - WASTEWATER

### YEARS WITH FIRM

4 years (49 years total experience)

### REGISTRATION / LICENSES

Professional Registration, FL #30815

### EDUCATION

MBA Business Administration  
MS Environmental Engineering  
BS Civil Engineering

### OFFICE LOCATION

Miami, FL

### AVAILABILITY

90%

Bob has over 49 years of experience in major environmental and infrastructure projects and programs in South Florida. He has led project teams in the planning and design of improvements to water and wastewater facilities for Miami-Dade, Broward, and Palm Beach Counties. He is familiar with the unique challenges associated with completing projects in this region, including adhering to the demanding local and state permitting requirements.

### RESPONSIBILITIES

Bob will serve as the Project Manager for Service Area 1 (Wastewater).

### RELEVANT PROJECTS

#### **North District Wastewater Treatment Plant Deep Injection Well Pump Station Improvement** // *Miami-Dade Water and Sewer Department, FL*

Principal-in-charge. This project consisted of the design of two additional pumps. Existing equipment and wetwell configuration were evaluated to ascertain the maximum hydraulic capacity of the station and evaluate and identify any hydraulic deficiencies that could possibly restrict peak pumping capacity.

#### **North District Wastewater Treatment Plant Headworks Upgrade** // *Miami-Dade Water and Sewer Department, FL*

Principal-in-charge. This project was one of WASD's first con-sent decree projects. It included a complete headworks renovation including re-placement of old bar screens, compacting and sludge dewatering equipment, electrical gear, ventilation and odor control facilities.

#### **City of Hollywood WTP** // *Hollywood, FL*

Quality Manager. This project was one of the first projects to utilize membrane softening in South Florida to replace aged lime softening facilities. The project was unique in that it was one of the first to utilize an alternative water supply and integrate two different sources of water for the plant: the Biscayne Aquifer and the Floridan Aquifer. The project included an evaluation of Floridan Aquifer wells as a potential source of water to supplement the existing supplies, including installation of test wells and conducting aquifer performance testing. Four new Floridan Aquifer wells were installed as part of the project. New reverse osmosis (RO) treatment facilities were constructed as part of the project to treat the Floridan supply. About half of the existing lime softening facilities were replaced with membrane softening to treat the Biscayne Aquifer supply. The product from the three different treatment processes were combined in a discrete mixing tank to maintain a stable, acceptable finished water quality.

#### **CDWWTP Design and Engineering Services for Tertiary Treatment** // *Miami-Dade County, FL*

Project engineer and QA/QC. Development of design packages for HLD (high level disinfection) at the CDWWTP. OOL Program projects at the CDWWTP will address the requirements for reducing the usage of the ocean outfalls and reducing nutrient discharge to the ocean by providing for effluent disposal via municipal and industrial injection wells. HLD could be required for the portion of effluent conveyed to municipal injection wells based on current regulations. The injection wells and possibly the HLD improvements are needed to address the ocean outfall usage reduction after 2025.



## Chris Reinbold, PE

### PROJECT MANAGER - WATER

#### YEARS WITH FIRM

15 years (20 years total experience)

#### REGISTRATION / LICENSES

Professional Registration, FL #68639

#### EDUCATION

MS/BS Civil Engineering

#### OFFICE LOCATION

West Palm Beach, FL

#### AVAILABILITY

75%

Chris has 20 years of experience that includes study, design, permitting, and construction administration services for treatment plants, pumping stations, pipelines, and chemical systems. His continual focus for clients is to seek additional value, savings, or other operational enhancements on each project.

### RESPONSIBILITIES

Chris will serve as the Project Manager for Service Area 2 (Water) and will be the ion exchange process lead for the projects under this contract.

### RELEVANT PROJECTS

#### Dean Water Treatment Plant Softener Rehabilitation // FKAA, FL

Project manager. Project involved rehabilitation and upgrade of an up-flow clarifier. It is anticipated that the identified upgrade will be accomplished by the treatment system original equipment manufacturer (OEM) through a direct contract with the FKAA. Carollo will support FKAA with the specifying of the upgrade improvements and will review softener rehabilitation construction shop drawings submitted by the OEM.

#### Springtree Water Treatment Plant Ion Exchange and Improvements // Sunrise, FL

Project manager. This project included renewal and up-grades to the existing four (4) 6-mgd each solids contact clarifiers, additional of raw water aerators, replacement of the south lime silo, concrete structure rehabilitation for the filters and flume, demolition of the existing east filters and transfer pump, addition of a new transfer pump station rated for 12-mgd, addition of a water stabilization (CO2) system, extension of washwater return piping to connect to the two west softeners, and replacement of the existing rotary drum vacuum filter belts and appurtenances for lime sludge dewatering.

#### Sawgrass 3-mgd Reverse Osmosis Water Treatment Plant // Sunrise, FL

Design manager. The project included reverse osmosis system design, which included cartridge filters, two-stage reverse osmosis treatment, degasification, air quality control scrubbers, clean-in-place system, and chemical systems.

#### New Kermit H Lewin Reverse Osmosis WTP Stock Island Facility // FKAA, FL

Project design engineer. Carollo provided preliminary (30-40%) design services in support of an effort to develop preliminary costs and to initiate site construction. As part of the scope of work, Carollo developed process design systems, facility layouts, hydraulic profiles, and electrical load lists and instrumentation design. This project was completed in September 2020. Final design activities are pending.



# Angelica Gregory, PhD, PE

PROJECT MANAGER - INFRASTRUCTURE/STUDIES/MODELING

## YEARS WITH FIRM

11 years (20 years total experience)

## REGISTRATION / LICENSES

Professional Registration, FL #75583

## EDUCATION

PhD Civil Engineering  
MS Civil and Environmental Engineering  
BS Civil Engineering

## OFFICE LOCATION

Coral Springs, FL

## AVAILABILITY

80%

Angelica has 20 years of combined experience in the water and wastewater consulting industry and research. Her background includes complex hydraulic modeling for evaluation, operation, design, optimization, integration, and master planning of sewer, water, and reclaimed water network infrastructure and related assets. She is well versed in GIS, data analytics, and other last generation information technologies.

## RESPONSIBILITIES

Angelica will serve as the Project Manager for Service Area 3 (Infrastructure) and will lead any studies or modeling projects. Angelica is also the Broward County Office Manager and will ensure that projects under this contract are delivered on-time and within budget.

## RELEVANT PROJECTS

### Wastewater Master Plans for the South-West, Southeast, and North Service Areas //

*Manatee County Utilities, FL*

Project engineer. The project included updating existing GIS network, performing complex data-based dry and wet weather calibrations, developing population projections in accordance with expected development, and evaluating existing and future impacts under several scenarios up to build-out conditions.

### Wastewater Master Plan // Daytona Beach, FL

Technical advisor. The project included all the planning, modeling, and alternatives evaluation review and quality control. The results of this analysis were combined with evaluation of the City's two treatment facilities and an integrated Master Plan and CIP was developed to address all of the City's wastewater needs through 2040.

### Springtree Reverse Osmosis Water Treatment Plant and Sawgrass Reverse Osmosis Water Treatment Plant // City of Sunrise, FL

Project Engineer. These projects included the preparation of construction drawings and specifications for a 3-mgd treatment capacity plant, and a 6-mgd capacity plant expansion, respectively. The project design included the conversion of an ASR well to a Floridian aquifer production well, pre-treatment, 2-stage reverse osmosis membrane treatment, post-treatment, and chemical systems. Dr. Gregory's duties included water quality projections for membranes selection, process design, and chemical dosification; and the design of the post-treatment processes which included degasification and odor control for both facilities.

### Sawgrass Water Treatment Plant Improvements Study // City of Sunrise, FL

Project Engineer. This project consists of the evaluation and alternative analysis to expand the potable water treatment capacity from 18-mgd to 36-mgd, increase the overall facility water recovery, improve potable water quality and provide an analysis of options for new brackish water treatment facilities. Preliminary estimated cost of the main improvements is \$35 million. Responsibilities included the creation of conceptual design, alternative analysis, and reports.



## Gerry Torres, DBIA

CONSTRUCTION & QA/QC & VALUE ENGINEERING

### YEARS WITH FIRM

1 year (17 years total experience)

### REGISTRATION / LICENSES

Designated Design-Build Professional

### EDUCATION

AS Civil Engineering

### OFFICE LOCATION

Tampa, FL

### AVAILABILITY

70%

Gerry has 17 years of experience in water and wastewater treatment projects, including estimating, pre-construction, and project operations on design-bid-build and integrated delivery (design-build and CMAR) projects. His construction experience includes interagency coordination, program development and implementation, successful program, project and construction management, successful project close-out, daily direction of a team of highly-qualified managers and inspectors, budget controls and change order management, development and modification of resources to maintain schedules, dispute resolution and regulatory/environmental compliance.

### RESPONSIBILITIES

Gerry will serve as Project Manager for Service Area 4 (QA/QC and Value Engineering) and will support the team with construction related issues.

### RELEVANT PROJECTS

#### **Lake Manatee Water Treatment Plant Filter Upgrade** // Bradenton, FL

Pre-construction and estimating manager. This \$51.9M design-bid-build project replaced the existing water filtration system with more advanced filtration technology that will improve water filtration levels.

#### **Westside Regional Water Reclamation Facility Improvements Project** // Daytona Beach, FL

Pre-construction/chief estimator. This \$40M CMAR project included construction of a new RAS/WAS pumping, tertiary deep-bed sand filters and cleaning and rehabilitation of the Bardenpho™ Stage 3 and Stage 5 aeration tanks.

#### **Miami-Dade Central District Wastewater Treatment Plant Oxygen Production Facility** // Miami-Dade County, FL

Design-build manager. This \$57.9-million project included a new building to house two 90-ton-per-day, vacuum pressure swing adsorption oxygen production units; associated electrical, instrumentation and controls; as well as site and civil work.

#### **Lake Manatee Water Treatment Plant Filter Upgrade** // Manatee County, FL

Resident Project Engineer. Project includes preliminary design, design, and construction phase services for the Lake Manatee Water Treatment Plant. The existing water treatment plant includes a conventional surface water treatment train comprising coagulation, flocculation, sedimentation, and filtration. The existing multimedia filters are approaching the end of their useful life and will be retrofitted with a membrane ultra filtration system. Responsibilities include resident project representative inspection and startup assistance.

#### **Wastewater Treatment Plant Improvements Project – Phase 1** // City of Sarasota, FL

Field Investigation and Data Review. This project primarily is to renew and/or replace existing facilities, automate existing treatment processes, “harden” existing facilities against severe weather events and cyberattacks, evaluate electrical needs, and provide redundancy for critical infrastructure for the existing 10.2 million gallon per day (mgd) advanced wastewater treatment plant. Only relatively minor upgrades have been performed with the updating of reclaimed filters and the expansion of the headworks completed in 2019.



## PROPOSED TEAM MEMBERS



### Bob Cushing, PhD, PE

TECHNICAL ADVISOR -  
WATER TREATMENT

#### YEARS WITH FIRM

24 years (39 years  
total experience)

#### REGISTRATION / LICENSES

Professional  
Registration,  
FL #57828

#### EDUCATION

PhD/MS Civil  
Engineering  
BS Petroleum  
Engineering

#### OFFICE LOCATION

Sarasota, FL

#### AVAILABILITY

60%

Throughout Bob's career, he has coupled fundamental concepts with sound engineering practices to provide creative, innovative, and enduring solutions to challenges faced by water and wastewater utilities. He has been responsible for numerous successful treatment facility planning and design projects, as well as studies and programs for improving distribution system water quality.

**RESPONSIBILITIES:** Bob will serve as the technical advisor for water treatment plant projects. He will ensure that projects are designed with public health at the forefront while reducing impact on the environment.



### Brian Graham, PE

TECHNICAL ADVISOR - WASTEWATER  
TREATMENT & OPERATION SUPPORT

#### YEARS WITH FIRM

6 years (37 years total  
experience)

#### REGISTRATION / LICENSES

Professional  
Registration,  
FL #44683

#### EDUCATION

BS Environmental  
Engineering

#### OFFICE LOCATION

Orlando, FL

#### AVAILABILITY

75%

Brian is an environmental engineer and operator with 37 years of experience encompassing advanced water and wastewater treatment, biological nutrient removal, reverse osmosis (RO) water treatment, biosolids management, master planning, wastewater process modeling and computer simulation. He has been involved in numerous RO and advanced water and wastewater treatment projects throughout the United States.

**RESPONSIBILITIES:** Brian will serve as the technical advisor for wastewater projects and provide operations support.



### Scott Richard, PE

TECHNICAL ADVISOR - INFRASTRUCTURE

#### YEARS WITH FIRM

5 years (21 years total  
experience)

#### REGISTRATION / LICENSES

Professional  
Registration,  
FL #71505

#### EDUCATION

BS Mechanical  
Engineering

#### OFFICE LOCATION

Orlando, FL

#### AVAILABILITY

65%

Scott has 21 years of water industry experience, completing numerous infrastructure projects throughout the state of Florida. His broad background of projects includes planning, design, permitting, and construction of treatment, conveyance, and collection systems. He specializes in pipeline systems and pump stations. This includes the evaluation and design of new systems and the replacement/rehabilitation of existing systems.

**RESPONSIBILITIES:** Scott will serve as the technical advisor for infrastructure projects.



### Laura Baumberger, PE

TECHNICAL ADVISOR - PLANNING

#### YEARS WITH FIRM

19 years (21 years  
total experience)

#### REGISTRATION / LICENSES

Professional  
Registration,  
FL #65401

#### EDUCATION

MS Environmental  
Engineering  
BS Civil Engineering &  
Spanish

#### OFFICE LOCATION

Sarasota, FL

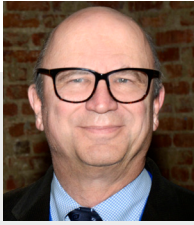
#### AVAILABILITY

50%

Laura has experience in master planning, hydraulic modeling, and asset management. She also has expertise in permitting and regulatory assistance, water and wastewater studies, and bond engineer services. In addition to her regional experience, Laura practices around the state and is active nationally in Carollo's planning group, allowing her to effectively leverage best national practices and resources – thinking globally, acting locally.

**RESPONSIBILITIES:** Laura will serve as the technical advisor for planning projects.

## PROPOSED TEAM MEMBERS (Cont.)



**Michael Stenstrom,**  
PhD, PE, F.ASCE, BCEE

TECHNICAL ADVISOR - PURE OXYGEN  
PROCESS

**YEARS WITH FIRM**  
46 years

**REGISTRATION /  
LICENSES**  
Professional Engineer,  
CA

**EDUCATION**  
PhD Environmental  
Systems

**OFFICE LOCATION**  
Los Angeles, CA

**AVAILABILITY**  
50%

Mike has been involved in aeration systems upgrades throughout his career, being a founding member of the ASCE-EWRI Oxygen Transfer Committee and chaired in for 10 years. He is one of the two independent process specialists in the United States that can model and simulate the high purity oxygen (HPO) activated sludge process.

**RESPONSIBILITIES:** Mike will be responsible as technical advisor for pure oxygen process support.



**Brian LaMay, PE**

LEAD ENGINEER - WASTEWATER PLANTS  
& PUMP STATIONS

**YEARS WITH FIRM**  
1 year (25 years total  
experience)

**REGISTRATION /  
LICENSES**  
Professional  
Registration,  
FL #60142

**EDUCATION**  
MS Industrial and  
Systems Engineering  
BS Environmental  
Engineering

**OFFICE LOCATION**  
Coral Springs, FL

**AVAILABILITY**  
90%

Brian is a project manager in Carollo's Broward County office with 25 years of experience in water and wastewater design and project management for treatment plants, pump stations, pipeline rehabilitation and trenchless construction, and potable water and disposal wells.

**RESPONSIBILITIES:** Brian will serve as the lead engineer for Service Area 1 (Wastewater) and will be the discipline lead for wastewater pump station infrastructure.



**Mike Boaz, PE**

LEAD ENGINEER - WATER

**YEARS WITH FIRM**  
6 years (6 years total  
experience)

**REGISTRATION /  
LICENSES**  
Professional Engineer,  
FL #92491

**EDUCATION**  
BS Civil Engineering/  
Biology

**OFFICE LOCATION**  
West Palm Beach, FL

**AVAILABILITY**  
75%

Michael has six years experience in Civil Engineering with a focus on hydraulics and water treatment processes. His background is primarily in water resources and mechanical process design. In addition to design, Michael also spends time on active construction projects as a field engineer and inspector.

**RESPONSIBILITIES:** Mike will serve as lead engineer for Service Area 2 (Water).



**Lisa Arroyo, PE**

LEAD ENGINEER - INFRASTRUCTURE

**YEARS WITH FIRM**  
1 year (21 years total  
experience)

**REGISTRATION /  
LICENSES**  
Professional  
Registration,  
FL #75583

**EDUCATION**  
BS Civil Engineering  
BS Mathematics

**OFFICE LOCATION**  
West Palm Beach, FL

**AVAILABILITY**  
70%

Lisa has worked with asset management systems for several different departments, including tracking condition and performance of assets, developing strategies to prioritize capital and operational expenses to reduce risks associated with aging infrastructure, and managing capital and operating budgets. She has experience with permitting, grant and federal funding, design and utility management.

**RESPONSIBILITIES:** Lisa will serve as lead engineer for Service Area 3 (infrastructure) and will be the discipline lead for asset management.

## PROPOSED TEAM MEMBERS (Cont.)



### Sudhan Paranjape, PE

HEADWORKS

#### YEARS WITH FIRM

15 years (30 years total experience)

#### REGISTRATION / LICENSES

Professional Registration, FL #64472

#### EDUCATION

ME Environmental Engineering  
BS Civil Engineering

#### OFFICE LOCATION

Orlando, FL

#### AVAILABILITY

75%

Sudhan experience ranges from process design of several conventional and advanced water treatment processes including high rate clarification such as Actiflo™ process, biologically activated filtration, reverse osmosis membranes, air stripping, and ozonation. His wastewater experience includes process/detail design of nutrient removal processes such as 4-stage Bardenpho™ and MLE process, and advanced treatment processes such as membranes.

**RESPONSIBILITIES:** Sudhan will be the headworks process lead for the projects under this contract.



### Garrett Sheehan, PE

AERATION BASINS

#### YEARS WITH FIRM

26 years (29 years total experience)

#### REGISTRATION / LICENSES

Professional Engineer, MS, KS, TX

#### EDUCATION

MS Environmental Engineering  
BS Civil and Environmental Engineering

#### OFFICE LOCATION

Kansas City, KS

#### AVAILABILITY

40%

Garrett has 29 years of experience focused on the evaluation, design, and construction of wastewater treatment facilities ranging in size from 6-mgd to more than 46-mgd. He has a wide range of project and technical capabilities, including significant experience in aeration and blower system design, UV disinfection system design, treatment plant hydraulics, and project team coordination and management.

**RESPONSIBILITIES:** Garrett will be the aeration basins process lead for the projects under this contract.



### Scott Parker, PE

CLARIFIERS

#### YEARS WITH FIRM

30 year (32 years total experience)

#### REGISTRATION / LICENSES

Professional Engineer, HI, DE, CA

#### EDUCATION

MS Environmental Engineering  
BS Civil Engineering

#### OFFICE LOCATION

Sacramento, CA

#### AVAILABILITY

45%

Scott serves as the firm's Chief Engineer. As such, he leads the development and updates to all of Carollo's engineering standards, including computer aided design, standard specifications, typical details, and cost estimating. Scott has completed a wide array of projects in planning, design, and construction of wastewater systems.

**RESPONSIBILITIES:** Scott will be the clarifier process lead for the projects under this contract.



### Mike Zappone, PE

TECHNICAL ADVISOR - PLANNING

#### YEARS WITH FIRM

25 years (29 years total experience)

#### REGISTRATION / LICENSES

Professional Registration, FL #84599

#### EDUCATION

BS Mechanical Engineering

#### OFFICE LOCATION

Seattle, WA

#### AVAILABILITY

60%

Mike has become a recognized leader in pump station mechanical and hydraulic design and serves on multiple Hydraulic Institute committees. Mike has evaluated, design, and troubleshooting of over 200 pump stations for over 90 utilities across the country, and has a keen understanding of the complex issues associated with the hydraulics of pump stations.

**RESPONSIBILITIES:** Mike will support the team with lift/pump station design both in the treatment plants and infrastructure.

## PROPOSED TEAM MEMBERS (Cont.)



### Ed Wicklein, PE

PLANT HYDRAULICS

#### YEARS WITH FIRM

16 years (25 years total experience)

#### REGISTRATION / LICENSES

Professional Registration, FL #86872

#### EDUCATION

MS/BS Civil Engineering

#### OFFICE LOCATION

Seattle, WA

#### AVAILABILITY

55%

Ed has 25 years of experience in design and analysis of hydraulic facilities using numerical models. He has conducted many computational fluid dynamic (CFD) studies of municipal and industrial water facilities. These projects have included pump intake modeling, reservoir modeling, raw water intake design and analysis, outfall design and analysis, modeling of junctions and flow splits, as well as detailed modeling of most of the major water and wastewater treatment components and process.

**RESPONSIBILITIES:** Ed will be the plant hydraulics lead for the projects under this contract.



### Danny Murphy, MIEAust, Assoc. DBIA

FILTRATION

#### YEARS WITH FIRM

7 years (15 years total experience)

#### EDUCATION

BS Eng Chemical Engineering Certificate, Mechanical Engineering

#### OFFICE LOCATION

Boise, ID

#### AVAILABILITY

60%

Danny has extensive experience in wastewater treatment and water reuse from pilot-scale demonstrations to design, field operations, and research.

**RESPONSIBILITIES:** Danny will be the filtration process lead for the projects under this contract.



### Juan Oquendo, PE

BIOSOLIDS

#### YEARS WITH FIRM

6 years (19 years total experience)

#### REGISTRATION / LICENSES

Professional Registration, FL #70006

#### EDUCATION

BS Civil Engineering

#### OFFICE LOCATION

Miami, FL

#### AVAILABILITY

75%

Juan serves as South Florida's Biosolids Practice Leader. He has a wealth experience designing biosolids conveyance, anaerobic digestion and sludge dewatering facilities across Florida and in the nation. He has authored various papers in the biosolids field, including the "Setting the Course for Miami Dade's Central District WWTP Anaerobic Digesters Rehabilitation.

**RESPONSIBILITIES:** Juan will be the biosolids process lead for the projects under this contract.



### Steve Hough, PE

PURE OXYGEN

#### YEARS WITH FIRM

40 years (52 years total experience)

#### REGISTRATION / LICENSES

Professional Registration, #77119

#### EDUCATION

MS Environmental Engineering  
BS Civil Engineering

#### OFFICE LOCATION

Orange County, CA

#### AVAILABILITY

65%

Steve has 52 years of professional experience, has managed multi-million dollar planning, design, and construction projects involving multi faceted complex issues.

**RESPONSIBILITIES:** Steve will be the discipline lead for pure oxygen design.



## PROPOSED TEAM MEMBERS (Cont.)



### Jim McQuarrie, PE

PURE OXYGEN SUPPORT

#### YEARS OF EXPERIENCE

1.6 years (26 total years experience)

#### EDUCATION

MS Civil and Environmental Engineering  
BS Environmental Science, Water and Wastewater Treatment Process

#### CERTIFICATIONS

Professional Engineer, CO

#### OFFICE LOCATION

Hollywood, FL

#### TETRA TECH

#### AVAILABILITY

30%

James has 26 years of practical experience in the municipal wastewater industry from both the public and private sector in leadership, mentoring, innovation, wastewater processes, design, and operations.

**RESPONSIBILITIES:** James will support pure oxygen activities for the projects under this contract.



### Jennifer Nyfennegger, PhD, PE

SURFACE TREATMENT

#### YEARS WITH FIRM

14 years (20 years total experience)

#### REGISTRATION / LICENSES

Professional Registration, FL #72234

#### EDUCATION

PhD/BS Environmental Engineering

#### OFFICE LOCATION

Sarasota, FL

#### AVAILABILITY

40%

Jen has 20 years of experience in civil and environmental engineering, including applied research, planning, and design of water, wastewater, and reclaimed water treatment systems. Her process experience includes treatability evaluations for a broad range of water treatment technologies. She is a leader in the application and optimization of filtration technologies, including biological filtration for drinking water treatment..

**RESPONSIBILITIES:** Jen will serve as a water process lead for surface treatment projects.



### Vinnie Hart, PE, LEED, ENV SP

LIME FACILITIES

#### YEARS WITH FIRM

19 years (31 years total experience)

#### REGISTRATION / LICENSES

Professional Engineer, FL (Pending)

#### EDUCATION

MS Environmental Engineering  
BS Environmental Engineering

#### OFFICE LOCATION

Tampa, FL

#### AVAILABILITY

45%

Vinnie has a vast amount of experience in Florida and abroad in all types of potable water treatment that encompasses innovative cost-saving solutions, complex treatment technologies including TOC removal processes like MIEX®, SIX, and vessel ion exchange. He served as the lead technical specialist for projects in MDWASD, Tampa, Palm Beach County, Boynton Beach, Manatee County, Tampa Bay Water, Sunrise, JEA, and Daytona Beach.

