

September 15, 2021

City of Hollywood Department of Public Utilities 1621 N. 14th Ave. Hollywood, FL 33022-9045

Attention: Howard Richards

Subject: Asset Management Consulting Services

Thank you for the opportunity to provide these statements of work (SOW) to continue supporting the City of Hollywood's (City) Department of Public Utilities (Department) Asset Management Initial Program development efforts. The SOW's for Phase I Asset Management Consulting Services presented below comprise the initial tasks discussed with Department staff for the development of an Asset Management Program, within the Department of Public Utilities. These services will be provided in accordance with the Agreement for CONSULTANT Services for General Engineering Consulting Services Agreement executed on November 7, 2017.

PROJECT COSTS

The fee for Phase I of the Asset Management Consulting Services is a not-to-exceed amount of \$324,973, as detailed in the table, shown below (Table 1). This amount includes a contingency of \$29,543, if needed, and to be utilized on a Time and Materials basis, which may be used upon receiving approval from the City, as provided in Task 201, including extensions to the project schedule. Monthly invoices will be submitted to the Department based on project progress related to all tasks under this Statement of Work.

Table 1 – Phase I Asset Management Program Development Task and Fee Breakdown

Task	Fee (Lump Sum) Professional Services
Task 050: Project Management	\$22,556
Task 100: Asset Management	\$272,874
Subtask 101: Asset Management Program Coordination	\$90,528
Subtask 102: Develop Condition Assessment Criteria	\$0
Subtask 103: Develop Consequence Criteria for Risk Assessment	\$28,748
Subtask 104: Develop Levels of Service and Performance Measures	\$25,648
Subtask 105: Develop Maintenance KPI Performance and LOS Dashboard	\$51,288
Subtask 106: Review/Realignment of Asset Hierarchy	\$16,200
Subtask 107: Inventory Data Support	\$25,288
Subtask 108: Additional Cityworks Tasks	\$35,174
Subtotal	\$295,430
Task 201: Contingency	\$29,543
ASSET MANAGEMENT CONSULTING SERVICES	\$324,973

We look forward to the opportunity to assist the Department with this innovative and important project in support of its asset management efforts and implementation of Cityworks for the Utilities Department. Please, feel free to contact me with any questions at (561) 236-2858.

Very truly yours,

BLACK & VEATCH CORPORATION

Chris Barlow, PE Project Manager

mv, mm, mj, CB

cc: Mark Seastead, Matt Morey, Nick Alexandrou, Martin Jones, Isabel Botero, PE; Melissa Velez, PE

ASSET MANAGEMENT CONSULTING SERVICES STATEMENT OF WORK

PREPARED FOR

City of Hollywood

Department of Public Utilities



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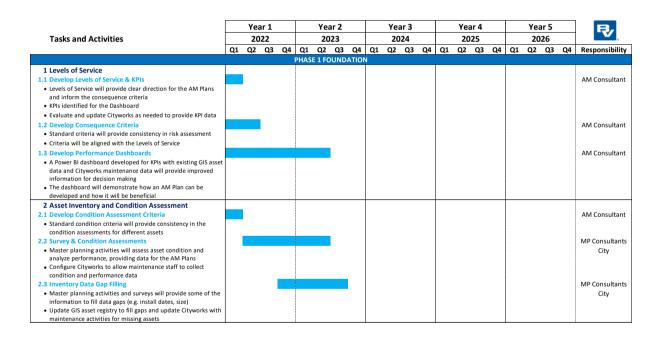
Overview

The Department of Public Utilities has recognized the need to implement an Asset Management Program to promote long-term sustainability for the management of its assets and support the master planning efforts that the Department is commencing. Black & Veatch met with the Department in January of 2020 to discuss the City's needs and developed an outline Asset Management Roadmap detailing the tasks required to develop and implement an Asset Management Program. Following the review of the Roadmap the City identified the initial tasks to be implemented, which will guide the City's future asset management efforts.

The Asset Management Roadmap is split into three phases:

- Phase 1 Foundation
- Phase 2 Program Development and Implementation
- Phase 3 Embedding and Optimizing

This Scope of Work covers activities in Phase 1 as well as Program Management. The outline Asset Management Roadmap is shown in the figures below. The Roadmap and schedule of activities will need to be further developed and refined with the City.



