Water Rate Study

JULY 27, 2016

PROPOSAL FOR
CITY OF GARDEN GROVE, CALIFORNIA

HAWKSLEY CONSULTING

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COVER LETTER

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

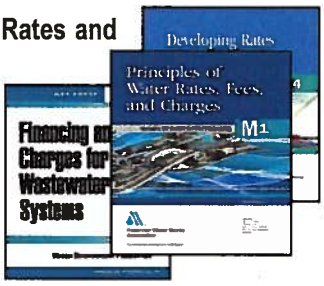
Re: Water Rate Study

Dear Ms. Victoria and Members of the Selection Committee:

Hawksley Consulting is pleased to present this proposal to conduct a Water Rate Study for the City of Garden Grove (City). With 30 professionals dedicated only to water ratemaking and financial consulting services, Hawksley Consulting **possesses the largest collection of 20+ year principal consultants in the US water industry.** Our project team includes experts in California's Proposition 218 and years of experience in implementing water budget based rates.

Rate Consulting Industry Leader & Authority

The senior members of our firm have been **recognized as industry experts in various state and federal utility ratemaking proceedings.** They have testified on multiple occasions before utility regulatory agencies and at a national level before the Federal Energy Regulatory Committee (FERC). In addition, they have experience serving as expert witnesses in litigation when the rates of our municipal clients have been challenged.



Several senior members of Hawksley Consulting are currently **serving on the AWWA Rates and Charges Committee**, and are actively involved in **an update to AWWA Manual M1 – Principles of Water Rates, Fees and Charges**. This experience allows us to bring industry best practices to our approach.

Relevant Experience

It's one thing to be known as experts in water utility rates and charges, but another thing entirely to be known for applying that expertise in drought-prone areas like the southwest. Many of our clients have been in situations similar to yours: expensive alternatives for alternate water supplies; growth patterns that exacerbates the issues; and increasing climatic swings that evoke wide variance in demand. For example, Hawksley helped the City of Santa Fe institute a water rate structure that both encouraged greater water conservation and substantially increased revenue stability. As a result, the city's negative credit watch was eliminated and the improved revenue performance allowed for the financing of their water supply augmentation program. Santa Fe currently boasts one of the lowest per-capita water demands of any major city in the United States, and also boasts a AAA-rated credit rating on its water revenue bonds. We'd like to add your story to ones like Santa Fe's.

One-Stop Shop

In additional to rate consulting, Garden Grove has requested services related to capital project cost estimating. Our firm is highly qualified in such services due to MWH's experience as **both** a design firm and construction firm. We have in-house and local capabilities of estimating projects that blends the interdisciplinary expertise of a full-service engineering design firm with an intimate understanding of contractor means and methods.

Per Garden Grove's request, this proposal only addresses our proposed scope of work and <u>not</u> our qualifications (since those were previously provided). That being said, we have included two additional resumes as Attachment C to show our qualifications in the area of engineering cost estimating. Upon request we are prepared to provide additional information regarding our qualifications, references, or capabilities.

With a rich legacy that dates back to 1844 and more than 7,500 employees on six continents, MWH offers a multidiscipline global team of program managers, business consultants, engineers, geologists, operators, scientists, technologists, and regulatory experts who provide solutions to the world's most challenging wet infrastructure projects. With 12 offices in California alone (eight in Southern California), our project team has all of the resources it needs from the Bay Area to San Diego. MWH was founded in California, and we've been through all of California's modern droughts with our municipal water clients. Our engineers had a hand in developing the State's original Water Plan and are now working on completing the newest iteration of that plan.

Modeling Capabilities and Training

One of the most powerful aspects of our approach is the interactive nature of our processes. We work side by side with staff with our models up and running during interactive work sessions during which we review data, assumptions and results. We hold several work sessions through the course of the study, during which staff will become very familiar with our models. Following the study, we provide training and deliver our financial planning model, cost-of-service model, and water budget models to Garden Grove, **along with User Guides** to allow staff to be self-reliant in the future.

Summary

We deliver superior service and focus our efforts on helping our clients improve their systems every day. We are uniquely qualified to provide a *fresh and innovative perspective* to the City that reflects:

- ✓ Extensive experience in designing and implementing water budget based rates
- ✓ Experts in ratemaking practices with national stature, including California
- ✓ An experienced project team from top to bottom with tremendous modeling capabilities
- ✓ A powerful, easy-to-understand, and customized MS Excel-based modeling system
- ✓ Commitment and availability of resources to complete the study in the desired timeframe

If you have any questions, please do not hesitate to contact us.

Sincerely,

Jason Mumm – Director

Mark Hildebrand – Project Manager

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1. APPROACH & SCOPE OF SERVICES

Anybody can say they will design a conservation rate. It takes proven expertise and the right analytical tools to do it so that you can reduce water demand and continue to earn sufficient revenues. We will give you the confidence to implement a new, fully compliant, water rate that will provide the conservation performance you want without sacrificing financial results.

1.1 Overview

With the drought in California continuing to place stress on water supplies, the need for public water purveyors like the City's to engage in increasingly stringent demand management programs continues to reach new highs. Water budget rates, like the one requested in the City's RFP, are part and parcel to such demand management programs, especially in Southern California. Indeed, many of the water providers adjacent to and surrounding the City have already implemented some version of water budget rates. As you consider a similar rate structure, however, there are a number of issues to be aware of, and to overcome:

- ✓ **Strong pricing increases revenue risk.** This is true of any tiered rate structure where prices increase as customer usage increases. The total revenue recovered per customer account under such systems becomes very dependent on usage in the upper tiers; when that usage is reduced – the entire point of tiered rate structures – the amount of revenue lost is multiple times higher than average. If not designed with precision, these rate structures can result in millions of dollars of revenue shortfalls.
- ✓ **Cost justification for tier prices also increases risk.** In California, any difference in pricing for different levels of usage must be demonstrably connected to differences in costs. Whereas in other states, one can subsidize the risk of revenue shortfalls by simply increasing price at various other tiers, doing so is not possible in California due to Prop 218 and recent clarification from the San Juan Capistrano case. That means the rate design must be very carefully constructed such that any reduced revenue in a given tier can be offset by reduced costs – this is extremely challenging when most of the costs of service are fixed rather than variable.
- ✓ **Affordability concerns.** In reaction to the above two factors, some experts will design a water budget rate with very high fixed service fees and first-tier pricing. This is often done in recognition of the high percentage of fixed costs in a water system and matching those fixed costs to fixed prices, but doing so will cause the average unit price for the first few gallons of water service to become very expensive. In turn, this increases the financial burden on those customers using the least amount of water, who are often those most economically challenged, to pay those (increased) costs.
- ✓ **Public understanding can be challenging.** Even with a perfect design, conservation rates, especially water budget rates, are not the simplest for customers to understand or adapt to. The social aspect of implementing such a structure should not be underestimated as customers will need some extra time to learn about the "why" of the water budget rates as well as "how" they can manage their budgets most effectively.
- ✓ **Technology is essential to implementation.** Older billing systems are often not capable when it comes to the task of using all of the data inputs necessary to calculate a bill under a water budget rate. This is important

information to understand in both the planning/design of the rate as well as its implementation. Often, the rate design may need to be modified to fit the capacity of billing system unless another solution is available.

Our overall approach and methodology will address each of these concerns and will result in a rate that not only meets all of California's stringent requirements – **including the Prop 84 grant requirements** – but also allows the City to move forward with implementation, if it so desires, confident that it will experience the increased performance in conservation it wants without sacrificing financial sufficiency.

We've divided our approach into two phases of effort, with the second phase being contingent on the Board's decision to proceed with implementation of the water budget rate. Table 1 summarizes the main objectives and key activities in each phase.

Table 1: Summary of the Recommended Approach to this Study

PLANNING PHASE			
1-Project Management This task includes project coordination, staff direction, and on-going administrative activities.	**2-Project Initiation** Discuss project goals of the project, data requirements, communication, and project schedule.	**3-Financial and Billing Review System** Review City's history of rate revenue, expenditures, rate design, and reserve levels to better understand the needs of the enterprise going forward.	**4-Capital Facilities Plans Assessment** This task will yield a schedule of capital project outlay for a 10-year period which will allow us to develop a financial plan as part of the subsequent task.
5-Revenue Requirement Projections Determine and/or validate the amount of revenue the rate structure must earn in order for the City to meet its operating and capital cost obligations.	**6-Classification of Costs** Cost classification is the foundation of the cost-of-service analysis, which ultimately services as the foundation of Proposition 218 compliance.	**7-Cost of Service** Justify the width and price of each tier by allocating the revenue requirements to system functions/components and the individual demand characteristics.	**8-Review and Development of Rate Structure** Prepare preliminary rate structures using outputs from the cost-of-service and additional parameters (e.g., lot sizes, household sizes, ET rates).
9-Rate Design Comparisons and Training We will conduct revenue simulation modeling on the rate options to evaluate risks, revenue performance, and conservation result. Comparative simulation testing between rate design options will allow the City to make an informed recommendation to City Council. This task will allow include model training for City staff.		**10-Meetings and Preliminary Draft** Create a court-worthy administrative record outlining in detail the cost justification for each pricing tier and recommendations for actions to be taken in implementation phase.	**11-Presentation and Final Report** Create a court-worthy administrative record outlining in detail the cost justification for each pricing tier and recommendations for actions to be taken in implementation phase.