**RESPONSIBILITIES:** Vinnie will serve as a water process lead for lime facility projects under this contract.



### Tom Gillogly, PhD, PE

GAC EXPERT

#### YEARS WITH FIRM

18 years (30 years total experience)

#### REGISTRATION / LICENSES

Professional Registration, FL #68940

#### EDUCATION

PhD Environmental Engineering  
MS Civil Engineering  
BS Chemical Engineering

#### OFFICE LOCATION

Walnut Creek, CA

#### AVAILABILITY

55%

Tom serves as Director of Carollo's Water Technical Practice. He has significant experience with selection, implementation, and evaluation of water treatment technologies including GAC and addressing a wide range of water quality issues, including control of disinfection byproducts, cyanometabolites (T&O and cyanotoxins), and synthetic organic compounds.

**RESPONSIBILITIES:** Tom will serve as the water process lead for GAC treatment.



## PROPOSED TEAM MEMBERS (Cont.)



### Brandon Yallaly, PE

MEMBRANES EXPERT

**YEARS WITH FIRM**  
17 year (26 years total experience)

**EDUCATION**  
PhD/MS Civil and Environmental Engineering  
BS Environmental Engineering

**OFFICE LOCATION**  
Denver, CO

**AVAILABILITY**  
60%

Brandon has 26 years of experience in all areas of membrane WTP design, including membrane softening, reverse osmosis, micro/ultrafiltration, and concentrate disposal. He has executed all phases of membrane related projects, including process selection, conceptual design, pilot testing, detailed design, and construction-phase and startup services. Additionally, Brandon has executed process and detailed designs implementing lime softening and ion (anion) exchange processes.

**RESPONSIBILITIES:** Brandon will serve as the water process lead and expert for membranes.



### Rosa Yu, PhD

PFAS DESTRUCTION EXPERT

**YEARS WITH FIRM**  
14 years (20 years total experience)

**REGISTRATION / LICENSES**  
Professional Registration, FL #72234

**EDUCATION**  
PhD/BS Environmental Engineering

**OFFICE LOCATION**  
Sarasota, FL

**AVAILABILITY**  
75%

Rosa's focus is on advanced treatment processes, particularly advanced oxidation and reduction processes (AOP and ARP) for pathogens, regulated, and emerging chemical contaminants. Rosa is also leading Carollo's PFAS treatment technology surveillance, researching and defining application boundaries of a wide range of innovative technologies for PFAS destruction. Rosa has experience in bench-scale testing, piloting, research, and advanced treatment system conceptual design in addressing rising challenges associated with emerging contaminants.

**RESPONSIBILITIES:** Rosa will serve as the PFAS destruction lead for the projects under this contract.



### Kirk Martin, PG

WELL DESIGN/SUPPORT

**YEARS WITH FIRM**  
10 years (41 years total experience)

**REGISTRATION / LICENSES**  
Professional Geologist, FL

**EDUCATION**  
BS Geology

**OFFICE LOCATION**  
Fort Myers, FL

**TIERRA, INC.**

**AVAILABILITY**  
45%

Kirk over 40 years of professional experience conducting groundwater resource investigations, providing permitting oversight, and managing complex integrated water resource programs. He also has extensive experience in the application of statistical analyses, computer models and geophysical methods to the solution of water resource issues.

**RESPONSIBILITIES:** Kirk will be responsible for well design/support for the projects under this contract.



### Jarrett Kinslow, PG

WATER TREATMENT

**YEARS WITH FIRM**  
23 years (23 years total experience)

**REGISTRATION / LICENSES**  
Professional Geologist, FL

**EDUCATION**  
BS Geology

**OFFICE LOCATION**  
Fort Myers, FL

**TETRA TECH**

**AVAILABILITY**  
40%

Jarrett serves as technology leader in membrane processes in the utility division and has participated in many aspects of environmental engineering including treatability studies, pilot testing, design, permitting, construction administration, data analysis, and planning.

**RESPONSIBILITIES:** Jarrett will be responsible for water treatment support for the projects under this contract.

## PROPOSED TEAM MEMBERS (Cont.)



### Ricardo Borrromeo, PE

CIVIL AND PIPELINE LEAD

**YEARS WITH FIRM**  
3 years (27 years total experience)

**REGISTRATION / LICENSES**  
Professional Registration, FL #67101

**EDUCATION**  
MS Environmental Engineering  
BS Chemical Engineering

**OFFICE LOCATION**  
Tampa, FL

**AVAILABILITY**  
60%

Ricardo has 27 years of industry experience, completing numerous projects throughout the state of Florida. As part of Carollo's Infrastructure group, Ricardo serves as a project manager, engineer of record, technical lead, and quality control reviewer.

His broad background of projects for municipal clients includes engineering, planning, and design of water and wastewater treatment plants, water and wastewater transmission, storm water, pump stations, and disposal fields.

**RESPONSIBILITIES:** Ricardo will be the discipline lead for infrastructure pipeline projects under this contract.



### Kunal Nayee, PE

CIVIL AND PIPELINE

**YEARS WITH FIRM**  
4 years (11 years total experience)

**REGISTRATION / LICENSES**  
Professional Registration, FL #83294

**EDUCATION**  
M.S., Water Resources Engineering  
B.S., Environmental Engineering

**OFFICE LOCATION**  
Orlando, FL

**AVAILABILITY**  
70%

Kunal has 11 years of experience in the water utility field. Kunal's project experience includes playing a central role in hydraulic water and wastewater models for a city-level system, asset management plan using GIS techniques for criticality modeling for a county-level force main system, and a potable water system replacement design for a city CIP. He has worked extensively on permit writing and application preparation for utilities and private clients.

**RESPONSIBILITIES:** Kunal will support the infrastructure team with pipeline design and GIS.



### Tony Sabatino, PE

FORCE MAINS

**YEARS WITH FIRM**  
3 years (12 years total experience)

**REGISTRATION / LICENSES**  
Professional Registration, FL #85230

**EDUCATION**  
ME Civil Engineering  
BS Environmental Engineering

**OFFICE LOCATION**  
Orlando, FL

**AVAILABILITY**  
60%

Tony's background is in civil and environmental engineering with experience in hydraulics, hydrology, civil site design, wastewater treatment design, piping systems, reclaimed water management and stormwater management. He is proficient in geographic information systems, computer aided drafting, building information modeling, and hydraulic modeling.

**RESPONSIBILITIES:** Tony will be the force main discipline lead for the projects under this contract.



### Brenda Keenan, PG

WASTEWATER TREATMENT

**YEARS WITH FIRM**  
9 years (19 years total experience)

**REGISTRATION / LICENSES**  
Professional Engineer, FL

**EDUCATION**  
BS Environmental Engineering

**OFFICE LOCATION**  
Atlanta, GA

**TETRA TECH**

**AVAILABILITY**  
35%

Brenda has 19 years of experience in a wide range of municipal wastewater treatment plant design and construction projects. Specific experience includes process alternatives and hydraulic evaluations, preliminary and final design and construction phase services. Her is experienced in the preparation of engineering drawings and specifications and permitting for wastewater plant modifications.

**RESPONSIBILITIES:** Brenda will be responsible for wastewater treatment for the projects under this contract.

## PROPOSED TEAM MEMBERS (Cont.)



### Heather Harris, PE

STORMWATER

**YEARS WITH FIRM**  
3 years (26 years total experience)

#### REGISTRATION / LICENSES

Professional Registration, TX

#### EDUCATION

MS Agricultural Engineering  
BS Agricultural Engineering

#### OFFICE LOCATION

Austin, TX

#### AVAILABILITY

45%

Heather is the Texas Director of Stormwater Practice. She has led or participated in numerous watershed management projects—offering a keen understanding of stream restoration and stormwater management challenges, both quantity and quality. Other expertise includes water supply planning, watershed assessment, and water conservation projects, as well as public involvement efforts.

**RESPONSIBILITIES:** Heather will be the stormwater discipline lead for the projects under this contract.



### Roderick Cashe, PE

STORMWATER

**YEARS WITH FIRM**  
30 years (35 years total experience)

#### REGISTRATION / LICENSES

Professional Engineer, FL

#### EDUCATION

BS Civil Engineering

#### OFFICE LOCATION

Orlando, FL

#### TETRA TECH

#### AVAILABILITY

45%

Rod has experience in the areas of civil/site engineering for public and private facilities; stormwater management planning and engineering design; hydrologic and hydraulic modeling; 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.

**RESPONSIBILITIES:** Rod will be responsible for stormwater support for the projects under this contract.



### James Christopher, PE

QA/QC & VALUE ENGINEERING

**YEARS WITH FIRM**  
32 years (42 years total experience)

#### REGISTRATION / LICENSES

Professional Engineer, FL

#### EDUCATION

MS Environmental Engineering and Science

#### OFFICE LOCATION

Orlando, FL

#### TETRA TECH

#### AVAILABILITY

40%

James is highly qualified in environmental engineering with special expertise in water resources, water quality, reverse osmosis, pumping system analysis/station design, hydraulic analysis, pipeline design, wastewater collection, treatment, effluent reuse/utilization/disposal, facility planning, construction and administration, and overall project administration and coordination.

**RESPONSIBILITIES:** James will be responsible for QA/QC and Value Engineering for the projects under this contract.



### Chad Green, PE

MECHANICAL/HVAC

**YEARS WITH FIRM**  
9 years (14 years total experience)

#### REGISTRATION / LICENSES

Professional Registration, FL #80131

#### EDUCATION

MS Mechanical Engineering

#### OFFICE LOCATION

Dallas, TX

#### AVAILABILITY

65%

Chad manages Carollo's Building Services Group and supervises all aspects of design services and quality control for the company related to building mechanical. He has extensive knowledge and experience in the design of heating, ventilation, air conditioning, controls, refrigeration systems, plumbing systems, fire protection systems, odor treatment, and fuel systems. His knowledge and experience is used to develop both client standards and corporate standards.

**RESPONSIBILITIES:** Chad will be the discipline lead for HVAC/Mechanical design.

## PROPOSED TEAM MEMBERS (Cont.)



### Joel Smason, PE

STRUCTURAL

#### YEARS WITH FIRM

26 years (48 years total experience)

#### REGISTRATION / LICENSES

Professional Registration, FL #58434

#### EDUCATION

MS/BS Structural Engineering

#### OFFICE LOCATION

Phoenix, AZ

#### AVAILABILITY

55%

As a senior structural design engineer, Joel's responsibilities include preparation of preliminary structural designs, client assistance, supervision of personnel, preparation of budgets and estimates, and the development of detailed drawings and specifications. He also has experience with alternative project delivery methods, including design-build and construction manager at risk (CMAR).

**RESPONSIBILITIES:** Joel will be the structural discipline lead for the projects under this contract.



### Mark Pellish, PE

ELECTRICAL

#### YEARS WITH FIRM

5 years (38 years total experience)

#### REGISTRATION / LICENSES

Professional Registration, FL #46906

#### EDUCATION

BS Electrical Engineering

#### OFFICE LOCATION

Orlando, FL

#### AVAILABILITY

65%

Mark has 38 years of experience specializing in electrical engineering projects. He has served as a professional engineer in the areas of design and permitting and bidding and construction.

As a senior electrical engineer, his expertise consists of the design of electrical power distribution systems for water and wastewater treatment plants, pump stations, manufacturing plants, office buildings, warehouses, and other industrial facilities.

**RESPONSIBILITIES:** Mark is the discipline lead for electrical engineering.



### Joe Hanlon, PE

SYSTEM INTEGRATION

#### YEARS WITH FIRM

7 years (34 years total experience)

#### REGISTRATION / LICENSES

Professional Registration, FL #52648

#### EDUCATION

BS Electrical Engineering

#### OFFICE LOCATION

Tampa, FL

#### AVAILABILITY

40%

Joe's primary role is Chief Engineer of Programming Services. His engineering experience focuses on the integration of sophisticated instrumentation and control systems including Programmable Logic Controllers (PLCs), Human-Machine Interface (HMI), telemetry, networks, communication, Supervisory Control and Data Acquisition (SCADA), Motor Control Centers (MCCs), Variable Frequency Drives (VFDs) and soft starts.

**RESPONSIBILITIES:** Joe will be the discipline lead for SCADA, I&C and System Integration.



### Seema Chavan, PE

FINANCIAL SERVICES

#### YEARS WITH FIRM

20 years (30 years total experience)

#### REGISTRATION / LICENSES

Professional Engineer, CA

#### EDUCATION

MS Environmental Engineering  
BS Civil Engineering

#### OFFICE LOCATION

Walnut Creek, CA

#### AVAILABILITY

40%

Seema helps clients across the country evaluate funding options secure funding through creative grant applications and provides reporting support to stay in compliance with funding requirements. Over the past six years she has helped secure over \$600 million in low interest loans and grants for public utilities nationwide.

**RESPONSIBILITIES:** Seema will serve as the funding task lead for securing grant, local, state, or federal funding.



## PROPOSED TEAM MEMBERS (Cont.)



### Erica Stone, PhD, PE

PERMITTING /REGULATORY

#### YEARS WITH FIRM

13 years (17 years total experience)

#### REGISTRATION / LICENSES

Professional Registration, FL #75487

#### EDUCATION

PhD/BS Environmental Engineering

#### OFFICE LOCATION

Orlando, FL

#### AVAILABILITY

35%

Erica has 17 years of engineering water and wastewater experience in Florida. Erica's expertise has allowed her to work on both water and wastewater treatment projects throughout her career. Erica possesses a Ph.D. in environmental engineering and brings several years of experience with her in the areas of water quality, water treatment, environmental studies, sampling, research, and data analysis.

**RESPONSIBILITIES:** Erica will provide permitting and regulatory support for the projects under this contract.



### Munir Al-Suleh, PE

SITE/CIVIL

#### YEARS WITH FIRM

1 year (22 years total experience)

#### REGISTRATION / LICENSES

Professional Registration, FL #67396

#### EDUCATION

MBA Business Administration  
MS Environmental Engineering  
BS Civil Engineering

#### OFFICE LOCATION

Sarasota, FL

#### AVAILABILITY

60%

Munir is an environmental engineering/project manager with 22 years of work experience in the water, wastewater, stormwater, reclaimed water, pipeline design, feasibility studies, roadway design and land development industries.

His experience includes planning, scheduling, budgeting, design, estimating costs, permitting, bidding and construction engineering services for broad range of engineering projects.

**RESPONSIBILITIES:** Munir will be the civil/site discipline lead.



### Jason Rozgony, PE

COST ESTIMATING

#### YEARS WITH FIRM

4 years (28 years total experience)

#### REGISTRATION / LICENSES

Professional Engineer, CO

#### EDUCATION

BS Civil Engineering

#### OFFICE LOCATION

Broomfield, CO

#### AVAILABILITY

40%

Jason brings 28 years of experience in the water and wastewater industry, the majority of which has been full-time cost estimating for design, CMAR, design-build, and hard bid projects. Jason has prepared discipline-level estimates and has led complete estimates for more than 150 design and fixed-price construction projects requiring collaboration with design engineers, vendors, and subcontractors from preliminary through final design.

**RESPONSIBILITIES:** Jason will be responsible for cost estimating.

“Carollo has been the lead of a consortium of consultants providing design and support services to the Polk Regional Water Cooperative for six years. In this capacity they have led the design of two alternative water supply production facilities and the associated transmission lines and wellfields that are vital to the future of the Polk County area. Their performance has been exemplary and the projects would not be at the advanced design level without their ability to solve uncountable design, funding, coordination, and management issues. Even beyond those attributes, the staff assembled to work on these projects is a personable and dedicated group who are enjoyable to work with on a day to day basis!”

- Eric DeHaven, Executive Director  
Polk Regional Water Cooperative

## PROPOSED TEAM MEMBERS (Cont.)



### Eval Smith

CONSTRUCTION MANAGEMENT

#### YEARS WITH FIRM

1 years (29 years total experience)

#### EDUCATION

MS Environmental Engineering  
MS/BS Construction Management

#### OFFICE LOCATION

Miami, FL

#### AVAILABILITY

80%

Eval has 29 years of experience with project management, construction methodology, and has coordinated and planned the construction of new public facilities working closely with contractors, consultants, architects, and engineers. As a project manager, he supervised construction projects of various dollar values, and supervised construction and engineering staff on water, wastewater, airport, and solid waste projects in the United States and the Caribbean. He also has experience with value engineering/analysis, claims management, construction scheduling and constructability reviews.

**RESPONSIBILITIES:** Eval will be the construction manager lead for the projects under this contract.



### Terry Storck

CONSTRUCTION INSPECTION

#### YEARS WITH FIRM

9 years (41 years total experience)

#### CERTIFICATIONS

Certified, Nuclear Gauge Safety  
Certified, HAZMAT, USDOT  
Certified, OSHA Electrical Regulations  
Certified, Electrical Safety Part 1 & 2  
Certified, NEC - Electrical Grounding  
LEED Accredited Professional, Green Building Certification Institute, 2006

#### OFFICE LOCATION

West Palm Beach, FL

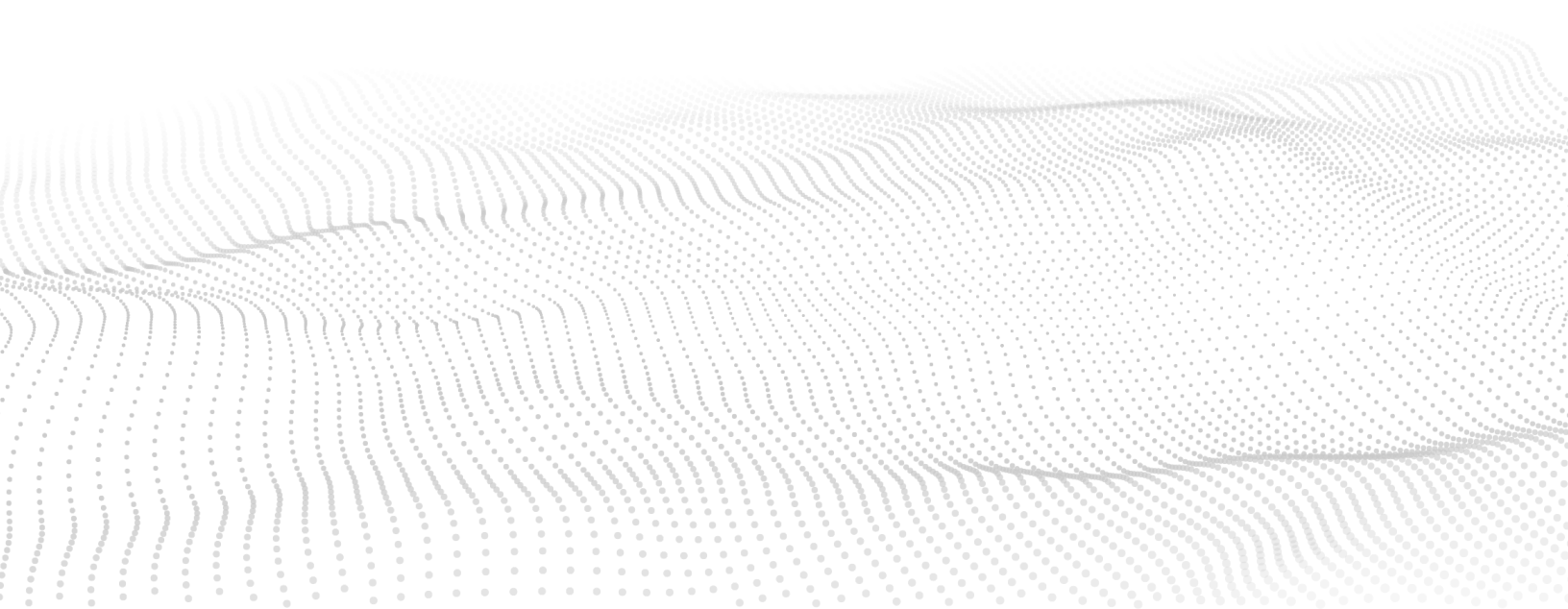
#### AVAILABILITY

80%

Terry has 41 years of experience. His background focuses on the planning, scheduling, inspections, and coordination of complex projects. He possesses technical knowledge and background in the mechanical, electrical, SCADA, computing and electronic communications areas.

**RESPONSIBILITIES:** Terry will lead construction inspection activities for the projects under this contract.

## **Tab E:** Approach to Scope of Work





# Approach to Scope of Work

TAB E

Our key team members are committed, dedicated, and excited to hit the ground running alongside you.

Effective utility services are important for the high quality of life that the City of Hollywood provides to their residents, businesses, and visitors. To meet the utility demands associated with current and future growth regulations, and utility asset upkeep in a fiscally sound manner, the City requires consulting engineers who can work together with you as a team.

## UNDERSTANDING OF THE CITY'S NEEDS

Carollo understands that the City has specific needs to be met through this Continuing Services Contract. The City requires professional engineering design services to support the Department of Public Utilities in delivering projects at their water and wastewater treatment plants. Services will include design, permitting, construction phase services, and studies

associated with the City's Capital Improvement Program and potentially other related projects.

Maintaining and enhancing your water and wastewater facilities while meeting level of service demands results in many technical challenges and demands. Carollo understands this and shares your passion and commitment to protect public health and the environment while delivering high-level cost effective services.

Contracts issued for general engineering services under this RFQ are planned to provide services for the following four areas:

- **Service Area 1:** Wastewater Treatment Plant Projects
- **Service Area 2:** Water Supply and Treatment Projects
- **Service Area 3:** Infrastructure Projects
- **Service Area 4:** Quality Assurance, Quality Control and Value Engineering Services

Carollo is eager to partner with you in delivering projects in all service areas.



The City of Hollywood operates large, complex water treatment facilities. Carollo will bring experience from dozens of similar Florida utilities to work alongside you to meet challenges and realize opportunities to make Hollywood best in class utility.

CITY OF HOLLYWOOD // WATER TREATMENT PLANT AND WASTEWATER TREATMENT PLANT PROJECTS



## OVERVIEW OF PROPOSED VISION AND IDEAS

Consistent with our company vision, our vision for this contract is to provide the City with the best and most innovative coverage of your needs. Carollo is aware of the variety of needs that arise within general services contracts and our team has the experience to fill those needs.

While Carollo team members bring significant relevant previous experience from past projects at your facilities, as a firm, Carollo has not had the opportunity to work with you. We have, however, worked extensively with most of your neighboring utilities as well as most of the major water and wastewater utilities across Florida. In this section, we will highlight some of the key issues faced by Hollywood and the solutions and approach that Carollo has helped other clients facing those same issues develop and implement.

## OUR APPROACH TO PROJECTS FACING ISSUES SIMILAR TO THE CITY - RELEVANT EXAMPLES

### Water Treatment Plant Experience

#### City of North Miami Beach, FL - Norwood Oeffler WTP Improvements

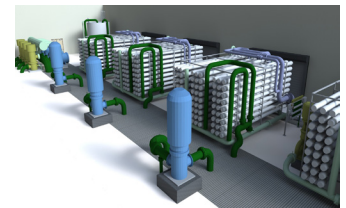
##### Relevance to Hollywood

- Membrane replacement project (RO and NF)
- Upgrades to lime softening system
- New generator

Carollo is currently the lead design engineer responsible for the design of the improvements to the City's WTP. The City has embarked in a long-term plan that includes getting out of the conventional softening business. As part of the work, Carollo recommended a step approach where the old and aged lime facilities will be replaced with new pellet softening technology that significantly reduces the need to handle lime and produces a renewable, revenue generating product. We also presented innovative ideas for how the City can begin transitioning away from lime softening using membrane technology, such as implementing a integrated 3rd stage NF that treats NF concentrate from both new and existing NF system. The simple 3rd stage NF will recover an additional 25% of water, and increase overall NF system recovery to 85%.



New pellet softening system will reduce the need to handle lime.



The 3rd stage NF system will recover an additional 25% of water, and increase overall NF system recovery to 85%.

#### City of Sunrise, FL - Springtree WTP Renewal and Replacement Project

##### Relevance to Hollywood

- Membrane replacement project (RO and NF)
- Upgrades to lime softening system
- Chemical system upgrades.
- Solids handling
- Solids Contact Clarifier upgrades
- Well re-purposing

Carollo performed a study that included the evaluation of potential improvements for rehabilitation and renewal of a 24-mgd lime softening facility. The systems, processes, and facilities that were evaluated in the study and basis of design development phase of this project include: an organics removal system, disinfection rule compliance modifications, solids contact clarifier performance upgrades, sludge dewatering upgrades, chemical system upgrades (lime, sodium hypochlorite, fluoride), distribution system pumping upgrades, controls system upgrades, an entirely new administration and controls building, repurposing of an existing Floridian aquifer ASR well as a supply well for RO treatment for 1.5-mgd of permeate, demolition of existing filters, interior site lighting upgrades, drainage upgrades, repiping of ground storage reservoirs, and other general renewal, replacement and painting upgrades. The design services was performed in multiple phases.

## Wastewater Treatment Plant Experience

### Pasco County Utilities, FL - Wesley Center WWTP

#### Relevance to Hollywood

- Headworks improvements, including screen bypass system
- Aeration improvements
- Upgrades to secondary clarifiers
- New electric generator and electrical service design
- Construction management
- Permitting

Carollo lead the design of the improvements to the County's Wesley Center WWTP. The improvements included the design and construction of: new headworks and odor control, process improvements to the existing biological train to replace aerators with diffused air system, upgrades to the secondary clarifiers, and disinfection facilities. Carollo completed the permitting efforts and also assisted with bidding services. Bidding services included: responding to questions and developing addenda for potential bidders during the bidding process, and assisting with the bid evaluation and recommendation of the awarded contractor. Carollo also provided the construction phase services with a full-time site project representative.

### Orange County Sanitation District, CA - Activated Sludge Expansion at Plant No. 2

#### Relevance to Hollywood

- Expansion of pure-oxygen activated sludge process to 90-mgd, including two 73-ton-per-day cryogenic plants.
- Evaluation of existing oxygen production and dissolution system.