	Year 1	Year 2	Year 3	Yea	ar 4		Year 5		
Tasks and Activities	2022	2023	2024	20			2026		'
lasks and Activities	Q1 Q2 Q3 Q4		Q1 Q2 Q3 Q4		Q3 Q4	Q1	Q2 Q3	3 Q4	Responsibility
		M DEVELOPMENT AND		42 42	φ, φ,	4-	4- 4-	<u> </u>	Responsibility
3 AM Program Development									
3.1 Gap Assessment and Roadmap Development									AM Consultant
 Phase 1 can provide some 'quick wins' and build enthusiasm for 									
asset management. A formal asset management gap									
assessment can provide a more detailed Roadmap. • Perform assessment when Asset Manager in place									
3.2 Program Management									AM Consultant
Coordination of all AM program activities									Aivi consultant
Formal AM Program can address wider organizational									
development, including change management									
4 Cost Analysis									
4.1 Estimate Replacement Costs									MP Consultant
Provides current replacement costs for the renewal forecast									City
Estimates total asset value at current costs									
Update Asset Registry with relevant cost data Forecast O&M Costs									AM Consultant
Analysis of O&M costs in Cityworks to forecast future costs									City
5 Renewal & Replacement Forecast									City
5.1 Asset Risk Assessment									MP Consultants
Identifies critical assets and allows assets to be prioritized for									
maintenance and renewal									
5.2 Estimate Remaining Life									MP Consultant
Expected useful lives, condition, performance and risk used to									AM Consultant
estimate remaining life. This determines replacement timing									
 5.3 Forecast Asset Renewal Asset renewal and replacement forecast based on remaining life 									MP Consultant
Asset renewal and replacement forecast based on remaining me and replacement costs.									B&V
Forecast is typically 20 years and used in financial model for									
rate setting and planning funding.									
6 AM Plan Development & Implementation									
6.1 Develop AM Plan Components									AM Consultant
 AM Plans combine the analysis and results from the activities listed above to provide justification for expenditures 									
6.2 Develop AM Plan Procedures									AM Consultant
Activities to develop and implement the AM Plans should be									
documented in controlled procuedures to ensure consistency									
and quality of delivery									
7 Investment Outlinington	PHASE	3 EMBEDDING & OPT	IMIZING			3			
7 Investment Optimization 7.1 CIP Prioritization									AM Consultant
Developing business cases for projects and using risk to									Aivi consultant
prioritize provides a more efficient and justifiable CIP									
7.2 Maintenance Optimization									AM Consultant
Use risk and analysis of maintenance KPIs to develop and									City
optimize preventive and predictive maintenance plans • Update Cityworks to support improved maintenance plans									
8 Funding Analysis & Rates									
8.1 Establish Adequate Rate Structure									AM Consultant
AM Plan forecasts for future O&M expenditures, new assets and									Rate Consultan
renewals will require adequate funding									Nate consultan
9 AM Program Implementation									
9.1 Dynamic AM Plan Integration									AM Consultant
Intregrate AM Plans developed in Phase 2 as dynamic BI plans									
with data links to Cityworks, GIS and other data sources									AM Colt-
9.2 AM Framework Development & Implementation In addition to the AM Plan procedures, develop and implement									AM Consultant
 In addition to the AM Plan procedures, develop and implement any additional components of the AM Program to develop an 									
AM Framework to provide consistency and alignment.									
Activites would be determined in Task 3, but could include									
training, SOP development, additional KPI development and									
enhanced data analytics.	1	<u>i</u>	1			1			

Scope of Work

TASK 050: PROJECT MANAGEMENT

Black & Veatch will provide ongoing project management in the form of:

- Regular status meeting (in person or via conference call) once per month and potential more as project gets closer to go live stages,
- Meeting minutes
- Monthly Invoicing
- Tracking of project status, schedule, milestone delivery and budget management

Black & Veatch will facilitate a virtual kick-off meeting with the City at the commencement of the project to review the schedule and plan tasks.

