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LOWER PAXTON TOWNSHIP AUTHORITY

STORMWATER ASSET MANAGEMENT PLANNING

OVERVIEW OF PROJECT

The Authority owns stormwater utility assets that would cost hundreds of millions of dollars to replace. Developing a comprehensive and informed Asset Management Plan (AMP) will guide future management of the overall program and its assets. The process involves evaluating the utility needs, including regulatory compliance, rehabilitation of existing infrastructure and public stormwater concern areas. The condition of existing assets will be assessed first in areas of planned paving and sanitary projects. Projects will be prioritized in a capital improvement plan, which considers construction method (in-house crews or by contract), projected schedule, cost and financing strategies. Projection of revenue needs will enable a rate strategy to support the program needs across a 10-year period.

The revenue needs and rate strategy will also include engineering and project costs needed to support the MS4 Permit requirements for the next permit cycle of 5/1/30 to 4/30/35. The PADEP has published new draft criteria that focuses on runoff volume reduction rather than sediment load reduction. If the new DEP criteria is adopted, Lower Paxton Township will be required to prepare a Volume Management Plan (VMP) and a final Volume Management Objective (VMO) to achieve 2% volume reductions per year over a 50-year period. The plan will be required to be submitted with the MS4 Permit renewal application due October 31, 2029, and must include volume reduction projects needed over the 5 year permit term.



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LOWER PAXTON TOWNSHIP AUTHORITY
RETAINER AGREEMENT
PROJECT ASSIGNMENT
STORMWATER ASSET MANAGEMENT PLANNING
R004807.0459

This document will serve as confirmation for a request for services under the existing Retainer Agreement, last renewed on February 25, 2025, for CLIENT Consulting Services with Lower Paxton Township Authority (Authority). The Scope of Services, Schedule, and Compensation for this project are based on information included with the request.

Herbert, Rowland & Grubic, Inc. (HRG) is pleased to submit the following project assignment to undertake Engineering and related services associated with stormwater asset management planning in Lower Paxton Township.

BACKGROUND AND INTRODUCTION

The Authority is committed to strategically managing their stormwater assets to support the long-term sustainability of the stormwater utility and its services to customers. The Authority recognizes that they own and maintain a significant amount of assets with an estimated value in the hundreds of millions of dollars. Recognizing that progressive repairs and replacements will span decades, the Authority intends to develop a comprehensive and informed Asset Management Plan (AMP) to guide future management of the overall program and its assets.

Management of the assets includes consideration for the overall program. Thus, the AMP will holistically evaluate the stormwater utility to determine and quantify needs, including regulatory compliance and rehabilitation of existing infrastructure. It will also develop and prioritize projects through preparation of a capital improvement plan, determining the appropriate construction method (in-house crews or by contract) and evaluating financing strategies for individual projects, as well as the program as a whole. This includes cash funding (Pay-Go), individual borrowings, or broader borrowing. The AMP will establish a projected schedule for asset investments, estimate revenue needs to sustain the program and develop a rate strategy to support these needs. The Authority desires to evaluate the stormwater utility needs broadly, then compile the planning into a 10-year AMP strategy.

A comprehensive system-wide assessment can be completed to fully inform the planning, however, due to the size of the system and funding limitations, a full assessment is not desired by the Authority at this time. The initial assessment effort will focus on a rapid assessment of specific portions of the system, among other tasks described below, to compile the 10-year AMP strategy.

BASIC SCOPE OF SERVICES

PHASE 1 – LEVEL OF SERVICE AND NEEDS EVALUATION

1. Staff Collaboration

- a. Evaluate targeted Level of Service for the stormwater utility. This includes defining measurable performance goals (e.g., response times for complaints, number of system failures, compliance metrics) that reflect community expectations and regulatory requirements. As projects and schedules are being developed, consider the impact on the Level of Service being delivered and discuss with stormwater staff.
- b. Review findings from the below tasks with stormwater staff to refine prioritization and assumptions.

