

An aerial photograph of a landscape. In the upper left, there's a town with a grid of streets and some industrial buildings. A river flows from the bottom left towards the center. The surrounding areas are mostly agricultural fields in various shades of brown and green. The right side of the image is partially covered by a dark blue overlay containing text.

PROPOSAL FOR
WWMP UPDATE

Wastewater Master Plan Update and Inflow and Infiltration Study and Mitigation Plan

Submitted to:
City of Stayton

JACOBS®

September 26, 2019

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City of Stayton, City Hall
Attention: Lance S. Ludwick, P.E., Director of Public Works
311 N. Third Avenue
Stayton, OR 97383

September 26, 2019

Subject: Proposal to RFP: Wastewater Master Plan Update,
and Inflow and Infiltration Study and Mitigation Plan

Dear Mr. Ludwick:

Updating the Wastewater Master Plan, performing an Inflow and Infiltration Study, and developing an associated Mitigation Plan will provide the City of Stayton (herein the City) the tools and understanding you need to appropriately address improvements to your systems consistent with current growth projections and anticipated collection, treatment and regulatory needs. The Jacobs team will provide the City with the crucial capabilities and approach to deliver a successful project by:

- **Bringing unmatched familiarity with site and connecting facilities.** We designed the current treatment plant in 1995, and earlier this year completed a treatment plant process modeling effort to identify performance improvements and treatment limitations for the current flows and loads.
- **Having a deep bench and expert resources if and when needed.** We bring five team members with a knowledge of your plant and current operations. In addition, we have excellent collection system planning experience, and outfall and regulatory planning and design experience on our team.
- **Establishing a realistic project schedule.** Our team has the depth of knowledge to develop a project schedule that considers all the tasks and interdependencies for successfully delivering each task in a timely manner.

This proposal is submitted by, and if successful, would be contracted under Jacobs Engineering Group Inc. (referred to as "Jacobs" in our submission). Brady Fuller is authorized to represent Jacobs in negotiating and signing contracts. Our submission is valid for 60-days after the submission deadline of September 26, 2019. Jacobs is incorporated in the State of Delaware. Our Federal tax identification number is 95-4081636.

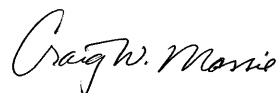
Jacobs Engineering Group Inc., Project Manager Craig Massie is available and authorized to answer any questions related to this Proposal. Brady Fuller, an authorized representative of Jacobs, will represent Jacobs in any negotiations, and sign any required contract. If you have any questions or would like to discuss any aspect of our proposal during the Request for Proposal (RFP) review and evaluation period, please don't hesitate to contact Craig Massie at 541.768.3478 or craig.massie@Jacobs.com. We look forward to hearing from you.

Regards,

Jacobs Engineering Group Inc.



R. Brady Fuller, PE, PMP
Client Account Manager



Craig Massie, PE
Project Manager

2. Key Personnel Qualifications

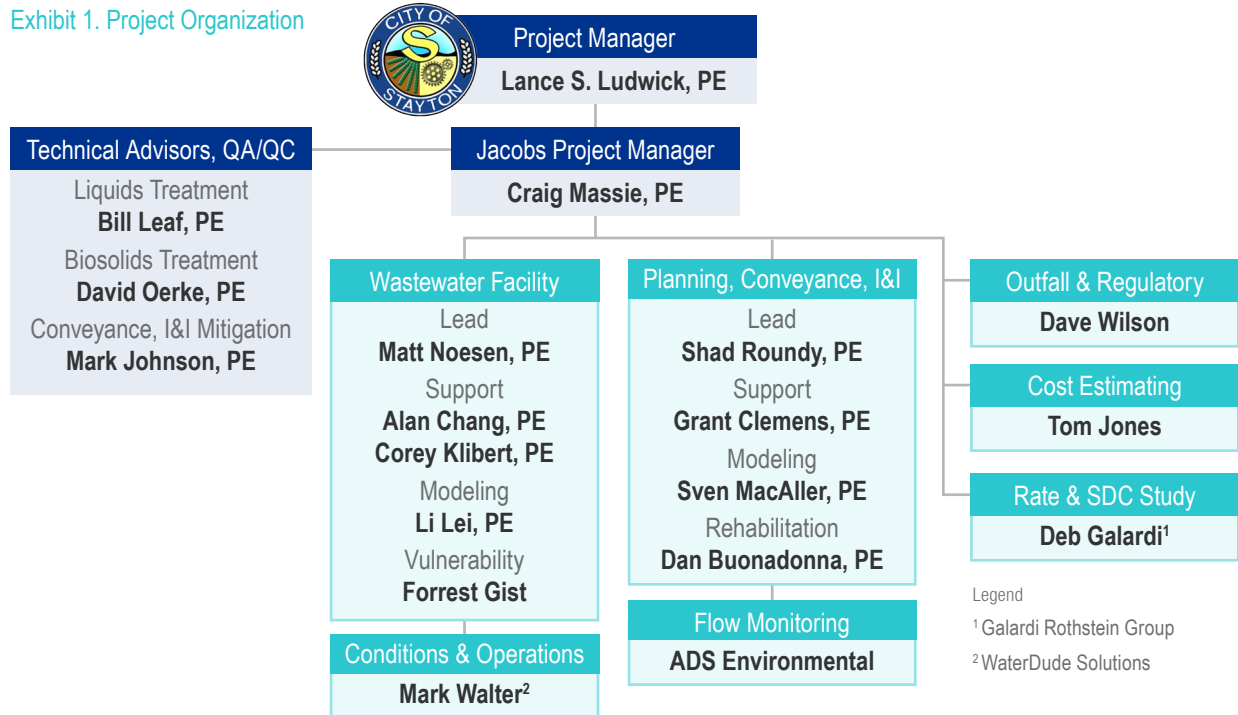
Project Management and Team

Our project manager, Craig Massie, PE, is an Oregon Professional Engineer (#16043), with more than 34 years of experience in wastewater treatment plant and conveyance planning, design, and construction. Craig will be directly responsible for this Project. He is currently involved in other similar projects, which he expects to continue to support while allowing him to provide the requisite amount of time to the City of Stayton, along

with his firm commitment to provide continuity throughout the project duration.

Exhibit 1 shows our team, which is well suited to understand the challenges and solutions of the City of Stayton's Wastewater Master Plan Update and Inflow and Infiltration Study and Mitigation Plan. We have selected our staff based on their experience and qualifications. Exhibit 2 lists the staff who will support this project throughout its duration.