TASK 100: ASSET MANAGEMENT

SUBTASK 101: ASSET MANAGEMENT PROGRAM COORDINATION

Black & Veatch will perform the role of the City's Asset Management Consultant to oversee the development of the Department's Asset Management Program to ensure the following:

- Facility condition assessment follow the guidance developed in Subtask 102.
- Risk assessments follow the guidance developed in Subtask 103.
- Data is collected in a format that can be updated in Cityworks and GIS.
- Approaches used by other consultants follow the City's standard asset management practices to promote continuity across the Department.
- Outputs from Utilities projects (such as risk assessments, renewal and replacement forecasts, condition and performance analysis) can be incorporated into the future asset management plans.

Black & Veatch will perform the following activities:

- Virtually attend meetings related to asset management related activities to provide input and feedback
- Assist the City with the review of the Master Plan Consultants' asset management-related deliverables:
 - asset inventory data gaps,
 - asset performance analysis,
 - condition assessments,
 - risk assessments, and
 - asset rehabilitation and replacement forecasts
- Provide guidance on how Master Plan outputs can be used to develop asset management plans. This will include development of an asset management plan template for both a document format and Power BI dynamic format asset management plan (note that the SOW does not include the development of the plans; however, these can be developed for the City as supplemental services to this SOW).

The deliverables from subtasks 104, 103 and 102, Levels of Service Technical Memorandum, Risk Assessment Technical Memorandum and the Facility Condition Assessment Manual will be developed for the purpose of the Department to provide these asset management requirements

universally to the stakeholders to promote continuity, including other consultants delivering water, wastewater, reuse and storm water systems projects for the Department.

Before start of this subtask, the detailed procedures, effort and schedule will be clarified by B&V and approved by City's representative in advance. Budget may be allocated in more detailed level after the task kickoff.

SUBTASK 102: DEVELOP CONDITION ASSESSMENT CRITERIA

Under this subtask, Black & Veatch will develop standard condition assessment criteria for assessing facility assets for up to 10 different asset types. Black & Veatch will facilitate a 90-minute kick-off call with the City and its Master Planning Consultants to review example criteria, criteria used by the Master Planning Consultants, and discuss previous condition scoring criteria used by the City.

Black & Veatch will develop initial criteria and definitions for asset condition and performance using a scoring range of 1-5. In developing the initial criteria, Black & Veatch will request from the City any condition scoring criteria that has been used previously and criteria proposed by the Master Planning Consultants. Typical criteria include:

- Visual condition
- Asset reliability
- Capacity (at the process level)
- Obsolescence and spare parts availability

Two types of criteria will be developed. One will be designed for City operations staff to assign condition based on routine inspections or preventive or corrective maintenance work, and will be scored on a scale of 1, 3 and 5. A second level of criteria will be developed using the scale 1-5 which will be used by City engineers and consultants for more detailed visual condition assessment.

Black & Veatch will also propose the methodology for calculating an overall condition score from the individual criteria scores. Black & Veatch will develop and submit the Draft Facility Condition Assessment Manual for the City to review and will facilitate a 2-hour call to present and discuss the manual. Following receipt of comments from the City, Black & Veatch will update and issue the Final Facility Condition Assessment Manual.

No condition assessment surveys will be performed under this task. Black & Veatch will configure Cityworks for collecting condition and performance data, and data gap filling under sub-task 107.

Notice: The funding for this task has been approved and is being sourced from a contingency fund from another previously approved project, and excluded from this project, while the service for this is anticipated to be finished before the authorization to proceed for this project is issued.

SUBTASK 103: DEVELOP CONSEQUENCE CRITERIA FOR RISK ASSESSMENTS

Black & Veatch will facilitate a 1-hour virtual kick-off meeting with the City to present an overview of consequence criteria, and to discuss the City's current use of consequence criteria in risk assessment.

Black & Veatch will review any consequence criteria current used and available GIS data, and will develop initial consequence criteria, descriptions and scoring for facilities and linear assets. The consequence criteria will be aligned with the agreed levels of service.