2. Support Improvements to Stormwater Geographic Information System (GIS)

- a. Evaluate and Update GIS Schema for Stormwater Assets
 - i. Provide stormwater staff with the current GIS schema of existing stormwater layers.
 - ii. Collaborate with staff to revise and enhance the GIS schema to align with current operational needs, including the integration of SewerAI inspection data.
 - iii. Incorporate the approved attribute fields into the stormwater layers within the Authority's ArcGIS Online environment.
- b. Update Attributes and Spatial Locations of Stormwater Features
 - i. Utilize data gathered from asset condition surveys to update the spatial locations and attribute records of stormwater features.
 - ii. Ensure all updates accurately reflect field-verified information to support ongoing asset management and regulatory compliance.
- c. Add New Stormwater Records to GIS
 - i. Integrate stormwater assets into the ArcGIS Online environment based on provided design drawings and/or as-built documentation.
 - ii. Coordinate BMP additions and updates to the ArcGIS, to be provided by Dauphin County, BMP Inventory and BMP GIS Mapping project.
- d. Ongoing GIS Support Services
 - i. Provide continued GIS support, as requested by the Authority, including but not limited to assistance with:
 - ii. Customer service and complaint records.
 - iii. Flushing and maintenance workflows.
 - iv. Additional GIS tasks and directives as identified by the Authority.

3. Develop Regulatory Strategy

- a. Develop approach to meeting future MS4 Permit requirements. It is our understanding that PRP requirements have already been met, so projected regulatory projects will focus on future projects and be on a concept-level in order to provide estimated costs for financial projections.
- b. Prepare a letter report which compiles the list of projects and their projected timing.

4. Evaluate Public Stormwater Concern Areas

- a. Evaluate known concerns. It is anticipated that up to ten (10) known concern areas will be evaluated.
- b. Develop concept designs to address the concerns.
 - i. Prepare concept-level GIS-based map depicting proposed projects.
 - ii. Prepare concept-level estimated costs for the projects, including Contractor Bid costs vs Township Crew Costs
- c. Prepare a letter report that summarizes the identified concern areas and the projects or other activities to address the concerns.

5. Assess Condition of Stormwater System

- a. Conduct rapid condition assessment of the stormwater system in select areas within the Township, including stormwater system areas identified as having poor road conditions under the 2024 Roadway AMP, stormwater systems within planned sewer replacement projects under the DEP Consent Decree, and stormwater systems identified above as concern areas. The representative rapid assessment will include the following activities.
 - i. HRG will create a new version of the Authority's existing GIS database of the Stormwater Management System, modified for use in the condition assessment. This includes creation of new data fields and map setup in the ArcGIS "Field Maps" application. For this task, HRG assumes that the Authority will allow HRG to access and modify their existing GIS map through the ArcGIS Online portal.
 - ii. HRG will perform a field investigation of inlets or endwalls and the associated pipe ends.
 1. Data collection will be performed using two-person crews. HRG will use ArcGIS Field Maps as well as measurement and photography equipment to perform a visual inspection of stormwater collection and conveyance system areas identified above and collect the following data:
 - a. Type, number, and severity of functional defects in inlets, endwalls, and associated pipe ends
 - b. Type, number, and severity of structural defects in inlets, endwalls, and associated pipe ends
 - c. Depth of inlets, endwalls, and associated pipe ends
 - d. Material of inlets, endwalls, and associated pipe ends
 - e. Asset ID (brought over from existing GIS database)
 - f. Inspection date
 - g. Inspection status
 - h. Pipes recommended for additional cleaning. For example, if a pipe invert cannot be visually inspected because of silt accumulation, HRG will recommend that the pipe receives cleaning.
 - i. Inspector Notes
 - j. Photographs inside each pipe end assessed
 - k. Photographs inside each inlet assessed
 - l. Photographs inside each endwall assessed
 2. The camera inspections performed under this agreement will not involve removing grates from inlets but will instead make use of a 360-degree camera that is slim enough to fit between the grates of a PennDOT standard inlet. Several factors can prevent the successful assessment of a stormwater inlet or endwall and its connected pipes using this equipment. These factors include, but are not limited to:
 - a. Inlet grate openings narrower than the PennDOT standard width of 1.625 inches
 - b. Inlet grate openings that are not vertical such as those in an inlet grate with slanted vanes
 - c. Accumulation of silt, trash or debris
 - d. Inlets or endwalls that hold standing water
 - e. Inlets beneath parked cars
 - f. Inlets over 9 feet deep
 3. Structures that cannot be assessed will be investigated by the field crew and will be designated as "could not be assessed" along with a note indicating the reason for their inaccessibility.
 - iii. HRG will assign an alphanumeric score representing the condition of each inlet, manhole, and pipe end assessed.