Exhibit 1. Project Organization



Project Workload for Key Personnel

Our team, led by Craig Massie, is committed to serving the City to successfully complete this Project. Team members are available and will meet the time commitment to complete the proposed project schedule. Exhibit 2 lists our key personnel and their experience with this type of project as well as their familiarity with the City of Stayton.

Resumes highlighting the qualifications and experience our project manager and key project staff are provided in Section 5 – Additional Support Information.

Technical Advisors

Our team leverages the input of specialized technical advisor's extensive wastewater collection and treatment experience to both confirm the direction of evaluations and provide overall Quality Assurance/Quality Control of project deliverables. We typically engage them at the beginning of the project, at each milestone deliverable, and "on-call" as the need arises. For example, Li Lei used Bill Leaf in just this manner on our recent WWTP

process modeling project. The team of advisors for this Project are:

Bill Leaf, PE – Liquids Treatment QA/QC: Bill is a senior technologist specializing in wastewater reclamation. He has experience in the planning, design, construction, and startup of wastewater treatment facilities and has been involved in studies in the areas of permit negotiation, water quality issues, pretreatment, and user charge systems. Credentials: MEng, Civil Engineering BS, Civil Engineering. Professional Engineer: ID (#9414), WA (#45464)

David Oerke, PE – Biosolids Treatment QA/QC: David is a nationally recognized solids processing facility planning/design expert with more than 140 units installed on his design projects. He has extensive experience evaluating primary clarifier and solids processing facilities and has participated in biosolids management studies and designs for more than 120 municipalities nationwide. Credentials: MEng, Civil Engineering (Wastewater Treatment), BS, Civil Engineering. Professional Engineer: CO (#20047)

Mark Johnson, PE – Conveyance, I&I, Mitigation

QA/QC: As a water collection system and resources engineer, Mark specializes in the design, analysis, and management of water resources, non-point source pollution, municipal collection system, and drainage projects. He serves on a nationally-based Jacobs committee to monitor federal and regional regulatory

issues that affect municipal and industrial utilities and is often asked to make presentations on condition assessment methodologies in collection systems, and current stormwater permitting issues facing the industry. Credentials: MS, Civil Engineering (Infrastructure Planning and Management/Water Studies), BS, Civil Engineering. Professional Engineer: OR (#17666PE)

Exhibit 2. Staff Experience

Team Member/ Education/Registration City of Stayton Experience / Commitment (%)	Relevant Qualifications
Craig Massie, PE Project Manager BS, Mechanical Engineering Professional Engineer: OR (#16043), WA (#31685), ID (#P- 8754) <i>1995 WWTP Mechanical Design, 2000-2010 Miscellaneous Projects at the WWTP; 2019 WWTP Plant Process Analysis and Modeling PM / Commitment 10-15%</i>	Craig's 34 years of experience encompasses municipal and industrial planning, design, construction, project and program management experience. In particular, he excels at working with clients, regulators, project staff, and project stakeholders to develop and reach consensus on workable, cost-effective solutions. He is skilled at delivering technical project information to non-technical audiences such as city councils, commissions, and resource agencies as well as in public information setting.
Matt Noesen, PE Wastewater Facility Lead MS, Civil Engineering BS, Civil Engineering Professional Engineer: OR (#18184), CA (#C50366), NC (#040949), SC (#31211), WA (#54064) <i>10% commitment</i>	Matt is a municipal wastewater engineer with 27 years of experience, specializing in treatment plant upgrades and expansions, alternative disinfection, air permitting, and regulatory compliance issues. He has provided engineering and management services for a range of municipal wastewater treatment projects, including master plans, predesigns, preliminary designs, final designs, and construction, and he participates in an array of study projects related to tightening regulations for publicly owned treatment works and industry. The focus of these studies typically is plant capacity analysis, advanced wastewater treatment pre-design, and alternative disinfection analysis.
Mark Walter (WaterdudeSolutions) Conditions & Operations Wastewater Treatment System Operation, OR Grade IV (7091), Wastewater Collection System Operation, OR Grade IV (#12219) <i>Stayton WWTP Interim Plant Manager, Condition Assessment / Commitment up to 10%</i>	Mark has an extensive and varied work history ranging from operations to management positions over advanced wastewater treatment facilities. He is well versed on modern operations and maintenance methods and is experienced in audits of public and private operations. Mark has worked in operations for several larger agencies, including Orange County Sanitation District, CA; Irvine Ranch, CA; and Clackamas WES, OR. He served as Maintenance Division Manager for Clean Water Services and was most recently the Operations Manager for the Oak Lodge Sanitary District, where he developed and implemented advanced and detailed operations and maintenance procedures for the agency's new treatment facilities, including new CMMS and Laboratory Information Management systems.
Shad Roundy, PE Planning, Conveyance, I&I Lead MS, Civil and Environmental Engineering BS, Civil and Environmental Engineering Professional Engineer: OR (#17666PE) <i>He has lead collection system master planning, conceptual design, and I&I studies throughout Oregon including projects for Clean Water Services, Clackamas County Water Environment Services, Metropolitan Wastewater Management Commission, Portland Bureau of Environment Services, and the Cities of Albany, Gladstone, Wood Village, Sherwood, and Bend, Oregon / 25% committment</i>	Shad offers expertise in hydrologic and hydraulic analysis, system planning, modeling, and optimization. He also brings expertise in alternative analysis and hydraulic design expertise including large and small pipelines, drop shaft manholes, storage/conveyance tunnels, pump stations, and diversion structures.

