



Agenda Report 2017-05-08-04

Date: May 8, 2017

To: Russ Axelrod, Mayor
Members, West Linn City Council

From: Lance Calvert, P.E., Public works Director/City Engineer

Through: Eileen Stein, City Manager *ES*

Subject: Award Professional Services Contract to Update Surface Water and Sanitary Sewer Master Plans (PW-16-04)

Purpose

To consider approving an agreement with Brown and Caldwell for professional services related to updating the City's Surface Water and Sanitary Sewer Master Plans (PW-16-04).

Question(s) for Council:

Do the proposed professional services meet the needs of the City?

Public Hearing Required:

None required.

Background & Discussion:

The City's current Sanitary Sewer Master Plan was last updated in 1999 and the current Surface Water Master Plan was last updated in 2006. The purpose of the Master Plans is to guide future City project needs by identifying current system deficiencies, future anticipated needs and recommending future system improvements. Additionally, an update to the Surface Water Master Plan is needed to better conform to increasingly stringent state and federal water quality regulations including the City's National Pollution Discharge Elimination System (NPDES) permit requirements.

A request for qualifications was issued following state and local procurement requirements. A total of two proposals were received from the following firms:

1. Brown and Caldwell of Portland, OR
2. Water Systems Consulting, Inc. (WSC) of Portland, OR

Upon review of the submitted proposals, Brown and Caldwell was deemed to be the preferred firm for the project based upon the evaluation criteria identified in the request for qualifications.

A detailed project scope and fee was negotiated with Brown and Caldwell upon selection as the preferred firm. The attached scope and fee outlines the details of the work they will complete which includes the project schedule. Brown and Caldwell has teamed with Carollo Engineers of Portland for work on the Sanitary Sewer Master Plan.

Budget Impact:

\$483,753 from the Environmental Services Fund and Surface Water/Waste Water SDC Funds.

Council Options:

1. Approve the agreement with Brown and Caldwell.
2. Do not approve the agreement and re-advertise requests for qualifications for the project.
3. Do not approve the agreement and cancel the project.

Staff Recommendation:

Staff recommends approval of the agreement.

Potential Motion:

Council: Acting in the capacity of the Local Contract Review Board, move to authorize the City Manager to sign the Personal Services Agreement for the Surface Water and Sanitary Sewer Master Plan updates project.

Attachments:

1. Brown and Caldwell scope and fees.

Exhibit A

Scope of Services

City of West Linn Sanitary and Surface Water Master Plan

The City of West Linn (City) is developing a Surface Water Master Plan (SMP) and a Sanitary Sewer Master Plan (SSMP) to improve understanding of system characteristics and infrastructure in the city and support the prioritization of surface water and sanitary capital projects to address conveyance, capacity, and water quality for both existing and future development.

Key objectives for the SMP include the development/refinement of drainage basins, an evaluation of hydrology and stormwater flows, the identification of system deficiencies, and the development and prioritization of capital improvement projects. Key objectives for the SSMP include an evaluation of sanitary system performance that considers infill, redevelopment, and new development, the identification of reduction strategies for inflow and infiltration, an operations and maintenance assessment, and the development and prioritization of capital improvement projects.

Presentation of both the SMP and SSMP shall be clear, concise, and implementable.

This scope was developed to include a combined project management Phase (Phase 1) and discipline-specific phases and tasks for both the SMP and the SSMP. SMP development is described under Phases 2–8; SSMP development is described under Phases 9-14.

Work on the SMP and SSMP is estimated to occur over the next 16 months, including presentation of the Plans to the public and to City Council for adoption. Schedule adjustments may be needed during the project duration.

For purposes on this scope and contract, Brown and Caldwell (Engineer) is the prime contractor and overseeing contract management and the SMP. Carollo (Subcontractor) is developing the SSMP. The collective project team is referred to as the Engineer team.

Phase 1 Project Management (Contract and Discipline-specific)

Objective To provide overall contract management and oversee the SMP-specific and SSMP-specific project phases, schedule and budget. To maintain ongoing communications with the City of West Linn (City). To provide quality assurance and quality control (QA/QC) throughout the project.

Task 1-1 Project Administration

Activities The Engineer will provide overall contract management. The Engineer team will coordinate to ensure storm and sanitary projects receive staff support necessary to meet the schedule and maintain project quality. Activities budgeted under Task 1-1 include:

- Overall schedule management. An initial, comprehensive (surface water and sanitary) project schedule will be developed using Excel. It will identify anticipated task duration, start/stop dates, and scheduled QA/QC reviews. Up to three schedule updates (in digital form) will be made available to the City.

- Overall budget management. Budget tracking will occur via WorkSmart, the Engineer's internal tool for tracking weekly project costs by project phase and task. Internal month end reporting will be conducted by the Engineer to estimate effort to complete and will be used to identify budget challenges in advance. While not anticipated, budget challenges would be communicated directly to the City during project coordination meetings and resolution/scope adjustments/amendments will be documented with emailed meeting summaries.
- Development of a Project Management Plan (PMP). The Engineer shall prepare a PMP to document project roles, responsibilities, and QA/QC protocols.
- Subcontractor coordination and oversight. The Engineer will work with the Subcontractor to review subcontractor's budget, coordinate deliverable schedules and identify data gaps and other project issues during the project duration.
- QA/QC activities. Draft deliverables will have a QA/QC review conducted in accordance with the project schedule. The Engineer will schedule and notify senior reviewers related to the SMP. The Subcontractor will schedule and notify senior reviewers related to the SSMP. Draft deliverables prepared by the Subcontractor will have a final QA/QC review by the Engineer in accordance with the project schedule.
- Monthly invoicing with project progress reports. The Engineer will prepare invoices to reflect budget spent and work completed at the phase level.
- Document Control and Delivery. Final deliverables including mapping, models, technical memoranda, and reports will be provided digitally to the City at the conclusion of the project.

Task 1-2 Project Coordination Meetings

Activities Monthly check-in phone calls will be conducted as necessary during the project duration to discuss project progress and coordinate deliverables for the City. Key staff from the Engineer team will participate in the phone call. The Engineer will provide a brief email following each call to summarize key decisions, action items for the Engineer team and City staff, issue resolution, and any scope/budget adjustments.

Task 1-3 Project Kickoff Meeting

Activities City staff and the Engineer team will initiate a project kick-off meeting to confirm project goals, objectives and priorities, and outline the anticipated schedule for the project.

Prior to this meeting, the Engineer team will prepare a meeting agenda, preliminary project schedule, surface water and sanitary system data request list, and preliminary table of contents for the SMP and SSMP. While the draft table of contents may be refined during the project, it will provide a starting point for discussion related to the format and content of deliverables.

The Engineer will prepare a draft internal stormwater questionnaire, to be completed by City staff in advance of Task 2-4, to document areas of known stormwater system deficiencies. A draft external stormwater questionnaire will also be prepared for distribution to the public to facilitate stakeholder input in advance of Task 2-4.

The data request list, preliminary table of contents, and draft stormwater questionnaire will be reviewed in detail during the project kick-off meeting.

Following the kick-off, the Engineer will finalize the stormwater questionnaires and submit it to the City for distribution to staff and the public. The Engineer will also provide a short project summary that can be used by the City to inform the public and solicit feedback via the external stormwater questionnaire.

