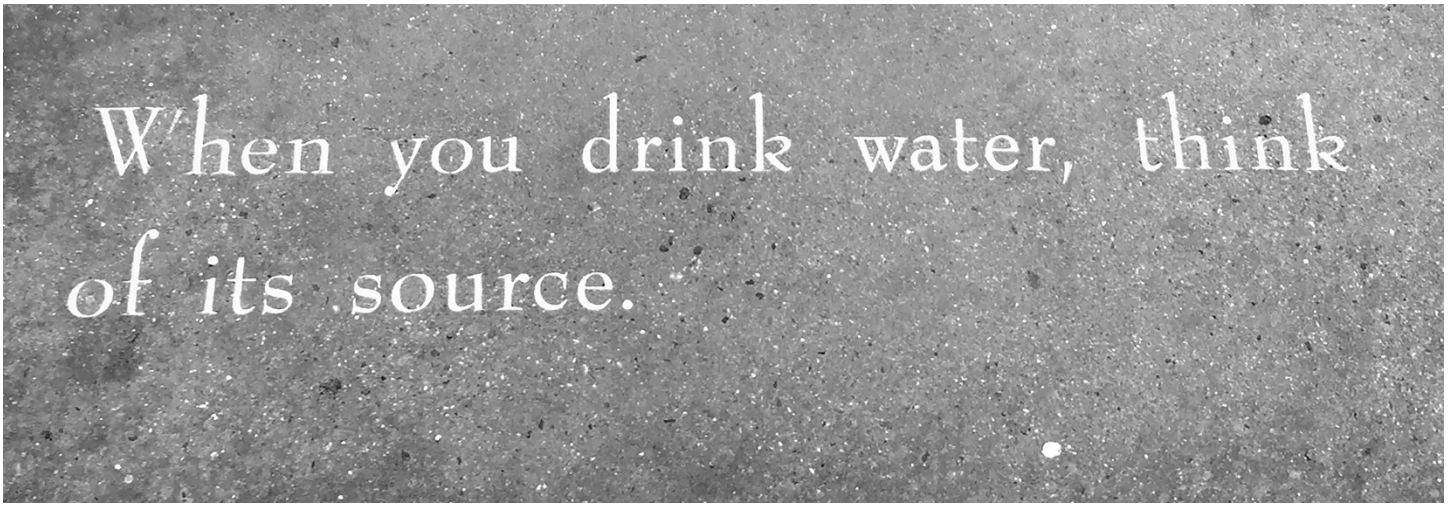
City of Garden Grove California

City of Garden Grove
Attn: Katie Victoria
13802 Newhope St
Garden Grove, CA 92843

Water Rate Study
July 27, 2016



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fg SOLUTIONS, LLC.

FG SOLUTIONS, LLC.

July 25, 2016

City of Garden Grove
Attn: Ms. Katie Victoria
Senior Administrative Analyst
13802 Newhope Street
Garden Grove, CA 92843

SUBJECT: Garden Grove Water Services Rate Study

Dear Ms. Victoria and Selection Committee Members:

Garden Grove Water Services is seeking a consultant that, with a thorough understanding of City finances, can complete a water rate study that ensures a fiscally sound utility that is able to deliver reliable water services in a financially responsible manner. The City is facing several simultaneous events that require the City to assess the financial status of its water utility and its rate structure, including the ongoing drought, ongoing capital needs, revenue stability considerations, the increasing use of budget-based water rates, and the availability of grant funding and technical assistance from the Santa Ana Watershed Project Authority.

Our proposed team offers an experienced rate consultant who has worked in Southern California for over a decade, and local, knowledgeable engineers. **Our Project Approach provides:**

- **Reduced risk.** Several aspects of our proposal reduce risk to the City: improving revenue stability by addressing recovery of fixed costs; working with an experienced rate consultant who understands your needs; and preparing defensible cost estimates by leveraging the expertise of experienced, local engineers.
- **Cost savings.** We will provide a customized, easy to use rate model developed with the City's accounting structure and future use in mind. We will also provide staff mentoring throughout the project so the City can use this model to complete future rate studies in house.
- **A path to rate structure implementation.** We accomplish this by acknowledging that water rate structures are a community decision. We have no pre-conceived opinion on the best course of action, and we will provide defensible, high-quality alternatives and analysis so the City can make informed decisions. We will focus our efforts on the decisions required by the City Council and we will address water rate affordability.
- **Rate setting expertise.** Our proposed project manager, Mr. Art Griffith, has been providing financial and management consulting services for over 24 years, and has had an active consulting practice in Southern California since 2004. Mr. Griffith's experience with the specific needs and issues in Southern California is essential, as we evaluate budget-based rates, address the effects of the drought, and the interrelated issues of fixed cost recovery, revenue stability, and affordability.

FG Solutions is a Minority-Owned and Women-Owned small business with a strong California presence. We are in Southern California on a monthly basis, and more frequently when project needs require. Our firm has the staffing capacity to complete this project in a timely and efficient manner.

Our references will demonstrate that we are results-oriented, experienced, and responsive. We appreciate the opportunity to submit this proposal and we look forward to hearing from you.

Best regards,

Debi Fortin
CEO, FG Solutions, LLC
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(206) 605-4167

Art Griffith
Principal/Project Manager
art@fg-solutions.com
(206) 245-3071

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Project Understanding

The City of Garden Grove Water Services Division ("City") operates a water utility that provides potable water service to the majority of its City limits. The City is seeking a consultant that, with a thorough understanding of City finances and the financial status of the City Water Services, can complete a water rate study that ensures a fiscally sound Water Services Division that is able to deliver reliable water services in a financially responsible manner. There are a number of simultaneous events that collectively have made the City want to complete a Water Rate Study:

1. Water utility revenues have decreased due to conservation. The bulk of the City's water revenue comes from variable charges. The financial status of the utility is vulnerable to decreased revenue resulting from conservation.

2. The City has a number of interrelated capital planning efforts that are not yet complete. The City is asking for cost estimates to be developed and the various efforts to be prioritized and integrated into one Capital Improvement Plan. These efforts will likely require more funding than the City currently has available for capital improvements.

3. Water rate increases have been difficult to adopt. Rates have not significantly increased in the past five years. A recent effort to allow for automatic inflationary adjustments to rates was not successful, although increases in some costs can be passed through.

4. Per the City's 2015 Urban Water Management Plan, over 30 percent of the City's households are classified as either "extremely low income" or "very low income". Another approximately 20 percent are "low income". This customer demographic makes it necessary to balance service levels, maintain revenue stability, and address affordability concerns.

5. The City has asked the Rate Consultant to evaluate budget-based rates as an alternative. Budget-based rates are becoming more commonplace, because they offer an opportunity to create a more stable and equitable revenue source. The Santa Ana Watershed Project Authority ("SAWPA") is offering grant funding and technical assistance for the evaluation and implementation of budget-based rates.

6. The City has indicated their desire to learn more about the process of rate development. It is the City's intention that this project will serve as a vehicle for the staff to learn about rate development and receive training and mentoring, so that they are able to complete future rate studies in-house.

Work Plan

The City has provided a detailed Scope of Work in its RFP, and we intend to complete the scope of work as provided. In this Work Plan section we describe each task, and in the Project Approach section that follows we provide additional detail on key aspects of our work that are integrated into the various Scope of Work tasks.

Exhibit 1 below shows the work plan in graphical format.

Task 1 – Project Management

What

Consultant will provide direction to City staff and team members; coordinate project activities in order to meet objectives and deadlines; communicate with City staff; maintain adequate levels of staff to successfully complete the project; invoicing, project documentation, and administration; prepare monthly status reports; assist City staff with presentations to elected officials and the public. Project coordination between the City, FG Solutions, and subconsultants.

How

Consultant will be prompt and proactive in their communication and direction of the project. Project documentation, administration, billing and status reports will be organized and accurate. Presentation materials and coordination will reflect the direction of staff, and will be prepared in a timely manner.

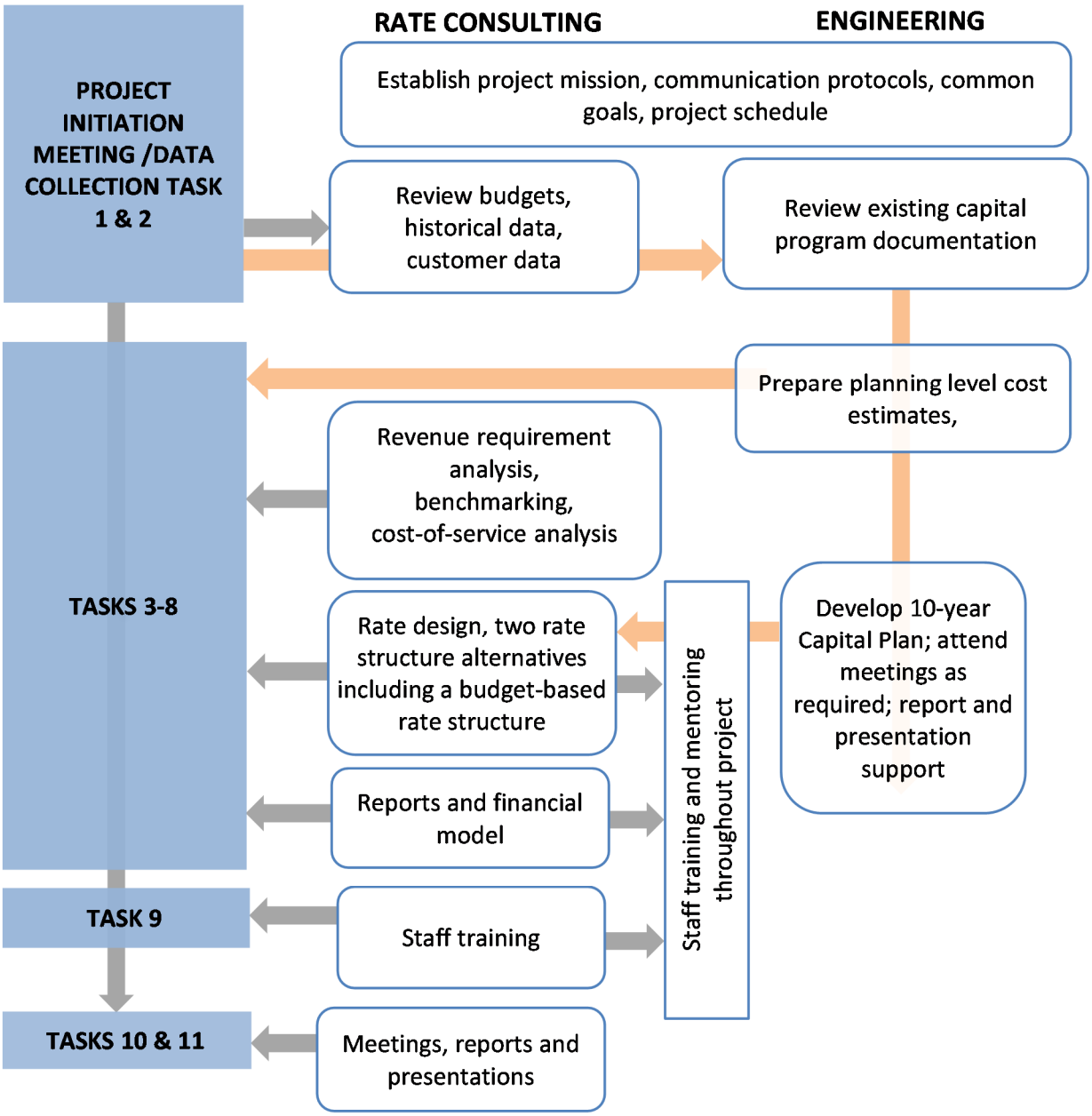
Benefits/Project Relevance

Project will be completed on time and within budget; proactively identify issues that affect scope, schedule, and budget; make the City's job of managing the project easier. Consultants at both FG Solutions and West Yost have extensive experience creating and making presentations to staff, elected officials, and the public.

Deliverables

Monthly invoices and status reports. Presentation support.

EXHIBIT 1: WORK PLAN



Task 2 – Project Initiation Meeting and Data Collection

What

Project initiation meeting with Consultants and City staff to clearly define project goals, establish communication protocols, review work plan, and clarify roles and responsibilities of Consultant and City. Data request and collection to compile various information, studies and reports that will be required to complete the project.

How

Schedule project initiation and provide preliminary data request in advance of Notice to Proceed. List of data to include documents outlined in RFP, in addition to any other pertinent documents Consultant may ask for. Review project timeline, focusing on decision points, fiscal policies, and topics to be covered in presentations to the City Council. Obtain and review as much data as possible prior to project initiation meeting so that Consultant is able to fully discuss issues and ask relevant questions at the meeting.

Benefits/Project Relevance

Develop common understanding of project goals, success factors, and issues. Minimize risk of schedule delay caused from not addressing the anticipated concerns of elected officials. Ensure proper interpretation and obtain timely delivery of data.

Deliverables

Facilitation and attendance at project initiation meeting. Preliminary data request; supplemental data request. Clear communication of project timeline and objectives.

Task 3 – Historical Review of Financial Status

What

Review and understanding of existing financial status of water utility, existing rate structure and design; review reserve levels and funding mechanisms for capital improvements. Objective is to understand the City's current financial status in order to make recommendations to the City so that they can complete the projects they need to do that will ensure the reliability of the City water utility.

How

Review historical data; in conjunctions with Tasks 4 and 5, identify (a) financial impacts of reserve alternatives and capital funding levels, and (b) desired amount of debt-financed capital, if any.

Benefits/Project Relevance

Clear understanding of the City's financial status provides Consultant with the background necessary to develop a specific financial plan and rate structure for Garden Grove. Ensures development of an accurate Revenue Requirement Projection (Task 5) that has fiscally sound reserve policies and capital funding strategies.

Deliverables

No specific deliverables for this task. Deliverables to be incorporated into Task 4 and 5 deliverables.

Task 4 – Capital Facilities Plan Assessment

What

Compile and review the City's existing master plans and data in order to identify all capital facilities plans for replacement and expansion to the current system. Discuss and propose potential ways to finance projects, in conjunction with Task 5. Develop a 10-year capital plan and cost estimates for the City's nine identified programs that; have capital expense components; that incorporate an even distribution of capital expenditures per year; prioritize program expenditures to create an even distribution of capital expenditures that will be a key input into the Revenue Requirement Projection (Task 5).

How

West Yost is an Irvine, CA based and local engineering firm, with many years of experience and completion of multiple successful projects. Experienced staff will be in charge of reviewing City existing documents; communicating and working with City staff; developing the 10-year capital water master plans; provide planning level estimates that identify appropriate contingencies. Consultant will

work with the City staff to articulate and present the benefits provided by the capital expenditures, and the importance of ensuring system reliability.

Benefits/Project Relevance

Clearly define the capital projects and expenditures required for the City to provide reliable water services. Capital cost estimates, project descriptions and project benefits are essential when discussing proposed rate increases with elected officials and the community.

Deliverables

Engineering cost estimates; 10-year capital plan; incorporation of 10-year capital plan into the rate study model.

Task 5 – Revenue Requirement Assessment

What

The Revenue Requirement Assessment will be a 10-year projection of water utility revenues and expenses. It will define the level of revenue adjustments (and consequently, water rate adjustments) on a system-wide basis. Attend two meetings with City staff.

How

As described in the Project Approach section, our excel-based rate model will include a Revenue Requirement module. It will be an excel-based spreadsheet and it will include projections of water rate revenue and other revenue sources. The model will include projections of operation and maintenance expenses, rate-funded capital expenses, debt service payments, and funds required to meet debt service coverage requirements and/or reserves. It will include the City's account mapping, so that the City recognizes its own account structure in the rate model and can run projected to actual variance analyses. The projected revenues will be based on recent historical water use and revenues and projected system growth. There will be the capacity to develop sensitivity analyses for key inputs. Time will be allotted in conjunction with Task 9.2, to train staff on the development of the Revenue Requirement module. This will be done adjacent to planned meetings.

Exhibit 2 shows the key components of the rate model, including the Revenue Requirement module and also the other modules described in the tasks below.

Benefits/Project Relevance

A Revenue Requirement Assessment is critical to the success of the project. It must chart a path for the City to provide fiscally sound and reliable water service. Our approach to the rate model will allow the City to use it in the future. The staff training element will allow the staff to learn what goes into a revenue requirement, and how the data is incorporated.

Deliverables

Revenue Requirements Module (a portion of the rate model). Attendance at two meetings with City staff.

Task 6 – Classification of Costs

What

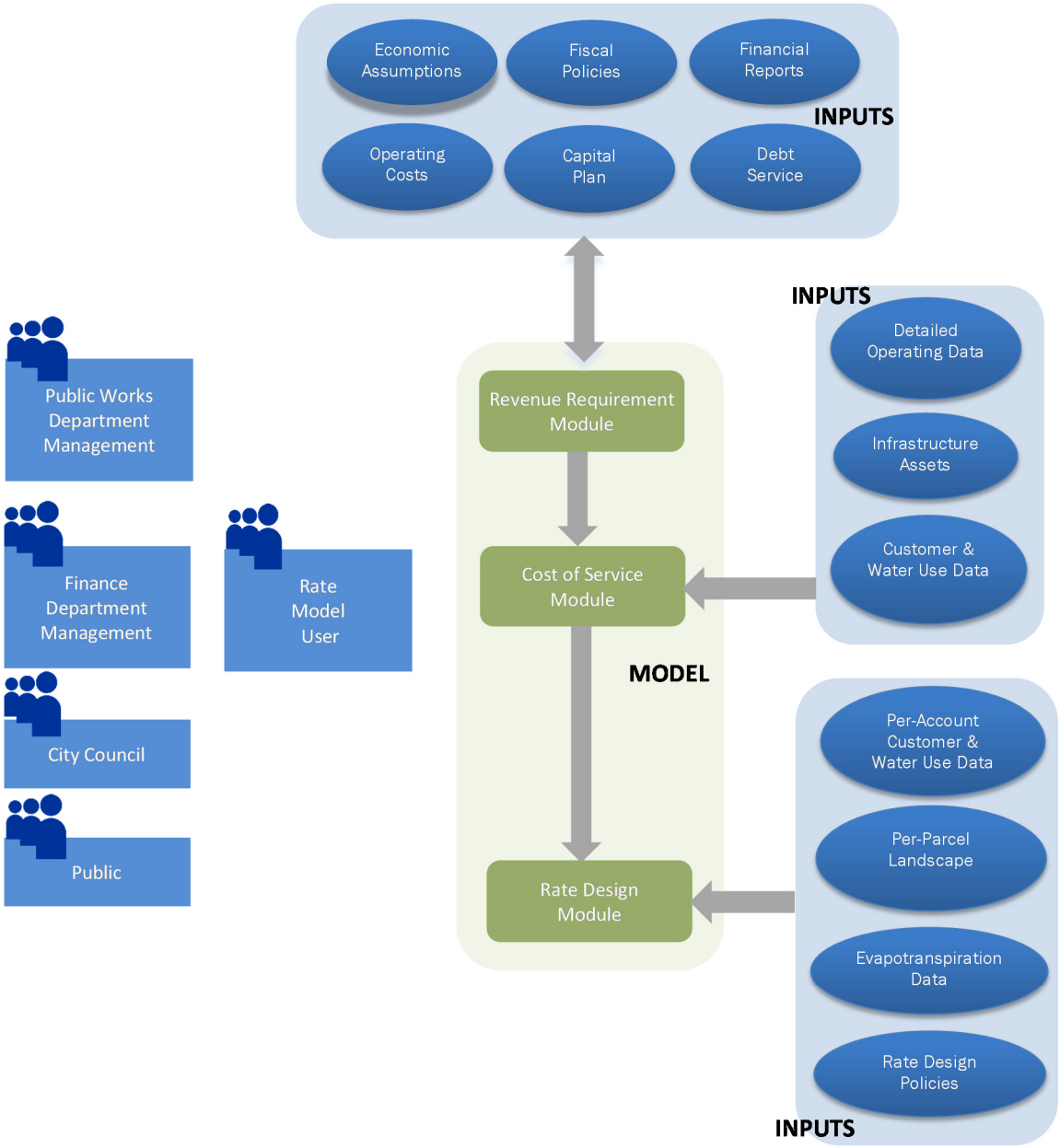
Assigning each component of the Revenue Requirement to a functional component of the water system. Evaluating the ability of the City's current data reporting mechanisms to accommodate reporting costs and supporting data in these functional categories.

How

Use industry-standard methodology (such as the American Water Works Association ("AWWA") M1 Manual) to identify functional cost categories. Prepare a preliminary functionalization of costs, and identify data required to complete this analysis with precision. If data are not available, develop estimates and/or placeholders, and evaluate the requirements for the City to generate this data.