Team Member/ Education/Registration City of Stayton Experience / Commitment (%)	Relevant Qualifications
ADS Environmental Planning, Conveyance, Flow Monitoring <i>25% commitment</i>	<p>ADS is the world's leading environmental engineering company for flow, CSO, storm & rainfall monitoring, as well as I&I analysis. Established in 1975, ADS employs over 300 people with 25 project offices. Providing accurate flow data is the core business of ADS. We are a turnkey flow service provider, using our own employees for field service, data analysis and project management, as well as developing and manufacturing the equipment and software we use in projects to accurately report out sewer flows.</p>
Dave Wilson Outfall & Regulatory MS, Marine Sciences & Ecology BS, Entomology, Oregon State University BS, Zoology <i>Familiarity with the North Santiam River Outfall at the WWTP/ Commitment 5%</i>	<p>Dave is a senior scientist who specializes in the analysis of aquatic impacts and the design and management of studies relating to water and sediment quality issues. He focuses on environmental analysis for wastewater dischargers, with a specialty in NPDES permit negotiation and compliance issues. Dave has directed more than 50 water quality studies and modeling analyses of municipal and industrial waste discharges including impacts of existing discharges, alternative discharge designs, and siting of new discharges. These studies have included point and non-point sources for nutrients, metals, and thermal impacts. His particular skills are regulatory strategy development, agency negotiations, study design and implementation of field data collections, design of modeling analyses, RPA and statistical analysis, knowledge of aquatic communities, and project management.</p>
Tom Jones Cost Estimating University of New Mexico, various undergraduate classes USAF, Engineering Assistant Training <i>Commitment 5 to 10%</i>	<p>Tom is a Senior Cost Estimator in the Water Business Group working out of the Corvallis, Oregon office. Tom has experience in overall construction project management, estimating, contract administration, scheduling, material and equipment procurement, and communications with Owner and Engineer. Tom is responsible for the survey and pricing of complex self-performed and subcontracted work. He has experience in managing the bid team, developing the bid strategy, and maintaining subcontractor relationships.</p>
Deb Galardi (Galardi Rothstein Group) Rate & SDC Study BS, Economics <i>10% commitment</i>	<p>Galardi Rothstein Group (GRG) provides strategic financial and management consulting services to government agencies and special districts worldwide. We provide sound solutions to management, economic, and financial challenges associated with the development and delivery of major infrastructure services. Deb recently developed wastewater rates and SDCs for the City of Dundee. She developed a financial plan for the system and worked with the City Council to develop a revised rate structure, including development of strength-based rates for different commercial customers. For the Cities of Wilsonville and Sherwood, Oregon, Galardi Consulting developed water system financial plans, and determined rates and SDCs that would be needed to support master plan recommended capital improvement plans.</p>
Alan Chang, PE Wastewater Facility Support BS, Civil Engineering MS, Civil Engineering 15 years of experience Professional Engineer (Civil): OR (#74671PE), WY (#13099) Engineer in Training: IN (# ET39900516) <i>20% commitment</i>	<p>Alan has extensive engineering experience in water and wastewater treatment plant planning, design, and construction. His experience includes remedial design, process system design, field sampling activities, water treatment plant design, wastewater facilities master plans, pilot and treatability studies, and other environmental and hydraulic studies.</p>

Team Member/ Education/Registration City of Stayton Experience / Commitment (%)	Relevant Qualifications
Corey Klibert, PE Wastewater Facility Support MSCE, BA 12 years of experience Professional Engineer: OR (#93039PE), UT (#10479547-2202) <i>30% commitment</i>	Corey is a wastewater engineer with a decade of experience leading process planning and design of wastewater treatment projects from conceptual planning through final design, services during construction, and facility startup and commissioning. He specializes in biological process modeling of municipal wastewater treatment plants and process mechanical design of wastewater treatment plants.
Li Lei, PE Wastewater Facility Modeling PhD, Environmental Engineering MS, Environmental Engineering BS, Environmental Engineering 20 years of experience Professional Engineer (Civil): WA, #45081, CA (#67996) <i>Recent Process Modeling for Stayton / 20% commitment</i>	Li is a senior technologist specializing in wastewater treatment including capacity assessment, upgrade planning, startup assistance, and operation optimization/troubleshooting of various wastewater treatment processes, with a focus on process reliability, operational simplicity, and energy efficiency.
Forrest Gist Wastewater Facility Vulnerability BS, Electrical Engineering 20 years of experience Professional Engineer: OR (#18517), AZ (#32064), CO (#32722) <i>5% commitment</i>	Forrest has extensive experience in project management and physical security technology consulting for clients seeking to improve their security profile. He is the firm's subject matter expert in utility vulnerability analysis, emergency planning, security risk, and resiliency.
Grant Clemens, PE Planning, Conveyance, I&I Support MSc, Environmental Engineering BSc, Chemical Engineering 5 years of experience <i>20% commitment</i>	Grant has experience planning, designing, and delivering services for water and wastewater conveyance and treatment projects. His project experience includes I&I studies, sewer master plans, hydraulic modeling, pump station evaluation, asset management, and permitting assistance. He has worked on the design, construction, and startup of multiple wastewater facility improvement projects.
Sven MacAller, PE Planning, Conveyance, I&I Modeling MS, Environmental Engineering— Urban Water Resources BS, Civil/Environmental Engineering 7 years of experience Professional Engineer: OR #93039PE), UT (#10479547-2202) <i>20% commitment</i>	Sven has extensive experience in master planning, hydraulic analysis, system optimization, GIS, and alternatives analysis in collection systems. He has expertise in developing GIS-based tools for I&I reduction cost effectiveness analysis, and optimization and prioritization of capital projects.
Dan Buonadonna, PE Planning, Conveyance, I&I Rehabilitation MS, Environmental Engineering BS, Civil Engineering 11 years of experience Professional Engineer: WA (#49733) <i>5% commitment</i>	Dan has expertise in I&I studies, trenchless rehabilitation design, pipeline condition assessment, sanitary sewer evaluation studies, corrosion analysis, and conveyance design. He has also performed as the task coordinator for field inspection activities and construction project administration.

3. Project Scope and Understanding

Statement of Understanding

The City of Stayton, Oregon (City) owns and operates a Class III Wastewater Treatment Facility, Outfall to the Santiam River, and a Sanitary Sewer Collection System serving approximately 10,700 people in the City and in the City of Sublimity, Oregon. A Wastewater Master Plan was last updated in 2006 which included a Capital Improvement Program for investing in treatment and collection system infrastructure through the year 2025. The City is now seeking an engineering consultant to update the Master Plan and Capital Improvement Program through 2040. Key elements of the Project include:

- Updates to population, flow, and load projections using an approximate growth rate of 1% annually.
- Review of regulatory requirements and future permitting.
- Understanding of specific system response to rainfall derived infiltration and inflow (I&I) and associated impacts on wet weather capacity of both the collection and treatment systems.
- Updates to collection system modeling to identify existing and future system hydraulic deficiencies, assess system response to I&I, and to evaluate gravity and pumping capacity improvements.
- Evaluation of target I&I reduction rates, timing, methodology, and location for cost effective capital investment.
- Updates to treatment system process and hydraulic modeling to reflect system operations.
- Assessment of reliable improvement alternatives for optimal treatment plant performance including wet weather equalization storage, liquids processing, and biosolids processing.
- Review of treatment plant and outfall infrastructure condition, operations, and vulnerability.
- Development of a system-wide cost-effective Capital Improvement Program including an implementation and phasing strategy.
- Financial analysis to determine how to pay for capital expenditures through utility rates and SDCs.
- Plan approval by the Oregon Department of Environmental Quality.
- Facilitation for technical and citizen advisory committee meetings, public meetings, and plan adoption.