Phase 1 Deliverables

The following deliverables are included under Phase 1:

- Project schedule
- Monthly progress reports with invoices
- Project coordination meeting scheduling, including an email agenda of topics to be discussed
- Emailed summaries of project coordination meetings, including a list of key decisions and action items
- Project kick-off meeting agenda
- Data request list (separate surface water and sanitary)
- Draft and final staff stormwater questionnaire, to be completed by City staff and returned to the Engineer prior to the Surface Water Problem Area Workshop (Task 2-4)

Phase 1 Assumptions

The following assumptions are made for Phase 1:

- The project duration is 16 months.
- The budget for specific QA/QC review of deliverables is reflected under the individual technical phases.
- QA/QC of sanitary master plan deliverables by the Engineer is budgeted under this Phase. A total of 5 technical memoranda and one compiled draft SSMP is assumed.
- Monthly coordination meetings will be conducted via telephone and attended by key staff, as required. A total of 16 meetings are assumed.
- Progress reports will summarize major activities completed during the invoicing period.
- The City's project manager will invite appropriate engineering, planning, and maintenance staff to participate in the project kick-off meeting and distribute meeting materials prior to the meeting.
- The City's project manager will distribute the final stormwater questionnaires to City staff and the public and facilitate collection and return of completed questionnaires to the Engineer within the timeline established during the project kick-off meeting.
- The City will be responsible for review and qualification of the public responses to the external stormwater questionnaire and identify those responses that should be considered in Task 2-4.
- A total of four Engineer team members will attend a 2-hour project kick-off meeting (Task 1-3).
- The project kick-off meeting will be coordinated between the SMP and SSMP project efforts.

- The City will provide a venue for the project kick-off meeting.
- Additional project meetings are included under the individual technical tasks.

Phase 2 Basis of Planning (Stormwater)

Objective To compile, examine, and evaluate existing data, code language, records, and reports to aid in Capital Improvement Project (CIP) identification and SMP development. Use the data collection process to identify data needs and gaps.

Task 2-1 GIS Data Compilation and Review

Activities The Engineer will review geographic information system (GIS) and other technical documentation provided by the City to compile and organize information in support of the surface water planning efforts.

The Engineer will conduct a cursory review of the City's existing storm drainage information in GIS to evaluate the extent of existing information and locations of the city with limited storm drainage infrastructure. GIS data will be reviewed for completeness in terms of open channel and pipe information including inverts, rim elevations, and pipe diameters. The Engineer will also conduct a desktop analysis to compare available light detecting and ranging (LIDAR) data with documented rim elevations to confirm that data are recorded on a consistent datum, and can be used for future system-wide modeling.

GIS data and identified data gaps or deficiencies that may impact project objectives and schedule will be documented in a matrix format for discussion with the City during a scheduled coordination phone call.

Task 2-2 Preliminary Mapping

Activities Base maps in GIS will be prepared to document information collected as part of Task 2-1. Maps will reflect current city limits, land use and areas of future development, soils and topography, the current stormwater collection system and facilities, and existing stormwater system data gaps (inverts, rims, etc.).

Task 2-3 Stormwater Code Review and Audit

Activities The Engineer will review the City's Municipal Code, Community Development Code, and Public Works Standards to verify design guidelines and assumptions for the stormwater system. The code review shall also identify inconsistencies and implementation gaps in design requirements and processes. The code review shall include erosion and sediment control, stormwater facility design and maintenance, and enforcement and will align with provisions of the City's NPDES MS4 permit.

Results of the initial code review will be documented in a matrix format.

Two Engineer staff will attend an in-person project meeting with City development review and public works staff to review and identify additional code provisions requiring review and discuss options.

A technical memorandum (TM#1) and updated code review matrix will be developed to document the code review and recommended code modifications.

Task 2-4 Surface Water Problem Area Workshop

Activities

The Engineer will prepare maps of the stormwater system by basin, identifying where significant data are available to support development of a hydrologic/ hydraulic model.

The Engineer will review the received and completed staff and public stormwater questionnaires, photographs, and other planning and design reports to document areas of the city with known stormwater capacity issues, aging infrastructure and areas requiring installation of stormwater infrastructure and/or treatment and detention facilities. Prior to the workshop, clarification phone calls with City staff may be conducted to confirm potential problem areas.

The Engineer will prepare an agenda, meeting materials, and facilitate a 3-hour workshop with City staff to discuss identified stormwater problem areas and to assess where targeted stormwater system modeling is needed for master planning purposes.

During the workshop, attendees will review storm system information in each City-defined basin, to discuss, identify, and determine the following:

- Are there known system capacity or hydromodification problems in the basin?
- Is there aging or failing infrastructure in the basin?
- Are projects already proposed to address the identified problems?
- Is future development anticipated to cause future system capacity problems or exacerbate existing problems?
- What are the priorities for addressing the identified problems?
- Are there locations where little is known about system capacity and additional information is desired?
- If modeling is desired, are sufficient data available or is additional field survey work required?

During the workshop, the Engineer will work with City staff to establish performance criteria for the stormwater infrastructure system. Performance criteria will identify when system improvements are needed to meet a desired level of service or flood protection.

Outcomes from the workshop, specifically identified problem areas and those requiring modeling will be documented in a problem areas summary matrix, mapped, and referenced during field reconnaissance and surveying (Phase 3) and CIP development (Phase 6 and 7). The summary matrix will serve as the meeting minutes from the workshop.

Phase 2 Deliverables

The following deliverables are included under Phase 2:

- Summary matrix documenting GIS data received from the City, identified data gaps, and proposed data gap resolution
- Initial code review matrix, for discussion with City staff during the code review meeting.
- Draft TM#1: Stormwater Code Review and Recommendations
- Stormwater problem area workshop meeting agenda and meeting materials including mapping

- Summary matrix documenting results of the surface water problem areas workshop, reflecting received stormwater questionnaires, preliminary modeling areas, and a list of areas to visit during the field verification activities and/or survey

Phase 2 Assumptions

The following assumptions are made for Phase 2:

- The City will provide the Engineer with data in response to the data request lists within a mutually agreed upon timeline.
- The Engineer will supplement City-provided GIS information with Metro Regional Land Information System (RLIS) data to produce the preliminary maps.
- The City will provide the Engineer with one consolidated set of comments on the TM.
- Finalization of TM#1 will occur prior to inclusion in the SMP.
- Two Engineer staff will attend a 2-hour code review meeting with City staff.
- Two Engineer staff will attend the 3-hour Surface Water Problem Area Workshop.
- Resolution from Tasks 2-1, 2-3, and 2-4 will be used to develop the stormwater basis of planning and will be documented under Task 4-2 in TM#2: Stormwater Basis of Planning.

Phase 3 Stormwater Field Investigations and Verification

Objective Conduct targeted field investigations with City engineering and maintenance staff to review identified stormwater problem areas and support collection of missing infrastructure data.

Task 3-1 Field Verification

Activities The Engineer will conduct up to 3 days of additional field investigation to verify identified stormwater problem areas and potential CIP locations and clarify discrepancies in the GIS and modeled system data, including pipe sizes, measure-downs, materials, junction locations, and flow direction. Objectives of the site visits may include:

- Verification and refinement of subbasin delineations (if needed). See Task 5-1.
- Verification of areas with future development potential
- Initial observation and documentation of areas of the city with known capacity deficiencies, as identified in the completed stormwater questionnaires and identified on the stormwater problem area matrix
- Observation, qualification, and documentation of known high pollutant source areas of the city with the potential to install stormwater treatment. See Phase 4.
- Observation and documentation of existing stormwater treatment and detention facility installations and retrofit opportunities
- Observation and documentation of areas with current maintenance issues
- Observation and documentation of open-channel or natural-channel locations that may benefit from channel bank enhancement, improved riparian vegetation, or other in-stream channel improvements
- Other identified stormwater problem areas

Prior to the site visit, the Engineer and City staff will coordinate locations to visit during a scheduled project coordination meeting. An agenda of targeted locations will be developed including locations where private property may require access agreements.

