

SCOPE (1/31/2023)
**LEE'S SUMMIT WATER TRANSMISSION, LARGE DIAMETER SEWERS,
AND FORCE MAIN CONDITION ASSESSMENT AND MANAGEMENT
PROGRAM – PHASE 2 SUPPORT
CITY OF LEE'S SUMMIT**

SCOPE OF SERVICES

This scope describes HDR's services to be provided for Phase 2 near term opportunities (2023) of the City of Lee's Summit's Water Transmission, Large Diameter Sewers, and Force Main Condition Assessment and Management Program. The condition assessment work in this scope includes:

- Internal and external condition assessment services for the 16"-dia. PCCP Maybrook Road Water Transmission Main Interconnect
- External only condition assessment services for the 20"-dia. DIP Velie Road Water Transmission Main Interconnect
- External only condition assessment services for the 30"-dia. Steel Independence Water Transmission Main Interconnect beneath the Dick Howser Bridge

Assumptions

1. City engineering and operations staff can provide significant time commitments to project during program workshops, field visits in preparation of condition assessment work, and during weeks in which onsite condition assessment activities will occur.
2. Due to the nature of this work, the schedule and tasks included in this scope of services will remain flexible and may be modified at the direction of the City.
3. Field services for external condition assessments will be determined during planning activities. It is anticipated that City staff will be asked to perform excavations, utility line locates, anticipated confined space entry and trench protection measures, and traffic control.
4. Estimated fees for field services for Phase 2 pipeline condition assessments are included in Tasks 2, 3 and 4. The final scope of these field inspection activities, as well as the access needs, tracking, and operational constraints and logistics during the internal condition assessments will be determined during planning activities. Budgetary estimates are included for these field services; these may be modified as the scope of inspection work is able to be fully defined. Costs may also be reallocated among field services subconsultants.
5. An allowance for support for design and construction phase services is included in Tasks 2 and 3 for condition assessment activity preparations and emergency repair support. The scope of these activities is not yet completely defined. If additional services are needed beyond the estimated allowance, these will be included in future authorizations or an amendment to this authorization. If the allowance is not used, this may be allocated to be used for other program activities at the City's discretion.

Task 2 – External Direct Condition Assessment of Dick Howser Bridge Exposed Metal pipe

This task will include external condition assessment of the exposed 30-inch steel water main mounted on the underside of the Dick Howser Dr. bridge that crosses between the east and west Lakewood lakes. These assessment techniques are selected to inform a recommendation on the structural integrity of the pipeline with the associated recommendations for corrective actions.

Services include:

1. Conduct an on-site pre-condition assessment meeting with City
2. Perform external coating, thickness and visual external inspection of the 30-inch steel pipe where exposed beneath the Dick Howser Bridge
 - a. Expenses reflect the need for a platform inspection vehicle that allows for access to the pipeline from the bridge deck by extending over the east side before lowering to the pipeline level below the bridge deck.
3. Prepare Draft EDCA condition assessment result report and submit for City review and comment.
4. Conduct review meeting with City to gather comments and input on Draft Report.
5. Submit Final EDCA condition assessment result report.

Deliverables:

Draft and Final Condition Assessment Results Report

Meetings:

Draft Results Report Review Meeting

Assumptions:

No inspection will be completed on bridge components or the bridge features physically connecting the pipeline to the bridge (which are not anticipated based on record drawings).

TASK 3 – Internal Condition Assessments of Maybrook Road Water Transmission Main Interconnect

This task includes the internal condition assessment and evaluation of the inspection data for the Maybrook Road Water Transmission Main Interconnect that provides an interconnect for City water from Independence. This 16-inch diameter PCCP pipe section is approximately 8,400 linear feet in length. An electromagnetic inspection will be completed using the PipeDiver platform by Pure Technologies.

Evaluation of condition assessments results, development of renewal alternatives, recommendations and corresponding engineering opinion of probable construction cost are included in this Task.

Services include:

1. Provide design and construction support services for pipe access or tracking installation that will need to be constructed to facilitate the onsite inspection, and valve replacement or modifications needed for the Maybrook Road Water Transmission Main Interconnect inspection. This may include design of structures needed for inspection tool access and connections, tracking sensor attachments, design of details, traffic control planning, valve replacements, coordination activities with the City's selected contractor or directly with City crews, and shop drawing review.
2. Conduct site planning and coordination meetings with City staff and internal inspection subcontractor, including finalization of the proposed schedule.
3. Conduct pre-condition assessment meeting with City to finalize action plan for inspection. Support the City in pre-assessment walkthrough activities needed.
4. Perform internal PipeDiver inspection to identify wire breaks and provide onsite assistance and coordination during condition assessment activities. (Utilizes services of subconsultant Xylem – Pure technologies)
5. Review and analyze inspection data provided by subconsultant. Complete structural evaluation of identified structural defects in comparison to operating conditions of pipe. Develop assessment findings and recommendations.
6. Develop planning level opinions of probable construction costs for evaluated alternatives and recommended projects.
7. Facilitate a workshop to present assessment results, discuss risk tolerance and the City's threshold for initiating rehabilitation or repairs.
8. Develop rehabilitation, repair, pipe modification, and operating recommendations based on workshop and assessment data.
9. Prepare Draft Condition Assessment Report summarizing inspection and analysis methods and results, and recommendations to extend the service life of the pipeline.
10. Conduct review meetings with City to gather comments and input on Draft Findings Report.
11. Submit Final Condition Assessment Findings Report.

Deliverables:

Design and construction phase services, (up to budgeted dollar amount shown in the Fee).
Field services for condition assessments
Draft and Final Condition Assessment Report

Meetings:

Condition Assessment Planning Meetings and Walkthrough
Condition Assessment Findings Workshop
Final Report Review Meeting

Assumptions:

- The exact limits of the internal and external inspection along the Maybrook and Velie Transmission Main pipelines will be determined over the course of the planning phase as determined by available isolation, operation limits or access constraints. The maximum distance anticipated for internal and external inspection of the Maybrook pipeline will not exceed 8,400 - feet. The maximum distance anticipated for the external inspection of the Velie Transmission Main pipeline will not exceed 13,500 – feet.
- The design and construction support services budget within this task was established as 6.7% of the total of Task 3. This represents the maximum budget to be allocated for design or construction support activities using the billing rates on the contract. If level of effort required for design or construction support exceeds this budget, an amendment would be required for the specific items identified through the current budget.
- City crews or a third-party contractor hired by the City will complete the excavation and access point construction feature work. HDR will not manage or direct the work of excavation or construction feature Contractors.

TASK 4 – External Direct Condition Assessments of Maybrook Road Water Transmission Main Interconnect and Velie Road Water Transmission Main Interconnect

This task includes the external condition assessment for the Maybrook Road and Velie Road Water Transmission Main Interconnects. The primary external direct condition assessment (EDCA) inspections to be conducted by HDR include electromagnetic conductivity (EMAG) survey, Wenner 4-pin survey and Close Interval Potential Survey (CIPS).

Depending on EDCA inspection results, areas indicating high potential external corrosion can be used for screening-level assessment to confirm presence of external attack. If the corrosion potential in the EDCA is uncharacteristically high, secondary inspection techniques which require excavation of test pits may be conducted for visual inspection on the exterior of the pipe.

The primary external inspections will be used to determine the quantity and locations of secondary inspections to be conducted by HDR corrosion engineers including ultrasonic thickness testing (i.e., DIP), isopleth (i.e., PCCP), visual assessment of pipeline and soil sampling, and voltage potential testing.

- City crews or a third-party contractor hired by the City will complete the excavation and access point construction feature work. HDR will not manage or direct the work of excavation or construction feature Contractors.

TASK 5 – Workplan Development and Program Priority Updates

This task will focus on Condition Assessment Workplans for each of the three separate Phase 2 near term pipelines. A Workplan will be written for each pipeline and include the following:

- Recommended approach to assessment for each segment of pipeline to be inspected
- General schedules for pre-inspection activities – e.g., access construction, valve testing or replacement
- Recommendations for access, staging areas, an
- O&M coordination for flow control and shutdowns, and required valve inspections and/or repairs
- Coordination with City of Independence for system flow control will be required due to the ownership designation of the interconnects at the north end of the target inspections
- Identification of confined space entry requirements, traffic control, and other safety issues
- Schedule of field activities for inspection timeline.

Services include:

1. Develop Draft Condition Assessment Workplan. (3 separate plans by pipeline)
2. Facilitate Workplan review meeting with the City. (3 separate meetings by pipeline)
3. Final Condition Assessment Workplan. (3 separate plans by pipeline)
4. Incorporate findings of the Task 2 through 4 condition assessments into the City’s business risk prioritization model to produce edits to the next phases of the program.

Deliverables:

Draft and Final Condition Assessment Workplan (3 separate plans by pipeline)

Meetings:

Workplan Review Meeting (3 for each of the separate pipelines)