Black & Veatch will develop a Draft Risk Assessment Technical Memorandum that will include the consequence criteria, the methodology to aggregate or weight consequence scores, and how likelihood of failure will be combined with consequence to provide an overall risk score. Black & Veatch will submit the Draft Risk Assessment Technical Memorandum to the City for review and will schedule a 2-hour virtual meeting to review it. Following comments from the City Black & Veatch will update the memorandum and issue the Final Risk Assessment Technical Memorandum.

Before start of this subtask, the detailed procedures, effort and schedule will be clarified by B&V and approved by City's representative in advance. Budget may be allocated in more detailed level after the task kickoff.

SUBTASK 104: DEVELOP LEVELS OF SERVICE AND PERFORMANCE MEASURES

Black & Veatch will facilitate a 90-minute virtual kick-off meeting with the City to present an overview of levels of service and performance measures, and to discuss the City's current use of Key Performance Indicators (KPIs). Any existing KPIs that the City is utilizing will be reviewed and accounted for in the development of this Project.

Black & Veatch will request and review the City's existing KPIs, Strategic Plans, and Strategic Objectives. Black & Veatch will develop proposed levels of service and performance measures based on those currently used by the City, AWWA benchmarking metrics, the Effective Utility Management Manual, and the WRF/WERF publication Key Asset Data for Drinking Water and Wastewater Utilities. Examples include:

- Customer service complaints
- Disruptions of water service
- Water quality violations
- Water main break rate
- Planned maintenance

Black & Veatch will issue a Draft Levels of Service Technical Memorandum to the City for review and will facilitate a 2-hour teleconference to review the draft levels of service and performance measures. Black & Veatch will then make updates based on comments received and will issue the Final Levels of Service Technical Memorandum to the City.

SUBTASK 105: DEVELOP LEVEL OF SERVICE AND PERFORMANCE MEASURE DASHBOARDS

Black & Veatch will facilitate a 2-hour call with the City to review the available data and identify the LOS and Key Performance Measures (KPIs) that will be reported in the dashboards. During this call it will be determined which platform will be used for the development of the dashboards. The most common platforms are natively within Cityworks, the ArcGIS Enterprise platform, or in Microsoft PowerBI. Black & Veatch will work with City staff to determine what the Organization prefers and is licensed for, as well as which platform will best meet the Department's current and future needs.

Once the most appropriate platform is determined, Black & Veatch will then develop initial dashboards using the City's data to report the agreed maintenance KPIs. Black & Veatch will then facilitate a 2-hour review meeting with the City to present the dashboards and obtain feedback. Black & Veatch will update the dashboards with comments received and will publish the Dashboards so the City can review them.

The actual performance dashboards developed will depend on the City's available data, but the following dashboards will be considered:

- Customer Service Complaints
- Disruptions of Water Service
- Water Quality Violations
- Water Main Break Rate
- Maintenance Performance
 - Total number of work orders; planned maintenance (PM) and corrective maintenance (CM) work orders
 - PM/CM Ratio
 - Age of active work orders
 - Work order compliance number past due
 - Number of work orders completed but not closed
 - Number of overdue work orders
- Asset Reliability
 - Operational availability
 - Failure rate
 - Mean Time to Repair
 - Mean Time Between Failure
- Cost
 - Operation & Maintenance expenditures compared to total budget
 - Capital expenditures compare to total budget

Following final comments from the City, Black & Veatch will update the dashboards and publish the final versions.

This task will outline and develop 6 performance dashboards where data is available. Should data not be readily available or of sufficient quality for reporting in the dashboards, Black & Veatch will outline the required capture and storage methods needed to ensure successful development in the future.

Before start of this subtask, the detailed procedures, effort and schedule will be clarified by B&V and approved by City's representative in advance. Budget may be allocated in more detailed level after the task kickoff.

SUBTASK 106: REVIEW/REALIGNMENT OF ASSET HIERARCHY

Black & Veatch will conduct one (1) half-day workshop to review the current Asset Hierarchy and geodatabase design. This workshop will review both Vertical Assets (assets within plants, pump stations, etc.) and horizontal assets (distribution and collection systems). Black & Veatch will develop a Technical Memorandum outlining findings from the discussion, a schema diagram outlining current hierarchy, and a revised asset hierarchy that incorporates findings from the Workshop and best practice recommendations.