Field data forms for internal use will be completed during the site visit to document observations and findings.

Task 3-2 Field Data Collection

Activities Based on the results of Task 2-4 and 3-1, the Engineer will prepare a summary of the existing storm system data required to support development of targeted hydraulic modeling. The Engineer will summarize locations of the system that may warrant additional investigation and/or data collection efforts.

The Engineer will confirm data collection needs and surveying scope via a meeting with City staff. Data collection and survey will be performed by the City.

Collected data will be added to the City's existing GIS database.

Phase 3 Deliverables

The following deliverables are included under Phase 3:

- Up to 24 hours of fieldwork for two Engineer staff to verify stormwater infrastructure data and basin boundaries
- Tabular summary of infrastructure required for survey, to conduct targeted hydraulic modeling
- Proposed model area mapping to include identification of infrastructure survey needs

Phase 3 Assumptions

The following assumptions are made for Phase 3:

- Ground, manhole rim elevations, and open-channel system geometry will be based on existing information in the City's system inventory, or interpolated from available LIDAR to the extent possible.
- LIDAR may be used to develop cross-sections and map any ditches or open channel portions of the conveyance system. Use of LIDAR for open channel conveyance will be dependent on the size of the channel and whether additional structures (weirs, culverts, etc.) need to be mapped.
- Modeled pipe segments will be limited to the public conveyance system, 12 inches in diameter and larger.
- Fieldwork will be limited to the hours described above.
- City staff with knowledge of the stormwater system and natural stream channels will be available to accompany Engineer staff during field verification efforts. City staff will provide transportation during field investigation and verification efforts.
- The City will secure any needed right-of-entry and/or permissions for Engineer staff to conduct needed field investigations.
- Field verification by Engineer staff in Task 3-2 is limited to visual observations and hand measurements. No topographic survey or GPS measurements are included in the Engineer's scope of services.
- Data collection and survey will be conducted by City staff.

Phase 4 NPDES Assessment

Objective Evaluate stormwater retrofit opportunity areas to identify CIPs to address water quality and enhance flow control in existing development areas that are not currently served by adequate stormwater quality management facilities in accordance with NPDES MS4 permit requirements. Document the basis for stormwater planning efforts.

Task 4-1 Water Quality CIP Opportunities

Activities The Engineer will use preliminary mapping developed under Task 2-2 to review land use and existing stormwater treatment and detention facility coverage to identify areas that could benefit from the installation of stormwater quality management facilities. Mapped features will include:

- Structural stormwater facility locations and contributing drainage areas
- Storm drainage system
- Natural areas
- Publicly owned lands and/or vacant lands
- Identified stormwater problem areas (per Task 2-4)
- Land use

The City previously developed a stormwater quality retrofit strategy and a hydromodification assessment, as required by the NPDES MS4 permit. These strategy documents identified potential stormwater retrofit projects and project priorities to be included in this Stormwater Master Plan and will be revisited as part of this NPDES Assessment task.

The Engineer will document findings in a matrix format for inclusion in TM#2: Stormwater Basis of Planning, for discussion with the City during the Capital Improvement Project (CIP) Planning Workshop (Task 6-2). Some of the water quality opportunities may be vetted during field verification efforts (Task 3-1).

Task 4-2 Documentation

Activities The Engineer will prepare TM#2: Stormwater Basis of Planning, in order to compile information developed from Phases 2, 3, and 4. TM#2 will include the following:

- Applicable stormwater design criteria and standards.
- Stormwater design and CIP development assumptions, including performance criteria for the stormwater infrastructure system (identified during Task 2-4).
- A summary of regulatory guidelines, drivers, and considerations related to the development of the SMP.
- A summary of the process for identifying stormwater problem areas and capital improvement project (CIP) opportunities with city staff and external stakeholders.

Matrices reflecting identified stormwater problem areas (developed under Task 2-4) and water quality opportunities (developed under Task 4-1) will be incorporated into the tech memo, as they form the basis for CIP development efforts.

Phase 4 Deliverables

The following deliverables are included under Phase 4:

- Documentation of potential water quality opportunity areas and conceptual water quality CIP descriptions in a matrix format
- Draft TM#2: Stormwater Basis of Planning

Phase 4 Assumptions

The following assumptions are made for Phase 4:

- Water quality CIP opportunities may be integrated with other CIPs and refined under Phase 6.
- The draft TM#2 will be provided to the City for review and comment. City comments not affecting technical or project related assumptions will be addressed at the time that the TMs are incorporated into the SMP.
- The City will provide the Engineer with one consolidated set of comments on the TM.

Phase 5 Hydrologic and Hydraulic Modeling (Surface Water)

Objective Develop a hydrologic model of the city's drainage basins for existing and future flows. Develop targeted hydraulic models of specific stormwater infrastructure systems to evaluate problem areas and future infrastructure needs.

Task 5-1 Subbasin Refinement

Activities The Engineer will use the current GIS inventory (Task 2-1) and preliminary mapping (Task 2-2) to refine stormwater subbasins used in the 2006 Stormwater Master Plan. Subbasin size will remain consistent with the 2006 Stormwater Master Plan, but may vary per the extent of the public stormwater system mapped, and anticipated hydraulic modeling needs. Subbasins may extend outside of the city limits to account for contributing areas, but detailed delineation in areas outside of the City is not anticipated.

Field investigations (Task 3-1) will be used to review and refine the subbasin delineations.

Task 5-2 Hydrologic Model Development

Activities The Engineer will verify assumptions related to the hydrologic analysis, including land use and impervious characteristics, time of concentration methodology, and vacant and developable lands with the City during a project coordination phone call. Hydrologic input parameters will be consistent with previous master planning efforts.

The Engineer will conduct hydrologic modeling of the city using XPSWMM modeling software or other approved SWMM modeling platform. BC will simulate flows associated with the water quality, 2-year, 10-year, and 25-year, 24-hour rainfall (based on a Type 1A distribution). Hydrologic model results will be tabulated for inclusion in the SMP.

Hydrologic modeling methods and results will be documented in TM#3: Modeling Methods, Assumptions, and Results.

Task 5-3 Hydraulic Model Validation and Development

Activities

For select subbasins, the stormwater system data collected under Task 3-2 will be imported into the XPSWMM or other approved SWMM hydraulic modeling platform.

Existing-conditions flows calculated under Task 5-2 will initially be simulated in select drainage basins for model validation. Validation efforts will be limited to comparing existing-conditions model results for a select storm event to available information from the City such as flooding reports and photographs. If validation adjustments are necessary, the hydrologic model results developed under Task 5-2 will be adjusted and updated for reporting.

Based on modeling needs identified in Task 2-4, the Engineer will develop hydraulic models using XPSWMM modeling software or other approved SWMM platform for select areas of the city where additional information is needed to evaluate infrastructure problems and potential solutions.