Benefits/Project Relevance

EXHIBIT 2: KEY COMPONENTS OF RATE MODEL



The allocations in a cost-of-service analysis often require data that the water utility does not have or does not generate on a regular basis. To generate specific data on a one-time basis for the purposes of a cost-of-service analysis is time consuming for a utility. Defining existing data gaps, the requirements to fill these data gaps, and estimates allow a utility to decide whether to implement changes in its recordkeeping to facilitate future cost-of-service analyses.

Deliverables

No specific deliverable for this task; deliverables to be part of the Cost-of-Service Module (a portion of the rate model) provided under Task 7.

Task 7 – Cost of Service

What

Develop the cost of service for each customer class. Recommend any changes to customer class designations. The cost-of-service analysis is part of the process of developing a water rate schedule that is equitable for each customer class.

How

Use industry-standard and defensible cost allocation procedures. Develop a Cost-of-Service Module that is a portion of the rate model. Similar to Task 6, use existing City data and if not available, develop estimates. Anticipate the effect of the San Juan Capistrano decision that requires cost-supported rate tiers, so that the cost pool to be recovered by top tiers is preserved throughout the cost-of-service analysis.

In our approach to the cost-of-service analysis, we also pay particular attention to the costs of providing fire protection services. In addition to the cost of hydrant installation and maintenance, the cost of providing fire protection services should include a part of the cost of the City's reservoirs and the component of the City's piped water system sized for fire flow purposes.

Benefits/Project Relevance

A cost-of-service analysis is a foundation of equitable, defensible rate structures. A properly completed cost-of-service analysis generates results that will be used to communicate the value and benefit of the City's water service to ratepayers.

Deliverables

Cost-of-Service Module (a portion of the rate model)

Task 8 – Review and Development of Rate Structure

What

Generating rate structure alternatives for the City's consideration. This will include a discussion of cost recovery from fixed charges vs. variable charges, and how rates can be structured to recover the cost of service from each customer class. Attend three meetings with City Council and/or its subcommittees. Benchmark water rate structure information with the City's "Survey Cities" and surrounding municipalities.

How

Develop a Rate Design Module that contains the analysis in Tasks 8 and 9. Develop alternatives for fixed charges based on the type of fixed costs to be recovered and revenue stability considerations. Propose a three-tier rate structure that can be used with or without budget-based rates. Use the cost-of-service analysis to develop the unit costs for each tier, and specifically identify the expenses recovered by each tier. Use customer account data to project the amount of water sold at each tier.

Benefits/Project Relevance

A set of cost-substantiated, defensible rate tiers. A set of fixed charges that balances revenue stability and affordability considerations (in conjunction with Task 9).

Deliverables

Attendance at three meetings with the City Council and/or its subcommittees. Other deliverables merged with Task 9 deliverables.

Task 9 – Rate Design and Comparisons

What

Develop two rate structure alternatives for potential implementation. One will be a budget-based rate structure and the other will not. Prepare a comparison of the two alternatives. Provide training and instruction to City staff so that they are able to perform future rate studies.

How

Included in the Rate Design Module will be the calculations required to develop budget-based rates. This module will include the City's customer account data for each customer, including consumption by billing period and meter size , irrigable area (obtained from SAWPA), evapotranspiration data (obtained from the California Irrigation Management Information System), rate structure policies, and revenue requirement per customer class. This is created as a stand-alone module so that its large size

does not interfere with future updates to the Revenue Requirement Analysis.

Benefits/Project Relevance

Defensible rate alternatives and a comparison that will allow the City Council to make decisions. Training so that the City staff can update the model, and perform future rate analyses in-house.

Deliverables

Rate Design Module (part of the rate model); staff training

Task 10 – Meetings and Preliminary Draft Report

What

Attend meetings with City staff and City Council, as directed. Prepare draft report that summarizes the Rate Study results.

How

The written report will contain the key assumptions, methodology, and results. Appendices will contain printouts of the Rate Model calculations. Meetings will be scheduled and attended by Consultant.

Benefits/Project Relevance

The written report provides documentation and transparency. Including the Rate Model as an appendix retains the calculations that support the rate structure being implemented.

Deliverables

15 copies of the draft report. City comments will be incorporated into the final draft report.

Task 11 – Presentations and Final Report

What

The final report containing the results of the Rate Study and documentation of the final rates being implemented. Attendance at three meetings (these meetings are also included under Task 8).

How

The final report will incorporate the City's comments on the final draft report. Presentations will highlight the services that the City provides, link the services and benefits provided by the City to the rates being charged, and show financial impacts to customers in a transparent way. If the City chooses budget-based rates, the City may also choose to complete an expanded public involvement effort. In this case, FG Solutions would work with the City's community involvement consultant (if retained), SAWPA staff, and/or provide additional community involvement services.

Benefits/Project Relevance

Providing documentation and transparency of the rates to be implemented. Report will connect the proposed rates to the services and benefits provided to the community.

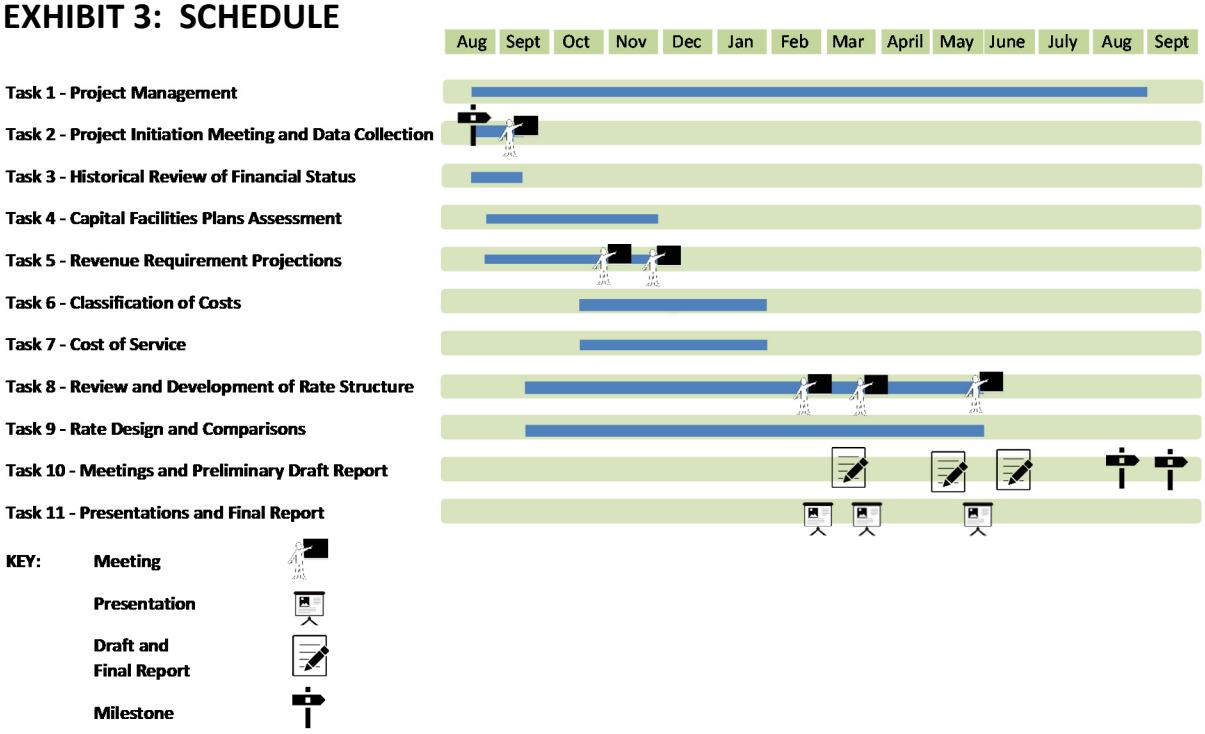
Deliverables

15 copies of the final report and an electronic version of the water rate model developed, documentation and instructions for use by City staff; attendance at three meetings (also included under Task 8).

Schedule

Exhibit 3 shows the proposed schedule, based on receiving notice to proceed in mid-August 2016, presentation of results to the City Council in March 2017, and rates becoming effective in September 2017.

EXHIBIT 3: SCHEDULE



Milestones, Meetings, Presentations, and Deliverables:

- Milestone, Mid-August 2016: Notice to Proceed
- Meeting, Late August 2016, Task 1: Project Initiation Meeting
- Meeting, Late October 2016, Task 5: Meet with Finance Department to Discuss Revenue Requirement and CIP (1 of 2)
- Meeting, Late November 2016, Task 5: Meet with Finance Department to Discuss Revenue Requirement and CIP (2 of 2)
- Meeting/Presentation, Mid-February 2017, Tasks 8 and 11: City Council for Rate Study Update, 1 of 3 (Includes Revenue Requirement Discussion and Rate Design Look Ahead; No Decisions Expected; Ask for Feedback)
- Draft Report, Mid-March 2017, Task 10
- Meeting/Presentation, End-March 2017, Tasks 8 and 11: City Council for Rate Study Update, 2 of 3 (Includes Rate Design Alternatives; No Decisions Expected; Ask for Feedback)
- Final Draft Report, Mid-May 2017, Task 10

Milestones, Meetings, Presentations, and Deliverables (continued):

- Meeting/Presentation, End-May 2017, Tasks 8 and 11: City Council for Rate Study Update, 3 of 3 (Present Final Draft of Rate Study Report; Includes Rate Design Alternatives; No Decisions Expected; Ask for Feedback)
- Deliverable, End-May 2017, Task 9: One-Day Model Training Session
- Final Report, June 2017, Task 11
- Deliverable, June 2017: Final Rate Model in Electronic Form
- Milestone, August 2017: Proposition 218 Hearing
- Milestone, September 2017: Rates Become Effective

Project Approach

This Project Approach section describes how we will complete the Scope of Work tasks. The items described in the paragraphs that follow will be integrated into the Scope of Work tasks. FG Solutions will:

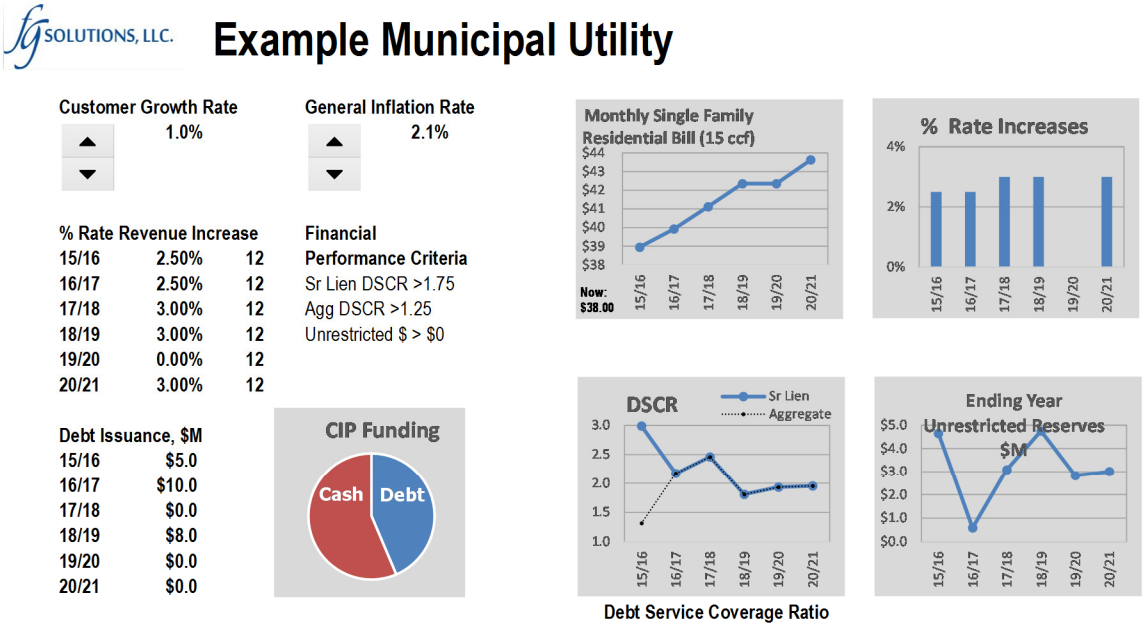
Save the City Money by Providing a Customized, Easy to Use Rate Model. Our rate models are customized to facilitate City's long-term use. We will:

- Develop the model it so you see your account and fund structure, rather than requiring you to force your data into a format or structure you do not recognize.
- Organize the model in three separate modules: a Revenue Requirement module, a Cost-of-Service Analysis module, and a Rate Design module. When updating the model, you will only need to access the portions of the model you need. This keeps individual spreadsheet size and complexity to a minimum. Discuss the City's excel preferences prior to building the model, so we can provide a product the City will want to use.
- Focus on simplicity, with recognizable excel commands and limited/no use of visual basic and goal seek. This allows for transparent documentation – so the calculations can be followed and numbers can be traced.
- Make running sensitivity analyses for key variables easy to do. We can do this by providing a model dashboard, particularly for the Revenue Requirements Analysis portion of the model (See Exhibit 4 below). The dashboard contains key input variables that can be easily changed, and key output variables such as rate increase percentage, debt service coverage, and reserve balances are instantly visible.
- Provide training. We are available for a one-day training session, but would suggest that multiple, shorter sessions might be more effective.

Facilitate Implementation by Focusing on Decisions Required from City Council. In a rate study, and especially when considering budget-based rates, there are numerous decisions the City council must make. We frame our project approach so that the City Council has good information from which to make decisions, adequate lead time to review work product, and is not put on the spot or surprised. We anticipate the following decisions by the City Council:

- Magnitude of overall rate increases
- The amount of Capital Improvement Plan spending (embedded within the overall rate increases, as the size of a rate increase defines how much money is available for capital spending)
- Changes, if any, to rate structure to increase the percent of revenue from Fixed Charges
- Whether to adopt a budget-based rate structure, and if so:
  - Indoor allocation amounts (often, 55 gallons per person per day)
  - Default number of people per household for indoor allocation setting (often, 4)
  - Whether to have an exceptions policy so that houses with more people can obtain a higher indoor allocation (often, yes)
  - Outdoor allocation amounts (often, 80% of evapotranspiration)

EXHIBIT 4: RATE MODEL DASHBOARD EXAMPLE



Our project team includes an elected official, Mr. Stephen Dopudja, who in addition to being the task lead for the Capital Facilities Plans Assessment, is the President of the Board of Commissioners for the Trabuco Canyon Water District.

Enhance Community Acceptance by Being Mindful of Water Rate Affordability. The City has a Special Rate for Small Usage, where residential customers with 5/8'x3/4" meters using < 6 ccf every two months only pay the Minimum Charge and do not pay the Commodity Delivery Charge or the Capital Improvements Charge. This provides some relief for low-income ratepayers, provided they are also low water users. We will present additional alternatives for the City to consider. Water rate affordability will become an important issue should the City choose to increase its Minimum Charge to enhance revenue stability.

A key strategy is to avoid presenting financial impacts only in terms of a median household income. This is because, as noted in the 2015 UWMP, of the 45,157 households in the city, approximately 13,500 are considered either "extremely low income" or "very low income". Consideration of financial impacts must take these customers into account.

Ensure an Appropriate Rate Structure for the Community by Being Objective. FG Solutions does not set City policy and FG Solutions will not make the decision regarding the preferred rate structure. We do not have a pre-conceived opinion on the best course of action. Instead, we will, develop alternatives, provide the high-quality analysis, and show the financial consequences of alternatives so that the City can make good decisions.

Reduce Risk by Improving Revenue Stability. The majority of water utility costs are fixed costs that do not depend on water consumption. Low fixed costs mean that the utility's revenues depend on water consumption. When conservation occurs, revenues plummet leaving the utility at risk of not being able to deliver services or needed capital improvements.

For a customer using 10 ccf/month, fixed charges are less than 20 percent of the total bill. This is comparatively low compared with other water utilities, and does not provide much revenue stability in the event water consumption decreases.

We will evaluate ways to reduce risk by improving revenue stability, likely by increasing the Minimum Charge.

Reduce risk by working with an experienced rate consultant who understands your needs. Our rate model will be customized specifically for Garden Grove. FG Solutions does not produce an off the shelf or cookie cutter model. Our model will be simple to use and easy to work with.

You have our experience on your side. FG Solutions will have an experienced Principal, Mr. Art Griffith, working on and managing your project. He will be supported by experienced staff.

We are engineers and we understand funding. FG Solutions staff are also experienced engineers, with a long history in the industry. We understand the connection between the engineering and the dollars.

Your goals are our goals. Your goal is to have water rates that ensure a fiscally sound city that is able to deliver reliable water services in a financially responsible manner to its customers. FG Solutions has a long history of working with their clients towards successful rate adoptions. In these success stories, we were able to clearly communicate to City Councils and the public the value and necessity of capital improvements, and the cost to implement them.

Communication is key. Your project manager, Mr. Art Griffith, has prepared and presented similar scenarios to nearby communities and City Councils, just like yours. We understand of the complexity surrounding a rate increase, affordability factors, and the Proposition 218 process. FG Solutions will be with you the entire way, and can provide support for Garden Grove staff in the form of preparing presentations, and delivering presentations.

Reduce Risk by Leveraging the Expertise of Experienced and Local Engineers. West Yost Associates joins the FG Solutions team and brings decades of California water system engineering experience. Three experienced West Yost engineers from Irvine are on the project team (see Project Team section, below). Collectively, they bring expertise in:

- Water Master Planning: a master plan contains a capital improvement plan, which requires a prioritization of all of the various capital activities in a utility. West Yost staff have the expertise to prioritize the City's water programs into a single capital improvement plan. Increasingly, capital improvement plans contained in Water Master Plans include funding for asset management evaluations.
- Cost Estimating Experience: cost estimating is a part of nearly every West Yost project including master planning, pre-design reports, designs, and construction management. West Yost staff assigned to this project have cost estimating expertise for water source development, pumping, transmission and distribution facilities, and storage facilities. Many of these projects have SCADA interfaces.
- Construction Management Expertise: construction management expertise improves the quality of cost estimates by amassing unit cost data from construction contractors, and providing improved estimates of appropriate planning level contingencies in cost estimates.

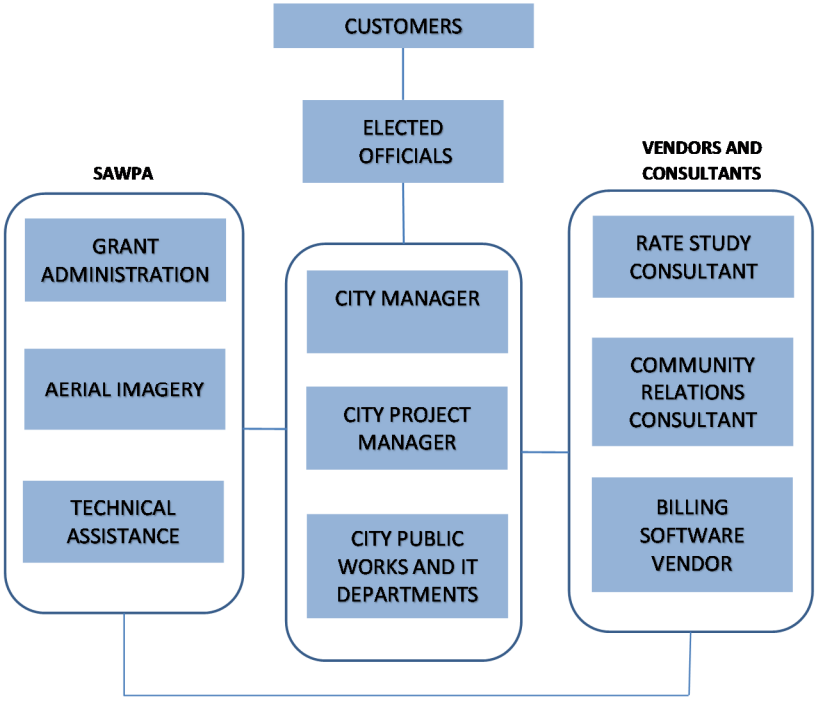
Additionally, the project team can access the remainder of engineering staff at the 125-person firm of West Yost.

Save Time, Save Money, and Get a Better Product by Integrating with the Rest of the Budget-Based Rates Project Team. Exhibit 5 below shows additional team members involved in evaluating and/or implementing budget-based rates. We understand the roles of each team member. Please refer to our City of Rialto case study (in the Project Examples section of this proposal) for additional information and a description of our staff augmentation role. Exhibit 5 continues on the following page in graphic form.