IMPLEMENTATION PHASE (not yet applicable)			
Hawksley understands that Garden Grove may, or may not, elect to proceed with water budget based rates at the conclusion of the Planning Phase. In the event that the City does chose to move forward with water budget based rates, Hawksley is prepared to assist with implementation phase services such as the following:			
Billing System Guidance Guidance and owner's representative services during any applicable modification needed to the billing system.	**Public Outreach Assistance** Work with Garden Grove's public outreach department to support a public relations campaign to educate customers about why water budget rates are being implemented.	**Rate Implementation Support** Ongoing consulting support can be provided during implementation to address issues raised during the Prop 218 notification period.	**Change Management** Work with City staff to develop the necessary process changes, needed for a variance program, data management, and customer service messaging.

1.2 Scope of Services

The following pages provide a detailed description of the approach proposed for the Planning Phase and a work breakdown structure of the tasks involved. The tasks listed herein correspond to the tasks of the **Project Pricing in Section 4**. The proposed tasks in the following scope of work should be considered part of the **Planning Phase** prior to the City's decision of whether to move forward with adopting water budget based rates.

Task 1: Project Management

At Hawksley, we pride ourselves on providing the highest level of service to our clients in the most timely and cost-effective manner possible. We exercise significant internal quality assurance and quality control prior to meeting with clients or publishing study results using the quality control and project management techniques we have developed over the years to ensure our projects meet stated objectives, stay within budget, and are completed on schedule. Our experienced and cross-trained team will ensure that the City receives an unparalleled quality of service throughout the conduct of the study.

Hawksley Consulting prides itself on providing the highest level of service to our clients in the most timely and cost-effective manner possible.

Mr. Mark Hildebrand will be the Project Manager and the City's primary contact point for the study. He has over 15 years of experience in conducting similar rate studies in California, and he will be responsible for the overall success of the project. He will attend and facilitate all meetings and public presentations and will provide general oversight of the concepts and methodologies used in the analysis. To ensure the quality and accuracy of all work products, Mr. Mark Hildebrand will be responsible for managing the overall quality and accuracy of all aspects of the study through regular internal reviews with our project team and review of all work products.

Through the course of several such internal review sessions, we are able to ensure all data, assumptions, and results are thoroughly vetted with all team members involved in each study, resulting in the highest quality final work products. We will provide interim work products to staff throughout each study for their review, input and feedback, which are then incorporated before moving on to the next step in the study. Moreover, as a subsidiary of MWH Global, we utilize advanced project management training, tools, and processes including scope planning and control, quality planning and management, resource planning, financial planning and risk monitoring, as well as schedule control and budget control tools that ensure we will stay within scope, on time, and within budget.

In addition, we use internal scheduling tools, including a Detailed Internal Critical Path & Key Date schedule, to map out all of our projects from start to finish. We include key meeting dates with staff, internal deadlines for work products, and internal QA/QC reviews in order to ensure not only that our projects are completed within the desired timeframe, but also to ensure the accuracy of all work products we prepare. A customized schedule will be prepared for the City, and will be reviewed and finalized as part of the project Kick-off Meeting.

Task 2: Project Initiation Meeting and Data Collection

To initialize the study, we will meet with City staff in a Kickoff Meeting to discuss the goals of the project, data requirements, communication preferences, and the overall project schedule and key milestones for deliverables. Prior to the Kickoff Meeting, Hawksley will provide an initial data request list, which will include customer information, cost-of-service report and supporting models, customer billing records, reports, relevant ordinances, and rate study models. As the study progresses and after initial data is evaluated, Hawksley may submit requests for additional data and clarifications of data received. Hawksley will rely upon information and data provided by the City without independent verification. A sample data request memorandum has been attached as Attachment A.

Sub-Tasks

2.1 Gather data inputs and financial requirements. We will issue an initial data request to recover the basic financial data we need to determine the plan for annual revenue requirements for a ten-year period through 2026.

2.2 Kickoff Meeting. Conduct a project Kickoff Meeting (approx. 2 hours).

2.3 Data Review. Hawksley will review all data received to confirm its completeness and suitability for purposes of the study.

Outcomes

This task will result in open lines of communication; a common understanding of project objectives; a final project schedule and identification of milestones; collection of data; discussion of relevant background information; and agreement of the cities/utilities that should be included in the benchmark survey.

Deliverables

- Data request memorandum
- Meeting agenda
- Meeting presentation materials (MS PowerPoint)
- Revised, final project schedule.

Task 3: Financial Status and Billing System Review

As requested in the RFP, Hawksley shall review the City's past and present revenue, expenditures, rate structure and design, including current reserve levels and recent use of reserves, to determine appropriate reserve levels and funding mechanisms.

As a scope enhancement, Hawksley proposes to assess the capability of the City's billing system to host water budget based rates. One of the common impediments to implementing water budget-based rates is the legacy billing system. And while sometimes the billing system is technically capable, it is still not able to provide the level of executive reporting necessary to manage the rate structure proactively. Our team will provide a comprehensive evaluation of the system capabilities with actionable recommendations to make this part of the implementation as smooth as possible.

The timing of this step is important because the billing system's ability to host water budget-based rates may have a significant impact on the ultimate cost of implementing such rates. Some billing systems can accommodate water budget based rates with minor or moderate "add-ons", while some billing systems are entirely incapable of hosting such rates. Replacing a billing system can cost tens of millions of dollars. Hawksley will leverage our experience with utility billing platforms and also collaborate with the City's billing vendor to assess the capabilities of the existing system, and the approximate cost of making the necessary adjustments to the system.

Sub-Tasks

3.1 Document Review. Hawksley will conduct a detailed review of historical and current financial documents to understand the context of the water utility's current financial condition. Hawksley will review the City's historical rate revenue performance with staff and discuss the cause and effect of past revenue shortfall, as applicable.

3.2 Billing System Assessment. Hawksley will contact the City's billing system vendor and conduct an assessment of the system's ability to host water budget based rates. We will develop a comprehensive listing of the business requirements necessary for implementing the proposed rate structure; this will constitute the minimum needs for the billing system and supporting systems.

3.3 Compare legacy system with business requirements. Evaluating the legacy systems with the stated requirements will yield a "gap analysis" showing where the legacy systems will require some level of treatment in order to perform as needed for the City.

Outcomes

The information gathered during this task will allow Hawksley to understand the history of the City's rate revenue and use that understanding to develop rates that will ensure the City's ability fund projects required to ensure system reliability. Our review of the billing system will allow Hawksley to develop an early understanding of the City's preparedness to adopt water budget based rates.

Deliverables

- Technical memorandum summarizing the findings regarding the billing system "gap analysis".

Task 4: Capital Facilities Plan Assessment

Prior to being the financial planning task, Hawksley will work with the City to quantify projected capital spending for annual replacements, additions and improvements, and expansions to the system. As previously described, Hawksley's parent company (**MWH, now part of Stantec**) has a world-class water infrastructure engineering practice. Due to our extensive experience as both a design firm and a construction firm, we have developed a methodology of estimating projects that blends the interdisciplinary expertise of a full-service engineering design firm with an intimate understanding of contractor means and methods. Today's environment of high market volatility makes capital cost estimating challenging, but an essential part of project delivery.

We will review the City's latest Water Master Plan and other available documents to develop engineering cost estimates for the series of capital improvement projects listed below.

i. Water Master Plan Update
ii. Asset Management Plan
iii. Water Storage Reservoir Facility Rehabilitation Projects
iv. Fire Flow Deficiency Improvements/Upgrade Projects
v. Well Improvements/Rehabilitation Projects
vi. Security Improvements Water Services Replacement Projects
vii. Miscellaneous O&M Projects
viii. SCADA/Fiber Communications
ix. Mobile Data Terminal Systems

As part of the financing plan in Task 5, Hawksley will evaluate alternative methods of financing the capital facilities outlay, including grants, long-term debt, miscellaneous operating revenues, system development charge revenues, reserves, developer contributions, assessment revenue, and property taxes.