Based on performance criteria established under Task 2-4, the Engineer will use the hydraulic models to analyze the functionality of the existing stormwater system to convey both current and future predicted flows. Capacity problem areas will be identified as potential project locations for analysis in Phase 6.

Hydraulic modeling results will be tabulated for model documentation.

The Engineer will conduct QA/QC review of hydraulic models and document model adjustments made in response to the review.

Task 5-4 Model Documentation

Activities

The Engineer will prepare written documentation of the modeling methodology and results for inclusion in TM#3: Modeling Methods, Assumptions and Results.

Modeling results (basin boundaries, peak flows, and surcharge areas) will be documented in GIS shapefiles and spreadsheets, so that the City has access to modeling data and results.

At the end of the project, model files will be provided to the City in XPSWMM or other SWMM format.

Phase 5 Deliverables

The following deliverables will be provided under Task 5:

- Draft TM#3: Modeling Methods, Assumptions and Results
- Electronic modeling files in XPSWMM or other SWMM format at project completion
- GIS shapefiles documenting subbasin delineation
- Tabular documentation of existing and future flow rates at key locations
- Inclusion of capacity problem areas in the potential project matrix under Task 6-1

Phase 5 Assumptions

The following assumptions are made for Phase 5:

- No additional field investigation or survey work is included in this task.
- No more than 260 subbasins will be evaluated as part of the hydrologic modeling effort, consistent with the number of subbasins evaluated in 2006.

- Current land use and existing vacant lands will be used to calculate current (i.e., existing) condition stormwater flows for each design storm; future land use reflecting full-build out conditions based on current zoning will be used to calculate the future-conditions stormwater flows.
- City staff will provide anecdotal reports of flooding problems for use in model validation. Validation efforts under Task 5-3 will be limited to comparing existing-conditions model results for a select storm event to available information from City flooding reports and photographs.
- Pipes and culverts less than 12 inches in diameter will not be included in the modeling effort.
- The hydraulic modeling effort may include piped and open channel conveyances where stormwater is the primary source of discharge. Outfalls to creeks will be the end points of the hydraulic model. This scope of services does not include modeling of natural systems with baseflow or stormwater flow generated outside the city limits.
- Where survey data are not available from Tasks 2 and 3, the Engineer will incorporate assumed data from LIDAR, field measurements, or other sources and document the modeling assumptions.
- Due to the unknown scope and scale of modeling work, the total hydraulic modeling scope reflected under Tasks 5-3 reflects 140 hours of staff engineer time and 48 hours of senior modeling support and review. These hours assume only targeted modeling of select areas of the City will be required. Of the total hydraulic modeling budget, 16 hours of staff engineer time and 4 hours of senior modeling support time are reflected for validation efforts.
- If the hydraulic modeling needs determined under Task 2-4 extend to include a majority of the City's drainage basins, then an amendment will be required to update and expand the scope and budget for modeling efforts accordingly.
- The Engineer will meet with City staff to review the modeling results as part of the CIP Planning Workshop in Task 6-2.
- TM#3 will be provided to the City for review and comment. City comments not affecting technical or project related assumptions will be addressed at the time that the TMs are incorporated into the master plan.
- The City will provide the Engineer with one consolidated set of comments on TM#3.

Phase 6 Preliminary Stormwater CIP Development

Objective Evaluate CIP design concepts and project areas to define highest priority projects for conceptual development as part of the SMP.

Task 6-1 Potential Projects Matrix

Activities Based on the results of the previous project phases, the Engineer will create a comprehensive project matrix of potential stormwater projects. Potential projects may include pipe replacement, facility maintenance, detention/retention facility installation or modification, flow routing modifications, and water quality facility installations (e.g., rain gardens, planters).



When possible, overlapping problem areas will be combined into single projects that serve multiple objectives, such as integrating enhanced water quality treatment or flow controls with necessary capacity improvements. The Engineer will also coordinate with the Subcontractor to identify project areas that may require sanitary CIPs, to consider sanitary CIPs when prioritizing and scheduling stormwater projects.

Task 6-2 CIP Planning Workshop

Activities

The Engineer will facilitate a 3-hour CIP Planning Workshop with City staff to review the comprehensive potential project matrix per Task 6-1. The CIP Planning Workshop will be used to discuss the City's realistic goals and expectations for the CIP and present results from analyses conducted under Phases 4 and 5. Preliminary project alternatives and design concepts will be discussed and reviewed.

The CIP Planning Workshop will also be used to discuss system replacement needs and areas of the system requiring more frequent maintenance. The Engineer will review current, City-implemented standard operating procedures to outline typical maintenance activities by asset. Options to address areas of more frequent maintenance needs will be reviewed and definition of a CIP to reflect asset management needs and system replacement will be discussed.

Potential project prioritization criteria will be presented to initially prioritize project needs and define whether a need requires immediate resolution (priority), whether it is a lesser priority, or whether it should be constructed in conjunction with future development. This initial project prioritization will be reflected in a CIP concept matrix. The highest priority project locations/ concepts will be selected for detailed cost estimation.

The Engineer will prepare an agenda and workshop meeting materials for City review prior to the workshop.

Following the workshop, the Engineer will prepare a draft CIP concept matrix. The matrix will summarize key results and decisions and reflect up to 20 priority project locations with the proposed CIP design concepts for flood control, system maintenance, water quality, and asset management projects. Potential CIP integration (i.e., combination of CIP design concepts into one project) will also be documented in the draft CIP design concept matrix.

Phase 6 Deliverables

The following deliverables are included under Phase 6:

- Comprehensive potential project matrix, reflecting project locations identified and project concepts developed under Phases 4 and 5
- Agenda and materials (i.e., mapping of potential project/ project areas reflecting any pre-determined "high priority" areas and potential prioritization criteria) for the CIP Planning Workshop
- Attendance and facilitation by two Engineering staff at a 3-hour workshop with the City
- CIP Planning Workshop meeting summary including a draft CIP concept matrix, reflecting up to 20 project concepts

Phase 6 Assumptions

The following assumptions are made for Phase 6:

- City staff will coordinate logistics for the CIP Planning workshop, including securing a meeting location, establishing a meeting date and time, and inviting appropriate City staff.
- Up to 20 CIP concepts will be documented in the draft CIP concept matrix at the conclusion of Task 6-2. The top ten, higher-priority CIPs will be identified by City staff during a project coordination meeting for refinement under Phase 7.

Phase 7 Stormwater CIP Development and Prioritization

Objective Establish a 20-year stormwater CIP and prepare planning-level cost estimates for incorporation into the Stormwater Master Plan.

Task 7-1 Flood Control CIP Design

Activities Using future conditions flows estimated under Task 5-3, the Engineer will analyze and develop strategies to address observed system capacity deficiencies. Analysis may include the use of XP-SWMM or another approved SWMM hydraulic modeling platform. Strategies may include retrofit of existing water quality or detention ponds, installation of storage facilities, and pipe upsizing and/ or reconfiguration.

The Engineer will conduct up to 1 day of field reconnaissance to evaluate potential project solutions and alternatives.

Due to the unknown scope and scale of this work, 40 hours of staff engineer time and 16 hours of senior engineer time for modeling support and QA/QC has been budgeted.

Task 7-2 CIP Cost Estimation and Documentation

Activities Based on results from the CIP planning workshop (Task 6-2) and flood control CIP development (Task 7-1), the Engineer will refine project concepts and develop detailed cost estimates for up to ten higher priority CIPs identified in Phase 6. Preliminary sizing may be conducted under this task.