Facilitate In-House Rate Analyst Capability by Acting as Mentor. FG Solutions proposes to go beyond the training outlined in the Scope of Work. We will act as a mentor to City staff throughout the project. An understanding of rate setting is important to the City, and it is important to us as Consultants that our work products be useful to the City in the future. We do not want our rate model to "sit on the shelf". When attending meetings in Garden Grove, we plan to take additional time to meet with the City's designated rate analyst to review draft spreadsheets and answer questions. We will be available during the project to answer additional questions over the phone or by email

EXHIBIT 5: BUDGET-BASED RATES TEAM

ORGANIZATION	PROJECT ROLE/FUNCTION
Customers	Provide input through Public Outreach process
Elected Officials	Set policy and approve rates
City Management	Provide direction and feedback; set policy
City's Project Manager	Manage entire rate study process, interface with consultants
City's Public Works Department	Work with Rate Consultant regarding 10-year capital plan
City's Information Technology Department	Generate necessary data, coordinate with billing system vendor
SAWPA	Provide grant funding and technical assistance; provide landscape characterization data and technical support
Rate Consultant	Develop rate model and projected rate schedule; interface with city, SAWPA, and other vendors/consultants; prepare cost estimates
Billing Software Vendor	Assess Billing System for Hardware and/or Software Changes for Rate Structure Changes
Community Outreach Consultant	Work with City and Rate Consultant to develop community involvement strategy and materials (if desired by City)

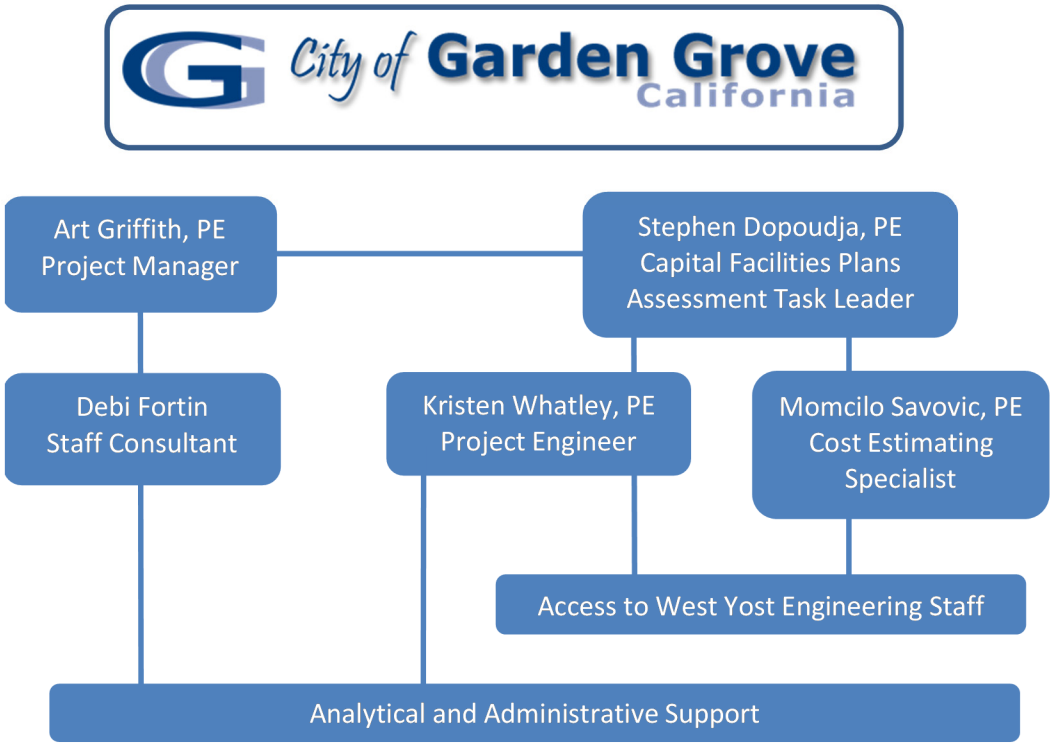


Project Organization and Staffing

Exhibit 6 shows the project team. It is led by Mr. Art Griffith, who has been providing financial and management consulting services for 23 years and is currently evaluating budget-based rates in California. He is supported by Ms. Debi Fortin as a staff consultant, and the engineering firm of West Yost Associates who will be completing the Capital Facilities Plans Assessment.

Following Exhibit 6 is additional detail about each team member, information about FG Solutions and West Yost Associates, and a description of the long history of teamwork among the project team members. Detailed resumes are in the Appendix.

EXHIBIT 6: PROJECT ORGANIZATION



Our People

Mr. Art Griffith is a principal consultant. He a registered professional engineer, holds a Bachelor's Degree in Chemical Engineering from the University of Washington, and a Master's Degree in Civil and Environmental Engineering from the University of Wisconsin.

Mr. Griffith has completed over 100 financial plans for utilities, each with a projection of utility revenues, expenses, and rate impacts. He is an accomplished public speaker and has managed and performed numerous successful water rate studies in Southern California.

Ms. Debi Fortin has over 17 years of engineering and consulting experience, and is a founding principal at FG Solutions. She is also the firm's CEO. Ms. Fortin holds a Bachelor's Degree in Electrical Engineering and Master's Degree in Business Administration from Seattle University, Seattle, WA. She will be a staff consultant on this project, providing expertise in working with customer data to develop water use projections, developing the revenue requirements analysis, and the critical task of preparing presentations of rate study results to utility staff, management, and elected officials.

Stephen Dopudja has 26 years of experience managing water resources projects. His experience also includes residential land development and roadway infrastructure improvements, including storm drains. His capabilities range from the planning and computer modeling of water and sewer systems, serving as an Owner's Advisor, to the design and construction of water resource facilities including pump stations, reservoirs, and pipelines. He is experienced in using a variety of project delivery methods including Design-Build, traditional Design-Bid-Build and Public Private Partnerships. Throughout his career, Stephen has worked for private engineering firms in the Southern California area, ranging in size from four employees to 46,000.

Kristen Whatley has over 13 years of experience working on and managing water resources and wastewater projects. Her capabilities range from the planning and computer modeling of water systems, cost estimating, designing and bidding of water resources projects including wells and wastewater, water treatment, booster pump stations, reservoirs, and pipelines. Project experience includes serving as the project manager on major water resources and wastewater design and permitting projects and residential land development projects; water storage, treatment, and distribution projects; and master planning efforts on several land development projects including coordination with regulatory agencies.

Momo Savovic has more than 31 years of national and international experience in consulting engineering, including project management; organizational assessments/facilitation services; infrastructure evaluation and assessment; planning; design; and construction management. Momo has extensive experience in process/mechanical planning, design, and construction management services for a variety of water and wastewater projects including potable and reclaimed water lines, sewer mains, potable and non-potable pump stations, wells, reservoirs, and water and sewage treatment plants. His responsibilities included field investigations; preparation of plans, specifications, and cost estimates; hydraulic analyses; equipment selection; and on-site construction management services.

Introduction to FG Solutions, LLC

FG Solutions, LLC is a financial and management consulting firm, originally from the west coast with strong ties to our southern California clients. The majority of our clients are water, wastewater, stormwater, and solid waste utilities.

Financial Planning and Analysis

FG Solutions works with utilities and municipal clients, to develop multi-year projections of revenues and expenses. We evaluate the current revenues coming from utility charges, and the expenses necessary to maintain a desired level of service. We develop funding alternatives for budgeted capital improvement projects, such as the installation of new water mains, expansions to wastewater treatment plants, and take into account the debt the utility must take on to finance these activities.

From this information, FG Solutions creates a financial model, one that is based on the utility's specific needs and goals that they have communicated to the project manager and staff. Our work product provides the client reliable data from which they can then make policy and budget decisions, regarding future service and spending priorities, and allows them clearly define how much the utility must charge, in order to provide an agreed upon level of service.

Utility Management Consulting

FG Solutions works with utility client concerns regarding interrelated management, policy, financial, and engineering issues. Examples are oversight consulting, third-party independent assessments, level of service assessments, service delivery assessments, procurement assistance, fee allocation, benchmarking, and contract development.

Impact Fee Development

FG Solutions works with utility and municipal clients to develop impact fees, which are one-time charges payable by new utility connections that represent a proportionate share of the cost of system capacity.

Stormwater Utility Formation

FG Solutions works with public and private entities who wish to develop projected utility costs for a new stormwater utility enterprise, develop an appropriate method of recovering costs through stormwater rates, and assists with the implementation planning.

Introduction to West Yost Associates

West Yost Associates was established in 1990. The proposed team members all work out of the Irvine, CA office. From the beginning, our firm's focus has been exclusively on water, wastewater, and stormwater projects with the objective to provide a higher level of client service around this focused area of technical expertise. Our firm culture is deeply rooted in providing high quality work, superior client service, and technical expertise.

Today, West Yost Associates, Inc. is a successful and thriving consulting civil/environmental engineering firm providing planning, design, construction management, and environmental services for water, wastewater, and stormwater projects for clients throughout California and Oregon. West Yost has approximately 125 staff members, including certified or registered professionals in civil and mechanical engineering, and hydrogeology; land surveying; water and wastewater treatment plant operations; GIS; and specialty construction inspection and construction management.

FG Solutions and West Yost Associates: A History of Teamwork

All of the project team members at FG Solutions and West Yost were formerly employed by R. W. Beck, Inc. Collectively, the project team worked together while at R. W. Beck. Mr. Griffith and Mr. Dopudja have been working together since 2010 on projects for the City of Rialto. Since forming FG Solutions in 2014, Ms. Fortin and Mr. Griffith have been a subconsultant to West Yost, serving the City of Rialto.

Utility Experience

FG Solutions' client list and utility rate experience is shown in the table below. The table features a selection of rate development, financial modeling, and owner oversight clients for the past twelve years. Please note that we have worked with some clients on multiple projects over the years. These projects highlight our relevant experience and ability to deliver value and quality services to our clients, all along the west coast.

Selected Utility Clients	Financial Analysis	Rate Analysis /Development	Rate Model Development	Impact Fee	Rate Structure Changs	Policy Analysis	Capital Funding Planning	Management Consulting	Level of Service/ Asset Management Evaluation	Stakeholder Involvement	Presentation to Elected Officials
California											
Best, Best & Krieger	✓		✓			✓		✓			✓
Chino Desalter Authority						✓	✓	✓	✓		
City of El Monte	✓	✓	✓			✓	✓				✓
City of Folsom	✓		✓			✓	✓	✓			
City of Fontana	✓	✓	✓			✓	✓	✓			
City of Rialto	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓
City of San Bernardino	✓	✓	✓		✓	✓	✓	✓		✓	✓
City of Palm Springs	✓					✓	✓	✓			
Confidential City	✓		✓			✓		✓			✓
Confidential Water Company	✓	✓	✓		✓	✓	✓	✓			
Los Angeles Department of Water and Power						✓		✓			
Mission Springs Water District	✓	✓	✓	✓		✓	✓	✓			✓
Rincon del Diablo Water District	✓						✓		✓		
Sacramento County CSD No. 1	✓					✓	✓	✓	✓		
South Coast Water District	✓			✓		✓	✓	✓			✓
TKE Engineering, Inc.	✓	✓	✓			✓	✓				
Colorado											
City of Pueblo	✓	✓	✓	✓		✓	✓		✓		
Pueblo West Metropolitan District	✓	✓	✓		✓	✓	✓	✓		✓	✓
Regional WTP Authority	✓		✓			✓	✓	✓			✓
Hawaii & Pacific Rim											
City and County of Honolulu	✓	✓	✓		✓	✓	✓	✓	✓		
County of Hawaii	✓	✓	✓	✓		✓	✓	✓	✓		✓
County of Kauai	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
County of Maui	✓	✓	✓	✓	✓						
Honolulu Board of Water Supply	✓	✓	✓			✓	✓	✓	✓	✓	✓
Guam Waterworks Authority	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓
Washington											
Alderwood Water and Wastewater District	✓	✓	✓	✓	✓	✓	✓				✓
City of Everett						✓		✓			
City of Lynnwood	✓		✓			✓	✓	✓			
City of Marysville	✓	✓		✓	✓	✓		✓			
City of Monroe	✓	✓	✓				✓				
City of Oak Harbor	✓	✓				✓		✓	✓		
City of Port Angeles	✓	✓	✓			✓		✓	✓		✓
City of Renton	✓	✓	✓		✓	✓	✓	✓	✓		✓
City of Sequim	✓	✓	✓		✓	✓	✓	✓	✓		✓

Selected Utility Clients	Financial Analysis	Rate Analysis /Development	Rate Model Development	Impact Fee	Rate Structure Changs	Policy Analysis	Capital Funding Planning	Management Consulting	Level of Service/ Asset Management Evaluation	Stakeholder Involvement	Presentation to Elected Officials
Washington (continued)											
City of Shoreline	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓
City of University Place	✓				✓	✓	✓	✓	✓	✓	✓
Confidential City	✓		✓		✓	✓	✓	✓	✓		✓
Inslee Best Doezie & Ryder P.S.	✓							✓			
King County	✓						✓	✓			✓
Kitsap County	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓
Pierce County						✓		✓			
Seattle Public Utilities	✓	✓			✓	✓		✓	✓		
Snohomish County	✓	✓	✓		✓	✓	✓	✓	✓		✓
Snohomish County Public Utility District No. 1	✓	✓	✓								
Tacoma Public Utilities								✓		✓	
Thurston Public Utility District	✓	✓	✓		✓	✓	✓				✓
Other											
Central Arizona Project (AZ)	✓					✓	✓	✓	✓		
City of O'Fallon (MO)	✓		✓			✓	✓	✓			
Fairbanks Water and Sewer (AK)	✓	✓	✓		✓						
Guam Waterworks Authority	✓	✓	✓		✓	✓	✓	✓			
Navajo Tribal Utility Authority (AZ-NM)	✓	✓	✓		✓						✓
St. Tammany Parish (LA)	✓	✓	✓			✓		✓			
Utilities, Inc. (nationwide)	✓					✓		✓	✓		

Project Examples

FG Solutions staff have completed over 100 financial analyses for utilities throughout the country, and experience serving Southern California clients since 2004. A selected number of our most relevant project examples are below.

Water and Sewer Rate Study – SAWPA FUNDED
City of Rialto, California
FG Solutions is currently evaluating budget-based rates for Rialto, who has received a Santa Ana Watershed Project Authority ("SAWPA") grant.

In 2012, Rialto entered into a Concession Agreement providing third-party operation of its water and wastewater systems, capital project delivery, capital project financing, and debt restructuring. Water and sewer rates have increased substantially in the past four years as a result. Having faced four consecutive annual rate increases, Rialto's citizens have competing priorities for their money and future rate increases are expected to be difficult to implement.

For this budget-based rates evaluation, FG Solutions has:

- Evaluated the change in water revenues as a result of the drought and assist with staff reports
- Prepared a Revenue Requirement Analysis
- Prepared a Cost-of-Service Analysis and Rate Design Efforts (in progress)
- Presented introduction to budget-based rates to City Council and citizens advisory committee

Rialto does not have a large City staff, and City staff must juggle multiple other projects in addition to managing this evaluation of budget-based rates. As a result, FG Solutions is also providing staff augmentation services, which allows the City to manage this project without compromising their other job responsibilities.

Staff augmentation efforts have included:

- Wrote staff report for Council approval of SAWPA Grant
- Helped prepare RFP for Community Outreach consultant
- Worked with City's aerial imagery consultant (in progress)
- Work with City's Information Technology Department, billing software vendor, and aerial imagery consultant to facilitate generating needed per-parcel budget allocation data (in progress)

In 2012, Mr. Griffith completed water and sewer rate studies in anticipation of the Concession Agreement. He determined the financial impacts associated with the concession and concurrent capital improvement plan implementation, and prepared water rates. He presented this information at a series of public meetings and at seven meetings of the City's citizen's advisory committee.

"Since 2012, Art Griffith of FG Solutions has provided Rialto with outstanding management consulting assistance establishing its Water and Wastewater Utility's five year rate study. In the midst of a lengthy drought in California, the City is exploring budget-based rates and once again Art is at the helm leading this effort.

Art understands all the nuances of what it takes to communicate successfully to his audience in simple terms the complex rate study efforts. He is thoughtful with his time and is not afraid to answer questions and explore alternatives. It is a pleasure to have FG Solutions on our team!"

Katie Nickel, Sr. Administrative Analyst, City of Rialto

Water, Sewer Treatment, and Sewer Collection Rate Studies

San Bernardino Municipal Water Department, California

Since 2010, FG Solutions staff have been providing rate consulting services to the San Bernardino Municipal Water Department and the City of San Bernardino, ten projects total. Mr. Griffith is currently completing a Water Rate update with a Proposition 218 public hearing scheduled for September 2016.

San Bernardino Municipal Water Department is a semi-autonomous agency of the City with separate governances and separate finances. Nonetheless, the City's bankruptcy presented a challenge for the Water Department in adopting rate increases and issuing debt service. The political environment in the City has presented a challenge to adoption of rate increases.

Water rate efforts competed since 2010 have included:

- Successfully implemented a series of modest water and sewer rate increases in a challenging environment by linking services provided to rates charged
- Addressed the revenue needs associated with a 28 percent reduction in water use
- Developed a water rate structure that will collect up to 50% of water rate revenue from fixed charges
- Developed a three-year phase in of rate structure changes
- Developed a rate schedule that accumulated separate reserves for operations, revenue stabilization, emergency replacement, and capital replacements.
- Developed increasing block rate structure by adding a 2nd rate tier
- Developed a cost-justified rate tier that collected revenues for specific expenses related to high water use
- Developed rate surcharges for six separate geographical areas that recovered specific pumping costs for each respective area
- Developed a water replenishment fee, the revenue from which purchase excess available state water project water for recharge purposes
- Completed a cost allocation analysis to develop an overhead rate intended to secure grant/loan reimbursement for applicable costs
- Presented results of rate studies to elected officials and at Proposition 218 Public Hearings

Review of Water Rate Studies

Confidential Client

FG Solutions, as a subconsultant to Brown and Caldwell, worked with a large public water utility to respond to an intergovernmental performance audit. The audit questioned how the utility's fixed charges were substantiated. Noting the risk to revenue stability with lower fixed charges, our review of previous cost-of-service analyses focused on substantiating the fixed charges.

- Completed benchmarking of specific utility expenses that are recovered by fixed charges
- Completed benchmarking to assess the percent of rate revenues recovered by fixed charges
- Defined the cost to provide specific services related to customer service, billing, and other fixed costs
- Compared these costs to fixed charge revenues

Water Rate Study

City of El Monte, California

Mr. Griffith managed a water rate study for the City of El Monte. The primary focus of the study was the revenue requirement analysis, because of changing water supply considerations and capital improvement plan implementation.

- Communicated the link between capital investment and rate impacts to the City Council in a presentation, at a Council meeting.
- Developed a financial plan with reserves and debt service coverage that allows the utility to access the bond market favorably
- Evaluated the financial impacts of the possible sale of water rights vs. continued leasing of water rights to an adjacent utility. Ultimately,

the City decided to keep its water rights and not sell them.
- Evaluated the financial consequences of increased imported water purchases

Review of Water Rate Studies

County of Kaua`i, Wastewater Management Division, Hawai`i

FG Solutions staff completed a wastewater rate study in 2010 for the County of Kaua`i's Wastewater Management Division. This study resulted in a successful implementation of a four-year schedule of sewer rates. The Division's wastewater system has four distinct service areas and the Division owns and operates four wastewater treatment plants. A single set of wastewater rates is applicable to the entirety of the service area.

The 2010 rate study was completed over the course of several years. During that time, economic conditions on Kauai changed dramatically, and the rate study was placed on hold several times because of economic concerns. The 2010 rate study also included impact fee calculations.

FG Solutions is currently updating this study, addressing changed conditions since 2012: an updated capital improvement plan, and revised permit requirements. FG Solutions is also completing an impact fee update.

Project successes and outcomes have included:

- Secured four annual rate increases of 8.5% each, years 2011 thru 2014 that collectively allowed the Division to implement capital improvement projects and address repair / replacement needs at its wastewater treatment plant.
- Prepared and presented proposed wastewater rates to the Kaua`i County Council. Assisted in preparing the presentation for staff to give.
- Leveraged existing rate models in successive consulting engagements to maximize efficiency.

"I've worked with Art on numerous complex rates and financial analyses over the 15+ years that I've known him. In every instance he has demonstrated invaluable technical insights, reliability and integrity. Art's work with clients spans all levels of the organization and he knows how to successfully communicate critical information so that decision makers have what they need. I also know that clients who have worked with Art have come to know that he's not only a pleasure to work with, but they know that their best interests are at the heart of what Art does."

Ann Miyahira Hajnosz, PE

Senior Director, Harris & Associates

References

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Cost Proposal

Exhibit 7 is the FG Solutions cost proposal. We have prepared this cost proposal based on our understanding of the scope of work in the RFP.