The original secondary treatment project at OCSD's Plant No. 2, designed by Carollo, consisted of adding 75-mgd of pure oxygen activated sludge. The major facilities included a cryogenic oxygen production system with two cryogenic plants, each rated for a capacity of 73 tons of oxygen per day. In the second phase of this project, Carollo designed the secondary expansion of this facility to 90-mgd.

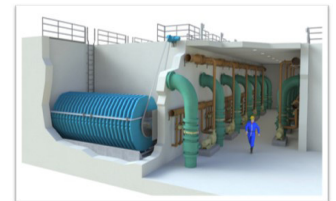


### Miami Dade WASD, FL - Central District WWTP HLD Project

#### Relevance to Hollywood

- High Level disinfection at a local Pure Oxygen WWTP.
- Design of a 385-mgd effluent pump station.

Carollo is currently the design engineer for the new 150-mgd tertiary filtration and disinfection facilities at the Miami Dade WASD Central District WWTP. This project also includes the design and construction of the modifications of the 385-mgd effluent pump station.



## Infrastructure Experience

### Boynton Beach, FL - Force Main Assessment and Design

#### Relevance to Hollywood

- Innovative approach to improve reliability in force mains

Carollo provided an assessment and design services for force main isolation valves to establish reliability improvements in the collection system. The evaluation resulted in recommendations to add valves in the City's 36-inch force main to increase reliability in the system.



# 1. APPROACH TO PERFORMING THE WORK

## Project Delivery

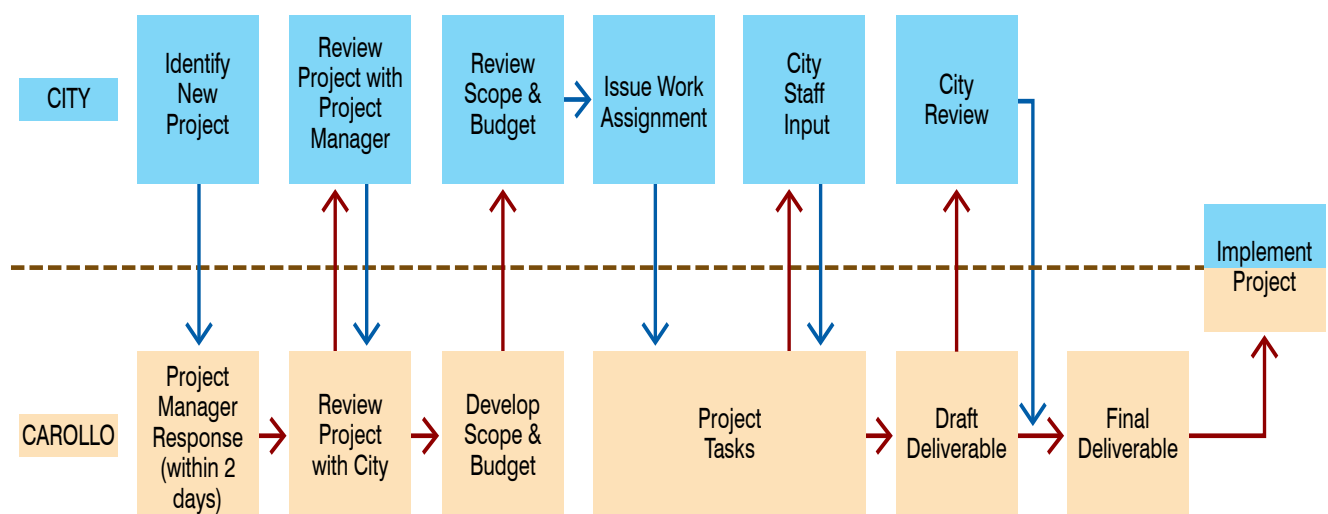
Through our 90-year history of providing engineering services to municipal water/wastewater utilities, we have developed an effective and unique business philosophy with demonstrated value.

Our overall project delivery approach centers on guiding principles for delivering highly successful projects:

- 1. Engage all key project stakeholders early and develop consensus on all critical project elements.** We propose meetings to initiate a project and at key points as well as phone calls and informal discussion throughout. This supports our philosophy that the spoken word is best used for communication and the written word for documentation. We will not sit in our office and develop deliverables in a vacuum and send to you for review and comment. Instead, you will receive draft deliverables that are well developed and consistent with discussions and expectations.
- 2. Apply a dedicated "Project Team" approach.** The core project delivery team will remain consistent and dedicated to each City assignment from development of the scope of work through final completion of the assignment. The same Carollo team member who develops the scope for a project will work with your staff through all phases of the project to final project completion.

The continuity of service offered by this project-team approach offers many advantages over a design center approach, including:

- Project development is more rapid and accurate when performed by a dedicated team.
  - Errors and omissions often associated with "hand-offs" are eliminated using a Project Team.
  - The original project lead who worked from scoping through project completion will be available to assist with related follow-up questions in the future.
- 3. Apply a scientific approach.** We will evaluate alternatives and explore ways to maximize use of existing infrastructure using our scientific process optimization approach. This approach includes the use of sound scientific principles instead of relying on rules-of-thumb or "text book" values that often result in "over " or "under" designed facilities. Our proven scientific approach has been used successfully at many facilities where it has saved money while optimizing treatment and conveyance, just like the example on the following page.



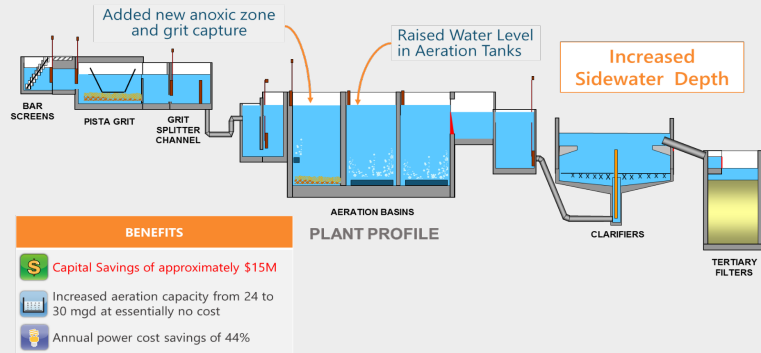
Our project delivery approach is depicted here in a step-by-step fashion.

### CASE STUDY: Applying a Scientific Approach to Maximize Use of Existing Infrastructure Resulted in \$15M Savings in Capital Costs, South Central Regional Wastewater Treatment Plant, Delray Beach, FL

The South Central Regional Wastewater Treatment Plant (SCRWWTP), located in Delray Beach, was constructed with a capacity of 12.0-mgd annual average daily flow in 1979, and later expanded to 24.0-mgd in 1987. SCRWWTP has a process consisting of influent screens, grit removal in a Pista Grit system, aeration and secondary clarification followed by tertiary filtration. The SCRWWTP had mechanical aeration that was later converted to fine bubble diffusers in 1992.

As part of the aeration system replacement project, Carollo was challenged with increasing the treatment capacity.

In evaluating the hydraulic profile, the project team discovered an available 2.3 foot sidewater depth in the aeration basins that was undiscovered for 26 years. The sidewater depth could that be raised by a simple increase in the effluent weir elevation. The sidewater depth increase resulted in a 25% capacity increase, an annual power cost savings of 4 to 5%, and an approximate \$15M capital cost savings.



## 2. FIRM'S WORKLOAD

The availability of staff member to participate in this project is shown below. The level of availability indicated in this table shows that we are ready to “hit the ground running.”

### Team Member Current Average Availability in 2023

Team Member	Availability	Team Member	Availability	Team Member	Availability
Bob Cushing	60%	Garrett Sheehan	40%	Kunal Nayee	70%
Brian Graham	75%	Scott Parker	45%	Tony Sabatino	60%
Scott Richards	65%	Mike Zappone	60%	Chad Green	65%
Gerry Torres	70%	Ed Wicklein	55%	Joel Smason	55%
Laura Baumberger	50%	Danny Murphy	60%	Mark Pellish	6%
Lyle Munce	85%	Juan Oquendo	75%	Joe Hanlon	40%
Bob Ortiz	90%	Jennifer Nyfennegger	40%	Seema Chavan	40%
Brian LaMay	90%	Vinnie Hart	45%	Erica Stone	35%
Chris Reinbold	75%	Tom Gillogly	55%	Munir Al-Suleh	60%
Mike Boaz	75%	Brandon Yallaly	60%	Jason Rozgony	40%
Angelica Gregory	80%	Rosa Yu	75%	Eval Smith	80%
Lisa Arroyo	70%	W. Kirk Martin	60%	Terry Storck	80%
Sudhan Paranjape	75%	Ricardo Borromeo	60%		



### 3. FIRM'S ABILITY TO SOLVE COMPLEX PROJECT ISSUES

Coupling 90 years of sound water and wastewater design experience with industry-leading investment in water technology research and development allows Carollo to work with utilities to achieve new and better solutions to water and wastewater treatment's most complex issues. The following pages provides examples of common challenges, our innovative approach and the tools that we have used to solve them.

#### Water Treatment

With the existing lime softening, membrane softening, and reverse osmosis treatment process, Hollywood operates and maintains a complex water supply and treatment portfolio with many challenges and opportunities. In this section, we will highlight experience relevant to Hollywood, specifically related to:

- Membrane softening train and element upgrade and replacement.
- Lime system rehabilitation and optimization.
- Brackish groundwater treatment and reverse osmosis.

#### Membrane Softening Train and Element Upgrade and Replacement

As shown in the map below, Carollo has extensive relevant experience with membrane softening skid and element upgrade and replacement.

#### CASE STUDY: Water Treatment Plant, Pompano, FL

Carollo identified an innovative solution to help the City of reduce membrane fouling and save money. The City's 10-mgd NF WTP treats a groundwater with high color and organic matter, which fouls the membranes. The City currently uses a conventional cleaning method that allows foulants to build up into gel layers increasing the pumping requirements. When operational performance of the membranes degrades to a setpoint, removal of the gel layers is managed by application of harsh cleaning chemicals. These chemicals damage the sensitive surface layers of the membranes, reducing their life, and further, the conventional cleaning chemicals cannot fully restore the membranes to their original performance. The innovative solution, salt backwashing, avoids damage to membranes by using a salt solution to remove foulant buildup on a daily basis and in turn, reduces energy costs from pumping at a higher head. **Preliminary investigations by Carollo indicated that the application of salt backwashing could yield operational, maintenance, membrane replacement, and chemical cost savings to the City in excess of \$400,000 per year.**

Project experience and lessons learned from membrane softening experience throughout Florida is brought directly to Hollywood through dedicated Carollo team members.



Collier County Water Treatment Plant



Lee County Water Treatment Plant



Palm Coast Water Treatment Plant



Pompano Water Treatment Plant



Sunrise Water Treatment Plant

### Optimization of Membrane Configuration

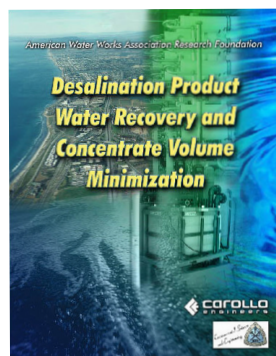
Water production can be increased in many ways, including through the maximization of available membrane treatment area (use membranes with larger surface areas which fit in existing equipment), through the use of membranes with greater treatment capability per unit area (flux), reduced energy requirements (discussed further in the energy reduction subparagraph on the next page), and feed water treatment capabilities (i.e., use different elements in stages to maximize production and recovery).

### Maximize production Through Concentrate Minimization

Conventional membrane treatment approaches typically allow up to approximately 75 to 85% of the feed stream to be recovered as potable water, with the remaining amount (concentrate or reject water) being disposed of. Currently, the SFWMD estimates that if the concentrate stream from membrane treatment plants projected to exist in 2025 is increased from 75% to 92% recovery, an additional 120-mgd of potable water will be produced while using the same amount of source water.

Carollo has completed multiple concentrate treatment pilot studies for utilities in Florida, California, and Arizona. Carollo published the Water Research Foundation report, Desalination Product Water Recovery and Concentrate Volume Minimization. This document reported on over 20 promising RO concentrate treatment technologies. Highlighted in the report was an innovative approach combining RO, EDR, and chemical precipitation processes, to allow recoveries up to about 95%.

Carollo systematically reviewed existing concentrate management technologies in the Water Research Foundation Report "Desalination Product Water Recovery and Concentrate Volume Minimization."



"Carollo Engineers, Inc. have performed very professionally, been extremely responsive and brought the most qualified and appropriate personnel to service us and our needs as a client. They have already completed designs for a Reverse Osmosis Water Treatment Facility. This firm delivers proposals, design services and client satisfaction promptly and to the highest possible level, at reasonable pricing."

— Tim Welch, Utilities Director. City of Sunrise, FL

The SFWMD commissioned Carollo to study the potential for RO concentrate minimization at South Florida utilities. The project reviewed water quality at 12 plants within the District to identify a solution to cost-effectively handle RO concentrate while meeting technical and permitting requirements. A modified lime softening process was evaluated. Using the information gained from this assessment, a pilot study was performed at the City of North Miami Beach, showing an increase in overall RO recovery of 13%, from 75 to 88%.

Our experience extends beyond pilot-scale investigations. Carollo designed the first zero-discharge groundwater desalter in the U.S. at the Deuel Vocational Institute in California. Using a vapor compression brine concentrator, the system treats the concentrate to raise the overall system recovery above 99 percent, producing 800,000 gpd, with the remaining concentrate being sent to an evaporation pond.



Carollo carried out jar tests at the City of Sunrise to evaluate NF concentrate recovery to ultimately increase treated water supplies.



Carollo pilot tested a cost-effective approach for RO concentrate recovery in South Florida.

Many South Florida utilities have considered recovering nanofiltration (NF) concentrate through RO. While an attractive idea, the high concentrations of iron and organic matter characteristic of NF concentrate must be considered. The long-term, stable performance of RO membranes used to recover additional product water could be threatened if proper pretreatment is not provided. Carollo is currently preparing a tailored collaboration with the Water Research Foundation to identify the most effective way to recover NF concentrate, effectively reducing the organic matter and foulants while minimizing chemical costs.

### **Reducing Energy Consumption in Membrane Treatment**

Energy has become a key concern for the water industry, as there has been increased focus on costs, sustainability, greenhouse gas emissions, and reliability. Recent breakthroughs in state-of-the-art energy recovery devices and membrane element manufacturing now provide utilities with significant opportunities to lower the energy use of membrane treatment systems.

Energy recovery devices save money by capturing pressure that would be lost in the waste stream and returning it to the high-pressure pumps at the beginning of the system. An example of this, which was designed by Carollo, is Collier County. By installing an energy recovery device, they captured the pressure that was being lost in its waste stream and used it to boost its high-pressure feed pumps, saving an estimated \$550,000/year.



Sulfuric acid and scale inhibitor have been industry standard chemicals for pretreatment.

### **Reducing Chemical Consumption in Membrane Treatment**

Chemicals are an important and costly part of operating membrane systems. Sulfuric acid, as a pretreatment chemical, has been an industry standard chemical used in membrane systems across the industry to reduce the scaling potential of calcium carbonate and help keep iron in the dissolved, ferrous form. The result of this acid addition is enhanced system recovery and prevention of membrane fouling. Despite these benefits, sulfuric acid is a hazardous and costly chemical to use.

Carollo developed the first design in the country that eliminated acid from an RO treatment plant. In 1999, Mount Pleasant Waterworks, SC, saved \$250,000/year when it stopped adding acid to its membrane system. Special consideration for acid elimination must be given to facilities that have iron in their raw water. The presence of iron may necessitate the use of sulfuric acid as a pretreatment chemical. Additionally, for waters containing hydrogen sulfide, if acid is eliminated as a pretreatment chemical, pH adjustment may be required before subsequent treatment using degasification.



Carollo developed the first design in the country that eliminated acid from an RO plant, saving Mount Pleasant Waterworks \$250,000 per year.

**“Carollo Engineers successfully implemented an innovative hybrid membrane design that not only met, but exceeded the expectations of MPW. Carollo's efforts and results were very impressive and I would recommend their services to any water utility that strives for perfection and high performance.”**

**— Mr. Greg Hill  
Operations Supervisor, Mount Pleasant  
Waterworks**



## Lime System Rehabilitation and Optimization

### Split Softening Treatment

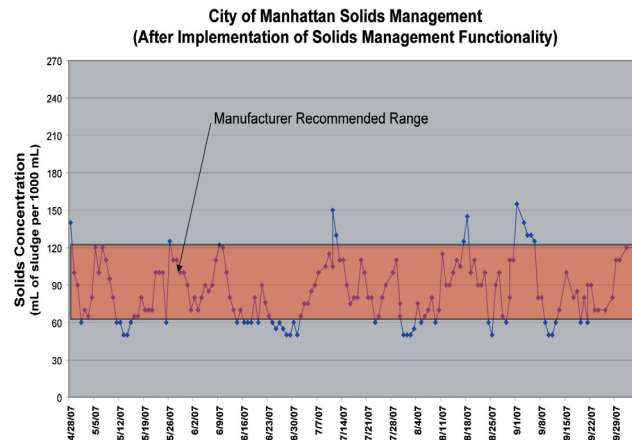
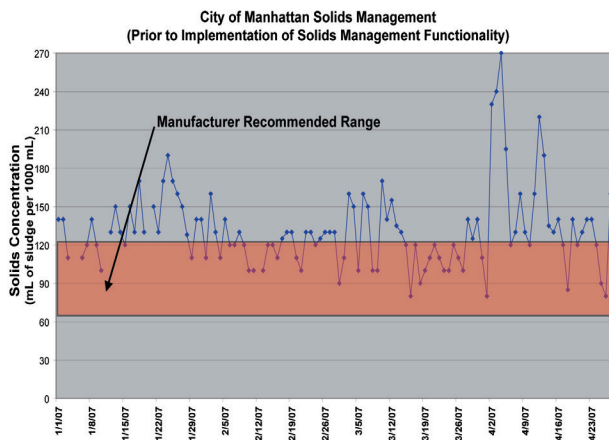
The softening process occurs when the pH is high enough that all of the bicarbonate alkalinity is converted to carbonate, which causes mineral precipitation. The challenge with this precipitation reaction is that it “over-softens” the water (takes out more of the mineral content than desired), resulting in lower hardness than the desired hardness goal. In the U.S., most utilities bypass a portion of this flow around the softening process, but most Southeast Florida utilities are prevented from doing this due to very high total organic carbon content of the raw water and its associated color.

Split softening treatment can be successfully utilized in SE Florida if a portion of the carbon content in the bypass water is removed to prevent water color problems. Carollo has recently completed a design for the Palm Beach County, where the use of an ion exchange process will permit bypass flow around the softening units. This process will allow Palm Beach County to “dial-in” the finished water hardness and increase the finished water alkalinity all while producing a more stabilized finished water. In addition, the chemical usage was decreased, solids production was reduced, and the resulting bypass flow will allow Palm Beach County to increase the plant capacity by 15 percent without building any new treatment facilities.

As the regulatory focus of the Environmental Protection Agency shifts to the distribution system, the importance of finished water alkalinity will continue to increase. For systems that utilize chloramines high finished water alkalinities are even more critical. High alkalinities allow finished water to resist pH changes associated with acid production from biological growth (including nitrification). In addition, the reduction of the organics in the finished water, also reduces the food source for biofilm growth, which will result in less chloramine residual degradation and reduced distribution system flushing, which can be extremely costly. For the Palm Beach County project, it was estimated that the reduction in organics in the finished water could result in a 50-percent reduction in flushing (for Palm Beach County this 50-percent reduction represented in excess of 1.5-million gallons per day of flushing water saved).



Lime softening basins operating in conjunction with membrane treatment at Olathe, KS, 37-mgd WTP.



Carollo developed a simple, proven control algorithm for the City of Manhattan's, KS, solids contact clarifier, which resulted in excellent settled water quality, improved dewaterability, and less hauling and disposal costs.



## Lime Slaking System

In a lime softening treatment system, the majority of the chemical usage and cost is associated with the amount of lime consumed in the process. In order to achieve the maximum efficiency of the lime used, the reactivity, which is primarily controlled by slaking temperature, should be as close to the optimum as possible. The optimal slaking temperature is just below the boiling point of water (this forms the highest surface area of lime). Therefore, the temperature of the slaking process should be as high as possible without creating localized areas where boiling would occur.



Our proposed project team rewrote the dry chemical feed section of the AWWA/ASCE WTP Design book, which for the first time will include batch lime slaking.

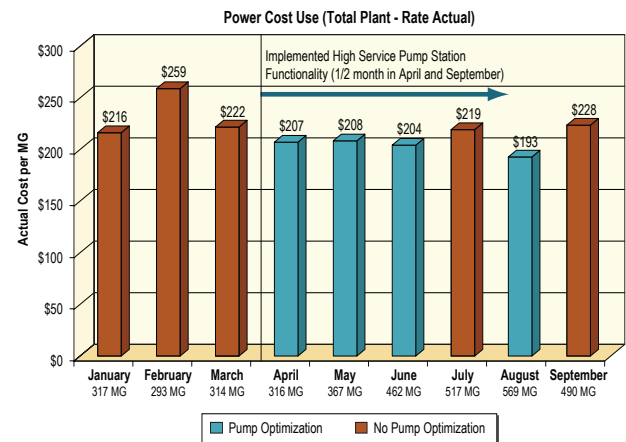
Due to the changes in the reactivity of the quicklime, the dilution water temperature, particle size and gradation of the quicklime, and the amount of magnesium in the lime, determination of the correct water-to-lime ratio and detention time, slakers can be difficult to set and maintain. Batch slaking systems address these changing variables and maintain a consistent slaking temperature set point.

Carollo has experience with the design and installation of batch lime slaking systems, including installations for large utilities. Our proposed project team members rewrote the dry chemical feed section of the AWWA/ASCE WTP Design Book, which includes a section on batch lime slaking.

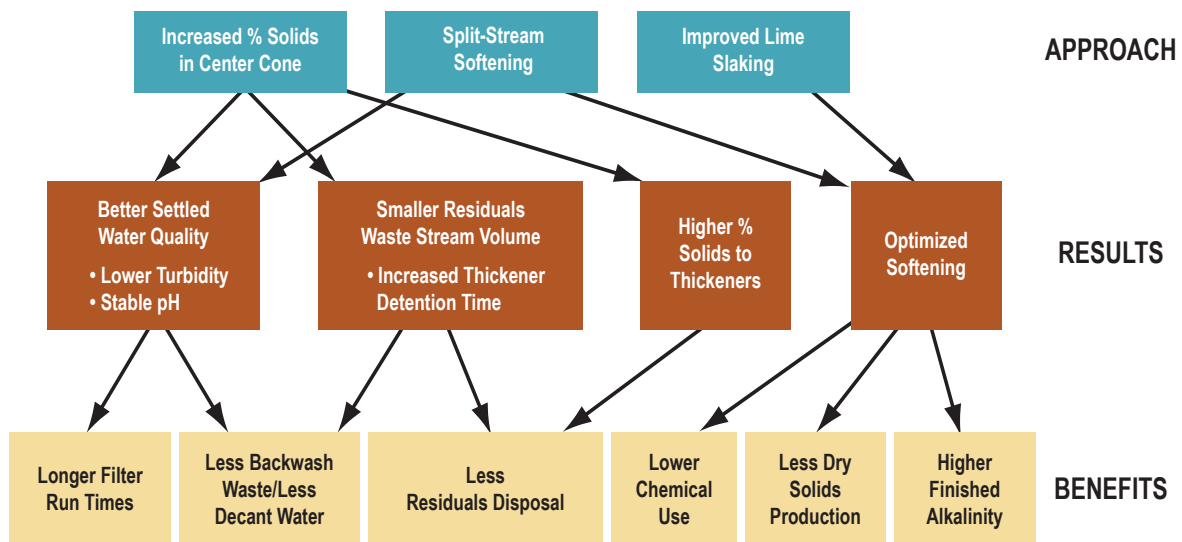


Our team has secured funding for lime slaker replacement projects due to the “green” benefits associated with reductions in lime dose, solids production, and shipping and hauling costs.

Our team has experience assisting utilities with securing funding for lime slaker replacement projects due to the green features associated with reductions in lime doses, the reduction in solids production and the reduced shipping and hauling costs.



Actual power consumption measured over a 9-month period at a WTP.



Carollo's proven system approach to the softening process provides synergistic benefits resulting in improved performance and reduced operations costs.

## Lime System Rehabilitation and Optimization



### Springtree Water Treatment Plant Lime Residuals Handling and Disposal Evaluation

City of Sunrise, FL

Carollo performed a study that included the evaluation of potential improvements for rehabilitation and renewal of a 24-mgd lime softening facility. The systems, processes, and facilities that were evaluated in the study and basis of design development phase of this project include: an organics removal system, disinfection rule compliance modifications, solids contact clarifier performance upgrades, sludge dewatering upgrades, chemical system upgrades (lime, sodium hypochlorite, fluoride), distribution system pumping upgrades, controls system upgrades, an entirely new administration and controls building, repurposing of an existing Floridan aquifer ASR well as a supply well for RO treatment for 1.5 mgd of permeate, demolition of existing filters, interior site lighting upgrades, drainage upgrades, repiping of ground storage reservoirs, and other general renewal, replacement and painting upgrades.

During the study phase, Carollo also performed bench-scale testing of ion exchange and ballasted flocculation technologies for organics control alternatives. Fluidized bed ion exchange was recommended for full scale implementation. This system, if implemented, is projected to reduce organics in the finished water leading to subsequent chemical and sludge reduction in the existing lime softening process while improving finished water quality.