Using recent bid tab information, RS Means, and City-specific cost information, the Engineer will prepare unit cost tables for applicable CIP design components and features for City review and feedback.

Planning-level cost estimates will include construction, engineering, administration, and contingencies as well as annual expenses for activities associated with maintenance or asset management. In conjunction with the planning level cost estimates, the Engineer will prepare an estimate of the percent of the total project cost that could be attributed to future development impacts to aid in SDC evaluations.

The CIP design concepts (to approximately a 10 percent level of design) and the planning-level cost estimates will be incorporated into a final stormwater CIP matrix for up to 10 higher priority CIPs, based on the draft matrix developed in Task 6-2. A comprehensive map will be developed to show CIP locations.

Task 7-3 Stormwater CIP Prioritization and Scheduling

Activities

The Engineer will refine the potential project prioritization criteria introduced during the CIP Planning Workshop based on input received from the City. Stormwater scoring criteria shall be developed to reflect water quality benefits, project integration, and public safety and be flexible enough to integrate with other planned improvements in the city.

Using the final stormwater CIP matrix prepared under Task 7-2 to guide scoring, the Engineer will provide scoring forms to representatives from engineering and maintenance to score the ten higher-priority stormwater CIPs. The Engineer will collect scoring forms and compile data to score and rank stormwater CIPs directly based on stormwater criteria. The Engineer will also coordinate with the sanitary CIP prioritization efforts to ensure that consistent project scheduling is considered.

The Engineer will present results to the City during a project coordination meeting to ensure project rankings are consistent with City priorities. Based on anticipated revenue, CIPs will be scheduled as either highest priority (5-year CIP) or medium priority (20-year CIP) in conjunction with anticipated funding levels. CIP concepts not refined under Task 7-2 will continue to be documented in the final stormwater CIP matrix and classified as either medium or low priority. Project prioritization and schedule will be incorporated in the final stormwater CIP matrix.

Phase 7 Deliverables

The following deliverables are included under Phase 7:

- Draft and final unit cost table
- Final stormwater CIP matrix reflecting refined design concepts, cost estimates, prioritization, and schedule for ten higher priority projects.
- Project scoring forms for use by the City
- Map reflecting CIP locations, for inclusion in the SMP

Phase 7 Assumptions

The following assumptions are made for Phase 7:

- Refined design concepts and cost estimates will be developed for up to ten CIPs.
- One additional day (8 hours) for two Engineer staff is budgeted to conduct additional onsite investigations of CIP locations and design concepts in the field; City staff from engineering and maintenance will be available to guide the visit.
- The City will secure any needed right-of-entry and/or permissions for the Engineer to conduct needed field investigations.
- As available, City staff will provide recent, local bid tab information to the Engineer to help establish unit costs for CIP planning and development.
- The Portland PAC tool or alternative SBUH spreadsheet BMP sizing tool will be used to develop conceptual designs for CIPs other than pipe upgrades for capacity. Where appropriate, preliminary calculations will be performed to size energy dissipation structures or slope stability materials.
- Stormwater program rate study and revenue alternatives will be evaluated separately and are not included in this scope of services.

Phase 8 Stormwater Master Plan (SMP) Preparation

Objective Compile stormwater system information, analyses, and CIP program into a comprehensive SMP document. Solicit public input on the Stormwater Master Plan. Present the Stormwater Master Plan to the public and City officials for review, comment, and final adoption.

Task 8-1 Draft SMP Development

Activities The Engineer will prepare a draft concise Stormwater Master Plan document, compiling the highlights of information and documentation prepared under Phases 2 through 7. General system maps and narrative reflecting the City's stormwater conveyance system, water quality and hydromodification issues, identified system capacity deficiencies, and CIP locations will be compiled and concisely summarized in the draft Stormwater Master Plan.

Detailed technical information, such as tabular modeling data, TMs, and cost estimates, will be included as technical appendices, as appropriate.

The Engineer will conduct an internal QA/QC of the draft Stormwater Master Plan.

A draft digital copy will be provided to the City for review and comment.

Task 8-2 Draft Final and Final SMP Development

Activities City comments provided under Task 9-1 will be incorporated to create a draft-final SMP for City Council review and comment. An Executive Summary will highlight the major findings and recommendations from the Draft Stormwater Master Plan. A draft-final SMP in digital format will be provided to the City for review and comment by City Council.

City comments on the draft-final SMP will be incorporated to create a final SMP. Three copies of the final SMP, including appendices, will be provided. A print and Web-ready, searchable electronic version of the final SMP, in addition to ten hard copies (excluding appendices), will be provided to the City.

Task 8-3 Meetings and Stakeholder Outreach (SMP)

Activities The Engineer will prepare materials to present the SMP goals, objectives, and recommendations to the public and community groups. Meeting materials will include up to three large size maps and a PowerPoint presentation using graphics developed for the SMP documents in Task 9-1.

One Engineer staff will attend two meetings with the utility advisory board to solicit comments and feedback related to development of CIPs.

Two Engineer staff will attend and present at up to two meetings with City officials. The meetings are expected to include one work session with the City Council and one City Council meeting to adopt the SMP.

Phase 8 Deliverables

The following deliverables are included under Phase 8:

- Draft SMP (in .doc format) for City review and comment
- Draft-Final SMP (in .pdf format) for Council and utility advisory board review and comment

- Final SMP (in .pdf format) and five full hard copies and fifteen copies excluding appendices
- Electronic copies of project GIS data
- Attendance and materials (maps) for one Engineer staff at two, 2-hour utility advisory board meetings
- Materials and presentation (in PowerPoint®) by two Engineer staff at two City Council work sessions/ meetings

Phase 8 Assumptions

The following assumptions are made for Phase 8:

- One consolidated set of City and stakeholder review comments on the draft SMP will be provided to the Engineer.
- One consolidated set of City comments on the draft-final SMP will be provided to the Engineer.
- No formal PowerPoint® presentation will be required for the utility advisory board meetings.
- The City will be responsible for additional stakeholder coordination efforts, aside from the scoped utility advisory board and City Council meetings. This includes meetings and coordination with the Committee for Citizen Involvement and other neighborhood committees.
- Presentation during the City Council meetings will be in PowerPoint® format and provided to the City in advance of the work session or meeting.

Phase 9 Basis of Planning (Sanitary)

Objective To establish planning criteria and all planning assumptions for use in evaluation of the wastewater collection system.

Task 9-1 Data Review and Gap Analysis

Activities Activities budgeted under Task 9-1 include:

- **Data Gap Analysis.** Review previously completed documents relating to the wastewater collection system, review existing system maps and mapping data, and identify data gaps required for completing the Plan in accordance with the data request.
- **Policies & Criteria.** Obtain any existing municipal code, public works standards, and community development code from the City. Review policies and criteria and make recommendations for additional or revised criteria and service area goals that best fit the needs of the City.
- **Service Area Maps.** Develop service area and land use maps using GIS data from the City, from Clackamas County, and from Metro as needed. Future maps will delineate the 5-year, and build-out scenarios.
- **Demographic Analysis.** Review current population, land use, and zoning to establish the historical demographics and to develop future demographics for the service area. Establish land use data per basin for the existing system service area ("Existing") and the 5-year and build-out planning periods.