EXHIBIT 7: COST PROPOSAL

	TASKS	HOURS								TOTAL FEES & EXPENSES
		MEETINGS	PM	CFP TL	PE	SC	CE	ADMIN	TOTAL	
	HOURLY RATES		$192	$266	$208	$120	$235	$90		
1	Project Management		4			6		8	18	$2,208
2	Project Initiation Meeting and Data Collection	1	12			12			24	$5,744
3	Historical Review of Financial Status		6			6			12	$1,872
4	Capital Facilities Plans Assessment		4	12	64		42		122	$27,142
5	Revenue Requirement Projections	2	14			60			74	$12,038
6	Classification of Costs		4			16			20	$2,688
7	Cost of Service		8			32			40	$5,376
8	Review and Development of Rate Structure	3	48			24			72	$15,796
9	Rate Design and Comparisons		44			50			94	$14,448
10	Meetings and Preliminary Draft Report	1	20			24		12	56	$9,430
11	Presentations and Final Report	3 (same as Task 8)	12			12			24	$4,224
	TOTAL ESTIMATED HOURS		176	12	64	242	42	20	556	
	PROFESSIONAL FEES		$33,792	$3,192	$13,312	$29,040	$9,870	$1,800	$0	
									Total Fees	$91,006
									Total Expenses (7 meetings and reprographics)	$9,960
									TOTAL FEES AND EXPENSES	$100,966

PM Project Manager, Art Griffith, PE

CFP TL Capital Facilities Plans Assessment Task Leader, Stephen Dopudja, PE

PE Project Engineer, Kristen Whatley, PE

SC Staff Consultant, Debi Fortin

CE Cost Estimating Specialist, Momcilo Savovic, PE

The total fees and expenses includes all out-of-pocket expenses for travel to the City for meetings and presentations, and for reprographics to produce the requested 15 copies of draft and final reports.

The cost proposal includes an allowance of 12 hours for staff training and mentoring in Task 9.2. It is our opinion that training and mentoring is essential for City staff to adequately learn to use the FG Solutions rate model and complete future rate evaluations in-house. Our Cost Proposal includes time for preparation of instruction materials and the training session, along with time for questions and mentoring adjacent to scheduled meetings.

The project team can commit availability to complete this project on time. The majority of the project work would occur between August 2016 and March 2017. Over this eight-month period, the average staff commitment of FG Solutions staff does not exceed 10 hours per week, therefore allowing more than adequate time and schedule to complete the Garden Grove Water Rate Study.

Appendix A: Resumes

ART GRIFFITH, PE

Mr. Griffith is a registered professional engineer with 23 years of experience providing utility financing services to water, wastewater, stormwater, solid waste, and electric utilities. Specific areas of expertise include utility ratemaking, financial planning, impact fee determination, interlocal agreement preparation, fiscal policy and level-of-service definitions, and assisting municipal utilities develop capital funding alternatives.

Mr. Griffith integrates his engineering and financial consulting experience to enhance the quality of the financial analysis, and draws on both disciplines in his ability to communicate the results. He works closely with utility staff and elected officials to communicate utility finance issues with the utility staff, management, elected officials, and the public.

Detailed Project Experience

Water Rate Study Update

San Bernardino Municipal Water Department, San Bernardino, California

Project Manager. Mr. Griffith has managed several water rate studies for the San Bernardino Municipal Water Department. Currently, he is:

- Updating water rates to account for the Emergency Conservation Regulation using an account-by-account analysis of revenues from the tiered rate structure.
- Preparing cost-based revisions to the Department's tiered rate structure
- Revising a cost-based fee to purchase supplemental water for recharge.

Past rate studies have also included a cost allocation plan that allocates Department overhead expenses between water and sewer treatment systems in a manner intended to receive federal reimbursements. The Department's tiered water rate structure was developed by Mr. Griffith and implemented following a 2010 Rate Study.

Rate Study, GFC Study, and Financial Plan

Alderwood Water and Wastewater District, Lynnwood, Washington

Project Manager. Mr. Griffith managed a water and sewer rate study, which included an update of General Facilities Charges. Rate study issues included preparation of a 20-year financial plan and balancing capital improvement needs with financial impacts. Water rate structure alternatives were assessed, and the District elected to move from a seasonal rate structure to an increasing block rate structure. A financial plan was prepared to help the District evaluate the effect of service level changes. This financial plan used GIS tools to assign water use, revenues, sewer treatment expenses, water consumption, and pipe length data into one of over 12 geographic areas on an account- by-account basis.

EDUCATION

Civil and Environmental Engineering, Master of Science, University of Wisconsin

Chemical Engineering, Bachelor of Science, University of Washington

FIELDS OF SPECIAL COMPETENCE

Rate Studies

Cost-of-Service Analyses

General Facilities Charges

Utility Financial Planning

CERTIFICATES, LICENSES & MEMBERSHIPS

Washington Professional Engineer License #30861

TECHNOLOGY EXPERIENCE

Microsoft Office Suite Proficient with Excel, Word, and PowerPoint

Efficiency-Based Water Rate Study

City of Rialto, California

Project Manager. Mr. Griffith is managing a water rate study that is evaluating efficiency-based (also known as budget-based) water rates. This project will use aerial imagery and customer-specific landscaped areas to generate a set of tiered water rates. It is also addressing the effect of the drought and will provide cost-substantiated tiers.

Sewer and Integrated Waste Rate Studies

City of San Bernardino, Municipal Water Department, California

Project Manager. Mr. Griffith performed separate rate studies for the City's sewer treatment, sewer collection, and integrated waste management utilities. These rate studies all included revenue requirement, cost-of-service analysis, and rate design tasks, as well as presentations to elected officials and utility management. Issues specific to the Integrated Waste utility (providing primarily residential and commercial curbside collection) included characterizing the financial impacts of proposed routing changes, fleet leasing changes, increasing post-retirement costs, and recovery of street sweeping expenses. FG Solutions recently updated the sewer collection and sewer treatment rate studies, and revised rates became effective Fall 2015.

Capital Facilities Capacity Charge Update

South Coast Water District (SCWD), California

Project Manager. Mr. Griffith is currently updating the District's water and sewer capacity charges. Work also included calculating stranded costs associated with SCWD participation in a downtown redevelopment project within its service area.

Concession Procurement Support and Rate Studies

City of Rialto, California

Task Manager. The City of Rialto was investigating alternatives for procuring water and wastewater capital delivery and operations services. As part of this investigation, Mr. Griffith's former employer (Leidos Engineering) helped the City develop an RFP for a concession, helped the City evaluate responses, and helped the City develop concession contracts and negotiate contract terms.

Mr. Griffith's role included identifying the financial impacts of various potential contract terms and preparing water and sewer rate studies. Key aspects of this analysis were assessing risk transfer considerations, and how future uncertainty of items like inflation, interest rates, labor costs, and development rates factor into contract negotiating positions. Mr. Griffith also was responsible for presenting the financial and rate impacts of concession agreements to elected officials and the public, including public hearings attended by over 300 people. In addition to water and sewer rate studies, an extraterritorial rate study was prepared using a utility basis methodology to establish rates for non-owner customers outside the city limits extraterritorial water rates.

QUOTES

"Since 2012, Art Griffith of FG Solutions has provided Rialto with outstanding management consulting assistance establishing its Water and Wastewater Utility's five year rate study. Art understands all the nuances of what it takes to communicate successfully to his audience in simple terms the complex rate study efforts. He is thoughtful with his time and is not afraid to answer questions and explore alternatives. It is a pleasure to have FG Solutions on our team!"

Katie Nickel
Sr. Administrative Analyst,
City of Rialto

Brightwater Oversight Monitoring Consultant

King County Auditor's Office, Seattle, Washington

Project Manager. Mr. Griffith managed a consultant team serving as the oversight monitoring consultant for the $1.8 billion Brightwater Treatment System. Retained by the King County Auditor's Office reporting to the King County Council, he provided input to the Council regarding the project's cost, schedule, and risk.

Revenue Program and Recycled Water Checklist

City of Fontana, California

Project Manager. The City of Fontana was seeking California State Revolving Funding for a large sewer interceptor project and a recycled water distribution system project. Mr. Griffith helped the City provide the required financial documentation to the state that shows how the loans would be repaid while demonstrating the continued financial viability of the City's wastewater utility.

Review of Water Rate Studies

Confidential Client

Project Manager. FG Solutions, as a subconsultant to Brown and Caldwell, worked with a public water utility that serves nearly 1,000,000 people respond to an intergovernmental performance audit. Our review of previous cost-of-service analyses focused on two areas: substantiation of fixed charges and recovery of costs associated with recent CIS system replacement. This project included significant benchmarking regarding rate development, the specific costs recovered via fixed charges, and financial policies.

Water and Sewer Rate Study

Navajo Tribal Utility Authority, Fort Defiance, Arizona

Task Manager. Mr. Griffith completed fast-track water and sewer cost-of-service studies for the Navajo Tribal Utility Authority, who had not increased rates in more than 10 years. This project included long- term rate projections, policy analysis such as capital improvement program (CIP) funding through rates, subsidies between customer classes, and phasing in the achievement of policy goals.

Financial Feasibility Evaluation

Confidential City (California)

Project Manager. FG Solutions completed a financial feasibility evaluation for a municipality that is considering the pursuit of acquiring a privately-owned water system. The financial feasibility evaluation projected water rate impacts under status quo private ownership and under municipal ownership.

QUOTES

"Art has performed various analysis from COSA to Organizational reviews. He thinks outside the box, meets all deadlines, deals well with difficult personalities and always provides timely, accurate and detailed work that you can bank on at a reasonable cost."

Top Qualities: Great Results, High Integrity, Creative

Don Shackelford
former Finance Director,
San Bernardino Municipal Water Department

Water and Sewer Rate Study

Fairbanks Sewer and Water, Inc., Alaska

Project Consultant. Mr. Griffith completed the cost-of-service and rate design analyses for two Fairbanks Sewer and Water (FSW) utilities that collectively serve the greater Fairbanks area. The rate study developed postage-stamp rates for the two utilities, and included updated rates for several wholesale water and sewer customers.

Organizational Roadmap and Board Decision Support, Phases I & II

Chino Basin Desalter Authority, Ontario, California

Financial Analytical Lead. Mr. Griffith's former employer (R. W. Beck) was retained to conduct a study to increase the organizational effectiveness of the eight-member Chino Basin Desalter Authority. In Phase I, the consultants explored the merits and costs associated with creating a fully autonomous organization. Mr. Griffith led the financial analysis, which included quantifying start-up costs and acknowledgement and quantification of the "hidden costs" often associated with shared staffing arrangements.

In Phase II, the firm conducted a proposal solicitation process to allow member agencies to propose alternatives. Mr. Griffith led the budget analysis of the proposed alternatives to aid Board decision- making.

Clean Water Factory Financial Feasibility Evaluation

City of San Bernardino Municipal Water Department, California

Project Manager. Mr. Griffith prepared a financial feasibility evaluation for the City of San Bernardino Municipal Water Department. This evaluation assessed the potential financial impacts of constructing a clean water factory. The financial impacts were presented in overall rate impacts to potable water customers. Considerations included the City's marginal cost of water supply from other sources, anticipated costs of water from the State Water Project, avoided wastewater treatment plant costs resulting from a clean water factory, and regional water supply costs and strategies.

Acquisition Feasibility Study

Confidential Client (California)

Project Manager. Mr. Griffith completed an assessment of the financial impacts to a municipal water utility who was considering acquiring a local privately owned water company. This involved estimating a range of potential purchase prices based on common utility appraisal techniques including cost approach and income approaches. To complete this task, Mr. Griffith was required to obtain knowledge of the utility, its finances, its operations, water rights, and the local water supply alternatives without contacting the utility.

Wastewater Rate Study

County of Hawai'i, Department of Environmental Management, Hilo, Hawai'i

Project Manager. Mr. Griffith conducted a wastewater rate study for the County of Hawaii Wastewater Division. The project included the development of a revenue requirement model, cost-of-service analysis, and rate design.

Water Rate Study

City of El Monte, California (subconsultant to TKE Engineering, Inc.)

Project Manager. Mr. Griffith managed a water rate study for the City of El Monte. The key issues in this project were communicating the link between capital investment and rate impacts, and positioning the utility to have financial performance indicators (such as reserves and coverage) that would allow the utility to access the bond market at favorable rates should it choose to do so. In addition, the financial impacts of water rights leases and the financial consequences of increased imported water purchases were evaluated.

Wholesale Rate Studies Independent Review

Seattle Public Utilities (SPU), Seattle, Washington

Project Manager. SPU regularly updates its wholesale rate studies, which establish rates for provision of water service to SPU's wholesale customers. Mr. Griffith provided independent reviews of SPU's rate studies in the mid 2000's. The review focused on verifying that SPU's revenue requirement determination, cost-of-service analysis, and rate design efforts were consistent with contract requirements.

Water and Sewer Rate Study

Mission Springs Water District, Desert Hot Springs, California

Task Manager. To help manage growth, put needed infrastructure in place, and continue to meet its financial obligations, the District hired R. W. Beck to complete a water and sewer rate study. Mr. Griffith managed the rate study and it was completed according to industry standards for cost-of-service analyses.

Utility Planning Financial Analyses

Various Utilities

Project Consultant. Mr. Griffith has completed over 50 financial analyses as part of water, wastewater, and stormwater utility planning documents and funding applications. Each financial analysis includes a 5- to 10-year projection of utility revenues and expenses, identification of capital project funding sources, and projected rate impacts.

DEBI FORTIN

Ms. Fortin is an engineer and management consultant with over 25 years of experience as a consultant and business owner. Ms. Fortin is a founding principal of FG Solutions, LLC and is the firm's CEO. As CEO, Ms. Fortin is responsible for developing the firm's business strategy, company operations, marketing, and positioning the firm in themarketplace.

Since founding FG Solutions in 2014, Ms. Fortin has worked as a Staff Consultant for the company's water and sewer financial and management consulting assignments. She has prepared financial projections, water demand projections, and benchmarking analyses of financial parameters and utility financial policies.

EDUCATION

Masters in Business Administration, Seattle University

Electrical Engineering, Bachelor of Science, Seattle University

TECHNOLOGY EXPERIENCE

Microsoft Office Suite Proficient with Excel, Word, and PowerPoint; Photoshop; Publisher; Wordpress

Detailed Project Experience

Water Rate Study Update

San Bernardino Municipal Water Department, San Bernardino, California

Project Analyst. Ms. Fortin helped assess the impact of the Emergency Conservation Regulation for the San Bernardino Municipal Water Department. Using data from each of the Department's over 40,000 accounts. Ms. Fortin assessed how much consumption would be reduced for each account for each billing period. Aggregating this data on a system-wide basis helped determine the financial impact of the Emergency Conservation Regulation and define necessary adjustments to previous rate projections.

Concession Agreement Support

City of Rialto, California

Consultant. FG Solutions is currently acting in an oversight role to monitor the financial performance of the water and wastewater utilities, including current work to define how to comply with the Emergency Conservation Regulation and the San Juan Capistrano decision. Ms. Fortin provided analytical support to help compare the Concessionaire's actual expenditures with what was projected in past rate studies that were used to set the City's current water and sewer rates. This information is being used to assess the need, if any, for rate studies and/or future rate increases.

Review of Water Rate Studies

Confidential Client

Analyst. FG Solutions, as a subconsultant to Brown and Caldwell, recently worked with a public water utility that serves nearly 1,000,000 people to respond to an intergovernmental performance audit. The review of previous cost-of-service analyses focused on two areas: substantiation of billing charges and recovery of costs associated with recent CIS system replacement. This project included significant benchmarking regarding rate development, the specific costs recovered via monthly charges, and financial policies. Ms. Fortin performed the benchmarking analysis, including comparisons of low-income assistance programs that helped utilities mitigate the financial impacts of rate increases to eligible customers.

Stormwater Utility Formation

Confidential Client

Analyst. FG Solutions is currently providing consulting services in support of a potential stormwater utility formation. Ms. Fortin has benchmarked the features of stormwater rate structures from multiple California utilities, and has articulated the wide variety associated with stormwater utility funding. This variety includes order of magnitude differences in the amount of a stormwater rate, rate structures applicable to single-family residences, rate structures applicable to multi-unit residential and non- residential parcels, definition of "impervious surface", the extent to which water quality characteristics are included in stormwater rates, and the use of rate credits.

Budget Based Water Rate Study

City of Rialto, California

Analyst. FG Solutions is currently working with the City of Rialto to develop Budget Based Water Rates. Ms. Fortin's role in this project is to develop tiered rates using account-by-account billing data and system specific cost data. Ms. Fortin is assisting in the comparison of historical and projected operating costs to develop the utility revenue requirement.

Commercial and Industrial Rate and Impact Fee Evaluation

City of Marysville, Washington

Analyst. FG Solutions recently completed a project with the City of Marysville to evaluate commercial and industrial water and sewer rates and impact fees. Ms. Fortin performed a time-sensitive benchmarking analysis task for a water and wastewater utility in the Pacific Northwest. The client thought that their water rates and system development charges (SDC) might be too high to attract commercial users, therefore eliminating their city from consideration as a viable location for commercial and light industrial companies. Ms. Fortin identified six utilities that were geographically close to the client, of similar size, and with a similar customer base. She then obtained the water rates and SDCs for each utility, within each customer class. Through her analysis, Ms. Fortin found that the utility rates were not high, as they anticipated, but instead were in line with other nearby utilities, if not less. It was also discovered that the utility's SDCs were out of line with other utilities, they were much higher. FG Solutions presented the results of the analysis to the client, and discussed possible solutions. With these results, the client made a policy decision to adopt an interim change to their SDCs. Because of the upcoming election and potential change in city council, the client opted to do a more complete study in the next fiscal year.

Water and Sewer Rate Studies

Guam Waterworks Authority, Guam

Analyst. FG Solutions is currently working with Guam Waterworks Authority (GWA), to evaluate water and wastewater rate structure changes, to meet requirements of the Guam Public Utilities Commission. Ms. Fortin recently completed a revenue requirement analysis which projected overall rate increases over a five-year period. Ms. Fortin is currently evaluating a consumption based residential sewer rate, changes to GWA's increasing block water rate structure, and fireservice fees

WEST YOST ASSOCIATES

Stephen Dopudja, PE

Stephen Dopudja has 26 years of experience managing water resources projects. His experience also includes residential land development and roadway infrastructure improvements, including storm drains. His capabilities range from the planning and computer modeling of water and sewer systems, serving as an Owner's Advisor, to the design and construction of water resource facilities including pump stations, reservoirs, and pipelines. He is experienced in using a variety of project delivery methods including Design-Build, traditional Design-Bid-Build and Public Private Partnerships. Throughout his career, Stephen has worked for private engineering firms in the Southern California area, ranging in size from four employees to 46,000. He has also worked on several international projects.

EXPERIENCE

OWNER'S ADVISORY SERVICES

Public Private Partnership Transaction Services, City of Rialto, CA:
Principal-in-Charge of exploring the feasibility of entering into a 30- year concession agreements or long-term operation agreements for the City of Rialto's domestic water, recycled water, and wastewater collection systems. The City of Rialto wanted to investigate alternatives for procurement of water and wastewater capital delivery and operations services. Services included preparing the RFP, technical appendices, and assistance in preparing the draft and final contract documents. As part of this investigation, Stephen helped evaluate the potential financial impacts of the concession and long-term management alternatives. The financial planning work included preparation of water and wastewater pro forma projections. Additional responsibilities included oversight of the rate impacts and community messaging. Stephen continues in his role to provide ongoing oversight support services for this assignment.

La Bonita Park Water Infrastructure Facilities, City of La Habra, CA:
Project Manager for the preparation of a detailed preliminary design report for the pump and discharge piping for a newly drilled 850 gpm well. In addition, the project included a 16-inch water line to transport import source water to a new 0.25 mg buried concrete reservoir. The well and import source water blend within the tank and are pumped by an 8,000 gpm booster pump station which discharges to a new 24-inch distribution main serving the City's municipal system. The preliminary design was used for the procurement of a final design/build contractor. The project scope included design coordination with the City of La Habra Public Works and Planning Departments and various vendors and subcontractors. Services also included construction management and specialty inspection support to the City of La Habra during construction of the pipeline, well, reservoir, and booster facilities. Numerous civil inspections included concrete and rebar, piping and pipe welding, pump and motor, HVAC, electrical, and geotechnical.

Professional Registrations

- Professional Civil Engineer, California No. 65187

Education

- BS, Civil Engineering, University of Southern California, Los Angeles

Professional Affiliations

- American Water Works Association
- Association of California Water Agencies
- CalDesal
- Colorado River Water Users Association
- Independent Special District of Orange County
- Orange County Water Association
- Trabuco Canyon Water District - Director
  - Engineering Committee
  - Finance Committee Chair
  - South Orange County Wastewater Authority Representative
  - Municipal Water District of Orange County Representative
- Urban Water Institute
- Water Advisory Committee of Orange County

New Model Colony Water and Wastewater Master Planning Peer Review Services, Brookfield Homes, City of Ontario, CA: Principal-in-Charge for conducting peer reviews of several existing water and wastewater master planning reports and available local data for the client to identify inconsistencies within and between reports. Water use and wastewater generation rate comparisons were conducted to determine system planning criteria adjustments based on existing surrounding utility systems. Several inconsistencies and errors within the Master Plans were identified which identified potential efficiencies within the proposed infrastructure sizing.