## Brackish Groundwater Treatment and Reverse Osmosis

As shown in the map below, Carollo has extensive relevant experience with brackish groundwater supply development and treatment with reverse osmosis in Florida

A wealth of Florida brackish groundwater supply development and reverse osmosis treatment provides confidence in the Carollo team.)



- Clearwater RO WTP
- Tampa Bay Water Seawater RO WTP
- Polk Regional Southeast RO WTP
- Polk Regional West Polk RO WTP
- Manatee County Buffalo Creek RO WTP
- Sarasota County Venice Gardens RO WTP
- North Port RO WTP
- Babcock Ranch RO WTP
- Lee County North Lee County RO WTP
- Lee County Pinewoods RO WTP
- Collier County South County Regional RO WTP
- Collier County North County Regional RO WTP
- Collier County Northeast Regional RO WTP
- FKA Stock Island RO WTP

## North Lee County Water Treatment Plant Rehabilitation and Expansion

### Lee County, FL

Carollo received repeat contracts from Lee County Utilities (LCU) to provide design-build services to rehabilitate and expand both the Pinewoods and North RO Water Treatment Plants (WTPs). Both projects were built on a challenging schedule. Carollo completed engineering and received all necessary permits within only four months following a notice to proceed. Costs of these projects ranged from \$10 to \$17-million and the projects were completed within only 18 months.



Both projects required significant rehabilitation to address deficiencies in previous designs and incorporate new technology, including: redesign of the existing reverse osmosis (RO) trains and control systems to improve reliability/hydraulics, increasing RO feed pump size from 75 to 250-hp (North plant) and expansion existing electrical service and standby power capacity. Energy recovery and acid elimination were implemented at the North plant for a savings of approximately \$450,000 per year.

Due to LCU's prior problems with design flaws on their original facilities, LCU and Carollo worked together to develop performance testing requirements, including hydraulic, water quality and electrical tests, which were subsequently demonstrated to achieve substantial and final completion for both facilities. Because of Carollo's success in completing these past projects – and their successful operation over the last 10 years, LCU recently awarded Carollo another contract to expand the North RO WTP again, past its nameplate capacity of 10-mgd to 15-mgd. This project is on schedule to be complete in 2024 and has a budget of \$30-million.

The North Lee County Water Treatment Plant (NLCWTP) is a RO water treatment plant using the Hawthorne Aquifer as a source. It was originally constructed in 2006 in response to the need for additional capacity in the County's northern service area.



## TECHNOLOGY TRANSFER YIELDS RELIABLE, PROVEN SOLUTIONS

Carollo remains at the forefront of water technology and best practice. Water and wastewater in the U.S. is a close-knit community, and technology and information transfer from other industries and geographies is a valuable tool that we bring to our clients to provide lessons learned and catalyze new ideas. Simply stated – “new to us” can often be tried, proven, and reliable for others. For example, pellet softening is a process that has been around for decades and one that Hollywood is quite familiar with. In the U.S., application of pellet softening dwindled for many years. In contrast, pellet softening has remained a dominant treatment process in Western Europe, and the technology has matured and advanced beyond current U.S. practice. Pellet softening may or may not be in the future for Hollywood, but it remains in the present, and Carollo can help you with getting the most out of your existing pellet softening system or potential new softening systems.

### Pellet Softening System

#### South Adams Water and Sanitation District, CO

The new South Adams WTP pellet softening system provides a case study in state-of-the-art best practice and design.

The primary water source for the South Adams County Water and Sanitation District consists of 12 alluvial wells that have experienced significant hardness in the water, causing customers to endure the costs of frequent plumbing and water heater replacement and to add in-home water softeners. To address these issues, the District implemented a pellet softening process, which is a full-scale, centralized process capable of treating up to 18-mgd to reduce calcium hardness in the water supply.

Carollo was the design engineer for the Construction Manager at-Risk (CMAR) Pellet Softening Design project at the Klein Water Treatment Facility.

Carollo provided engineering services related to the project elements below:

- Pilot testing to determine design criteria.
- Design of largest fluidized bed pellet softening system in North America.
- Design of granular media filtration process.
- Design of chlorine disinfection system and stabilization process.
- Engineering service during construction.
- Process commissioning.

Closer to home, Carollo is currently designing a new pellet softening system for North Miami Beach that will leverage the best of South Adams WTP as well as lessons learned. Many of the design concepts and operational practices from South Adams WTP are applicable to the Hollywood WTP, and we are eager for the opportunity to roll up our sleeves to work with you to improve your facility.



<https://www.youtube.com/watch?v=02CVR07Qg04&t=3s>

Pellet softening system at the South Adams County, CO, Water and Sanitation District Facility.



## PFAS Services

PFAS has been detected in many drinking water systems nationally, and could impact the City in the future.

In the past five years, our team has engaged in more than a dozen innovative PFAS, research, pilot, planning, and full-scale design project for PFAS contaminated groundwater. This experience has helped us develop strategies and effective treatment designs.

This work includes:

- Extensive modeling and model calibration for PFAS groundwater treatment,
- 40+ rapid small-scale column testing (RSSCT), an innovative accelerated way to test the breakthrough of adsorption media
- Conceptual designs, cost estimates, and full scale designs.

In the past few years, Carollo has been involved with numerous PFAS-related projects. This work includes extensive modeling and model calibration, 40+ RSSCTs and column studies, conceptual designs, cost estimates, and four full-scale designs. Our experience has shown that phase-transfer processes (e.g., GAC and IX) and membrane-based separation (e.g., nanofiltration and reverse osmosis) have emerged as the leading PFAS treatment options, with GAC or IX typically preferred due to their operational simplicity, lower cost, and lack of liquid concentrate production. In addition to PFAS, we have designed groundwater treatment systems to address other inorganic and organic contaminants, such as 1,4-dioxane, nitrate, perchlorate, and volatile organic compounds (VOCs). For all of our projects, we consider unintended consequences of treatment changes and incorporate necessary mitigation strategies into our designs.

## TARP Improvements for PFAS Treatment

Tucson, AZ

Carollo is performed comprehensive technical services for Tucson Airport Remediation Project (TARP), which provided remediation of nine municipal water supply wells. This included raw water collector pipelines for each well field, and a water treatment plant comprised of an influent booster pump station, three parallel UV AOP reactor trains for destruction of volatile organic chemicals and 1,4-dioxane, hydrogen peroxide storage and feed facilities; eight GAC contactors that quench excess hydrogen peroxide and adsorb PFAS; three parallel trains of packed column aeration; a sodium hypochlorite storage and feed system for disinfection residual addition; and a treated water pump station.

Carollo performed bench-scale testing of four GAC media and one IX resin for PFAS removal using RSSCTs. The results were used in an economic analysis comparing GAC media and IX. Since eight GAC contactors were already being used as part of the UV AOP process and could provide both hydrogen peroxide quenching and PFAS adsorption in the same vessel, Tucson Water decided to use these existing GAC contactors and add four new GAC contactors for PFAS treatment downstream of the UV AOP system.

Additional services provided included: preliminary design, detailed design, resident engineering, construction administration, startup/operations assistance, and regulatory/permitting support.



## FKAA Professional Services for PFAS Treatment

Key West, FL

The Florida Keys and Aqueduct Authority recently selected Carollo as their design consultant for the PFAS water treatment and removal at the Authority's JR Dean WTP in Florida City.



## Wastewater Treatment

The existing SRWWTP has aging process areas that are in need of rehabilitation, including the oxygenation trains, clarifiers, electrical service center system, and construction management for the bar screen bypass project, and may also include other potential opportunities and challenges. In this section, we highlight our experience with designing facilities using Carollo's philosophy for successful designs:

### **RELI:** Carollo's proven design philosophy for long-term success

RELI. RELI—**R**obust, **E**asy to operate and maintain, **L**ogical layout, and **I**nnovative—defines our proven design philosophy. We will apply and grow these design principles in collaboration with your staff to deliver your projects that will stand the test of time.



#### **ROBUST**

At Carollo, robust means that the processes, hydraulics, and equipment are flexible enough, tough enough, and reliable enough to withstand the anticipated service conditions.



#### **EASY TO OPERATE AND MAINTAIN**

Easy-to-use facilities for your operations and maintenance crews result in better performance and longer life. Ease of O&M starts with adequate access for your crews to move equipment and control panels.



#### **LOGICALLY LAID OUT**

The worst words our design team can hear are, “this layout doesn’t make sense.” We will collaborate with your staff so the facilities make sense to your O&M teams by incorporating logical layout of all basins, buildings, and components. Logical layout is what separates an adequate WWTP from a facility that lasts. Logical layout does not cost you money; rather, it can save capital and operating cost.



#### **INNOVATIVE**

Our design teams will look for opportunities for innovation on this project. Many times, innovation is simply the creative use of established processes, equipment, and techniques to improve performance.

We will follow our **RELI** design approach to deliver design excellence to your projects.

From experience, we know that all design projects such as these demand a precise and close-knit project team. We always engage our team throughout the design phase to effectively address design integration, constructability issues, strengthen contract documents, and promote accurate schedules and costs.

This provides confidence in project costs while following “design-to-budget” principles instead of allowing “project creep” which ultimately results in delays and redesign. We conduct value engineering reviews (formal or informal, as required) and track design/cost trends through design to make sure that the projects are always within your budget expectations.

We also collaborate with the City on procurement planning and critical path method (CPM) construction schedule development throughout the design to make sure that the various projects don’t overlap in a way that they create maintenance of plant operation (MOPO) problems or limit the number of construction bids. By timing the various projects effectively, the City is more likely to receive competitive bids and reduce operational hardship throughout the construction period.



## APPLICATION OF RELI AND INNOVATIVE TECHNOLOGIES BRINGS SIGNIFICANT BENEFITS TO MIAMI DADE WASTEWATER PROJECTS

Providing designs or deliverables that need minimal revisions means fulfilling the scope of work while also delivering the unwritten, yet often equally important, unwritten goals and needs that each stakeholder has in mind. Doing so results in a final evaluation that says **"Carollo far exceeded our expectations"**. Achieving this starts with superior communication between your manager and ours, resulting in our delivery team heading in the right direction with any needed adjustments happening along the way, and culminating in designs that reflect what you want and need.

### Central District WWTP and South District WWTP New Sludge and Thickening and Dewatering Buildings

Miami-Dade Water and Sewer Department, FL

Carollo was the design engineer at the Central and South WWTPs new Sludge Thickening and Dewatering Buildings. The design of the sludge handling facilities is 144-mgd for the Central District plant and 120-mgd for the South District plant (AADF). It is part of their consent decree program, so the project was on an accelerated project and was delivered as a design build project.

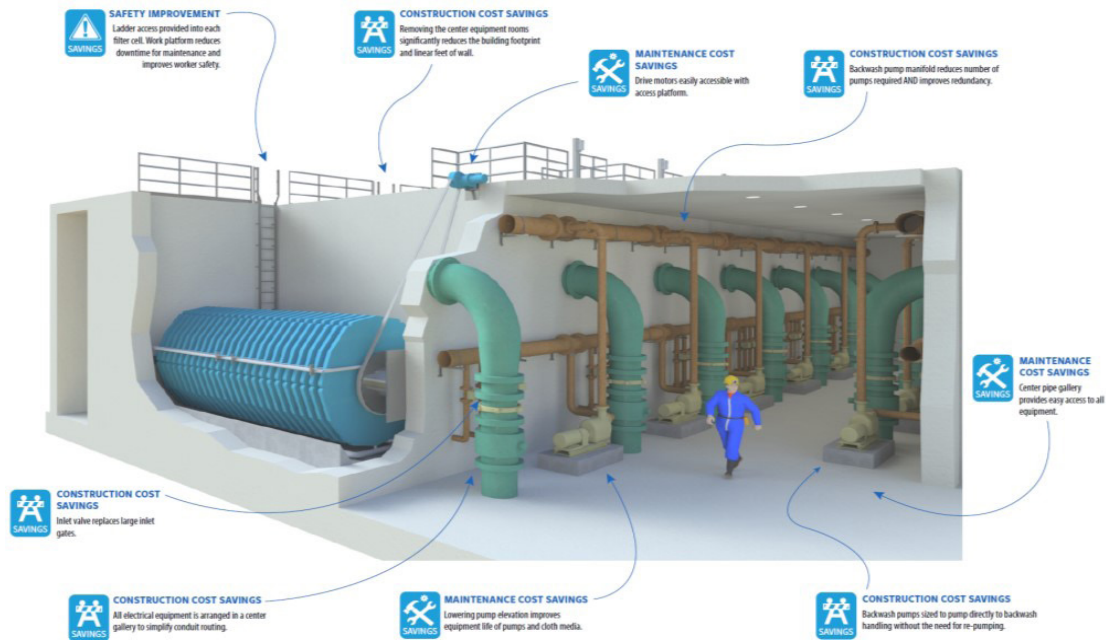
Our team worked closely with Miami Dade staff to optimize the facility layout. The feed pumps were located directly under the thickening and dewatering equipment to reduce the amount of piping, valves and bends. This improved accessibility and increased space for ease of operations and maintenance.

The BIM rendering was instrumental for design and allowing the Miami Dade staff to visualize the layout of the facility. Carollo has mastered the use of innovative technologies to avoid rework and minimize change orders. This project is almost complete and we have not had any issues or rework. Below is a BIM rendering used in the design.



BIM rendering used in the design of the Miami-Dade South District WWTP.





Based on the successful delivery of the wastewater biosolids project, Miami-Dade selected Carollo for their \$165M Central WWTP Tertiary Filtration Project. Carollo used BIM rendering and RELI to build safety features, and maintenance and construction cost savings into this project.

## Central Wastewater Treatment Plant Tertiary Filtration Project

Miami-Dade Water and Sewer Department, FL

The Miami Dade Central District Wastewater Treatment Plant (CDWWTP) currently discharge sup to 330 mgd of secondary effluent through ocean outfall. The High Level Disinfection Project, currently under design, will add tertiary filtration and chlorine disinfection tanks to achieve Florida's HLD reuse requirements for discharge into municipal groundwater wells. This project will significantly limit the use of the ocean outfall which is necessary to comply with the Ocean Outfall Legislation (OOL) program.

The project also includes the filter feed pump station, flocculation, chemicals systems, and electrical systems. All structures are being designed as hurricane hardened facilities with engineering allowances for revised flood elevations.

Carollo is providing the following engineering services under this design contract:

- Peer review of filter pilot demonstration testing.
- Filter technology life-cycle assessment, technology selection, and system design.
- Flocculation testing, life-cycle assessment, and system design.
- 368-mgd pump station replacement and rehabilitation design with CFD and hydraulic modeling.
- Electrical, Instrumentation and Controls design.





## OPTIMIZING AND ENHANCING HIGH PURITY OXYGEN SYSTEMS

The following project is shown as an example on how our creative construction sequencing and innovation saved one of our clients approximately \$200K

### Carbonaceous Oxidation Tank Expansion

Sacramento Regional County Sanitation District, CA

Carollo has performed several projects for the Sacramento Regional County Sanitation District's (SRCSD) 181-mgd Sacramento Regional Wastewater Treatment Plant (SRWTP). The \$31 million Carbonaceous Oxidation (CO) Tank Expansion Project increased the plant's activated sludge capacity by 50 percent. Oxygen dissolution is accomplished with surface aerators ranging in size from 60 hp to 200 hp.

Carollo selected surface aeration equipment over the facility's existing submerged turbine equipment based on surface aeration's higher efficiency, less costly maintenance, and ease of operation.



A detailed sequencing analysis for the SRCSD's CO tank expansion resulted in a \$200,000 construction cost savings and reduced the construction period by approximately three months.

"An innovative solution to a complex problem, there markably high transfer efficiencies resulting from the novel design approach have made the CO tank expansion a very successful project for us."

Wendell Kido, Chief of Water Quality, Sacramento Regional County Sanitation District

The project involved the addition of four pure-oxygen-activated sludge trains, with four stages each. Key features included: five pure oxygen activated sludge tanks, a tri-level tunnel structure, two mixed liquor channels, an area control center/motor center building, 16 two-speed drive surface aerators, four 250-hp reclaimed water high pressure pumps, two 75-hp waste activated sludge pumps, and extensive process and utility piping.

Because the plant had historically experienced significant difficulty with *Nocardia* foam, the design incorporated an innovative "classifying selector" for wasting sludge from the surface of the return activated sludge channel to more effectively control solids retention time and reduce *Nocardia* formation.

One of the main challenges of this project was to evaluate the construction sequencing required to build five pure oxygen activated sludge tanks around and under an existing channel and tie them to the existing tanks. Carollo used a detailed critical path schedule to analyze each construction step, including the size of the concrete pours for the slabs and the number of concrete lifts for the walls. The analysis revealed that the existing channel could be taken out of service during construction, eliminating the need for specialized construction techniques. The channel was demolished and reconstructed along with the new tanks, resulting in a cost savings of approximately \$200,000 and a reduction of the construction schedule by approximately three months.

## Electrical Systems and Backup Power

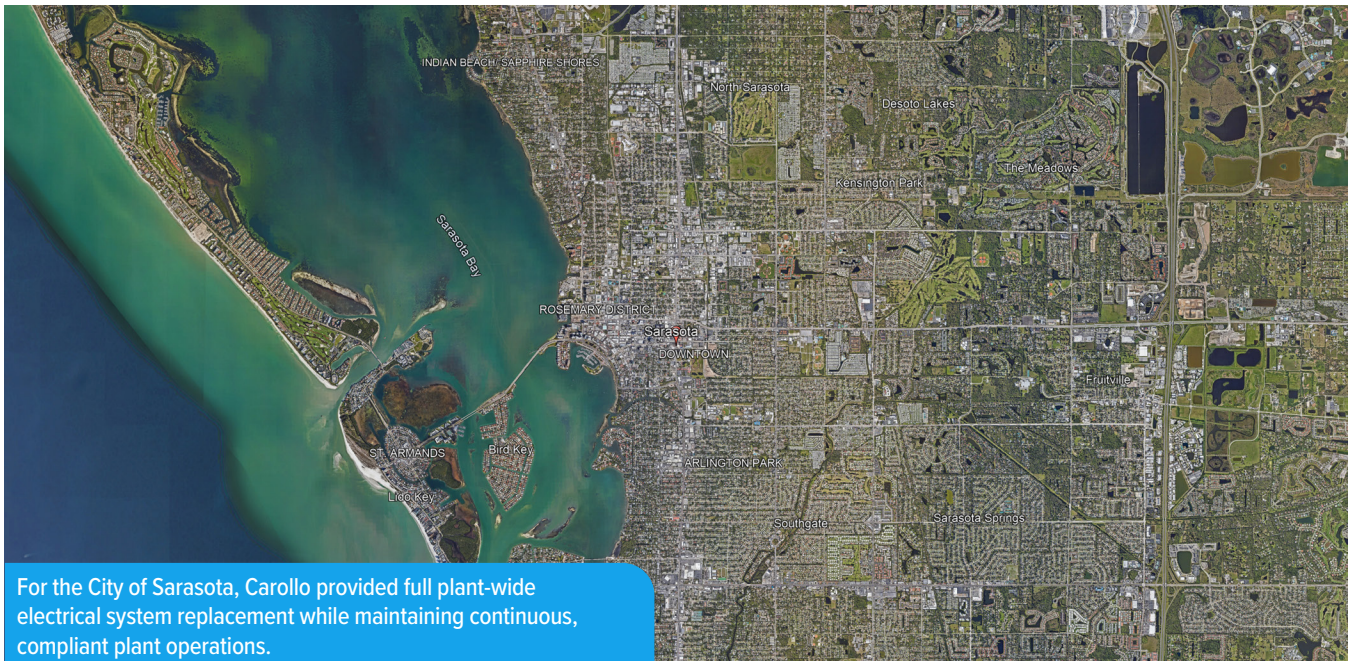
Electrical system and backup power are key aspects of almost all of our water and wastewater treatment projects. Cost-effective reliability and safety are hallmarks of our electrical designs. Among the huge number of electrical-related project elements, we will highlight two: the City of Sarasota wastewater Treatment Plant Upgrades, and Emergency Response Services at Bay County.

## Emergency Storm Response

### Bay County, FL

The emergency storm response in Bay County included:

- Lost power and control to headworks
- Electrical and controls were originally located on top of headworks
- Restore power and operation to headworks
- Temporary controls
- Permanent Repairs/Upgrades
- New electrical and controls at grade level in new building (by others)
- Remote control access for controls that remained on the top of headworks
- Built redundancy into new system



## Wastewater Treatment Plant Upgrades

### City of Sarasota, FL

The City of Sarasota owns and operates an advanced wastewater treatment plant with a permitted capacity of 10.2-mgd. The facility was originally constructed in the 1950s with the last major upgrade to the facility coming in 1990 to provide advanced treatment.

Over the years, upgrades and R&R and upgrades at the plant had been minimal. Carollo provided a full system evaluation and a facility plan for rehab and upgrades to every major unit process while maintaining continuous compliant plant operations. Upgrades include a full plant-wide electrical system replacement/upgrade, including new electrical service to a new central electrical building with backup power generation and new electrical distribution to all process units and buildings.



## Infrastructure Projects

With potable water transmission and distribution, wastewater collection, reuse distribution and stormwater systems, the City operates and maintains a complex network of pipes and pumping stations to with many challenges and opportunities. In this section, we highlight how our clients have leveraged Carollo's support to assist with planning, design and construction of their infrastructure.

### Innovative Force Main Reliability Improvement Project

Boynton Beach, FL

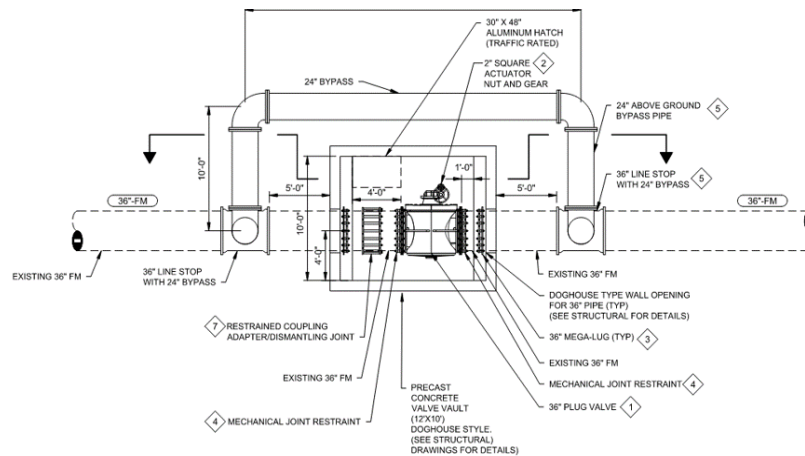
The City of Boynton Beach's primary force main includes a 36-inch main down Congress Avenue, constructed nearly 50 years ago. The main runs for approximately 4 miles to the South Central Regional Wastewater Treatment Plant (SCWWTP) with numerous pump stations manifolded along the way.

As growth continued, the City later constructed a parallel 24-inch main towards the east. These mains were effectively looped, with both mains ending at the SCWWTP.

Although the City had parallel force mains, they did not have the ability to isolate the original 36-inch main if required given no in-line valves existed. This left the entire City collection system at risk should maintenance or repair be required in the future.

A key challenge required inserting 36-inch valves in an active force main along side a major roadway, with a goal to minimize the project impact area and construction duration.

A solution to address the challenge - a creative "Thrust box" design was developed. This allowed for a reduced construction area, while also improving access and safety during valve installation. With the insertion of three 36-inch valves in the force main system, the City has built a significant amount of reliability in the system and greatly reduced risk for the future.



**A 36" VALVE NO. 3 PLAN**  
SCALE: 3/16"=1'-0"  
FILE: 11388B1000M01

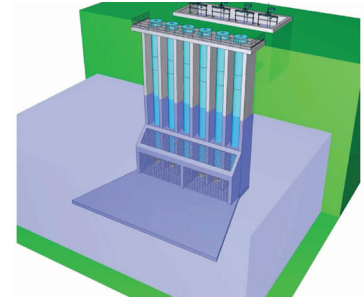


## Miscellaneous Engineering Projects

### South Florida Water Management District, FL

Carollo has been providing engineering services for South Florida Water Management District since 2008. During this time, Carollo worked on a wide assortment of projects. Some of the projects under this contract have included the following projects:

- **L8 Reservoir Stormwater and Pump Station.** Carollo provided design of a pump station and inflow structure for the L8 Reservoir in central Palm Beach County. The L8 Reservoir is part of an ongoing project to deliver full functionality to a reservoir of 45,857 acre-foot capacity of storage in the southern L8 basin. Included in this effort was background information collection and review, preparation of a conceptual plan, and proposed future efforts. The conceptual plan included three conceptual plan layouts for the facility pump station (with design capacity of 450 cfs) and inflow structures with consideration for optimizing hydraulic and site constraints. The Carollo team also developed rough order of magnitude cost and implementation schedules.
- **S-470 Stormwater Reservoir Pump Station Project.** Carollo was selected by the SFWMD to provide planning and detailed design of the \$58.5-million S-470 Stormwater Reservoir Pump Station project. This design also included improvements to the Townsend Canal at the State Road 80 highway bridge; widening of the canal from State Road 80 to the Caloosahatchee River; site improvements; canal armoring design; and infrastructure for SCADA and communication systems. S-470 is a 1500-cfs (673,000 gpm) unmanned pump station that will convey stormwater flows from the Caloosahatchee River to the C-43 above-ground reservoir, via the Townsend Canal, and was designed and specified for construction by Carollo.
- **S-476 Stormwater Reservoir Pump Station Project.** Carollo was selected by the SFWMD to provide planning and detailed design of the \$10.7 million S-476 Pump Station (PS), which is one of four design phases included in the C-43 West Basin Storage Reservoir (WBSR) project near the LaBelle area in Hendry County, Florida. This design phase also included site improvements and grading, intake channel armoring design, and infrastructure for SCADA and communication systems. PS S-476 is a 195-cfs unmanned pump station that will convey stormwater flows from the Townsend Canal to a Perimeter Canal at the C-43 WBSR Reservoir site and was designed and specified for construction by Carollo.
- **S-479 Stormwater Reservoir Pump Station Project.** Carollo was selected by the SFWMD to provide planning and detailed design of the project, which is one of four design phases included in the C-43 West Basin Stormwater Storage Reservoir. The SFWMD C-43 S-479 project has 3 pumps of 125 HP each with a total capacity of 125 cfs (56,000 gpm). The design of these structures included a combination of hydrologic modeling, hydraulic design, and verification using one and three dimensional computational fluid dynamic analysis. Carollo was involved in the coordination and analysis of model data used for sizing, designing each structure, and armoring downstream of each water control structure.
- **C43 PS S-470 Pump Station Design.** This project consisted of the redesign of a 1500-cfs stormwater pump station for Everglades Restoration in South Florida. The pump station pumps into a 170,000 acre-ft reservoir which is intended to capture and hold water during the wet season and discharge it during the dry season. The purpose was to control the salinity in the receiving estuary.