For pipe ends, the score will represent the following information:

1. Severity of the worst defect observed (score of 1 to 5)
2. Type of the defect for the worst defect observed (corrosion, obstruction, cracking, collapse, offset joint, etc.)
3. Total number of defects visible
4. Estimated loss of cross-sectional area due to defects

For inlets and endwalls, the score will represent the following information:

1. Severity of the worst defect observed (score of 1 to 5)
2. Type of the defect for the worst defect observed (cracking, spalling, missing masonry, offset sections, separation at pipe connection, etc.)
3. Total number of defects visible
4. Estimated percentage of the interior inlet box area affected by defects

- iv. For each inlet, endwall, and pipe end assessed in this phase, HRG will attach standard format (.jpg or .bmp) photographs and the condition score to that asset in the Authority's GIS system using the Field Maps application. HRG understands that 4G or 5G mobile internet coverage is available in all areas of the Township and therefore assumes that this information will be attached directly from the field. Therefore, no additional post-processing time is included to upload data to the GIS system via a hard-wired internet connection.

Under this task, HRG will also prepare a color-coded condition assessment map for the area assessed. HRG will employ 5 colors ranging from red to green to depict the "severity of worst defect observed" parameter from the Condition Assessment task. HRG will generate a "heat map" showing the area around each inlet or endwall assessed under this task with this color in the GIS database.

- v. Upon completion of the tasks described above, HRG will conduct an in-person meeting with Authority staff at their office location to review the findings and results. The review meeting will cover topics such as:
 1. Actual proportion of inlets and endwalls that could be assessed and/or require assessment
 2. Potential discovery of emergency issues
 3. Areas of poor condition identified through the rapid assessment task described above.
 4. Potential project locations identified by both the rapid condition assessment work and the full-scale inlet to inlet CCTV work performed by staff.
 5. Potential project locations and types based upon existing drainage problem areas or localized flooding.
 6. Planned paving, utility, or similar work by others that may affect the implementation schedule for the potential projects.

6. Develop a 10-year Rehabilitation Strategy

- a. Identify approach and timing for lining and replacement of existing infrastructure based on estimated existing pipe useful life.
- b. Prepare concept-level projects with estimated costs that would be included in the rehabilitation strategy for a 10-year projection.
- c. Coordinate with Township paving schedules to align rehabilitation activities with planned paving efforts.
- d. Compile language that can be used in a draft rehabilitation strategy policy for Authority consideration.

PHASE 2 – PLAN DEVELOPMENT

1. Prepare Internal Capital Improvement Plan (CIP)

- a. Assemble projects from Needs Evaluation Phase into a 10-year CIP.
 - i. Include consideration of anticipated method of constructions (in-house Township crew or contract)
 - ii. Included estimated costs, escalated based on implementation schedule.
- b. Develop an implementation schedule.
 - i. Consider other Township infrastructure plans (roads, bridges, sewer) in preparing the schedule.
 - ii. Contact the owner of the water system in the Township to request their capital improvement plan for coordination.
 - iii. As applicable, depict the various capital improvement plans in GIS and produce a map overlaying the various plans for comparison.
 - iv. Depict the projects schedule in a chart similar to a Gantt Chart

2. Perform Financial Analysis

- a. Develop 10-year projected operating expenses
 - i. Review the current stormwater utility budget, including personnel, maintenance, inspection, regulatory compliance, and administrative costs.
 - ii. Collaborate with stormwater staff to identify anticipated changes in operations (i.e., staffing increases, permit-driven activities, new technology etc.).
 - iii. Develop a detailed 10-year projection of operating expenses, including annual cost escalations based on historical trends or inflationary factors.
- b. Capital funding strategy
 - i. Utilize the 10-year Capital Improvement Plan (CIP) developed in Phase 2, Task 1 as the basis for funding needs.
 - ii. Evaluate alternative funding mechanisms for projects (pay-go, project-based borrowings or broader program debt). Potential grant programs will be identified as part of this process.
 - iii. Develop bond drawdown schedule related to projects, as applicable.
- c. Rate strategy development
 - i. Create multiple rate scenarios to evaluate the impact of different funding approaches.
 - ii. Ensure that rate scenarios support the projected O&M and capital costs while maintaining fund balance targets or reserve policies.
- d. Compile 10-year projected budget
 - i. Integrate projected operating expenses, capital costs and debt service, if applicable, into a 10-year projected budget.