The main initiative for vertical assets is to determine the appropriate level of granularity that assets will be tracked. As an example, a single pump can be tracked as an assembled unit with Work

Activities being assigned to the pump as is the most current design. In contrary, the pump can be divided into individual components that are classified as discrete assets having work activities assigned to them on an individual basis (what was once just a pump is now a pump, motor, valve, fitting, pipe, concrete pad, runtime meter, etc.). Black & Veatch will help guide discussions with the client on the costs and benefits of such granularity, and the level of effort required to document and maintain these assets in the geodatabase.

The primary initiative for the horizontal assets is defining a logical hierarchy for summarizing and grouping assets together. The main goal is for management to quickly be able to "roll up" all the assets that should be logically grouped together so that LOS and KPI metrics can be measured on that group and not just system wide.

The results and outcomes of these discussions and assessments will be formulated into a technical outline for each hierarchy, showing existing and proposed hierarchy realignments. The City will be responsible for performing the outlined schema changes and any additional related table objects to the geodatabase and Cityworks.

SUBTASK 107: INVENTORY DATA SUPPORT

Black & Veatch will provide advice and make configuration updates to Cityworks/GIS to support asset inventory and condition data collection by Master Plan consultants. This will include:

- Identifying data gaps in the GIS asset inventory data required for asset management planning
- Configure Cityworks inspections to store inventory and condition data collected from surveys
- Providing support to City staff with inspection data mapping and import (up to three 2-hours virtual meetings)

The City or Master Plan consultants will be responsible for collecting data. The City will be responsible for importing data into Cityworks. If Master Plan Consultants, or City, are using calculations/algorithms that the Cityworks Condition Assessment templates are un-able to perform without post-collection manipulation, then the consultants and/or City will need to provide the algorithms so scores can be calculated. Alternatively, the Master Plan Consultants can provide the final calculated ratings for each individual asset, to be loaded into GIS/Cityworks by the City.

SUBTASK 108: ADDITIONAL CITYWORKS TASKS

Cityworks support to assist with implementation/expansion of capabilities as previously requested by the Department. The following tasks have been requested:

- Setup procedures to link Operation & Maintenance (O&M) Manuals and Record Drawings to facility assets through the existing Plantworks tool, including verifying functionality and providing the City with documentation of the step by step procedures. A brief (1-2 hour) training session will be provided for end-users.
- Finalize asset editing setup for each key facility equipment and provide training for asset editing, including providing the City with documentation of the step by step procedures.
- Additional Reporting: Existing reports for treatment facilities provide maintenance summaries related to treatment process. This task will focus on creating additional reports for viewing maintenance details for key equipment defined for each plant. Black and Veatch will work with Utilities staff to determine key equipment to be included in the report. The following reports will be created:

- Key Equipment Maintenance and Cost History (WTP & WWTP)
- Key Equipment Preventive Maintenance Completion Rates (WTP & WWTP)
- Key Equipment Preventive/Corrective Maintenance Ratio (WTP & WWTP)
- Assistance with Implementing Bar Codes for Warehouses: Black and Veatch will work with Utilities staff to implement out-of-the-box Cityworks barcoding functionality for the Storeroom application. Activities will include working with warehouse staff to produce the correct barcode labels to work with Cityworks, configurating the Storeroom application for barcoding, and providing training for the new functionality. Warehouse staff should be equipment with a mobile device (iPad/Android) to provide the ability to scan a barcode. This task will not include the implementation of a third-party barcoding solution.

Task 100 Deliverables

■ Subtask 101

- Attendance at virtual meetings (17 meetings, up to 4 hours each)
- Written comments on Master Planning Consultants' asset management-related deliverables (asset inventory data gaps, asset performance analysis, condition assessment, risk assessment, and asset rehabilitation and replacement forecasts). Number of deliverables to be reviewed is assumed to be 16).
- Draft and Final Asset Management Plan template

■ Subtask 102

Draft and Final Facility Condition Assessment Manual

Subtask 103

Draft and Final Risk Assessment Technical Memorandum

■ Subtask 104

Draft and Final Levels of Service Technical Memorandum

■ Subtask 105

- Six (6) Draft and Final Performance Dashboards for Water Treatment Plant, Wastewater Treatment Plant and Underground Utilities.
 - If Metrics are identified without a viable source, Black & Veatch will provide a technical memo addressing data gaps, data collection and storage possibilities, and an outline for the future development of these KPI/LOS Dashboards, once a viable data source is developed.