Sub-Tasks

4.1 Master Plan Review. MWH engineers will review the City's capital planning documents to understand the size, scope, and sequencing of projected capital spending.

4.2 Capital Planning Meeting. Hawksley will meet with the City's Finance Department staff to review the capital improvements program (CIP) budgets. This meeting will also be leveraged in advance of Task 5 to review the operating budget and to discuss major financial policies and objectives related to utility revenue requirement.

4.3 Cost Estimates. A professional engineering cost estimate for purposes of a CIP budget will be provided by MWH engineers. Our budget assumes that the City will provide sufficient project information to inform the cost estimate.

4.4 Project Sequencing. MWH engineers will establish a general sequencing hierarchy for the capital improvement needs in order to inform the appropriate and even distribution of capital costs in Task 5. The sequencing of the capital projects will be vetted with City staff.

Outcomes

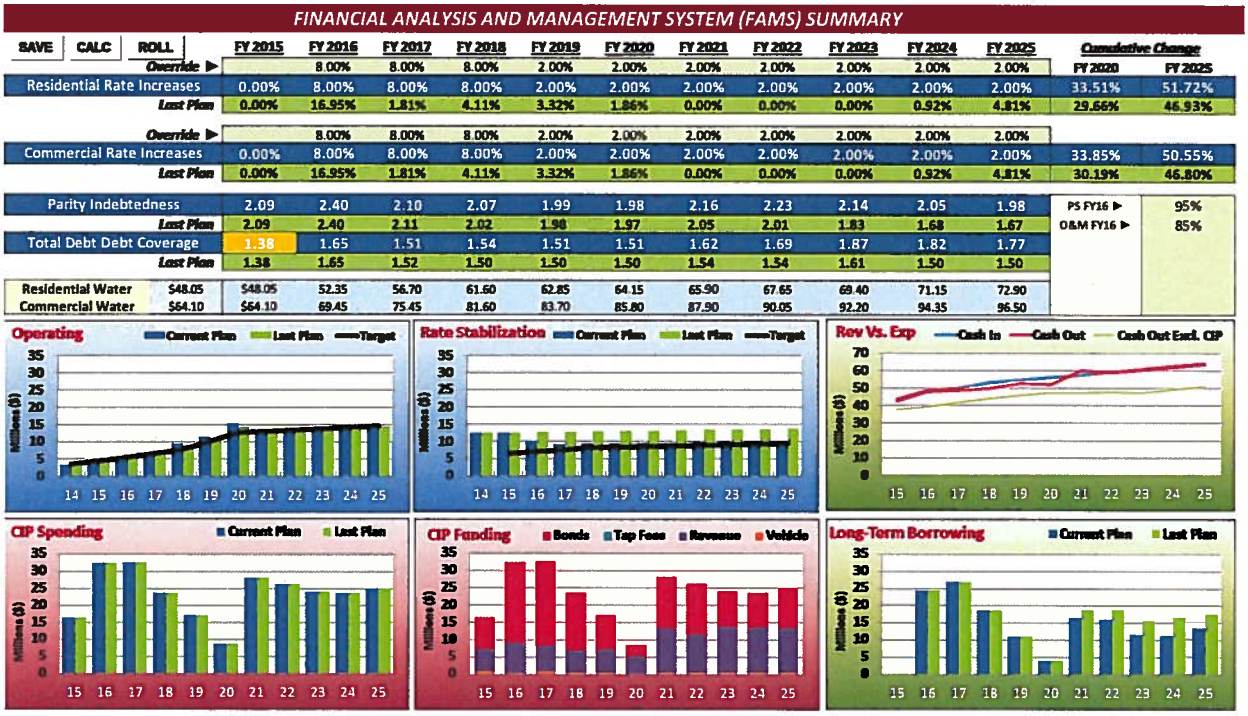
Establishing defensible and well documented capital spending cost estimates is critical in the development of the water utility financial plan. This task will yield a schedule of capital project outlay for a 10-year period which will allow us to develop a financial plan in Task 5.

Deliverables

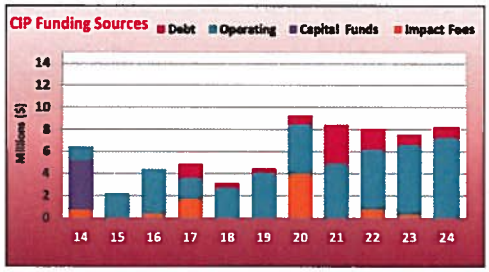
- Meeting presentation materials (MS PowerPoint)
- Technical memorandum summarizing the water utility's planned capital projects over a 10-year period, each project's estimated cost, and the general sequencing requirements of the projects.

Task 5: Revenue Requirement Projections

The first step in the rate study process is to determine exactly how much total revenue the City will require from its utility sales to meet its obligations in operating expenses, capital costs, debt service, and reserve funding. We still start this task by validating City's cost projections and ensuring that costs are identified correctly in operating and capital cost components. This will be followed by working with City staff (**yes**, with City staff since the City wishes to develop the capacity to conduct in-house updates to the rate study in the future) to develop financial projection using our financial modeling platform (FAM-XL). This module allows examination of historical operating expenses, growth and consumption trends, alternative capital improvement spending levels, debt service coverage ratios, levels of operating and capital reserves, and other financial policies/goals that affect the revenue requirements of the water fund.



In addition to evaluating financial goals and objectives, we will also evaluate alternative demand projections, cost escalation factors, changes in usage patterns, elasticity of customer demand in response to rate increases, and other variables that could affect the financial performance of the City. One item of particular importance is the projection of volumetric sales. Water use patterns are influenced by price signals, and change in customer behavior can also be affected by other non-price factors, such as rainfall, conservation programs, and economic conditions. We will analyze probable ranges of demand changes in response to different degrees of rate increases, weather patterns, rate structure changes, etc. Prudent planning requires that utilities prepare for reductions and changes in demand patterns, and such planning will be incorporated to achieve financial targets and fund balances as described below.



The financial planning module provides a valuable capital planning tool which we will use to review the City's capital improvement program, and to evaluate the impacts of alternative projects, costs, timing, and funding sources. For all scenarios reviewed, the financial planning module will develop a funding plan, including the identification of the amount, timing, and type of borrowing required as may be necessary. We will examine each enterprise fund's use of debt financing for capital improvements and assess the impact of current levels of debt financing, as well as building a financing scenario to support the City in maintaining a proper balance for debt coverage and rate stabilization over the study period.

Closely related to this analysis is an examination of adequacy of reserves for operating and capital projects. Adequate reserves are fundamental to achieving financial stability, and can help some systems to avoid sudden or disruptive rate adjustments in the face of unanticipated operating or capital needs. We will examine the City's fund balances and incorporate these balances and alternative reserve policies into the interactive planning process and the conversations we will have regarding financial sustainability.

Sub-Tasks

5.1 Gather data inputs and financial requirements. From the initial data request, we'll assemble the financial data we need to determine the plan for annual revenue requirements through 2026.

5.2 Populate Financial model with City data. Based on the data/information received, we will develop a calculation of annual revenue requirements; in doing so we will identify information gaps and request additional items from the City if/when needed. Hawksley will tailor the model based on the City's accounting structure so that the City can easily map to each of the line items and run "actual to plan" variances.

5.3 Business Principles Review. Hawksley will evaluate the City's existing Water Services Business Principles and make recommendations for revisions, if necessary.

5.4 Financial Model Validation Meeting. At the completion of the preliminary model, we will conduct a meeting with the City to review results in a live on-site workshop to allow the City's staff to evaluate and make changes to the model in a live setting. During this meeting we will also discuss major financial policies and objectives related to utility revenue requirement.

5.5 Prepare final calculation of revenue requirement. After reviewing the projection with the City, we will prepare the final calculation of revenue requirements. This may involve a modification to capital projects scheduling and other financial strategies such as the use of available reserves or creating of new reserves.

Outcomes

We will use the multi-year revenue sufficiency and financial planning module to develop a five-year and long-term financial management plan for the water enterprise fund, including projected annual revenue requirements and rate adjustments. This effort will result in (validated) projections of annual rate revenue requirements for 2017-2026. The financial plan will include a 10-year capital plan that provides for an even distribution of capital expenditures per year.

Deliverables

- Meeting presentation materials (MS PowerPoint)
- The findings from Task 4 will be captured in the project's final deliverable (see Task 10 and 11)

Task 6: Classification of Costs

This task includes the determination of appropriate cost allocation functional components of the water system; an assessment of the adequacy of the current water system to accumulate, record and report costs of the desired components. The Consultant shall undertake subtasks to include:

Sub-Tasks

6.1 Cost Functionalization. Hawksley will review the water utility's budget and operations to determine the appropriate functional classifications of costs for allocation purposes.

