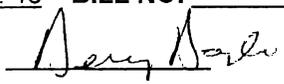


AGENDA BILL

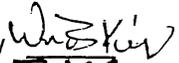
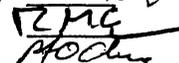
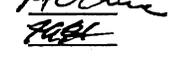
**Beaverton City Council
Beaverton, Oregon**

SUBJECT: Contract Award - Water Master Plan Update Project **FOR AGENDA OF:** 03-22-16 **BILL NO:** 16064

MAYOR'S APPROVAL: 

DEPARTMENT OF ORIGIN: Public Works

DATE SUBMITTED: 03-07-16

CLEARANCES: City Attorney 
CAO 
Finance 
Engineering 


PROCEEDING: CONSENT AGENDA
(CONTRACT REVIEW BOARD)

- EXHIBITS:**
1. Proposals Summary
 2. Scope of Work
 3. Fee Proposal
 4. Project Schedule

BUDGET IMPACT

EXPENDITURE	AMOUNT	\$50,000 (FY 2015-16)	APPROPRIATION
REQUIRED \$300,000	BUDGETED	\$250,000 (FY 2016-17)	REQUIRED \$-0-

* Account Number 501-75-3701-683 – Water Construction Fund – Extra Capacity System Projects – Construction Engineering and Design Account. The FY 2015-16 Budget includes \$50,000 to begin the Water Master Plan Update and the remaining \$250,000 is recommended to be included in the FY 2016-17 Proposed Budget.

RECOMMENDED ACTION:

City Council, acting as the Contract Review Board, authorizes the Mayor to sign a contract with Murray Smith and Associates (MSA) for the Water Master Plan Update Project (CIP 4017A) in a form approved by the City Attorney, and directs the Finance Director to include the additional \$250,000 in the Fiscal Year 2016-17 Proposed Budget.

HISTORICAL PERSPECTIVE:

The Water Master Plan was last updated by Murray Smith and Associates (MSA) in January 2009, and the City has completed numerous construction projects that were identified in the 2009 Plan. These included capital improvement projects for aging infrastructure (renewal and replacement), growth (increased capacity), and resiliency (aquifer storage and recovery, and hardening of larger waterlines).

The 2009 Master Plan included a new water supply source from the Tualatin Basin Water Supply Project (TBWSP), primarily based on new capacity from a proposed dam raise of Scoggins Dam (Hagg Lake). In 2010, the owner of Scoggins Dam, US Bureau of Reclamation, found that the dam was vulnerable to the predicted Cascadia Subduction Zone Earthquake. By 2012, previous partners in the TBWSP for drinking water, then made a decision to instead expand, by 2026, the existing Water Treatment Plant on the Willamette River, now serving Wilsonville and Sherwood. The TBWSP partners also decided to build extensive transmission lines and water storage reservoirs that would become the Willamette Water Supply Program (WWSP), as it is known today.

Since 2013, the City of Beaverton has been participating in the preliminary design and governance process for the WWSP. This Water Master Plan will include an evaluation and recommendation of whether the City should become a financial partner in the WWSP for future supply to 2060.

INFORMATION FOR CONSIDERATION:

Currently, approximately 70,000 of the total 94,000 population within the City limits are served by City water. Most municipalities perform water master plan updates every five to ten years (depending on growth, service boundary expansions, change in demand characteristics, etc.). The City is currently experiencing one of its most intensive growth periods, highlighted by activity in the South Cooper Mountain area. These City water system needs require wise investments in both renewal and replacement of aging infrastructure, and for future increased capacity infrastructure to serve more businesses and a larger citizen population.

A request for proposals was advertised in the Daily Journal of Commerce on December 7, 2015. Representatives from 12 firms (see Exhibit 1) attended the mandatory pre-proposal meeting on December 16, 2015, and the City received proposals from four local engineering firms on January 20, 2016. Staff used a Qualification Based Selection (QBS) process to evaluate the proposals, as required by Oregon Administrative Rules (Division 48), and two firms were selected for interviews.

The City selected MSA as the top candidate and began negotiating the scope of work and fee for the project. The major tasks within MSA's scope of work follow

- Task 1 - Project Management and Quality Assurance/Quality Control
- Task 2 – Resource Document and Data Review
- Task 3 – Facilities Inventory
- Task 4 – Population and Water Demand Forecast
- Task 5 – Analysis Criteria
- Task 6 – Water Supply Analysis
- Task 7 – Distribution System Analysis
- Task 8 – Analysis of System Resiliency
- Task 9 – Capital Improvement Plan (CIP) Update
- Task 10 – Prepare Water System Master Plan Report
- Task 11 – Stakeholder Involvement
- Task 12 – Policy Maker Presentations & Plan Adoption

MSA's initial fee estimate was approximately \$387,000, which is beyond the \$300,000 budgeted between FY- 2015-16 and 2016-17. Staff negotiated with MSA to refine the scope of work (see Exhibit 2) and bring the proposed fee to \$300,000 (see Exhibit 3). Considering the City's aging water infrastructure, capacity projects needed to respond to development (especially South Cooper Mountain area), and the need to consider system resiliency for seismic events, staff believes the proposed scope of work and fee is reasonable.