New Model Colony Wastewater Infrastructure Peer Review Services, Richland America Homes, City of Ontario, CA: Principal-in-Charge conducting peer reviews of the backbone wastewater collection system design criteria for the City of Ontario. The efficiencies identified in the peer review resulted in several million dollars of potential savings for the client.

El Paseo Project Water Supply Assessment (WSA), City of Fresno, CA: Principal-in-Charge for the preparation of a water supply assessment to meet the requirements of SB 610. The El Paseo Project is a 538-acre mixed-use commercial development proposed in the northwest part of Fresno. The City of Fresno did not have a current Urban Water Management Plan at the time, and preparation of the WSA required extensive investigation and understanding of the City's complex surface, ground, and recycled water supplies.

WATER/WASTEWATER DESIGN AND CONSTRUCTION MANAGEMENT

Jeffrey Road Waterlines, The Irvine Company and Irvine Ranch Water District, Irvine, CA: Principal-in-Charge for the design and construction of approximately 5,000 linear feet of 30-inch, 5,000 liner feet of 16-inch and 3,300 linear feet of 6-inch reclaimed waterline; and 5,000 linear feet of 12-inch potable waterline, between Irvine Boulevard and Portola Parkway. The project designs required extensive coordination with existing utilities, Irvine Ranch Water District, the Irvine Company, and the City of Irvine.

Lake Forest Drive Waterlines, The Irvine Company and Irvine Ranch Water District, Irvine, CA: Principal-in-Charge for the design and construction of approximately 5,000 linear feet of 12-inch domestic water main and 5,000 inear feet of 24-inch reclaimed water main. The design included an emergency connection to the Aufdenkamp Turnout facility. The project scope included design and construction support for IRWD, and required coordination with several engineering consultants and various subcontractors.

Lake Forest Drive Temporary Invasion Line, The Irvine Company, Irvine, CA: Principal-in-Charge for the design of a 24-inch temporary HDPE and PVC recycled water main. The design included connections with existing water mains, transitions from above to below ground, above ground concrete pipe restraints, and concrete slope anchors. The project scope included design coordination with IRWD, several engineering consultants and various subcontractors. The pipeline design was completed in an expedited frame and is currently in service.

Planning Area 18 Pump Stations, Irvine Ranch Water District, Irvine, CA: Principal-in-Charge for the preliminary planning of IRWD's Zone 3-4 domestic water booster pump station and Zone B-C reclaimed water booster pump station. The planning consisted of site selection, preliminary facility layout, and conceptual design. Plans included multiple site alternatives and improvements, grading alternatives, mechanical equipment, plan and profile of pipelines, electrical design and architectural layouts.

Eastern Municipal Water District (EMWD) Turnout #5, EMWD and Elsinore Valley Municipal Water District, Lake Elsinore, CA: Principal-in-Charge for the design and construction of a 54-inch by 30-inch turnout facility. Responsible for all aspects of the project, including traffic control plans, coordination with Southern California Edison, extensive coordination with the City of Lake Elsinore and respective water agencies.

Shady Canyon Development, Irvine Ranch Water District, Irvine, CA: Project Manager for the preliminary planning and design of the District's capital water facilities. The project included a 0.75 MG reinforced concrete reservoir, 24-, 16-, and 12-inch domestic water pipelines, 24-, 16-, 8-, and 6-inch reclaimed water pipelines, a domestic water pump station, and five domestic water pressure reducing stations. Due to the exclusiveness of this proposed community, considerable effort was given to minimize the visual impact of these facilities on the community.

Quail Hill Development, Irvine Ranch Water District, Irvine, CA: Project Manager for the planning, design and construction of the District's domestic water reservoirs and booster pump station. The project included a 3.5 mg buried pre-stressed concrete reservoir, a 0.6 mg above-ground pre-stressed concrete reservoir and a 2,750 gpm buried booster pump station.

Yucaipa Pump Station, San Bernardino Valley Municipal Water District, San Bernardino, CA: Project Engineer for the design of an 80 cfs pump station with two 900-hp motors and one 1,750-hp motor. Plans included extensive site improvements, mechanical equipment, structural details, reservoir design, surge

analysis, plan and profile of pipelines, electrical design and architectural layouts. Due to the unusually large size of the equipment, the masonry building reaches twenty-eight feet at its highest peak. Structural design and architectural impacts, therefore, were critical factors. The structural integrity of the building proved to be the ideal location to incorporate an emergency operations center from which the District could perform its most critical functions after an earthquake or other natural disasters. The project required extensive coordination between the District, subconsultants and reviewing agencies.

Greenspot Phase II Pump Station, San Bernardino Valley Municipal Water District, San Bernardino, CA: Project Engineer for the design of an 80 cfs pump station with two 600-hp motors and one 1,200-hp motor. This pump station was designed to operate in series with the Yucaipa Pump Station. An interesting aspect of the design was the fact that the Phase II facility with its 3:12 pitched roofs and the existing Phase I facility, 2% sloped roof, had to tie into each other and architecturally appear to be a single pump station.

Foothill Pump Station, San Bernardino Valley Municipal Water District, San Bernardino, CA: Project Engineer for the design of a 120 cfs pump station. Responsibilities included coordination between the District, sub-consultants and reviewing agencies, and scheduling of design phases to ensure project was completed on time.

Markridge Pump Station, Crescenta Valley Water District, La Crescenta, CA: Project Engineer in the design of a 3,500 gpm pump station. Primary responsibilities were coordination with District personnel, electrical engineer, survey crews, and the design of all suction and discharge piping to three separate pressure zones.

Culver Drive Improvements, Irvine Ranch Water District, Irvine, CA: Project Manager for the preliminary planning, final design and construction management for approximately one mile of 16-inch and 12-inch domestic water pipeline.

Southerly Development Infrastructure Improvements, Elsinore Valley Water District, Lake Elsinore, CA: Project Manager for the design and construction of approximately 6,000 linear feet of 24-inch domestic waterline and 16,000 linear feet of 30-inch reclaimed waterlines.

Planning Areas 1 and 2, The Irvine Company, Newport Beach, CA: Project Engineer responsible for the conceptual design of domestic water facilities, reclaimed water facilities, and sewer system facilities for this proposed development in the hills of east Irvine. The conceptual design included reservoirs, pump stations and all capital pipelines. Multiple alternatives were considered to determine the most cost effective design to serve the area.

Newport Coast Planning Areas 5 and 6, The Irvine Company, Newport Beach, CA: Project Engineer responsible for the conceptual study and design of domestic water facilities, reclaimed water facilities, and sewer system facilities for this proposed development in the coastal hills of Newport Beach. The conceptual design included all capital pipelines and a sewage lift station. This project was complicated due to construction scheduling of surrounding projects on the coast and the impact to existing facilities due to the reduction of housing densities in the area. Stephen's analysis resulted in substantial cost savings and improved system operational characteristics.

Newport Coast Phase 3, The Irvine Company, Newport Beach, CA: Project Engineer responsible for the design of domestic water facilities, reclaimed water facilities, and sewer system facilities for this proposed development in the coastal hills of Newport Beach.

South Reservoir Rehabilitation & North Reservoir Painting, City of Azusa, CA: Project Engineer and Construction Manager for the rehabilitation of a 2.5 MG pre-stressed concrete reservoir. Due to the age of the reservoir (approximately 70 years), no original plans existed. Responsibilities included design of repairs, technical specifications, plan coordination and preparation, pre-bid meeting with contractors, shop drawing review, and construction management.

Marshall Canyon Reservoir, City of La Verne, CA: Project Engineer for the design and layout of grading and drainage plans for partially buried 2.5 mg reinforced concrete reservoir. Design includes several AC paved access roads and parking areas for maintenance vehicles.

Portola Parkway Improvement, Irvine Ranch Water District, CA: Project Engineer for the design of approximately 5,300 linear feet of 16-inch reclaimed waterline, 5,300 linear feet of 20-inch potable waterline, and 1,800 linear feet of 18-inch gravity trunk sewer between Jamboree Road and Culver Drive. Plan and profile designs required extensive coordination with Caltrans and the Transportation Corridor Agency to ensure all requirements were met for the bridge crossing over the Eastern Transportation Corridor. Due to the construction schedule of the transportation corridor, potable and reclaimed water pipelines within the corridor right-of-way were completed on a fast track schedule.

Portshead Reservoir, Los Angeles County Waterworks District No. 29, CA: Responsible for the design of a grading plan with an A.C. access road around

reservoir to ensure proper drainage to existing 36-inch square drop inlet. This was accomplished while meeting several existing grades on an adjoining dirt access road. Plan was designed to maximize the use of drop inlet while minimizing erosion of the dirt road.

Sierra Madre Reservoir Site Rehabilitation, City of Azusa, CA: Project Engineer for site and grading improvements for a 1½ acre reservoir site. Improvements began with a soil percolation and stormwater runoff analysis to determine if existing drainage facilities had enough capacity to accommodate a 20-year storm with extensive AC paving of the site. After it was determined that costly drainage improvements would be required, a design was utilized using crushed aggregate over a non-woven geotextile material. Concrete gutters were designed at specific elevations above finished grade of the soil, but below finished grade of the aggregate cover. This design allowed the site to retain and percolate the initial storm peak while extended overflows were diverted by the existing drains without flooding the site.

On-Call Plan Check Services, Irvine Ranch Water District, Irvine, CA: Project Manager for the review of water and sewer plans for the District to check compliance with their standards and construction feasibility.

On-Call Assistance Services, Irvine Ranch Water District, Irvine, CA: Project Manager to provide the District with any project management or staffing needs.

MASTER PLANNING

Water, Wastewater, Recycled Water and Asset Management Master Plans, City of Rialto, CA: Principal-in-Charge for the Water, Wastewater, and Recycled Water Master Planning services for the City of Rialto in support of their concession agreement. Each Master Plan report addressed comprehensive planning, engineering criteria, flow/demand projections, hydraulic modeling, regulatory requirements, operations and maintenance activities, and recommendations for improvements. The potable water master plan also specifically addresses supply sources and storage volume evaluations. The City's water system serves several industrial complexes and consists of multiple pressure zones. The scope also includes an Asset Management task to determine the funding level needs to replace and refurbish system assets and a schedule for planning the replacement and refurbishment of system assets.

Wastewater Master Plan Update, City of Rialto, CA: Project Manager for the GIS collection, computer modeling and master planning of the City's backbone sewer collection system. The GIS collection was required due to the minimal existence of any accurate atlas plans or system as-built plans. All system manholes were located in the field using survey GPS and entered into the GIS database. The backbone system was then modeled under multiple scenarios to determine existing and future deficiencies. A master plan with recommended improvements and associated cost was also prepared and presented to the client.

Montebello Hills Water Master Plan, Cook Hill Properties, Montebello, CA: Principal-in-Charge for the Domestic Water System and Recycled Water System Planning and assisted the developer in negotiating with the local water company for updated planning and design criteria for a new development that consisted of approximately 400 acres and 1,200 homes. This project involved careful preparation with the environmental impact report as well as the preparation of a master plan and cost estimates.

On-Site Domestic Water System Report by R.W. Beck, Cook Hill Properties, Newport Beach, CA: Stephen Dopudja provided detailed domestic water master planning for the Montebello Hills development. The preparation of the water system report included land use and water demands, water system description and planning criteria, system analysis for fire flow and redundancy, and a cost summary. Stephen worked with San Gabriel Valley Water Company to obtain concensus on planning for system expansion to serve the project.

Southerly Development Water Master Plan, Elsinore Valley Water District, Lake Elsinore, CA: Project Manager for the Domestic Water System update for the Southerly Development. The update included the modeling of a proposed well field and treatment system.

El Toro Road Sewer Capacity Analysis, Irvine Ranch Water District, Irvine, CA: Project Manager for a complete sewer system analysis and hydraulic model of the District's El Toro Road Sewer. The project evaluated the impact of abandoning the El Toro Road Sewage Lift Station, and determining the effects and the downstream sewer system and upstream tributary area.

Water Master Plan, Crescenta Valley Water District, La Crescenta, CA: Project Manager, responsible for planning and computer modeling of the District's complex distribution system. The master plan involved a detailed modeling to analyze all of the distribution systems piping. This master plan was unique due to complexity and age of the system. A total of eleven pressure zones were modeled.

Ladera Sewer Feasibility Study, Santa Margarita Water District, Santa Margarita, CA: Project Engineer for the conceptual/ feasibility study for this development in southern Orange County. The study analyzed numerous alternatives to determine the most cost effective methods for sewering the development.

Such alternatives included the construction cost versus operational cost, for gravity lines versus lift stations.

Sewer Master Plan, City of La Verne, CA: Project Engineer responsible for the computer modeling of the City's five sewer system zones, and preparation of the report. The master plan included analysis of the City's collection system and the Los Angeles County Sanitation District's trunk mains.

LAND DEVELOPMENT SERVICES

Planning Area 17 Quail Hill Development, The Irvine Company, Newport Beach, CA: Project Manager for the Tentative Map, Phase 1 and 2 Rough Grading Plans, storm drain infrastructure and construction phase services for the Irvine Company's master planned village known as Quail Hill. The project required the excavation and grading of approximately 15 million cubic yards of dirt for the development of 2,500 units.

Portola Parkway Infrastructure Improvements, The Irvine Company, Newport Beach, CA: Construction Manager/Support for the construction of all assessment district facilities for the above mentioned project. Project included the construction a primary highway, storm drain facilities, and the water and sewer facilities listed above.

Planning Area 12 Oak Creek Infrastructure Improvements, The Irvine Company, Newport Beach, CA: Project Engineer and Construction Manager/ Support for the design and construction of all assessment district facilities. Project included the widening of Alton Parkway, a primary highway, and construction of numerous secondary highways within the development. The project also included the construction of storm drain facilities, domestic water pipelines and pressure reducing station, reclaimed water pipelines and sewer facilities

Ritter Ranch Feasibility Analysis and Cost Estimate, Sage Community Group, Newport Beach, CA: Senior Project Engineer for the Feasibility Analysis and $500 Million dollar cost estimate for a 10,000 acre master planned community. Project included a comprehensive analysis of grading and all infrastructure to support the proposed development.

WEST YOST ASSOCIATES

Kristen Whatley, PE

Kristen Whatley has over 13 years of experience working on and managing water resources and wastewater projects. Her capabilities range from the planning and computer modeling of water systems, designing and bidding of water resources projects including wells and wastewater, water treatment, booster pump stations, reservoirs, and pipelines. Project experience includes serving as the project manager on major water resources and wastewater design and permitting projects and residential land development projects; water storage, treatment, and distribution projects; and master planning efforts on several land development projects including coordination with regulatory agencies. Water system permitting experience includes obtaining CC&N extensions and coordination on rate cases, obtaining Certificates and Designations of Assured Water Supply, service area water right establishment, and ADEQ new water system establishment.

EXPERIENCE

RECYCLED WATER

Montebello Hills Recycled Water Pipeline and Temporary Pump Station, Central Basin Municipal Water District (CBMWD), Commerce, CA: Project Manager for the design of a 16-inch recycled water line and a 2,500 gpm temporary pump station to serve recycled water needed for grading operations for the initial phases of the Montebello Hills development. The project will tie-into an existing 30-inch diameter CML&C pipeline which is owned and operated by CBMWD. This project is located in an area with numerous existing utility crossings including oil, gas, potable water, storm drains, electric, and fiber optics. Potholing was completed to locate existing utilities along the proposed pipeline alignment. The project scope included design coordination with CBMWD, San Gabriel Water Company, and the City of Montebello. The temporary pump station is a prefabricated pump station, supplied by Grundfos, which contains three constant speed 1,250 gpm end suction centrifugal pumps. These pumps will pump recycled water through a temporary, above-ground HDPE water main to a temporary water tank used for grading operations.

Montebello Hills Domestic and Recycled Water System Planning, Cook Hills Development, Montebello, CA: Project Engineer for the master planning and preliminary design of the domestic and reclaimed water infrastructure to serve the 487-acre development. The project required two new pressure zones to serve the 1,200 planned units. The two new pressure zones are served via four new on-site pump stations, two new storage reservoirs and approximately five miles of waterlines. Hydraulic models were developed for the proposed domestic and recycled water systems using proposed infrastructure sizing and system pressure criteria. Project included coordination with San Gabriel Valley Water Company and Central Basin Municipal Water District to obtain planning approvals.

Professional Registrations

- Professional Civil Engineer, California No. 84665
- Professional Civil Engineer, Arizona No. 45171
- California Grade 2 Water Distribution and Treatment Operator
- Arizona Grade 2 Water Distribution and Treatment Operator

Education

- BS, Environmental Engineering, Northern Arizona University, Flagstaff

Professional Affiliations

- American Water Works Association
- California Water Environment Association
- Orange County Water Association
- Arizona Water Association

Jeffrey Road Domestic and Reclaimed Water Pipeline Design and Construction Phase Services, Irvine Community Development Company, Irvine, CA: Project Manager for the design plans and technical specifications for a 12-inch PVC domestic water main, several 36-inch CML&C reclaimed water mains, a 16-inch CML&C reclaimed water main to be owned and operated by Irvine Ranch Water District (IRWD). This project was located in an area with numerous existing utility crossings and required extensive design coordination. The design included connections with existing and proposed water mains and a large valve vault for a 30-inch diameter valve in Jeffrey Road. The project scope included design coordination with IRWD, several engineering consultants and various subcontractors. Kristen provided construction phase support to IRWD on the capital water main projects and was responsible for attending project meetings, responding to Contractor's requests for information, reviewing shop drawings and materials submittals, minor plan revisions, change order review, and as-built drawings.

Lake Forest Drive, Phase 2 Domestic and Reclaimed Water Pipeline Design and Construction Phase Services, Irvine Community Development Company, Irvine, CA: Project Manager for design plans and technical specifications for a 12-inch PVC domestic water main, a 24-inch temporary HDPE reclaimed water main, and a 24-inch CML&C reclaimed water main to be owned and operated by Irvine Ranch Water District (IRWD). The design included connections with existing and proposed water mains and an emergency connection to the Aufdenkamp Turnout. The project scope included design coordination with IRWD, several engineering consultants, and various subcontractors. Kristen also provided construction phase support to IRWD on the capital water main projects and was responsible for attending project meetings, responding to Contractor's requests for information, reviewing shop drawings and materials submittals, reviewing change order requests, minor plan revisions, and as-built drawings.

Planning Area 18 Domestic and Reclaimed Water Booster Pump Station Preliminary Design, Irvine Ranch Water District, Irvine, CA: Project Manager for a preliminary design report of two booster stations to service a residential subdivision within the Irvine Company Planning Area 18. The two proposed pump stations include a domestic and reclaimed water pump station combined into a single facility and an emergency back-up domestic fire pump station at a separate facility. Both proposed pump stations will be owned and operated by Irvine Ranch Water District (IRWD). The preliminary design includes: a hydraulic analysis and pump selection; grading, site layout and piping plan; electrical and instrumentation plans; site landscaping and irrigation plan; project schedule; costs estimate; and team meetings. The project scope included design coordination with IRWD, several engineering consultants and various subcontractors.

City of Phoenix Water Resource Options Evaluation, City of Phoenix / Phoenix, AZ: Project Engineer for a reclaimed water asset evaluation study for the City of Phoenix. The study evaluated project opportunities to beneficially utilize uncommitted existing reclaimed water supplies to meet future water supply needs. This task included a concept level evaluation of pipeline alignments and pumping requirements for delivery to potential customers. Cost estimates were generated for several identified project options.

Willow Springs Reclaimed Water Reservoir and Booster Pump Station Design, Willow Springs Utilities/Pinal County, AZ: Project Manager for the design of a 250,000 gallon reclaimed water reservoir and 1,000 gpm booster pump station, surge tank, and air compressor to serve the Phase I Willow Springs master planned development reclaimed water system. The reservoir and booster station are located at the proposed wastewater treatment plant site and required extensive coordination with the wastewater treatment plant (WWTP) design engineer, as the WWTP was being designed concurrently with the reclaimed water facilities. The project required coordination with various design engineers, electrical engineer, geotechnical engineer, regulators, and vendors. The project design was needed to complete wastewater utility permitting requirements for development start-up.

POTABLE WATER

2015 Water Facilities Master Plan (WFMP), Eastern Municipal Water District, Perris, CA. Hydraulic modeling lead for the Perris Valley West service area. Responsible for: updating the District's hydraulic model and validating the model through comparisons with SCADA data; preparing existing and buildout system hydraulic modeling evaluations to identify capital improvements to enhance service area performance; evaluating phasing of planned capital facilities to identify timing based on projected demands for the service area; documenting results and findings in the WFMP report.