6.2 Accounting Practice Review. Hawksley will assess the adequacy of the City's accounting and operational practices to accumulate, record, and report costs in the previously functionalized cost classifications. Hawksley will make recommendations for changes, if applicable, to allow the City to collect cost information efficiently in the future.

Outcomes

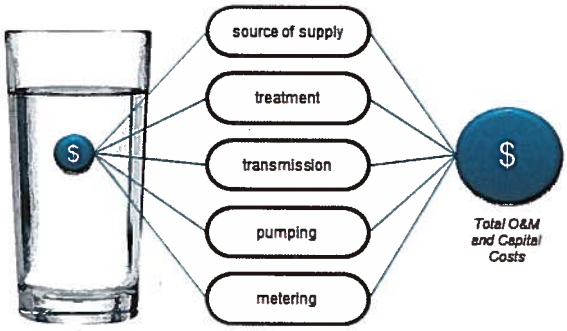
Functionalized costs are the foundation of any cost-of-service study. The cost-of-service analysis will ensure that cost responsibilities are allocated to ratepayers in a manner that complies with Proposition 218.

Deliverables

- Recommended changes, if any, to operational and accounting practices will be included in the project final report (see Tasks 10 & 11)

Task 7: Cost of Service

The cost-of-service evaluation is the critical component in the study that will establish the cost justification for any difference in rates from one customer to the next, or from one level of individual usage to the next. Differences in residential and non-residential rates are justified by the demonstrable difference in costs of serving these classes, and the difference and sizing of water budget tiers are justified by costs associated with high vs. low customer demands. Water demands will be inferred based on historical water consumption, revenue records, and billing summaries.



Sub-Tasks

7.1 Customer Class Review. Hawksley will review the City's existing fixed charges and customer class designations, and make recommendation as necessary.

7.2 Data Population. From the collected data (see Task 2), Hawksley will populate our cost-of-service model with information from billing records, asset registers, and functionalized operating costs. These are used to analyze customer demands on individual system components which forms the basis of cost allocations.

7.3 Identify Individual System Functions. Working with the City's team, we will create a schematic and comprehensive list of the individual functional components of the water system from the sources of supply through the distribution system.

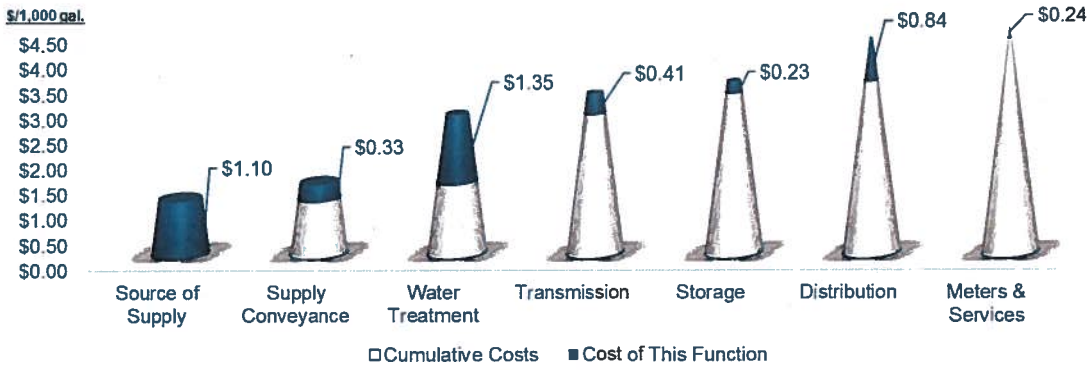
7.4 Allocate Costs To System Functions. Using the revenue requirements determined in Task 5, we will identify the direct and indirect costs of operating each of the major system functions and allocate fixed and variable costs to these functions.

7.5 Determine Customer Demands by Function. We will conduct a comprehensive review and analysis of the average and peak demands placed on each system function by the City's customers. This analysis results in the justification for differences in rates between different classes.

7.6 Determine Unit Costs of Service. Based on all of the preceding analyses, we will determine the average cost per unit of indoor water demand, various levels of peak demand, and costs unrelated to water demand that can be recovered in fixed charges.

7.7 Cost of Service Validation Meeting. At the completion of populating and adjusting the cost-of-service model, we will conduct a meeting with the City to review results in a live on-site workshop to allow the City's staff to evaluate and make changes to the model as needed.

7.8 Cost of Service Results Comparison. Hawksley will compare revenue under existing rates by each customer class with the calculated cost of providing service to determine the adequacy of present revenue levels for each class and the indicated adjustment in rates required to equitably distribute costs to the respective classes of customers.



Outcomes

The cost-of-service provides the factual basis required under Prop 218 to justify any difference in rates from one customer class to the next (e.g., Residential vs. Commercial classes), or from one tier of usage to the next. Our standard models result in approximately 200 tables of data and calculations that can be used in the Prop 218 notices, and as detailed exhibits in the report. The cost-of-service analysis forms the legal defensibility for any challenges to the proposed water budget rates.

Deliverables

- Meeting presentation materials (MS PowerPoint)
- Finding from this task will be reported in the project report (see Task 10 and 11).

Task 8: Review and Development of Rate Structure

When discussing any kind of inclining block rate (such as water budget based rates), we refer to the "height" and "width" of the tiers. The tier height refers to the unit price of water at each respective tier. The tier width refers to the quantity of water (i.e., water budget) within each respective tier.

Typically, budget rate designs for residential customers include a Tier 1 rate to reflect an indoor allotment based on number of people per household; a Tier 2 rate to reflect an outdoor water allotment using evapotranspiration data (ET), irrigated area, and a landscape factor; and additional tiers that encourage conservation. An estimate of indoor water usage per capita, tends to form the width of the 1st tier in a water budget rate, will be identified based on billing records. Usage above the indoor allotment will be designated into subsequent tiers and tied to some measure of peak demand relative to indoor usage. Here, we need to evaluate things like lot size/building size, irrigable land areas, evapotranspiration (ET), precipitation levels, and water equivalency factors for non-residential uses.

Water budgets attempt to define "efficient" water usage. Defining this efficient level of water use requires identifying the factors that affect the need for water. These factors, and how they are used as part of a water budget, must consider water supply realities and also resonate with the public.

Water Budget design factors may include:

- *Daily indoor water allowance per person*
- *Number of household members*
- *Lot size / building size*
- *Irrigable land*
- *Evapotranspiration (ET) and actual rainfall*
- *Water needs equivalency factors for commercial customers*

Over the course of this task, Hawksley will work with City staff to identify the rate design options that would address the challenges facing the water utility. Each rate design element, including water budget structures, will be discussed in detail, including benefits and challenges. In particular,

Hawksley will highlight the impact that structural changes may have on **affordability, conservation, financial stability, and defensibility.**

An underlying theme to the on-going conversation will be how to allocate costs to each respective tier in a manner that ties back to the result of the cost-of-service study. We will conduct a comprehensive review and analysis of the average and peak demands placed on each system function by the City's customers. This analysis results in the justification for differences in rates between different classes. Based on all of the preceding analyses, we will determine the average cost per unit of indoor water demand, various levels of peak demand, and costs unrelated to water demand that can be recovered in fixed charges.

In the current legal climate, no element of the rate design should be without a cost basis. Hawksley has long practiced the discipline of clearly connecting cost-of-service results with rate structures.

Using feedback from City staff, Hawksley will tailor our Excel-based Water Budget Model with the cost of service results, the customer billing data, and the water budget calculations. See **Attachment B** for a description of Hawksley's Water Budget Model.

Note: Hawksley will provide data management and or data clean up with available data, however the City is assumed to be responsible for providing customer data (e.g. parcel sizes for irrigation water budgets).

Our rate design models can easily adjust revenue levels that are generated from fixed versus variable charges. Bill impact analyses of representative customers in each customer class will also be used to consider the social and economic factors of the proposed rates. Sensitivity analysis will be conducted to measure the financial impact of changes in customer water use due to mandatory drought restrictions.

During rate design development meetings, Hawksley will use "real time" interactive modeling iterations with the model projected on a large viewing screen to work closely with participants to quickly and clearly understand the impacts of design variables. We can evaluate alternative assumptions and scenarios "on-the-fly" as the discussion progresses. This allows us to work towards solutions with an understanding of the short and long-term consequences of each scenario to the utility and its customers.

A note on non-residential customer class water budget rates: *While Irrigation customers are perhaps the most amenable to budget based rates (because their water needs are easy to calculate), commercial customers are inherently much more challenging. This is primarily driven by the fact that there is no easy metric for measuring an efficient use of water for different businesses. Two identically-sized restaurants could have vastly different water needs based on their volume of business. In light of this challenge, most utilities opt to charge a uniform rate to commercial customers. A few utilities have made the investment of individually evaluating the water needs of each individual commercial account in order to establish their water budget.*

Sub-Tasks

8.1 Rate Structure Evaluation. Hawksley will review and evaluate the City's existing water rate structures in terms of reasonableness of criteria used, and equitability among users.