MSA estimates that approximately 20 percent of the work will be performed by subconsultants, and anticipates that Minority, Women, and Emerging Small Business (M/W/ESB) utilization will exceed ten percent. Project work is anticipated to take 12 months to complete (see Exhibit 4). Staff recommends contract award to MSA.

City of Beaverton

PROPOSALS RECEIVED

**REQUEST FOR PROPOSAL – PROFESSIONAL SERVICES FOR BEAVERTON WATER
SYSTEM MASTER PLAN**

Solicitation #3053-16

Closed: January 20, 2016 at 2:00 PM

Proposals Submitted:

- 1. Murray, Smith & Associates, Inc., Portland, OR**
- 2. HDR, Portland, OR**
- 3. West Yost Associates, Davis, CA**
- 4. Carollo, Portland, OR**

Murray, Smith & Associates, Inc.
Scope of Work - Engineering Services for:

City of Beaverton
Water System Master Plan

This scope of work details services to be provided to the City of Beaverton for the Water System Master Plan by consultants Murray, Smith and Associates, Inc. (MSA) with sub-consultants GSI Water Solutions, Inc. (GSI), McMillen Jacobs Associates, Peterson Structural Engineers, Angelo Planning Group, and Galardi Rothstein Group. Unless specifically noted under each task, all deliverables shall be provided in electronic format.

Task 1 - Project Management

Provide overall management and coordination for the project, including the following subtasks:

Task 1.1 Overall Project Management

MSA will coordinate with subconsultants, assign to and manage the appropriate level of staff expertise for the project at each phase of the plan, coordinate reviews and the implementation of review comments and perform other project coordination as required. For each submittal, all review comments provided by the City and other involved parties will be compiled, along with a proposed response to each comment received.

MSA will prepare a project schedule detailing the start date, end date and duration of each task. This schedule will be updated monthly, as needed.

Task 1.2 Monthly Invoicing and Progress Reporting

MSA will monitor project scope, schedule and budget on a monthly basis. Invoices will be submitted on a monthly basis to the City's project manager. Issues potentially affecting scope, schedule or budget will be identified.

Task 1.3 Quality Assurance/Quality Control

The QA/QC process will include a check list that identifies who will be performing reviews and when these will be performed. It is anticipated redlined comments from the City will be addressed with plan revisions. QA/QC reviews will be conducted at all major deliverable milestones prior to submitting review packages to the City.

Task 2 – Resource Document and Data Review

Provide the City with a written data request, review items provided and request clarification of relevant details. Items requested are anticipated to include:

- Documentation of existing water facility locations, functions and key hydraulic parameters such as overflow elevations and level set points
- Current hydraulic model (coordinate with HDR)
- GIS-based water facility inventory (piping, pumps, reservoirs, well locations, etc.)
- GIS-based zoning and land use data
- Existing planning documents related to water system facilities or anticipated growth within the utility service area, including, South Cooper Mountain area planning, and potential service area transfer analyses
- Water production and customer billing data
- Overview of current operating procedures and routine maintenance schedule

Task 3 – Facilities Inventory

This task is intended to set the context for the subsequent water system analysis.

Task 3.1 Review CityWorks Database Output

It is anticipated that the City, or the Wastewater Master Plan consultant (HDR), will provide output data from the City's CityWorks database on water system assets. Of specific interest will be pipe material, age and condition data. MSA will coordinate with the City and HDR to acquire and review the necessary data to support Capital Maintenance planning.

Task 3.2 Document Existing/Potential Service Area

MSA will prepare an overview map documenting existing and future service area. As part of this subtask, MSA will meet the City's Project Manager and key stakeholders to determine the extent of future service area to be considered in the Plan document.

Task 3.3 Water System Description

Prepare a report section documenting the existing water system. The water system description is anticipated to include, at a minimum:

- System background
- Current and future water service area description and boundary definition

- Existing pressure zone characterization and boundary definition
- Inventory of existing facilities (source and treatment, reservoirs, pump stations, pressure reducing valves, transmission and distribution piping)
- Inventory and documentation of the status of interties with adjacent water systems

Task 4 – Population and Water Demand Forecast

Summarize current water demands based on available water production and customer billing data. Forecast future water requirements based on available land use information and current water use by customer type. Review projected future water requirements for consistency with other City planning documents and anticipated development timelines. Water demand forecasts will be developed for a 20-year and 50-year planning horizon. The 50-year planning horizon will be a system-wide analysis and will not include detailed pressure zone demand forecasts.

Task 4.1 Analyze Historical Water Use

Utilizing customer consumption records and available water purchase/production data, estimates of historical water usage will be developed for the past five years. Water usage records will be tabulated based on customer class, land use and pressure zone.

Task 4.2 Document Water Use Characteristics

The data tabulated in Task 4.1 will be analyzed to identify specific water use characteristics and trends to be applied to projections of future use. Specifically, customer water usage will be analyzed to determine residential per capita usage, to calculate Equivalent Residential Unit (ERU) demand and to correlate non-residential usage to a number of ERUs per unit of developed area (or other method to be determined based on available data). In addition, peaking factors for peak season, peak month, peak day and peak hour demand will be developed.

Task 4.3 Forecast Demands – Existing Service Area

Available land use data and City population projections for infill of the existing service area will be used to determine future 20-year, 50-year and build-out water demand forecasts for the existing water system water service area.

Task 4.4 Forecast Demands – Expanded Service Area

Working with subconsultant, Angelo Planning Group, a development timeline and estimates of future demand potential for each expanded service area will be developed and integrated into the overall water system demand forecast. It is anticipated that this analysis will include South Cooper Mountain and up to nine (9) other areas where service area boundary adjustment may occur. For each of these areas, prior estimates of the number of potential

dwelling units (and non-residential customers) will be used for the analysis. Through a workshop with City staff, estimates of development timing and/or service area boundary adjustment timing will be confirmed for use in the water demand projections.

Task 4.5 Allocate Hydraulic Model Demands

Utilizing the City's billing records, a link between model nodes and customer demand will be created. This will be done by creating an x,y location for each customer by geocoding, physical address or parcel centroid. This will be set up so that the City can update demands in the future. Historical production and SCADA records will be obtained for the previous three (3) years and customer demands will be scaled to match average, maximum and peak demands in the model.

Future demands will be allocated by pressure zone for five (5) and twenty (20) year horizons.

Task 4.6 Provide Forecast Data for City Wastewater Master Plan

MSA will coordinate with the City's consultant preparing the Wastewater Master Plan to provide current water demand allocations, future demand projections and demand distribution forecasts.

Task 5 – Analysis Criteria

Develop capacity and performance criteria for evaluating source and distribution facilities including:

- Water supply capacity, redundancy and reliability (level of service goals)
- Storage capacity
- Booster pumping capacity and redundancy
- Service pressure ranges under normal and emergency conditions
- Required fire flow capacity

Existing criteria will be reviewed and alternatives developed. Criteria will be reviewed in a workshop format with City staff and the selected criteria for use in the plan will be documented in report section.

Task 6 – Water Supply Analysis

This task includes evaluation of the City's existing sources, future source alternatives, water supply level of service goals and documentation of a preferred long-term water supply strategy.

Task 6.1 Document Long-Term Water Supply Needs

Water demand forecasts and the level of service goals for water supply will be presented in graphical and tabular format to set the context for future water supply need and planning.

Task 6.2 Document Current Water Rights Status

This task includes development of a summary of the City's groundwater, surface water, and aquifer storage and recovery (ASR) water rights. Restrictions, risks, and development timelines associated with the water rights also will be evaluated and summarized. As part of this effort, we will also evaluate the City's position with obtaining additional groundwater supply, including transfer of existing groundwater rights in the Cooper Mountain-Bull Mountain Critical Groundwater area, and options related to additional surface water rights on the Willamette. Our assessment will incorporate the City's ASR program and its link to the City's current water rights portfolio to identify potential off-season supply issues.

Task 6.3 Assess Water Supply Alternatives

A brief assessment of the water supply development or expansion alternatives available to the City will be developed. It is anticipated that this list will include JWC source expansion, Willamette River supply development, local groundwater, ASR expansion, and purchase of wholesale water from the City of Portland. A brief discussion of the pros, cons, barriers to implementation, and capital cost of development (based on previous analyses) will be presented to support water supply strategy development.

Task 6.4 ASR Expansion Plan

As part of this effort we will summarize the current ASR program including near-term build-out options for ASR 5, ASR 6, and ASR 7. In addition, we will summarize previous work outlining future ASR sites within the City's service area, pros and cons of each site, and preliminary planning level costs (escalated to current prices) for developing the next ASR sites, based on previous work completed for the City under the ASR Expansion program. We have assumed that future ASR development will be done under the City's existing ASR limited license (#002) or that it will be done under the JWC's ASR limited license (#017). Limited discussion will be provided on the use of these permits to advance the City's future ASR program.

Task 6.5 Water Supply Strategy Workshop

A workshop will be conducted with City staff to review the findings of the previous subtasks and to identify the preferred long-term water supply strategy. During the workshop, long-term water supply needs, potential water rights issues, the role of ASR, and potential water supply alternatives will be evaluated. Specific attention will be given to determining the

City's level of service goals under various conditions that may limit the City's current or future water supply capacity, such as a drought or natural disaster.

Task 6.6 Document Water Supply Strategy

The proposed long-term water supply strategy and any key decisions points or variables to be considered as part of future planning will be documented. It is anticipated that the water supply strategy will provide the basis for policy maker decisions regarding participation in regional water supply planning, design, construction and governance discussions, as well as development of expanded local supply sources.

Task 7 – Distribution System Analysis

Apply analysis criteria established in Task 5 and water requirements developed in Task 4 to evaluate water system performance. The water system will be evaluated under existing, projected 20-year and build-out water demand conditions.

Task 7.1 Hydraulic Model Conversion to InfoWater

MSA will convert the City's existing water system hydraulic model from Bentley WaterGEMS to Innovyze InfoWater. Both applications are based on the EPANet hydraulic model engine. The InfoWater modeling platform is the preferred software application for both MSA and HDR, the two consulting firms who have provided hydraulic analysis using the model for the City. This conversion will include review, in coordination with HDR, of modeling scenarios and operational controls to be preserved during the conversion. Following completion of the conversion, a QA/QC review of the model data and output will be performed.

Task 7.2 Hydraulic Model Calibration

MSA will provide support, oversight and flow testing equipment (if required) to conduct fire hydrant flow testing at approximately 16 locations throughout the City's distribution system. Work under this task includes:

- Identify optimal locations for model calibration flow testing and verify available drainage capacity with City staff
- Develop mapping and field data sheets
- Provide two MSA staff and one field vehicle for flow testing
- Take measurements during flow testing and compile results

It is assumed that the City will provide:

- Input on flow testing location selection and potential drainage issues

- Communication and notification of emergency responders, critical facilities and customers at the City's discretion
- One field vehicle and two City staff members with appropriate tools to operate hydrants
- Water system operating parameters within +/- five minutes of the time of each flow test including reservoir levels and WTP flow rate

Perform model calibration using field measurements gathered above to confirm accurate simulation of actual water system conditions to the extent possible with available operating data. Develop and document criteria for evaluating calibration confidence levels.

Task 7.3 Distribution System Analysis

The existing water distribution piping will be analyzed using steady-state hydraulics under peak demand and fire flow conditions. Each demand condition will be evaluated against the pressure and velocity criteria developed in Task 5 using the calibrated hydraulic model developed in Tasks 7.1 and 7.2 to identify system deficiencies.

Task 7.4 Storage and Pumping Capacity

Evaluate finished water storage and booster pumping capacity based on criteria established in Task 5 and water requirements developed in Task 4.

Task 7.5 Water Quality

Review and summarize water quality regulatory requirements and City compliance within the distribution system. Identify areas of concern, if any, for water quality compliance in the distribution system and describe conceptual-level improvement alternatives.

Task 7.6 AMR/AMI Evaluation

The City desires to analyze the costs and benefits of switching to an automated meter reading (AMR) system to read the City's water meters. The City currently contracts to a neighboring water provider for meter reading services. A mobile AMR system will further modernize meter reading and offers a major advancement in technical support capabilities, water conservation analysis and program support. However, an upgrade to AMR represents a substantial investment that must be justified relative to current operations. MSA has developed a financial model to analyze the benefits and costs of switching to an AMR system. MSA will implement the model for the City's system and report model results to initiate the decision making process.

Review Current Systems

MSA will meet with the City, via teleconference to review their current meter reading operations and to discuss the type, age and condition of their meters and registers. MSA will provide a list of inputs to City staff that are necessary to populate the financial model.

MSA will review data collected by City staff and input data to the financial model. MSA will recommend any additional data collection required to populate the model after the initial review. Specific consideration will be given to the fixed cost of contracted meter reading and the additional labor costs associated with City staff re-reads and follow-up work.

MSA will review functionality of mobile and fixed base AMR systems with the City. It is understood that the City will provide data from AMR system manufacturers regarding current equipment costs from current pilot studies and the results of an AMI propagation study currently underway.

City staff will provide a map and spreadsheet or database of meters generally defining meter locations, age and type. If not available, MSA will work with City staff to develop basic assumptions of the existing meter infrastructure. The level of certainty of AMR costs will be directly impacted by the quality of available data.

Financial Analysis

Financial modeling will compare a mobile meter reading system to current operations. MSA will adjust the financial model to account for operations specific to the City of Beaverton. After adjusting the model, MSA will analyze a mobile AMR alternative using the financial model.

An upgrade strategy will be developed and visualized for communication purposes to assist City staff and Council with project understanding. An upgrade strategy may include register and/or meter replacement where necessary to address compatibility and functionality issues with an AMR system. Some of the newest meters and registers may be adequate for direct connection to an AMR endpoint. Older registers and/or meters may need to be replaced to generate the necessary compatibility with an AMR system.

MSA will hold a workshop with City staff to discuss financial model results. The model and inputs will be reviewed in detail to develop confidence in financial results and review supporting model inputs. Comments from staff will be incorporated in final model iterations and reporting.

After developing final model iterations, MSA will draft a technical memorandum describing the financial models and recommendations. Recommendations will be based on planning for future meter reading system implementation if analysis indicates that it is more economical than current meter reading operations.

Task 7.7 *Distribution System O&M BMPs*

Evaluate current water distribution system operating and routine maintenance procedures based on AWWA standards and practices of similar water providers in the region. Recommend additional scheduled maintenance as indicated and recommend staffing levels needed accomplish recommended maintenance. The following items will be documented in this section of the Plan:

- Distribution system management and personnel
- Operator certification
- System operation and control
- Operations & maintenance needs and improvements

Task 7.8 *Staffing Levels and Benchmarking*

MSA will reference recent benchmarking of four to five other similar sized utilities and AWWA national and regional benchmarking statistics on a number of O&M items such as; number of staff (proportional to miles of main and annual demand), size of system, yearly budget, yearly capital and replacement budget, and distribution system water loss. This information will be summarized and documented in the Plan.

Task 7.9 *Capital Maintenance Needs*

MSA proposes to utilize readily available condition assessment information, retrieved from CityWorks, to develop a tabulated list of capital maintenance needs. This assumes the City can identify piping, reservoirs, and pumps station that are in poor condition. An overall long term pipeline replacement and/or rehabilitation schedule will be identified through conversations with City staff. This identification of capital maintenance needs will include an assessment of cathodic protection systems currently in place throughout the City's transmission system, and identification of capital needs to maintain these systems.

Condition information will be combined with hydraulic capacity limitations to prioritize improvements in the system. The overall replacement schedule will focus on a percent of system or number of feet of pipe per year and will not go to the level of identifying specific piping to be replaced unless the City can provide that information.

A brief discussion of updates to the City's Engineering and Design Standards will be presented based on observed capital maintenance needs and long-term performance of the existing water system facilities.

Task 8 – Analysis of System Resiliency

Task 8.1 Identification of Critical Water Supply Locations/ Infrastructure

In collaboration with City staff, MSA will develop a map illustrating critical water supply facilities and customers. This mapping will include key water supply points, interties, reservoirs and pump stations. In addition, this mapping will identify the major transmission and distribution piping backbone of the City's water system. Critical water supply locations, such as hospitals, emergency shelters, anticipated emergency water supply distribution sites, and other essential facilities will be identified on the developed map.

Task 8.2 Develop Level of Service Goals

MSA will review level of service goals with City staff to develop a basis for analysis of water system performance under various conditions. It is anticipated that these goals will include desired supply availability (capacity and percent of distribution system) under various conditions: normal operation, minor unplanned disruption of one source, and a major seismic event.

Task 8.3 Identification of Seismic Geohazards

The MSA team will compile and review existing geologic/geotechnical and seismic data in the City of Beaverton area to develop preliminary understanding of subsurface conditions and potential seismic hazards. Information sources will include:

- Local and regional geologic publications and maps,
- DOGAMI Seismic Hazard Maps,
- TVWD and WWSP Seismic Hazard Maps (if available),
- Oregon Department of Water Resources well logs,
- LiDar topographic images,
- Available City and County's geotechnical boring information and reports, and
- Foundation design drawings of the critical facilities of the City's water system.

Conduct a probabilistic seismic hazard assessment to evaluate the regional and local seismic hazard contribution, and potential earthquake sources and scenarios. Verify and update the regional seismic hazard maps. We will adjust and revise the maps of ground shaking, liquefaction and landslide as necessary. This mapping will identify potential soil liquefaction zones, seismic landslide zones, lateral spreading zones, and critical transition zones between non-liquefiable and liquefiable soils/rock. The results of this review and seismic evaluation will be documented in a seismic hazard technical memorandum.

Task 8.4 Evaluate Pipeline Fragility

Identify pipes in areas subject to Geohazards such as strong ground shaking, liquefaction, and landslides, and assign the probability of occurrence for peak ground velocity and

permanent ground deformation hazards to the water distribution system. Pipeline fragilities will be assigned using published guidelines given pipe material, age and assumed joint type.

For the purposes of this analysis, the fragility of backbone piping identified in Task 8.2 will be evaluated. Broader analysis of the full distribution system is beyond the scope of this assessment.

Task 8.5 Develop Preliminary Assessment of Facility Risk

A preliminary assessment of seismic risk to City water system facilities, including pump stations and reservoirs, will be conducted based on documented data regarding the age and condition of these facilities. This preliminary assessment will not include site visits or detailed structural analysis. The purpose of this task is to prioritize future structural evaluations based on the highest anticipated risk due to construction methods and/or mapped geohazards.

Task 8.6 Seismic Design Standards for New Construction

The MSA team will present recommendations to be incorporated into the City's design standards for seismic resiliency of transmission and distribution piping, and piping connections to other water system facilities.

Task 8.7 Document Incomplete Vulnerability Assessment Improvements

The City's Vulnerability Assessment report will be reviewed and incomplete improvements that were recommended in that document will be reviewed with City staff. Those improvements deemed to still be essential to improving the security of the water system will be incorporated into the CIP of this Water System Master Plan.

Task 8.8 Seismic Resiliency Workshop

MSA will conduct a workshop with City staff to review the various elements of the seismic resiliency evaluation. It is anticipated that this workshop will focus on defining further seismic resiliency study needs and confirming recommended improvements to be included in the CIP for this Water System Master Plan document.

Task 9 – Capital Improvement Plan (CIP) Update

Develop prioritized list of capital improvement projects to address deficiencies identified in the system analysis. The CIP will include estimated cost for each project, suggested timeframe for construction and allocation of project costs allocation to existing and future customers. CIP projects will be illustrated on a water system map. Work under this task also includes completion of the financial element of the Plan, which we be led by subconsultant Galardi Rothstein Group.

Task 9.1 Develop Project Cost Estimates

All project cost estimates will include direct project construction costs, engineering, construction management, administrative, and legal costs, property acquisition costs, as well as appropriate project contingency allowances. Planning level estimates are defined by the AACE International to Level 5 estimates with an accuracy range of +50 to -30 percent of actual project bid costs. Assumptions and data used to develop the cost estimates will be identified and detailed to include material quantities, unit costs, and other variables.

Task 9.2 CIP Prioritization Workshop

MSA will conduct a prioritization workshop based on the draft CIP. MSA will work with the City to develop criteria for the prioritization based on a number of factors including; whether it is an existing deficiency or not, the extent of the deficiency, number of customers impacted, type of customer impacted, whether it addresses both a hydraulic and condition deficiency, and others. As part of this workshop, prioritization will be coordinated with the City's Wastewater System Master Plan, being developed on the same timeline.

Task 9.3 Develop CIP

Each project will be described in terms of the reason for the improvement, the location, its size and extent, as well as the total project cost including engineering and construction. Corresponding figures will be generated showing the improvement along with a unique identifier that will also be populated in the hydraulic model. Projects to be implemented in the first five (5) years will be identified first, then those in the 5 to 10-year range, those between 10 and 20 years, and finally those from 20 years to buildout.

Task 9.4 SDC Study

Within the basic SDC development process, jurisdictions have latitude in selecting specific methodological approaches related to the calculation and assessment of SDCs. We will review the existing SDC methodology, ordinance, resolution and master plan information, and determine whether any changes to the current methodology are warranted to better align with the City's current infrastructure funding objectives and Oregon SDC statutes.

The technical scope of services for the SDC analysis includes three primary tasks. Additional tasks are provided for deliverables and meetings.

Task 9.4A: Review System and Capacity Needs

To be defensible, SDCs must recover costs from new development in proportion to projected capacity requirements. An understanding of system operating and planning criteria is critical to the equitable allocation of costs to new development as a whole, and to individual developments based on specific characteristics. We will review information from the master plan update, and meet with City staff to gain an understanding of:

- System design criteria
- Existing system available capacity and any service level deficiencies
- Projected future system capacity and growth needs

We will also review the City's existing SDC methodology and Council resolution.

Task 9.4B: Develop SDC Cost Basis and Unit Costs

The results of the capacity analysis in Task 1 will indicate the extent to which new development will rely on existing system facilities versus planned improvements to meet service requirements. In most systems, a combination of existing available capacity and future capacity expansions are required to serve the projected needs of new development. Therefore, the cost basis will likely include a combination of existing assets (the 'reimbursement' cost basis), as well as future improvements (the 'improvement' cost basis). In evaluating facilities for inclusion in the reimbursement fee, we will consider a number of factors, including: available capacity, replacement by future capital improvements, and historical funding sources. In addition, a number of alternatives exist for how existing assets may be valued for purposes of calculating SDCs, and the selection of valuation method can have a significant impact on resulting SDC levels.

The cost basis for the improvements will be based on the updated capital improvement plan. Based on the capacity analysis in Task 9.5A, we will develop defensible bases for allocating the improvement costs between current and new system users. As with the reimbursement cost basis, we will consider whether any adjustments are warranted to account for anticipated future funding sources (e.g., developer contributions).

Finally, Oregon SDC law allows local jurisdictions to recover costs associated with complying with the SDC statutes. We will work with City staff to develop cost estimates associated with SDC law compliance.

The reimbursement and improvement costs attributable to growth will be divided by the total projected growth units to determine system-wide unit costs of capacity.

Task 9.4C: Develop SDC Schedules

Once the unit costs of capacity have been calculated, the fees for different types and sizes of development can be determined based on projected claims on system capacity. The selection of units of measure for new customer demand projections is particularly important because of its significant impact on cost distribution. To ensure that assessments appropriately recover the cost of system facilities from those customers most responsible for imposing new demands, this evaluation is supported by engineering and planning information on the design of system capital facilities. In the development of the fee schedule, we will work with City

staff to evaluate existing scaling measures (meter equivalency factors and Equivalent Dwelling Unit formula), and discuss whether any modifications are appropriate.

Task 9.4D: Deliverables

The updated SDC methodology and project list will be documented in a methodology report. The report will describe the methodological and policy framework, assumptions, and present the fee calculations. Draft and final reports will be prepared.

Task 9.4E: Meetings

For budget purposes, we have assumed the following meetings:

- Kick-off meeting with City staff to refine the work plan and schedule and review data and existing methodology issues.
- Up to two additional meetings with City staff to discuss the technical analysis and develop recommendations.
- Up to three meetings with the City Council or other stakeholders.

Task 9.5 *Rate Analysis*

The goal of the rate study is to establish a long-term funding plan that ensures adequate revenue to address the capital and operation and maintenance (O&M) needs of the water system, as identified in the Master Plan, and to evaluate alternative rate structures (optional) to meet the City's policy objectives.

The proposed scope of work for the study includes the following tasks:

Task 9.5A: Study Initiation and Management

We will conduct a meeting with City staff to refine the work plan and schedule, and discuss rate and financial policies and issues to be addressed in the study. We will prepare a data request list. The requested data will include operational, financial, and customer information for the water system. We will review the information developed for the Master Plan, along with existing rate structure, water use records, and historical and budgeted utility financial performance.

Task 9.5B: Financial Plan Development

We will analyze information from the City's current operating budget and the Master Plan to project operation and maintenance (O&M) requirements and capital improvement costs for the planning period (generally 10-20 years). Total revenue requirements will include current revenue funded capital projects, debt service (existing and any projected new), O&M costs (including indirect and direct administrative costs) and policy-related requirements (e.g., funding of reserves). Miscellaneous revenues, including revenue from SDCs, interest

income, etc., will be projected and deducted from total requirements to determine the amount of annual revenue required from user rates. Revenue under existing rates will be projected based on water use and growth trends, and we will work with the City to develop a rate increase strategy to meet the projected requirements.

A computerized financial planning model will be developed so that alternative financing scenarios, policy and forecast assumptions may be evaluated against rate increases, and other financial indicators to develop a plan that meets the City's risk management and other objectives.

Task 9.5C: Meetings

We will participate in up to two (2) formal presentations of the study findings and recommendations, to the City Council and public. We will also meet with City staff throughout the course of the project to discuss data, alternative approaches, and results.

Task 9.5D: Documentation

We will prepare draft and final rate study chapters (or Technical Memoranda) for inclusion in the Master Plan. The documentation will outline the data analyzed, methods used, and findings and recommendations.

Task 10 – Prepare Water System Master Plan Report

Prepare draft and final master plan documents to include addressing interim and final review comments from City staff, stakeholder advisory committees, City Council and Oregon Health Authority, Drinking Water Services (OHA-DWS).

Task 10.1 Draft Document – Staff Review

Combine work products and findings from previous tasks into a cohesive water system master plan which meets Oregon Administrative Rule requirements for Water System Master Plans. The Plan is anticipated to include the following major chapters:

1. Introduction and Existing System
2. Water Requirements
3. Analysis Criteria
4. Water System Analysis
5. Water Supply Analysis
6. Seismic Resiliency
7. Capital Improvement Plan

8. Financial Evaluation
9. Appendix

Draft reports will be in electronic format, except where requested by the City. If printed versions are required, up to 5 hard copies will be produced.

Task 10.2 Draft Document – Public Review

MSA will incorporate comments from City staff and Technical Advisory Committee review of the draft document. A revised draft Water System Master Plan will be developed for use in public and policy maker review and approval.

Draft reports will be in electronic format, except where requested by the City. If printed versions are required, up to 8 hard copies will be produced.

Task 10.3 Executive Summary

Following draft review and approval by City staff, prepare concise Executive Summary as a stand-alone document to be distributed to policy makers and included in the final plan document.

Task 10.4 OHA-DWS Plan Review

Coordinate delivery of draft plan to OHA-DWS for review including addressing review comments and follow-up correspondence, as required. The City will pay the OHA-DWS plan review fee.

Task 10.5 Final Document

Prepare final document that incorporates all City (staff, stakeholder advisory committees, Planning Commission and City Council) and OHA-DWS review comments and submit to City staff.

Final reports will be in electronic format, except where requested by the City and OHA-DWS. If printed versions are required, up to 5 hard copies will be produced.

Task 11 – Stakeholder Involvement

Subtask 11.1 – Stakeholder Involvement Plan

MSA will assist City in identifying key components of the water master planning process to be presented to Technical Advisory and Policy Advisory Committees to be established by the City. In addition, the timing of informal meetings with the Mayor's office and individual

City Councilors will be established and documented in the Stakeholder Involvement Plan. The stakeholder involvement plan will include these key components and related reporting milestones, overall project goals and objectives and a list of stakeholders.

It is assumed that the City will facilitate or otherwise lead the stakeholder involvement process, with support from MSA. The City will provide meeting rooms and advertisement for stakeholder involvement workshops.

Task 11.2 Technical Advisory Committee Meetings

It is understood that the City will establish a Technical Advisory Committee, consisting of City staff. This committee will provide input at critical decision points in the plan development process and review of major milestone deliverables. For budgeting purposes, it is assumed that the Technical Advisory Committee will participate in key task workshops described elsewhere in this scope of work. As such, a level of effort and budget is not assigned to this task.

Task 11.3 Policy Advisory Committee Meetings

It is understood that the City will establish a Policy Advisory Committee. This committee will provide review and input for key milestone deliverables in the plan. For budgeting purposes, it is assumed that MSA will attend meetings and prepare agendas, presentation materials, and meeting minutes for up to 2 committee meetings.

Task 11.4 Stakeholder Involvement

MSA will participate in informal meetings to present review key policy decisions or critical findings with the Mayor and/or small groups of members of the City Council, as the Water System Master Plan progresses. For budgeting purposes, it is assumed that MSA will attend meetings and prepare agendas, presentation materials, and meeting minutes for up to 2 informal policy maker meetings.

Task 12 – Policy Maker Presentations & Plan Adoption

Present water master plan work, proposed CIP and financial evaluation to policy makers for plan approval and adoption. For estimating purposes, presentations and public meetings are itemized in the following subtasks:

Task 12.1 City Council Work Session

MSA will prepare for and present the findings of the Water System Master Plan at one City Council work sessions.

Task 12.2 City Council Meeting – Plan Adoption

MSA will attend one formal City Council meeting for Q&A, as part of the Council adoption process. A formal presentation is not included as part of this task.

Task 12.3 Additional Public Meeting

MSA will prepare for and provide a presentation of the findings of the Water System Master Plan at up to 1 additional public meeting, as requested by the City.

Task 8 - Analysis of System Resiliency																																	
Task 8.1 - Id Critical Water Supply Customers/ Infrastructure	3	8		16					51	\$ 7,632																\$ 240	\$ 7,872						
Task 8.2 - Develop LOS Goals	1	8		8					17	\$ 2,832			\$ 1,565													\$ 25	\$ 4,422						
Task 8.3 - Id Earthquake Geohazards		2		2					4	\$ 652			\$ 15,068													\$ 50	\$ 15,770						
Task 8.4 - Evaluate Pipeline Fragility	1	4		12			24		41	\$ 5,880			\$ 4,127													\$ 240	\$ 10,247						
Task 8.5 - Evaluate Facility Risk	1	8		12					21	\$ 3,400			\$ 2,972		\$ 13,650											\$ 50	\$ 20,072						
Task 8.6 - Seismic Design Standards for New Construction	2	8		8					18	\$ 3,056			\$ 2,520		\$ 1,050											\$ 50	\$ 6,676						
Task 8.7 - Document Incomplete VA Improvements		4		4				1	9	\$ 1,378																\$ 50	\$ 1,428						
Task 8.8 - System Resiliency Workshop	3	6		9				2	20	\$ 3,202																\$ 100	\$ 3,302						
Task 8 Subtotal	11	48	0	71	48	0	3	181	\$ 28,832	\$ -	\$ 26,350	\$ -	\$ 14,700	\$ -	\$ -	\$ 805	\$ 69,787																
Task 9 - Capital Improvement Plan Update																																	
Task 9.1 - Develop Project Cost Estimates		2		8	16				26	\$ 3,648																\$ 160	\$ 3,808						
Task 9.2 - CIP Prioritization Workshop		6		10		4			20	\$ 3,040																\$ 72	\$ 3,112						
Task 9.3 - Develop CIP	1	2		16			2		21	\$ 3,012																\$ 25	\$ 3,037						
Task 9.4 - SDC Study		4		4					8	\$ 1,304					\$ 13,913											\$ -	\$ 15,217						
Task 9.5 - Rate Analysis		2							2	\$ 368					\$ 12,338											\$ -	\$ 12,706						
Task 9 Subtotal	1	16	0	38	16	4	2	77	\$ 12,372	\$ -	\$ -	\$ -	\$ -	\$ 26,250	\$ 257	\$ 37,879																	
Task 10 - Prepare Water System Master Plan Report																																	
Task 10.1 - Draft Document - Staff Review	4	8		24	10	6	8		60	\$ 8,482																\$ 708	\$ 9,190						
Task 10.2 - Draft Document - Public Review		8		12	2	2	4		28	\$ 3,998																\$ 556	\$ 4,554						
Task 10.3 - Executive Summary	1	4		8			2		15	\$ 2,244																\$ 50	\$ 2,294						
Task 10.4 - OHA-DWS Approval		1		2	2		2		7	\$ 884																\$ 120	\$ 1,004						
Task 10.5 - Final Document		2		6		2	8		18	\$ 2,070																\$ 1,036	\$ 3,106						
Task 10 Subtotal	5	23	0	52	14	10	24	128	\$ 17,678	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,470	\$ 20,148																
Task 11 - Stakeholder Involvement																																	
Task 11.1 - Stakeholder Involvement Plan		2					2		4	\$ 516																\$ 25	\$ 541						
Task 11.2 - NOT USED									0	\$ -																\$ -	\$ -						
Task 11.3 - Policy Advisory Committee (up to 2)	2	8		8					18	\$ 3,056																\$ 150	\$ 3,206						
Task 11.4 - Mayor and Council Meetings (up to 2)	2	8		8					18	\$ 3,056																\$ 180	\$ 3,236						
Task 11 Subtotal	4	18	0	16	0	0	2	40	\$ 6,628	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 355	\$ 6,983																
Task 12 - Policy Maker Presentations & Plan Adoption																																	
Task 12.1 - City Council Work Session	1	8		10			12		31	\$ 4,004																\$ 300	\$ 4,304						
Task 12.2 - City Council Meeting - Plan Adoption		2		2					4	\$ 652																\$ 150	\$ 802						
Task 12.3 - Additional Public Meeting	2	5		6			2		15	\$ 2,368																\$ 600	\$ 2,968						
Task 12 Subtotal	3	15	0	18	0	0	14	50	\$ 7,024	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,050	\$ 8,074																

Project Schedule