Task 9-2 Flow Projections

Activities Flow projections are based on demographic assumptions and the data obtained from flow monitoring. The following activities are budgeted under Task 9-2:

- Flow Data Review. Review the City's existing flow data, consisting of the in-house data and the data collected by ADS in the winter of 2015-16. Compare base sanitary flows estimated from existing land use to dry weather flow calculated through the flow monitoring for each basin. Existing land use and currently served areas will be used to estimate flow factors in gallons per acre per land use category. The flow factors will be customized to match the observed existing Average Dry Weather Flow (ADWF) and will be used to develop flow projections. Evaluate historical pump station flow and develop base sanitary flows for each pump station basin to be included in Phase 11.
- Base Flow Projections: Develop base sanitary flows for two planning periods: 5-year and build-out.
- Infiltration & Inflow Projections. Estimate I/I flow rates for each sewer basin based on area-specific I/I factors. Developed I/I flow rates will be compared to I/I flow rate estimates per monitored basin.
- Flow Projections. Future flows, including base flows and I/I will be projected based on unit flow factors for each land use type and I/I assumptions. Future flows will be developed for each sewer and pump station basin for the selected planning periods. This data will be used for establishing future capacity requirements of the conveyance system under Phase 12.

Task 9-3 Meetings and Documentation

Activities The Subcontractor will participate in a meeting with City staff to finalize the basis of planning and to discuss the existing system per Phase 10.

The Subcontractor will prepare draft TM#1 of the SSMP: Basis of Planning.

Phase 9 Deliverables

The following deliverables are included under Phase 9:

- Draft TM#1 - Basis of Planning and comment response log
- Meeting agenda and notes from the basis of planning meeting

Phase 9 Assumptions

The following assumptions are made for Phase 9:

- The planning area assumed for this Plan includes the current City limits and the area included in the Urban Growth Boundary (UGB)
- The City can provide all elements of the data request list
- Wastewater pollutant loading is not anticipated to be evaluated as part of the SSMP
- No flow monitoring is included as part of the SSMP
- Unique flow factors will be developed for up to ten basins, corresponding to the monitored basins

Phase 10 Existing System Assessment (Sanitary)

Objective To document and create an inventory of all facilities in the existing wastewater collection system.

Activities The Subcontractor will review the components of major sewer collectors and pump stations using data from the City's GIS, available pipe database, discussions with staff, and previous studies including the City's 1999 Sanitary Sewer Master Plan. Activities budgeted under Phase 10 include:

- Develop text and tables summarizing the City's collection and conveyance system. Summarize the boundaries of sewer service basins and pump station basins (if different). Provide descriptions for each of the City's sewage pump stations, and force mains. Provide total length of pipe based on diameter and material
- Develop figures for the Plan of the existing system infrastructure using the City's GIS data
- Prepare draft TM#2 of the SSMP: Existing System.

Phase 10 Deliverables

The following deliverables are included under Phase 10:

- Draft TM#2 – Existing System and comment response log.

Phase 10 Assumptions

The following assumptions are made for Phase 10:

- No work will be performed on condition assessment of existing sanitary facilities (pump stations or pipelines). No assessment will be performed of the City's existing operations and maintenance activities.
- No field work is included as part of this Phase.
- The meeting for Phase 10 will occur as part of the meeting for Phase 9.

Phase 11 Hydraulic Model Development (Sanitary)

Objective To develop and calibrate a sewer model for the City for use in the capacity evaluation.

Task 11-1 Hydraulic Model Development

Activities The Subcontractor will create a hydraulic computer model of the City's piping and pumping facilities. The model will consist of the City's trunk pipelines and pump stations. Model pipe data will be updated from the City's GIS data. The data will be imported into the model and the pipe connectivity for all nodes will be confirmed. The model will include pipes 10-inches in diameter and greater, plus smaller main collector pipelines as needed to reach each basin. Pump stations, wet well dimensions, pump curves and pump controls will be added to the model. The flows will be added to the model geographically by mini-basin for the selected planning periods.

Task 11-2 Hydraulic Model Calibration

Activities The calibration will focus on a quantitative approach based on the recommendations for hydraulic model verification contained in the "Code of Practice for the Hydraulic Modeling

of Sewer Systems,” version 3.001, published by the Wastewater Planning Group, a section of the Chartered Institution of Water and Environmental Management and the Subcontractor's expertise. Activities budgeted under Task 11-2 include:

- Calibrate the model based upon the flow monitoring data at 10 locations, and rainfall data provided by the City.
- Calibrate the model to dry weather flow conditions. Flow monitoring data will provide custom hourly diurnal curves that establish the daily flow patterns for each metering basin. Model parameters will be adjusted, as needed, to best match the flow monitoring and SCADA data.
- Calibrate the model for wet weather conditions. Rainfall information will aid in developing the required rainfall-derived infiltration/inflow (RDII) estimations that enter the collection system during a storm event. It is recommended that the use of a single calibration period incorporating several independent rainfall events should be considered whenever possible. Model results will be reviewed and adjusted, as needed, to best match the flow monitoring, rainfall and SCADA data. Flow and depth will be verified during calibration.

The flows from any unmetered basins will be developed as best as possible using a mass balance between the available existing meters, pump SCADA data, and the flow meter, and proportioned as best as possible based on development type, age, pipe material, and extent of collection system components.

Task 11-3 Develop Planning and System Performance Criteria

Activities

The Subcontractor will review current and potential future design standards for the sewer system, including design depth to pipe diameter (d/D) standards and discuss the effects of conservative and less conservative standards for sanitary flows and wet weather flows with the City. The design storm and all design parameters to be used for the capacity evaluation will be established.

The Subcontractor will develop three evaluation criteria as a sensitivity analysis of the risk associated with each criterion using the calibrated CTP collection system model. The Subcontractor will present figures and charts that illustrate the relative difference in capacity deficiencies between the three criteria to allow for discussion and make a decision relative to the best criteria to be used for the analysis. The criteria to be developed will include allowable pipeline d/D values during peak flows, minimum velocities, minimum/maximum slope, and pumping requirements.

Task 11-4 Meetings and Documentation

Activities

The Subcontractor will participate in a meeting with City staff to review the hydraulic model development.

The Subcontractor will prepare draft TM#3 of the SSMP: Hydraulic Model Development.

Phase 11 Deliverables

The following deliverables are included under Phase 11:

- Draft TM#3 – Hydraulic Model Development and comment response log
- Meeting agenda and notes from the hydraulic modeling meeting

Phase 11 Assumptions

The following assumptions are made for Phase 11:

- The City will obtain survey to resolve any elevation issues within the GIS
- The Subcontractor will select a commercially available SWMM-based software program for its use in this study.
- The City's GIS pipe data is assumed to have full connectivity, correct topology, and correct elevations. If the data is found to be lacking, the Subcontractor will notify the City and wait for updated data to be provided
- At the completion of the master planning process all hydraulic and hydrologic model files will be provided to the City
- The Subcontractor will not provide the software program or license. The Subcontractor will use its own version of the software for this project. The Subcontractor will not purchase software for the City or Engineer.
- Flow monitoring is not included in the scope of work.

Phase 12 Capacity and I/I Evaluation

Objective To evaluate existing and future capacity, identify system deficiencies, and provide recommendations to resolve deficiencies. To review the existing I/I Program, identify potential causes for I/I, and recommend I/I reduction strategies based on flow monitoring and capacity analysis results.

Task 12-1 Capacity Evaluation

Activities The Subcontractor will perform a hydraulic capacity analysis under the design storm for each basin using the calibrated model, and projected peak flow rates and system expansion developed in Phase 11. The analysis will be performed for 10-year and 20-year scenarios, and will assist in identifying any system deficiencies and improvements required to resolve deficiencies. Activities budgeted under Task 12-1 include:

- Develop future hydraulic modeling scenarios that evaluate the impact of wastewater flows under each of the planning periods. Maps will be developed showing current and future deficiencies. Develop infrastructure recommendations to resolve deficiencies
- Evaluate the capacities of the pump stations for their ability to convey peak flows under firm capacity for existing and build-out conditions. Develop pump station recommendations to resolve deficiencies. Improvements will be sized for meeting build-out conditions

Task 12-2 Identify Potential Causes of I/I

Activities Activities budgeted under Task 12-2 include:

- Review basins identified with high I/I for potential causes of I/I including a history of repairs, and pipe age and material.
- Review sewer and storm GIS data to identify potential connections.
- Plot areas of high I/I on a system map to identify geographic features of I/I causes.
- Discuss I/I causes with City operations staff.

Task 12-3 I/I Reduction Implementation

Activities Activities budgeted under Task 12-3 include:

- Identify I/I reduction strategies, such as policy development for private laterals, smoke testing, dye testing, and evaluating legal and technical approaches by other wastewater systems.
- Given results of the capacity analysis, establish I/I reduction goals for each basin to offset capital projects.
- Recommend an I/I reduction strategy,
- Prepare cost estimates, and
- Prioritize areas for implementing strategies.

Task 12-4 Meetings and Documentation

Activities The Subcontractor will participate in a meeting with City staff to review the capacity evaluation and I/I reduction strategies.

The Subcontractor will prepare draft TM#4 of the SSMP: Capacity Evaluation and I/I Reduction Program.

Phase 12 Deliverables

The following deliverables are included under Phase 12:

- Draft TM#4 – Capacity Evaluation and I/I Reduction Program and comment response log.
- Meeting agenda and notes from the capacity evaluation and I/I meeting
- Updated hydraulic model

Phase 12 Assumptions

The following assumptions are made for Phase 12:

- The City will confirm performance criteria to use to evaluate the existing system.
- The City will provide input on areas with known I/I issues.

Phase 13 Sanitary CIP Development and Prioritization

Objective To prepare sanitary CIPs to implement recommended sanitary projects outlined in Phases 9-12

Task 13-1 Capital Improvement Program

Activities Activities budgeted under Task 13-1 include:

- **Project Prioritization.** Prioritize capacity-related projects identified in the previous tasks with City staff for inclusion in the CIP based on the severity of the deficiencies. The Subcontractor will propose project prioritization and confirm prioritization with the City.
- **Cost Estimating.** Develop budgetary numbers for pipeline replacement and pump station rehabilitation programs. Develop planning level cost estimates for all recommended projects using costs provided in other planning efforts. City to provide

recent costs for completed projects. Cost estimates for construction, site acquisition, engineering, permitting, and other contingencies will be prepared; all costs will be given in 2017 dollars

- CIP Schedule. Schedule identified projects for the two planning periods: near-term (5 year) and long-term (build-out) conditions. A summary table will present CIP projects, year for construction, and estimated costs, and will be organized according to a recommended phasing plan. Identify SDC eligibility for future funding analyses
- System Maps. Develop maps showing recommended future system pipes and facilities. Maps will include recommended projects color-coded by CIP phase and annotated with project identification numbers

Task 13-2 Meetings and Documentation

Activities The Subcontractor will participate in a meeting with City staff to review the proposed CIPs and CIP prioritization.

The Subcontractor will prepare draft TM #5 of the SSMP: Capital Improvement Plan.

Phase 13 Deliverables

The following deliverables are included under Phase 13:

- Draft TM#5 – Capital Improvement Plan and comment response log
- Meeting agenda and notes from the CIP Review meeting

Phase 13 Assumptions

The following assumptions are made for Phase 13:

- An electronic CIP tool or CIP fact sheets are not included in this Scope of Work. The CIP will be listed in a single table summarizing the CIP projects and a single overview map.
- No financial analysis will be performed

Phase 14 Sanitary System Master Plan (SSMP) Preparation

Objective To compile previous tasks mentioned in this scope of services, including incorporating all prepared chapters into a draft and final updated SSMP. To assist the City in coordinating plan review from DEQ. To assist the City and Engineer with a public comment period. Comments received from the public review meetings, adjacent sewer providers, Tri-City Service District, and the DEQ will be incorporated into the updated Plan for City Council's approval and adoption.

Task 14-1 Plan Development

Activities Activities budgeted under Task 14-1 include:

- City Review Draft. A Master Plan report will be developed. The six technical memoranda will be updated based on City comments and included as appendices. Other appropriate appendices will be included with the Plan.
- Agency Review Draft. City comments on the City Review Draft will be incorporated into an Agency Review Draft. The City will submit Agency Review Draft to adjacent sewer providers, Tri-City Service District, and the DEQ

- Final Plan. The City will develop written responses received during the Plan Review process. The Subcontractor will incorporate comments into a comment response log and into the Final Plan. The Subcontractor's Professional Engineer will stamp the Final Plan

Task 14-2 Meetings and Stakeholder Outreach (SSMP)

Activities Activities budgeted under Task 14-2 include:

- Agency Review Meeting. The Subconsultant will attend one (1) agency review meeting. The City will develop written responses received during Agency Review Draft Plan process. The Subconsultant will incorporate comments into a comment response log and into the Final Plan.
- Utility Advisory Board Meetings. Two (2) meetings with the City's Utility Advisory Board are expected. Provide support for developing presentation materials for Utility Advisory Board meetings. The City will lead the meetings with support by the Engineer team.
- City Council Meetings. Two (2) meetings with City Council are expected. Provide support for developing PowerPoint presentations for City Council meetings. The City will lead the meetings with support by the Engineer team.

Phase 14 Deliverables

The following deliverables are included under Phase 14:

- Draft Master Plan - City Review Draft (electronic version only)
- Draft Master Plan - Agency Review Draft (electronic version only)
- Agency Review Comment Response Log
- Final Master Plan (3 hardcopies of the Final Plan with appendices, 10 hardcopies of the Final Plan not including appendices, electronic copy in Word, a searchable PDF File with bookmarks)
- Maps and/or PowerPoint presentations for Utility Advisory Board and City Council meetings.
- Final electronic documents, spreadsheets, presentations, modeling and GIS data

Phase 14 Assumptions

The following assumptions are made for Phase 14:

- The Master Plan Report is expected to be concise and 20-25 pages in length. The Technical Memoranda will be included as an appendix to the Plan.
- City staff comments will be received together for inclusion in the Agency Review Draft
- No additional draft plans will be developed

Exhibit B
Compensation

West Linn Stormwater-Sanitary MP
April 18, 2017

West Linn, City of (OR) -- West Linn Stormwater-Sanitary MP																				
Phase	Description	Wieland, Angela M	Gage, Eva D	Reininga, Krista	Whitehead, Donald M	Holland, Jonathan R	Retzlaff, Ryan G	Maxwell, Alissa M	Foged, Nathan H	Grzegorzewski, Matthew	Draheim, Daniel P	Pare, Wendy M	Vasquez, Jesus E	Total Labor Hours	Total Labor Cost	Travel	Carollo Fee	5% mark up	Total Expense Cost	Total Cost
		\$165	\$99	\$222	\$203	\$242	\$165	\$165	\$222	\$113	\$113	\$113	\$99							
001	Project Management	124	26	6	42	4	24	0	0	0	0	4	18	248	40,054	53	19,758	988	20,799	60,853
1-1	Administration	72	26	6	42	4	0	0	0	0	0	2	18	170	27,288					27,288
1-2	Coordination Meetings	32	0	0	0	0	16	0	0	0	0	0	0	48	7,920					7,920
1-3	Kickoff Meeting	20	0	0	0	0	8	0	0	0	0	2	0	30	4,846	53	0	0	53	4,899
1-4	Subconsultant PM Activities																19,758	988	20,746	20,746
002	Basis of Planning (Stormwater)	58	0	4	0	0	50	48	0	120	0	4	0	284	40,640	50	0	0	50	40,690
2-1	GIS Data Compilation and Review	8	0	0	0	0	12	0	0	40	0	0	0	60	7,820	0	0	0	0	7,820
2-2	Preliminary Mapping	4	0	0	0	0	8	0	0	32	0	0	0	44	5,596	0	0	0	0	5,596
2-3	SW Code Review + Audit	14	0	2	0	0	0	48	0	0	0	4	0	68	11,126	0	0	0	0	11,126
2-4	Surface Water Problem Area Workshop	32	0	2	0	0	30	0	0	48	0	0	0	112	16,098	50	0	0	50	16,148
003	SW Field Investigation-Verification	44	0	0	0	0	56	0	0	52	0	0	0	152	22,376	150	0	0	150	22,526
3-1	Field Verification	36	0	0	0	0	36	0	0	12	0	0	0	84	13,236	150	0	0	150	13,386
3-2	Field Data Collection	8	0	0	0	0	20	0	0	40	0	0	0	68	9,140	0	0	0	0	9,140
004	NPDES Assessment	20	0	4	0	0	8	48	0	12	2	6	0	100	15,688	0	0	0	0	15,688
4-1	Water Quality CIP Opportunities	4	0	0	0	0	0	32	0	12	0	0	0	48	7,296	0	0	0	0	7,296
4-2	Documentation	16	0	4	0	0	8	16	0	0	2	6	0	52	8,392	0	0	0	0	8,392
005	Hydrologic-Hydraulic Modeling (SW)	22	0	4	0	0	68	0	20	268	2	6	0	390	51,366	0	0	0	0	51,366
5-1	Subbasin Refinement	4	0	0	0	0	8	0	0	32	0	0	0	44	5,596	0	0	0	0	5,596
5-2	Hydrologic Model Development	6	0	0	0	0	20	0	4	56	0	0	0	86	11,506	0	0	0	0	11,506
5-3	Hydraulic Model Validation + Devel	8	0	0	0	0	32	0	16	140	0	0	0	196	25,972	0	0	0	0	25,972
5-4	Model Documentation	4	0	4	0	0	8	0	0	40	2	6	0	64	8,292	0	0	0	0	8,292
006	Preliminary SW CIP Development	48	0	4	0	0	32	0	0	16	0	6	0	106	16,574	50	0	0	50	16,624
6-1	Potential Projects Matrix	16	0	0	0	0	8	0	0	0	0	4	0	28	4,412	0	0	0	0	4,412
6-2	CIP Planning Workshop	32	0	4	0	0	24	0	0	16	0	2	0	78	12,162	50	0	0	50	12,212
007	SW CIP Devel-Prioritization	34	0	12	0	0	56	0	4	124	2	6	0	238	33,318	50	0	0	50	33,368
7-1	Flood Control CIP Design	6	0	0	0	0	24	0	4	56	0	0	0	90	12,166	50	0	0	50	12,216
7-2	CIP Estimation-Documentaiton	12	0	8	0	0	32	0	0	68	2	2	0	124	17,172	0	0	0	0	17,172
7-3	SW CIP Prioritization-Scheduling	16	0	4	0	0	0	0	0	0	0	4	0	24	3,980	0	0	0	0	3,980
008	SMP Preparation	76	0	16	0	0	100	0	0	72	24	32	0	320	47,056	300	0	0	300	47,356
8-1	Draft SMP Development	24	0	12	0	0	60	0	0	40	8	16	0	160	23,756	0	0	0	0	23,756
8-2	Draft Final + Final Development	24	0	0	0	0	24	0	0	16	8	8	0	80	11,536	150	0	0	150	11,686
8-3	Meetings-Stakeholder Outreach	28	0	4	0	0	16	0	0	16	8	8	0	80	11,764	150	0	0	150	11,914

Exhibit B
Compensation

Phase	Description	Wieland, Angela M Project Manager	Gage, Eva D Project Analyst	Reininga, Krista Surface Water QA/QC	Whitehead, Donald M Sanitary QA/QC	Holland, Jonathan R Project Oversight	Retzlaff, Ryan G Project Engineer	Maxwell, Alissa M NPDES	Foged, Nathan H Modeling QA/QC	Grzegorzewski, Matthew Staff Engineer	Draheim, Daniel P Editor	Pare, Wendy M Word Processor	Vasquez, Jesus E Accountant	Total Labor Hours	Total Labor Cost	Travel	Carollo Fee	5% mark up	Total Expense Cost	Total Cost
009	Basis of Planning (Sanitary)																30,478	1,524	32,002	32,002
9-1	Data Review-Gap Analysis																13,800	690	14,490	14,490
9-2	Flow Projections																6,458	323	6,781	6,781
9-3	Meetings + Documentation																10,220	511	10,731	10,731
010	Existing System Assmt (Sanitary)																10,322	516	10,838	10,838
10-1	Existing System Review																2,338	117	2,455	2,455
10-2	Meetings + Documentation																7,984	399	8,383	8,383
011	Hydraulic Model Devel (Sanitary)																45,154	2,258	47,412	47,412
11-1	Hydraulic Model Development																15,166	758	15,924	15,924
11-2	Hydraulic Model Calibration																17,182	859	18,041	18,041
11-3	Devel Planng & Sys Perform Criteria																3,554	178	3,732	3,732
11-4	Meetings + Documentation																9,252	463	9,715	9,715
012	Capacity + I/I Evaluation																37,690	1,885	39,575	39,575
12-1	Capacity Evaluation																16,164	808	16,972	16,972
12-2	Identify Potential Causes of I/I																4,128	206	4,334	4,334
12-3	I/I Reduction Implementation																5,448	272	5,720	5,720
12-4	Meetings + Documentation																11,950	598	12,548	12,548
013	Sanitary CIP Devel-Prioritization																22,592	1,130	23,722	23,722
13-1	CIP																12,884	644	13,528	13,528
13-2	Meetings + Documentation																9,708	485	10,193	10,193
014	SSMP Preparation																39,730	1,987	41,717	41,717
14-1	Plan Development																24,420	1,221	25,641	25,641
14-2	Meetings-Stakeholder Outreach																15,310	766	16,076	16,076
TOTALS		426	26	50	42	4	394	96	24	664	30	64	18	1,838	267,072	653	205,724	10,286	216,663	483,735

Notes:

Hours and dollars are rounded to nearest whole number.
The rate schedule may be updated annually (January 1st of each following year) for escalation of rates.
Miscellaneous project expenses (CAD Services, software licenses, color graphics, copying printing, personal computer, etc.) are included in the hourly rates and not billed separately.
Employee travel time will be billed at hourly rates. Mileage charges will be billed at the Internal Revenue Service's standard mileage rates.