8.2 Rate Design Survey. Hawksley will conduct a survey Provide comparison water rate structure information from the City's "Survey Cities" and surrounding municipalities

8.4. Rate Design Model Development. Hawksley tailor our rate design model, which can be used to develop water budget based rates, to reflect the rate design options identified by the City. Based on the analyses, we will create a preliminary proposal for cost-justified tier sizes and the unit costs applicable to each. *In this step, we will validate the strength of the rate design connection to the cost-of-service results.*

8.3 Preliminary Design Meeting. Hawksley will begin the rate design task by convening a Preliminary Design Meeting with City staff and city council sub-committee members to identify the shortlist of rate design options to examine. Hawksley will work with the meeting participants to identify the factors that will shape the design of the water budgets (tier width) for each customer class. During this meeting the results of Tasks 8.1 and 8.2 will be reviewed.

8.5 Design Development Workshop. Hawksley present draft design concepts and results to City staff and city council sub-committee members during a Design Development Workshop. Hawksley will work with workshop participants to discuss the dynamics of the various rate design solutions and seek feedback for finalizing the rates.

8.6 Rate Design Finalization. *Hawksley will incorporate feedback from workshop participants and finalize the recommended rate structures. Hawksley will present at least two rate design options for the City to consider (and up to four options). In this step, we will make any final modifications the proposed rates and conduct final simulation testing.*

8.7 Final Rate Presentation. *(see task 9)*

Outcomes

The rate design task will identify and design rates that respect the cost-of-service results. The various options and address the policy objectives of the City.

Deliverables

- Survey results will be informally shared with City staff and included in subsequent presentation materials and the final report (see Task 10 & 11).
- Workshop and meeting presentation materials (MS PowerPoint)

Task 9: Rate Design Comparisons and Training

Using the information developed during Task 8, Hawksley will present information to City staff and the City Council sub-committee in such a way to explain the implications of each rate design options and ultimately facilitate a decision by the Garden Grove elected board.

All final proposed rate design options will respect cost-of-service results, City policy considerations and state guidelines.

Hawksley understands that Garden Grove staff wish to become self-sufficient in the discipline of rate development. From the outset of the project Hawksley will work side-by-side with City staff in order to give them a familiarity with our models and develop the skills needed to update the models in the future. Hawksley's goal is to train City staff sufficiently that they will be able to conduct the next rate design study independently. For this reason our models have the ability to change simple variables in order to model different scenarios for consideration. All modeling data will be delivered to the City upon completion of the project.

Sub-Tasks

9.1 Final Design Workshop. Hawksley will hold a final workshop with City staff and members of the City Council sub-committee to present the final rate design options (up to 4, including the existing rate structure) and will discuss the implications of each rate design option. The presentation will include a series of bill comparisons of the rate options. These comparison will be done with different types of water users and across all customer classes.

9.2 Model Training. Hawksley will engage City staff in a one-day session training to train them on the update and maintenance of our financial planning model (FAMS-XL), our cost-of-service model, and our rate design model. The objective of this training is to give City staff the capability to modify or update the models or computations if necessary. Our budget assumes that this session will take place in concurrence with the travel for another project meeting.

Outcomes

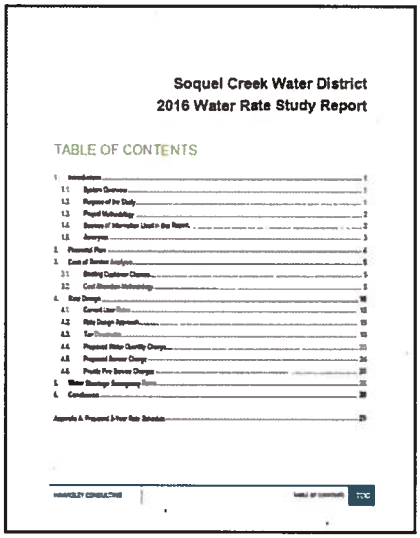
To provide the highest level of confidence possible, this separate step will ensure that the final proposed rate structure has been tested, compared, and reviewed with the City. The structure needs to receive the City's approval before we move on to reporting and presenting it to the Board and other stakeholders.

Deliverables

- Workshop presentation materials
- Financial model with User's Guide
- Cost of Service model with Users Guide
- Rate Design model with Users Guide

Task 10: Council Meeting and Preliminary Draft Report

Creating a detailed administrative record of the rate design is critical for defensibility should any questions arise as to compliance with Prop 218. Our report will provide the detailed explanations necessary and also a series of recommendations should the City desire to move forward with implementation. The recommended rate design will be presented to City Council for their reviewed and feedback. The draft report can also be made available to City Council prior to the presentation.


Soquel Creek Water District
2016 Water Rate Study Report

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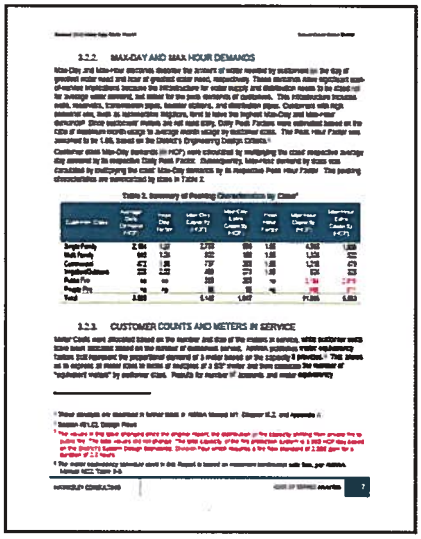
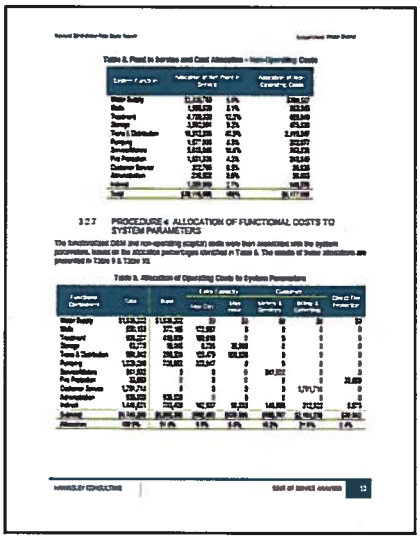




Sub-Tasks

10.1 Deliver draft report. The draft report will be approximately 100-pages in length, and will include the following sections: executive summary, revenue requirements; cost-of-service analysis; final rate design parameters; rate survey results, rate design comparisons; supporting exhibits and documents.

10.2 First Council Presentation. Hawksley will present the draft recommendations to City Council for the purposes of receiving final feedback. We will summarize the report materials in a brief 20-30-minute presentation tailored for City Council.

Outcomes

We provide the City with easy-to-read yet fully comprehensive, written reports that will provide the administrative record necessary to aid in Prop 218 notifications. In addition, we provide summarized presentation materials suitable for Council-level presentations.

Deliverables

- Draft report (15 hardcopies and electronic copy)
- Presentation materials (MS PowerPoint).

Task 11: Presentations and Final Report

Hawksley will prepare the final report encompassing all study findings, inputs and recommendations for a short-term and long-term financial plan. The Final Report shall adequately compare the rate structures from Sub-Task 9.1 and 9.2 to facility the Garden Grove City Council's decision between the two structures. Provide the necessary presentations to City Council meetings (anticipate up to three) requested by staff on the findings. They shall deliver 15 copies of the final report, and an electronic version of the water rate model developed with instruction for future use and revisions, to the City.

Sub-Tasks

11.1 Deliver final report. Hawksley will incorporate feedback from the City and Council members in order to finalize the project report.

11.2 Final Council Presentations. Hawksley will give up to two (2) additional presentations in order to communicate the final project recommendations.

Outcomes

We provide the City with easy-to-read yet fully comprehensive, written reports that will provide the administrative record necessary to aid in Prop 218 notifications. In addition, we provide summarized presentation materials suitable for Board-level presentations.

Deliverables

- Final report (15 hardcopies and electronic copy)
- Presentation materials (MS PowerPoint).

2. IMPLEMENTATION PHASE EFFORTS

At the completion of the above scope of work, the City will make a decision of whether to proceed with implementing water budget based rates. In the event that the City decides to move forward, there will be additional effort required prior to rolling out the new rates. The following descriptions are for informational purposes only.

Data Clean-up. Given the size of the billing database, a final examination and "scrub" of the billing database is recommended.