## 4. FIRM'S AVAILABLE FACILITIES AND TECHNOLOGICAL CAPABILITIES



### Carollo's Water ARC®

**Applying Laboratory Expertise to Help Solve Our Clients' PFAS Treatment Challenges**

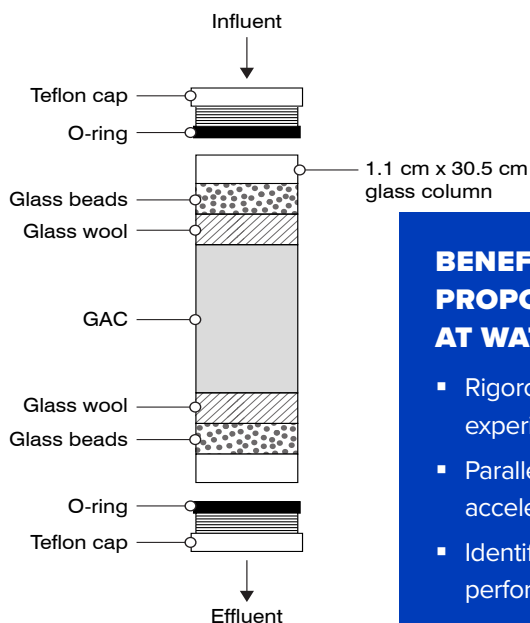
Since 1933, Carollo has successfully maintained a single-minded focus on the wastewater/water industry. Much of this success is based on our ability to offer advanced solutions that are practical, affordable, and reliable.

Our investment in applied research, through the Carollo Research Group (CRG), has been a cornerstone for the development and integration of these advanced solutions. To help meet these needs, the CRG operates the Water ARC®, that integrates and enhances our capabilities for field analytical, pilot, demonstration testing, and laboratory-based treatability testing.

### Bench-Scale and Pilot-Scale Testing

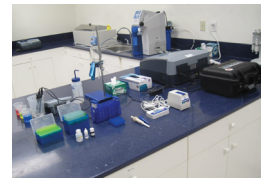
Our Water ARC® facility is fully equipped to perform bench and pilot testing in the event that bench and pilot testing is required to fine tune the design criteria. Bench and pilot testing will be used to collect detailed and reliable information regarding the key issues and assumptions made in the initial study, such as frequency of GAC/IX media replacement, fouling issues, etc. that impact long-term operating costs. Our approach will include considerations during the bench/pilot testing to capture and address seasonal water quality variation and its impacts on process performance.

**In fact, to streamline the study schedule,** rapid small-scale column testing (RSSCT) can be conducted at the Carollo's WaterARC® to simulate adsorption conditions in a full-scale contactor for rapid and economical determination of media adsorption capacity, where our team has already successfully conducted 8 trains of RSSCTs in parallel. Guided by an established sample collection and analysis matrix, samples will be analyzed based on expected breakthrough kinetics for PFAS and a suite of 14 PFAS.



### BENEFITS OF THE PROPOSED RSSCT TESTING AT WATER ARC® INCLUDE:

- Rigorous column design and experience to improve accuracy.
- Parallel testing capability to accelerate testing timeline.
- Identification of performance surrogates.



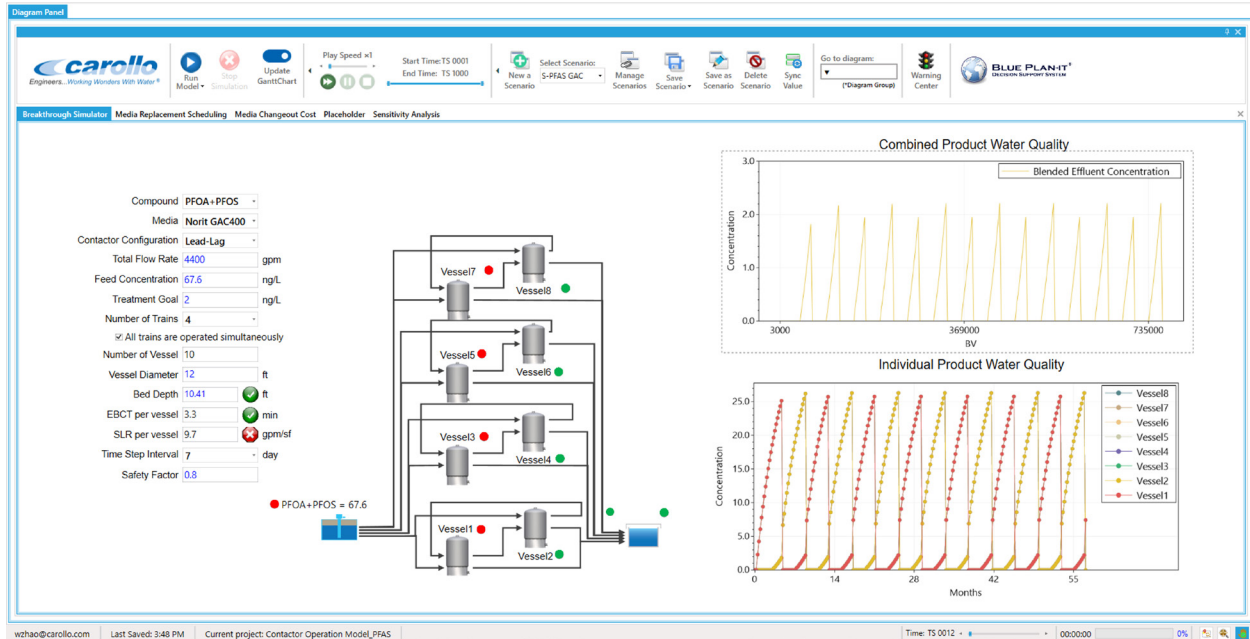
The Water ARC® lab has a broad range of equipment to optimize a wide range of water and wastewater treatment processes, including conventional and advanced technology bench testing.



Carollo's industry-leading Water ARC® Pilot Testing Program owns several pilot skids designed specifically for column testing as proposed here, and are available for project rental, along with full pilot testing support.

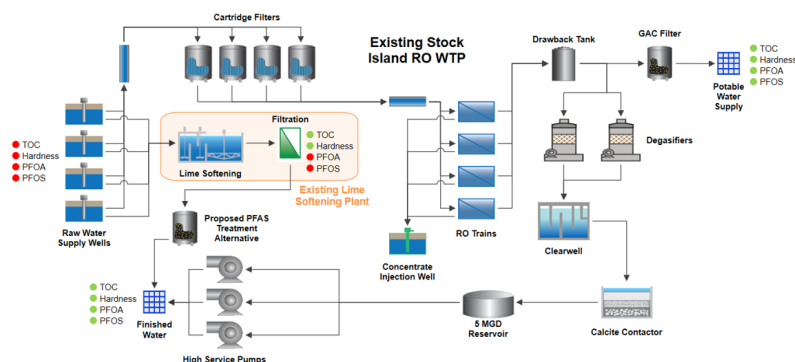
## Blue Plan-it® Our Decision Support (Desktop Analysis) Tool

Carollo's proven approach leverages our award-winning water simulation platform, the Blue Plan-it® (BPI) Decision Support System, which integrates empirical and mechanism-based algorithms to simulate how various adsorbents and resins remove contaminants. Using the Blue Plan-it® model, the user can enter site-specific breakthrough curves generated from bench and pilot scale testing and leverage the build-in mass transfer equations, surface and pore diffusivity model, and isotherm modeling to simulate full-scale operation. This approach has been applied to more than a dozen projects, resulting in a comprehensive database of over 50 RSSCTs for both short- and long-chain compounds, covering PFAS concentrations ranging from 0 to 3,000 ng/L in 15 unique water sources treated with more than 8 different media.



BPI model of GAC in lead/lag configuration with PFAS concentrations from FKAA's wells and the lower treatment target.

BPI will also be used to for scenario and alternative management. BPO has built-in features, such as scenario manager, genetic algorithm optimizer, linear and non-linear solvers, full factorial solver, and Monte Carlo simulation, links customizable data visualization and business intelligence dashboards for water systems simulation, optimization, and decision support. With these tools, the BPI solution helps save time and potential money than conventional approaches.



BPI model of FKAA's Stock Island WTP including RO and GAC processes.

Carollo introduced us to Blue Plan-it® when we were discussing solids handling for our 320-mgd WTP expansion project. The Blue Plan-it® model combined easy-to-understand visual graphics with a computational engine running real-time in the background. This allowed the City to quickly understand all of Carollo's assumptions and instantly showed us the impacts of changing a variety of inputs and operational constraints. The result was an incredibly powerful tool that helped us better understand cause and effect relationships throughout the WTP, which resulted in one of the most productive meetings that we had on the project. I highly recommend the use of Blue Plan-it® and have requested this tool to be incorporated not only into the expansion, but retrofitted for the existing 80-mgd plant.

—Drew Molly, PE, Assistant Director  
City of Houston

## Engineer's Design Toolbox

An idea is only as good as the person behind it and the tool(s) used to showcase and explain the idea to others. Carollo has a variety of tools in place that streamlines work efforts for any task. While a tool is no replacement for good engineering judgment and experience, the tools do help make the overall design process more efficient and complete. Furthermore, some tools (e.g., 3D models) are very helpful in conveying ideas to other project team members.



## Digital Toolbox

**LIDAR.** 3D laser scanning can quickly and cost-effectively convert existing infrastructure into virtual 3D models, offering many benefits for retrofit projects, including increasing accuracy by not relying on inaccurate as-built drawings.

**CONVERSION OF LIDAR TO BIM.** While visual models created with LIDAR are useful, the LIDAR data can be converted to Revit 3D BIM that offers even greater benefits to plant staff, designers and contractors.

**DIGITAL AS-BUILTS.** Geospatial data indexing the below-grade assets during construction provides cost-effective validation of the 3D model as-builts for improved accuracy and reliability.

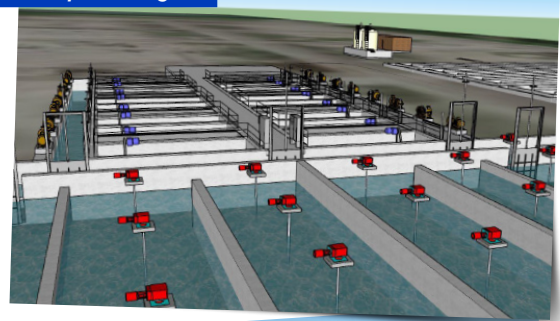
**3D DESIGN AND BIM TOOLS.** Carollo typically designs from start-to-finish using advanced capabilities of 3D and BIM techniques. To expedite our design efforts, we prepare conceptual designs using SketchUp 3D and transition to Bentley's MicroStation or Autodesk's Revit MEP BIM-layered 3D platform for preliminary and detailed design. We utilize standard clash detection software to identify and minimize conflicts throughout model development.

**VR TOOLS.** The Carollo team will facilitate a virtual reality design tour for WPB staff, allowing each member to "walk through" the design and provide feedback regarding layout, perceived operational space constraints, and preferences for ancillary facility placement. Staff can choose to use the VR headset themselves and enter the model, or view what others are seeing on screen.

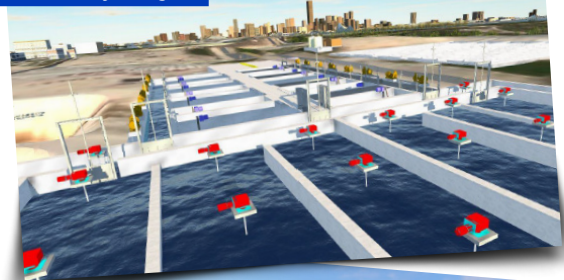
**EOMMS, ASSET MANAGEMENT AND CMMS.** The integration of submittal information and asset attributes into the BIM model database for incorporation into electronic O&M manuals (EOMM), asset management platforms (AMP), and computerized maintenance management systems (CMMS) are quickly becoming the norm. This approach allows for the integration of critical data attributes to be represented in a virtual model environment.

Any engineering firm will have basic tools such as Microsoft® Word, Excel, and computer-aided graphics(CAD) to deliver a project, but Carollo goes past these to better present and develop options. The table below shows examples of advanced tools at Carollo that have helped us successfully complete projects and may be of use for the City's projects.

Conceptual Design



Preliminary Design



Detailed Design



Virtual Reality



Data Integration



## Our Services Use Innovative Tools

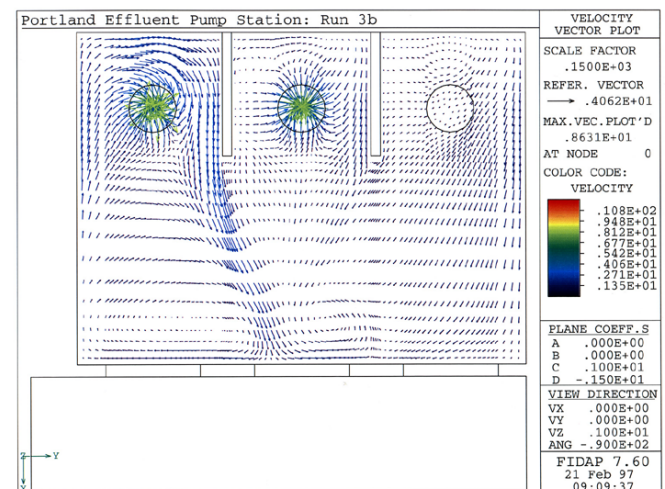
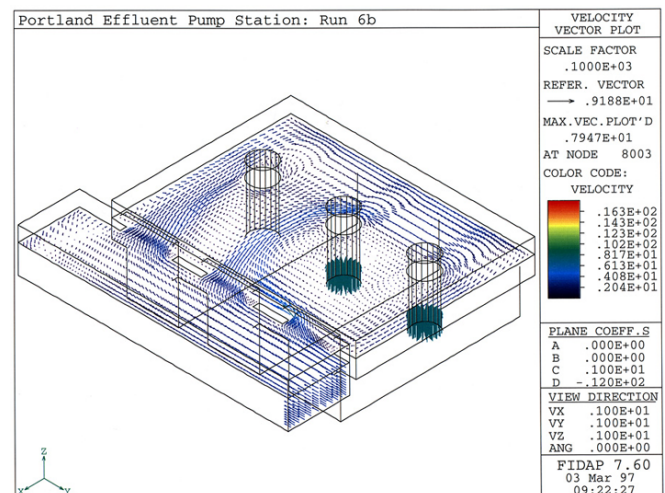
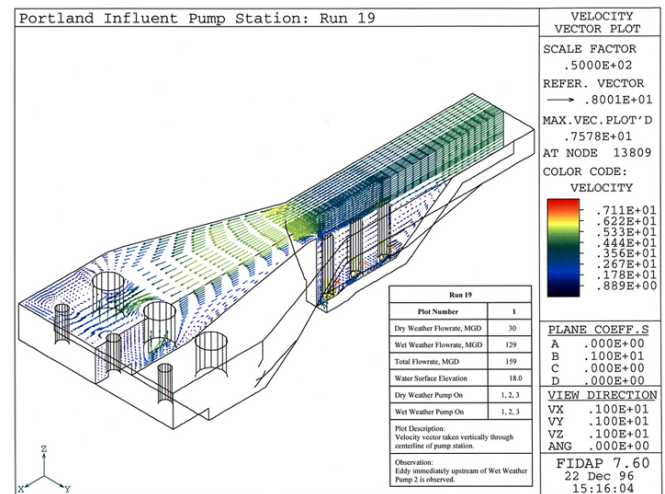
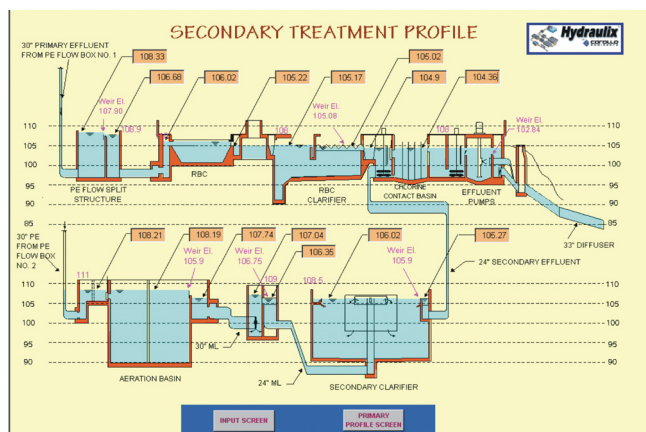
Our team is in the forefront of developing and utilizing new tools for our clients. We recognize that maximizing value comes from using the right tools for the right application. These include cloud-based systems for project management, specialized scheduling and cost estimating software, and even laboratory services for leading edge research to yield innovative results.

## Computational Fluid Dynamics

Carollo uses computational fluid dynamics (CFD), a modeling technique by which flow patterns within a hydraulic facility, such as a pump station's wet well or a downstream flow splitting box, can be simulated numerically. This tool allows us to fully understand the flow streams within these facilities in an effort to minimize short circuiting, reduce vortex formation, and address sedimentation. The foundation for the CFD models is based on a highly accurate and advanced modeling technique called the finite element method.

## Carollo's Hydraulix® Hydraulic Model

Hydraulix is a hydraulic modeling tool developed by Carollo to evaluate plant hydraulics. What sets Hydraulix® apart from other hydraulic models is its integration of a sophisticated graphical user interface with an easy-to-use computational format. The development of the Hydraulix® model bridges the gap between non-user-friendly design spreadsheets and complicated commercial models. It is an acknowledgment of a common theme we have heard from clients over the past few years—a desire on the part of the plant staff to have an easy-to-use hydraulic tool that will help them optimize plant operation. The model can be used to answer the many “what if” questions that typically emerge during the day-to-day operation of a treatment plant. Hydraulix® can also be used to analyze different operational configurations and to establish hydraulic capacities under these configurations.



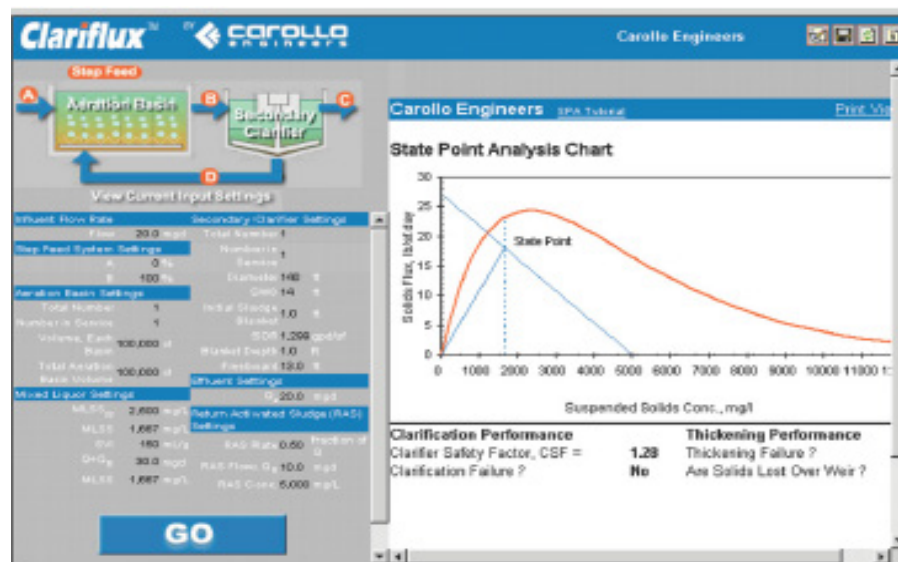
Carollo applied CFD to model the hydraulic characteristics of the 300-mgd Columbia Boulevard Wastewater Treatment Plant headworks in Portland, Oregon. Team members used the model to locate baffles and minimize turbulence and pump cavitation.



## Clariflux® Activated Sludge Solids Model

Clariflux® is an activated sludge simulation model developed by Carollo that provides a visual depiction of the solids interactions occurring between the aeration basins and the secondary clarifiers in an activated sludge process. Understanding these interactions can be critical for both design and operation because the overall success of the process depends on the ability to capture solids to prevent their escape in the effluent, and to adequately thicken in the clarifiers. Solids flux theory provides the theoretical background that describes these interactions; however, because of the complicated nature of the theory and the mathematical analysis involved in its application, it is generally not used in operational practice. As a result, the solids interactions in the activated sludge process are often poorly understood, and operational decisions relating to these interactions tend to be made on a trial-and-error basis.

Clariflux® removes the guesswork by providing a user-friendly tool for investigating the impact of different operational changes at a desktop level. The user-friendly graphical user interface allows the model to be easily used, even by non-experts. Using a click-and-configure approach, plant operations staff can easily configure the input screen to match the actual plant operational setup, and observe the resulting impact of operational changes on solids inventory in the activated sludge process, allows the user to analyze the impact of different parameters, including mixed liquor suspended solids concentration, return rate, and sludge settleability.



## Our Tools used to Design and Deliver Your Projects

### Design and Modeling Software

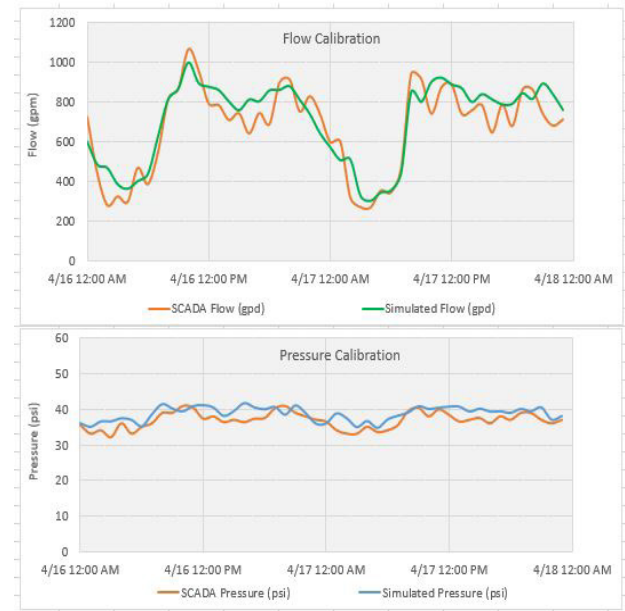
Carollo understands that no one knows your system better than you. Our team of expert hydraulic modelers will work alongside you to gain a thorough understanding of your systems and treatment plants. We have routinely provided modeling services to clients in Florida and across the country.

Described in more detail below are some of the modeling and design software systems Carollo utilizes and additional information regarding services we could provide if requested.

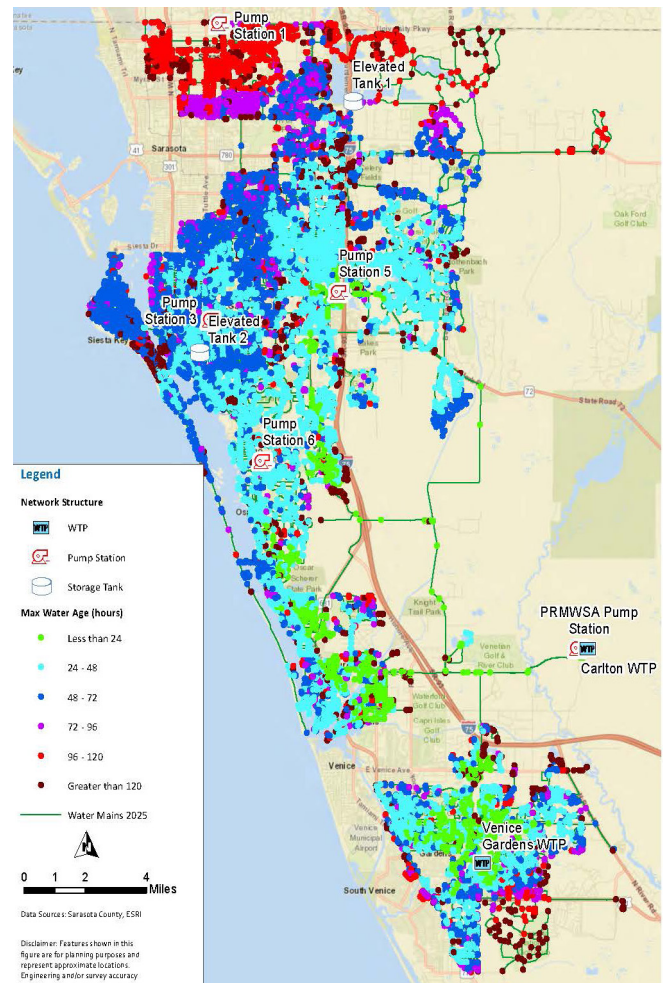
We know that your systems must continue to meet all peak demands, especially as you experience growth and development. Our project team has developed and calibrated numerous models and completed master plans for many agencies in Florida. We have experience in creating workable, user-friendly hydraulic models using a range of software packages. Software licenses maintained by Carollo include Bentley WaterGEMS, several Innovyze products such as Infowater Pro and InfoSWMM, WaterCAD, and ArcMap and ArcGIS Pro.

