



Professional Engineering Services

Proposal for the
Hyrum City Sanitary Sewer System Master Plan

March 2024



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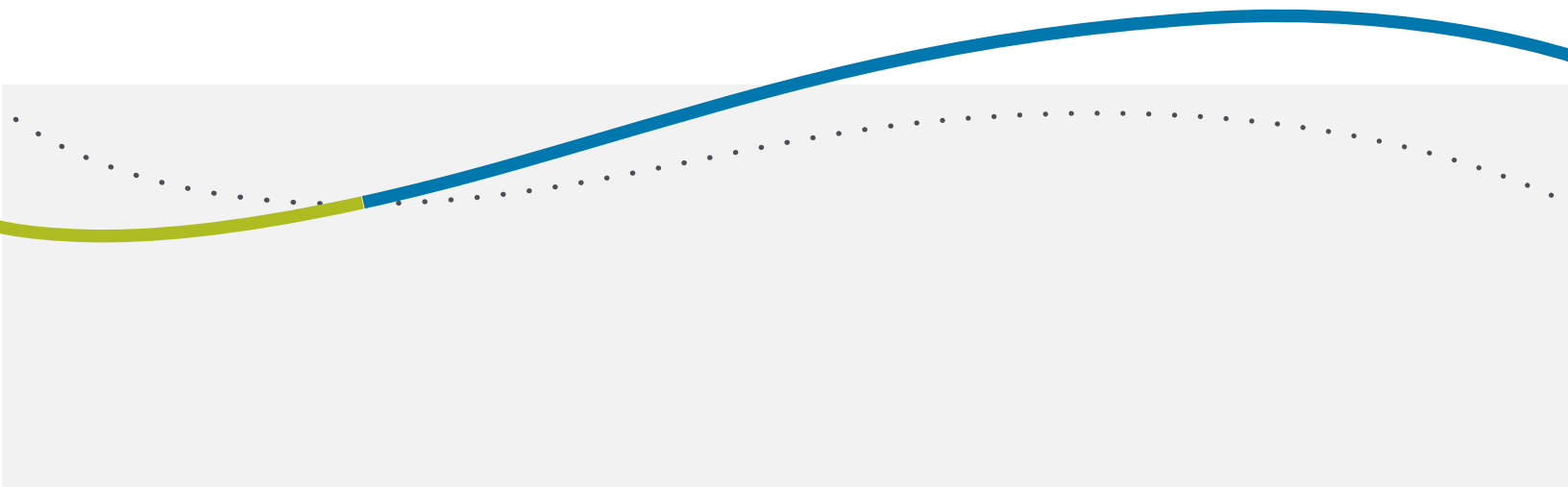
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Hyrum City
Todd Perkins
Financial Administrator
60 W Main St.
Hyrum, UT 84319

March 20, 2024

RE: Hyrum City Proposal to Provide Professional Engineering Services for the Development of a Comprehensive Sewer Master Plan, including Modeling and a DIF and Rate Study

Dear Todd,

On behalf of Aqua Engineering (AQUA), thank you for the opportunity to submit our proposal to provide professional engineering services to Hyrum City for a comprehensive Sewer Master Plan that includes a hydraulic model of the collection system, the Development Impact Fee (DIF) and rate study. The anticipated flows from Millville, UT will be included. AQUA has carefully reviewed your Request for Proposal (RFP) and has assembled a well-qualified team of engineers, sub-consultants and specialists with expertise directly related to the requirements necessary to complete this Master Planning project.

AQUA is experienced in Sewer Master Planning for many communities in Utah and throughout the west. Coupled with the expertise of Zions Public Finance, Inc (SPFI), who will be providing the DIF and Rate Study analysis, and with Aqua Environmental Services (AES), who will assist in collecting the required field data. Our team will give the City the best possible resources available. AQUA, not only experienced in Sewer Master Planning, but we are also very familiar with Hyrum City facilities from collection to operation and maintenance. AQUA designed the original Water Reclamation Facility and has been involved in the planning, design, construction and operation of many of the pipelines, lift stations, and sanitary sewer facilities over the past 20 years. Our history in working with the City is a testament to our commitment to providing Hyrum City with the best, most innovative, and cost-efficient engineering services available.

Detailed information about our project team is outlined in this proposal. This team of professionals will be led by Brad Rasmussen, PE who is the Principal-in-Charge (PIC). Our proposal shows how we recommend dividing this Master Plan work into a couple of areas of emphasis. These include the Collection System Analysis with it's included mapping, field flow data gathering, and modeling, and the Financial Impact Fee and Rate Study Analysis that will be directed by Susan Beker, AICP from ZPFI.

Darin Hawkes, PE who has represented Hyrum City in the past as the designated Engineer, and who continues to provide engineering services to the City as requested from time to time, will serve as the Quality Assurance/Quality Control expert for this Master Plan Project. Darin knows the City as well as anyone, and he is also a Principal at AQUA Engineering over Municipal Services. He has an institutional knowledge base of the existing collection system, along with much of the history of its operation and maintenance strategies and planning. This knowledge will be invaluable for the collection system modeling and analysis.

The financial analysis portion of this project, including the DIF and rate analysis as mentioned will be performed by ZPFI who has performed more financial analysis in the west than any of the other firms. Their knowledge of developments, laws, and regulations pertaining to development impact fees and assessments adds credibility and

confidence to this portion of the study. The combination of all this expertise and direct experience working with Hyrum City staff provides the City with an unparalleled team to see your project through to completion. Resumes of our team members' specific experience are provided in the Appendix.

AQUA is committed to performing above and beyond the normal engineering standards for Hyrum City and to producing a successful and comprehensive Sewer Master Plan Project that meets the quality that the City expects and deserves. Our contact information is as follows:

Brad Rasmussen, P.E., Principal
533 West 2600 South, Ste. 275
Bountiful, UT 84010
Office: 801-299-1240 (Direct)
Mobile: 801-450-2150
Email: brad.rasmussen@aquaeng.com

We appreciate the opportunity to present our proposal and look forward to continuing our relationship with Hyrum City. On behalf of our team, we very much look forward to working with you again and remain committed to give you our best effort. Please call me, or any of the team members if you have any questions regarding our proposal.

Respectfully,



Brad Rasmussen, P.E.
Principal

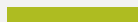


Firm Introduction

AQUA Engineering (AQUA) and Aqua Environmental Services (AES), where excellence meets innovation. We pride ourselves on being an affiliated group of highly skilled professionals, setting us apart in the field of engineering solutions for both public and private sectors across the nation. Clients choose us for our unwavering commitment to delivering top-notch services and our exceptional ability to tackle intricate engineering challenges with efficiency, all while achieving sustainable and impactful results. AQUA comprises a dedicated team of seasoned engineering professionals, leaders, and associates, each an expert in their respective disciplines. We are fully committed to not only meeting but surpassing our clients' project goals. Our focus extends beyond project success to safeguarding the environment and enhancing the quality of life for the communities we serve.

Aqua Engineering (AQUA) provides innovative engineering, operations, and construction solutions to clients nationwide. Since 1992, we have served the public and private sector. AQUA's proven experience demonstrates our capacity and stability to deliver projects that are sustainable and operable. Our team consists of experienced professionals, designers, programmers, technicians, and associates who are capable of solving your needs and are fully committed to your success. Together, we are able to give you the best project solutions possible. We have offices in Utah, Colorado, and Oregon.

Aqua Environmental Services (AES) provides operations consulting, start-up and commissioning services, and instrument calibration to many public and private sector clients. AES has developed a loyal base of clients in need of assistance with contract operations, small turnkey projects, facility management projects, and systems troubleshooting.



Teaming Partner

Zions First National Bank (Zions) was founded in Salt Lake City in 1873 and continues its legacy of strength and stability as one of the oldest financial institutions in the Intermountain West. To bring value to individuals, small-to middle-market businesses, nonprofits, corporations and institutions, Zions Bank provides a wide range of traditional banking and innovative services. Zions Bank is a division of ZB, N.A., which operates in nearly 500 local financial centers across 11 Western states: Arizona, California, Colorado, Idaho, Nevada, New Mexico, Oregon, Texas, Utah, Washington and Wyoming. ZB, N.A.'s parent company is Zions Bancorporation, which is included in the S&P 500 and NASDAQ Financial 100 indices (NASDAQ: ZION).

Zions Public Finance, Inc. (ZPFI), is comprised of a team of 21 professionals committed to providing unparalleled service to municipal entities, local districts, government agencies and private clients throughout Utah and the Intermountain West. We have two primary service areas: 1) financial advisory to assist governmental entities in the bonding and disclosure/ reporting process; and 2) municipal consulting services focusing on economic development, planning, real estate development advisory and fee-related services.

SECTION 1 EXPERIENCE & QUALIFICATIONS

In developing a comprehensive wastewater master plan, we focus on integrating key components such as Collection Systems, Hydraulic Modeling, and Line Sizing Upgrades to ensure efficient and sustainable wastewater management. Our approach begins with a thorough analysis of existing Collection Systems, identifying areas for improvement and optimization. Using advanced Hydraulic Modeling techniques, we simulate various scenarios to optimize system performance, taking into account factors such as flow rates, pressures, and capacity requirements. As part of the master plan, we assess the need for upgrading line sizing to meet current and future demands. This involves evaluating existing infrastructure, recommending appropriate upgrades, and developing cost-effective solutions to enhance system efficiency and capacity. By integrating Collection Systems, Hydraulic Modeling, and Line Sizing Upgrades into the wastewater master plan, we ensure that our solutions are not only effective but also sustainable and adaptable to future needs.

The following projects serve as prime examples of AQUA's proficiency in master planning, modeling, and comprehensive study initiatives.

Related Project Experience & Reference Information
City of Fontana Collection System Master Plan Reference: Brian Knoll, Sr. Vice President P: 951.248.4279 E: brain.knoll@webbassociates.com
Salt Lake County Service Area #3 SECAP Reference: Kasey Carpenter, General Manager P: 801.620.1028 E: kasey@canyonwater.com
2017 Hyrum SECAP Reference: Todd Perkins, P: 435.245.6033 E: tperkins@hyrumcity.com
West Wendover Water & Sewer System Master Plan Reference: Chris Melville, City Manager P: 775.664.3081 E: cmelville@westwendovercity.com

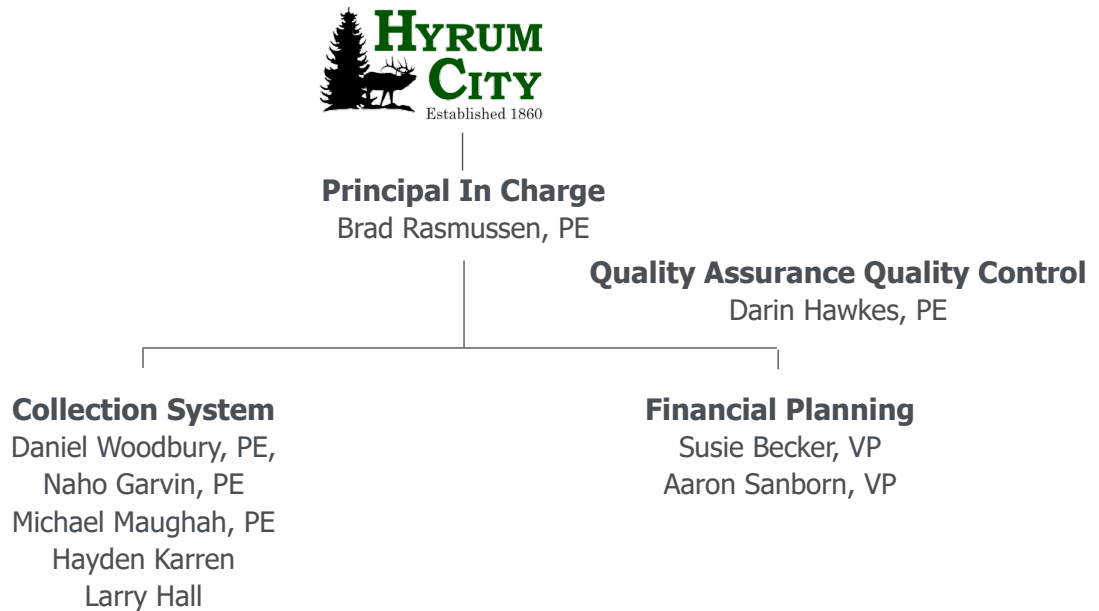
In addition to the project references provided above, below is a list of our experience in wastewater planning, references available upon request.

- ✓ Corinne Wastewater Planning
- ✓ JBS Swift Facility Planning
- ✓ Elko 10 Year Master Plan Update
- ✓ Elko 2015 Master Plan Update
- ✓ Elwood Wastewater Planning
- ✓ Emigration Sewer Planning
- ✓ Francis Facilities Planning
- ✓ Grantsville City Planning
- ✓ Heber Wastewater Planning
- ✓ Hideout Canyon Sewer Planning
- ✓ HVSSD Planning and Impact fee 2015
- ✓ HVSSD Reuse Planning
- ✓ Hyrum City
- ✓ Jerome Facility Planning
- ✓ Kamas Wastewater Planning
- ✓ Lochbuie Wastewater Utility Master Plan & Financial Planning
- ✓ Mayflower Mountain Resort
- ✓ Morell Hospitality Planning
- ✓ Morgan Wastewater Planning
- ✓ Mt. Holly Planning
- ✓ Nordic Valley Sewer Planning
- ✓ Orem Sewer System Master Plan
- ✓ Payson Facility Planning 2015
- ✓ RCSD Master Plan Assistance
- ✓ Round Valley Planning
- ✓ South Davis Sewer District
- ✓ Spanish Fork Facility Planning
- ✓ Spanish Fork Nutrient Planning
- ✓ Springville 2022 Master Plan & IFFP/IFA
- ✓ Wolf Creek Treatment Master Planning

SECTION 2 PROJECT TEAM

AQUA has assembled a team of experts and specialists to provide the City with the right combination of skills and experience to meet the requirements and expectations associated with the Hyrum City Sewer Master Plan project. This entire team is located in our central Bountiful office and all work will be performed by these team members. Our team is readily available and prepared, fully committed, and passionate about working with the City.

Presented below is our organizational chart of key personnel who are ready and dedicated to Hyrum City. Key Personnel resumes are included in the Appendix for your use.



Key Personnel Qualifications



Brad Rasmussen, P.E. | Principal In Charge

Contact: brad.rasmussen@aquaeng.com | 801.299.1240

Education: B.S. Computer Drafting Design, Southern Utah University, 1990
M.S. Civil Engineering, University of Utah, 1999

Mr. Rasmussen, Principal at AQUA Engineering, has over 30 years engineering experience, with the majority spent in the design and project management of wastewater treatment facilities for municipalities and industry. Brad has an extensive computer background, modeling water quality in water distribution systems, sewer system modeling, and water quality modeling. He is experienced working with regulators, communities and industrial sectors to coordinate project issues. Brad has done extensive facility planning and is established as an expert in discharge permit negotiations for numerous facilities.

KEY PERSONNEL QUALIFICATIONS



Darin Hawkes, P.E., S.E. | Principal Project Manager

Contact: darin.hawkes@aquaeing.com | 801.683.3727

Education: B.S. Civil Engineering, University of Utah, 2003

Mr. Hawkes' has a vast amount of experience in various civil engineering disciplines. He specializes in difficult projects that often have space, access and/or extreme time constraints. He has developed a reputation for being able to view a problem from multiple angles to develop a solution that works for his client. His experience ranges from pumping system design, concrete storage tanks and open reservoir design, to large concrete water storage facilities and high elevation snowmaking reservoirs and dams. Many of his projects are provide as turn-key solutions for his clients with his direct involvement from conceptual design through contract administration and project close-out. As part of the AQUA team, he has led and assisted in the completion of several System Capacity Analyses, Municipal Capital Facility Plans and large-scale Master Plans for both culinary water and wastewater.



Dan Woodbury, P.E. | Project Manager

Contact: dan.woodbury@aquaeing.com | 801.683.3759

Education: B.S. Civil Engineering, Brigham Young University, 1983

Mr. Woodbury joins AQUA Engineering and brings with him over 35 years of professional engineering experience in management and design for water resource and municipal projects. He has extensive experience with project management for hydraulic facilities including pump stations, wells, utility structures, flow measurement and controls, transmission lines and water conveyance systems. He has been involved with, and directed multiple Master Plans and Capital Improvement Plans, engineering feasibility, and water quality studies, and been involved with the design and implementation of many of the facilities and improvements recommended from those plans. Dan has directed and managed projects from concept phases to full design, and has also managed many of those projects through construction. His project experience ranges in value from a few thousand dollars to multiple millions of dollars. His recent experience running major projects for both Riverton City and Sandy City have given him special expertise including navigating the funding sources, and then designing and overseeing construction of the \$15M Secondary Water Metering Project; managing the construction of the \$6.5M 8600 South Storm Drain Installation Project; designing and managing the installation of more than 30,000 linear feet of both culinary and pressurized irrigation water lines; and designing and managing pump station expansion and upgrade projects.



Naho Garvin, PE | Project Engineer

Contact: naho.garvin@aquaeing.com | 801.300.3769

Education: BS Environmental Engineering, Utah State University, 2009

MS Environmental Engineering, Utah State University, 2012

Ms. Garvin's experience focuses on design and project management of municipal water and wastewater treatment, as well as industrial wastewater treatment. She has handled all aspects of the projects including; proposal writing, engineering reports, process design, technical engineering design, production of bid documents including the design drawing set and technical specification, construction management and support including but not limited to; submittal review, site inspections, response to inquiries, training, startup, and permit applications. Her designs have incorporated multiple process of the wastewater treatment including collections, pump stations, headworks, primary treatment, secondary biological and/or mechanical processes, tertiary treatment and filtration, disinfection, digesters, solid handling/dewatering, energy/resource recovery, biogas production, and nutrient removal and recovery.

KEY PERSONNEL QUALIFICATIONS



Michael Maughan, P.E. | Project Engineer

Contact: michael.maughan@aquaeng.com | 801.683.3750

Education: B.S. Civil Engineering, Utah State University, 2018

Mr. Maughan has 7 years of experience. His current focus has been municipal civil engineering and water resources. Mr. Maughan works and assists on projects from permitting to construction. His responsibilities include permitting, design, construction documentation and assisting with construction management for the project. He has assisted in multiple Municipal Capital Facility Plans and Master Plans for drinking water and wastewater systems.



Hayden Karren | Design Engineer

Contact: hayden.karren@aquaeng.com | 801.683.3728

Education: B.S. Civil Engineering, Utah State University, 2018

Hayden Karren has experience in utility layout and pumping system design. As part of the AQUA team, he has assisted in various types of projects involving culinary water and wastewater to help produce effective solutions for clients.



Larry Hall | Operations Manager

Contact: larryh@aquaenviron.com | 801.209.6238

Education: University of Utah, Utah State University, Utah Valley State College

Mr. Hall has 25 years of experience in the Water and Wastewater industry. During that time he has worked in many capacities at a variety of facilities, including public and private facilities as well as municipal and industrial treatment plants. Mr. Hall has been an operator, lead operator, facility manager, department head and consultant in wastewater treatment and collections, as well as drinking water treatment and distribution. Mr. Hall also participates in a range of training courses, including the annual Hazardous Waste Management course offered by the Department of the Army. He has a hands-on, working knowledge of The Clean Water Act and the Safe Drinking Water Act.

Susie Becker, AICP | Vice President

For the past 29 years, Susie has specialized in fee studies and economic consulting and planning and has been the lead consultant on some of the largest and most challenging projects in the intermountain region, including funding mechanisms for the large Point of the Mountain project that spans Salt Lake and Utah counties, has testified before the Governor's Legislative Task Forces on economic policies and procedures in Utah and in impact fees, has been involved with numerous fee studies, as well as the creation of a multitude of community reinvestment areas. Her experience stretches from issues such as affordable housing concerns in resort communities like McCall, ID, to redevelopment of a large deteriorating commercial center in Mesa, AZ – the Fiesta District to utility rates for a newly-incorporated entity.

Aaron Sanborn | Vice President

Aaron has nearly a decade of experience with local government and municipal research. Prior to joining ZPFI, Aaron worked for Eagle Mountain City as a management intern, Financial & Management Analyst, and as Economic Development Director. He was also heavily involved in local government while still in his MPA program, working on several consulting projects with Utah cities. As economic development director, Aaron has been heavily involved in the commercial boom Eagle Mountain is currently experiencing. From providing analytical support, coordinating marketing, or directing business development, his efforts have resulted in over \$2.225 billion in direct investment in Eagle Mountain City. This includes the large investments by Meta (2018), Tyson Fresh Meats (2019), and Google (2021).

SECTION 3 PROJECT UNDERSTANDING & APPROACH

The team of AQUA and ZPFI understands the need for Hyrum City to develop a comprehensive Sanitary Sewer Master Plan to serve as a guidance document for the immediate future. This team has been involved with many cities and districts that have utilized the master plans that were developed to guide them through the growth, development, and capital projects of their respective organizations in the most efficient and effective manner possible. Hyrum City's desire to encompass each of the critical aspects of a complete and comprehensive Master Plan attests to their commitment to be proactive and at the forefront of growth and development within the community. This approach will provide a strong, well-defined roadmap for the city as a whole in how, where, and when developments should occur in the ensuing future. Some of the critical aspects that this team will analyze include a thorough evaluation of the treatment plant's capacity when loaded with the future projected demands and loadings. Of particular interest and necessity is the evaluation of adding in the sanitary loading from Millville. We are aware of the agreement to begin receiving and treating, the sanitary flows from Millville and we have the capability and experience to evaluate this increase loading, not only from a biological standpoint, but also the hydraulic analysis capabilities. Coupled with this almost instantaneous increase in loading from the time Millville comes online, is the slow and ever-increasing loading that gets added to the treatment facility as new growth and developments are added to the community.

Integral to, and concurrent with the growth projections of the treatment facility is an analysis of the collection system that is spread throughout the city. This collection system brings the flows to the water treatment facility, generally by gravity. However, we are aware of the six lift stations that pump, or "lift" sanitary sewer to either a force main, or to a higher elevation where it is discharged so that it can then gravity flow to the treatment facility. This system of pipelines, service laterals, manholes, trunk lines and lift stations comprise the collection system and our team's approach to evaluate this system is straight forward and in accordance with National Association of Sewer Service Companies (NASSCO) and Manhole Assessment Certification Program (MACP) standards and guidelines. Our experience has proven that this method will render the best possible outcome for the city. From data provided by Hyrum City we will model the hydraulics of the collection system to help determine where deficiencies currently occur or are projected to occur as the city growth and development is applied to the model.

Also of significant importance is the establishment of a financial analysis of the development impact fee (DIF) and rate study. These documents and tools will prove invaluable in analyzing impact fees and monthly user rates for the sewer system. ZPFI will develop these and compare them to not only the ability of the community and local market to bear but perform an evaluation of surrounding and similar communities. The recommended Capital Improvements Plan (CIP) factors into these DIF and rate studies and per Utah Administrative Code will be reviewed and adjusted yearly. These tools will provide a mechanism or vehicle to streamline this process.

The development of a plan to install, replace, or upgrade capital facilities throughout the city is the one of the ultimate goals in the development of this project. This Master Plan will be the guiding plan for the city to help establish yearly budgets and know how projects will be financed. Developing the Master Plan in this fashion will provide the city with the capability to maintain and update various aspects of the sanitary sewer system as the city grows and new developments, businesses, and industry come online.

Our team's approach is straight forward. It is effective and the most efficient method to approach this type of project development. Our experience has proven that this method will render the best possible outcome for the city. We will begin immediately by establishing lines of communication with and between our team members and the designated city staff members who will be involved with each of the various aspects of the project. We then begin collecting the necessary data and information that will establish the baseline, or starting point, for the overall project. This means we will coordinate with the County GIS manager to establish how much of the County system can be utilized for the City GIS. This information will be augmented with and updated with any files, documents, or information the city holds in their files – including recent and planned subdivision and development projects.

Files and information anticipated from the city would include existing financial analyses and data, and any hydraulic

modeling. The background and existing conditions for each of these needs to be established to also determine the baseline. The various required scenarios and flow conditions will then be analyzed and evaluated. Also, the anticipated growth and future forecasting will be applied to determine the capital projects that will be needed to meet future needs. The financial studies will then be completed to determine the rates and fees required to be implemented now so that they will meet the future needs.

The data, information and analyses discussed above will be summarized and compiled in a final document – the Master Plan. This document is more than just a summary. The how-to discussion will be presented and a full plan for the overall capital facilities will be developed and presented in the document. The financial evaluation and projections will also be provided and included in the document. In short, a full comprehensive master plan will be presented to the city that can be used for the foreseeable future.

SECTION 4 SCOPE OF WORK & DELIVERABLES

Project Understanding

The City's Sanitary Sewer Master Plan Project aims to create a comprehensive sewer master plan that reflects the City's existing system, growth, the addition of Millville City connecting to the collection system, and projected improvements needed to support the utility services for the next 20 years. Additionally, the master plan will develop a road map for the Sanitary Sewer Development Impact Fee (DIF) to formulate the cost of existing and needed infrastructure to serve developments operating in Hyrum City, along with the development and analysis of the existing utility rates to determine their adequacy to meet the 20-year Capital Improvement Program that is also to come out of this Master Planning effort. The updating of the City's existing hydraulic model is also a part of this project and this model is to be calibrated to field data collected, by us, at a minimum of 6 specific locations to be determined by City staff.

The current and future challenges faced by the sanitary sewer collection system are to be addressed through a comprehensive endeavor involving a thorough analysis of the existing system and future projected system along with strategic planning and modeling to ensure the efficient and sustainable management of the City's resources. To succinctly enumerate how these goals are to be met and describe how all these project features will be fulfilled, we have prepared a list of Scope of Work items that will be summarized in the next section.

Scope of Work

Within Section III of the Request for Proposals (RFP) a detailed "Scope of Services" is delineated, spanning Tasks 1 through 9, across 3 pages. Due to space constraints, we reference those 9 tasks, affirming our commitment to complete each one as outlined and described, along with the delivery items specified.

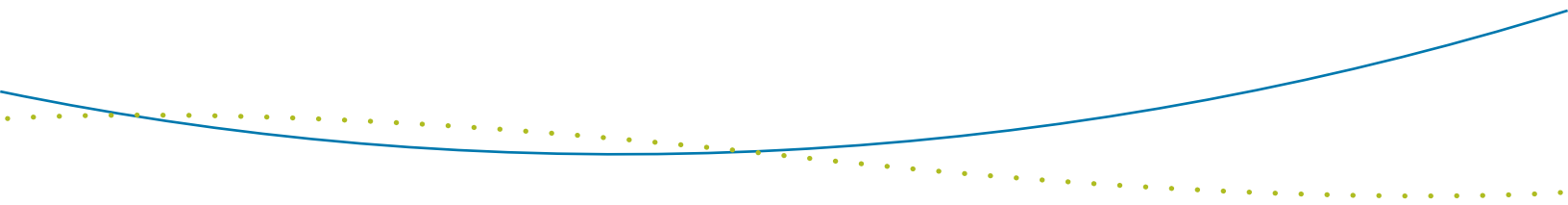
Those tasks include:

- Task 1 – Project Management
- Task 2 – Resource Documents and Data Review
- Task 3 – Review Sewer Demand Estimates and Forecast
- Task 4 – Update Sewer System Hydraulic Model and GIS Mapping
- Task 5 – Calibrate Sewer System Hydraulic Model
- Task 6 – Sewer System Analysis
- Task 7 – System Graphics
- Task 8 – System Replacement & Improvement Program
- Task 9 – Capital Improvement Programs and System Master Plan

In addition to the outline of the Scope of Work here, we have included this same outline, with detailed subtasks in our fee schedule that is submitted under a separate email as is required by the RFP. Each of the tasks and subtasks outlines the anticipated workhours and effort associated with that item. The fee schedule also shows the sub-consultants, and their work effort, as presented in this proposal. Also identified in the fee schedule is the rate of compensation for proposed personnel to be used and the work effort anticipated for each, including the subconsultants. With the project breakdown presented in the fee schedule, the entire Scope of Work is outlined, matching the Approach presented above.

Deliverables

- Monthly narrative reports, invoices, and updated schedules.
- Fully updated and calibrated hydraulic model.
- Sanitary Sewer Master Plan, with recommended Capital Improvements (CIP).
- Executed DIF analysis and Rate Study.
- Final Report summarizing key findings, recommendations, and proposed actions.
- Presentation to City stakeholders outlining the Sanitary Sewer Master Plan and Model development process.



APPENDIX | KEY PERSONNEL RESUMES



Brad Rasmussen, P.E. | Principal

Phone: 801.450.2150 | **Email:** brad.rasmussen@aquaeing.com

Mr. Rasmussen, a Principal at AQUA Engineering, has more than 30 years engineering experience, with the majority spent in the design and project management of wastewater treatment facilities for municipalities and industry. Brad has an extensive computer background, modeling water quality in water distribution systems, sewer system modeling, water quality modeling, and process modeling. He is experienced working with regulators, communities and industrial sectors to coordinate project issues. Brad has done extensive facility planning, facility design and is established as an expert in discharge permit negotiations for numerous facilities.

Project Experience

Facility Planning and Evaluation / Impact Fee Development

Brigham City Facility Planning & Evaluation

Analyzed treatment facility upgrade alternatives for future growth and evaluated alternatives for meeting 2020 phosphorus limit.

Tremonton City Facility Planning and Impact Fee Development

Analyzed treatment facility upgrade alternatives for future growth and evaluated alternatives for meeting 2020 phosphorus limit.

South Davis Sewer District Nutrient Removal Planning

Analyzed treatment facility upgrade alternatives for meeting 2020 phosphorus limit.

Spanish Fork City Treatment Facility Evaluation

Evaluated value of treatment facility for buy-in costs for other municipalities.

Payson City Facility Planning

Facility planning to address redundancy, growth, and nutrients. Evaluated existing treatment facility for life expectancy of existing equipment.

Spanish Fork City Facility Planning

Facility Planning / Impact Fee Development

Heber Valley Sanitary Sewer District

Facility Planning to address solids reduction and increase capacity in existing lagoons

Mountain Green Wastewater Treatment Lagoons

Facility Planning / Impact fee development

Grantsville City Treatment Lagoons

Facility Planning

Cost estimates for process alternatives

Southern Utah Municipal Water Association

Planning for a regional treatment facility

Wastewater Treatment - Municipal

South Davis Sewer District, Utah

Design phosphorus removal system using Clearas algae treatment system

South Davis Sewer District Wasatch Resource Recovery, Utah

Design digester system to convert food waste to natural gas

Education

BS Computer Drafting Design,
Southern Utah University, 1990

MS Civil Engineering,
University of Utah, 1999

Registration

Professional Engineer:
Utah, Nevada, Colorado, Montana

Work Experience

35 Years

Affiliations

WEAU
ASCE
AWWA

Expertise

- Permitting
- Wastewater/Treatment
- Water Treatment
- Wastewater Reuse
- Mechanical Installations
Modeling
- Wastewater Process Modeling
- Lagoon Treatment
- On-Site Treatment
- Sewer Collection

Brad Rasmussen, PE | Principal

Project Experience (continued)

Snowbasin Huntsville, Utah

Designed a new on-site treatment system with treatment and onsite disposal on ski run

City of Las Vegas Wastewater Treatment Facility

Sodium hypochlorite building expansion

Heber Valley Wastewater Treatment Facility

Expanded treatment facility from 2mgd to 4mgd by installing a new STM Aerotor treatment system utilizing RIB for wastewater disposal.

Salt Lake City Wastewater Treatment Facility

Designed a new thickening facility for Salt Lake City.

Town of Elwood Wastewater Treatment Facility

Designed a new treatment facility utilizing a modified SBR lagoon system.

Payson City Dewatering Facility

Installed a new screw press to dewater biosolids

Brigham City Wastewater Treatment Facility

Installed a new screw press to dewater biosolids, new headworks screens, new final clarifier, and updated UV disinfection

Spanish Fork City Wastewater Treatment Facility

Biosolids expansion and installation of a new two-meter belt press facility

City of Tremonton Wastewater Treatment Facility

Installed new Salsnes Filter Building for redundancy to the primary clarifier.

Grantsville City Wastewater Treatment Facility

Upgraded Lagoons to a more efficient treatment system, from 0.5 MGD to 1.2 MGD

Mountain Green Wastewater Treatment Facility

Designed and constructed lagoon upgrade, tripling the treatment capacity in existing footprint.

Bison Creek Wastewater Treatment Facility

Designed a 0.25 MGD MBR facility utilizing a multi-use pond/RIB for wastewater disposal

Spanish Fork City Wastewater Treatment Plant

Designed and constructed headworks screens, final clarifier and biosolids thickening facility

City of Orem Wastewater Treatment Facility

Designed and constructed dissolved air flotation thickener and secondary clarifier

City of Orem Wastewater Treatment Plant Upgrade

Four projects included belt press facility, clarifiers, oxidation ditch upgrade, and headworks

Tremonton City Wastewater Treatment Facility

Plant upgrade and new compost facility

Orem City Dewatering Facility

Designed and constructed the dewatering facility for Orem

Wastewater Treatment - Commercial/Industrial**Colorado River Resort Wastewater Treatment Plant**

Designed a wastewater treatment facility for a new Marriott Hotel. Included a floating intake system, small inclined plate clarifier, microfiltration skid, 260,000 gallon water reservoir, and pumping systems

E.A. Miller Meat Packing Wastewater Plant

Upgraded clarifiers, pumping systems

Brad Rasmussen, PE | Principal

Project Experience (continued)

Malt-O-Meal Pretreatment facility

Designed and constructed equalization tanks and aeration system.

Water Reclamation Facilities

Richmond City Water Reclamation Facility

Designed and constructed a 0.5 MBR facility

Wolf Creek Water Reclamation Facility

Designed and constructed 0.4 mgd MBR facility

Hyrum City Water Reclamation Facility

Installed 2 meter belt press in a new building for a biosolids dewatering facility

City of Oakley Water Reclamation Facility

Designed and constructed a new Zenon ZeeWee 250,000 gpd MBR facility

West Wendover WRF and Composting Facility

Constructed co-composting facility mixing municipal waste and biosolids to make compost

Bullhead City WRF Upgrade

BNR upgrade from 1.0 to 3.0 mgd using oxidation ditch activated-sludge system

Compliance and Permitting

Snow Basin

Applied for a discharge permit

Hyrum City

Applied for a discharge permit renewal

Grantsville City

Applied for a discharge permit renewal

UAMPS

Reviewed discharge permit

Payson City

Reviewed discharge permit

Colorado River Resort Wastewater Treatment Plant

Applied for a discharge permit

Great Salt Lake Minerals

Amended wastewater discharge permit for Great Salt Lake Minerals

E.A. Miller Meat Packing Wastewater Plant

Reviewed TMDL and effects on treatment facility

E.A. Miller Meat Packing Wastewater Plant

Reviewed TMDL and effects on treatment facility





Darin Hawkes, P.E., S.E. | Principal

Phone: 801.683.3727 | Email: darin.hawkes@aquaeing.com

Mr. Hawkes' has a vast amount of experience in various civil engineering disciplines. He specializes in difficult projects that often have space, access and/or extreme time constraints. He has developed a reputation for being able to view a problem from multiple angles to develop a solution that works for his client. His experience ranges from pumping system design, concrete storage tanks and open reservoir design, to large concrete water storage facilities and high elevation snowmaking reservoirs and dams. Many of his projects are provided as turn-key solutions for his clients with his direct involvement from conceptual design through contract administration and project close-out. As part of the AQUA team, he has lead and assisted in numerous design projects, the completion of several System Capacity Analyses, Municipal Capital Facility Plans and large-scale Master Plans for both culinary water and wastewater.

Project Experience

Hyrum City | Principal In Charge

AQUA Engineering serves as the contract City Engineer for Hyrum City, Utah. As part of their responsibilities they have designed numerous improvements and additions to the City's water distribution, source and storage systems, as well as the City's wastewater collection system and treatment works. They have updated 1,000-3,000 feet of pipe each year since 2006, replacing outdated or undersized piping with 8" or larger pipe to meet State size, material, flow and pressure requirements. The 2011 Water Improvement Project included 3100 feet of 8-inch to 14-inch mainline, cased installation in UDOT right of way, coordination to avoid construction delays and traffic interruptions, as well as the replacement of all the services. It also included 2 PRV Stations. AQUA has designed numerous pump station for both potable, irrigation and wastewater conveyance including a 2100 gpm facility to pump treated wastewater effluent into the pressurized secondary irrigation system. This facility was design and permitted by AQUA.

Grantsville City | Principal In Charge

AQUA Engineering serves as the contract City Engineer for Grantsville City, Utah. As part of its duties AQUA has been responsible for the design of numerous improvements and additions to the City's water distribution system, streets and drainage network, and several municipal facility projects. AQUA has helped the City to design and construct thousands of feet of waterline from 8-inch to 16-inch, multiple PRVs, booster pump stations, groundwater development projects and disinfection facilities. In addition to the dozens of projects that AQUA has designed for the City, we have also implemented standard details and specifications for all projects occurring in City limits, and have assisted the City with review, approval, inspection of projects ranging from single family homes to multi-phase subdivisions and commercial business parks.

Elk Ridge City | Principal In Charge

AQUA Engineering serves as the contract city engineer for Elk Ridge City. AQUA reviews and inspects all new subdivision and site developments, improvement of existing developments, and also ensures compliance with Utah Pollution Discharge Elimination System storm water and erosion control requirements. Our efforts also include project inspection and QA/QC as well as coordinating and working with planning commissions, city councils, and associated staff to make sure projects are designed and constructed correctly. In addition to its' typical City Engineering duties, AQUA has helped Elk Ridge to design several projects ranging from water pipeline replacements, PRVs and booster pump stations, streets improvements and municipal facilities.

Mountain Regional Water District | Principal In Charge

AQUA Engineering serves as contract District Engineer for Mountain Regional Water District. As the District Engineer, AQUA is responsible for assisting the district with water system master planning, design engineering and construction management services for various water system improvements projects. AQUA has completed several water system master plans and capital facility plans for the District as well as designed multiple pump stations, PRVs, storage tanks and an energy recovery facility and the district's flagship water treatment facility. Notable projects include the Signal Hill Water Treatment Plant, a 4MGD micro-filtration membrane plant; the Lost Canyon Booster Pump Station, a 4,000+ horsepower pumping facility that conveys 7,000 Acre-Feet of raw water to through 5 miles of high pressure welded steel pipe to the Snyderville Basin for regional water use by several water service districts including MRW; and the Silver Creek Tank and Pump Station which assists the District with its' sustainability goals by capturing the energy of water moving downhill through the use of micro-turbine, offsetting the District's energy costs by \$300,000 annually.

Education

BS Civil Engineering,
University of Utah, 2003

Registration

Professional Engineer (Structural):
Utah

Work Experience

21 Years

Affiliations

ASCE

Expertise

- Hydro and Civil Structural Design (Storage Tanks, Retaining Walls, Platforms, etc.)
- Pumping System Design
- Industrial Facility Expansion, Remodel and Retrofit
- Hydraulic & Hydrologic
- Computer Modeling
- Facility Plans & Master Plans
- Water Resources Treatment

Darin Hawkes, P.E., S.E. | Principal

Project Experience (continued)

Master Plans, Capital Facility Plans, Planning Documents

Hyrum, UT | Sanitary Sewer Masterplan | Principal-in-Charge, Senior Principal Engineer

AQUA developed a sanitary sewer system hydraulic model and subsequent capital facilities plan as part of the overall master planning process for the city of Grantsville, UT. The project involved mapping, sewer modeling, master planning, capital facilities planning and cost estimation.

Town of Bennett, CO | Custer Bypass Sewer Alignment Study | Principal-in-Charge, Senior Principal Engineer

AQUA assisted the Town of Bennett in identifying the preferred alternative alignment for a new sanitary sewer force main. The Town's sewer collection system was limited in capacity due to a handful of hydraulic "bottlenecks" in the existing collection system. AQUA evaluated five (5) different alternatives to add conveyance capacity to the collection system. The alternatives consisted of gravity, pressurized force main, and a combination of both. The project involved hydraulic modeling, master planning, capital facilities planning and cost estimation.

Northpoint Development | Lakeview Business Park Water & Sewer Master Plan | Principal-in-Charge, Senior Principal Engineer

AQUA developed a sanitary sewer system hydraulic model and subsequent capital facilities plan as part of the overall master planning process related to the development of the Lakeview Business Park, a 15M+ square foot commercial, industrial and warehousing development located in Grantsville, UT. The project involved mapping, sewer modeling, master planning, capital facilities planning and cost estimation.

Grantsville, UT | On-Call Sewer Modeling | Principal-in-Charge, Senior Principal Engineer

AQUA provides on-call hydraulic modeling services to the City of Grantsville to assist with development review and master planning updates.

Grantsville, UT | Sanitary Sewer Masterplan | Principal-in-Charge, Senior Principal Engineer

AQUA developed a sanitary sewer system hydraulic model and subsequent capital facilities plan as part of the overall master planning process for the city of Grantsville, UT. The project involved mapping, sewer modeling, master planning, capital facilities planning and cost estimation.

Town of Bennett, CO | Capital Asset Inventory Assessment & Master Plan | Senior Principal Engineer

In conjunction with several engineering and planning firms, AQUA Engineering developed the water and sewer portions of the Town of Bennett Capital Asset Inventory Assessment and Master Plan. This involved the development of potable water and sanitary sewer hydraulic models for the entire Town. AQUA evaluated the existing systems against planned developments and proposed capital improvements necessary to meet the increased demands of a growing municipality.

Mayflower Mountain Resort Water Master Planning & Design | Principal-in-Charge, Senior Principal Engineer

Engineering Analysis, Hydraulic Modeling, Water Master Planning, Water Storage Tanks, Pump Stations, Flow Control Facilities, PRVs, Utility Design, Project Management

Driggs Idaho Water System Facility Plan | Project Engineer

CAD software water modeling, Planning and system characterization

CAD Water Model Design, Entire system Master Plan. Overseen CAD modeling and report creation and submission.

Western Zirconium Chemical Milling Facility Site Feasibility Study

Senior Principal Engineer

Sage Glen Well Preliminary Engineering Report | Project Engineer

Develop PER as required per Utah Division of Drinking Water Requirements

Rural & sensitive site, New well for upscale development. Completed Well Head Protection Area (WHPA) Analysis and CAD Model. Generated a detailed PER report.

Pole Canyon Wet Utilities Master Plan | Project Engineer

Planning, Survey coordination, CAD Utility Modelling, Cost analysis

Large system master plan for 900+ unit annexation property including, potable water source, storage, & distribution and storm drain utilities. Overseen CAD modeling; project cost estimating and funding analysis; and oversee report creation and submission.

West Wendover Nevada Culinary Water and Wastewater System Master Plan





Daniel Woodbury, P.E. | Project Manager

Phone: 801.683.3759 | **Email:** daniel.woodbury@aquaeng.com

Mr. Woodbury joins AQUA with experience in all aspects of civil design, water management, development, budgeting, and implementing industry standards and practices. Develops policy, plans, budgets and schedules. Director and organizer of operational personnel in public works and water divisions. Provides expert direction to administration in engineering and municipal affairs, including application of engineering standards and practices, regulatory requirements, water rights, resources, and decision-making requiring sound professional judgment. Experienced in hydraulic and hydrologic analysis and design.

Project Experience

City of Oakley, Oakley – Weber Well | Project Manager/Engineer

Oakley Well, grant and loan assistance, drilling well, equipping and housing of pump and motor, chlorination & valving in a new building. 2,000 feet deep aquifer well with 2,000 gpm capacity

Ray Quinney & Neveker, Patsey Marley Water Storage Tank and Pump Station | Project Manager/Engineer

200K gallon capacity tank located adjacent to Alta Ski Resort, 40 hp booster pump station
350 KW generator and emergency fire pump station

Hyrum City, Conservation Plan Update | Senior Project Engineer

Prepared and submitted the Water Conservation Plan (WCP) for the City. Obtained the State approval from the Division of Drinking Water

Hyrum City, 900 West Roadway Improvement | Project Manager/Engineer

Roadway widening, waterline replacement, drainage and irrigation routing and design, and a 3 jacking and boring utility crossing of the Railroad, striping and signing

Assistant Director, Public Works/Water Resources Engineer | City of Riverton

2014-2021 Directed the design and management of public works, including all culinary, pressurized secondary and storm water systems; implemented policy, conducts budgetary analysis, short- and long-term planning, created sustainable efficiencies while enforcing compliance with state, federal, and industry standards; overseen staff of 5 storm water division plus team of 3 secondary meter project contract employees. Successfully prepared federal (USBR) grant applications for award of over \$1.5 million applied to a \$14.5 million secondary water metering project.

Significant Riverton City Projects

- 11800 South culinary water metering/pressure reducing valve vault
- 13150 South design/construction management of road rebuild, culinary and secondary water line
- Design and implementation of secondary metering project
- Lovers Lane culinary water line replacement and road reconstruction project
- \$4.5M, 5-million gallon reinforced concrete storage tank
- Referendum and hearings process, design, and CM of conversion of deep well water to Jordan Valley Water Conservancy District purchase agreement

Chief Engineer, Sandy City Department of Public Utilities, June 2002 - July 2014

Coordinated and approved utility design, expansion, modification, and installation for all commercial and residential development; fast-tracked a \$6.5 million storm drain outfall project comprising 6 miles of concrete pipeline and box culvert; implemented capital improvement projects: well drilling and development with pump station design and construction, water/storm drain pipeline installation; launched new storm water division, drafted ordinance adopted by city council and hired staff to operate newly created division; and managed engineering team and crew of public utility inspectors.

Project Manager, Carollo Engineers, Inc. Salt Lake City, January 1991 - June 2002

Implemented storm water utility for Salt Lake City
Engineered SLC storm drain master plan; engineer for model development and analysis of drainage basins
Lead engineer; drainage design for Bangerter Highway; 700 East; and other roadway projects

Education

Bachelor of Science, Civil Engineering,
Brigham Young University, 1983

Registration

Professional Engineer: UT

Certifications

Department of Environmental Quality
Water Distribution Operator: Grade IV
Instructor for Registered Stormwater
Inspector/Registered SWPPP Writer
Certifications

Work Experience

40 Years

Affiliations

ASCE: Past President; Secretary/Treasurer
AWWA
APWA
USWAC: Past Chairman

Expertise

- Hydraulic & hydrologic analysis & design
- Water Resource Projects
- Master Planning
- Capital Improvement Plans (CIP)
- Hydraulic Modeling
- Pump Stations
- Large Diameter Pipeline Design
- Jacking & Boring
- Process Treatment
- Drainage & Stormwater
- Construction Management
- Sewer Collection

Dan Woodbury, P.E. | Project Manager

Project Experience (continued)

Notable Previous Projects

Water Resource Projects

- Central Utah Project Completion Act – Uintah Basin Replacement Project: \$240 M
- Wasatch County Water Efficiency \$4.5 M Project - CUP (10 pump stations)
- Jordan Valley Water Conservancy District flash mixing station
- Corps of Engineers/SL County Upper Millcreek diversion, conveyance, retention, USU hydraulic model
- Southeast Regional Water Treatment Plant upgrades: \$6.5 M Jordan Valley Water Conservancy District Actiflow System – Civil site design, yard and mechanical piping; On-site Resident Engineer

Storm Drain

July 2014-2021

Assistant Public Works Director/Water Resources Engineer | City of Riverton

- Directed the design and management of public works, including all culinary, pressurized secondary, and storm water systems

Significant Riverton City Projects

- Design and CM of 2800 linear feet of 12-inch waterline replacement and 2,000 feet of 36-inch RCP Storm Drain realignment and road rebuild in Stone Ridge Lane

June 2002-July 2014

Chief Engineer, Sandy City Department of Public Utilities

- Fast-tracked a \$6.5 million storm drain outfall project comprising 6 miles of concrete pipeline and box culvert
- Implemented capital improvement projects: well drilling and development with pump station design and construction, water/storm drain pipeline installation
- Launched new storm water division, drafted ordinance adopted by city council and hired staff to operate newly created storm water division

Significant Sandy City Storm Water Projects

- | | | | |
|--|----------|---|---------|
| • 8600 South Storm Water Project | \$6.5 M | • Falcon Dr. Storm Water Project | \$2.2 M |
| • High Point Storm Water Project | \$2.3 M | • Highland Drive Storm Water Project | \$1.2 M |
| • Wayside Drive Storm Water Project | \$0.5 M | • 11400 South Storm Water Project | \$1.4 M |
| • Detention Basin Rehabilitation Project | \$0.75 M | • South East Quadrant Storm Water Project | \$1.0 M |
| • 9400 South Storm Water Outfall Project | \$2.2 M | • Windy Peak Storm Water Project | \$1.2 M |
| • Storm Water Master Plan & Rate Study | \$0.1 M | | |

January 1991-June 2002

Project Manager, Carollo Engineers, Inc. Salt Lake City

- Implemented storm water utility for Salt Lake City
- Engineered SLC storm drain master plan; engineer for model development and analysis of drainage basins
- Lead engineer; drainage design for 2-1/2 miles of Bangert Highway-5400 S to 9000 S; including six major canal crossings, a box flume and a railroad crossing over the highway, RCP and CMP stormwater piping (18-inch through 84-inch), a 7-1/2 acre-foot combination detention/recreation basin and related utility crossings. 700 East-7200 S to Casa Negra Drive; and other roadway projects
- Drainage and storm water design for 700 East – 7200 S to Casa Negra Drive for UDOT

Sewer

Murray City 5600 South Sewerline Bypass

A 15-inch diameter, 2500 foot long gravity bypass sewer line was designed, bid, and built in a fast track scenario because of a flooding failure to the existing line. Dan performed the design and oversaw the construction of the new bypass line.

Murray City Sewer Collection System Model

Dan built a sewer model from scratch for the entire City of Murray using Sewer modeling software. That software became obsolete and was upgraded to EPA Sewer.

Murray City 500 West Sewer Collection Lift Station

The City was decommissioning the Wastewater Treatment Plant to connect into the new Central Valley Water Reclamation Facility (CVWRF) there was one leg of the old WWTP outfall sewer that didn't have enough grade to gravity flow to the new outfall to CVWRF. Dan designed a new 2 submersible pump lift station and wet well to be built in the corner of the old WWTP so that the site for the old plant could be cleaned and sold for development. The new lift station had a capacity of 2200 gpm with a double redundancy and emergency backup power.



Naho Garvin, PE | Project Engineer

Phone: 801.300.3769 | **Email:** naho.garvin@aquaeng.com

Ms. Garvin's experience focuses on design and project management of municipal water and wastewater treatment, as well as industrial wastewater treatment. She has handled all aspects of the projects including; proposal writing, engineering reports, process design, technical engineering design, production of bid documents including the design drawing set and technical specification, construction management and support including but not limited to; submittal review, site inspections, response to inquiries, training, startup, and permit applications. Her designs have incorporated multiple process of the wastewater treatment including collections, pump stations, headworks, primary treatment, secondary biological and/or mechanical processes, tertiary treatment and filtration, disinfection, digesters, solid handling/dewatering, energy/resource recovery, biogas production, and nutrient removal and recovery.

Project Experience

Hyrum City WRF Upgrade | Project Manager

Proposal writing for USDA funding, managing communication with USDA. Process design and calculation, building and process equipment configuration, hydraulic modeling. Construction management, management of other engineers working on the design

JBS Swift Beef DAF Upgrade | Project Manager

Process design, site, building, and process equipment configuration, hydraulic modeling, construction management, management of other engineers working on the design

Calico Ghost Town Advanced Wastewater Treatment | Project Manager

Process design and calculation, building and process equipment configuration, hydraulic modeling, construction management

Intermountain Pretreatment Building | Project Manager

Process design, site, building, and process equipment configuration, hydraulic modeling, construction management, management of other engineers working on the design

Hooper Water Improvement District | Project Manager

Process design and calculation, site, building, and process equipment configuration, hydraulic modeling, construction management, management of other engineers working on the design

Wasatch Resource Recovery | Project Engineer

Process design, building and process equipment configuration, hydraulic modeling, construction management

Nutrient Removal & Recovery Project - South Davis Sewer District, Utah | Project Engineer

Process design, site, building, and process equipment configuration, hydraulic modeling, construction management

Provo City Wastewater Treatment Facility | Project Manager

Process design, process equipment configuration, hydraulic modeling, construction management

Las Gallinas Valley Sanitary District | Project Manager

Process design, process equipment configuration, hydraulic modeling, construction management

FERTCO Indiana Blending Facility, Fair Oaks IN | Project Engineer

Process implementation, building design and process configuration, controls and operations

Salt Lake City WRF – WAS Thickening Facility | Project Engineer

Process design, process equipment configuration, hydraulic modeling, construction management

City of Las Vegas Wastewater Treatment Facility - Las Vegas, NV | Project Engineer

Process design, hydraulic calculations, construction management

Western Riverside County Regional Water Authority, CA Expansion Plan | Project Engineer

Process design, anaerobic digester upgrade, solids handling and drying

Education

BS Environmental Engineering,
Utah State University, 2009

MS Environmental Engineering,
Utah State University, 2012

Registration

Professional Engineer:
Utah

Work Experience

16 Years

Affiliations

WEAU
WEF

Expertise

- Permitting
- Wastewater/Treatment
- Water Treatment
- Wastewater Reuse
- Mechanical Installations
- Lagoon Treatment
- On-Site Treatment
- Sewer Collection

Naho Garvin, PE | Project Engineer

Project Experience (continued)

UPDES Permit

2022	Heber Valley Special Service District Permit Application
2022	Oakley Permit Renewal
2021	Mayflower Mine Permit Application
2021	Rocky Mountain Resort Permit Application
2019	Snowbasin Permit Renewal
2019	Hyrum City WRF Permit Renewal
2018	Grantsville Permit Renewal
2015	Caspers Ice Cream Permit Renewal

Facility Planning/Other Reports

2020	Timpanogos SPCC Report
2015	Payson City Facility Planning
2015	Spanish Fork City Facility Planning
2015	Heber Valley Sanitary Sewer District – Heber, UT
2014	Mountain Green Wastewater Treatment Lagoons – Mountain Green, UT
2013	Springville, UT – Five-year Budget Analysis
2010-12	Logan City Wastewater Lagoon Algae Biofuel Project
2009	Wellsville City Wastewater Lagoon Treatment Analysis

Industrial Pre-Treatment System Design

2022	Bech's Sanitation - Salt Lake City, UT
2019	JBS Swift Beef – Hyrum, UT
2016	Horizon Foods – Salt Lake City, UT
2015	Mountain Country Foods – Spanish Fork, UT
2014	Circle V Meats – Spanish Fork, UT

Local Limit Development

2022	Timpanogos Special Service District
2020	Hyrum City WRF
2017	Spanish Fork WWTP
2017	City of Beaumont, California
2016	Springville, UT
2015	North Fork Special Service District – Utah County, UT
2015	Orem Pretreatment Program
2014	City of Driggs, Idaho



Michael Maughan, P.E. | Project Engineer

Phone: 801.683.3750 | Email: michael.maughan@aquaeng.com

Mr. Maughan has 7 years of experience. His current focus has been municipal civil engineering and water resources. Mr. Maughan works and assists on projects from permitting to construction. His responsibilities include permitting, design, construction documentation and assisting with construction management for the project. He has assisted in multiple Municipal Capital Facility Plans and Master Plans for drinking water and wastewater systems.

Project Experience

Hyrum City, Public Works Projects | Project Engineer
Civil, Mechanical Design, and Construction Management

Lakeview Business Park Water & Sewer Master Plan | Project Engineer
Project management, engineering analysis, hydraulic modeling, utility master planning, and design

Mayflower Mountain Resort Water Master Planning | Project Engineer
project management, engineering analysis, hydraulic analysis and modeling, and water master planning

Bennett, Co, Capital Asset Inventory Assessment & Master Plan Update | Project Engineer
Analyzed the existing water system and prepared water system master plan

Grantsville City Water Rights Capital Facilities Plan & Impact Fee Analysis Update |
Project Engineering | Utility Analysis and Planning

Mayflower Mountain Resort, 1.2 MG Tank | Project Engineer
Structural and Mechanical Design, Construction Management

Mayflower Mountain Resort, Tank 2 and Pump Station 1 | Project Engineer
Civil, Structural, Mechanical Design and Construction Management

Oakley Cattail Well (Weber Well) | Project Engineer

Mountain Regional Water Special Service District | Silver Creek Water Tank - 2MG |
Project Engineer

Utah Valley University Irrigation Well | Project Engineer
Civil, Structural, Mechanical Design

North Replacement Well Project – Grantsville, UT | Project Engineer
Civil, Structural, and Mechanical Design and Construction Management

Bennett, Co, Water Storage Tank and Booster Pump Station | Project Engineer
Project management, Engineering analysis, hydraulic modeling, structural design, pump design, and site utility layout design

Mountain Regional Water, Hidden Creek PRV & Booster | Project Engineer
Structural, mechanical and civil design, construction management and engineering analysis

Park City, UT, JSSD-PCMC Deer Crest Pump Station | Project Engineer
Prepared cost analysis, environmental, permitting and design for new booster pump station and pipeline

Johnstown, Co, Low-Point Wastewater Treatment Plant Expansion | Project Engineer
Structural design

Western Zirconium, Plan Area 16 Ammonia Platform | Project Engineer

Fly Ash Landfill Storm Water Infrastructure Analysis | Project Engineer

Grantsville, Ut, Quirk Street Sidewalk Project TAP | Project Engineer

Education

B.S. Civil Engineering,
Utah State University, 2016

M.E. Civil Engineering,
Utah State University, 2016

Registration

Professional Engineer:
Utah

Work Experience

7 Years

Expertise

- Capital Facilities Planning
- Water Storage and Distribution
- Surface Water Hydrology
- Storm Water Management
- Sewer Collection
- Permitting
- Project Manual Preparation
- Development Plan Review
- Structural Analysis
- Hydraulic Modeling



Hayden Karren | Project Engineer

Phone: 801.683.3728 | **Email:** hayden.karren@aquaeng.com

Hayden Karren has experience in utility layout and pumping system design. As part of the AQUA team, he has assisted in various types of projects involving culinary water and wastewater to help produce effective solutions for clients.

Project Experience

Mayflower, 1.2 Million Gallon Water Storage Tank | Project Engineer
Construction Management

Oakley City, Drinking Water Source Protection Plan Update | Project Engineer

Mountain Regional Water, Glenwild Booster Station Upgrade | Project Engineer
Mechanical Design

Marion Waterworks Company, Peterson Well Drilling Project | Project Manager/Engineer
Civil, Mechanical Design & Construction Management

Hyrum City, Public Works Projects | Project Engineer
Civil, Mechanical Design

Caspers Ice Cream, 2022 Source Projection Plan | Project Manager/Project Engineer
Permitting

Hidden Lakes Association, System Upgrades PER | Project Engineer
Hydraulic Model Design

Salt Lake Service Area #3 | Project Engineer
Civil, Mechanical Design

West Wendover, West Wendover Boulevard Rehabilitation Project | Project Engineer
Civil Design

Heber Valley Special Service District, Reclaim Pump Station | Project Engineer
Civil, Structural, Mechanical Design & Construction Management, project management, conducting construction meetings, and coordinating with all associated parties

Colorado Town of Bennett, Sewer Alignment Study | Project Engineer
Civil Design, Engineering Report

Wasatch Peaks Ranch Utility District | Project Engineer
Civil, Mechanical Design

Hyrum City, Hammer Road Project | Project Engineer
Civil Design

Durfee Street Sidewalk TAP 2018 Project | Project Engineer
Civil Design & Construction Management

Snowbasin Resort, Lagoon Expansion | Project Engineer
Civil, Mechanical Design

Education

BS Civil Engineering,
Utah State University, 2018

Work Experience

5 Years

Affiliations

ASCE

Expertise

- Pumping System Design
- Utility Layout Design
- Specification Review
- Document Management
- Water Resources Treatment
- Cost Estimate Projection
- Sewer Collection



Larry Hall – Operations Manager

P: (801) 209-6238, E: larryh@aquaenviron.com

Mr. Hall has 25 years of experience in the Water and Wastewater industry. During that time he has worked in many capacities at a variety of facilities, including public and private facilities as well as municipal and industrial treatment plants. Mr. Hall has been an operator, lead operator, facility manager, department head and consultant in wastewater treatment and collections, as well as drinking water treatment and distribution. Mr. Hall also participates in a range of training courses, including the annual Hazardous Waste Management course offered by the Department of the Army. He has a hands-on, working knowledge of The Clean Water Act and the Safe Drinking Water Act.

Work Experience

25 Years

Education

University of Utah
Utah State University
Utah Valley State College

Certifications

Grade IV Wastewater
treatment plant operator,
UT, NV

Grade IV Water
Distribution, Utah
Utility Management, RWA
UT, CO

Specialties

- Operations
- Operations Consulting
- Facility Management
- Operation Training

Project Experience

Kennecott Utah Copper, General Services | Project Manager

Aspen Acres Disinfection | Project Manager

Courthouse Wash Water LLC, O & M | Project Manager

Peterson Plumbing Supply | Project Manager

Complete Contracting Company | Project Manager

Young Living Farms | Project Manager

Corrio Construction, Inc | Project Manager

Payson Fruit Growers | Principal/Project Manager

AQUA Engineering, General Services | Project Manager

Parowan City Corporation | Project Manager

Roy City Corporation | Project Manager

City of Richmond | Project Manager

Town of Edgewood | Project Manager

Zero Manufacturing | Project Manager

KB Construction | Project Manager

Emigration Brewing Company | Project Manager

Ruth's Diner, Water | Project Manager

Taylor West Weber Water | Project Manager

Horrocks Engineers, Francis, Utah | Project Manager

Dynamics, Inc | Project Manager

Grantsville Public Works, Grantsville Irrigation | Project Manager



Larry Hall – Operations Manager

Project Experience (continued)

Powder Mountain Water and Sewer Improvement District | Project Manager

Nestle USA, Nestle Dryers | Project Manager

Weber Meadowview Ranch | Project Manager

Asahi Refining | Project Manager

SKM Engineering, General Services | Project Manager

Total Power and Controls, General Services | Project Manager

Pioche Public Utilities | Project Manager

State of Utah/Millcreek Youth Center | Project Manager

Maple Ridge Ranches - Cougar Canyon Residents | Project Manager

Panaca Farmstead Association | Project Manager

Teton Water and Sewer Company | Project Manager

Huntsville City, General | Project Manager

Oakley City, Oakley Maintenance | Project Manager

Western Quality Foods, Annual Meter Cal/Report | Project Manager

Kennecott Utah Copper, WWTP Hypochlorite System | Project Manager

East Zion Special Service District, Flow Meter Replacement | Project Manager

Mountain Green Improvement District | Project Manager

Morgan City Treatment Facility | Project Manager

Mexican Hat Special Service District | Project Manager

Wolf Creek Wastewater Treatment Plant, O and M and DRC | Project Manager

Emigration Improvement District, Operations | Project Manager



Susan C. Becker, AICP

Vice President

Zions Public Finance, Inc. | Municipal Consulting Group

For the past 29 years, Susie has specialized in fee studies and economic consulting and planning and has been the lead consultant on some of the largest and most challenging projects in the intermountain region, including funding mechanisms for the large Point of the Mountain project that spans Salt Lake and Utah counties, has testified before the Governor's Legislative Task Forces on economic policies and procedures in Utah and in impact fees, has been involved with numerous fee studies, as well as the creation of a multitude of community reinvestment areas. Her experience stretches from issues such as affordable housing concerns in resort communities like McCall, ID, to redevelopment of a large deteriorating commercial center in Mesa, AZ – the Fiesta District to utility rates for a newly-incorporated entity. She has a MBA degree, AICP and a securities license (Series 50 and 52).

Education

Master of Business Administration,
University of Utah
MBA Ace and Dean's Scholar
Bachelor of Arts, Humanities,
Brigham Young University

Public Service and Affiliations

Municipal Securities Registered
Representative
American Institute of Certified
Planners (AICP)
University of Utah Business School
Alumni Association Board of
Directors
Urban Land Institute, Mentor
Utah Redevelopment Association
Utah Economic Alliance
Utah League of Cities and Towns,
Land Use Task Force
WFRC Economic Development

Selected Presentations

"Downtown Revitalization," Utah
League of Cities and Towns
"Basics of Market Analysis," Main
Street Annual Conferences
"Weathering the Economic Storm,"
Utah League of Cities and Towns
"Redevelopment in Utah," Utah
County and Davis County Economic
Alliance
"The Marriage of CDAs and SAA's,"
Utah League of Cities and towns
"Downtown Revitalization and
Economic Development,"
University of Utah School of
Architecture
"Economics and Planning," Utah
League of Cities and Towns
"Economic Development Policies and
Practices," Governor's Economic
Task Force and Utah Economic
Alliance
"Rate Sustainability Amid COVID-19,"
AWWA

- Timpanogos Special Service District (TSSD) Impact Fees and Rates
- Saratoga Springs Planning & Development Fees
- Grantsville Planning & Development Fees
- South Salt Lake City Planning & Development Fees; Business License Fees
- Highland City Cemetery Fees
- Summit County Planning & Engineering Fees; Landfill Fees
- Mountain Regional Water Rates and Impact Fees
- Lehi Culinary Water and PI Rates
- Mt. Olympus Improvement Dist. IFA and Rates (ongoing)
- Granger-Hunter Improvement Dist. IFA and Rates (ongoing)
- Farmington Impact Fees – Water, Storm and Roads
- Clearfield City Culinary Water, Sewer and Storm Rate Impact Fees and User Rates
- Herriman Water Rates
- Saratoga Springs Storm and Sewer User Rates
- Saratoga Springs Parks and Recreation, Public Safety, Storm Water and Transportation Impact Fees
- Moab Water and Sewer Rates and Impact Fees
- Syracuse Impact Fees
- Herriman Impact Fees
- Layton Park and Transportation Impact Fees
- Marriott-Slaterville Secondary Water Fees
- Orem City Impact Fees
- Provo City Impact Fees
- Plain City Impact Fees
- Pleasant View Culinary Water & Storm Water IFAs and Rates
- South Weber Culinary Water and Sewer IFAs and User Rates
- North Salt Lake Culinary Water and PI User Rates
- Salem City Water and PI Rates
- Park City Impact Fees
- North Fork SSD Rates
- Heber City Utility Rates
- Riverton Fire Impact Fees
- Unified Fire Service Area Impact Fee



Aaron C. Sanborn

Vice President

Zions Public Finance, Inc. | Municipal Consulting Group

Although new to ZPFI, Aaron has nearly a decade of experience with local government and municipal research. Prior to joining ZPFI, Aaron worked for Eagle Mountain City as a management intern, Financial & Management Analyst, and as Economic Development Director. He was also heavily involved in local government while still in his MPA program, working on several consulting projects with Utah cities.

As economic development director, Aaron has been heavily involved in the commercial boom Eagle Mountain is currently experiencing. From providing analytical support, coordinating marketing, or directing business development, his efforts have resulted in over \$2.225 billion in direct investment in Eagle Mountain City. This includes the large investments by Meta (2018), Tyson Fresh Meats (2019), and Google (2021).

Education

Master of Public Administration, Brigham Young University

Bachelor of Arts, History, Brigham Young University

Public Service and Affiliations

Utah Alliance for Economic Development

International Economic Development Council

International City/County Management Association

ICMA BYU Student Chapter President

Eagle Mountain Chamber of Commerce Board of Directors

Aaron's experience includes:

- Municipal Fleet Analysis for multiple cities in Utah
- Clearfield City Performance Measurements
- Utah Office of Tourism "Welcome Center" Software Analysis
- Lehi City Annual Citizen Satisfaction Survey Statistical Analysis
- American Fork Streetlight Purchase Cost & Benefit Analysis
- BYU MPA Program Analysis
- Eagle Mountain Gas & Electric Utility Sale
- Eagle Mountain Utility Rate Analysis
- Eagle Mountain Police Service Delivery Analysis
- Eagle Mountain Information Technology Service Delivery Analysis
- Creation of Eagle Mountain Chamber of Commerce
- Creation of Eagle Mountain Neighborhood Match Grant Program
- Creation of Eagle Mountain City Annual Budget Document
- Creation of Eagle Mountain City Annual Comprehensive Financial Report
- Creation of Eagle Mountain City Popular Annual Financial Report
- CRA Creation for Meta, Tyson, and Google projects
- Eagle Mountain Economic Development Master Plan
- Bountiful General Plan
- Salt Lake County Leverage Ratio Analysis
- Twin Falls Bridge Alternatives Economic Analysis
- Point of the Mountain Transit Alternatives Analysis
- Point of the Mountain Funding Analysis
- Payson Station Area Plan
- Vineyard Station Area Plan
- Clearfield Station Area Plan
- South Salt Lake City Area Plan
- Salem Transportation Impact Fees
- Centerfield Impact Fees – Culinary Water, Secondary Water, Wastewater
- Saratoga Springs Downtown Plan



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