Variance Program. Variance programs are used to address extenuating circumstances that require customers to use more water than their indoor or outdoor allocations include. Variances are often granted for customers that maintain in-home childcare or eldercare facilities, general medical needs, right-of-way maintenance, seasonal/holiday guests, and occasional pool-filling.

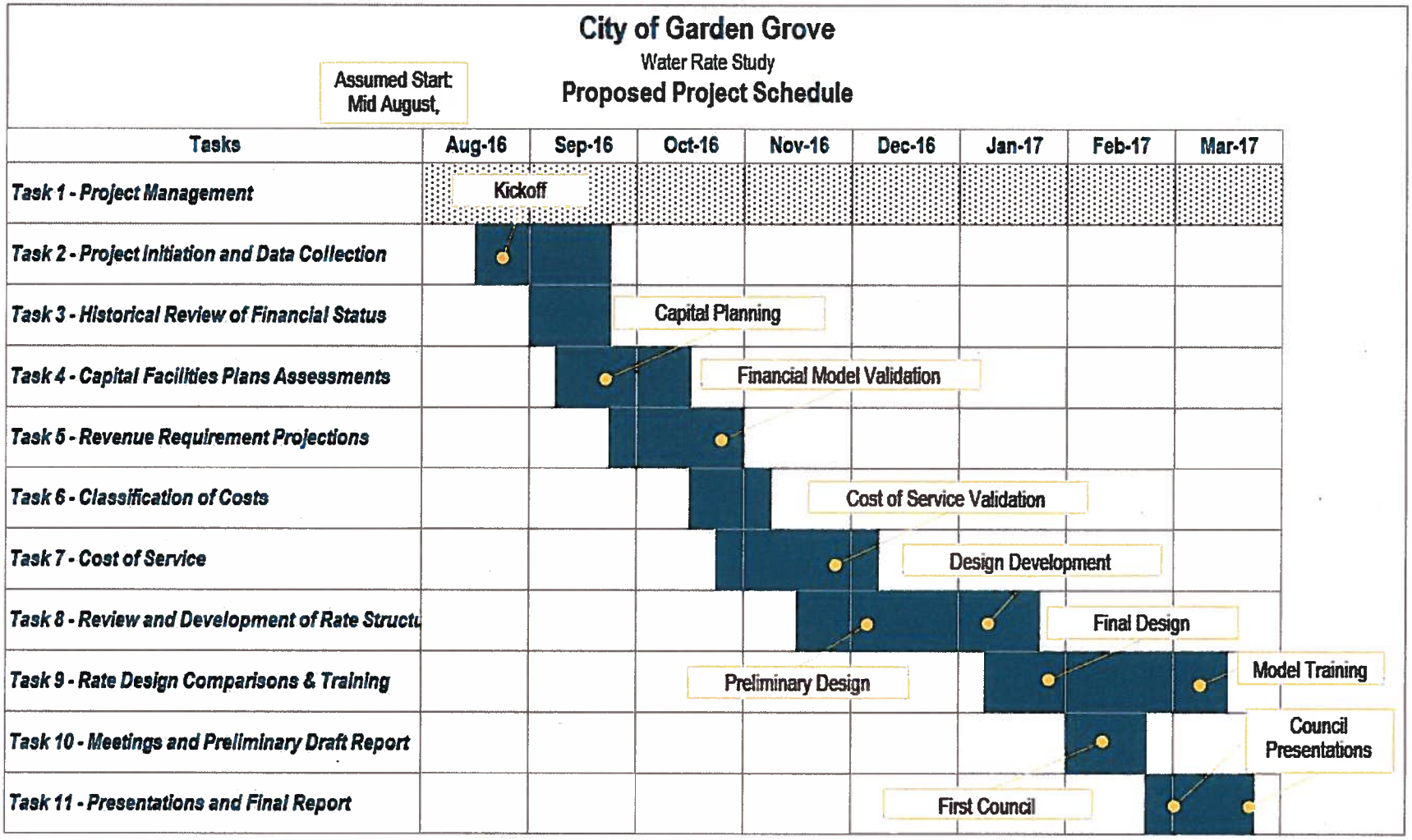
Public Outreach. Gaining public support for the proposed rate can be a challenge, especially if there is to be a significant change from the historical structure. We understand that the City has an established and polished outreach department and, therefore, will likely need little or no outside assistance with this task. Part of this outreach effort may include "shadow billing".

Develop "Shadow Billing" Process. Develop a process whereby customers can receive an example bill under the new rate structure for a period of a few months prior to taking the proposed rates live. This is a highly recommended best practice that allows customers to see how the new rates will affect them *before* it is actually implemented. It provides customers the ability to evaluate their water usage, change their behaviors and establish their own "budget" for water usage before having to pay for it.

Billing System Modifications. As previously discussed, one of the common impediments to implementing water budget based rates is the capabilities of the legacy billing system. Ultimately the level of effort and cost for this task will depend on the state of the legacy billing system and the vendor's ability to provide the necessary modifications. An outside consultant can help to make sure that the desired features are properly identified and implemented.

3. PROJECT SCHEDULE

Based on our understanding of the requested scope of services, we have developed the following general schedule, to be detailed during the Kickoff Meeting.



4. PROJECT PRICING

We propose to complete the project at no direct cost to the City.

We have budgeted and scheduled our work to coincide with grant distributions from SAWPA. The Planning Phase can be completed for $107,500 on a fixed-fee basis. Our services will be structured such that the contract will be completely reimbursable to the City at the completion of what SAWPA calls "Phase 1", which matches the Planning Phase described in our scope.

If the City desires to move forward with implementation of the water budget rate after considering the information provided in the Planning Phase, then the Implementation Phase services (described in Table 1) could be approved for an amount at the discretion of the City (up to $107,500) for any on-call services requested by the City to assist with implementing its new water budget rate. The table below provides additional details.

Task No.	Task Name	All-Inclusive Fee at Completion
1	Project Management	$4,000*
2	Project Initiation & Data Collection	$7,000
3	Financial Status & Billing System Review	$3,500
4	Capital Facilities Plans Assessment	$14,000
5	Revenue Requirement Projections	$16,000
6	Classification of Costs	$2,000
7	Cost-of-Service	$14,000
8	Review and Development of Rate Structure	$20,000
9	Rate Design Comparisons & Training	$10,000
10	Meetings and Preliminary Draft Report	$11,000
11	Presentation and Final Report	$6,000
TOTAL PLANNING PHASE		**$107,500**

* Charged $400 per task upon completion

The proposed fees above are all-inclusive of all labor and estimated expenses.

Tasks 2-11 will be billed upon completion in the amounts shown in the above table. Task 1 will be billed in ten tranches ($400) upon completion of Tasks 2-11.

ATTACHMENT A: SAMPLE DATA REQUEST

The following is an example of a representative data request for preparation of a financial planning, cost-of-service and rate design study for a water enterprise, including a water budget based rate design.

1. A copy of the currently approved user charges for all customer classes, including the rate ordinance, if applicable.
2. The most current (and approved) line-item budget. We are looking for detailed line-item budgets for every cost center in the organization.
3. Three (3) years of historical line-item budget actuals in the same format as described in Request #2.
4. Most current projection of future capital expenditures. For each project provide a name/description and the anticipated timing of the project budget drawdown.
5. Three (3) years of historical actual capital spending.
6. A copy of the last three (3) comprehensive annual financial reports (CAFR).
7. A listing of the funds and accounts relevant to each enterprise and the *unencumbered* cash balance in those accounts as of the end of the most recently completed fiscal year. Examples include operating fund, capital fund, bond reserve fund, etc. Sometimes the CAFR fulfills this request, although it is important that the cash balance be available cash / investments.
8. A current fixed asset register listing each utility's plant in service accounts in detail, with the following information at a minimum: asset name, date in service, original cost, annual depreciation expense, total accumulated depreciation, net book value.
9. A summary of the revenue collected by class from fixed service charges.
10. A summary of the total annual unit (volumetric) sales by customer class for the past five (5) fiscal years. Provide the usage in each respective tier.
11. A census of the number of customers served within each customer classification by the different meter sizes. The customer classes should match those listed in Request #10.
12. The following operational data as applicable:
    a. Summary of imported water volumes.
    b. The terms of water purchases, including the rate schedule for said purchases.
    c. If applicable, a summary of groundwater pumping records for the last five (5) fiscal years.
13. Repayment schedules for any outstanding bonds or other debt instruments, with one repayment schedule for each debt (do not combine schedules). Show the expected repayment of both principal and interest for all.