City of Rialto Concession Agreement and Potable Water, Recycled Water, and Sewer Master Planning, City of Rialto, CA: Project Engineer for the preparation of inventory and records review for the concession agreement. In addition, permitting requirements were reviewed and current permits were compiled for the Concession agreement. Kristen provided support in the preparation of Water, Sewer, and Recycled Water Master Plan reports. To complete this

task, system demands were updated based on current historical usage and land use planning information. Hydraulic water and sewer models were updated and analyses were completed to identify system deficiencies which required CIP improvements for the existing and future system conditions. Kristen also evaluated potable water storage, supply capacities and water quality characteristics, and O & M practices. The evaluation resulted in system improvement recommendations. Kristen coordinated closely with water system staff to understand current system operations.

New Model Colony Water and Wastewater Master Planning Peer Review Services, Brookfield Homes/ City of Ontario, CA: Project Manager for conducting reviews of several existing water and wastewater master planning reports and available local data for the client to identify inconsistencies within and between reports. Water use and wastewater generation rate comparisons were conducted to determine system planning criteria adjustments based on existing surrounding utility systems. Several inconsistencies and errors within the current City of Ontario, New Model Colony Master Plan were identified, which could result in significant planned infrastructure sizing revisions and potential cost savings. Kristen also evaluated existing wastewater design criteria and compared this to criteria used by existing surrounding utility systems to identify the criteria as overly conservative.

La Bonita Park Potable Water Reservoir, Well, Booster Pump Station, and Pipeline Preliminary Design, Procurement and Construction Support, City of La Habra, CA: Project Manager for a detailed preliminary design report for the pump and discharge piping for a newly drilled 850 gpm well. In addition, the project included a 16-inch water line to transport CDWC source water to a new 0.25 MG buried concrete reservoir. The well and CDWC source water blends within the tank and is pumped by a 8,000 gpm booster pump station which discharges to a new 24-inch distribution main to serve Zone 1 of the City's municipal water system. The preliminary design was used for our procurement of the final design/build Contractor. The project scope included design coordination with the City of La Habra Public Works and Planning Departments and various vendors and subcontractors. The project was successfully completed on time and on budget and has been constructed. Kristen also provided construction management and special inspection support to the City of La Habra Public Works during construction of the pipeline, well, reservoir, and booster facilities. Kristen was responsible for coordinating numerous civil inspections which include concrete and rebar, piping and pipe welding, and geotechnical. In addition, Kristen provided assistance to the City for plan and shop drawing reviews.

On-Call Assistance Services, Mesa Water District, Costa Mesa, CA: Project Manager, as an extension of Mesa Water District (MWD) staff, providing MWD with consulting services to meet their on-call needs. On call services included coordination regarding reporting requirements with agencies, infrastructure operational review and coordination on planning and design efforts.

Well No. 23 & Arsenic Water Treatment Plant Design and Bidding, Sahuarita Water Company/ Sahuarita, AZ: Project Manager for the design, project bidding services and construction administration to construct a new 1,600 gpm well (Well 23) with a 5,000 gallon surge tank and air compressor, and a centralized arsenic treatment facility for Sahuarita Water Company. The new centralized facility will treat source water from two existing wells and one new well. The treatment plant consisted of a chlorination facility, static mixer, cartridge filters, filter vessels, and a modulating control valve. The modulating control valve at the treatment plant controls the amount of raw groundwater that will bypass the treatment plant and blend with the treated water. In addition, the modulating control valve controls the raw water bypass flow to achieve a target arsenic concentration in the blended water and to optimize the usage of adsorption media. Adsorption media within the filter vessels reduce the arsenic concentration in the raw groundwater to achieve a target setpoint of 7 ppm. The treatment plant is equipped with two parallel adsorption trains. Each train consists of two adsorption units or vessels, operating in series. The second adsorption unit in each train provides finishing treatment or break-through protection. The blended water then flows to adjacent reservoirs. A tablet feed chlorinator was designed to provide a chlorine solution at the inlet and outlet of the treatment plant. The chlorine solution oxidizes As3 to As5 in the raw groundwater water before entering the adsorption trains. The chlorinator also maintains the chlorine residual in the treated water as it leaves the treatment plant. The treatment plant utilized a newly manufactured regenerable adsorptive media which met both NSF and Arizona Department of Environmental Quality requirements. Extensive coordination was required with many design professionals, water company staff, vendors, contractors, and regulators to accomplish this project. This facility was the first adsorptive plant to implement the regenerable media and pilot testing was conducted to verify the overall performance against existing disposable media. The project was partially funded by American Recovery and Reinvestment Act grants and low interest loans. The timeframe for design, bidding, and construction on this project was constrained and required weekly coordination meetings to insure the project remained on schedule and outstanding issues were resolved in a timely manner. The project was successfully completed and is currently in service. The project won an award from the Arizona

Water Organization for "Water Treatment Plant of the Year".

Community Water Wells 10 and 11 Well, Reservoir, Booster Pump Station, Arsenic Treatment, and Pipeline Design, Community Water of Green Valley /Pima County, AZ: Project Manager for the design and project coordination for construction of the Community Water Well Nos. 10 and 11 sites, including arsenic treatment facilities, new 300,000-gallon forebay reservoirs, , 5,000 gallon surge tank and air compressors, and 2,500 gpm booster pump stations at each well site. Community Water of Green Valley required replacement source capacity due to sulphur contamination in existing wells. The newly equipped wells were designed to pump through a coagulation filtration arsenic treatment process into an onsite forebay reservoir. Treated potable water is then pumped from the reservoir through a booster station and distributed to existing floating reservoirs. In addition, several miles of 16-inch water main was designed and constructed. The pipeline design required coordination with Arizona Department of Transportation to obtain a permit to cross Interstate 19. Extensive coordination was required with many design professionals, water company staff, vendors, contractors, and regulators to accomplish this project. The time frame for design and construction on this project was constrained and required weekly coordination meetings to insure the project remained on schedule.

Red Rock Nitrate Treatment Plant Design, Red Rock Utilities/Pinal County AZ: Project Manager for the design and project coordination to construct a Nitrate treatment facility to treatment water from a new well. The nitrate treatment facility, located at the Red Rock Water Plant No. 1 site, was designed to remove nitrate from source groundwater. The well pumps through an ion exchange nitrate treatment process into an existing onsite forebay reservoir. The nitrate treatment facility was installed at the discharge of the wellhead to treat the half of the full flow of 800 gpm to an approximate final blended (half treated, half bypassed) Nitrate concentration of 8 ppm or less. The Nitrate treatment facility consists of four steel filtration vessels which contain a chloride form of anion exchange resin media. Nitrate ions are exchanged onto the media releasing chloride ions resulting in a reduced concentration of Nitrate in the treated water. The media is then backwashed with a sodium chloride brine solution to remove the nitrate ions and replace them with fresh chloride ions. The spent brine backwash water is sent to a holding tank for continuous low flow disposal to the public sewer system. Extensive coordination was required with many design professionals, water company staff, vendors, contractors, and regulators to accomplish this task.

Red Rock Potable Well, Reservoir and Booster Pump Station Design, Bidding, and Construction Support, Red Rock Utilities/Pinal County, AZ: Project Manager for the design and project coordination to construct two new wells, a forebay reservoir, booster pumping station, and surge tank and air compressor to serve Phase I of Red Rock, a master planned development in Pinal County. The two wells were designed with a capacity of 750 gpm and pump directly to the 900,000 gallon forebay reservoir. The new 2,000 gpm booster pump station pulls water from the reservoir and discharges to the distribution system. The booster pump station was designed to be expandable to serve future buildout conditions. Kristen also provided technical support during the construction phase of this project.

Eagle Crest Well No. 2 Design & Bidding, Goodman Water Company/Pinal County, AZ: Project Engineer for the design and project coordination to construct a new potable supply well for Goodman Water Company. The new well was designed to pump through a dedicated supply line to an existing reservoir. This project required coordination with the groundwater hydrologist, well driller, and regulatory agencies for permitting requirements. Kristen was responsible for the preparation of construction contracts, bidding process, and award to the selected Contractor. The project was successfully completed and is in service.

Whetstone Ranch Potable Water Reservoir, Well, PRV, and Pipeline Design, City of Benson Public Works/Benson, AZ: Project Engineer for design of the pump and discharge piping for a newly drilled 1,200 gpm well, surge tank, and air compressor that pumps to a new 1.0 MG floating reservoir and a 16-inch distribution main to serve new development within the Whetstone Ranch project. An above ground PRV station was designed to move water from a higher zone to serve a lower zone. The project scope included design coordination with the City of Benson Public Works and Arizona Department of Environmental Quality.

Houghton Road Water Main Phases I and II Design and Bidding, Tucson Water / Tucson, AZ: Project Manager for the design of approximately nine miles of 24-inch potable water main to connect the main Tucson Water service area to an isolated outlying service area to provide additional capacity for future development. Phase I of the water main project consisted of approximately 4 miles of 24-inch water main to connect a new well in the isolated system to an existing reservoir site. Phase II of the water main project consisted of the remaining 5 miles of 24-inch water main to connect the main system to the isolated system and included two 36-inch main portions to be jack and bore under the Interstate 10 (I-10) and Union Pacific Railroad (UPRR). This project required coordination with the

Arizona State Land Department to obtain easements along Houghton Road for the pipeline, with Arizona Department of Transportation to obtain a permit to jack and bore under I-10, with UPRR to jack and bore under an existing UPRR track, with El Paso gas to cross and existing high pressure gas line. Extensive coordination was required with many design professionals, environmental permitting consultants, Tucson Water staff, vendors, contractors, and regulators to accomplish this project. Kristen was responsible for the preparation of construction contracts, bidding process, and award to the selected Contractor for Phase I construction. Phase I was successfully completed and is in service, Phase II design was completed.

Eagle Crest Water Plant No. 3, Reservoir and Booster Pump Station Design & Bidding, Goodman Water Company/Pinal County, AZ: Project Manager for the design and project coordination to construct a floating J- Zone reservoir and K+ Zone booster pumping station, surge tank, and air compressor to serve Eagle Crest, a master planned development in Pinal County. The 530,000 gallon floating reservoir was designed per the water master plan. The reservoir location, along a steep hillside, required extensive grading and drainage plans. A new 1,100 gpm booster pump station pulls water from the floating reservoir and discharges to the K+ zone distribution system. The project required coordination with the subdivision engineer, survey, geotechnical, and electrical subcontractors. Kristen was responsible for the preparation of construction contracts, bidding process, and award to the selected Contractor.

Tierra Linda Well, Reservoir, and Booster Pump Station Design, Tierra Linda HOA Water Company/ Pima County, AZ: Project Manager for the design of a 200-gpm well, 220,000 gallon reservoir, 5,000 gallon surge tank and air compressor, and 1,500-gpm booster pump station. This project included coordination for the evaluation and rehabilitation of an existing on-site irrigation well for use as a source water production well. Project responsibilities included coordination with the developer, sub-consultants, contactor and reviewing agencies. This facility was required to begin residential development in an isolated area with no existing or adjacent potable water service.

Willow Springs Potable Well, Reservoir and Booster Pump Station Design, Willow Springs Utilities/Pinal County, AZ: Project Manager for the design of a 300 gpm well, 250,000 gallon potable water reservoir and 2,000 gpm booster pump station, 5,000 gallon surge tank, and air compressor to serve the Phase I Willow Springs master planned development potable water distribution system. This project included coordination for the evaluation and rehabilitation of an existing on-site well for use as a source water production well. The project required coordination with groundwater hydrologist, subdivision design engineer, electrical engineer, geotechnical engineer, regulators, and vendors. The project design was needed to complete water utility permitting requirements for utility start-up.

Tucson Water K-Zone Reservoir and K-M Zone Booster Pump Station Design and Bidding, SRWA, LLC/Tucson, AZ: Project Engineer for the design of a 2.0 MG, above-ground, welded steel K-Zone reservoir, an 1,800 gpm K-M Zone booster station, surge tank, and air compressor. The reservoir is the largest above ground welded steel reservoir in Tucson Water's service area. The reservoir was designed with unique grading considerations to be hidden into the hillside so that views of proposed adjacent homes would not be obstructed. Extensive coordination was required with survey, geotechnical engineer, environmental permitting consultants, Tucson Water staff, vendors, contractors, and regulators to accomplish this project. Kristen was responsible for the preparation of construction contracts, bidding process, and award to the selected Contractor.

Tucson Water Old Vail G-H Zone Booster Pump Station and Pipeline Design, Diamond Ventures/ Tucson, AZ: Project Manager for a new booster station designed to be constructed at an existing Tucson Water reservoir site to service Mountain Vail, a 135-acre master planned community. The booster pump station design included a 2,000 gpm booster station, hydro pneumatic tank, air compressor, and electrical upgrades. A separate design was prepared for a 16-inch water main from the booster station to the development. An easement from a private land owner was obtained to reduce the pipeline alignment length and provide some cost savings. Kristen also coordinated with Tucson Water to protect the booster pump station and pipeline facilities which would require anyone who wanted to utilize the newly constructed facilities in the future to reimburse the project owner for a portion of the construction expenses.

Tucson Water Saguaro Ranch G- Zone Reservoir, G-I Zone and G-J Zone Booster Pump Stations, Saguaro Ranch/Marana, AZ: Project Engineer for the Saguaro Ranch, high-end master planned residential development, located in the Tortolita Mountains in Marana, Arizona. The design of the water facilities within this community had to meet the aesthetic constraints of the community. Kristen was responsible for the design of a partially buried 300,000 gallon reservoir, and fully enclosed buried booster pump stations to serve the initial phase of the development. The reservoir and booster site required the facilities to be unrecognizable and blend into the natural desert environment, yet still needed to be acceptable to Tucson Water. This task proved to be a challenge as Tucson Water did not have experience with enclosed booster station facilities. Coordination between the pre-packaged booster station vendor and Tucson

Water was required to alleviate any design or operational concerns the utility had. In addition, a new booster station design technology was also introduced to Tucson Water to keep the double booster pump station facility within a compact footprint.

Tucson Water Dove Mountain Canyon Pass K+ Zone Reservoir and K-N Zone Booster Pump Station, Cottonwood Properties/Marana, AZ: Project Manager for the design of a 280,000 gallon reservoir and 1,700 gpm booster pump station, surge tank, and air compressor to provide service for proposed development within the Tucson Water Dove Mountain service area. The Dove Mountain service area is located in the Tortolita Mountains in Marana, Arizona. The proposed site grading around the reservoir required additional geotechnical evaluation to determine the stability of the proposed steep side slopes due to solid rock formations. In addition, the developer required the site to blend with natural surroundings. The project required coordination with Tucson Water personnel and electrical engineering staff, survey crews, geotechnical engineer, and the subdivision engineer.

Oak Creek Water Company Water Master Plan, Oak Creek Water Company No. 1/Sedona, AZ: Project Manager for the preparation of a potable water master plan for the existing Oak Creek Water Company to support proposed new developments within the water companies existing service area. The master plan evaluated existing demands based on historical usage and projected future demands based on proposed land uses to determine infrastructure improvement recommendations. Kristen evaluated the existing water system infrastructure to determine critical system improvements. The water master plan report and cost estimates were submitted to the Arizona Corporation Commission (ACC) as a basis for a hook-up fee and loan authorization request. Kristen coordinated closely with the Arizona Corporation Commission, rate consultant, and attorney during the ACC review to ensure a successful outcome.

Red Rock Water Master Plan, Red Rock Utilities/ Pinal County, AZ: Project Manager for the water planning and computer modeling of Red Rock, a 1,000-acre master planned community located in Pinal County. The master plan involved creation of a detailed model using WaterCAD to determine sizing for all of the distribution systems piping under a build out condition. The water master plan was submitted to the Arizona Corporation Commission and Arizona Department of Water Resources to establish the newly formed utilities service area and operating plan.

Sahuarita Water Company Certificate of Convenience & Necessity (CC&N) Extension, Modification of Designation of Assured Water Supply, Water Master Planning, Sahuarita Water Company / Sahuarita, AZ: Project Manager. for a 2,500-acre master planned development project. Mission Peaks, requested the expansion of Sahuarita Water Company's service area to serve potable water to the project. Kristen coordinated the potable master planning efforts for project on behalf of Sahuarita Water. As part of the master planning effort, existing infrastructure was evaluated to assess how new infrastructure would integrate into the existing system and determine system upgrades for existing customers. Mission Peaks nearly doubled the size of the existing water company's current service area and required extensive source water and distribution system master planning. Kristen coordinated the expansion of the water company service area with several state regulatory agencies such as the Arizona Department of Water Resources and the Arizona Corporation Commission for an extension of the water company's existing CC&N.

Red Rock Certificate of Convenience & Necessity (CC&N), Designation of Assured Water Supply, & Water Master Planning, Red Rock Utilities/Pinal County, AZ: Project Manager for the water planning of Red Rock, a 1,000-acre master planned community located in Pinal County. The water master plan was submitted to the Arizona Corporation Commission and Arizona Department of Water Resources to establish the newly formed utilities service area and operating plan. Kristen provided assistance with water system permitting for the development, to include the a Designation of Assured Supply with Arizona Department of Water Resources, Arizona Department of Environmental Quality (ADEQ) System ID number, and the assistance with the Arizona Corporation Commission (ACC) Certificate of Convenience and Necessity (CC&N) and Pinal County franchise application.

Eagle Crest Certificate of Convenience & Necessity (CC&N) Extension, Modification of Designation of Assured Water Supply, Water Master Planning, & Water System Design, Goodman Water Company/Pinal County, AZ: Project Manager for a potable water master plan and sewer basin study for the Eagle Crest master planned community, a residential development project located Pinal County for the master developer. The master plans were used to expand the private utility company to service the proposed development expansion. These reports were provided to the Arizona State Land Dept. for use in assessing current state land development value for an upcoming auction and utilized to expand utility services with the Arizona Corporation Commission, Arizona Department of Environmental Quality, and the Arizona Department of Water Resources. Kristen also conducted hydraulic system modeling and prepared

design plans for a well, reservoir and booster station facility to serve the development.

Tierra Linda Water Company Certificate of Convenience & Necessity (CC&N), Certificate of Assured Water Supply, Water Master Planning, & Water System Design, Tierra Linda Water Company/Pima County, AZ: Project Manager for the potable water master plan for the Tierra Linda master planned community; a residential development project located Pima County for the master developer. The master plan was used to create a new private utility company to service the proposed isolated development. This report was utilized to establish new water utility service with the Arizona Corporation Commission, Arizona Department of Environmental Quality, and the Arizona Department of Water Resources. Kristen coordinated the leasing of Type II water rights needed to establish an Arizona Department of Water Resources service area right for the water utility company. In addition, Ms. Whatley prepared and coordinated a membership application with the Central Arizona Groundwater Replenishment District (CAGRD) to replenish Central Arizona Project (CAP) water in lieu of groundwater that withdrawn for use in the development. Kristen also conducted hydraulic system modeling and prepared design plans for a well, reservoir and booster station facility to serve the development.

University of Arizona Science and Technology Park - Technology Marketplace Water Master Plan, Optimus Civil Design Group/Tucson, AZ: Project Manager for the potable water master plan for a proposed commercial and residential development, known as the Technology Marketplace, located in the area surrounding the University of Arizona Science and Technology Park. The master plan determined the required water system facilities to service the Technology Marketplace development by expanding the existing Tucson Water service area. The master plan provided an estimate of commercial and residential water demands, a concept for water service that included an expansion for existing Tucson Water facilities, and preliminary site layout with proposed facilities to serve the development. Obtaining approval from Tucson Water on the water master plan required coordination with several Tucson Water departments.

University of Arizona Science and Technology Park Solar Zone Grading and Drainage Plan, U of A Science and Technology Park & Tucson Electric Power/Tucson, AZ: Project Manager for the grading and drainage plans, bidding and construction phase services for U of A Science and Technology Park Solar Zone. The Solar Zone will be utilized for a large solar technology demonstration project. Several vendors of solar technology will utilize individual parcels of land within the Solar Zone to compare the power generation of the different technologies to determine which will be implemented on a larger scale in the future. The project required the grading of approximately 170 acres and the installation of an open drainage channel to divert offsite storm water through the development. The project owners had a short timeline for construction to take advantage of available grant funding and extensive coordination with the project owners, contractor and vendors was required to accomplish the project on schedule. The project was successfully completed on schedule and is in service.

On-Call Plan Check Services, Goodman Water Company/Pinal County, AZ: Project Manager for the design plan reviews and water system modeling efforts on behalf of Goodman Water Company (Goodman). Kristen managed the review of water plans to check for compliance with their master plan and existing standards and construction feasibility. Her services allowed Goodman to complete plan checks on time for use by developers. Kristen constructed the WaterCAD model and conducted analyses for new development projects within the service area.

On-Call Assistance Services, Sahuarita Water Company/Sahuarita, AZ: Project Manager, as an extension of Sahuarita Water Company (SWC) staff, providing SWC with consulting services to meet their on-call needs. On call services included coordination regarding reporting requirements with regulatory agencies, infrastructure operational review, coordination on planning efforts, and coordination with outside design engineers on SWC standards and requirements.