Jacobs has a strong understanding in all elements of the Project, and strong knowledge of the plant through the recent process modeling efforts and team member Mark Walter's recent management role at the plant. The combination of our familiarity, expertise in treatment, conveyance, and I&I reduction will provide the City with a holistic and cost-effective plan that maximizes existing resources and balances treatment upgrades with conveyance and wet weather flow reduction.

Task A: Project Management

Craig Massie has been delivering solutions to complex wastewater challenges for 34 years and is one of Jacobs' most respected project managers. Craig's project management approach includes the following:

- Working with the client and DEQ to establish clear objectives from the Project kick-off.
- Maintaining forward progress by providing a clear vision of the Project tasks.
- Regular communication with City Project Manager to avoid surprises and to facilitate critical decisions including monthly review of Project scope, schedule, and budget.
- Weekly communication with internal Jacobs team and subconsultants to coordinate efficient delivery.
- Engagement with senior technical staff during key phases of the Project for quality review of alternatives, technologies, and work products.
- Facilitation in workshops, advisory meetings, public meetings, and DEQ coordination.

Quality Control – Key senior technologists have been identified to aid in developing and screening improvement alternatives at the early stages of the Project. These technologists are experts at identifying cost effective and reliable treatment and conveyance improvement solutions. The senior technologists will also serve as reviewers for workshop materials and master plan documentation.

Sequencing, Approach, and Work Plan

Our work plan including task sequencing for the Wastewater Master Plan Update is illustrated in Exhibit 3. The work approach includes efficiency measures for parallel work in the collection and treatment systems early in the Project. In the later stages of the Project, system-wide alternatives will be considered to capture cost-effectiveness across treatment, conveyance, and I&I reduction. The approach includes early coordination with DEQ to identify opportunities to reduce effort in areas that are less critical to agency approval. A key part of the work plan includes sequencing engineering analysis and field investigation with three key workshops. Each workshop will allow the City to engage on key decisions for refinement of the Wastewater Capital Improvement Program (CIP), project prioritization, and implementation strategies. The specific work elements and areas of focus are further outlined below.

Task A-1: Kick-off – The City and Jacobs team will discuss and identify Project goals and objectives, highlight Project success factors and risks, review schedule, define communication protocols, and initiate a data request.

Task C: Preliminary Engineering and Field Work – Jacobs will review data from the City and perform parallel analysis in the treatment and collection systems.

Exhibit 3. Work Plan and Sequencing, Including City Involvement

Work Sequence	Consultant Activities	City and Other Involvement
Kick off	Kick off: Prioritize Objectives & Improvement Criteria	- City staff participate in kick-off (4 hrs)
Preliminary Engineering & Field Work Simultaneous Preliminary Work on Subtasks C-1, C-2, C-3	C-1: WWTP Evaluation <ul style="list-style-type: none"> - Treatment Model Refinement & Capacity Summary - Population, Flow & Load Development - Condition Assessment - Outfall Assessment - Conceptual Improvement Alternatives - O&M Strategies - Vulnerability & Redundancy Assessment C-2: Collection System Evaluation <ul style="list-style-type: none"> - Collection Model Refinement & Calibration - Flow Development - Capacity Deficiencies - Conceptual Improvement Alternatives C-3: I&I Study <ul style="list-style-type: none"> - Flow Monitoring (4 month period) - I&I Thresholds - Conceptual Rehab Alternatives 	<ul style="list-style-type: none"> - City staff respond to information requests and provides staff for interviews related to condition assessments (16 - 24 hrs) - Early engagement with DEQ on approach (2 hrs) - 1st CAC/TAC Meeting (2-3 hrs)
Workshop #1	<ul style="list-style-type: none"> - Present Preliminary Findings - Screen and Refine Conceptual Alternatives for WWTP, Collection System, and I&I Response 	- City staff participate in Workshop #1 including input on improvement alternatives (4 hrs)
Additional Engineering	<ul style="list-style-type: none"> - Consider Alternatives for Cost-Effectiveness System-wide balancing of treatment, conveyance, and I&I reduction based on feedback from Workshop #1 - Evaluate project phasing options 	- 2nd CAC/TAC Meeting (2-3 hrs)
Workshop #2	<ul style="list-style-type: none"> - Present Cost-Effectiveness Recommendations & Phasing - Select Preferred Alternatives for Capital Improvement Program (CIP) 	- City staff participate in Workshop #2 including input on improvement alternatives (4 hrs)
Final Engineering	<ul style="list-style-type: none"> - Develop prioritized CIP based on feedback from Workshop #2 - Develop Phasing and Implementation Strategies - Section Draft Documents for City Review (60%) 	<ul style="list-style-type: none"> - City staff review and provide comments on draft section documents (16 hrs) - 3rd CAC/TAC Meeting (2-3 hrs)
Workshop #3	<ul style="list-style-type: none"> - Present prioritized Capital Improvement Program - Review Implementation, and Phasing Strategies 	- City staff participate in Workshop #3 including project prioritization, and review of implementation & phasing strategies (4 hrs)
Documentation Financial Analysis	<ul style="list-style-type: none"> - Draft Master Plan Document (90%) - SDC Methodology & Financial Analysis 	<ul style="list-style-type: none"> - City staff review and provide comments on full draft document (16 hrs) - City staff respond to information requests related to financial analysis (8 hrs) - 3rd CAC/TAC Meeting (2-3 hrs) - DEQ Review & Coordination (4 hrs) - 1st Public Meeting (4 hrs)
Financial Analysis Meeting	- Present financial analysis & SDC Methodology	- City staff participate in Financial Analysis Meeting (2-3 hrs)
Plan Adoption	- Final Master Plan Document	- 2nd & 3rd Public Meetings (4-6 hrs)

Desktop analysis will consist of model refinements and calibration (treatment and collection system), population projections, flow and load projections, existing and future capacity assessments, and conceptual improvement alternative development. Field work and City staff interviews will be conducted to develop condition assessments, outfall assessments, O&M strategies, vulnerability assessment at the treatment plant, and redundancy assessment at the treatment plant and City lift stations.

For the treatment plant, critical capacity bottlenecks will be evaluated and summarized. Preliminary alternatives will be developed including opportunities to convert the un-used selector cell facility to improve equalization ahead of disinfection. Planned capital projects, such as a third SBR, will be reviewed for necessity and timing relative to revised flow/load projections. Process modeling and analysis in conjunction with close coordination with plant staff ideas, and potential opportunities to expand the plant footprint with the purchase of adjacent property that may become available will allow a broad evolution of bio-solids optimization. Jacobs' recent work on the process model will create efficiencies for the treatment capacity and process evaluation.