Subtask 106

- Attendance at virtual meetings
- Draft and Final Asset Hierarchy Technical Memorandum

■ Subtask 107

- Draft and Final Asset Inventory Data Gaps Technical Memorandum
- Up to 10 Cityworks inspection templates
- 3 virtual meetings to support inspection data mapping and import

■ Subtask 108

- Documented Procedures for Linking O&M Manuals and Record Drawings to Facility Assets
- Training Session for Linking O&M Manuals and Record Drawings to Facility Assets
- Updated Cityworks Configuration to Support Asset Editing
- Documented Procedures for Editing Facility Assets
- Training Session for Editing Facility Assets
- Reports Deployed to Cityworks

- Key Equipment Maintenance and Cost History (WTP & WWTP)
- Key Equipment Preventive Maintenance Completion Rates (WTP & WWTP)
- Key Equipment Preventive/Corrective Maintenance Ratio (WTP & WWTP)
- Cityworks Storeroom Application Configured to Support Barcoding
- Training Session for Updated Storeroom Application with Barcoding

Task 100 Department Responsibilities

- The City will provide all available documents and data as requested within the timelines agreed upon by both parties.
- The City will schedule the meetings.
- The City will assign the appropriate City resources to the project and support the time commitments of these team members to the project timelines and success.
- City staff will actively participate in the meetings.
- City staff will provide timely feedback on draft deliverables within the timelines agreed upon by both parties.
- City staff will implement recommended modifications to geodatabase associated with asset hierarchy efforts in task 106.

Task 100 Assumptions

Black & Veatch considered the following assumptions in developing this SOW:

- All meetings will be performed virtually using MS Teams. Black & Veatch will not travel to attend in-person meetings due to COVID-19 travel restrictions.
- The City or the City's Master Plan Consultants will conduct the on-site condition assessment and inventory surveys. Black & Veatch will not perform any survey work or conduct any risk assessments.
- Under sub-task 102, Black & Veatch will participate in up to 7, 4-hour virtual meetings with the City and its Master Plan consultants and will review up to 4 asset management related deliverables related to the condition assessment tasks.
- The client will be responsible for implementing any schema changes recommended to account for asset hierarchy realignment.
- Black & Veatch will not be re-associating historical Work Activities that were performed on an assembly, down to individual assets that will be subdivided into unique assets. Moving forward, Work Activities will be tied to the individual asset, but any historical work activities will be associated to the larger assembly.
- Black & Veatch will not perform any data gap filling activities under this task. It is assumed that data will be collected by the City or the City's Master Plan Consultants, and the City will update data in Cityworks or GIS.
- If calculations are to be included in condition assessment templates, then Master Plan Consultants must provide algorithms and business logic associated with calculations and condition ratings.
- Under sub-task 101, Black & Veatch will participate in up to 17, 4-hour virtual meetings with the City and its Master Plan consultants and will review up to 12 asset management related deliverables. These deliverables are assumed to include asset inventory data gaps, asset performance analysis, condition assessment, risk assessment, and asset rehabilitation and replacement forecasts.

Black & Veatch deliverable documents will be in Microsoft Office (MS-Word, PowerPoint, Excel and Power BI), MS-Project, and/or Acrobat Portable Document Format (PDF).

TASK 200: CONTINGENCY

SUBTASK 201 – ADDITIONAL ENGINEERING SERVICES (CONTINGENCY)

Black & Veatch may provide additional services, as requested by the City, beyond the level of effort of the statement of work outlined in Task 100. Engineering Services performed under Task 201 must be initiated by a separate written Notice to Proceed issued by the City's Project Manager.

PRICING

Attached separately in the cover letter.

SCHEDULE

The schedule for completing these services is anticipated to be a 9-months. A conceptual schedule is shown on the next page, and the final detailed schedule will be updated when the authorization to proceed is issue by the City.