On-Call Assistance Services, Goodman Water Company/Sahuarita, AZ: Project Manager, as an extension of Goodman Water Company (Goodman) staff, providing consulting services to meet their on-call needs. On call services included coordination regarding reporting requirements with regulatory agencies, infrastructure operational review, coordination on planning efforts, and coordination with outside design engineers on Goodman Water Company standards and requirements.

On-Call Assistance Services, Red Rock Utilities/ Pinal County, AZ: Project Manager, as an extension of Red Rock Utilities (RRU) staff, providing RRU with consulting services to meet their on-call needs. On call services included coordination regarding reporting requirements with regulatory agencies, infrastructure operational review, coordination on planning efforts, and coordination with outside design engineers on RRU standards and requirements. In addition, Kristen constructed the WaterCAD model and conducted analyses for new development projects within the service area.

WASTEWATER

Palm Springs Wastewater Operations and Maintenance Performance Review, City of Palm Springs, CA: Project Engineer for a performance evaluation of Veolia's operation and maintenance of the City's wastewater treatment plant and sewer collection system. The performance review activities included a technical review, facility review, legal review, and financial review of the existing WWTP O & M practices.

Northern Phoenix Wastewater Collection and Treatment Options Evaluation, City of Phoenix Water Services Department / Phoenix, AZ: Project Engineer for the evaluation of options for wastewater treatment and reclaimed water production in Northern Phoenix. Evaluated options considered use of existing City infrastructure by proposed facility expansions and/or new infrastructure projects to deliver and treat projected wastewater.

Verano Onsite and Offsite Sewer Basin Studies, Water Master Plan, and Effluent Management Plan, South Wilmot Land Investors, LLC/Pima County, AZ: Project Manager for the preparation of several water and wastewater master planning studies for the Verano development, a 2,200- acre master planned community located in Pima County. Involvement with this project began with the preparation of water and wastewater descriptions in the Specific Plan and grew into several detailed studies required by Pima County. An on-site potable water master plan was prepared to determine the development water demands and required infrastructure to support the development. The water master plan was submitted to the Arizona Corporation Commission and Arizona Department of Water Resources to establish the newly formed utilities service area and operating plan.

Willow Springs Water, Sewer, and Reclaimed Water Master Planning, Willow Springs, LLC/ Pinal County, AZ: Project Manager for the preparation of potable and reclaimed water master plans and sewer basin studies for the Willow Springs master planned community, a 4,600-acre development project located Pinal County for the master developer. The master plans were used to create private utility companies to service the proposed isolated development. Kristen utilized these reports to establish new utility services with the Arizona Corporation Commission, Arizona Department of Environmental Quality, and the Arizona Department of Water Resources.

Whetstone Ranch Water, Sewer, and Reclaimed Water Master Planning, City of Benson Public Works/Benson, AZ: Project Manager for the preparation of potable and reclaimed water master plans and sewer basin studies for the Whetstone Ranch master planned community, a 26,000 unit development project located near the City of Benson for the master developer. Water master planning for source capacity and well siting required coordination with ground water hydrologists. Whetstone Ranch required extensive coordination regarding the cost allocation of water, sewer, and reclaimed infrastructure costs between several sub developers on different portions within the overall development.

Willow Springs Certificate of Convenience & Necessity (CC&N), Designation of Assured Water Supply, & Water, Sewer, and Reclaimed Water Master Planning, Willow Springs, LLC/ Pinal County, AZ: Project Manager for the potable and reclaimed water master plans and sewer basin studies for the Willow Springs master planned community, a 4,600-acre development project located Pinal County for the master developer. The master plans were used to create private utility companies to service the proposed isolated development. These reports were used to establish new utility services with the Arizona Corporation Commission, Arizona Department of Environmental Quality, and the Arizona Department of Water Resources. Ms. Water coordinated the leasing of Type II water rights needed to establish an Arizona Department of Water Resources service area right for the water utility company.

University of Arizona Science and Technology Park - TDS Analysis and Water Mass Balance, Grubb and Ellis / Tucson, AZ: Project Manager providing consulting services to determine the effects of introducing high TDS cooling tower blow down water to the Sanitary Wastewater Treatment Plant and resulting change in reclaimed water quality. An analysis of the potable, reclaimed, and wastewater streams from the U of A Technology and Science Park was conducted to determine the overall water mass balance.

Sycamore Canyon Sewer Lift Station and Force Main Design, Pima County Wastewater Management Dept./Pima County, AZ: Project Manager for the design plans and specifications for a sewer lift station to serve 350 lots in the Sycamore Canyon Development. The lift station is a public facility, owned and operated by Pima County Wastewater Management Department (PCWMD). The lift station consists of duplex, 38 horsepower (hp), submersible pumps located within a wet well. The lift station pumps through approximately 4,100 lineal feet (lf) of 6-inch High Density Polyethylene (HDPE) DR 11 force main.

Dos Lagos Lift Station Design and Bidding, Cottonwood Properties/Tucson, AZ: Project Manager for the design plans and specifications for a sewer lift station to serve a residential development within the Dove Canyon Development. The lift station is a private facility, owned and operated by Homeowners Association. The lift station consists of

duplex, submersible pumps and a force main. Kristen coordinated the competitive bidding for the lift station and force main.

Eagle Crest Sewer Lift Station and Force Main Design, D. R. Horton/Tucson, AZ: Project Manager for a sewer basin analysis used to design a lift station and force main to serve 100 lots in the Eagle Crest Development. In addition design plans and specifications for a sewer lift station and force main were prepared. The lift station is a public facility, owned and operated by Pima County Wastewater Management Department (PCWMD). The lift station consists of a grit manhole, duplex submersible pumps located within a wet well, and an aeration system. The lift station pumps through a short force main into a gravity sewer.

Los Arroyos Public Wastewater Lift Station Design, Monterey Homes / Tucson, AZ: Project Engineer for the design and project coordination of a public wastewater lift station that is currently owned and operated by Pima County Regional Wastewater Reclamation Department. The lift station was designed as a wet well duplex pump station that currently serves approximately 150 homes in the Los Arroyos Residential Development. The pump station was designed with chemical injection system to reduce hydrogen sulfide generation at the facility. The lift station was designed with a generator to provide full backup power during an outage. Design permits were obtained through the Pima County Dept. of Environmental Quality. The lift station was constructed and is currently operating.

AWARDS

- SEE&I Outstanding Project Manager, Second Quarter 2012
- WWR Outstanding Project Manager, Third Quarter 2011
- Arizona Water, 2010 Water Plant of the Year Project Award

PRESENTATIONS

- Kristen Whatley, "Sahuarita Water Treatment Plant No. 1", Arizona Water Conference, Glendale, Arizona, May, 2010.

WEST YOST ASSOCIATES

Momcilo Savovic, PE, CCM, DEE

Momo Savovic has more than 31 years of national and international experience in consulting engineering, including project management; organizational assessments/facilitation services; infrastructure evaluation and assessment; planning; design; and construction management. Momo has extensive experience in process/mechanical planning, design, and construction management services for a variety of water and wastewater treatment and disposal projects including potable and reclaimed water lines, sewer mains, potable and non-potable pump stations, wells, reservoirs, and water and sewage treatment plants. His responsibilities included field investigations; preparation of plans, specifications, and cost estimates; hydraulic analyses; equipment selection; and on-site construction management services.

Momo's process and WWTP experience includes the following technologies: conventional activated sludge, biological nutrient removal, trickling filters, aerobic and anaerobic sludge stabilization processes, and sludge concentration/drying and disposal. Momo is experienced in advanced treatment concepts such as biological phosphorus and nitrogen removal, moving bed filters, chemical precipitation, filtration, and disinfection. Additionally, Momo has extensive experience in NPDES permit application and California Title 22 requirements. Momo is trilingual and speaks English, German, and Serbian.

EXPERIENCE

CONSTRUCTION MANAGEMENT

Phase 1 WWTP Expansion Construction Management Services, City of Rialto, CA: Construction Manager for Design-Build Construction Management services during the Phase 1 upgrade of existing wastewater treatment plant facilities. The City chose to upgrade the waste water treatment plant in two separate phases. Phase 1 was constructed through a Design-Build contract that was executed between the City and Chevron Energy Solutions. The Phase 1 System includes a three x 300 kW fuel cell power plant that provides base line power to the Waste Water Treatment Plant a Fat Oil and Grease receiving station, repaired and upgraded digester system, anaerobic gas collection, flare off, treatment and storage system, a new and fully automated controls system and a high efficiency boiler room equipment. The Phase 1 system transforms wastewater sludge and kitchen grease from local restaurants into clean, renewable power reducing carbon footprint and potential pollutants at the source.

As part of the Phase 1 responsibilities, Momo conducted the detailed design review and evaluated construction costs of the wastewater treatment plant improvements to be constructed during Phase 2 of the project and completed a Preliminary Design Report and evaluated Phase 2 WWTP capacity and alternative technologies and recommended optimal solution.

Professional Registrations

- Professional Mechanical Engineer, California No. M32229; Washington No. 38468; Alberta, Canada No. M54851
- Certified Construction Manager, Construction Management Certification Institute, ID No. 1713
- Diplomat Environmental Engineer No. 04-20001

Education

- ME, Environmental Engineering, University of Alberta, Canada
- MS, Mechanical Engineering, University of Sarajevo
- BS, Mechanical Engineering, University of Sarajevo

Professional Affiliations

- American Academy of Environmental Engineers
- America Society of Civil Engineers
- American Society of Mechanical Engineers
- Association of Professional Engineers of Alberta
- National Council of Examiners for Engineering and Surveying
- CMAA San Diego Chapter, Executive Board Member
- CMAA National Board Member

Phase 2 WWTP Expansion Construction Management Services – Design Review, City of Rialto, CA: Construction Manager for Phase 2 design review services as a part of overall scope of Phase 1 project. The City chose to perform WWTP upgrades in two separate phases. As part of the Phase 1 responsibilities, Chevron also prepared the detailed design of the wastewater treatment plant improvements to be constructed during Phase 2 of the project. Completed reviewed of 30%, 60% and 90% design submittals and provided responses. All responses were addressed or attempted to be addressed in subsequent submittals. Momo also participated in value engineering effort before the 100% submittal and following the City's negotiations with the contractor.

Phase 2 WWTP Refurbishment PDR (Preliminary Design Report), City of Rialto, CA: Project Manager. As a part of Value Engineering/Construction Management support for the Phase 2 design, Momo was tasked to develop alternatives and a design approach for the Phase 2 WWTP. Completed an assessment of the existing utilities, developed several alternative designs and completed a PDR report for the refurbishment and upgrades. The WWTP is comprised of five wastewater treatment plants. Plants 1 and 2 were constructed in the 1950s' as conventional activated sludge package plants. Plants 3 and 4 were constructed in the 80's and 90's as conventional activated sludge plants and later retrofitted to biological nutrient removal (BNR) plants. Plant 5 was constructed in early 2000 as a BNR plant. The Plants require replacement and upgrade of most of the mechanical and electrical equipment. Plant 5 would require SCADA integration with other plants in a seamless unit that would be operated in a fully automatic mode. Completed the PDR report accounting for the existing and future hydraulic and organic loadings to plants 1 to 5 by identifying upgrades that would secure existing and future integrated plant's operation within NPDES permit requirements. Completed a Bio Win model of plant 1 to 5 operation for 12 alternatives, and evaluated complex plant interactions and overall performance in conjunction with NPDES permit limits, completed a cost estimate for four alternatives, and compared alternatives in order to identify an optimal solution.

CIP Construction Management Services, City of Rialto, CA: Construction Manager for Program Management oversight and Construction Management services during the 5 year Capital Improvement Plan (CIP) implementation that includes upgrade of existing wastewater treatment plant facilities, refurbishment and repair of six sewage pump stations, refurbishment and repairs of well sites and booster pump stations, refurbishment, repairs and construction of new sections of water supply pipeline sections and sewage collection system sections and seismic retrofit and refurbishment and repairs of water storage reservoirs. The City of Rialto is in a process of completing a $42 million, five-year CIP program and West Yost was selected to assist the City with the CIP Construction Management oversight.

Skyborne Development Management Services, Mission Springs Water District, CA: Construction Manager for inspection and program management services during construction of new infrastructure projects (including a 2.0 million gallon pre-stressed concrete reservoir and inlet/outlet piping, an off-site booster pump station with two 75-hp pumps, a 250-hp well pump, an 80,000 gallon suction reservoir, and approximately 18,000 feet of 24-inch backbone pipeline). Mission Springs Water District had been experiencing unprecedented residential growth and needed additional infrastructure to support this boom in customers. One new residential development adding to the growth in customers was Skyborne, a D. R. Horton development of 2,500 single-family homes. The development was completed on-schedule, reviews were being processed in a timely fashion, and all constructed infrastructure met or exceeded the District's standards.

Water and Sewer Connections for Skyborne Development, Mission Springs Water District, CA: Quality Assurance/Quality Control during construction of the Skyborne development for Mission Springs Water District. The project included inspection of water and sewer connections to the 2,500 single-family homes within the development. Coordinated on-site daily inspection, assisted with project paperwork, and provided regular updates to the District.

Program Management for Gateway Reservoir System and Highland Falls Reservoir Systems, Mission Springs Water District, CA: As Construction Manager, provided services to supplement MSWD staff and facilitate project completion during the building of five new reservoirs and associated transmission pipelines. The Mission Springs Water District experiencing a period of rapid housing growth; this boom severely strained MSWD staff's ability to provide water services to new developments. This project is unique in that funding for four of these reservoirs, as well as the design and construction management of these reservoirs comes directly from developers. Conducted hydraulic analysis and created specifications for the development of the gateway reservoir and oversaw the development of the Highlight Falls Reservoir. In addition, he acted as the construction manager during the construction of this project. Project work included: conducting weekly progress meetings, preparing meeting minutes, preparing and managing the project schedule, preparing the site plan, coordinating a District review of the plans and specifications, designing a strategy for developing and issuing procurement documents, and providing comprehensive construction management services.

Zone 900 Reservoir & Zone 1070 Booster Pump Station Projects, Mission Springs Water District, CA: Senior Project Engineer for construction monitoring services for a new 2,000-gpm groundwater production well, 2.0-mg partially buried concrete reservoir, booster pump station, and two large diameter transmission pipelines designed to provide water service to residents in the southern part of Desert Hot Springs. Work includes submittal review, RFI review, change order review and recommendations, progress payment review, maintenance of an electronic photo log, preparation of monthly report, attendance at weekly progress meetings and preparation of meeting minutes, and part-time construction activity observation.

P2A Pump Station and Flow Control Facility, San Diego County Water Authority, CA: On-Site Resident Engineer for the construction of a 10 cfs (expandable to 20 cfs) pump station with a concrete/masonry structure and 66-inch diameter, 5/16-inch thick pipeline with associated equipment and controls. Additional work included site grading, yard piping and miscellaneous valves, retaining wall construction, connection to existing aqueduct pipelines, electrical and instrumentation work, landscaping, and other associated appurtenance work.

Digester System Evaluation, US Navy Southwest Division, CA: Mechanical Engineer for the evaluation of the digester system as-built drawings and provided expert opinion of proposed changes for the Contractor, including consolidation of the inlet piping and outlet piping system. Momo also evaluated stabilized sludge disposal strategies and performed basic hydraulic calculations.

On-Call Construction Management Services, Mesa Water District, CA: Senior Project Engineer for as-needed CM services for Mesa Water District (MWD). Contract was awarded in 2014 for two year period. Assisted MWD reviewing meter installations, conducting environmental assessments, performing import/export water analysis and a root cause analysis. Mesa Water District anticipates the construction of several critical Capital Improvement Program (CIP) Projects over the next couple years. These projects are expected to span a wide range of design disciplines and expertise. Projects may range from planning to design, pipelines to electrical and instrumentation, surveying to traffic, and from economic analysis to hydraulic analysis. Throughout these projects, having a trusted consultant as West Yost Associates with the necessary in-house expertise is critical to efficiently and effectively delivering the projects.

On-Call Construction Management Services, San Diego County Water Authority, CA: Senior Project Engineer for as needed on call services for the Lake Hodges Project in San Diego County. Lake Hodges Projects are part of the San Diego County Water Authority's Emergency Storage Project, a system of reservoirs, interconnected pipelines and pumping stations designed to make water available to the San Diego region in the event of an interruption in imported water deliveries. Provided on call assistance for the legal team during the claim analysis and CM support during the generator lubrication system value engineering phase for the 40 mw Pump Station / generator project component. The Lake Hodges Projects connect the City of San Diego's Hodges Reservoir, also called Lake Hodges, to the Water Authority's Olivenhain Reservoir. The connection provides the ability to store 20,000 acre-feet of water in Hodges Reservoir for emergency use. Construction cost for the Lake Hodges projects is $196 million; pump station/generation component is $75 million.

On-Call Construction Management Services, San Diego County Water Authority, CA: Senior Project Engineer for as needed on call services for the $75 million, San Vincente Pump Station Project in San Diego County. Assisted during the commissioning of the 25,000 HP San Vincente pump station and also completed site visits and draft report of the final punch list items. The pumping facilities include a pump station, surge control facility, and connecting pipelines. San Vincente PS capacity is 300 million gallons per day. Water is moved from San Vicente Reservoir through the 11-mile-long San Vicente Pipeline to the Water Authority's water delivery system. This amount of water can serve nearly half of the San Diego region's average, daily water use.

WATER AND SEWER

City of Rialto Concession Agreement; Master Plan for the Potable Water, Recycled Water, and Sewer, Asset Management Report, City of Rialto, CA: Project Manager during the preparation of Water, Sewer, and Recycled Water Master Plan and Asset Management reports. To complete this task, oversight of the system data collection updates based on current historical usage and land use planning information was provided. Oversight and review of hydraulic water and sewer models were provided to identify system deficiencies which required CIP improvements for the existing and future system conditions. Provided oversight of potable water storage evaluation, supply capacities, sewer collection capacities, water quality characteristics, and O & M practices. The evaluation resulted in system improvement recommendations. Momo was project manager for the preparation of WWTP PDR report and coordinated closely with city, water system and WWTP operator staff to understand current system operations.

Jamacha Pump Station, San Diego County, San Diego, CA: As Senior Mechanical Engineer assisted the County's Resident Engineer with mechanical

inspections scheduling, mechanical records review, and administration.

North County Recycling and Transfer Station Wastewater Pretreatment Snohomish County Public Works, WA: Process Engineer for the evaluation study of five concept designs for pre-treatment of solid waste transfer station wastewater. The study included ranking alternative designs, and providing conclusions and recommendations.

Lower Moosa Canyon Wastewater Treatment Plant Upgrades, Valley Center Municipal Water District, Valley Center CA: Electrical Engineer for the planning, design, and construction administration services in conjunction with upgrades to the existing Lower Moosa Canyon activated sludge WWTP which was having trouble producing nitrified effluent. The work included retrofit of the aeration piping and diffuser systems, retrofit of the existing aeration tanks to allow for both nitrification and denitrification, air flow metering, revisions to digester mixing, process sensor incorporation and other miscellaneous plant modifications. The overall project was constructed for a greater than 10 percent savings over the Owners and engineer's construction cost estimates. The plant is now producing nitrified/denitrified effluent in conformance with regulatory requirements.

Keiller Park Neighborhood Park Comfort Station Improvements, City of San Diego, CA: Project Engineer for the design, specification, and cost estimate assistance of a compact underground pump station with grinding pump, 1-¼-inch PVC force main, and all related valves and cleanouts. Pump station work included connection details to the existing manhole, all electrical components needed for an alarm system, and the pump for a dual prefabricated restroom for installation in the Keiller Neighborhood Park. Project work included preparation of a detail sheet, grinder station specifications, and input for both the project cost estimate and project plan sheet.

Thatcher Low Pressure Sewer Design Pickford Realty Ltd., DBA Prudential, CA: Project Engineer for the design of a low pressure sewer. Services included design calculations, review and markup of existing drawings, coordination with the City of Escondido concerning project work, providing design details and catalog cuts for equipment, and presenting the final design to the City of Escondido.

Water Conservation Study at MCAGCC, JB Young & Associates, Marine Corps Air Ground Combat Center (MCAGCC), Twentynine Palms, CA: Project Engineer for the evaluation of arsenic and chromium ground water treatment alternatives included blending ground water from two aquifers and the available treatment technologies. AWWA arsenic removal software was utilized for alternative evaluation. Cost estimates were prepared based on information received from equipment manufacturers.