Simultaneous work will be performed at the treatment plant to evaluate condition and operations (Task C-1). Mark Walter's (WaterDude Solutions) estimates a 50-percent efficiency in completing this task based on his recent work at the treatment plant. Jacobs will work closely with Mark to consider the overlap of asset condition, operation, and replacement with critical capacity and process upgrades.

In the collection system (Task C-2), the hydraulic model will be calibrated utilizing available flow metering data collected by ADS Environmental during a 4-month flow monitoring period. Previous model calibrations utilized daily data, which may result in over or under-estimation of peak flow response. The model calibration will focus on dynamic simulations for evaluating instantaneous peak flows. Additionally, Jacobs' will review DEQ regulations regarding design storm and discuss level of service with City staff to determine an adequate level of risk for planning infrastructure relative to capital investment. The calibrated hydraulic model will be used to identify existing and future system deficiencies and preliminary improvement alternatives. Jacobs' will work with City staff to understand operational and capacity limitations including opportunities for lift station operational changes or decommissioning.

In addition to the model calibration, the flow monitoring data collected by ADS Environmental will be used to characterize I&I influence and variability in wet weather response throughout the City (Task C-3). Jacobs will work with City staff to identify strategic locations for meter placement. If a storm event greater than the 2-year frequency occurs early in the four-month flow monitoring period, ADS Environmental will shift meters to alternate sites to collect additional data. The data will be used to quantify I&I rates (peak gallons per acre

per day) in each meter basin. A threshold rate will be established for consideration of I&I reduction techniques in each metered basin. Several rehabilitation techniques will be considered including varied reduction levels and costs (least reduction/low cost – main pipe lining only; moderate reduction/moderate cost – main pipe lining and partial lateral replacement; high reduction/high cost – main pipe lining and full lateral replacement). The reduction levels and costs for rehabilitation will be considered as part of system-wide improvement alternatives in later stages of the Project.

Flow metering and collection system modeling will be used to characterize peak flow influence from the City of Sublimity service area and relative cost contribution to capital investment for both the collection and treatment systems. The Sublimity I&I contributions will be compared to Stayton meter basin contributions to identify whether Sublimity falls above or below the I&I reduction threshold. This information will be used to summarize strategies on coordinating with Sublimity for cost-effective capital investment including investment in an I&I reduction program.

Workshop #1 – Jacobs will present preliminary findings related to treatment capacity, conveyance capacity, and I&I reduction opportunities to City staff. An overview will be provided of the condition and operational assessments, vulnerability assessment, outfall assessment, and redundancy assessment. The workshop will focus on screening and refinement of preliminary improvement concepts.

Additional Engineering – Jacobs will perform analysis and cost estimates to refine improvement alternatives based on feedback in Workshop #1. System-wide cost effectiveness will be considered to balance treatment, conveyance, and I&I reduction. Critical phasing and implementation of projects will be considered relative to capital investment over the 20-year planning horizon.

Workshop #2 – Jacobs will present findings from the system-wide cost-effectiveness evaluation and provide recommendations on capital projects. Jacobs will help the City to rank and select preferred alternatives for implementation. Project prioritization and phasing relative to capital investment will be a key consideration for project selection.

Final Engineering – Jacobs will refine projects prioritization, phasing, and implementation strategies based on feedback from the City during Workshop #2. Draft plan sections will be documented and provided to City staff for review.

Workshop #3 – Jacobs will present the draft Capital Improvement Project list, priorities, costs, and implementation strategy to City staff for review.

Documentation and Financial Analysis (Task C-4) – Jacobs will work with Deb Galardi to provide capital costs and timing of capital projects for the financial analysis. Within the framework of Oregon law, agencies have latitude in selecting specific methodological approaches related to the calculation and assessment

of SDCs. The first set of options relates to the overall structure of the SDC – whether the fees are based on existing facility costs (reimbursement fee), future planned improvements (improvement fee), or a combination. Once a determination has been made as to the fee structure, the methodology may be further refined based on a number of additional considerations, including existing system valuation approach (in the case of a reimbursement fee), improvement allocation approach, and fee assessment units (e.g., equivalent dwelling units and meter size). Deb will work with the City to evaluate the existing methodology approaches and determine whether any modifications are needed to reflect current system capacity conditions and growth costs. The fees for different types and sizes of development will be determined based on projected claims on system capacity. Finally, Deb will estimate SDC statute compliance costs and develop the updated SDC schedule.

Jacobs will refine the Master Plan document sections based on City review comments and compile a full draft Master Plan document for City, DEQ, and public review.

Financial Analysis Meeting – Deb Galardi will present the results of the financial analysis and SDC methodology to the City.

Plan Adoption (Task D) – Jacobs will coordinate with City staff for three Public review meetings, Public comment, and DEQ comment. Jacobs will finalize the Master Plan document based on final City input and associated comments from the Plan Adoption process.

The Role of City Personnel on the Project - City staff will engage in the project by providing information during early data requests, participating in project workshops including decisions on improvement selection, reviewing Master Plan draft documentation, and participation in public, advisory, and coordination meetings. Specific City staff contributions and time estimates are provided in Exhibit 3.

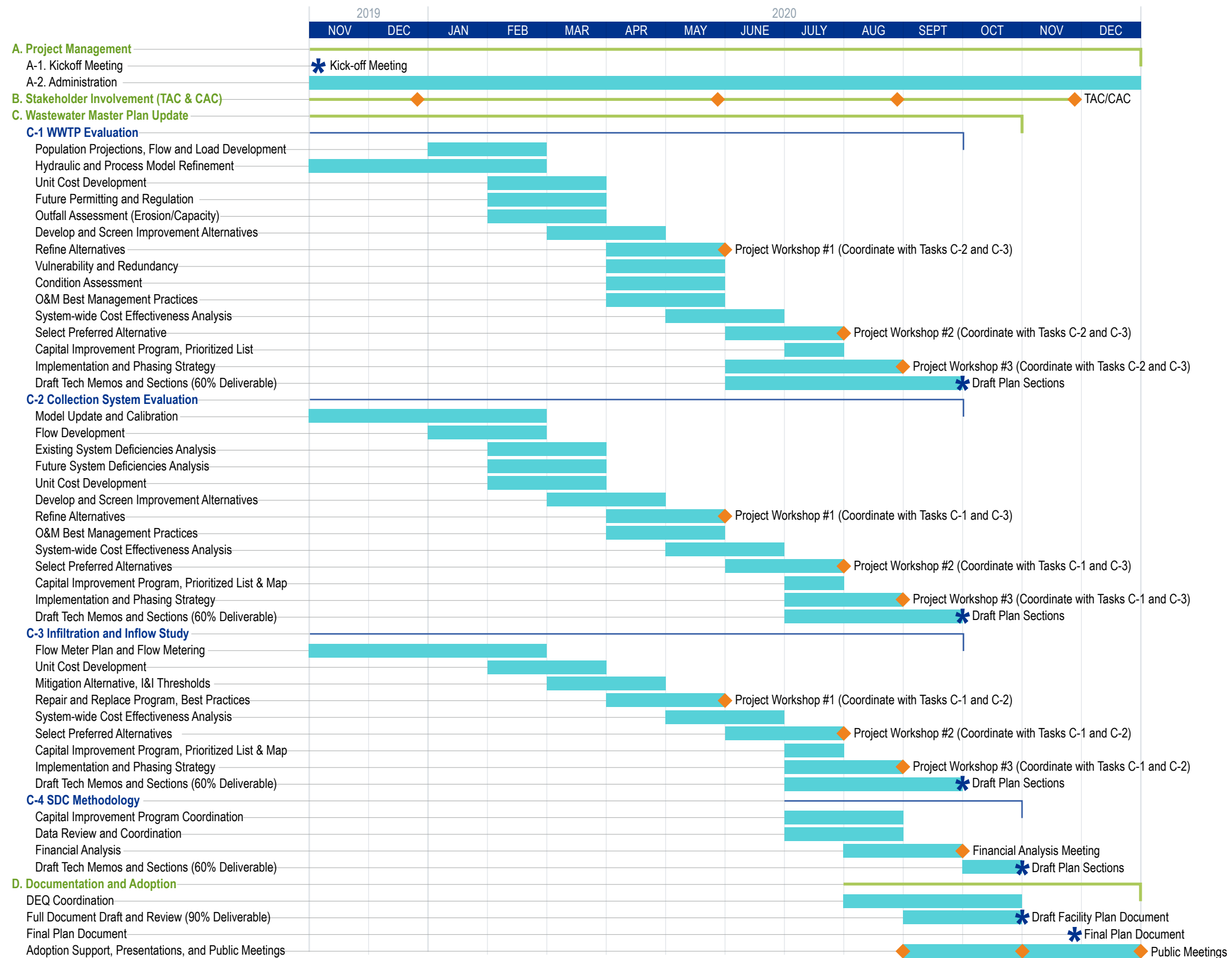
Technical and Citizen Advisory (Task B) - As shown in Exhibit 3 and the Project Schedule (Exhibit 4), we have identified timing of up to four insert Technical Advisory

Committee (TAC)/Citizen Advisory Committee (CAC) advisory meetings. We propose holding these meetings after the kick-off meeting, and shortly after each of the three key workshops. The intent of these meetings is to educate key stakeholders and community members of potential economic, social, and environmental impacts of the wastewater collection and treatment systems, and to implement community feedback into capital program development.

4. Project Schedule

Our proposed schedule (Exhibit 4) presents a realistic work plan that will enable City and operations staff to plan for participation in the process while still being able to keep up with their other responsibilities. The schedule on the next page depicts our project delivery approach showing efficient completion of the Master Plan Update, Inflow and Infiltration Study and Mitigation Plan phases, integration of Stakeholder Involvement throughout, and a pathway for DEQ review. We will work closely with you to maintain project schedule and progress.

Exhibit 4. Project Schedule



5. Additional Supporting Information

A. Why the Jacobs Team?

Why pick this Jacobs team? Here's why: our team knows and understands your treatment plant, your receiving stream, and the associated challenges to treatment and permit compliance. Our local team will leverage Jacobs' innovation and expertise, recognized as a leader in the wastewater treatment field to bring to the City of Stayton.



Jacobs is transforming into the leading, next-generation solutions provider addressing the world's critical challenges. We are on a mission to create a new kind of professional services company; building on an innovative, inclusive culture to make Jacobs a partner of choice for clients and the employer of choice for the world's best talent.

– Steve Demetriou, Jacobs Chair and CEO

B. Staff Resumes

Craig Massie, PE, Project Manager



Professional Engineer: Oregon (#16043); Washington (#31685); Idaho (#P-8754);

Craig's 34 years of experience encompasses municipal and industrial planning, design, construction, project and program management experience. In particular, he excels at working with clients, regulators, project staff, and project stakeholders to develop and reach consensus on workable, cost-effective solutions. He is skilled at delivering technical project information to non-technical audiences such as city councils, commissions, and resource agencies as well as in public information settings.

Representative projects include: Project Manager, Coos Bay WWTP 1 Facility Plan Amendment Project; Project Manager, City of Ashland WWTP Facility Assessment; Program Manager, City of Dallas, Oregon, Water and Wastewater Treatment Distribution and Collection; Project Manager, Expansion Program Project, Salmon Creek Wastewater Treatment Plant, Clark County; Program Manager, and City of Albany Wastewater System Improvements.

Matt Noesen, PE, Facility Plan Lead



Professional Engineer: Oregon (1995, #18184), California (1993, #C50366); North Carolina (#040949), South Carolina (#31211), Washington (#54064)

Matt has 27 years of experience, specializing in treatment plant upgrades and expansions, alternative disinfection, air permitting, and regulatory compliance issues. His experience encompasses the full-range of projects ranging from small control system upgrades to implementing \$200 million capital improvement programs. He provides engineering and management services for a range of municipal wastewater treatment projects, including master plans, predesigns, preliminary designs, final designs, and construction, and he participates in an array of study projects related to tightening regulations for publicly owned treatment works and industry. The focus of these studies typically is plant capacity analysis, advanced wastewater treatment pre-design, and alternative disinfection analysis. He has expertise developing award-winning facilities plans for municipal wastewater agencies in the Pacific Northwest that focus on just-in-time delivery to minimize the impact on existing and future ratepayers.

Representative projects include: Project Manager, Facilities Plan Update, and 2005 Facilities Plan and System Development Charge Methodology Update, Metropolitan Wastewater Management Commission, Eugene; Senior Technology Consultant, Woodburn WWTP Upgrade/Expansion, Woodburn; Project Manager, WWTP Process Improvements, Gresham; Planning Lead, Coos Bay WWTP 1 Facility Plan Amendment; Senior Technical Resource, disinfection, Ashland WWTP Facility Assessment; and Project Engineer, City of Gold Hill, Oregon, WWTP Facility Plan Update.

Shad Roundy, PE/Planning, Conveyance, I&I Lead

Professional Engineer: Oregon (#17666PE)



Shad Roundy brings 17 years of experience in wastewater, stormwater, water, and water resources. He offers expertise in hydrologic and hydraulic analysis, system planning, I&I studies, modeling, and optimization. He also brings expertise in alternative analysis and hydraulic design expertise including large and small pipelines, drop shaft manholes, storage/conveyance tunnels, pump stations, and diversion structures.

Representative projects include: Project Engineer and Task Lead, Clackamas County Water Environmental Services, Sanitary Sewer Collection System Master Plan Update; Project Engineer and Task Lead, Hydraulic Modeling, Planning, and Design, City of Bend; Project Manager and Technical Lead, Collection System Master Plan, City of Gladstone; Project Manager and Task Lead, Hydraulic Modeling and Pipeline Design Support, Various Projects, BES; and Task Lead, I&I Analysis, Metropolitan Wastewater Management Commission, OR.

Bill Leaf, Technical Advisor/QA/QC – Liquids Treatment

Professional Engineer: Idaho (#9414), Washington (#45464)

Bill has more than 20 years of experience in process evaluations, process design, and mechanical system layouts for wastewater treatment facilities as well as modeling wastewater treatment plan performance. He is skilled in the planning, design, construction, and startup of wastewater treatment facilities and has been involved in studies in the areas of permit negotiation, water quality issues, pretreatment, and user charge systems. Bill has broad experience in the startup of wastewater treatment facilities with various unit processes and permit negotiation assistance, pretreatment, water quality, and user charge studies for wastewater systems.

Representative projects include: Senior Technology Consultant, McMinnville Water Reclamation Facility Expansion; Senior Technology Consultant, Bend WRF Secondary Expansion; Senior Technology Consultant, McMinnville Water Reclamation Facility Expansion; Senior Technology Consultant, Ashland WWTP Facility Evaluation; and Senior Technology Consultant, Coos Bay WWTP 1 Facility Plan Amendment

Dave Oerke, PE, Technical Advisor/QA/QC – Biosolids Treatment

Professional Engineer: Colorado (#20047)

Dave is a nationally recognized solids processing facility planning/design expert with more than 140 units installed on his design projects. He has extensive experience evaluating primary clarifier and solids processing facilities and has participated in biosolids management studies and designs for more than 120 municipalities nationwide. He was the principal author and reviewer of thickening, stabilization, and dewatering chapters of Water Environment Federation (WEF) Manual of Practice 8 and U.S. Environmental Protection Agency/WEF Solids Processing and Management Manual.

Representative projects include: Senior Technology Specialist, Solids Management Master Plan Update, Westminster, Colorado; Technical Consultant, City of Boise, Idaho, West Boise WWTP; Project Manager, WWTP Evaluation Study, 8.5-mgd Marcy Gulch WWTP, Centennial Water and Sanitation District, Highlands Ranch, Colorado; Project Manager, Plum Creek WWTP Improvements and Expansion, Castle Rock, Colorado; Senior Technology Specialist, Aerobic Digester and Dewatering Design and Optimization, Oak Lodge, Oregon, WWTP; and Senior Technology Specialist, Dewatering Equipment Evaluation, City of Bend WWTP.

Mark Johnson, PE, Technical Advisor/QA/QC – Conveyance, I&I, Mitigation

Professional Engineer: Oregon (#17666PE)

Wastewater Treatment System Operation, Oregon Grade IV #7091; Wastewater Collection System Operation, Oregon Grade IV #12219

Wastewater operations, maintenance, and management specialist, with extensive experience as an operator and as manager for major treatment facilities, for both public and private service providers.

Mark has an extensive and varied work history ranging from operations to management positions over advanced wastewater treatment facilities. He is well versed on modern operations and maintenance methods and is experienced in audits of public and private operations.

Representative projects include: Operations Manager, Oak Lodge Sanitary District, Oak Grove Oregon; Maintenance Division Manager, Clean Water Services (CWS), Hillsboro; Manufacturer's Representative, Vice President, Beaver Equipment Specialty Company, Inc.; Project Manager and Supervisor, CH2M HILL, Operations Management International, Inc. Wastewater Treatment Plant Operator.

Mark Walter/Waterdude Solutions, LLC, Conditions & Operations

Wastewater Treatment System Operation, Oregon Grade IV #7091; Wastewater Collection System Operation, Oregon Grade IV #12219

Wastewater operations, maintenance, and management specialist, with extensive experience as an operator and as manager for major treatment facilities, for both public and private service providers. Mark has an extensive and varied work history ranging from operations to management positions over advanced wastewater treatment facilities. He is well versed on modern operations and maintenance methods and is experienced in audits of public and private operations.

Representative projects include: Operations Manager, Oak Lodge Sanitary District, Oak Grove Oregon; Maintenance Division Manager, Clean Water Services (CWS), Hillsboro; Manufacturer's Representative, Vice President, Beaver Equipment Specialty Company, Inc.; Project Manager and Supervisor, CH2M HILL, Operations Management International, Inc. Wastewater Treatment Plant Operator.

Dave Wilson, Outfall & Regulatory

David Wilson is a senior aquatic scientist with expertise in water quality analyses, wastewater discharge compliance assessments, NPDES permit development and negotiations, wastewater facilities plan preparation, field studies, data analyses, and designs and studies of wastewater discharge outfalls. He has designed and directed over 75 studies in recent years to evaluate water quality compliance, outfall diffuser performance, waste-field transport, and outfall design studies. He has developed regulatory and water quality evaluations for numerous facility planning documents for clients in Oregon and Washington, applying his knowledge of state water quality standards and NPDES regulations.

Representative projects include: Gresham WWTP Master Plan Update, City of Gresham, OR; Tryon Creek WWTP Facility Plan, BES, Portland; Water Pollution Control Facility Plan, MWMC, Eugene-Springfield, OR; and Coos Bay Sewage Treatment Plant #1 Facility Plan Amendment, City of Coos Bay, OR; additional regulatory and water quality evaluations for facility plan documents include: Vancouver (Marine Park WRF and Westside WRF); Coos Bay STP #2; Corvallis; Clackamas Sewer District No. 1; Centralia; and Clark Regional Wastewater District.

Tom Jones, Cost Estimating

Professional Organizations: Member, AACE International

Tom is a senior cost estimator with 21 years of experience developing construction and cost estimates for a range of projects, including conveyance facilities, water and wastewater facilities, institutional and transportation facilities, and civil, residential, commercial, and industrial projects. His projects encompass a broad range of lift stations, wastewater conveyance, dam repairs, building remodels, aircraft hangars, and prison upgrades. He has experience in overall construction project management, estimating, contract administration, scheduling, material and equipment procurement, and communications with Owner and Engineer. He is responsible for the survey and pricing of complex self-performed and subcontracted work. He manages bid teams, develops bid strategies, and maintains subcontractor relationships.