Our staff has a thorough understanding of each of these software packages and regularly communicates with the software developers to obtain updates and ongoing training of new software features.

**In the past five years, we have developed and calibrated the potable, reclaimed, and collection system models for Collier County Utilities, Manatee County Utilities and the Town of Davie. We also continue to assist many of our clients on an as-needed basis to develop and run scenarios in the hydraulic models such as Fire Flow (potable), Water Age (potable), Development Requests (potable and collections), Surge or transient analyses, and Unidirectional Flushing.**



Accurate hydraulic modeling is essential to best determine how to design new facilities, as well as how to incorporate improvements into existing infrastructure. When hydraulic modeling information is provided, it should be reliable and allow the City to make the best decisions for spending capital on future projects.



## CONSTRUCTION SERVICES ARE A CRITICAL PART OF OUR BUSINESS.

Carollo has provided construction management (CM) services for hundreds of water/wastewater treatment, pumping, and distribution facilities throughout the U.S. We have provided these services for both Carollo-designed facilities and as a third-party CM.

Our resident engineers, construction managers, project control specialists, and inspectors understand our role in interpreting and enforcing contract requirements.

We train our staff in the ever-changing areas of safety, risk management, and claims consulting. We readily adapt to various project delivery options and the latest in construction practices and technology to provide our clients with the highest quality service at the best possible value.

As local examples, Carollo is currently managing construction for the following projects:

- **Broward County** – Storage Tanks and Pumping Stations: two new potable water pumping stations and three storage tanks
- **City of Delray Beach** – Water Treatment Plant Filter Upgrades
- **City of Sunrise** – Water Treatment Reverse Osmosis System
- **City of Boynton Beach** – Force Main Valves for Collection System
- **Miami-Dade WAST** - Thickening and Dewatering Buildings at the CDWWTP and SDWWTP

Our Construction Services Group provides a full spectrum of CM and inspection services, including:

- CM professional development program to grow strong leaders
- Constructability review.
- Construction risk analysis and mitigation.
- Formalized procedures for quality inspection.
- Analysis of construction schedules.
- Document tracking and control.
- Cost controls.
- Negotiation of change orders and claims.
- Management and coordination of start up services.
- Detailed commissioning plans.
- Project closeout procedures.
- Preparation of final construction reports.



### Carollo CM by the Numbers

10%

Percent of annual revenues attributable to construction-related services

112

Number of national CM Personnel

57

Number of currently active projects

\$4.2B

Value of Carollo CM water and wastewater projects in the last five years.



## Funding and Grant Management Services

With tighter budgets and competing needs, municipalities nationwide are facing funding challenges. **Carollo has helped our clients secure more than \$1B in grant funds and low interest loans over the last 10 years.** This has reduced the overall burden on community rate payers, increased the ability to include desired project elements, and helped to maintain project schedules.

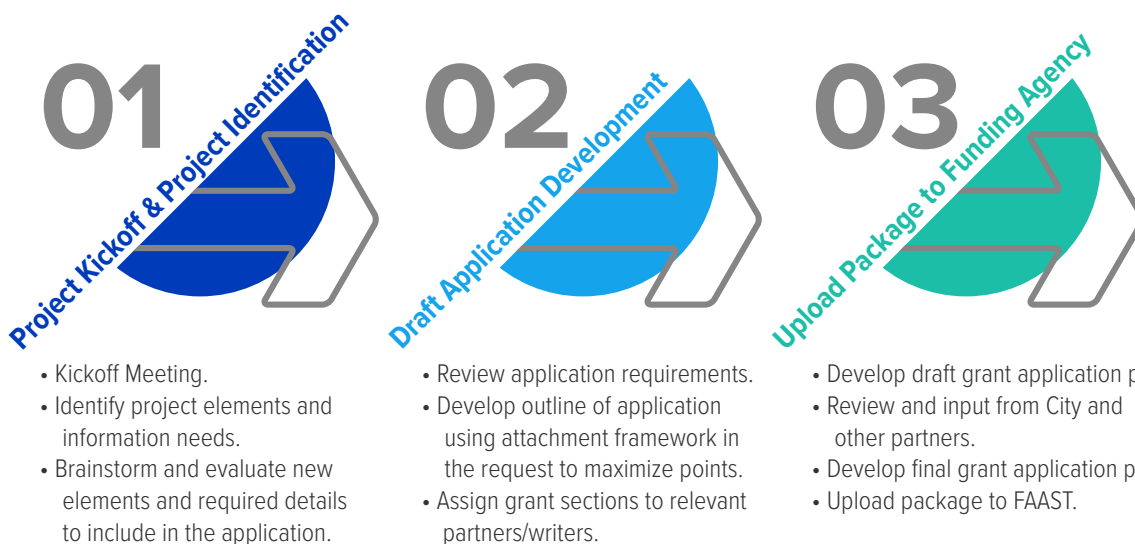
### Grant Application Assistance

Carollo will work with you to understand your priorities and preferences to tailor funding opportunities from State and Federal sources for your Projects. We have tailored an approach to address priorities and challenges to meet your needs. The key components of our project approach are summarized as follows:

1. At the start, we will work with the City to understand the elements of the proposed projects as well as understand your priorities and preferences. This will help identify potential funding program “hooks”, understand project readiness and schedule, and help identify potential project enhancements from the perspective of funding opportunities to increase competitiveness and optimize grant award.

2. Leveraging our team’s expertise, we will develop a grant funding strategy which identifies potential Federal, State and local funding sources (loan and grants, as available), required documentation to be competitive, anticipated timing of potential opportunities as well as time to secure the funding source, and a summary of applicable programs. We will utilize existing relationships with funding agency staff to better understanding current and future opportunities and to vet the project for program fit.
3. We will employ a hands-on, one-on-one approach with the City to develop project-specific details and to develop a draft and final application package for submittal. We will engage with funding agency staff prior to submittal to ascertain elements to enhance the City’s application and to evaluate grant funding opportunities. This will require regular coordination with both the City (engineering, finance and others) and its consultants.

Our team will continue to track and identify potential grant funding opportunities for your proposed projects. Grant development will follow the funding program requirements and guidance to ensure program compliance. Regardless of the funding source selected, Seema and her team of support professionals have the experience necessary to work with your staff, regulatory officials, and your legal and financial professionals to create the most advantageous financial approach available to your projects.





## Our Approach to Providing Funding and Grant Management Services



**SEEMA CHAVAN**  
FINANCIAL SERVICES/  
GRANTS AND LOANS LEAD

Seema Chavan is Carollo's National Strategic Funding Lead and helps clients across the country evaluate funding options, secure funding through creative grant applications, and provides reporting support to stay in compliance with funding requirements.

### Grant Management

Carollo regularly provides grant management support, including program compliance, oversight and reporting for our clients. We support our clients with review and execution of agreements, identification and on-going tracking of key deadlines, submittals milestones and compliance requirements, and implementing grant administration activities such as Davis Bacon compliance, quarterly reports, disbursement requests, and intermediary closing reports. All of which include close coordination with the City and Contractor.

Upon review of your grant agreements, we will develop a comprehensive plan identifying required compliance activities to be implemented and key deliverables (reports, certifications, requests for extensions, etc.), and we will assign a person responsible for each. We will develop an overall schedule including key milestones/ decision points to ensure timely implementation of activities so that the City stays in compliance with funding timelines. We will work with the City to ensure that all federal and state requirements are included in the construction documents to maintain contractor compliance.

### *Bee Ridge Water Reclamation Facility - Sarasota County, Florida*

Carollo was responsible for developing the 2020 WIFIA LOI materials and supported the application, developed the required documentation, and submitted the WIFIA package. The County was invited to apply for and obtained \$132M in WIFIA financing. Carollo continues to provide on-going support of compliance requirements during implementation. Carollo is working with County staff and the contractor on clear delineation of requirements/responsibilities and continues to provide responses and guidance on questions associated with



federal compliance requirements (e.g. David Bacon, environmental, etc.) as well as coordination with the EPA. Carollo also recently assisted the County in renewing the operating permit for the facility and recently completed the 100% design package for the improvements project to which the WIFIA funding will be applied. Carollo will assist the County with WIFIA compliance and reporting throughout the life of the project.

### *Drinking Water State Revolving Fund Funding - City of Santa Cruz, California*

Carollo assisted the City of Santa Cruz (City) with applying for and obtaining \$148M in Drinking Water State Revolving Fund Funding. Carollo was responsible for developing the 2021 WIFIA LOI and Application package for the City's Water Program Project (\$330M) and continues to be the point of contact for the City with the EPA. Carollo prepared the required federal (WIFIA) and state (SRF) compliance specifications for integration into the bid documents. Carollo continues to support the City coordinating with regulatory agencies (State and EPA) providing SRF reporting services, including developing and preparing disbursement requests and quarterly reports, clarifying compliance requirements, and supporting the City, its Program Manager and contractors as needed.



## Permitting Services

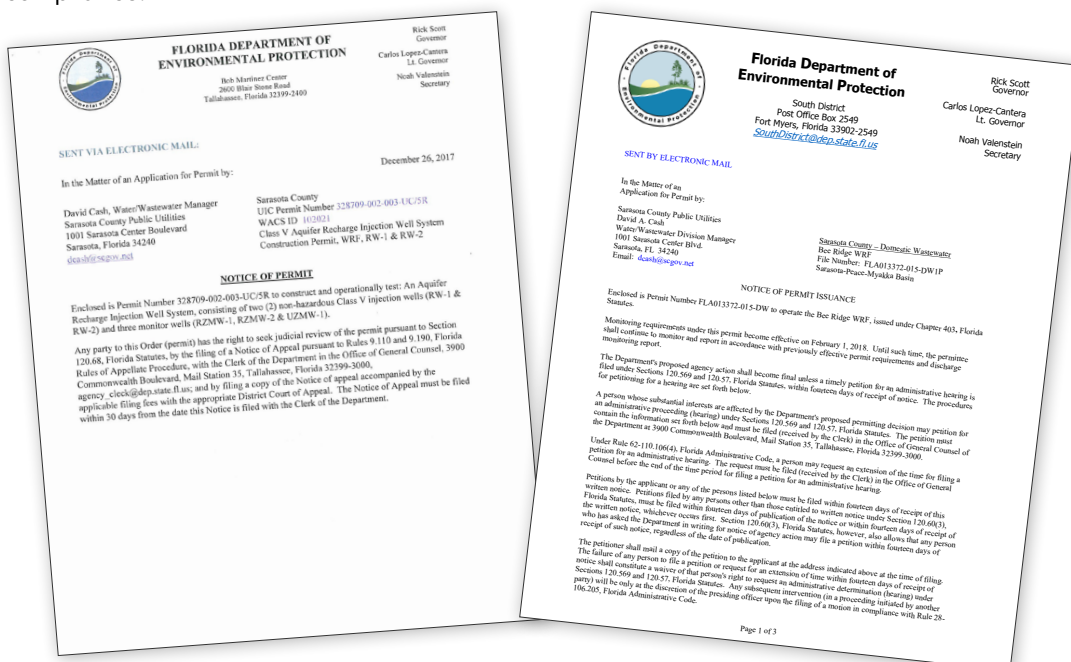
Carollo takes great pride in our close working relationships with the various local, county, state and federal regulatory agencies and our understanding of their requirements and procedures. Because of these close relationships, we have been successful in obtaining the necessary permits for water and wastewater facilities in association with our firm. We understand that a “hands-on” strategy is necessary to assure favorable permit conditions. This strategy involves working closely with the appropriate regulatory agencies and stakeholders to review, revise or obtain favorable permit conditions. This understanding has resulted in the successful negotiation of new and renewed permits and the resolution of complex permitting issues for a number of our water and wastewater clients.

"Carollo team members have forged relationships with the City's Building and Engineering Divisions team members to help facilitate this review process and streamline the permitting process."

## Taking Permitting Off The Critical Path

We will leverage our knowledge and relationships and combine that with our proven permitting processes to make sure that permitting does not become a limiting factor in your project schedules. Our permitting approach will be guided by the following:

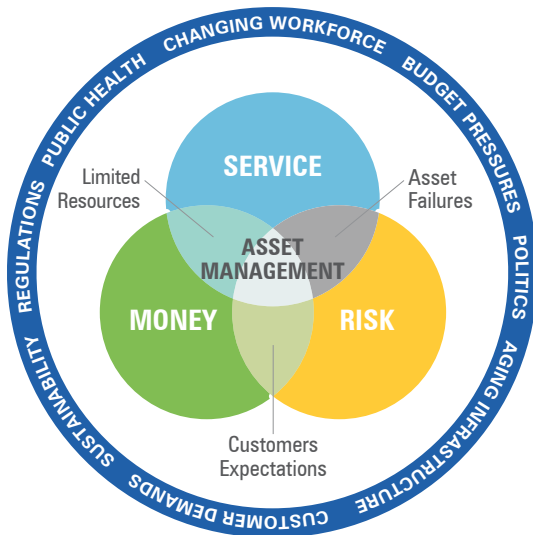
1. Identify all required permits by reviewing recent projects and talking with key permitting agency staff.
2. Develop and maintain a dedicated Permit Schedule with breakdown of tasks, subtasks, and milestones for each permit.
3. Conduct an introductory meeting with each permitting agency early in the project to identify hot buttons and develop project awareness within the permitting agencies.
4. Conduct a working pre-application meeting with each permitting agency for each permit. Bring to each meeting draft permits and supporting documents. Step through those materials and ask “How can we make our permit package easier and quicker for review?”
5. Follow-up early and often after permit package submittal. This follow-up will prevent delays from the all-to-often dropped application associated with transfer or termination of the permit officer.
6. After permit issuance, add specific permit conditions and requirements to the permit schedule to ensure full permit compliance.



## Asset Management

Asset management is more than condition assessment and risk planning. It is a way of doing business that collectively leverages infrastructure information, maintenance strategies, planning methods, financial data, and analytical techniques to balance budgets, service levels, and risk. The most successful asset management programs equip staff with these tools and techniques to sustain best-practice asset management long past the end of the project.

In the past 20 years alone, Carollo has provided asset management and planning services for more than 70 municipal clients and completed evaluations for more than 100 facilities addressing a wide variety of water and wastewater issues. These projects have involved strategic planning, visioning, program development, facility condition assessment, rehabilitation and replacement decision-making, applied decision analyses, coordination of stakeholders, gap analyses, funding strategies and schedules, capital improvement program development, planning and optimization of O&M activities, and financial analyses. Development and implementation of an asset management plan (AMP) provides agencies like the City with the opportunity to optimize their financial and staffing resources while meeting long-term planning needs. By defining service levels and implementing an effective asset maintenance reliability plan, the City's management team will be able to manage their risk and minimize life-cycle costs.



Asset management is a way of doing business more effectively, by prioritizing capital improvements and maintenance activities to meet customer's expectations while balancing risks and costs. Asset management is a continuous improvement process that focuses on optimizing data, systems, people, and practices

## Asset Management is a Way Of Doing Business

The City, like many of your peers in the water industry, is likely facing both physical and institutional challenges as assets age, water and wastewater system and regulations evolve, and the number of retirement eligible staff continues to grow. Implementing an AMP creates an opportunity to address these challenges by establishing a common set of key performance indicators (KPIs) that are consistent across, yet tailored to each system and mission-critical function within the Department of Public Utilities. The institutional and non-structural challenges are also opportunities for achieving strategic goals with respect to reliability, stability, operational capacity, employee development, and communications by:

- Improving the decision-making process.
- Improving efficiencies in operations and maintenance.
- Improving data collection and post-processing.
- Optimizing project deployment.

## Core Asset Management Services

### Asset Management Program Planning

*Tailored planning and implementation to help utilities realize their asset management vision.*

Fundamental to a successful AMP is a vision, which will lead to level-of service goals and objectives that set the framework for the entire program. Carollo conducts a Visioning Coordination Workshop to better understand and enhance the strategic vision of the AMP, and to confirm the criteria, features, needs, governance, and recommended guidelines for the performance and condition of assets. Setting the direction of an AMP with a unified vision will make sure the program doesn't lose steam or falter.

Instilling uniform asset management practices requires collaboration among many parts of the organization, including sharing of resources and information to make defensible, evidence-based, and uniform decisions. Carollo will work with staff to refine and develop clear governance and retention models that are consistent with the City's Asset Management and Strategic Plans, and that will keep key asset management initiatives current and updated for the sustainability and maturity of asset management by City staff.



» *Condition assessment should capture institutional knowledge, be objective, repeatable, and useful for O&M.*



## Asset Inventory and Condition Assessment

*Verified catalog of asset attributes and existing condition.*

Inspection and assessment programs generate data—LOTS of data! Aggregating these data so that it's accessible is a significant challenge. To support these projects, Carollo has developed a non-proprietary web-based application called CarolloAM to provide consistency in data collection and aggregate data from multiple sources. CarolloAM imports existing asset data and hierarchies, and facilitates update of those datasets in the field. Because it is web-based, no special tablets are needed and data can be accessed anywhere. Backed by the most powerful and secure database technologies available, you know the data is safe.

Nothing informs the condition and necessary maintenance or rehabilitation of assets like real-time monitoring. Fortunately, SCADA systems can provide this insight into a number of assets such as pumps and their associated run-times. Carollo works with our clients during the condition assessment process to identify these opportunities to provide real-time monitoring capabilities to have that information for staff and drive decision making.

## Risk Framework and Prioritization

*Focused risk protocol scoring of the asset inventory based on probability of failure and consequence of failure.*

Risk assessment considers not only the likelihood that an asset may fail, but also evaluates the consequence of that failure, and any redundancies which might mitigate that consequence. The availability of commercial, off the shelf tools to facilitate this planning for R&R of assets has evolved and Carollo leads in the application of these tools.

Carollo has applied Innovyze InfoAsset™ Planner (formerly InfoMaster) to help clients develop long-range R&R spending forecasts for 20-year CIP plans.

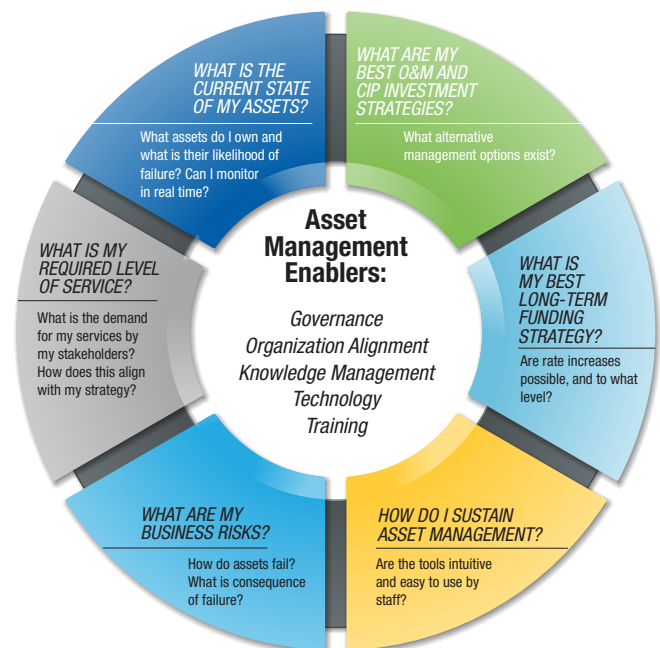
Carollo also has a suite of non-proprietary planning tools, available in Microsoft Access or SQL Server. These tools work with exports of CMMS (MAXIMO) asset registry and condition scores, then apply the established risk framework to provide you with a long-range capital plan.

## Project Development and Packaging

*Targeted identification of projects to mitigate risk of asset failure.*

The useful life is used to estimate when each type of asset will need to be replaced, based on its age; the useful life is meant to represent the average life cycle of a typical asset. At Carollo, we use evaluated Remaining Useful Life (eRUL), which is based on the current condition of the asset and the estimated remaining number of years until the asset no longer performs to its intended purpose whether that is due to physical condition, capacity, obsolescence or other criteria.

After asset replacement projections are estimated, planning-level costs are also developed for each year. Each asset is assigned a replacement cost using available cost information assigned to the asset or cost assumptions based on the type of asset. This is used to translate the year-by-year replacement needs to a financial reinvestment profile. Replacement needs are then grouped into near-, mid-, and long-term capital projects.





Carollo has built for us a truly living master plan that never goes out of date."

—Colin Groff, Assistant City Manager  
Boynton Beach, FL

## Governance and Retention Methodologies

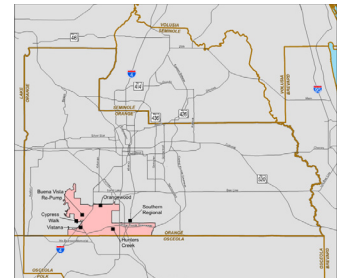
In order for the change to become permanent, it is key to form a governance structure that supports buy-in and change across all stakeholders—planning, engineering, operations and maintenance. Communication from the program to external stakeholders is also important to best practice asset management. To that end, ...Carollo has developed a Utility Management Optimization Plan (UMOP™) model with a series of operational, capital, and financial “smart dashboards.” UMOP™ allows multiple users to interact with the data, including engineers, managers, finance directors, Board members, and the general public.

### Daytona Beach Asset Management Assistance

The City of Daytona currently uses a variety of data sources and collection methods to capture the current state of infrastructure required to perform its core mission as a local government and utility provider. The City leadership has identified the need to evaluate and document current data collection processes across its core utility units and develop optimized processes that will promote safety, efficiency, and data-driven decision-making. The City has requested the assistance of Carollo to provide technical consulting services to help integrate identified data sources into the City owned Hiperweb Computerized Maintenance Management System (CMMS). The City intends to augment its staff with Carollo's resources to complete populating the CMMS with water and wastewater assets.

### Orange County Utilities Asset Management Program Development and South Water Reclamation Facility Condition Assessment

Orange County Utilities (OCU) serves 2.55 million people in 20 cities within central and north Orange County, Florida. OCU needed to increase the reliability of assets through development of a risk-based asset management program with a systematic maintenance plan for asset replacement.



Under two separate contracts, Carollo conducted condition assessments and asset management evaluations for the South Water Reclamation Facility (WRF) and Eastern WRF Facilities. OCU maintains an IBM Maximo® CMMS that is used to organize and track assets within the utility system. Carollo worked with OCU to update the asset inventory in Maximo® for the facilities; conducted a condition assessment of the assets using mobile data collection of condition assessment results that synced back into Maximo®; and evaluated criticality and risks using a customizable asset management framework. This provided an objective and repeatable structure for assigning probability of failure and consequence of failure values for establishing the current risk profile of OCU's assets and systems of assets.

## 5. PROPOSED SCHEDULE METHODOLOGY

### Developing, Tracking, and Maintaining a Realistic Budget and Schedule

**Project staffing Planning** - Appropriate staffing is key to successful project management and an integral part of our quality management program. Our fundamental approach is to assemble the best-qualified team to match project requirements. We review the scope of the project and review staffing levels and budgets from similar projects to estimate labor requirements to complete a project.

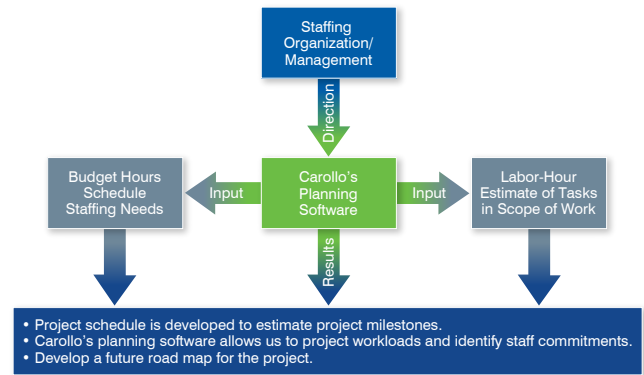
A labor-hour estimate is made for each task in the Scope of Work. The estimate includes time for site visits and meetings, as well as actual engineering work for the project. We then use historical data, modified for project-specific requirements, to estimate the types of services and personnel classifications to complete each task.

The project schedule has a significant impact on staff planning. Project milestones are identified and labor-hour requirements per task are estimated to determine staffing levels to complete the task by the milestone date.

A database on staffing needs and current staff assignments is maintained and updated monthly, both company-wide and in our local offices. The database allows us to project workloads and maintain a consistent, dedicated project delivery team.