3. Compile Public-Facing Communications Structure to support Level of Service Goals.

- a. Prepare a simplified 5-year public-facing CIP for use in communication and outreach such as the Authority website.
- b. Prepare a GIS-based stormwater concern form for customers to submit concerns along with observations such as photos and videos. Develop a process for reviewing these concerns.

4. Develop Draft Policy Framework

- a. Draft a set of written policies to formalize key aspects of the AMP and provide consistent and long-term guidance for decision-making.
- b. Coordinate with stormwater staff to review draft policies and align them with current operations and planning goals.
- c. Develop the following draft policies for Authority and Solicitor review and potential adoption:
 - i. Asset Management Policy – Establishes the Authority’s commitment to proactive, lifecycle-based asset management practices.
 - ii. Rehabilitation and Replacement Policy – Outlines procedures for reinvestment in aging infrastructure based on asset condition, risk, and coordination with other utility or roadway projects.
 - iii. Capital Project Prioritization Policy – Provides criteria and a structured process for evaluating and prioritizing stormwater projects.
 - iv. Reserve Balance Policy – Sets target fund balances for operating, capital and emergency reserves to promote financial resilience.
 - v. Rate and Funding Policy – Encourages periodic rate reviews, sustainable rate structures and prudent use of debt and cash financing.

5. Compile Asset Management Plan

- a. Integrate the above evaluations, strategies and schedules into an overall AMP document.
- b. Review the draft AMP with stormwater staff and Authority Solicitor.
- c. Present the final AMP to the Authority Board.

WORK PRODUCTS

The following work products will be delivered throughout the course of the project as each corresponding task is completed. These reports and tools will serve to inform decision-making, guide implementation, and communicate progress to stakeholders. The final AMP will incorporate and synthesize all of these components into a single, comprehensive document that establishes a strategic roadmap for the Authority’s stormwater program over the next decade.

Project deliverables will include the following:

1. Regulatory Strategy Letter Report
2. Stormwater Concerns Letter Report
3. Results of Rapid Condition Assessment, as follows
 - a. Updated GIS database including images and condition scores for the assets assessed delivered via the Authority’s online GIS
 - b. Interactive online GIS dashboard with map views showing color-coded representative condition assessment and overall project data
 - c. Organized directory of 360-degree image files for the area assessed
4. Draft Policies
5. Internal Capital Improvement Plan
6. Projected Bond Drawdown Schedule as applicable
7. 10-year Projected Budget
8. Public-Facing Capital Improvement Plan
9. GIS-based Stormwater Concerns Form

10. Ongoing Stormwater GIS Support including performing updates needed to maintain the stormwater asset ArcGIS Map
11. Asset Management Plan

SCHEDULE

We will begin working on the above-listed work immediately upon your authorization to proceed. It is estimated that the basic scope of services will be completed within twelve months of CLIENT authorization.

COMPENSATION

We propose to complete this work on an Hourly Basis.

This work will be subject to the General Conditions, included within our Retainer Agreement, our current Fee Schedule and current Billable Expense Schedule. Our policy is to render invoices monthly based on the time and expenses incurred.

Meetings with Authority staff and the Board that are necessary to complete the scope will be covered under the above amounts. However, if there is a material increase in meetings or requests outside the assumed level of coordination (e.g., additional workshops, stakeholder engagements or advisory sessions), those efforts may be billed separately on a time and materials basis.

In addition, in the event that work outside this scope of services is required to complete the project, HRG will prepare a supplemental scope of services for the Authority's review and approval prior to completing that work.

HERBERT, ROWLAND & GRUBIC, INC.

LOWER PAXTON TOWNSHIP
AUTHORITY

Approved by:

Jason R. Himmig

Group Manager | Municipal
& Water Resources

Title:

Date:

8/14/25

Approved by:

Title:

Date: