



NORTH SAN MATEO COUNTY SANITATION DISTRICT

a subsidiary of the City of Daly City

333 – 90TH STREET, DALY CITY, CALIFORNIA 94015-1895

(650) 991-8127

Regular Meeting - SANITATION DISTRICT

AGENDA

Monday, April 24, 2023 - 6:45 PM

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1. To submit a comment in writing, please visit www.dalycity.org/agendas and complete the Public Comment form. In the comment field box, include the item number and/or title of the item as well as your comments. Public Comments may also be emailed to gchow@dalycity.org by including "Public Comment" in the subject line. All written comments received by 4:00 pm on meeting day will be provided to Board members prior to the meeting. Comments are not read aloud into the record.

Please note: Any written comments received after 4:00 p.m. on the meeting date is not guaranteed to be received by the Board members prior to the meeting.

2. To speak at the meeting in person, please complete a Speaker Card located at the entrance to the Council Chambers and submit to a Staff Member as early in the meeting as possible.

Persons with disabilities who require auxiliary aids or services in attending or participating in this meeting should call the office of the Board Clerk at 991-8200 as soon as possible.

AVAILABILITY OF PUBLIC RECORDS:

All public record to an open session item on this agenda, which are not exempt from disclosure pursuant to the California Public Records Act, that are distributed to a majority of the legislative body will be available for public inspection at the City Clerk's Office, City Hall located at 333 90th Street, Daly City, CA during normal business hours, at the same time that the public records are distributed or made available to the legislative body.

CALL TO ORDER:

ROLL CALL:

APPROVAL OF AGENDA:

CONSENT AGENDA

All items listed on the Consent Agenda are considered to be routine and may be approved by one roll call vote of the Board of Directors. There shall be no separate discussion of the matters on the Consent Agenda unless requested by a member of the Board. If discussion is required, that item will be removed from the Consent Agenda and will be considered separately at the end of the Agenda.

Minutes:

1. Regular Meeting of April 10, 2023

Action Items:

END OF CONSENT AGENDA

PUBLIC APPEARANCES/ORAL COMMUNICATIONS

Speakers are limited to two minutes unless modified by the Chair. The District cannot take action on any matter raised under this item.

NEW BUSINESS

2. Wastewater Treatment Facility Master Plan

REPORTS:

3. Board of Directors
4. Staff

ADJOURNMENT:

REGULAR MEETING - BOARD OF DIRECTORS

MINUTES

April 10, 2023

The Board of Directors of the North San Mateo County Sanitation District convened in a Regular Meeting on April 10, 2023, in the City Council Chamber, City Hall, 333 - 90th Street, Daly City, California.

The meeting was called to order by Chairman Ray Buenaventura at 6:45 p.m.

ROLL CALL:

Present: Daus-Magbual, DiGiovanni, Sylvester, Manalo, Buenaventura

Absent: None

Staff Present: General Manager Thomas Piccolotti, District Counsel Rose Zimmerman, Director of Water and Wastewater Resources Joshua Cosgrove, Acting Assistant Director of Water and Wastewater Resources Greg Krauss, Deputy Director of Finance Abby Veaser, Assistant to the City Manager Leilani Ramos, and Office Assistant II Ester Cabral as Recording Secretary.

APPROVAL OF AGENDA:

Motion was made, seconded (DiGiovanni/Manalo) and unanimously approved.

CONSENT AGENDA:

1. Minutes of Regular Meeting of February 13, 2023
2. Sewer Service Charge Appeals – Fiscal Year 2022-2023
3. Acceptance of Required Inspection and Repairs to the Wastewater Treatment Facility's (WWTF) Submarine Outfall Pipe

Motion was made, seconded (Manalo/Daus-Magbual) and unanimously approved.

NEW BUSINESS:

None.

REPORTS:

4. Board of Directors

None.

5. Staff

None.

ADJOURNMENT:

At 6:46 p.m., call of adjournment of Regular Meeting by Chairman Ray Buenaventura.



North San Mateo County Sanitation District

a subsidiary of the City of Daly City

Meeting Date: April 24, 2023

Subject: Wastewater Treatment Facility Master Plan

Recommended Action

Authorize the General Manager to enter into a professional services agreement with Hazen and Sawyer to perform a Master Plan for the Wastewater Treatment Facility (WWTF) in an amount not to exceed \$816,820.

Background

The North San Mateo County Sanitation District (District) WWTF was first constructed and put into operation in 1955; upgrades and expansions were done in 1977, 1989, and 2004. The Facility treats approximately five to six million gallons of wastewater per day and discharges its effluent (treated water) into the Pacific Ocean. It is regulated through the National Pollutant Discharge Elimination System (NPDES) permit issued by the State.

Many of the structures and equipment at the Facility are either at the end of the useful life or require significant maintenance to extend the useful life. To continue the proper operation and treatment of the wastewater that flows from the District customers, and to continue to meet the NPDES permit requirements, the replacement and/or rehabilitation of much of the structures and equipment are needed.

Discussion

District staff sent out Request for Proposals to experienced and qualified engineering firms to perform a Master Plan. The District received proposals from two qualified firms; Hazen and Sawyer and Carollo Engineers. Both proposals were thoroughly reviewed and the teams from both firms were interviewed. After this rigorous process staff is recommending the Board authorize the General Manager to move forward with Hazen and Sawyer and enter into a professional services agreement with the firm.

Fiscal Impact

Funding is available for this action in the Capital Project 87-920-800-4534 Wastewater Master Plan.

Summary/Conclusion

Authorize the General Manager to enter into a professional services agreement with Hazen and Sawyer to perform a Master Plan for the Wastewater Treatment Facility (WWTF) in an amount not to exceed \$816,820.

Staff is available to provide any additional information desired by the Chair or Members of the Board of Directors.

Respectfully submitted,

A handwritten signature in blue ink that reads "Joshua Cosgrove".

Joshua Cosgrove
Director of Water and Wastewater Resources

A handwritten signature in black ink that reads "Gregory Krauss".

Gregory Krauss
Chief of Operations

Attachment 1: Hazen and Sawyer Proposal

November 14, 2022

North San Mateo County Sanitation District, as subsidiary to the City of Daly City
143 Lake Merced Boulevard
Daly City, CA 94015

Re: Wastewater Treatment Facility Master Plan

Dear Joshua Cosgrove and Dr. William K. Faisst:

Over the past several years, the Hazen team has had the opportunity to work at your Wastewater Treatment Facility (WWTF). Through that work, we have come to appreciate and understand the challenges you face as you develop a roadmap for the future. These challenges include aging infrastructure, capacity to meet future demands, rising biosolids management costs, changing regulatory requirements, and climate change. We are ready to partner with you to determine a path to the future. To do this, Hazen will bring the following to Daly City:

- **Recent and Relevant Experience.** The Hazen team has been working on master plans across the Bay Area over the past five years. To date, we have completed master plans for Napa San, Delta Diablo, San Francisco Airport, and Vallejo Flood and Wastewater District. In addition, we have provided in depth planning services for the Town of Windsor, City of Santa Rosa, and Union Sanitary District.
- **A Proven Approach.** From our recent experience, we have applied our 3-step process – Comprehend, Explore, Converge. Our proven, step-by-step, process to master planning produces clearly defined projects with a business plan for Daly City to execute. Leveraging our expertise across all technical, operational, and business functions required for Daly City to successfully implement a plan sets us apart. Our understanding of your facilities means that our team will hit the ground running saving you time and cost.
- **A Local Team You Know.** Our project manager, Rion Merlo, has been working at Daly City over the past two years and brings an understanding of the challenges at the WWTF. In addition, he brings master planning experience over the past two decades having worked on master plans for EBMUD, San Jose, and the City of Hayward. Rion will work closely with Project Director, Paul Pitt, who has been working with you helping solve challenging treatment problems, as well as Riley Murnane who is managing the aerator replacement project.

We have had tremendous success with our approach to master planning, and the key to this success has been listening to our clients and finding ways to turn their challenges into opportunities. The Hazen team is fully committed to Daly City to help you set a roadmap toward a future of reliable service at the WWTF.

Very truly yours,



Rion Merlo, PhD, PE, PMP
Project Manager
(510) 499-7466 | rmerlo@hazenandsawyer.com



Paul Pitt, PhD, PE, BCEE
Project Director
(925) 285-9810 | ppitt@hazenandsawyer.com

Hazen has reviewed Professional Services Agreement (Exhibit A) and finds that it is acceptable for the basis of negotiations.

Firm Qualifications

The Hazen team will provide the City with a master plan designed to address immediate critical needs while setting the WWTF up for an evolving future. Working with the City, we will package the solutions into right-sized CIP projects that are incremental and affordable.

We bring innovative thinking and leaders who keep client needs at the forefront of every decision. Hazen is a leader in the water and wastewater industry, aiding cities, counties, districts, and municipalities who **serve more than 75% of the U.S. population.**

By providing excellent engineering services to our clients, Hazen has grown to more than 1,500 employees in 63 offices. Engineering-News-Record has listed Hazen as the top firm in the nation focused entirely on the water and wastewater market. **As a water-only firm, we bring unique expertise and specialists to each project.**

The following four projects from the past five years align with the City's scope and have been delivered on time and on budget.

Resource Recovery Facility Master Plan

Delta Diablo Resource Recovery Facility, Antioch, CA

The Delta Diablo (District) Resource Recovery Facility (RRF) serves 214,000 customers within the cities of Antioch, Pittsburg, and unincorporated Bay Point. The District owns and operates the 31-mgd RRF, which includes a 13-mgd recycled water facility and sewer conveyance (including flow equalization and pumping stations). Similar to other Bay Area municipalities, the RRF is at a point in its life-cycle when significant capital expenditures are required to rehabilitate and replace aging infrastructure. To allow these investments to be made holistically and in consideration of future loads and regulatory requirements, the District selected Hazen to prepare a master plan for the RRF.

Hazen's approach to the project followed **comprehend, explore, and converge** steps to yield a trigger-based roadmap of capital projects. This proven approach ensured stakeholder agreement at each phase of the master planning project and that only accurate assumptions and viable alternatives are carried forward to the final project deliverables. The completed master plan is a concise document that has offered the District a path forward that balances aging infrastructure, capacity, future nutrient regulations and bioenergy goals. Clearly defined CIP projects and time lines were established and an interactive story map tool was developed to communicate the CIP to stakeholders.

Reference: Brian Thomas, Engineering Services Director/District Engineer, (925) 756-1928, briant@deltadiablo.org

By the Numbers



1951

Firm Established



1,500+

Employees



250

Master Plans



7

Master Plans in the Bay Area in the Last Five Years



Relevant Staff: Rion M., Paul P., Irene C., Marc S., Derya D., Sean P., Allan B., Wendell K.

Ten Year CIP Development and Biosolids and Energy Design Projects

Goleta Sanitary District, Goleta, CA

Hazen worked with GSD staff to identify and combine projects from the asset management business case evaluation priority list to develop capital improvements projects for the next 10 years. In addition, Hazen has been designing biosolids improvements projects that include a new digester, combined heat and power engine (CHP), high-strength receiving station and thermal dryer.

Reference: Steve Wagner, General Manager, (805) 967-4519, swagner@goletasanitary.org



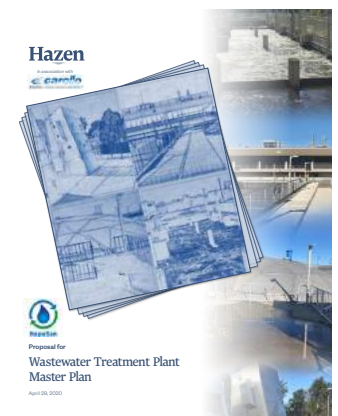
Relevant Staff: Rion M., Sean P., Marc S., Riley M., Mo A.

Wastewater Treatment Master Plan

Napa Sanitation District, Napa, CA

Napa Sanitation District (NapaSan) selected Hazen to develop a master plan for its Soscol Water Recycling Facility (SWRF). The NapaSan serves approximately 82,000 people in a 21 square mile area that comprises the City of Napa and surrounding unincorporated areas. The master plan touched on every facet of treatment, from influent pumping, liquid and biosolids treatment, and recycled water distribution. The master plan also included an evaluation of vulnerabilities as well as susceptibility to climate change factors such as flood, wildfire risk and public safety power shutoffs.

Reference: Matt Lemmon, PE, Senior Engineer, (707) 258-6004, mlemmon@napasan.com



Relevant Staff: Rion M., Sean P., Marc S., Riley M.

Water Reclamation Plant Facilities Master Plan

City of San Bernardino Municipal Water Department, CA

The Water Department needed to make necessary improvements at their WRP to reduce air emissions to comply with the requirements of Southern California Air Quality Management's (SCAQMD) Rule 1110.2 and 1118.1. Hazen was selected to evaluate equipment options and develop a preliminary and detailed design for three major projects:

1. New ultra-low emission flare and replacement of exiting flare
2. Replacement of DG-ICE driven blowers with high efficiency electric turbo blowers
3. New digester gas holder system to provide feed to a new fuel cell system

This project included the following relevant improvements: new ultra-low emission flare and replacement of existing low emission flare; electrical distribution, instrumentation and controls improvements; and stand-by power.

Reference: Kevin Steward, Director of Reclamation, (909) 454-5651, Kevin.Steward@sbmwd.org



Relevant Staff: Sean P.

Team Qualifications

We have assembled an accomplished and cohesive team of experts that will form a collaborative partnership with the City to map out multiple pathways to achieve your short- and long-term objectives.

The requirements of this project fall directly within Hazen’s areas of expertise as a leading wastewater engineering firm and our people are the reason behind that reputation. Our team embodies client responsiveness, technical excellence, and collaborative leadership. Our team is comprised of highly-skilled, responsive staff located in the bay area and across California supported by our firm’s deep bench of technical experts committed to the District. The Hazen ethos is to assign the right engineers to the right project with experts committed to the project from beginning to end. This allows our project team to integrate experience and lessons learned from utilities across the country in a cohesive and efficient manner. As illustrated by the organizational chart to the right, our full service team will partner with your staff over the course of this project to develop a robust master plan.

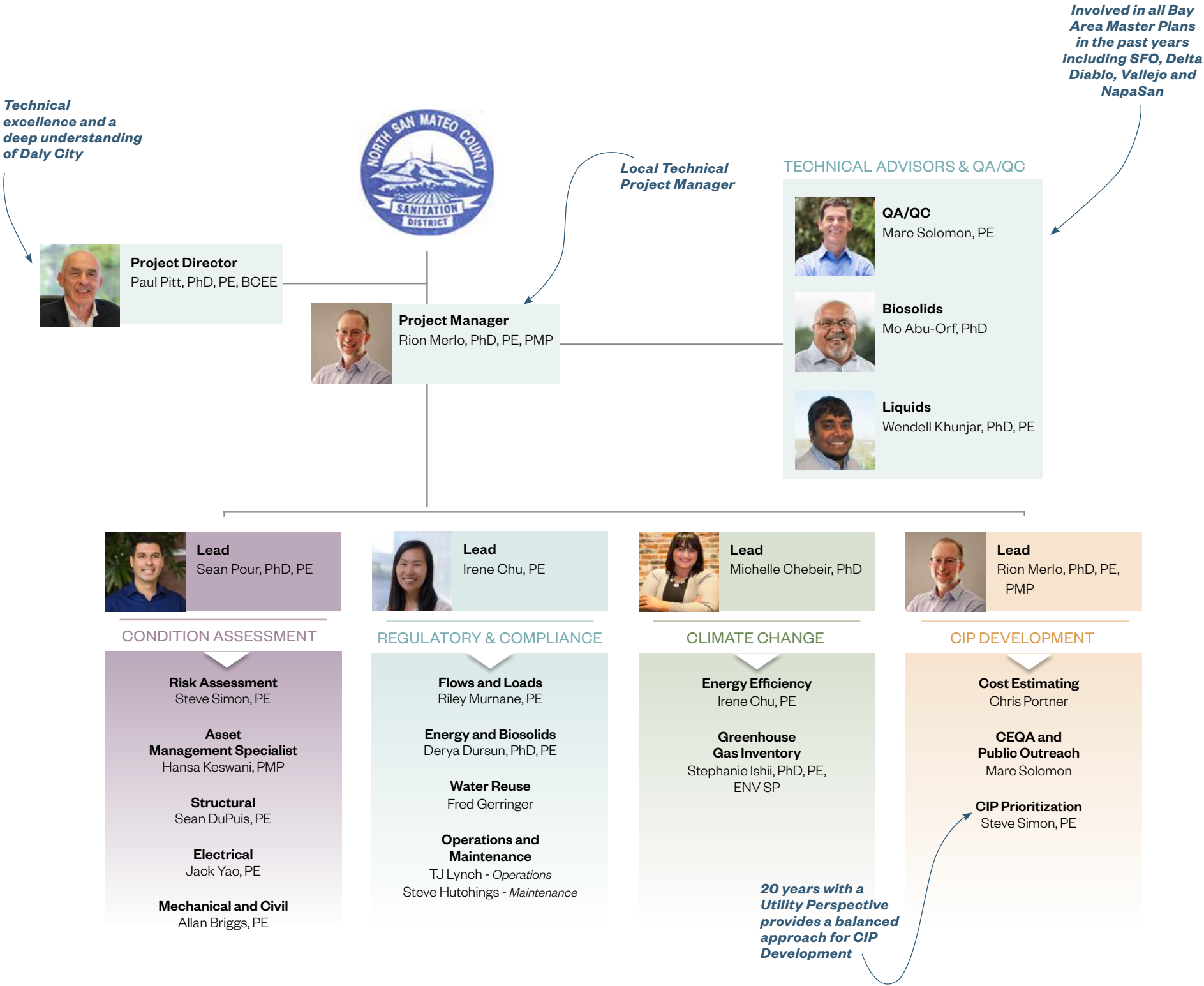
Benefits our Team Brings

We know how to successfully deliver master plans and CIP plans like the Districts and are ready to serve as an extension of your team.



A Local Project Manager with the Right Technical Experience: Our team will be locally led by Project Manager Rion Merlo, a proven leader with local experience delivering facility master plans similar in scope to the this project. Rion will oversee the team, guide the technical approach, and manage scope, schedule and budget. He will be supported by Project Director, Paul Pitt and QA/QC, Marc Solomon, who is also Hazen’s San Francisco office manager, to ensure staff resources for this project.

Team with Recent and Relevant Experience: Our team’s unmatched insight into Bay Area challenges provides an efficient, comprehensive, assessment of future trends impacting Daly City having recently delivered similar master plans for seven California utilities. Sean Pour (Condition Assessment), Irene Chu (Regulatory and Compliance), and Michele Chebeir (Climate Change) bring recent experience in master planning and condition assessment from across the Bay Area and California. Coupled with Hazen’s recent experience working with Daly City, we will deliver a master plan that will prepare the City for the future.



Our team has an intimate knowledge of the North San Mateo County Sanitation District Wastewater Treatment Facility and the challenges it faces. We can craft the MP and CIP to address it’s near-term priorities and long-term policy objectives.

Project Understanding

The North San Mateo County Sanitation District Wastewater Treatment Facility (WWTF) is nestled in the heart of Daly City adjacent to significant residential and commercial centers. The process evaluations will be focused on the goals of permit **compliance**, operational **reliability**, and a **good-neighbor** relationship with the surrounding community.

1 GRAVITY THICKENING AND DIGESTION

What are the major concerns?

- Digester 1 has experienced foaming problems.
- Gravity thickeners have failed recently.
- Significant odor is produced from scum layer on gravity thickeners.
- Biogas from digestion is currently flared.

What alternatives offer value?

- Evaluate the primary sludge pumps can help with regularity of the gravity thickeners.
- Condition assessment will allow the City to be proactive with repairs, rather than reactive.
- Capacity evaluation can help improve thickener performance.
- The addition of elution water for recycle can help prevent the thickeners from going septic which will improve odors.
- Improving the thickener performance can result in improved digester performance.

Our expert: Derya Dursun, PhD, PE

- Derya is the West biosolids practice lead for Hazen and has extensive knowledge and experience regarding digester operation. Derya will be instrumental in optimizing energy potential from the biogas.

4 ELECTRICAL SYSTEM

What are the major concerns?

- Electrical loads at the WWTF are near capacity, creating issues for contractors trying to tap into the system.
- Aging electrical infrastructure can lead to issues with operational vulnerability.

What alternatives offer value?

- Investment into an aging electrical system will increase operational reliability.
- As a part of the optional Electrical Systems Plan, Hazen can take a detailed look at the systems capacity.

Our expert: Jack Yao, PE

- Jack is Hazen's West Region Electrical Lead and is our proposed electrical condition assessment lead. Jack has worked on many electrical master plans in California.

5 SITE AND SAFETY

What are the major concerns?

- The site of the WWTF is very compact and there is not much available room for expansion.
- Truck hauling is difficult and can lead to damaged assets.
- Walkways and other infrastructure show signs of deterioration.

What alternatives offer value?

- A site evaluation will allow the team to evaluate and reduce potential hazards.
- Hazen will identify areas for potential expansion – on the existing site or on the surrounding area.
- Building programming will define the existing space and provide improvements for capacity and quality of work space.

2 ODOR CONTROL

What are the major concerns?

- Odors rise from the treatment plant and are intrusive to the residential & commercial areas nearby, and cause complaints.
- Air flotation thickeners (AFTs) need more odor control for headspace of AFT building.
- Gravity thickeners have operational issues and often operate with a large scum layer on top, producing odors.

What alternatives offer value?

- The addition of elution water for recycle can help prevent the thickeners from going septic which will improve odors.
- Abandoned cogeneration facility sits on top of the primary clarifiers adjacent to the AFT building. Can incorporate this area for odor control of AFT building headspace.

3 SECONDARY TREATMENT - HIGH PURITY OXYGEN

What are the major concerns?

- The High Purity Oxygen (HPO) reactors rely heavily on oxygen deliveries. Events such as the pandemic, which prioritize oxygen shipment for healthcare, create a significant risk to permit compliance.
- Costs associated with trucking in oxygen are substantial and can be reduced with increased instrumentation for the oxygen feed, and/or considering onsite generation.

What alternatives offer value?

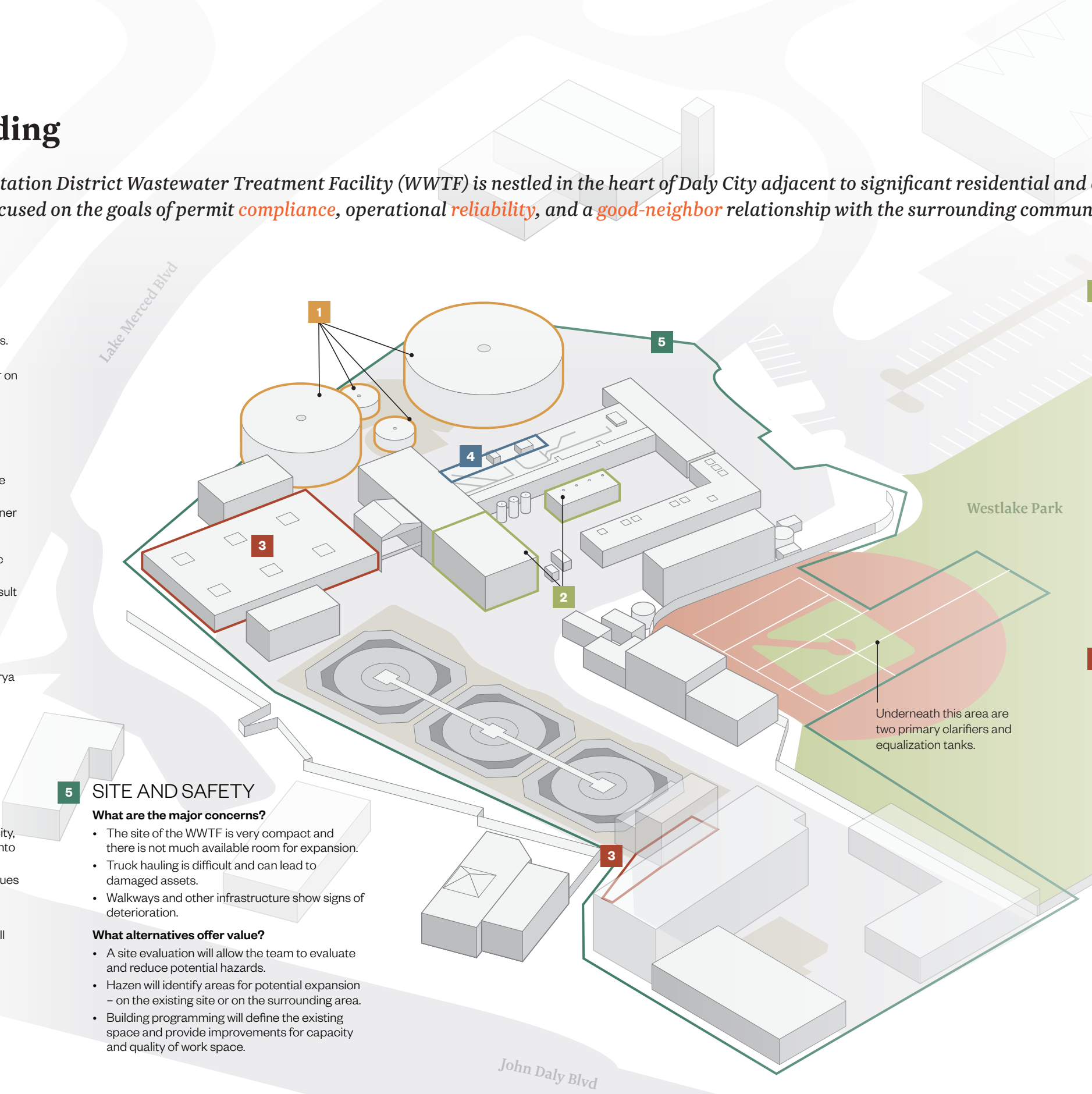
- Increased instrumentation around HPO reactors will allow the District to save funds on pure oxygen use and decrease reliance on deliveries.

Our expert: Rion Merlo, PhD, PE, PMP

- Rion has knowledge of the facility and was heavily involved with the project to replace the mixer-aerators. Rion's extensive wastewater background will be valuable in defining oxygen requirements for the HPO reactors.

Our expert: Alan Mlakar, PE

- Alan is familiar with the site and has experience leading instrumentation projects for facilities in California. Alan will work with Rion to provide instrumentation to keep the microbes healthy while reducing oxygen use.



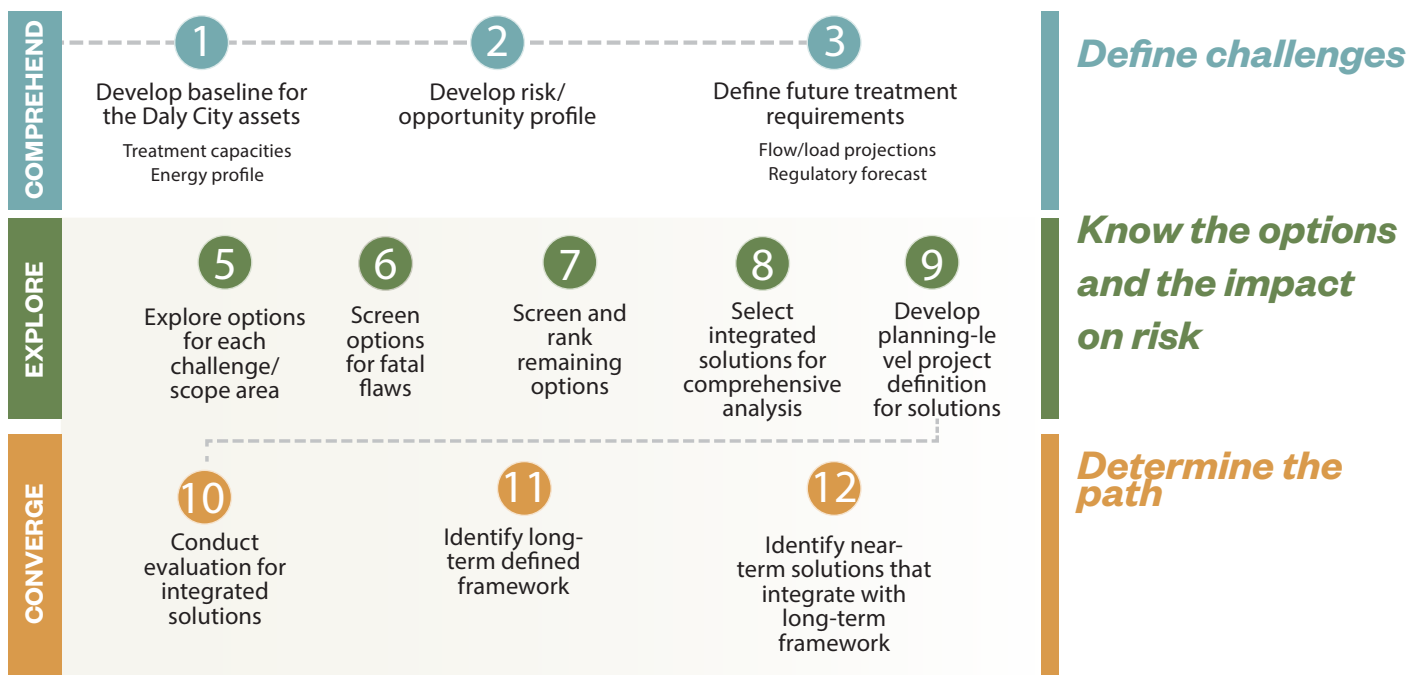
Project Approach

*Hazen's approach efficiently provides you with critical data to make sound decisions. In three simple steps, our team will **Comprehend** your challenges and existing constraints, **Explore** alternatives to meet your goals, and **Converge** on sustainable solutions for Daly City to implement a 10-year CIP.*



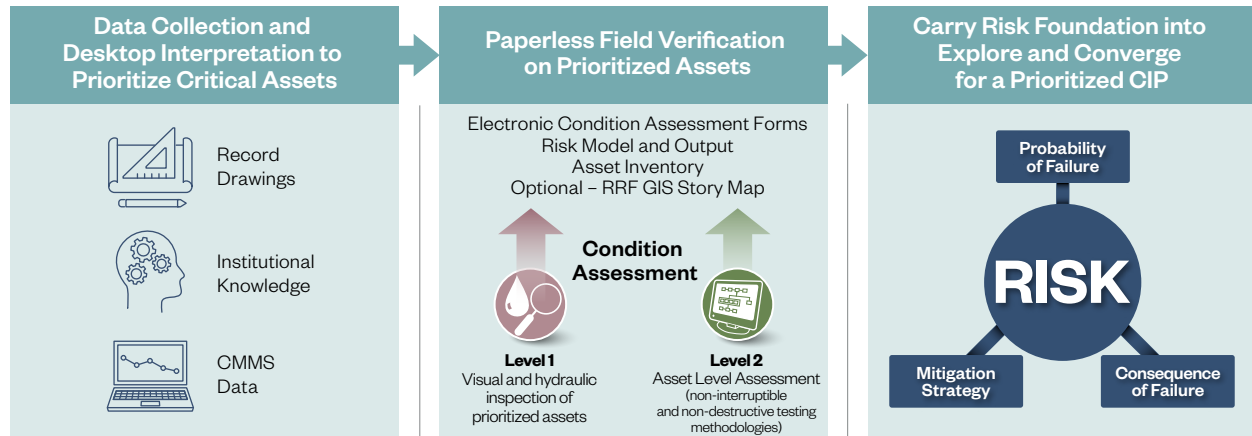
Throughout the master planning effort, we will work with the City to quantify anticipated project costs, optimize project timing, and work within site space constraints to “build the right thing at the right time in the right location.” This forward-looking approach will ensure that all near-term investments provide long-term value to the City and your ratepayers.

Our proven, step-by-step, process to master planning produces clearly defined projects with a business plan for Daly City to execute. Leveraging our expertise across all technical, operational and business functions required for Daly City to successfully implement a plan sets us apart.



Comprehend

We'll combine our knowledge of your facilities with our expertise in defining regulatory outlooks, flow and load projections, climate change considerations, and existing facility reviews. We've demonstrated our approach engaging all stakeholders on current work and will mirror this approach across the facility to gain operation and maintenance insight. These insights and the data (or lack of data) establish where our exploration time is best spent and lay the groundwork for our Leveraging Existing Assets First (LEAF) approach.

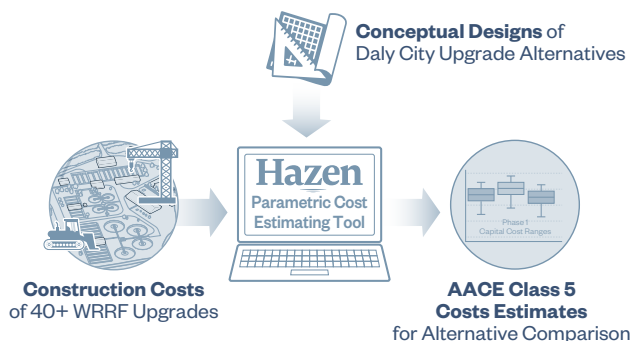


Explore

As part of the Explore phase, Hazen will employ our LEAF approach where we investigate near-term improvements that are synergistic with long-term solutions to allow Daly City to defer large capital improvements. Our LEAF approach directly extracts value from our onsite deployment and has been demonstrated to provide significant value to clients, as shown to the right.

We will assemble integrated solutions that meet your objectives and develop conceptual implementation details like: unit process sizing and layouts, plant hydraulics, predicted plant performance, biogas production, O&M impacts, and life cycle costs. To accomplish this, we will perform whole plant integrated modeling and comprehensive cost and non-cost evaluations to confidently define robust, flexible solutions that do not strand assets, are operator friendly, and minimize impacts to ratepayers.

Hazen's parametric cost estimating tool coupled with our water infrastructure focused cost estimators provide efficiently quantify cost differences between alternatives for cost-conscious decision making.



Through LEAF, we will investigate near-term improvements that are synergistic with long-term solutions to allow Daly City to buy time in making large capital improvements. The examples below demonstrate the value this approach.

BROAD RUN WRF

Enabled Loudoun Water to defer capital expenditures for expansion, which resulted in savings of **\$24 million** and a **10% reduction** in annual methanol costs.

FAIRFAX COUNTY PRIMARY/SECONDARY PROGRAM

Identified opportunities to save the County up to **\$250,000/year** while still meeting nutrient permit limits.

UNION SANITARY DISTRICT

Our BioWin™ and CFD modeling determined a phased conventional activated sludge approach offers **\$250 million** 20-year life cycle savings and provides flexibility to meet currently evolving nutrient requirements.

Converge

A successful conclusion to the master plan requires achieving consensus on a prioritized and implementable CIP. After identifying decision-making criteria and possible future triggers in the Comprehend phase and evaluating potential solutions in the Explore phase, the City and Hazen will Converge on how best to implement those solutions. We will also work with you to develop a 10-year CIP that directly connects the projects, timing, drivers, and cost to achieve the 10-year vision within sustainable financial constraints. Hazen has customized every master plan we've developed to our clients' needs because we recognize the value when you are able to simply put planning to work. Every utility is unique in how they can make the most of a CIP from static project sheets and schedule to dynamic dashboard and forecast scenarios. We will work with the City to define the best deliverable format.

Transparent and Defensible Cost Estimates

We will develop accurate Class 5 cost estimates for all CIP projects. Our approach to cost estimating is to provide accurate, detailed, transparent, and defensible cost estimates with sufficient detail to allow an understanding of the scope and assumptions. Toward this end, we will use a work breakdown structure-based approach to estimating that leverages our cost estimating team's expertise with our internal costing tools to develop Class 5 capital cost estimates. Factors for overhead, profit, contingency, engineering, and construction management will be included to provide whole project-level costs, including labor, to assist with capital planning

Cost estimating completed in 2021:



155
Estimates
in 2021

Were completed from conceptual design through bid phase



\$4.3
Billion

Total value of that work

We have come within:



5%

of the low bids submitted by Contractors

A Dynamic Dashboard Fosters Decision Making and Adaptive Management

As an added value service, Hazen can develop a Decision Support Dashboard (DSD) that includes adaptive management tools to allow the City to update and modify the plan in real time. The City can use a DSD to evaluate how variable factors such as influent loads, effluent regulations, and economic conditions would impact the 10-year road map. Hazen has created dynamic dashboards on several recent master plans as a way to provide clear communication with key stakeholders.



Scope of Services

The following summarizes the Hazen Scope of Services for the Wastewater Treatment Facility (WWTF) Master Plan (MP). Our final deliverable will be the Master Plan Report. For each task, we intend to produce draft and final chapters for the Master Plan Report that align with the Preliminary Outline presented in Exhibit C of the RFP and restructured below. Items 8 and 10 through 14 have been identified as optional components of the MP and have been defined as a part of this Scope due to experience on similar projects.

1. **Executive Summary, FAQs and Answers, and Introduction**
2. **Regulatory Review**
3. **Flows and Loadings**
4. **Climate Change Considerations**
5. **Existing Facilities Review**
6. **Proposed Upgrades or Modifications**
7. **Prioritized Capital Improvement Project (CIP), Capital Cost Estimates, and Operations and Maintenance (O&M) Activities**
8. Public Outreach and California Environmental Quality Act CEQA Compliance
9. **Appendix A. References**
10. Appendix B WWTF Energy Efficiency, Biogas and Cogeneration Energy Study
11. Appendix C Electrical Systems Plan
12. Appendix D WWTF Monitoring and Controls (SCADA)
13. Appendix E Recycled Water Plan
14. Appendix F Facilities Structural and Seismic Assessment

Task 1 Project Management

The Hazen Team will provide project management services to accomplish the work associated with the project. This is defined as: coordination of the project team, development and delivery of project schedule, invoicing, meeting agendas, meeting minutes, and presentations. Hazen will conduct a Kick-off Meeting with the City to discuss project goals, long-term strategy drivers and considerations, project steps and delivery schedule. Hazen will develop a Quality Management Plan that will outline all quality control (QC) reviews for the project. **Deliverables: Meeting Agendas and Minutes, Monthly Invoicing Reports with Earned Value Calculation and Schedule Update, and Biweekly Project Manager Update Meeting**

Task 2 Regulatory Review

The Hazen Team will review the applicable state and local regulatory framework and requirements that govern the current treatment plant including discharge, biosolids disposal, recycled water, and air regulations. Hazen will provide a high-level review of the regulatory landscape, listing potential regulatory changes that will impact the treatment plant's compliance and/or operation. This will include a review of the California Ocean Plan and NPDES permit as well as existing air permits. As it is becoming more of a concern for utilities in California, the complication of and potential options for dealing with PFAS in the solid process stream will be evaluated by Hazen. **Deliverables: Draft and Final Chapter 4 – Regulatory Review, Regulatory Review and Climate Change Considerations Workshop**

Task 3 Flows and Loadings

Hazen will review historical wastewater treatment plant influent flow and concentration data, effluent concentration data, and biosolids hauling data, to develop an accurate and defensible basis for flow and load projections and peaking factors. Based on Hazen's recent experience drafting Master Plans with Bay Area utilities, water conservation and build-out has lead to increasing influent loads and steady or declining influent flows. To address this Hazen will project per capita flows and loads and incorporate water conservation efforts into future flow projections. Hazen assumes that the City will provide population information, information from prior planning efforts and other pertinent information including recent flow and load data. **Deliverables: Draft and Final Chapter 5 – Flows and Loadings, Flows and Loadings Workshop**

Task 4 Climate Change Considerations

State and Federal Initiatives and Requirements - Hazen will conduct a review of regulatory guidance documents and publications to follow accepted protocols and emission factors in the development of the GHG inventory. The City's GHG inventory will be developed to identify major contributors to the total GHG footprint. The inventory will include individual line items and associated quantities for the identified system inputs and outputs relative to a common functional unit.

Energy Use & Efficiency - A detailed inventory will be developed for a baseline operations scenario. The inventory will include historical inputs required per month and per million gallons of wastewater treated for operations over the past five calendar years. Inventory items will reflect the inputs and outputs of existing WWTF operations that impact the greenhouse gas emissions and costs, such as quantities of chemicals used and energy usage.

Long- and Short-Term Goals - Hazen will present a suite of adaptations that the City can incorporate into budgets, capital improvement programs and into larger long-term planning. They will be discussed with stakeholders to build consensus on strategies that serve the needs of the peoples and address the risks of climate change in the area including drought, sea level rise, etc. **Deliverables: Draft and Final Chapter 6 – Climate Change Considerations, Regulatory Review and Climate Change Considerations Workshop**

Task 5 Existing Facilities Review

A solid comprehension of the existing facilities by the consultant team is paramount to producing an effective plan for capital improvements over the next decade. Hazen will conduct site visits that will include all boots on the ground to properly understand the City's challenges. The following subtasks will be included under the Existing Facilities Review:

Design Criteria - Hazen will evaluate background information regarding operation of the WWTF and establish design criteria with which to evaluate the existing facilities and propose updates and modifications under Task 6.

Condition Assessment – Hazen has a dedicated asset management group that has experience with many Bay Area utilities that will be performing the condition assessment and work hand-in-hand with the discipline experts to develop the proposed future upgrades. Hazen will collect relevant information available about the WWTF fixed assets that the City owns and manages into a centralized asset inventory database. Hazen will also assess data gaps (missing assets and attributes) and will develop recommendations for City staff to fill in as much of the key data gaps as possible before performing condition assessment. The condition assessment includes five components, (1) review of the City's asset inventory, (2) consultation with key City staff, (3) a visual condition assessment for components of 25-35% of the assets, (4) a desktop condition assessment of

assets that are not included in the visual condition assessment and (5) a desktop evaluation of underground pipes which have a high consequence and probability of failure. Hazen will use condition scores, age of assets, asset class and asset type attributes to estimate remaining useful life (RUL) for the assets in the preliminary asset inventory. Hazen proposes to collect the information using mobile data collection tools with standard condition rankings, associated notes, and photos tied to assets.

Capacity Assessment and Deficiencies – Hazen will evaluate the existing capacity of the WWTF including a high-level process model evaluation of all major treatment processes and pipelines between processes. Capacity will be evaluated both hydraulically and based on mass loading. The determined capacities will be listed as a part of the delivered chapter 7 from Task 5. Any deficiencies from the capacity assessment will be listed.

Site Assessment & Ancillary/Auxiliary Systems - Hazen will evaluate the area of the WWTF and surrounding areas to plan for future improvements which may include increasing the treatment facility's footprint, improving traffic control for vendor deliveries/biosolids haul-out, and others. The availability and condition of ancillary systems including drains, process and potable water, compressed air, and others will be evaluated. The administration and support building will be evaluated using building programming to determine sufficient space for the number of employees as well as seek to improve the conditions of the staff offices, conference rooms, and lobbies.

Electrical Systems Condition & Capacity Evaluation and Monitoring and Control System Evaluation – For utilities such as Daly City that are near build-out, the reliability of the electrical and monitoring & controls systems is of increased importance and a valuable component of the treatment process for investment to ensure operational reliability. Hazen will evaluate the condition of the existing electrical system. Deficiencies with the electrical system will be defined and quantified for use in Task 6 where necessary. The current controls system will also be investigated for deficiencies. **Deliverables: Draft and Final Chapter 7 – Existing Facilities Review, Condition Assessment and Capacity Workshop, Existing Ancillary and Auxiliary Systems Workshop.**

Task 6 Proposed Upgrades or Modifications

Using the results of Task 5, Hazen will identify potential upgrades or modifications to the WWTF including the following areas:

- Preliminary, Primary Treatment, & Flow Equalization
- Secondary Treatment
- Disinfection
- Recycled Water
- Biosolids, Biogas, Odor Control & Energy
- Electrical Power Facilities & Monitoring and Control Systems
- Site, Staff Facilities, Maintenance Facilities & Management, and Ancillary/Auxiliary Systems

Upgrades will be developed at a conceptual level and in instances of multiple alternatives, a net present value analysis will be performed to inform decision making. No more than three alternatives will be considered for each area and may include holistic process changes as well as unit process changes. One project will be identified for each area and in some cases, projects could be bundled together. **Deliverables: Draft and Final Chapter 8 – Proposed Upgrades of Modifications, Proposed Process Upgrades Workshop, Proposed Ancillary and Auxiliary Systems Upgrades Workshop**

Task 7 Prioritized Capital Improvement Project (CIP), Capital Cost Estimates, and Operations and Maintenance (O&M) Activities

Hazen's dedicated team of certified cost estimating professionals will provide estimates for the recommended capital improvements from Task 6 and all costs will be presented as AACE International Class 5 estimates. When creating cost estimates, consideration will be given to the current economic outlook and volatile supply chain. Hazen will work with the City to prioritize the recommended projects and coordinate on how the City would like the CIP projects to be defined and delivered, as Hazen has found that the delivery of CIP project definitions is specific to the utility to improve future implementation of the projects.

Based on the recommended improvements from Task 6, updated O&M costs will be calculated and presented to define potential savings due to the implementation of future plant modifications. Hazen will evaluate opportunities for resource efficiency, such as the beneficial reuse of biogas and biosolids.

Deliverables: Draft and Final Chapter 9 – Prioritized CIP, Capital Cost Estimates, and O&M Activities, Complete Draft Report Review Workshop, Digital Dashboard (Optional)

Task 8 CEQA Compliance and Public Outreach (Optional)

Because the City has not provided a defined scope for this task, there are two approaches to address this task. First, the City may choose to include a program-level environmental document as a part of the Master Plan or secondly, the City may desire the consultant to provide an analysis of the appropriate environmental documentation process. If the City's intent is to have the consultant prepare a program-level environmental document, we propose to assume the document will be a mitigated negative declaration. This is a reasonable assumption given the work will be largely inside the WWTF boundaries. Therefore, our level of effort includes Hazen's support for a program-level mitigated negative declaration as a part of the Master Plan. Hazen will also assist the City in public outreach required as a part of the CEQA process.

Task 9 Energy Efficiency, Biogas and Cogeneration Study (Optional)

Hazen will review the performance of and evaluate the existing digester gas production and flaring practices and establish evaluation criteria with the City. Alternate uses to flaring, including cogeneration, will be explored and presented in the study. Hazen will develop and calibrate a site-specific energy balance analysis tool (EBAT) to evaluate alternatives and determine the optimum use of biogas, including the potential to accept high-strength waste for increased biogas production. Findings and alternatives for modification will be presented in a final report. Hazen will also explore grant funding and consider incentives for the alternatives presented. **Deliverables: Energy Efficiency, Biogas and Cogeneration Energy Study**

Task 10 Electrical Systems (Optional)

Hazen will perform and document a visual inspection and assessment of the electrical power distribution equipment throughout the facility. Hazen will provide recommendations for replacement or rehabilitation of equipment depending on current conditions and anticipated remaining useful life. Hazen will perform an overall evaluation of the existing power distribution system, identify potential vulnerabilities, analyze system capacity, and provide recommendations to improve the overall system. Key objectives include system redundancy analysis, ease of operation maintenance considerations, improvements in safety, consequence of failure analysis, and standby system capacity. Hazen will summarize the findings and provide a list of recommended improvements, which will account for urgency and coordination with other improvements. Optionally, Hazen can develop a structured equipment maintenance plan based on industry standards to maximize equipment life cycle. **Deliverables: Electrical System Study**

Task 11 Monitoring and Controls Plan (Optional)

Hazen will perform and document a visual inspection and assessment of the control system equipment throughout the plant, including equipment control panels, SCADA components, and network communication equipment. As part of the evaluation process, Hazen will identify where existing assets must be improved, upgraded, and replaced to account for system reliability and future growth. Hazen's knowledge of control system technology and strong working relationships with various vendors will enable us to efficiently generate potential options to help determine the future direction and life span of various components. Hazen will summarize the findings and provide a detailed list of recommended improvements and a prioritized replacement strategy. **Deliverables: Monitoring and Controls Plan**

Task 12 Recycled Water Plan (Optional)

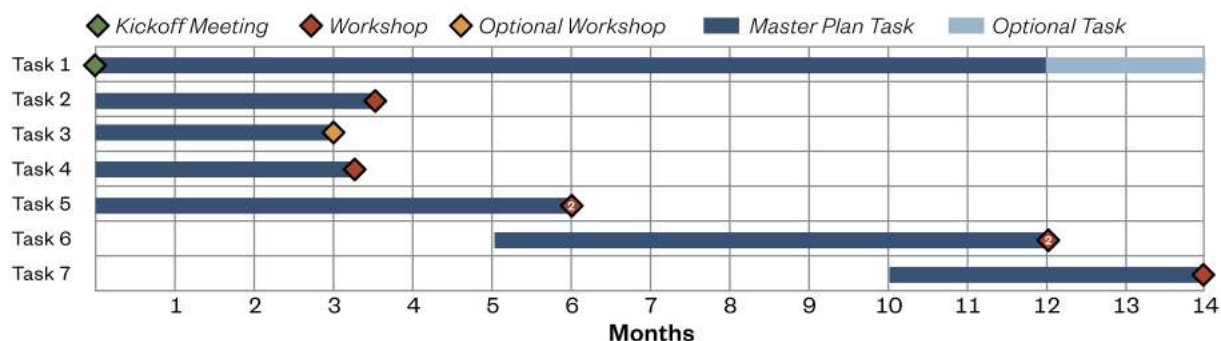
Hazen will review all background information including previous documents, GIS data, hydraulic models, customer billing data, feasibility studies, record drawings, and any other pertinent data. Hazen will include a Draft Recycled Water Plan in pdf format to the City for initial review consisting of the sections: Executive Summary, Regulatory Requirements Review, Recycled Water Supply Assessments, Demand/Market Assessments, Infrastructure Design Criteria Development, and Recommended Projects. The Draft Recycled Water Plan will cover both Title 22 recycled water and potable reuse options. Comments from the City review will be incorporated into a Final Recycled Water Plan. **Deliverables: Draft and Final Recycled Water Plan**

Task 13 Facilities Structural and Seismic Assessment (Optional)

Hazen will use information gathered during the field structural assessment and other sources such as record drawings to perform a desktop Tier 1 Seismic Assessment for appropriate structures. Hazen and the City will select a Performance Objective (PO) suitable to the City's desired level of performance following a seismic event. An Evaluation Procedure selected by Hazen based on the selected PO, level of seismicity, and building type. ASCE 41 checklists for equipment support and anchorage will be completed where applicable. Where a Tier 1 assessment is not applicable, Hazen will provide an estimate based on available information such as the condition assessment and record drawings. **Deliverables: Facilities Structural and Seismic Assessment**

Schedule

Based on Hazen's delivery of other Master Plans for similarly sized utilities in the Bay Area, it is expected that it will take 14 months for the completion of the Master Plan. Hazen's familiarity with the facility and staff allows Task 2-5 to begin immediately after kickoff which will expedite the project.



Resumes



Rion Merlo, PhD, PE, PMP

Project Manager and CIP Development Lead

Rion is an environmental engineering consultant with 26 years of experience in the water and wastewater sectors. He began his career focusing on wastewater process engineering and has been involved in pilot studies, master planning, and detailed design. In recent years, Rion brings a wide range of experience in technical solutions and team leadership.

Rion is a hands-on project manager with the technical expertise to ensure the project is continuously on track. He will oversee the team, guide the technical approach, manage scope, schedule, and budget. His deep technical background and direct experience with facility master planning across the country and in California makes him a valuable contributor to the process and will improve final outcome of the master plan. He knows your staff and understands the value of including operations in the project. At every step Rion will seek best-value alternatives, and balance operations, risk mitigation, and affordability.

Qualifications

Ph.D., Civil and Environmental Engineering, University of California, Berkeley, 2004
M.S., Civil and Environmental Engineering, University of California, Los Angeles, 1998
B.S., Microbiology, University of California, Santa Barbara, 1995
Professional Engineer: CA

Similar Experience and References

Delta Diablo Master Plan

Rion served as the technical advisor for the development of a Master Plan for its Resource Recovery Facility (RRF). The scope of the master plan includes every facet of treatment at the RRF, including: influent conveyance, optimization of existing processes, biosolids processing and recycled water distribution. The goal of the plan is to identify near- and long-term capital improvement projects which achieve the requirements developed during the master plan.

Reference: See "Firm Qualifications" section for reference information

Ten Year CIP Development and Biosolids and Energy Design Projects

As project manager, Rion is overseeing the design of a new digester and combined heat and power (CHP) cogeneration engine at the WRRF. In addition to the design, Rion is managing a team to obtain all permits. As part of a separate project, Rion is also managing the design of a new high-strength receiving station and thermal dryer facility, which also includes obtaining necessary permits.

Reference: See "Firm Qualifications" section for reference information

NapaSan Wastewater Treatment Master Plan

Rion served as a project engineer for a comprehensive review of the 8-mgd activated sludge treatment system and parallel oxidation pond system, and providing recommendations for improvements needed to accommodate growth and more stringent regulations in the next 20 years. Rion determined primary capacity and used results for historical data and field testing. He also created a process model of the secondary system to determine process capacity. Rion oversaw field testing of the secondary clarifiers to determine treatment capacity.

Reference: See "Firm Qualifications" section for reference information



Paul Pitt, PhD, PE, BCÉE

Project Director

Paul is an internationally recognized expert in wastewater treatment and serves as Hazen's Wastewater Process Design Director. He is an expert in all aspects of wastewater treatment, with emphasis on processes upgrades, process modeling, operational troubleshooting, and solutions to activated sludge filamentous bulking and foaming problems. Additionally he co-authored the nitrogen removal chapter of the International Water Associations textbook, "Activated Sludge: 100 Years and Counting".

Qualifications

Ph.D., Environmental Engineering,
University of California at Berkeley,
1987

MSc, Environmental Engineering,
University of Newcastle upon Tyne,
1982

BSc, Civil Engineering, University of
Newcastle upon Tyne, 1981
Professional Engineer: CA, NY

Paul has been working at the North San Mateo County Sanitation District Wastewater Treatment Facility for the past three years helping with process trouble shooting and had involvement in aerator replacement projects. Previously, he worked for SFPUC for over 17 years and brings relevant experience in planning and design from around the world, and Bay Area experience to the City. Paul has a strong understanding of Daly City's current and future needs, and what it takes to deliver a cohesive master plan to best serve the City. He has an outstanding performance record for providing quality deliverables on time and on budget.

Similar Experience and References

Delta Diablo Master Plan

Paul served as a technical advisor for the development of a Master Plan for its Resource Recovery Facility (RRF). The scope of the master plan includes every facet of treatment at the RRF, including: influent conveyance, optimization of existing processes, biosolids processing and recycled water distribution. The goal of the plan is to identify near- and long-term capital improvement projects which achieve the requirements developed during the master plan.

Reference: See "Firm Qualifications" section for reference information

Ten Year CIP Development and Biosolids and Energy Design Projects

Paul served as a technical advisor on this project to develop a biosolids and energy strategic plan to provide a clear roadmap for future biosolids improvements for the next couple decades. Initial planning activities included a market end user study, capacity evaluation, and alternatives evaluation for increasing capacity and producing Class A biosolids. Hazen developed a trigger-based roadmap to guide Goleta through the next stages of the projects.

Reference: See "Firm Qualifications" section for reference information

NapaSan Wastewater Treatment Master Plan

Paul served as the technical advisor for this design project. The project included evaluation of diffuser technologies to provide a recommendation for aeration basin diffuser replacement and the detailed design for the replacement of the aeration basin diffusers and upgrade the aeration basin control system to include ammonia based DO control. The project required pre-purchase of the diffusers to meet to project schedule.

Reference: See "Firm Qualifications" section for reference information



Sean Pour, PhD, PE

Condition Assessment Lead

Sean has made significant advancements towards developing and implementing new condition assessment and asset management methodologies. He has over 13 years of asset management research and implementation experience. He started his asset management experience as a researcher, leading efforts in developing deterioration models that scientifically quantify the decay characteristics of infrastructure assets. He specializes in analyzing condition data to improve the accuracy of the estimation of remaining effective life and risk. His areas of asset management specialization include assisting clients in performing remaining asset life calculation, risk assessment, life cycle cost projection, and project validation and prioritization.

Sean takes a collaborative approach to asset management and is well known for building consensus within diverse and cross-functional teams. His leadership style coupled with technical expertise and strong communication skills will ensure efficient, smooth, and successful project delivery for Daly City.

Qualifications

Ph.D., Civil and Environmental Engineering, Oklahoma State University, 2013
 M.S. Civil and Environmental Engineering, Amirkabir University of Technology (Tehran Polytechnic), 2005
 B.S. Civil and Environmental Engineering, Amirkabir University of Technology (Tehran Polytechnic), 2005
 Professional Engineer: AZ

Similar Experience and References

Delta Diablo Master Plan

Sean served as the asset management lead for a strategic plan to identify near and long-term capital improvement projects (CIP). Aging infrastructure was one of the drivers for this master plan that Hazen worked with the District to identify how to best invest in existing infrastructure while still providing maximum flexibility for the future. To be most efficient and provide the best value to the District, Hazen utilized a risk-based approach for the assessment of the most critical assets. Using condition assessment results, remaining useful lives were calculated and prioritized CIPs were developed.

Reference: See “Firm Qualifications” section for reference information

NapaSan Wastewater Treatment Master Plan

Sean was the asset management lead for the condition assessment and risk assessment of Wastewater Treatment Plant assets to determine R&R needs and prioritized CIPs. The renewal needs were included with studies in other focus areas such as nutrient removal, wastewater process optimization, renewable energy production and optimization, residuals management and recycled water production, as a part of the master plan. Conducted various workshops with the client at different milestones and developed technical memorandum detailing the plant’s near term and long term R&R needs.

Reference: See “Firm Qualifications” section for reference information

WRP Facilities Master Plan

As condition assessment lead, Sean developed an asset inventory and performed a condition assessment of the District’s water reclamation facility that included three components, (1) a visual condition assessment investigating the physical and functional condition of all structural, mechanical, electrical and instrumentation components, (2) a hydraulic assessment, and (3) a desktop process evaluation to understand the existing condition and remaining useful life of each asset. The results of the remaining useful life and risk assessment was used as the basis for developing near, medium and long-term capital improvement projects for a 20-year Master Plan.

Reference: See “Firm Qualifications” section for reference information



Irene Chu, PE

Regulatory & Compliance Lead and Energy Efficiency

Irene brings an expertise in wastewater treatment plant design and optimization and is responsible for all of Hazen process modeling in Northern California. Prior to joining Hazen, Irene spent time at the San Francisco Public Utilities Commission, Wastewater Enterprise where assisted the process group on various projects at Southeast and Oceanside Wastewater Treatment Plants including tertiary treatment pilot testing and iron dosing of the collection system. Irene provided laboratory and field support, including the special sampling for the plant's BioWin™ model calibrations, secondary clarifier stress testing of the Oceanside wastewater treatment plant, and ferric dosing to the collection system for odor control.

Irene's experience in Bay Area master plans and her knowledge of Daly City will enable the team to remain focused on a deeper, more nuanced understanding of system operational challenges and work collaboratively with the City to identify solutions. Additionally she brings an intimate understanding of local regulatory requirements and how to overcome them.

Qualifications

M.S., Environmental Engineering,
University of California, Berkeley,
2008
B.S. Civil and Environmental
Engineering, University of California,
Berkeley, 2006
Professional Engineer: CA

Similar Experience and References

Delta Diablo Master Plan

Irene was a process engineer for the development of a Master Plan for its Resource Recovery Facility (RRF). The scope of the master plan includes every facet of treatment at the RRF, including: influent conveyance, optimization of existing processes, biosolids processing and recycled water distribution. The goal of the plan is to identify near- and long-term capital improvement projects which achieve the requirements developed during the master plan.

Reference: See "Firm Qualifications" section for reference information

Union Sanitary District Secondary Treatment Plant Upgrade Master Plan

Irene served as the Project Manager for this project with the goal of developing a unified approach to secondary treatment upgrades that will both increase capacity and allow discharge to the Old Alameda Creek in the near-term while addressing anticipated nutrient limits in the longterm. Hazen provided process analysis of the existing WWTP to confirm that additional capacity, with nutrient removal, can be obtained from the existing facility to meet the District's near-term needs.

Reference: Armando Lopez,
Treatment and Disposal Manager,
(510) 477-7517, armandol@union-
sanitary.ca.gov

Vallejo Flood and Wastewater District Wastewater Treatment Plant Master Plan

Irene is a process engineer for the evaluation of biosolids alternatives and nutrient removal alternatives for the Vallejo Flood and Wastewater District. The project includes whole plant sampling, development of a calibrated process model and biosolids alternative scenarios. The goal was to understand the nutrient removal and biosolids options with the existing infrastructure and identify process needs to meet future limits.

Reference: Johnson Ho, Director of
Operations and Maintenance, (707)
652-7803, JHo@vallejowastewater.
org



Riley Murnane, PE

Flows and Loads

Riley serves as an Assistant Engineer in Hazen's Portland office. He has over three years of experience as an Engineer in Oregon working on wastewater, recycled water, and drinking water projects. As a junior engineer, he provides technical capabilities to work in collaborative settings involving complex projects and community interests. Riley has experience in regulatory agency compliance and community stakeholder collaboration regarding recycled water and wastewater projects. He has been involved in a wide variety of projects from initial planning, through design, and construction.

Riley has spent multiple days on site and has built professional relationships with many of the treatment facility staff. His familiarity with the site and staff will help the team understand current problems and facilitate conversations. Riley has worked on three wastewater master plans serving as the flows and loads lead, and he will bring this prior expertise to help Daly City build an efficient master plan.

Qualifications

M.S., Environmental Engineering,
Oregon State University, 2018
B.S. Environmental Engineering,
University of Nevada, Reno, 2016
Professional Engineer: OR

Similar Experience and References

Daly City Dissolution Equipment Replacement

Riley served as the project manager for this design project. It included replacing outdated mixer-aerator technology and related structural and mechanical repair. He is currently working with the City to operate a chemically enhanced primary treatment project to facilitate constructability of the equipment replacement. The project also required pre-purchase of the mixer-aerators to meet the project schedule.

Reference: Gregory Krauss, Chief of Operations, (650) 991-8204, gkrauss@dalcycity.org

NapaSan Wastewater Treatment Master Plan

Riley served as an engineer for this planning project. The project included evaluation of diffuser technologies to provide a recommendation for aeration basin diffuser replacement and the detailed design for the replacement of the aeration basin diffusers and upgrade the aeration basin control system to include ammonia based DO control. The project required pre-purchase of the diffusers to meet to project schedule.

Reference: See "Firm Qualifications" section for reference information

Klamath County Oregon South Suburban Sanitary District Facilities and Recycled Water Plan

A facilities plan and recycled water plan to meet upcoming NPDES permit requirements. Riley assisted senior engineers in the alternatives analysis and Oregon regulations for recycled water and biosolids use on surrounding farms. He performed flows and loads calculations to create design criteria for the alternatives analysis.

Reference: Michael Fritschi, Former General Manager, mfritschi@rmcsd.com



Michelle Chebeir, PhD

Climate Change Lead

Michelle serves Hazen as an Assistant Engineer. Shortly after completing her PhD, she joined Hazen with a concentration in chromium chemistry in drinking water with an overall understanding of contaminant transportation and chemistry in drinking water distribution systems. She has strong experience in experimental design and analysis as well as technical and non-technical writing. While with Hazen, she has applied her versatile writing and research skills to projects with varying subjects and scopes.

Qualifications

Ph.D., Chemical and Environmental Engineering, University of California, Riverside, 2017
 B.S., Chemical and Materials Engineering, California State Polytechnic University, Pomona, 2013

With local experience, Michelle has provided programmatic environmental support to multiple wastewater plants throughout the state. Her expertise will ensure continuity in service and consistency with the City as she leverages her high-level climate change knowledge in combination with her ability to produce quality deliverables.

Similar Experience and References

Union Sanitary District, Secondary Treatment Plant Upgrade Master Plan

Michelle was the sea level rise lead for this project. The purpose of the project is to develop a unified approach to secondary treatment upgrades at the Alvarado WWTP that will both increase capacity in the near-term while addressing anticipated nutrient limits to allow discharge to the Old Alameda Creek. Lynn and her team assessed the flooding and sea level rise potential and developed design criteria to meet local and national codes

Reference: Armando Lopez, Treatment and Disposal Manager, (510) 477-7517, armandol@union-sanitary.ca.gov

City of Simi Valley Sanitation District Climate Change Vulnerability Plan

As a project engineer, Michelle worked on developing a Climate Change Effects Vulnerability Assessment and Management Plan for the City's Sanitation Facilities. The impact of flood, wildfire, and other climate phenomena are being investigated and assessed. The plan will include an include an assessment of short and long term vulnerabilities of the facilities and operations in order to ensure that compliance with National Pollution Discharge Elimination System permit conditions is achieved.

Reference: Michael Kang, Principal Engineer, Sanitation-Waterworks, (805) 583-6809, MKang@simivalley.org

Los Angeles County Sanitation Districts Climate Change Vulnerability Plans

Michelle was the project engineer for creating report organization and contents, graphic templates, CIP project descriptions, and illustrations for vulnerabilities and adaptations. She conducted field evaluations, and delegated tasks to other support engineers. Performed site assessments and collected local data to assess risks posed by climate change to operation of four reclamation plants in Santa Clarita Valley and Antelope Valley. Threats posed by flood, wildfire, extreme temperature, drought, and extreme wind were assessed to be developed into climate vulnerability plans.

Reference: Jordie Lanza, PE, Project Manager, (562) 908-4288, JLanza@LACSD.org



Steve Simon, PE

Risk Assessment and CIP Prioritization

Steve is an associate in Hazen's Utility Management Services team. He has nearly two decades of municipal water sector experience in asset management, capital project planning and delivery, risk-based CIP prioritization, business process improvement and modernization, utility management, and utility executive leadership.

Steve enjoys leading project teams and engaging every individual's unique perspective and experience. He has been fortunate to manage projects in all aspects of development - planning, design, construction, and asset management. He believes in frequent, personal engagement to meet customer deliverables and expectations. With Steve's expertise and knowledge of risk assessment and CIP prioritization, he can help the WWTF address near-term asset management needs and help set you up for long-term success.

Qualifications

B.S., Civil and Environmental
Engineering, University of Cincinnati,
1999
Professional Engineer: CA, CO

Similar Experience and References

El Toro Water District Pumping Asset Management Plan

Steve served at the project manager to develop the District's first asset management plan. The work included performing staff consultations and institutional knowledge retention, field condition assessments, and developing a risk-based 10-year and 11- to 50- year capital improvement program. This project also included mobile data collection and development of a digital CIP dashboard.

Reference: Hannah Ford,
Engineering Manager, hford@
etwd.com

Strategic Asset Management Plan, Pumping Asset Management Plan

Principal in charge of developing the vision, strategy, and implementation plan for Aurora Water's asset management program covering water, wastewater, and stormwater services. Facilitated stakeholder engagement through multiple information gathering and collaboration workshops. Authored the final strategic planning document which set forth the mission, objectives, and implementation plan for the asset management program.

Reference: Sarah Young, Deputy
Director, 303-739-7370, syoung@
auroragov.org

CIP Prioritization, Budgeting, and Funding Support

Lead the risk-based planning and execution of Englewood's capital improvement program, incorporating findings from 2020 Water and Wastewater Plans supported by Hazen and new risk exposure information encountered. Developed a weighted risk-based matrix to continuously prioritize and reprioritize work as information becomes available.

Reference: Sarah Stone, Deputy
Director, 303-762-2635, sstone@
englewoodco.gov

November 14, 2022

North San Mateo County Sanitation District, as subsidiary to the City of Daly City
143 Lake Merced Boulevard
Daly City, CA 94015

Re: Wastewater Treatment Facility Master Plan

Dear Joshua Cosgrove and Dr. William K. Faisst:

Attached is Hazen's fee proposal for the Wastewater Treatment Facility Master Plan project. The fee has been defined for the required tasks of the Master Plan as well as the optional tasks that may become appendices. Our fee includes the following components:

- Hourly rates for team members
- Hours by task and personnel
- Expenses including travel for site visits

Our fee is based on the draft scope included with our technical proposal and our experience on similar projects in the Bay area. Because there are different levels of detail that could be used to perform some of the work, we were required to make some assumptions to develop our fee. We appreciate this opportunity to submit our proposal and, if selected, we are open to discussing our assumptions for the attached fee estimate and working with you to better define the effort.

Very truly yours,



Rion Merlo, PhD, PE, PMP
Project Manager
(510) 499-7466 | rmerlo@hazenandsawyer.com



Paul Pitt, PhD, PE, BCEE
Project Director
(925) 285-9810 | ppitt@hazenandsawyer.com

Hazen		Project Director/CEQA	PM/CIP	QA/QC	Condition Assessment	Structural	Electrical	Mech & Civil	Regulatory	Energy & Biosolids	Reuse	Operations	Maintenance	Climate Change	Cost	Architecture	Word Processing	Support Engineer	Support Engineer	Total Hours	Hazen Fee	ODCs	Total
Task	Description	Solomon \$300	Merlo \$280	Pitt \$300	Pour \$260	DuPuis \$240	Yao \$280	Briggs \$280	Chu \$240	Dursun \$260	Gerringer \$260	Lynch \$260	Hutchings \$250	Chebeir \$180	Portner \$240	Russell \$280	Avila \$160	Keswani \$200	Murnane \$170				
1.0 Project Management		57	212	18	2	0	0	0	2	0	0	0	0	2	0	0	0	0	20	313	\$86,620	\$0	\$86,620
1.1 Kickoff Meeting		2	4	2	2				2					2					20		\$7,080		\$7,080
1.2 Project Coordination		40	160	16																	\$61,600		\$61,600
1.3 Monthly Progress Reports		15	48																		\$17,940		\$17,940
2.0 Regulatory Review		0	8	8	0	0	0	0	64	6	6	0	0	0	0	0	4	0	64	160	\$34,640	\$2,000	\$36,640
2.1 Ocean Discharge & CA Ocean Plan			2	2					16								4		16		\$8,360		\$8,360
2.2 Recycling/Reuse			2	2					16		6								16		\$9,280		\$9,280
2.3 Air Emission & Odor Control			2	2					16	6									16		\$9,280		\$9,280
2.4 Noise and "good neighbor" Considerations			2	2					16										16		\$7,720	\$2,000	\$9,720
3.0 Flows and Loadings		0	6	6	0	0	0	0	60	0	0	0	0	0	0	0	4	0	120	196	\$38,920	\$2,000	\$40,920
3.1 Service Area Population and Projected Changes			2	2					20								4		24		\$10,680	\$2,000	\$12,680
3.2 Current and Recent Loadings			2	2					20										48		\$14,120		\$14,120
3.3 Flow and Loading Projections			2	2					20										48		\$14,120		\$14,120
4.0 Climate Change Considerations		0	8	4	0	0	0	0	0	16	0	0	0	160	0	0	4	0	76	268	\$49,960	\$0	\$49,960
4.1 State and Federal Initiatives and Requirements			2	1										40			4		12		\$10,740		\$10,740
4.2 Energy Use & Efficiency			2	1						8				40					12		\$12,180		\$12,180
4.3 Greenhouse Gas Inventory & Controls			2	1						8				40					12		\$12,180		\$12,180
4.4 Long and Short Term Goals			2	1										40					40		\$14,860		\$14,860
5.0 Existing Facilities Review		0	12	10	150	48	51	60	164	48	0	107	72	0	0	40	8	216	240	1226	\$282,100	\$10,000	\$292,100
5.1 Design Criteria			2	2					8								8	16	32		\$13,000		\$13,000
5.2 Condition Assessment			2	2	150	48	16	16	16			16	16			8		200	64		\$125,760	\$10,000	\$135,760
5.3 Capacity Assessment & Deficiencies			2	2					60	48		32	32						96		\$60,680		\$60,680
5.4 Site Assessment & Ancillary/Auxiliary Systems			4	2				44	60			24	24			32			32		\$55,080		\$55,080
5.5 Electrical & Monitoring and Controls Systems Evaluations			2	2			35		20			35							16		\$27,580		\$27,580
6.0 Proposed Upgrades and Modifications		0	14	21	0	0	80	36	100	80	80	48	48	16	0	24	8	0	504	1059	\$229,340	\$0	\$229,340
6.1 Preliminary, Primary Treatment, & Flow Equalization			2	3				12	8								8		80		\$21,620		\$21,620
6.2 Secondary Treatment			2	3				12	40										160		\$41,620		\$41,620
6.3 Disinfection			2	3				12	12										80		\$21,300		\$21,300
6.4 Recycled Water			2	3				12	12		80								80		\$38,740		\$38,740
6.5 Biosolids, Biogas, Odor Control & Energy			2	3				12	12	80				16					80		\$41,620		\$41,620
6.6 Electrical Power Facilities & Controls Systems			2	3			80		8										12		\$27,820		\$27,820
6.7 Maintenance, Admin Facilities, and Ancillary/Auxiliary Systems			2	3					8			48	48			24			12		\$36,620		\$36,620
7.0 Prioritized CIP, Capital Costs Estimates, and O&M Activities		0	24	4	24	0	0	0	0	0	0	32	32	0	100	0	0	0	128	344	\$76,240	\$5,000	\$81,240
7.1 O&M Activities and Costs			12	2								32	32		50						\$32,280	\$5,000	\$37,280
7.2 CIP Prioritization and Budgeting			12	2	24										50				128		\$43,960		\$43,960
Optional Services																							
8.0 Public Outreach & CEQA Compliance		96	88	12	0	0	0	0	174	0	0	0	0	0	0	0	8	0	295	673	\$150,230	\$0	\$150,230
8.1 Public Outreach		32	24						24										20		\$25,480		\$25,480
8.2 CEQA Compliance		64	64	12					150								8		275		\$124,750		\$124,750
9.0 WWTF Energy Efficiency, Biogas and Cogeneration Study		0	24	24	0	0	0	0	0	160	0	0	0	0	0	0	8	0	250	466	\$99,300	\$0	\$99,300
9.1 Energy Efficiency			12	12						80							8		125		\$50,290		\$50,290
9.2 Biogas and Cogeneration			12	12						80							8		125		\$49,010		\$49,010
10.0 Electrical Systems Plan		0	24	0	0	0	200	0	0	0	0	0	0	0	28	0	8	0	340	600	\$128,520	\$0	\$128,520
10.1 Electrical Systems Plan			24				200								28		8		340		\$128,520		\$128,520
11.0 WWTF Monitoring and Controls (SCADA) Plan		0	24	0	0	0	200	0	0	0	0	0	0	0	28	0	8	0	340	600	\$128,520	\$0	\$128,520
11.1 WWTF Monitoring and Controls (SCADA) Plan			24				200								28		8		340		\$128,520		\$128,520
12.0 Recycled Water Plan		4	24	16	40	12	20	40	24	0	120	0	0	0	30	0	8	200	240	778	\$169,040	\$0	\$169,040
12.1 Recycled Water Plan		4	24	16	40	12	20	40	24		120				30		8	200	240		\$169,040		\$169,040
13.0 Facilities Structural & Seismic Assessment		0	24	48	0	154	0	0	0	0	0	0	0	0	0	0	0	0	196	422	\$91,400	\$0	\$91,400
13.1 Facilities Structural & Seismic Assessment			24	48		154													196		\$91,400		\$91,400
Total (Tasks 1-7)		57	284	71	176	48	131	96	390	150	86	187	152	178	100	64	28	216	1152	3566	\$797,820	\$19,000	\$816,820