Lilac Pump Station Reconstruction, Valley Center Municipal Water District, CA: Mechanical Engineer providing design services for the reconstruction of Lilac Pump Station which is comprised of two smaller pump stations: (1) McNally Pump Station with a design capacity of 6 cfs, and (2) Oak Glen Pump Station with a design capacity of 4 cfs. The installation of new facilities was staged in three phases to ensure uninterrupted service. Work consisted of designing two new 300-hp pumps for the McNally site and two 150-hp pumps for the Oak Glen site with provision for one future pump at each site, new electrical enclosures, new telemetry/control panels, relocation of existing telemetry and pump/electrical controls for the reservoir site, 14-inch PVC suction piping, discharge piping, site grading, a new block wall, and demolition of existing chlorine facilities.

Sanitary Sewer Master Plan at MCAGCC, JB Young & Associates, Marine Corps Air Ground Combat Center (MCAGCC), Twentynine Palms, CA: Project Engineer for the preparation of a sewer master plan which included a condition assessment of entire base sewer network including nine raw sewage pump stations. Also, as a follow up of Master Plan recommendations, sewer network rehabilitation project was completed. Work also included bypass pump design and specification, detailed hydraulic calculations, and a compilation of the list of proposed upgrades. Assisted with the Sewer CAD computer modeling of the existing sewer network at the Base.

Repair Sewer Lift Stations - Mainside at MCAGCC, JB Young & Associates, Marine Corps Air Ground Combat Center (MCAGCC), Twentynine Palms, CA: Project Manager responsible for the design, field investigations, plans, specifications, and cost estimates of sewer collection system improvements, which included modifications to nine sewage lift stations. The improvements consisted of pump and motor replacements, force main modifications, wet well modifications, and appurtenant equipment replacement and improvements.

Repair Sewer Mains between Adobe Flats and 2nd Street- Mainside at MCAGCC, JB Young & Associates, Marine Corps Air Ground Combat Center (MCAGCC), Twentynine Palms, CA: Project Engineer responsible for the QA/QC input on field investigations, plans, specifications, and cost estimates of sewer collection system improvements, which included modifications to nine sewage lift stations. Improvements consisted of pump and motor replacements, force main

modifications, wet well modifications, and appurtenant equipment replacement and improvements.

Repair Sewer Mains between 2nd Street and Ocotillo-Mainside at MCAGCC, JB Young & Associates, Marine Corps Air Ground Combat Center (MCAGCC), Twentynine Palms, CA: Project engineer responsible for the QA/QC input on field investigations, plans, specifications, and cost estimates of sewer collection system improvements, which included modifications to nine sewage lift stations. The improvements consisted of pump and motor replacements, force main modifications, wet well modifications, and appurtenant equipment replacement and improvements.

B649 Sewage Pump Station, San Diego Gas and Electric Company, CA: Project Manager for mechanical design services for the Design-Build remodel and refurbishment of the 20-hp North Island Naval Air Station Building 649 sewage pump station. Refurbishments included pump replacement, force main replacement, separation of wet well and dry well concrete work, valve and ancillary equipment replacement, HVAC modifications and odor control system replacement, comminutor chamber adjustments and comminutor replacement, and electrical and instrumentation/controls replacement.

Sewage Pump Station 35, City of San Diego, CA: Project Manager for the civil, mechanical, and electrical design services for remodeling and refurbishment of the 10-hp Sewage Pump Station 35. Responsible for mechanical design plans and specifications as well as shop drawing review and responses to Requests for Information. Refurbishments to the pump station included pump replacement, force main replacement, valve and ancillary equipment replacement, HVAC modifications, odor control system replacement, raw sewage chamber adjustments, and electrical installation and controls replacement.

Recycled Water Pump Stations, Rincon Municipal Water District, CA: Project Manager for the plans and specifications of the 15-hp Beethoven Drive and Escondido Hills recycled water pump stations. The design included hydraulic simulation and existing City of Escondido recycled water hydraulic model analysis.

Citricado-Hamilton and Rancho Verde Pump Stations , Rincon Municipal Water District, CA: Project Engineer for the preparation of the design report for the 15 hp potable water pump stations at Citricado-Hamilton Drive and at Rancho Verde. The design included a site audit, operation assessments, and the hydraulic simulation.

Computer Modeling for Network Upgrades, Rincon Municipal Water District, CA: Project Manager responsible for 16 KY 2000 hydraulic analyses of proposed developments ranging from eight to 70 residential lots in the District's service area. The analysis included potable and recycled water, average day estimate, a peak day and peak hour demand estimate, a model update with proposed pipeline routes, characteristic nodes, and depending demands. A hydraulic simulation was performed on the updated model to assess the ability of the existing network to provide required flow and pressure to the proposed development. In addition to the hydraulic analysis, a fire flow analysis was performed for the network with the proposed pipe extension for the peak day demand for the critical node. The fire flow was assessed with a residual pressure of 20 psi at the required location. Under these conditions, the entire network was checked for the lowest available flow. Fire flow demand at the pressure residual of 20 psi was compared with required fire flow as regulated by the City or Water District. Upon completion of hydraulic and fire flow analysis the draft report was generated with the hydraulic assessment of the water supply pipeline for the proposed development. In the case that the proposed development is not able to obtain sufficient pressure and flow from the proposed network, an alternative pipe route alternative number of connections, connection locations, alternative pipe features (like diameter or material), or other measures would be evaluated in order to optimize the solution.

H20 Pipe Computer Modeling, City of Escondido, CA: Project Manager for a computer modeling for the Daxi Land development which includes seven single lot family homes. The development is currently fed by 8-inch pipes with a daily demand of 2.91 gpm. The analysis concluded that the proposed development is in compliance with CES requirements.

Couser Canyon Pump Station, Valley Center Municipal Water District, CA: Project Manager for the preparation of plans, specifications, and cost estimates for replacement of an existing pump station with a new 375-hp pump station adjacent to the existing site. Vertical turbine pumps in a can replaced existing horizontal centrifugal pumps. A demolition and construction plan was developed in order to secure continuous pump station operation throughout construction. Reviewed the hydraulic calculations and pump/motor selection provided by the District and provided a transient analysis for pump shutdown conditions. He also provided construction phase services on this project. Surge control strategies were recommended as part of the analysis.

Regional Water and Wastewater Master Plan, Yuma County, AZ: Project Engineer for the evaluation of existing wastewater treatment and collection for the municipalities of Sometron and San Luis, Arizona. The

evaluation included wastewater alternative cost estimates and preliminary process design and sewer collection system condition assessment. Participated in the preparation of the sewer master plan which included a condition assessment of regional sewer network including numerous raw sewage pump stations. His work also included detailed hydraulic calculations and a compilation of the list of proposed upgrades. Additionally assisted with the Sewer CAD computer modeling of the existing sewer network at the Base.

Meadowood Wastewater Treatment Plant , Pardee Homes, San Diego, CA: Project Manager for the revised preparation of the preliminary design and permitting for upgrades to the existing Rainbow WWTP to provide service for a 1,200 single-family home development in north San Diego County. Work included a wastewater treatment alternative evaluation, capacity assessment, process selection, site development, inlet piping assessment, and preliminary hydraulic analysis. The plant capacity of the first phase is estimated to be 0.667 mgd and the final phase at 1.3 mgd. Permitting agencies included the Regional Water Quality Board and Air Pollution Control District.

Low Pressure Sewer System Detail Design, EPAC Construction, CA: Project Manager for a site audit and preparation of an evaluation memo with proposed modifications for a low pressure sewer system to connect to a gravity sewer to the trunk sewers at a 17 lot development. In addition, Momo was responsible for the design of the recommended system modifications.

Edinger, West Side, Cristal Cove, and Bay Bridge Sewage Pump Stations Orange County Sanitation District, CA: Project Manager responsible for detailed hydraulic calculations, pump selection, and completion of the preliminary pump station layout. The list of modifications for each pump station was coordinated and finalized with the Client.

Bajagua Wastewater Projet, Bajagua, LLC, Tijuana, Mexico and San Diego, CA: Process/Mechanical Engineer for a preliminary process/mechanical alternative evaluation of the 50 mgd and 75 mgd Bajagua wastewater treatment lagoons including alternative site selection, equipment selection, and lagoon plant layout. Additionally, a preliminary hydraulic analysis of the raw sewage/primary sewage conveyance system, force main sizing, and pump station conceptual design was prepared. The project also included a membrane bioreactor (MBR) study for the Bajagua project evaluating the feasibility of MBR technology for the project and a WWTP MBR alternative computer model in an effort to assess plant performance as per NPDES permit requirements.

Dworshak Hatchery Wastewater Treatment Plant, U.S. Fish and Wildlife Service, ID: Process Engineer for the design of modifications to a 25-mgd hatchery wastewater treatment plant. Modifications included replacement of sand filters with a moving bed filter and settler equipment replacement/refurbishment. Work included pipe gallery piping modifications, sludge pump station refurbishment, and new pump type selection. The new system provides intermittent operation and a high level of nitrate removal.

Construct and Repair Sewer Mains-Various Locations at MCAGCC, JB Young & Associates, Marine Corps Air Ground Combat Center (MCAGCC), Twentynine Palms, CA: Project Manager for the first phase of an overall assessment of the MCGACC sewer system. Project work included conducting an audit of the sewer collection system and nine sewer pump stations, and creating a Master Plan for sewer pump station conditions assessment. Work during the second phase included development of a detailed design for nine sewer pump stations to service future developments as well as numerous replacement sections of VCP sewer mains to update an aged sewer collection system to comply with federal and state regulations. Conditions requiring sewer main replacement included displaced joints, pipe fractures and sags, and hydraulic deficiencies. The project also involved development of logistical plans for the replacement of sewer main sections while limiting interruption of service.

Heber Wastewater Treatment Plant, Heber, CA: Project Manager for the preparation of the preliminary design and permitting for upgrades to the existing Heber WWTP in southern California. Work included a wastewater treatment alternative evaluation, capacity assessment, process selection, site development, inlet piping assessment, and preliminary hydraulic analysis. Permitting agencies included the Regional Water Quality Board and Air Pollution Control District. A WWTP computer model was completed in an effort to assess plant performance as per NPDES permit requirements.

Ain Zara Wastewater Treatment Plant, City of Tripoli, Libya: Chief Engineer for the sewer collection system and wastewater treatment plant in the City of Tripoli. Responsible for detail design review and process selection for digestion system including a waste-to-energy power generation plant. Responsibilities also included design review, engineering supervision of construction progress, and writing construction progress reports.

Idylwood Creek Restoration, City of Redmond, WA: Project Engineer for the design of a shotcrete retaining wall at the daylight section and an adequate energy dissipater at the end of the bypass line. The goal of this project was to divert the creek's high flows around a backyard ravine by means of 36-inch bypass

pipeline. Major modifications were made to the creek within the park to change its hydraulics, improve safety, and rehabilitate aquatic habitat. To restore fish passage, concrete weirs and culvert baffles were installed, and a 75-foot section culvert was removed to add daylight to a partition of the creek.

Cathcart Landfill Pump Station Rehabilitation, Snohomish County Solid Waste Division, WA: Project Manager for the preparation of dynamic loading calculations at the pipe supports for this project. Responsible for six-inch force main section replacement, valves and fittings replacement with glass lined pipe, valve chamber modifications designed to withstand aggressive landfill leachate, and valves with fittings in the new valve vault.

SOLID WASTE

Disaster Relief – Hurricane Jeanine, Lake County, FL: Assisted with debris cleanup efforts in Lake County, Florida following the wake of Hurricane Jeanine. Efforts included monitoring the debris content and size of truckloads heading away from the debris sites, monitoring collection of debris, and submitting a daily report of information.

Disaster Relief – Hurricane Dennis, Escambia County, Pensacola, FL: Quality Control/Quality Assurance for the monitoring of debris cleanup of 11 sites located in Escambia County and Santa Rosa County. His role included creating a reporting routine, maintaining quality control/ quality assurance during data collection, and training collection monitoring and reporting staff.

Everett Recycling and Transfer Station, Snohomish County Department of Public Works, WA: Mechanical Engineer providing mechanical design services for a sprinkling system with piping and plumbing. As a part of the effort, heating and ventilation of the upper and lower shelter was designed, equipment selected, and specifications completed. Overall work included modification of the south pit hydraulic cylinder and the hydraulic power units at the south and north pits.

Cathcart Recycling and Transfer Station, Snohomish County Department of Public Works, WA: Mechanical Engineer providing mechanical design of a sprinkling system with piping and plumbing details for the Cathcart Recycling and Transfer Station. As a part of the overall effort, heating and ventilation of the upper and lower shelter was designed, equipment selected, and specifications completed.

Landfill Gas-to-Energy System Upgrade, City of Minneapolis, MN: Project Manager providing detailed process review, specification, and drawings for refurbishment of new process compressors. Mechanical equipment that was used for gas collection and conveyance was outdated and needed replacement. Project elements entailed the following: reviewing condition and performance of existing landfill gas collection and processing equipment including multistage centrifugal blowers, piping, and valves; reviewing submittals and producing performance specifications for proposed equipment, and producing process and instrumentation diagrams for proposed system upgrades.

Regional Landfill Leachate Facilities, Snohomish County Department of Public Works, WA: Mechanical Engineer for the mechanical design of the facilities including sludge thickening mixer replacement strategy development.

HYDROELECTRIC

Boundary Project Rehabilitation, Seattle City Light, WA: Mechanical Engineer responsible for designing the sluice gate seal inflation system as well as the engineering work associated with the rehabilitation, renovation, modernization, and automation of this 1,051-MWh Boundary Project. The designed sealing system created separate, more reliable, seal inflation system for each of the seven 18-ft x 20-ft sluice gates.

South Fork Tolt Hydroelectric Project, Seattle City Light, WA: Mechanical Engineer for the preparation of preliminary and final designs for the project's powerhouse, bypass facilities, and discharge structure. Momo also participated in the writing of the procurement specifications for the turbine, inlet valve, governor, energy-dissipating valves, and 54-inch diameter butterfly valves.

Cougar Lake Diversion Tunnel, Portland District Corps of Engineers, OR: Mechanical Engineer assisting with the preparation of procurement drawings and specifications for a high-pressure bonneted slide gate with electric motor operators for use within a diversion tunnel. The design also included a tunnel ventilation system, gate chamber bridge crane, and emergency diesel generator.

Columbus and Monroe Hydroelectric Plant Rehabilitation, Loup Power District, NE: Mechanical Engineer for the preparation of plans and specifications for the replacement of the governor system at the Columbus plant. The new equipment included three digital governors, 3000-psi hydraulic power units, and servomotors. Participated in the bid evaluation, contract award recommendation, and review of shop drawings.

Bonneville Dam Juvenile Bypass System Improvements, Portland District Corps of Engineers, OR: Mechanical Engineer responsible for of the gate design and gate operator design and selection several slide gates in the downstream fish passage system. In order to improve downstream fish passage at the Bonneville First Powerhouse, the Corps' Portland District designed a juvenile bypass system consisting of a collection, dewatering, channels, and flumes. The gates require a unique design layout to provide a flush skin plate with the channel walls..

San Clemente Island Wastewater Treatment Plant, San Clemente Island, CA: Project Engineer for the drawing review and engineering report completion for the wastewater treatment.

Wastewater Treatment Plant – Sarajevo, Municipality of Sarajevo: Project Engineer for the Design-build project. Completed a detailed design review of digestion equipment, including a waste to energy power generation facility and the administration and reviews of submittals.

Dworshak Hatchery Wastewater Treatment Plant, Army Corps of Engineers, WA: Process Engineer for the design of modifications to a 25-mgd hatchery wastewater treatment plant. Modifications included replacement of sand filters with a moving bed filter and settler equipment replacement/refurbishment. Work included pipe gallery piping modifications, sludge pump station refurbishment, and new pump type selection. The new system will provide intermittent operation and a high level of nitrate removal. Momo was also responsible for the refurbishment of mechanical equipment and process design. He completed the detail process analysis, assessment of mechanical equipment status, and specification for equipment refurbishment.

Wastewater Treatment Plant – Damascus, Municipality of Damascus, Syria: Chief Engineer for the completion of a Preliminary Study for the City of Damascus, Syria WWTP. The study addressed sewer collection system and wastewater treatment plant issues, process selection, process optimization, cost estimate, siting considerations, environmental impact assessments and compliance with effluent requirements.

Wastewater Treatment Plant – Ain Zara, Municipality of Ripoli, Libya: Chief Engineer for the "turnkey" contract for the construction of the 25 mgd WWTP for the municipality of Tripoli, Libya. Completed a detailed design review of digestion equipment, including a waste to energy power generation facility and the administration and reviews of submittals.

Wastewater Treatment Plant TP – Kakanj, Municipality of Kakanj, Yugoslavia: Senior Mechanical Engineer for the design of a wastewater collection system and wastewater treatment plant for the 500 MW Kakanj Thermal Generating Station, Yugoslavia; The municipality of Kakanj and TP Kakanj entered into a Design Build Contract with the contractor. Prepared detailed design and provided construction management of the industrial wastewater treatment plant.

Wastewater Treatment Plant - Bosanski Samac, Municipality of Bosanski Samac, Yugoslavia: Chief Engineer for the preliminary study for the City of Damascus, Syria WWTP. The study addressed the Sewer collection system and wastewater treatment plant issues, process selection, process optimization, cost estimate, siting considerations, environmental impact assessments and compliance with effluent requirements.

Chlorination Safety System Design at MCAGCC, Marine Corps Air Ground Combat Center (MCAGCC), Twenty-nine Palms, CA: Mechanical Engineer providing mechanical design services, specifications, and cost estimates for demolition and replacement of a hazardous gas chlorination system with an onsite chlorination generation system at six sites.

Water Reuse Facility for Dworshak Dam, Walla Walla District Corps of Engineers, WA: Mechanical Engineer for the design of a piping and pump system for the water reuse facility in addition to the custom design of five 14-foot diameter vertical filter vessels.

Abiquiu Dam Emergency Gates, U.S. Army Corps of Engineers Albuquerque District, NM: Mechanical Engineer for the preparation of detail design and contract plans and specifications for two new high-pressure bonneted slide gates, large hydraulic hoists, hydraulic power units, and controls as a part of a major upgrade to the low-level outlet works at Abiquiu Dam. The project included a review of all manufacturer and contractor drawings, and shop and field inspections during installation and testing.

Willamette Temperature Control – Cougar Lake Diversion, Portland District Corps of Engineers, OR: Mechanical Engineer for the preparation of detail design, and contract plans and specifications for all mechanical work associated with the diversion works modifications at the Cougar Lake Project. The work included the design of a tunnel, gate (valve) chamber, steel conduit liners, four high-pressure bonneted slide gates, and other ancillary electrical and mechanical services and equipment.

VULNERABILITY ASSESSMENTS

Vulnerability Assessment and Security Plan Development, Lafayette Utilities System, Louisiana: Project Manager participating in a consortium of expert American companies playing a role in the initial preparation of a Vulnerability Assessment and Development of Security Plan for the Lafayette Utilities System. The Vulnerability Assessment was completed as required by EPA regulations.

Normal/Emergency Operational Training Services, San Diego County Water Authority, CA: Supervisor for the preparation of schedules for training sessions, and supervisor of the training of the SDCWA staff in the operation of a diversion structure under a normal/emergency scenario. Training included 66-inch sleeve valve operation, 48-inch ultrasonic flow meter operation, operation of the various actuators at the site, and pump operation under normal and emergency operation mode.

PUBLICATIONS, PAPERS AND PRESENTATIONS

- "The Idylwood Beach Restoration Project", AWWA Journal, January 2004.
- Gray, Brent and Savovic, Momo. "Design-Build Project Helps Growing Water District Meet Service Demands - Lessons Learned from Southern California Design-Build Project", DBIA Conference, Denver, Colorado, March 3-6, 2009.
- 2014 CMAA National Conference San Francisco: "Regional Leadership: Blueprint for Public Owner Advocacy", Momo Savovic, PE, CCM, DEE West Yost Principal Engineer, Iraj Ghaemi, PE Director of the City of San Diego Airport Authority, Shawn Paraline, Associate; Bill Pray PE, Principal Eng SANDAG
- 2014 CMAA National Symposium Baltimopre: "Trends in Owner's use of CM under Alternative Delivery Methods", Momo Savovic, PE,CCM,DEE Leidos, Senior Project Manager, Shawn Paraline, Associate; Ramon Ruales PE, Senior Project Manager SANDAG
- 2013 CMAA National Conference, Las Vegas: "Trends in Owner's use of CM under Alternative Delivery Methods", Momo Savovic, PE,CCM,DEE Leidos, Senior Project Manager, Shawn Paraline, Associate; Jim Lithnicum PE, Director SANDAG, Dan Fauchier, CMP Principal
- 2012 CMAA National Conference, Chicago: "Survival Guide for Managing Public works construction under Institutional Constraints", Momo Savovic, PE,CCM,DEE Leidos, Senior Project Manager, Shawn Paraline, Associate; Jim Lithnicum PE, Director SANDAG, Mike Kenny, SDCWA Construction Management

AWARDS

American Water Works Association (AWWA) 2002, Seattle Chapter: 2002 Outstanding Water Resource Project Award