14. Please provide a copy of the registered Official Statement for each outstanding bond.
15. Any reports you have received in the last three (3) years from any bond rating agency (e.g., Moody's, S&P, Fitch) or from any bond insurance company.
16. A summary of any cash reserve policies currently in place or under consideration.
17. An electronic data set (Excel, Access, .csv, or delimited text file) showing all billing records for the past three (3) years. Provide a data map that describes each field in the database provided. The data set should include the following information at a minimum:
    a. Date meter read
    b. Date bill sent
    c. Total water used
    d. Account No.
    e. Unique identification number for the location (Location ID)
    f. Meter size
    g. Billing class (based on current rate structure)
    h. Applicable rate schedule used (to differentiate between inside/outside customers)
    i. Total amount of the bill
18. GIS data with parcel irrigable area that can be paired with individual accounts.
19. The latest master plan and data pertinent to the future planned growth.
20. An example customer bill, excluding any personal information.
21. Contract agreements with other entities.
22. List of cities/utilities desired to be included in the survey.

ATTACHMENT B: WATER BUDGET MODEL

If it is Garden Grove's intention to conduct future rate update in-house, the City should ensure that they are receiving models on a platform that is familiar with City staff. *Utilities are dynamic, and we have found that platforms other than MS Excel™ are generally impossible for our clients to modify.* ***Our Excel-based Water Budget Model stands from the rest.***

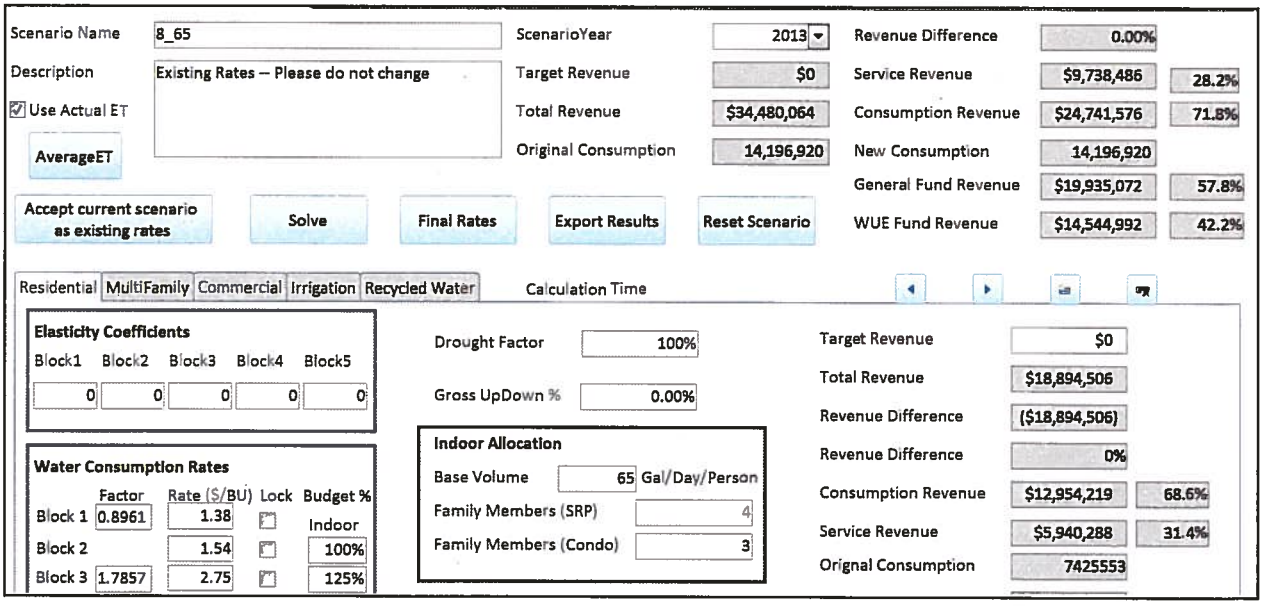
Water budget models in Excel can be inherently problematic due to the size of the billing database. While the database itself is certainly large, it's the dynamic calculations of any good rate design model (including **elasticity of demand** considerations) that can literally paralyze the model. Without innovations, Excel-based water budget models will be unwieldy, slow, difficult to share/transfer, and prone to "crashing" computers. This challenge can be addressed through the use of other (non-Excel) platforms, however even the smallest modification to the design of these solutions is impossible to those who are not versed in that particular technology.

At Hawksley we have made significant investments in our modeling approach to addressing these concerns. Our priority has been to make our models wieldy for our team and accessible to our clients. Our approach involves a statistically-based solution (to reduce the size of the dynamic portion of the model), backed by a revenue-check calculation that calculates every single bill for every single customer. Ultimately this gives us the ability to design rates with a fast and dynamic platform, while still generating an exhaustive understanding of water use behaviors by all types of customers.

Having conservation-oriented rate structures and not incorporating the effect of elasticity in the determination of rates will cause revenue losses. For that reason, our model also looks at the effect of price elasticity of demand on usage due to changes in rates. Hawksley's Water Budget Model assimilates the results of the cost-of-service study and has a flexible rate design module that will be tailored to accommodate Garden Grove's rate structure.

At the completion of the study, the City will receive a working copy of the rate design model with a non-exclusive, non-transferrable license.

Screenshot of the model dashboard



ATTACHMENT C: ENGINEERING COST ESTIMATING RESUMES

Resumes for the engineering cost estimating project team members are presented on the following pages.

MIKO AIVAZIAN

Project Engineer

Miko.Aivazian@mwhglobal.com

MWH

Miko Aivazian has more than 29 years of experience in marketing, planning, design, condition assessment, and construction of facilities for environmental, industrial, and commercial projects.

He has been involved as a senior project/client manager and engineer for several water/wastewater projects for more than 25 years, including planning, study, design and construction management of pumping stations, reservoirs, pipelines, and water and wastewater treatment plants. Miko has managed the design and construction of many projects for major Southern California clients such as:

- Metropolitan Water District of Southern California (MWD)
- City of Los Angeles, Department of Water and Power (LADWP)
- City of Los Angeles, Bureau of Engineering (BOE)
- City of Los Angeles, Los Angeles World Airports (LAWA)
- City of Riverside, Public Utilities Department (PUD)

SPECIALIZATIONS

- Project Management
- Water/Wastewater Planning
- Design & Construction Management

CAREER SUMMARY

- Years of Experience: 29
- MS/MSc, Environment Engineering, Loyola Marymount University
- BS/BSc, Civil Engineering and Construction Management, University of Houston

LICENSES/REGISTRATIONS

- Professional Engineer – Civil - CA 53036 issue: 02/10/1995; exp date: 06/30/2017
- Professional Engineer – Civil –NV 12993 issue: 09/23/1997; exp date: 12/31/2016

MIKO AIVAZIAN

A SELECTION OF RELEVANT PROJECT SUCCESSES

Project Manager, San Diego Pure Water Program Task 7, Morena Pump Station, Conveyance Pipeline, and Brine Pipeline, City of San Diego Water Authority, San Diego, CA

Miko is currently managing the Task 7 of the Pure Water program which includes a 38 MGD pumping station with 5, 9 MGD, two stage pumps, approximately 11 miles of 48-inch diameter pipeline, and a 24-inch diameter brine line that reside in the same trench. This conceptual study and design project includes evaluation of three pipeline alignment alternatives from which two of them were through city streets and one alignment was to tunnel approximately 8 miles under the San Diego Gas & Electric (SDG&E) corridor. The pipeline alignment evaluations included extensive investigations and research for existing utilities, tunnel crossings under Caltrans, MTS, SANDAG, Channel crossings, environmentally sensitive areas, and other ROWs. A matrix type evaluation process was considered for the selection of the preferred pipeline alignment that considered factors such as cost, constructability, traffic, impacts to residents and businesses, construction duration, risks mitigation, and several other factors. Approximately 150 plans and profiles of the pipeline alignment have been prepared to be included into the Preliminary Design Report to be passed onto the final designer. Miko is managing this Task with the City and has been attending meetings with City departments, permitting agencies and other stakeholders.

Project Manager, Perris Valley Pipeline Phase 1 (North Reach), Metropolitan Water District of Southern California, Riverside County, CA

Served as the Project Manager for the design of the pipeline and MWD turnout vaults and associated elements. The Perris Valley Pipeline was a multi-agency 108-inch and 96-inch steel pipeline project that traverses about 2.5 miles from the MWD Mills Water Treatment Plant on the east side of the City of Riverside to the north end of the City of Perris. The pipeline will provided an additional 350 cfs of water (ultimate flow was 600 cfs) in that portion of the Riverside County, in Moreno Valley, Perris and eastern City of Riverside. The work included a turnout with a 42_inch motorized high performance butterfly valve in a vault and a separate meter vault to MWD's stringent standards in design, CAD and construction. The project included easements and rights-of-way acquisition and new road construction along Alessandro Boulevard and traffic control for detouring the large volume of traffic during the construction in the roadway. Also included are 2 tunnels, one for crossing the south side of Alessandro Boulevard and the other for crossing the BNSF Railroad located near the Caltrans owned I-215 Freeway. The project included permitting from several agencies such as Caltrans, Railroad authorities, federal government, FAA, and others.

Project Manager, Perris Valley Pipeline Phase 2 (South Reach), Metropolitan Water District of Southern California, Riverside County, CA

Served as the Project Manager for the design of the pipeline and MWD turnout vaults and associated elements. The project consisted of 4 miles of 96-inch diameter welded steel pipeline. The project consisted of extending the Perris Valley Pipeline North Reach from Cactus Avenue and extending the pipeline southerly along the BNSF Railroad to Van Buren Boulevard, then extending the pipeline under the BNSF Railroad and the Interstate 215 Freeway to the March Air Museum, then southerly along the east side of the Interstate 215 Freeway within the March Joint Powers Authority property to Western Way and ending at Oleander Avenue and Western Way. The pipeline design included two Turnout facilities, one north of Van Buren Boulevard for Western Municipal Water District (40 CFS) and the other at Oleander Avenue (165 CFS) for Eastern Municipal Water District. The project also included permitting from several agencies such as March JPA, LNR Properties, Caltrans, Eastern MWD, RCTC and BNSF as well as working closely with MWD staff.

Project Manager, Haiwee Penstock Pipeline Replacement EPC, City of Los Angeles Department of Water and Power (LADWP), Inyo County, CA

This project called for assistance to LADWP in preparation of a Request for Proposal (RFP) and 30% level of completion for the design-build of the penstock pipeline replacement. The work included a detailed study report for selection of pipe material. Study recommended a Fiber Reinforce Pipe (FRP) due to the cost and preference of the power group. After pipe selection report, a 30% level conceptual design was prepared and the hydraulics of the system were studied. The existing penstock pipeline replacement consisted of a buried 84-inch fiberglass reinforced plastic (FRP) pipeline and a high performance butterfly valve facility. The 10,000-foot new penstock from South Haiwee Reservoir to the existing power plant will be placed with minimum cover and parallel to the existing penstock pipeline that was originally constructed in 1927. Hydraulic network analysis for this project was performed using open source EPANET, a public-domain, water distribution system modeling software.

Project Manager, Phase II Chino Basin Facilities Improvement Project, Inland Empire Utilities, Chino, CA

A joint effort by the Chino Basin Watermaster, Chino Basin Water Conservation District, Inland Empire Utilities Agency, and San Bernardino County Flood Control District. The project will increase the annual recharge of storm, imported, and recycled water to the groundwater basin and reduce long-term maintenance costs. The project comprised improvements to flood control basins, including berm and spillway improvements and two new MWD turnouts (CB-14 and CB-20) with 3- to 40 cfs capacity. The project included construction of 2,200 linear feet of new storm drain pipeline to deliver MWD imported water into the existing basins. This project involved permitting and coordination with several agencies. Miko coordinated the design efforts between MWD, IEUA, Chino Watermaster, and other involved agencies.

CHRISTOPHER MOTE

Cost Estimator

Christopher.S.Mote@mwhglobal.com, ph: 626.568.6042

Mr. Mote has fourteen years of engineering experience focusing on wet infrastructure utilities design and construction phase services.

He has worked as a project engineer on numerous projects involving sanitary sewer collections systems, pump stations, domestic water distribution systems, potable water wells, recycled water distribution systems, water storage facilities, and wastewater treatment plants. His experience in construction phase services has honed his skills in equipment design, features to enhance operational flexibility and reliability, assistance in field start-up operations, regulatory coordination, and interdisciplinary coordination.

SPECIALIZATIONS

- Project Management
- Wet infrastructure utilities design
- Wet infrastructure utilities construction

CAREER SUMMARY

- Years of Experience: 14
- MS, Environmental and Civil Engineering, Purdue University
- BS, Environmental and Civil Engineering, Purdue University

LICENSES/REGISTRATIONS

- Professional Civil Engineer – CA
- Professional Civil Engineer – IN

CHRISTOPHER MOTE

A SELECTION OF RELEVANT PROJECT SUCCESSES

Pure Water Program, City Of San Diego, CA

Mr. Mote provided project management and preliminary design phase services for a new 32 MGD sanitary sewer pumping station, screening facilities, ferric chloride feed facilities, an 11 mile sanitary sewage force main, and a 12 mile brine line. The purpose of this project is to deliver additional wastewater to the City of San Diego North City Water Reclamation Plant to provide the flow necessary for the City to develop their IPR and DPR program. This challenging project is located in the heart of the City of San Diego and the pipelines will be located in extremely busy City streets, right-of-way owned by SDG&E, and federal land owned by the Department of Defense.

Graves Reservoir, South Pasadena, CA

Mr. Mote is providing preliminary design and design phase services for a new 1 MG cast-in-place concrete reservoir, a new pump station, and on-site chlorination equipment. The existing facilities will be demolished while keeping the existing well operable. The new reservoir and pump station design must be carefully considered in order to fit the facilities into the existing Site.

Devil's Gate to Eaton Wash Pump Station and Pipeline, LACDPW

Mr. Mote is providing preliminary design and design phase services for a new 12,000 gpm pump station and 24,000 linear feet of pipe to convey stormwater from behind Devil's Gate Dam to Eaton Wash. This project required analysis of several pump station options in conjunction with three different pipeline alignments. This required development of six different hydraulic models and careful consideration of the costs of each of the six options to develop a recommendation for the most cost effective selection.

NAVFAC P-1045 RFP Development, Marine Corps Base Camp Pendleton, CA

Mr. Mote provided design phase services, design management, and project management for the development of a Design-Build RFP Package for Camp Pendleton. The project consists of providing a preliminary design report, 60% design drawings for approximately 24 miles of domestic water pipeline, two pump stations, and a 3 MG reservoir. Drawings and specifications were developed to a 60% level to provide a more accurate bid for the Design-build Contractor.

MBR Demonstration Project, City Of Anaheim, CA

Mr. Mote provided project management during construction phase support for a new water reclamation facility in the City of Anaheim. The project consists of new membrane bioreactors, membrane filters, advanced disinfection, and other advanced features. The new facility is adjacent to Anaheim City Hall and will provide irrigation water, water for sanitary facilities, and demonstrate advanced water treatment technology to visitors.

Terminal Island Water Reclamation Plant, Pumping Systems and Centrifuge Improvements, City Of Los Angeles, CA

Mr. Mote provided construction phase services for installation of three new centrifuges and rehabilitation of an existing centrifuge for the Los Angeles Bureau of Engineering. Duties included change orders, requests for information, shop drawing review, and tracking progress of construction.

Simi Valley Parallel MLE Modifications, City Of Simi Valley, CA

Mr. Mote was responsible for providing office support for construction phase services to the City of Simi Valley for wastewater treatment plant improvements including major renovations to the WAS/RAS system and process basins. Duties include responding to requests for information, shop drawing review, and coordination with field personnel to advance the project through a tight schedule with definitive milestones.

Recycled Water Facilities Planning Report, City Of Santa Paula, Santa Paula, CA

Mr. Mote was part of a team that developed a facilities planning report for 48,000 linear feet of recycled water pipeline, a 1-MG reservoir, and a 1-mgd pump station to be located in the City of Santa Paula. This study identified recycled water usage for the City, developed a project schedule, and provided anticipated project costs.

Weymouth Water Treatment Plant Filter Improvements, Metropolitan Water District Of Southern California, La Verne, CA

Mr. Mote is providing Project Management services for the rehabilitation of 48 filters at MWD's Weymouth Water Treatment Plant. This critical upgrade consists of replacing existing filter underdrains, troughs, and structural improvements to other facilities. This project is one of the largest and most complicated media filter improvement projects currently active in the United States.

Coleville Water Treatment System Study, NAVFAC, Navy Mountain Warfare Training Center, Coleville, CA

Mr. Mote provided engineering and project management services for the identification of flaws in two existing water treatment systems at the Navy Mountain Warfare Training Centre. The existing systems are not removing sufficient manganese or arsenic to comply with DDW standards and the deficiencies must be identified and solutions provided to comply with state standards.

NAVFAC P-1046 RFP Development, Marine Corps Base Camp Pendleton, CA

Mr. Mote provided project management services for the development of a Design-build RFP Package for Camp Pendleton. The project consists of providing a preliminary design report and 60% drawings for approximately 6 miles of sanitary sewers, 8 miles of recycled water pipe, two steel reservoirs, and an advanced treatment system. Drawings and specifications were developed to a 60% level to provide a more accurate bid for the Design-build Contractor.

Hawksley Consulting is dedicated to bringing innovative and impactful solutions to its clients

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