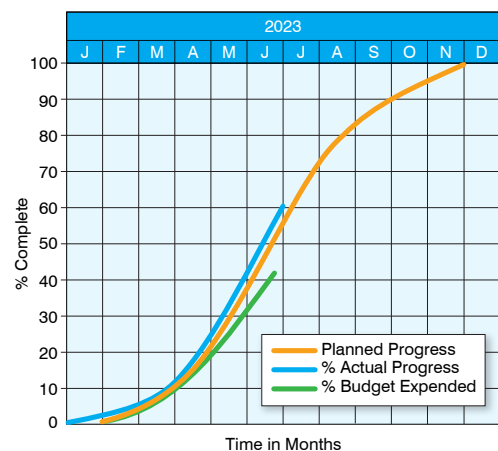
**Establishing and Maintaining Schedules** - Schedules are established by identifying project milestones and determining when each task must be completed to meet the milestone dates. The schedule is reviewed to determine staff requirements to complete the project on schedule. If a project is needed on a fast-track, more staff are assigned than for a project with a longer schedule. The project manager assesses the percent complete for the project monthly report. The percent complete is estimated on a per task basis, in a defined manner, and is done independently of budget review. Budget status is not provided to the project manager until after the percent complete has been estimated.

The estimated percent complete is compared to the planned percent complete to determine if the project is on schedule. If the project is not on schedule, staffing adjustments or other corrective measures are implemented.



Project milestones are identified and labor hour requirements per task are estimated to determine staffing levels to complete the task by the milestone date.

**Monitoring Progress** - To monitor project progress, the project labor-hour budget is fit to the project schedule to form an S-curve. The S-curve shown below is a graphical illustration of the project plan, showing how the project will be completed on time and within the labor-hour budget. Each month, the percent complete is plotted on the S-curve to compare actual project progress to planned project progress. If the actual progress falls behind the planned progress, corrective measures are identified and implemented. Summary reports to the invoices are shared each month with the City's project manager, along with a discussion of any concern, action items, and upcoming activities.



The "S" curve is a graphical illustration of the project plan, showing how the project will be completed on time and within the labor-hour budget.



## 6. FIRM'S APPROACH TO SCALABILITY

### Local Experience Supported by National Resources

The 130+ employees working in our Florida offices are part of Carollo's 1,344 professionals working in 50+ offices in North America, giving us both a national and local presence. Our key team members and firm have the capacity and resources to effectively and efficiently deliver work assignments as your general services engineer.

As a top national firm specializing in water and wastewater projects, Carollo continuously executes a high volume of work across a wide range of disciplines. Our firm-wide workload committed to active and on-going projects generally ranges between 65 and 70 percent. As a result, we have more than ample capacity to respond to our client's needs regardless of the size and nature of the work we undertake.



As shown in the table below, Carollo has over 1,300 staff members nation-wide, and with an average firm-wide workload committed rate of 65 to 70 percent, Carollo has ample capacity to increase resources to support the various projects simultaneously under this contract.

### CAROLLO PROFESSIONALS

Discipline	Firm	Broward Office	Florida Offices
Administrative	108	1	3
Architects	4		
Chemical Engineers	10		
Civil Engineers	286	2	34
Computer Personnel	48		7
Construction Engineers	15		1
Construction Inspectors	50		8
Construction Managers	34		2
Draftsperson	131	1	17
Electrical Engineers	49		1
Environmental Engineers	330	4	41
GIS Specialist	2		
Instrumentation/Control	47		5
Marketing	55	1	6
Mechanical Engineers	30		
Structural Engineers	42		4
Word Processing	19		1
Other Employees	84		3
<b>TOTAL</b>	<b>1,344</b>	<b>9</b>	<b>133</b>

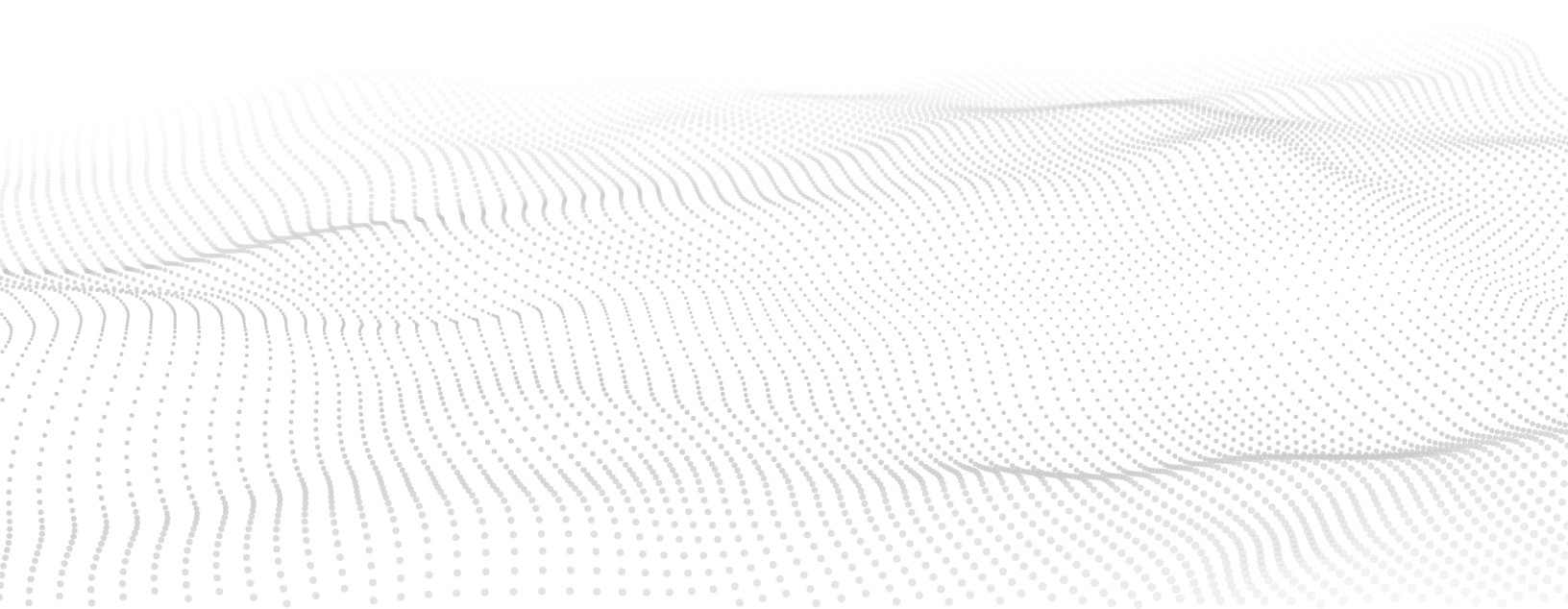
### SUBCONSULTANTS

Firm	Discipline
Engenuity Group, Inc.	Survey
Tierra South Florida	Geological
Water Science Associates	Hydrogeological
Michael Stenstrom	Pure Oxygen
Tetra Tech	

## **Tab F:**

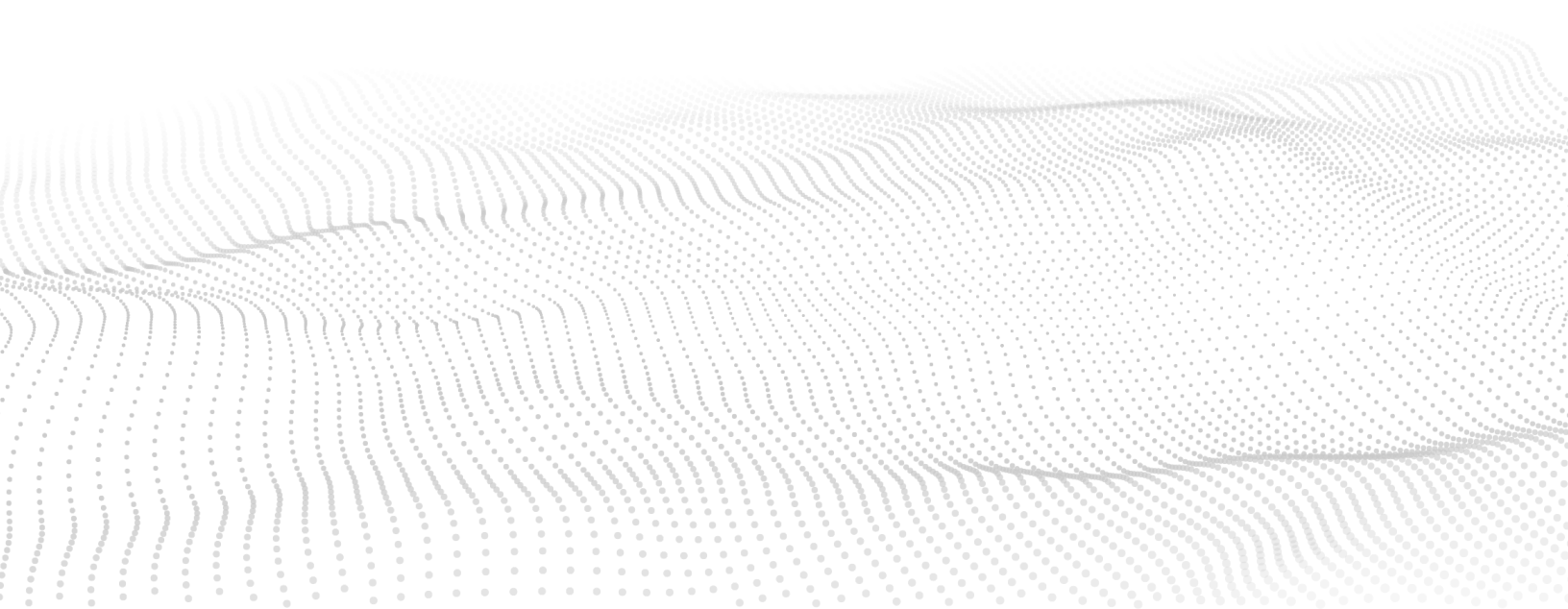
# Knowledge of the Site and Local Conditions

Section Removed  
Per City - N/A



# Tab G:

## References



# References

TAB G

## VENDOR REFERENCE FORM

City of Hollywood Solicitation #: RFQ-042-23-JJ  
Reference for: Carollo Engineers, Inc.

Organization/Firm Name providing reference:

Broward County

Organization/Firm Contact

Name:

Rolando Nigaglioni, DBA, PE, BCEE, PMP

Title:

Engineering Director

Email:

rnigaglioni@broward.org

Phone: 954-831-0082

Name of Referenced Project:

General Services Contract

Contract No: 10228A10

Date Services were provided:

2012-2017

Project

Amount: \$3,431,074

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):

Carollo was selected to provide study, design, and construction phase services for all of Broward County's high service pump stations, including standby power and chemical storage and feed, and ground storage tanks and another similar contract to provide design services for improvements at the WTPs.

Please rate your experience with the Vendor	Need Improvement	Satisfactory	Excellent	Not Applicable
<b>Vendor's Quality of Service</b>				
a. Responsive	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Accuracy	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Deliverables	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Vendor's Organization:</b>				
a. Staff expertise	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Professionalism	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Staff turnover	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Timeliness/Cost Control of:</b>				
a. Project	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Deliverables	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### Additional Comments (provide additional sheet if necessary):

<b>****THIS SECTION FOR CITY USE ONLY****</b>					
Verified via:	Email:	<input type="checkbox"/>	Verbal:	<input type="checkbox"/>	Mail: <input type="checkbox"/>
Verified by:	Name:				Title:
	Department:				Date:



## VENDOR REFERENCE FORM

City of Hollywood Solicitation #: RFQ-041-23-JJ

Reference for: Carollo Engineers, Inc.

Organization/Firm Name providing reference:

City of Sunrise

Organization/Firm Contact

Name:

Gregg Bagnall

Title:

Project Manager

Email:

gbagnall@sunrisefl.gov

Phone:

954-888-6097

Name of Referenced Project:

Southwest WTP IX, Sawgrass,

Contract No:

Date Services were provided:

and Springtree Upgrades

Project

Southwest WTP- \$1,606,156

2016 (Const. 2020)

Amount:

Sawgrass WTP - \$683, 727

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):

Southwest WTP. Carollo served as the Engineer of Record on the Southwest WTP project. Work included the addition of a 2-mgd fixed-bed vessel IX system for color control and organics reduction at an existing lime softening plant. Other improvements included the replacement of well 2, replacement of well 2, replacement of the diesel engine backup generator and associated fuel storage tank, (Continued on next page)

Please rate your experience with the Vendor	Need Improvement	Satisfactory	Excellent	Not Applicable
<b>Vendor's Quality of Service</b>				
a. Responsive	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>
b. Accuracy	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>
c. Deliverables	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>
<b>Vendor's Organization:</b>				
a. Staff expertise	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>
b. Professionalism	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>
c. Staff turnover	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>
<b>Timeliness/Cost Control of:</b>				
a. Project	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>
b. Deliverables	<input type="checkbox"/>	<input type="checkbox"/>	X	<input type="checkbox"/>

## Additional Comments (provide additional sheet if necessary):

<b>****THIS SECTION FOR CITY USE ONLY****</b>					
Verified via:	Email:	<input type="checkbox"/>	Verbal:	<input type="checkbox"/>	Mail: <input type="checkbox"/>
Verified by:	Name:				Title:
	Department:				Date:

Southwest WTP (Cont.) - salt storage for IX regeneration, waste equalization, demolition of the existing lime silo for construction of a new larger silo to install two owner-furnished slakers, and associated electrical and I&C features. The IX system will help the City improve finished water quality and meet regulatory requirements, and/or dewatering process. Design/Construction Fee: \$1,606,156

Sawgrass WTP. Carollo provided membrane replacement, acid modifications, IX, and other improvements. This project included two bid packages. The first is to replace the nanofiltration membrane elements for the existing 24-mgd treatment plant and demolish and replace the sulfuric acid pumps. The second to install an oxidation, prefiltration, and IX system to treat surficial aquifer water for iron, control color, and reduce organics. The treatment train is separate and parallel to the existing membrane filtration train. Following degasification of the membrane permeate, the IX treated water will be blended with it to optimize finished water hardness and alkalinity. Design Fee: \$679,394; Construction Fee: \$683,727

Springtree WTP. Carollo provided renewal and replacement of the 24-mgd lime softening facility, which included design of a fluidized-bed IX treatment system. The IX system will reduce TOC, control color, and minimize DBP formation potential. An early-out procurement package was included for a fast tracked piece of the design. Design Fee: \$927,556

## VENDOR REFERENCE FORM

City of Hollywood Solicitation #: RFQ-041-23-JJ

Reference for: Carollo Engineers, Inc.

Organization/Firm Name providing reference:

Florida Keys Aqueduct Authority

Organization/Firm Contact

Name:

David Hackworth

Title:

Director of Capital Projects Engineering

Email:

dhackworth@fkaa.com

Phone: 305-296-2454

Name of Referenced Project:

New Kermit H. Lewin Reverse Osmosis WTP

Contract No:

Date Services were provided:

2020

Project

Amount: \$2,875,000 (Fee), \$40M (Const.)

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):

FCAA solicited proposals in 2016 for the progressive design-build delivery of the Stock Island RO Facility. Carollo was selected as part of the successful design-build team and provided preliminary (10%) design services in support of an effort to develop preliminary costs. Due to Hurricane Irma the project was temporarily put on hold until late 2019. In 2020, due to funding grant requirements, continued on next page)

Please rate your experience with the Vendor	Need Improvement	Satisfactory	Excellent	Not Applicable
<b>Vendor's Quality of Service</b>				
a. Responsive	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Accuracy	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Deliverables	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Vendor's Organization:</b>				
a. Staff expertise	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Professionalism	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Staff turnover	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Timeliness/Cost Control of:</b>				
a. Project	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Deliverables	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

## Additional Comments (provide additional sheet if necessary):

Carollo has provided exceptional service throughout this project.

## \*\*\*\*THIS SECTION FOR CITY USE ONLY\*\*\*\*

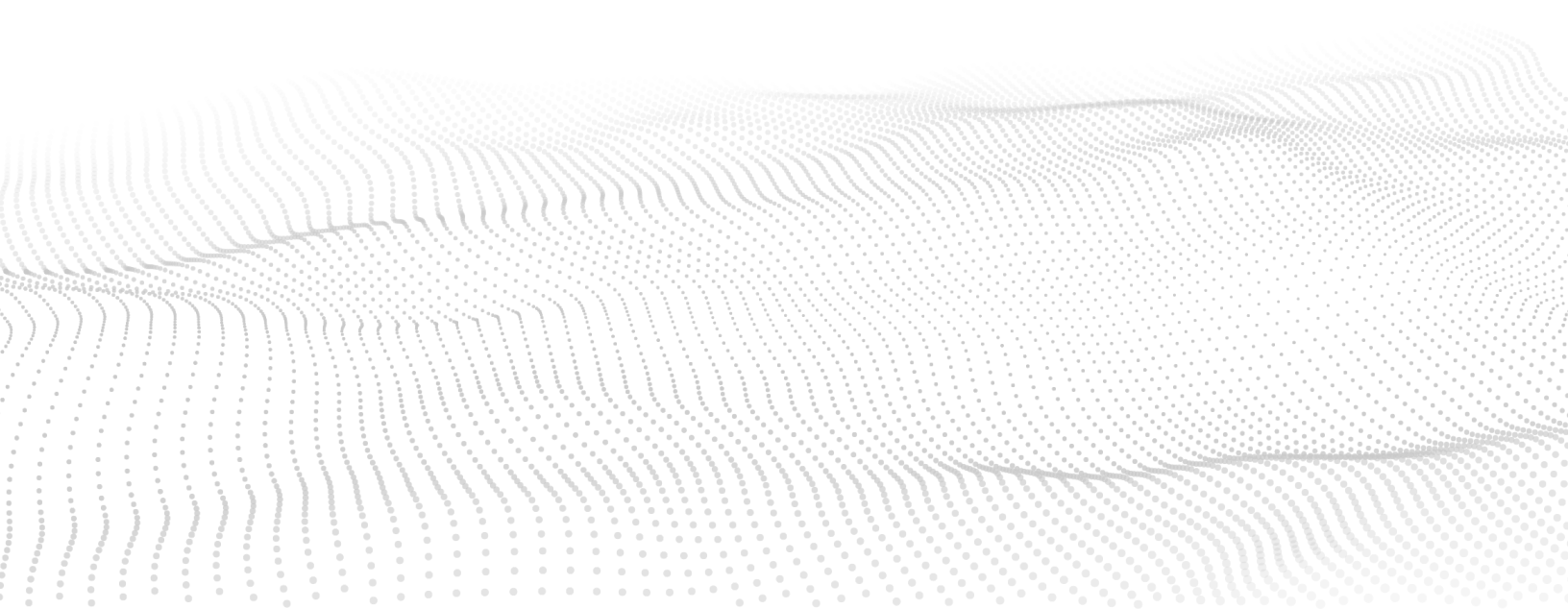
Verified via:	Email:	<input type="checkbox"/>	Verbal:	<input type="checkbox"/>	Mail:	<input type="checkbox"/>
Verified by:	Name:				Title:	
	Department:				Date:	

New Kermit H. Lewin Reverse Osmosis WTP (Continued) - the project delivery mechanism was changed from progressive design-build to conventional design-bid-build. The design included new shallow seawater production wells, cartridge filtration, four 1 mgd seawater RO skids, followed by degasification and transfer pumping into an existing on-site potable water storage tank. Chemical feed systems for pretreatment, post-treatment, and 4 log disinfection are provided. The structure incorporated an occupied area for Florida Keys Aqueduct Authority (FKAA) staff including a state-of-the-art control room, a breakroom that could be used as sleeping quarters during emergency periods, restrooms, and a water quality testing laboratory. The treatment system can be powered by full time electrical grid power or by diesel engine driven auxiliary power generators. The byproduct water from the treatment system is disposed of via a disposal injection well. Construction is slated to begin in the third or fourth quarter of 2021, with construction completion in early 2024. It is anticipated that facility commissioning services will be complete prior to the 2024 hurricane season.



# Tab H:

## Sub Consultant Information



# Subconsultant Information

TAB H



Engenuity Group, Inc. was founded in 1978 to provide professional civil engineering services to the South Florida community. These services included design of paving, grading, drainage, wastewater collection, and water distribution systems, along with permitting, construction observation, and construction administration. Professional surveying services were added in 1984 and GIS Services in 1998. They are serious about meeting time and budget requirements. To meet time requirements, they establish a due date in writing, establish intermediate milestone dates, and we meet these dates. To meet budget requirements, they establish at the proposal stage the hours assigned for each unique task. They have software to assist us in monitoring the relationship of the work to the budget.



Tierra South Florida, Inc. d/b/a TSFGEO, is a full-service consulting geotechnical engineering, construction materials testing and inspections firm with capabilities to provide test borings, engineering analyses and reports, AutoCAD and Microstation plan sheets, laboratory soils testing, and construction engineering inspection services. Their professional team has been working together since 2000 and is committed to providing quality, responsive service establishing a reputation for sound approaches and professional competence in a wide range of technically demanding areas. TSFGEO provides a complete range of geotechnical engineering services.



**MICHAEL STENSTROM**  
// PURE OXYGEN PROCESS

Michael K. Stenstrom is a Distinguished Professor in the Civil and Environmental Engineering Department at the University of California, Los Angeles. He has a Ph.D. in Environmental Systems Engineering from Clemson University and is a registered professional engineer in California. Professor Stenstrom is a frequent consultant to agencies and consulting firms working on improving or upgrading wastewater treatment systems. He has been involved in aeration systems upgrades throughout his career. He has witnessed clean water testing of equipment from six manufacturers in the United States and Europe in shop and field situations. He was one of the developers of off-gas aeration testing and has performed over 150 field tests at more than 40 different treatment plants in eleven states and three countries.



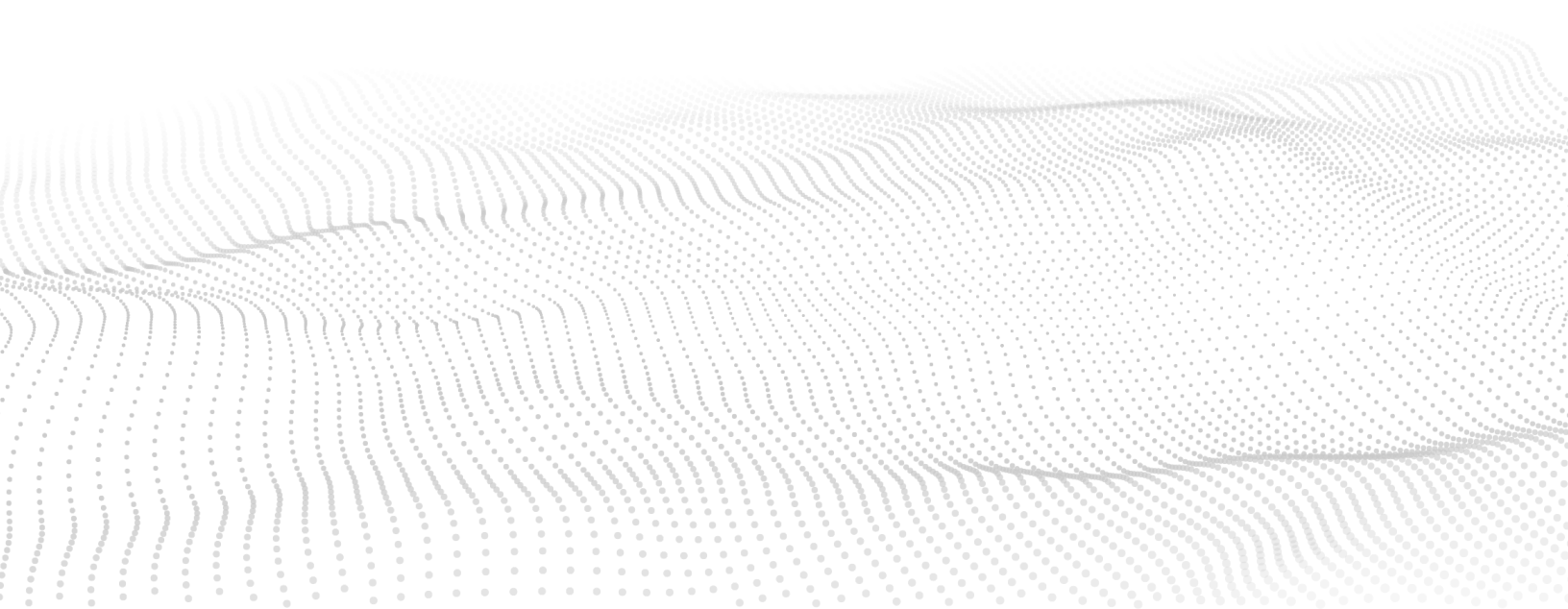
Tetra Tech is a leading provider of consulting and engineering services worldwide. They are a diverse company, including individuals with expertise in science, research, engineering, construction, and information technology. Their strength is in collectively providing integrated services—delivering the best solutions to meet their clients' needs. Tetra Tech's innovative, sustainable solutions help their clients address their water, environment, infrastructure, resource management, energy, and international development challenges. They are proud to be home to leading technical experts in every sector and to use that expertise throughout the project life cycle. Their commitment to safety is ingrained in our culture and at the forefront of every project.



Water Science Associates is a specialty hydrogeologic consulting firm focused on water resource evaluation, planning, design, permitting, and construction. Water Science Associates takes pride in their reputation for responsive, client-focused, and solutions-oriented services. Water Science Associates believes in listening carefully to project needs and client objectives, collaborating effectively with project team members, and delivering appropriate and cost-effective solutions to their client's most challenging water resource engineering issues.