Representative projects include: Lead Cost Estimator, Metropolitan Wastewater Management Commission, Eugene/Springfield Peak Flow Management Improvements, and Lead Cost Estimator, City of McMinnville Water Reclamation Facility Expansion Project.

Deb Galardi, Rate & SDC Study/Principal, Galardi Rothstein Group

Deborah has over 28 years of experience in developing rates and system development charges (SDCs) for water, wastewater, and stormwater systems. She has unparalleled experience developing SDCs in Oregon; clients include the cities of Portland, Eugene, Springfield, Salem, Bend, Redmond, Sisters, The Dalles, Central Point, Grants Pass, Gresham, Albany, Lebanon, McMinnville, Tualatin, Tigard, Newberg, Sherwood, Dayton, Dundee, Woodburn, Wilsonville, Brownsville, Monmouth, Burns, Pendleton, and Sandy; the Metropolitan Wastewater Management Commission, South Fork Water Board, and Clackamas and Curry counties.

Representative projects include: City of Sherwood, Water, Wastewater, and Stormwater Rate and SDC Studies; City of Pendleton, Water, Wastewater, and Stormwater Rate and SDC Studies; City of Newberg, Water, Wastewater, and Stormwater Rate and SDC Studies; City of Salem, Water, Wastewater, and Stormwater Rate and SDC Studies; City of Carlton Water and Wastewater Rate Studies; and City of McMinnville Wastewater Rate and SDC Studies.

C. References

Ashland Wastewater Treatment Plant Facility Assessment



Date Completed: August 2019 (on time)

Cost: \$130,000, completed under budget

Staff Involved: Craig Massie, Bill Leaf, Mark Walter, Matt Noesen, David Wilson, Tom Jones

Owner Information and Contact:

City of Ashland, Public Works; Chance Metcalf, Engineering Project Manager; (541) 552-2448; chance.metcalf@ashland.or.us

In 2019, Jacobs provided an assessment of the Ashland WWTP to help the City evaluate the current applicability of improvements suggested in their 2014 Ashland WWTP Facility Plan (by others). The project included an assessment of the wastewater treatment process and major process component elements, and an update to flow and load projections using the past 5 years plant data, capacity and redundancy requirements, and waste characteristics. In addition, a complete plant condition assessment was performed (by team member and subconsultant Waterdude Solutions) that statused the condition and needed repairs and refurbishment for all the plant assets. Jacobs created a treatment plant

process model to evaluate plant operation at the projected future flow and load conditions. The goal of this project is to recommend prioritized system improvements to optimize the wastewater treatment process and ensure simplicity of operation. Jacobs used a whole plant analysis approach will provide the City with the information needed to make the best investment in plant infrastructure to meet treatment needs. Other tasks include the condition assessment of the plant infrastructure, evaluation of the specific areas for improvement identified by plant staff, and an assessment of the plant electrical system for harmonic disruption and options for energy efficiency improvement. The project identified that improvements identified in the facility plan could be delayed by ten to fifteen years with no loss of treatment or reliability and suggested prioritized improvements to eliminate current treatment challenges.

Clackamas County WES Collection System Master Plan

Date Completed: 2019

Cost: \$1,000,000 completed and under budget

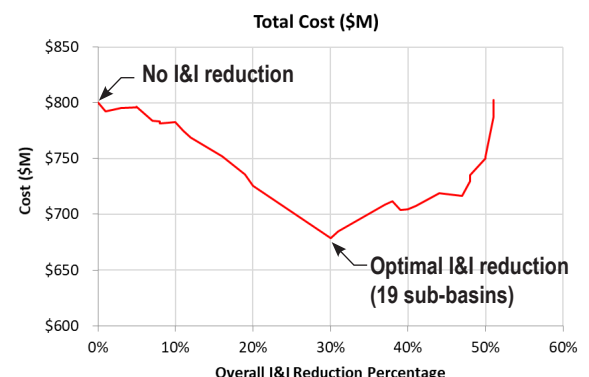
Staff Involved: Shad Roundy, Sven MacAller, Mark Johnson, Dan Buonadonna

Owner Information and Contact:

Clackamas County; Jessica Rinner, PE, Civil Engineering Supervisor; (503) 742-4551; jrinner@clackamas.us

- Model for conveyance, storage, and treatment
- Tools for tracking I&I flow reduction
- Pipeline and pump station condition assessment
- Growth and phasing evaluation
- Capacity and condition assessments
- Improvement alternatives for gravity sewers and pump stations
- Cost sharing for I&I reduction implementation with member communities

Jacobs completed a comprehensive Collection System Master Plan for Clackamas County WES. The project included capacity and condition assessments for thirteen trunk sewers, nine regional pump stations, and two intertie pump stations which control flow between two treatment facilities. Jacobs team members developed an approach to evaluate cost effectiveness of reducing impacts from I&I. The approach compared system-wide capital and O&M costs for conveyance, treatment, storage, and flow reduction. Statistical analysis and condition data were used to evaluate system risk and infrastructure degradation. Nineteen sub-basins were targeted for I&I reduction by 2040 for system-wide cost-effectiveness. Capacity and condition improvement alternatives were further optimized considering pipeline routing, project phasing, and pump station operations. WES is currently using the plan to implement a \$100 million capital improvement program in the conveyance system including a wet weather flow reduction program.



Cost-effectiveness Curve (Total Lifecycle Cost)

Coos Bay Wastewater Treatment Plant Facility Plan Addendum

Date Completed: 2019

Cost: \$397,000, completed under budget

Staff Involved: Craig Massie, Matt Noesen, Bill Leaf, Alan Chang, Mark Walter, David Wilson, Li Lei, Tom Jones

Owner Information and Contact:

City of Coos Bay; Jennifer Wirsing, City Engineer, (541) 269-1181, ext. 2247;
jwirsing@coosbay.org

Craig Massie managed work performed by Jacobs (CH2M) to amend the WWTP1 Facility Plan that focused on the plant condition, flow and loading updates, liquids treatment alternatives, chemically enhanced primary treatment, and solids handling. The plan considered future regulatory changes and optimized improvements within the existing treatment footprint. Craig has also worked with the City of Coos Bay since 2013 to design and expand the City's treatment facilities at WWTP2. He managed Jacobs staff to implement \$23 million dollars of plant upgrades including predesign, design, and services during construction. Preliminary work included a value assessment of the Facility Plan. Improvement projects included new influent pumping, headworks with screening and grit removal, sequencing batch reactor aeration system, ultraviolet disinfection, and connection to the existing ocean outfall. A waste-activated sludge pipeline to the WWTP1 for biosolids stabilization.





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