# Tab I:

## Financial Resources



# Financial Resources

TAB I

## FINANCIAL SUMMARY STATEMENT

**CONFIDENTIAL**

*Summary Information Sheet  
Carollo Engineers, Inc.  
Balance Sheet  
As of December 31, 2021*

### Assets

Cash	24,021,973
Receivables	68,647,035
Prepaid Expenses & Other Current Assets	10,129,163
Fixed Assets - net	14,889,823
Notes Receivables	624,804
Other Long Term Assets	421,445
<b>Total Assets</b>	<b>118,734,243</b>

### Liabilities

Accounts Payable	19,428,142
Accrued Expenses & Other Current Liabilities	50,389,448
Other Long Term Liabilities	36,190,106
Owner's Equity	12,726,547
<b>Total Liabilities &amp; OE</b>	<b>118,734,243</b>

*Alex Wason*

Ash Wason, CFO

Carollo Engineers, Inc. (Carollo), has been in operation since 1933. Carollo's professional engineering services extend throughout the United States with offices in 49 cities, including major design centers in Walnut Creek, California; Orange County, California; Phoenix, Arizona; Denver Littleton, Colorado; Boise, Idaho and Dallas, Texas.

The firm has demonstrated a high level of fiscal responsibility throughout the years. Borrowings are on a short-term basis to meet cash requirements at peak times of the year.

The company has a banking relationship with National Bank of Arizona.

National Bank of Arizona  
6001 N 24<sup>th</sup> St  
Phoenix, AZ 85016  
Rob Maver, Senior Vice President  
Office (602) 235-6000  
Direct (602) 212-8810

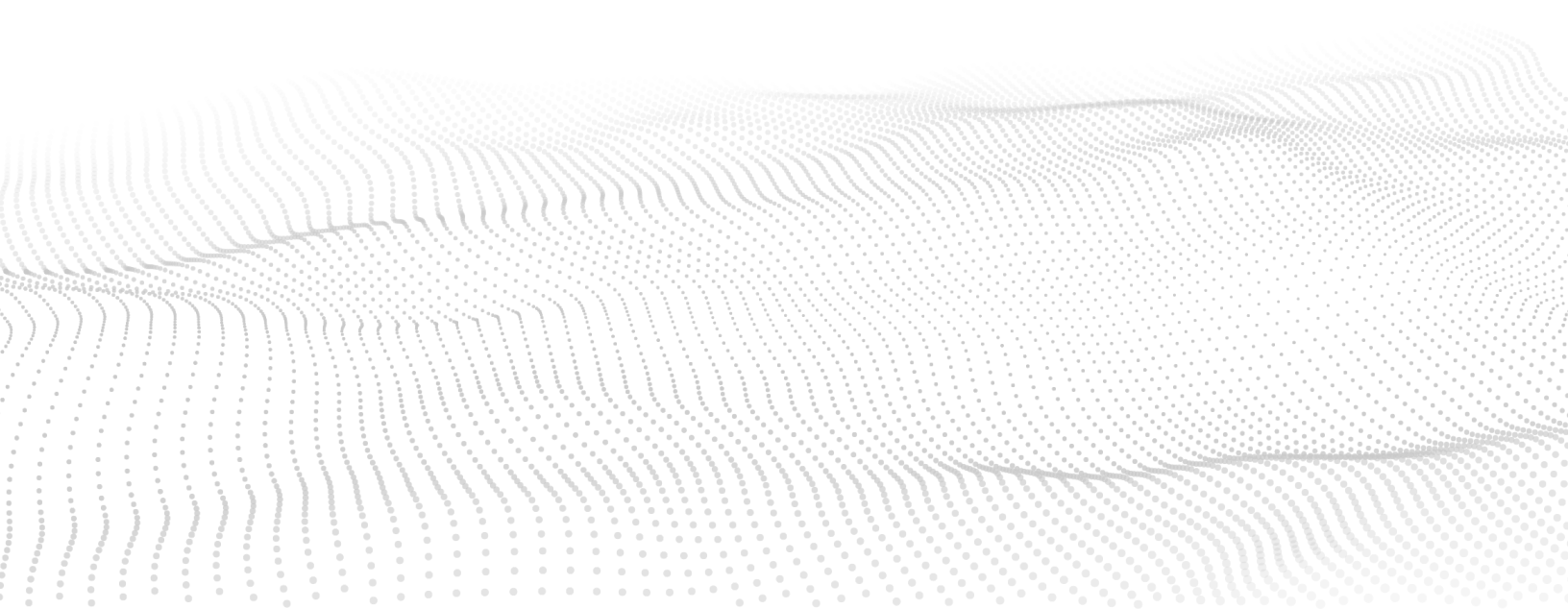
Some information indicating the capacity of the firm to handle large jobs is:

	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>
Gross Revenue (000)	148,542	154,924	173,142	211,667	247,550	271,810	300,457	311,211	330,506	340,518
ENR Ranking	73	79	79	69	65	59	59	50	51	50
# of Employees (avg.)	618	654	709	771	893	1,012	1,074	1,108	1,164	1,188



# Tab J:

## Legal Proceedings and Performance



# Legal Proceedings and Performance

TAB J

Carollo Engineers, Inc. has never paid liquidated damages or been terminated for default.

In the last five (5) years Carollo has:

1. Not been subject to any arbitration demands filed by or against us.
2. Been the subject of the following lawsuits filed against our firm (Carollo has not filed any lawsuits):

---

Nature of the Claim: Carollo and a client were both the subject of a lawsuit filed by property owners along a sewer interceptor realignment project where construction operations extended beyond the originally projected construction completion date. Alleged negligence by Carollo.

The Parties: Yolanda Sandoval-Montoya, Leonard Montoya, Ted Archuleta, Charles Burch, Debbie Burch, Jenny Grosstete, Noel Gaspar, Leslie Gaspar, Elias Ojeda, Arnold Marineciarena, Eloy Marquez, Gama Vazquez, Jesus Najera, and Larry Baldondado v. Albuquerque Bernalillo County Water Utility Authority (ABCWUA), AUI, Inc., Carollo Engineers, Inc., and John Does 1-50

Amount in Dispute: In excess of \$1,000,000.

Ultimate Resolution: The matter was submitted to mediation and thereafter settled with no admission of fault by Carollo. Carollo paid \$30,000 to claimants and \$25,000 to ABCWUA.

---

Nature of the Claim: Carollo and several other large water engineering firms doing business in Florida were sued by a private citizen who has a history of suing governmental entities (i.e., his most recent lawsuit was against the Federal Reserve). The overall allegations of the citizen center around claims that Carollo was working with the other noted water firms to hide an alleged underground water source on the plaintiff's/citizen's property from our Florida clients. The complaint alleges strict liability for failure to protect the public water supply, strict liability for abnormally dangerous activity, breach of fiduciary duty, nuisance, negligence, gross negligence, unjust enrichment, conspiracy and racketeering, defamation, intentional infliction of emotional distress, and negligent infliction of emotional distress.

The Parties: Joseph D. Gilberti, Jr. v. Ardurra Group, Inc.; HDR, Inc.; Stantec Consulting Services, Inc.; Carollo Engineers, Inc.; Progressive Water Resources, LLC; and Hazen and Sawyer, PC

Amount in Dispute: In excess of \$1,000,000

Ultimate Resolution: The lawsuit was dismissed.

---

Nature of the Claim: Carollo and their joint venture partner were the subject of a lawsuit filed by a client related to tank corrosion as part of a design-build project completed in 2005. Carollo denies responsibility for any of the claims. The complaint alleges breach of contract, negligent repairs, and breach of implied warranty of workmanlike performance on the part of Carollo and the joint venture.

The Parties: The City of Olathe, Kansas v. Carollo/Garney LLC, Garney Holding Company, and Carollo Engineers, Inc.

Amount in Dispute: \$1.9 million

Ultimate Resolution: The matter was submitted to mediation and thereafter settled with no admission of fault by Carollo. Carollo paid the City of Olathe \$195,000.

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Nature of the Claim: Carollo was the subject of a lawsuit filed by a client related to the replacement of trickling filter media as part of a wastewater treatment plant rehabilitation project. The complaint alleges professional negligence, breach of contract and breach of express and implied warranty. Carollo denies all the allegations.

The Parties: Sewerage Agency of Southern Marin, California v. Carollo Engineers, Inc.

Amount in Dispute: \$4,400,000.

Ultimate Resolution: The lawsuit is in progress.

---

Nature of the Claim: Carollo and the construction contractor were the subject of a lawsuit filed on behalf of a client via subrogation by their insurance carrier related to ozone equipment installed as part of a new surface water treatment plant project. The complaint alleges breach of contract and negligence.

The Parties: City of Fresno, California v. Carollo Engineers, Inc. and W.M. Lyles Co.

Amount in Dispute: Compensatory and punitive damages

Ultimate Resolution: The City has dismissed the complaint, without prejudice, in accordance with our tolling agreement.

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3. Not been involved in any lawsuits, administrative proceedings or hearings initiated by the National Labor Relations Board or similar state agencies concerning any labor practices by our firm.

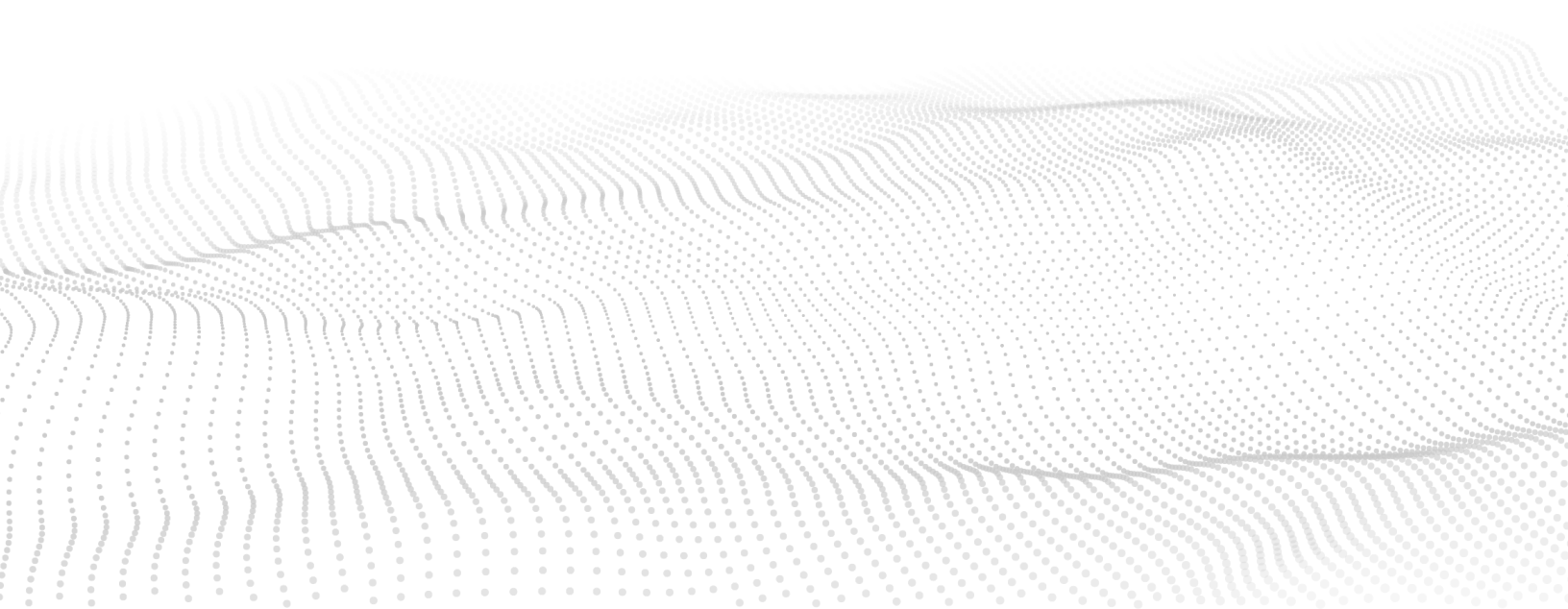
Been issued Cal-OSHA citations on 11/10/22 at a temporary project site during decommissioning in Firebaugh, CA. At this time, there has been no finding of fact or conclusion of law regarding the alleged citations. We have appealed all alleged citations asserting all appropriate affirmative defenses under advice of our legal counsel. We continue to be in the appeal process and expect that at the end the appeal process that there will be no adverse finding by the Cal-OSHA Appeals Board in relation to the alleged citations.

4. Never had a Bankruptcy Petition filed in its name, either voluntarily or involuntarily.
5. Never had a contract to which we are a party terminated by the other party, except in situations where the project was cancelled due to lack of funding.
6. Never had to use bonding moneys to complete a project or to pay a subconsultant or supplier.

**CONFIDENTIAL**

# Tab K:

## Required Forms





# Required Forms

TAB K

- Hold Harmless and Indemnity Clause - Online
- Non-collusion Affidavit - Online
- Sworn Statement Pursuant to Section 287.133(3)(a)
- Certifications Regarding Debarments, Suspensions and Other Responsibility Matters - Online
- Drug-free Workplace Program - Online
- Solicitation, Giving and Acceptance of Gifts Policy - Online
- Acknowledgment and Signature Page - Online
- Vendor Reference Form – In Tab G References Section
- W-9
- Insurance Certificate
- Sunbiz FEIN
- Corporate License
- Broward License
- Statement of Qualification

## Sworn Statement Pursuant to Section 287.133(3)(a)

**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 Lyle Munce, PE, Vice President for Carollo Engineers, Inc.  
 (Print individual's name and title) (Print name of entity submitting sworn statement)  
 whose business address is 2728 North University Drive, Bldg. 2700, Coral Springs, Florida 33065  
 and if applicable its Federal Employer Identification Number (FEIN) is 86-0899222. If the entity has no FEIN, include the Social Security Number of the individual signing this sworn statement.

2. I understand that "public entity crime," as defined in paragraph 287.133(1)(g), Florida Statutes, means a violation of any state or federal law by a person with respect to and directly related to the transaction of business with any public entity or with an agency or political subdivision of any other state or with the United States, including, but not limited to, any bid, proposal, reply, or contract for goods or services, any lease for real property, or any contract for the construction or repair of a public building or public work, involving antitrust, fraud, theft, bribery, collusion, racketeering, conspiracy, or material misinterpretation.
3. I understand that "convicted" or "conviction" as defined in Paragraph 287.133(1)(b), Florida Statutes, means a finding of guilt or a conviction of a public entity crime, with or without an adjudication of guilt, in an federal or state trial court of record relating to charges brought by indictment or information after July 1, 1989, as a result of a jury verdict, nonjury trial, or entry of a plea of guilty or nolo contendere.
4. I understand that "Affiliate," as defined in paragraph 287.133(1)(a), Florida Statutes, means:
1. A predecessor or successor of a person convicted of a public entity crime, or
  2. An entity under the control of any natural person who is active in the management of the entity and who has been convicted of a public entity crime. The term "affiliate" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in the management of an affiliate. The ownership by one person of shares constituting a controlling interest in another person, or a pooling of equipment or income among persons when not for fair market value under an arm's length agreement, shall be a prima facie case that one person controls another person. A person who knowingly enters into a joint venture with a person who has been convicted of a public entity crime in Florida during the preceding 36 months shall be considered an affiliate.

5 I understand that "person," as defined in Paragraph 287.133(1)(e), Florida Statutes, means any natural person or any entity organized under the laws of any state or of the United States with the legal power to enter into a binding contract and which bids or applies to bid on contracts let by a public entity, or which otherwise transacts or applies to transact

business with a public entity. The term "person" includes those officers, executives, partners, shareholders, employees, members, and agents who are active in management of an entity.

6. Based 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.)

☒ 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.

*Lyf M...*  
(Signature)

Sworn to and subscribed before me this 1st day of February, 2023.

Personally known ☒

Or produced identification ☐ Notary Public-State of Florida



my commission expires 7/12/2026

(Type of identification)

*Luz M Gonzalez*  
(Printed, typed or stamped commissioned name of notary public)

W-9

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](http://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.

<b>1</b> Name (as shown on your income tax return). Name is required on this line; do not leave this line blank. Carollo Engineers, Inc.	
<b>2</b> Business name/disregarded entity name, if different from above	
<b>3</b> Check appropriate box for federal tax classification of the person whose name is entered on line 1. Check only <b>one</b> of the following seven boxes. <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="width: 45%;"> <input type="checkbox"/> Individual/sole proprietor or single-member LLC   <input type="checkbox"/> Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=Partnership) ► _____  <b>Note:</b> 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 <b>not</b> 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.           </div> <div style="width: 45%;"> <input type="checkbox"/> C Corporation    <input checked="" type="checkbox"/> S Corporation    <input type="checkbox"/> Partnership    <input type="checkbox"/> Trust/estate   <input type="checkbox"/> Other (see instructions) ► _____         </div> </div>	<b>4</b> 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) _____  <small>(Applies to accounts maintained outside the U.S.)</small>
<b>5</b> Address (number, street, and apt. or suite no.) See instructions. 2795 Mitchell Drive	Requester's name and address (optional)
<b>6</b> City, state, and ZIP code Walnut Creek, CA 94598	
<b>7</b> 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.

<b>Social security number</b>									
or									
<b>Employer identification number</b>									
8	6	-	0	8	9	9	2	2	2

### Part II Certification

Under penalties of perjury, I certify that:

- 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
- 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
- I am a U.S. citizen or other U.S. person (defined below); and
- 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.

<b>Sign Here</b>	Signature of U.S. person ►	Date ► 2/25/2022
------------------	----------------------------	------------------

### 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](http://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.*



## Insurance Certificate - W/WW



## CERTIFICATE OF LIABILITY INSURANCE

7/4/2023

DATE (MM/DD/YYYY)  
1/27/2023

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).

<b>PRODUCER</b> Lockton Companies 444 W. 47th Street, Suite 900 Kansas City MO 64112-1906 (816) 960-9000 kctsu@lockton.com		<b>CONTACT NAME:</b> <b>PHONE (A/C, No, Ext):</b> <b>FAX (A/C, No):</b> <b>E-MAIL ADDRESS:</b>	
<b>INSURED</b> 1472613 CAROLLO ENGINEERS, INC. 2795 MITCHELL DR. WALNUT CREEK CA 94598-1601		<b>INSURER(S) AFFORDING COVERAGE</b>	
		<b>INSURER A:</b> Zurich American Insurance Company	
		<b>INSURER B:</b> Continental Casualty Company	
		<b>INSURER C:</b>	
		<b>INSURER D:</b>	
<b>INSURER E:</b>		<b>NAIC #</b>	
<b>INSURER F:</b>			

**COVERAGES** **CERTIFICATE NUMBER:** 19288088 **REVISION NUMBER:** XXXXXXXX

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.

INSR LTR	TYPE OF INSURANCE	ADDL SUBR INSD WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR  GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC OTHER:	Y	N	GLO 9730569	7/4/2022	7/4/2023	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 1,000,000 MED EXP (Any one person) \$ 25,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000 \$
A	<b>AUTOMOBILE LIABILITY</b> <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> OWNED AUTOS ONLY <input checked="" type="checkbox"/> HIRED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> NON-OWNED AUTOS ONLY	Y	N	BAP 9730571	7/4/2022	7/4/2023	COMBINED SINGLE LIMIT (Ea accident) \$ 2,000,000 BODILY INJURY (Per person) \$ XXXXXXXX BODILY INJURY (Per accident) \$ XXXXXXXX PROPERTY DAMAGE (Per accident) \$ XXXXXXXX DED: COMP/COLL \$ 1,000
	<b>UMBRELLA LIAB</b> <input type="checkbox"/> OCCUR <b>EXCESS LIAB</b> <input type="checkbox"/> CLAIMS-MADE DED: <input type="checkbox"/> RETENTION \$			NOT APPLICABLE			EACH OCCURRENCE \$ XXXXXXXX AGGREGATE \$ XXXXXXXX \$ XXXXXXXX
A	<b>WORKERS COMPENSATION AND EMPLOYERS' LIABILITY</b> ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N	N/A	WC 9730570	7/4/2022	7/4/2023	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTHER E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000
B	<b>PROFESSIONAL LIABILITY</b> UNLIMITED PRIOR ACTS	N	N	AEH 288354410	7/4/2022	7/4/2023	EACH CLAIM: \$1,000,000; AGGREGATE: \$1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)  
 RFQ-042-23-JJ Infrastructure Projects (Water, Sewer, Reuse and Stormwater). City of Hollywood is additional insured as respects general liability and auto liability, and these coverages are primary and non-contributory, as required by written contract. Contractual liability is included in the general liability and auto liability subject to the policy terms, conditions and exclusions. (SEE ATTACHED.)

## CERTIFICATE HOLDER

19288088  
 City of Hollywood  
 P.O. Box 229045  
 Hollywood FL 33022-9045

## 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

*Joseph M. Amello*

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ACORD 25 (2016/03)

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CONTINUATION DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/EXCLUSIONS ADDED BY ENDORSEMENT/SPECIAL PROVISIONS (Use only if more space is required)

Thirty (30) days' notice of cancellation by the insurer will be provided to the certificate holder, ten (10) days' notice in the event of nonpayment of premium.

ACORD 25 (2016/03)

Certificate Holder ID: 19288088

SunBiz FEIN



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Carollo Engineers

Search

[Events](#)[Name History](#)

Detail by Entity Name

Foreign Profit Corporation  
CAROLLO ENGINEERS, INC.

Filing Information

Document Number	F00000003055
FEI/EIN Number	86-0899222
Date Filed	05/25/2000
State	DE
Status	ACTIVE
Last Event	AMENDMENT
Event Date Filed	04/18/2022
Event Effective Date	NONE

Principal Address

2795 Mitchell Drive  
Walnut Creek, CA 94598

Changed: 03/05/2021

Mailing Address

2795 Mitchell Drive  
Walnut Creek, CA 94598

Changed: 03/05/2021

Registered Agent Name & Address

Munce, Lyle  
2056 Vista Parkway  
Ste. 400  
West Palm Beach, FL 33411

## Corporate License

# *State of Florida*

## *Department of State*

I certify from the records of this office that CAROLLO ENGINEERS, INC. is a Delaware corporation authorized to transact business in the State of Florida, qualified on May 25, 2000.

The document number of this corporation is F00000003055.

I further certify that said corporation has paid all fees due this office through December 31, 2023, that its most recent annual report/uniform business report was filed on February 13, 2023, 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 Thirteenth day of February,  
2023*



*[Signature]*  
Secretary of State

Tracking Number: 9545514977CU

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

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



## Broward License

**BROWARD COUNTY LOCAL BUSINESS TAX RECEIPT**

115 S. Andrews Ave., Rm. A-100, Ft. Lauderdale, FL 33301-1895 – 954-831-4000

**VALID OCTOBER 1, 2022 THROUGH SEPTEMBER 30, 2023****DBA:**  
**Business Name:** CAROLLO ENGINEERS INC**Receipt #:** 315-581  
**Business Type:** ENGINEER (ENGINEER)**Owner Name:** CAROLLO ENGINEERS INC  
**Business Location:** 2728 N UNIVERSITY DR BLDG 270 CORAL SPRINGS  
**Business Phone:** 954-837-0030  
**Business Opened:** 01/01/2005  
**State/County/Cert/Reg:** 8571  
**Exemption Code:****Rooms**      **Seats**      **Employees**      **Machines**      **Professionals**  
2

For Vending Business Only						
Number of Machines:				Vending Type:		
Tax Amount	Transfer Fee	NSF Fee	Penalty	Prior Years	Collection Cost	Total Paid
30.00	0.00	0.00	0.00	0.00	0.00	30.00

**THIS RECEIPT MUST BE POSTED CONSPICUOUSLY IN YOUR PLACE OF BUSINESS****THIS BECOMES A TAX RECEIPT****WHEN VALIDATED**

This tax is levied for the privilege of doing business within Broward County and is non-regulatory in nature. You must meet all County and/or Municipality planning and zoning requirements. This Business Tax Receipt must be transferred when the business is sold, business name has changed or you have moved the business location. This receipt does not indicate that the business is legal or that it is in compliance with State or local laws and regulations.

**Mailing Address:**CAROLLO ENGINEERS, INC  
4600 E WASHINGTON ST STE 500  
PHOENIX, AZ 85034**Receipt #** WWW-21-00235173  
**Paid** 07/08/2022 30.00**2022 - 2023****BROWARD COUNTY LOCAL BUSINESS TAX RECEIPT**

115 S. Andrews Ave., Rm. A-100, Ft. Lauderdale, FL 33301-1895 – 954-831-4000

**VALID OCTOBER 1, 2022 THROUGH SEPTEMBER 30, 2023****DBA:**  
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2

For Vending Business Only						
Number of Machines:				Vending Type:		
Signature	Tax Amount	Transfer Fee	NSF Fee	Penalty	Prior Years	Total Paid
	30.00	0.00	0.00	0.00	0.00	30.00

**Receipt #** WWW-21-00235173  
**Paid** 07/08/2022 30.00

## Statement of Qualification Certification

## STATEMENT OF QUALIFICATION CERTIFICATION

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

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

Company: (Legal Registration) Carollo Engineers, Inc.

Name/Principal/Project Manager: Lyle Munce, PE

Address: 2728 North University Drive, Bldg. 2700

City: Coral Springs State: FL Zip: 33065

Telephone No. 561-868-6404 FEIN/Tax ID No. 86-0899222 Email: lmunce@carollo.com

Does your firm qualify for MBE or WBE status: MBE        WBE       

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

<u>Addendum No.</u>	<u>Date Issued</u>	<u>Addendum No.</u>	<u>Date Issued</u>
<u>1</u>	<u>1/24/2023</u>	<u>          </u>	<u>          </u>
<u>2</u>	<u>1/24/2023</u>	<u>          </u>	<u>          </u>

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

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

Submitted by:

Lyle Munce, PE  
Name (printed)

2/7/2023 Senior Vice President  
Date: Title

  
Signature