

July 21, 2023

Ms. Jessica Bolin, PE  
Stormwater Engineering Manager / Town of Apex  
105-B Upchurch Street  
Apex, North Carolina 27502

**RE: Town of Apex Stormwater System Condition Assessment Project Phase 2 (TOA23002)**

Dear Ms. Bolin,

We are pleased to offer this proposal for a comprehensive assessment of the Town's stormwater system to determine and prioritize Capital Improvement needs. Provided herein is our understanding of the desired services and our detailed scope and fee estimate.

### **PROJECT UNDERSTANDING:**

The Town has been a Phase II MS4 permitted municipality since 2005. Part of permit obligations include inspecting and managing storm drainage system infrastructure. With a current population of 75,000 and encompassing approximately 26 square miles, the Town continues to grow at unprecedented levels. With this rapid growth, the Town desires to evaluate the condition of public stormwater assets as they are today and help staff develop a proactive plan to repair and manage this infrastructure into the future.

McAdams has performed an initial evaluation of Town stormwater assets and understands that currently, the Town owns/maintains the following approximate number and mileage of stormwater assets:

- > 360 culverts
- > 180 miles of storm drainage pipe
- > 500 junction boxes
- > 12,000 catch basins / inlets
- > 1200 flared end sections (FES)
- > 660 outfalls and associated outlet protection

### **PROPOSED SCOPE AND PROJECT AREAS**

McAdams is proposing to complete this project in two, initial phases. The scope within this document will outline the second phase and project area below:

**Phase 2 – Remaining Basins within Peakway Boundary;** this portion will encompass all other Town-owned stormwater assets within the remaining watersheds inside of the Apex Peakway Boundary (including Beaver Creek, Big Branch, Swift Creek, and Williams Creek), less the portion of Middle Creek already obtained in Phase 1, Pilot Study. This covers an approximate 1.9-square mile area. Reference Figure 1 below.

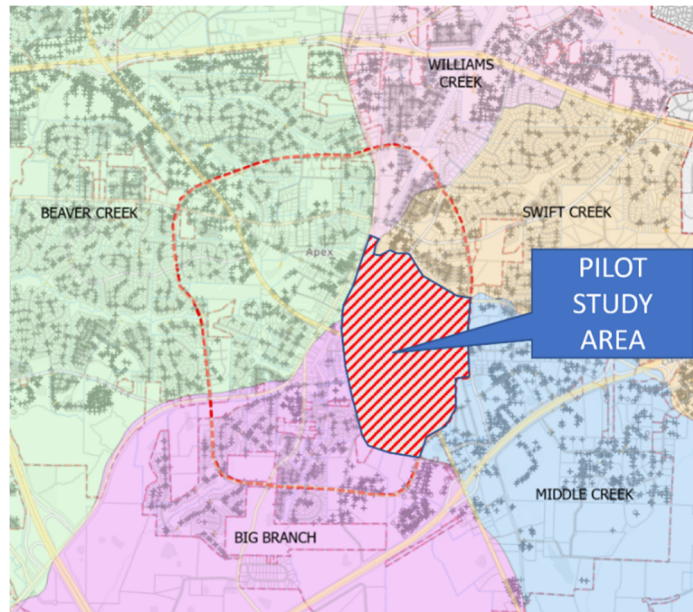


Figure 1 - Phase 2 Area, Remaining Basins within Apex Peakway Boundary

## ASSUMPTIONS

This proposal is based on the following assumptions:

- > Any public notifications will be coordinated through Town of Apex.
- > This project will be focused on structural condition assessment and does not include hydraulic capacity analyses or modeling.
- > Basic traffic control for pipe inspection work will be conducted by McAdams and its subconsultants. Additional traffic control support will be provided by the Town of Apex (McAdams will notify the Town at least 48-hours in advance of any needs). Major traffic control needs may need to be sub-contracted out at a higher-fee and will be negotiated as an additional service.
- > This project includes inspections for **Town-owned systems only**, from collection point to open discharge point within a Town dedicated easement or maintenance area. **It does not include privately owned/maintained systems, NCDOT systems, or other outside the jurisdiction of the Town of Apex.**
- > This effort is not intended to include detailed assessment of all stormwater pipes and structures within the noted boundaries above; rather, these assessments (as outlined in Tasks L3.11 and D4.41 below) will be for selected pipes and structures as determined most appropriate by McAdams and the Town of Apex. These determinations will be conducted in coordination with the Project Team prior to field work commencing and may be modified as work progresses through each phase.
- > Future, additional phases, beyond the limits of the Peakway boundary, will be determined at a later date and will be based on basin priority and additional guidance as determined by the Town of Apex.
- > Opinions of Probable Construction Costs (OPCCs) will be high level, budgetary estimates for planning purposes, based upon best available data and appropriate engineering judgement for each project area. Detailed survey data, subsurface utility exploration information, geotechnical investigations, etc. may be required later to refine costs and obtain bid-level estimates.

**PROPOSED SERVICES + FEES:**

We propose the following services for the project area outlined above (Alphanumeric task numbers are for internal coding purposes; tasks specific to each project have been identified as such):

**PHASE 2 – REMAINING BASINS INSIDE PEAKWAY BOUNDARY**

As described herein, Phase 2 will encompass the remaining four (4) basins inside of the Apex Peakway Boundary (reference Figure 1), less the portion of Middle Creek already obtained as part of the Phase 1 Pilot Study – an approximate 1.9 square mile study area. All tasks in Phase 2 remain consistent from Phase 1, with a few notable exceptions as detailed above the bulleted items:

**A4.11 Project Management + Administration:**

FEE: \$22,900 (lump sum)

Work under this task includes the following tasks similar to Phase 1, with two (2) additional project meetings:

- > Project work plan development + kickoff meeting with Town of Apex Staff, including identifying and prioritizing work areas.
- > Initial project due diligence, records research, as-built information, site investigations, stream walks, data gap analysis, and (as necessary) plat/easement/deed research.
- > Assistance with creation of project notifications and communication of site access to impacted residents.
- > Periodic project updates and status reports.
- > Project workshop with consultant team and Town (virtually).
- > General project management and administration throughout duration of contract.
- > Up to three (3) meetings (either in-person or virtual) with Town Staff to discuss progress, updates and for planning purposes, including at least one meeting to discuss prioritization design criteria for pipes and structures.
- > Up to two (2) public informational meetings/presentations with Town stakeholders, including any committee or council meetings as directed by the Town.
- > One (1) final presentation meeting to Town staff associated with draft Preliminary Engineering Report and product deliverables.
- > One on one property owner meetings, as required or requested by the Town of Apex.

**L3.11 Pipe Cleaning/CCTV + Storm Structure Inspections:**

FEE: Not to Exceed \$180,600, without prior written approval (based on the task specific unit rates listed in Phase 1, provided previously in Phase 1, Task L3.10)

Work under this phase will include three (3) major areas for inspections, including:

> **Pipe Cleaning + Closed Circuit Television (CCTV) Inspections**

FEE: \$5.50/LF for CCTV

Storm piping will be video inspected using a self-propelled closed-circuit television system, which includes a color, pan and tilt camera coupled with a laptop computer equipped with a digital video recorder and inspection reporting software. Cleaning will be performed as necessary to allow the inspection camera to pass through the pipe and provide an unobstructed view of the pipe. Cleaning will be performed with a high-velocity jet and vacuum truck and an off-road, tracked easement machine with additional jetting hose. The easement machine extends our off-road cleaning distances.

Video inspection will be recorded using a NASSCO PACP compliant software. Our certified Operator will capture the location of any structural defects, operation and maintenance defects and construction features (lateral connections, etc.). The inspection will be stored according to facility identification and structure numbers.

**Video Inspection Deliverable:** Digital videos will be provided in .mp4 format. A PDF log will be provided showing the facility ID, upstream and downstream manhole numbers, pipe diameter, length, material, defects, observations, etc. All inspection data is captured in a database for easy incorporation into GIS and asset management software.

> **Structure Inspections**

FEE: \$176/EA for each structure scan inspection

Structures (catch basins, curb inlets, etc.) will be scanned using an Ibak Panaramo SI unit. The SI unit produces a 360 degree, high resolution photo image of the interior of the structure and a digital point cloud that can be used to obtain accurate measurements of various components. A certified technician will perform a detailed inspection in the office using the scan data according to the National Association of Sewer Service Companies' (NASSCO) Manhole Assessment and Certification Program (MACP) methodology.

The condition of the manholes will be assessed, and inspections report will be completed containing the following attributes:

- > Physical location (street address)
- > Unique structure identification number
- > Pipe sizes, materials, and invert depths
- > Structural defects and other deficiencies
- > Photographs of the ground cover around each structure, the interior of the structure, and any defects within the structure.

A list of buried and/or unfound structures will also be provided to the Town.

Structures with no existing information will be surveyed to capture pipe invert and rim elevations.

**Deliverable:** All structures will be prioritized based on guidance from the National Association of Sewer

Service Companies (NASSCO) Manhole Assessment and Certification Program (MACP) rating system.

A standard Inspection Report sheet will be provided for each structure including an Access database and supporting photographs/3D image/point cloud.

> **Preliminary Pipe Survey / Zoom Camera Inspection**

FEE: \$93.50/EA for pole/zoom camera inspections

As part of the above ground structure inspections, crews will perform a visual survey of all pipes with a pole mounted, zoom camera. The inspections range in distance based upon conditions; inspections are limited by obstructions, poor pipe alignment, diameter, and other variables. Since pipes are inspected from each end, an accurate preliminary assessment is provided. The inspection quickly identifies structural and O&M defects within view. Digital video will be stored in the field and reviewed in the office. Each video will be reviewed and a quick condition score assigned based on NASSCO PACP methodology. Quick scores will be based on the severity of visible structural and I/I defects and range from 1 – 5; with 5 being the most severe.

**Deliverable:** A spreadsheet will be prepared listing each pipe inspected (both ends), pipe diameter, material, quick score, and any comments. The spreadsheet will contain a hyperlink to each pipe video.

**D4.41 Field Data Collection:**

FEE: \$45,100 (lump sum)

Work under this task includes the following tasks similar to Phase 1, with additional time for field walks to verify storm system connectivity and additional pole camera and asset inspections within the 1.9 square mile area and will include the following:

- > Initial field walks to verify and confirm system connectivity and limits.
- > All field work support associated with pipe, structure, and outfall inspections (including site visits and any support during pipe cleaning and inspection work), plus additional pole camera inspections as determined appropriate.
- > Asset locations and verification as necessary or required for basemapping updates.

**D4.51 Geodatabase Management + Dashboard Creation:**

FEE: \$17,100 (lump sum)

McAdams will update the Town’s stormwater GIS inventory and integrate into a project dashboard where information on the Town’s drainage system will be updated based on inspection results and problem identification. This work will include:

- > Data assembly and geodatabase development and maintenance.
- > GIS Dashboard creation, including real-time updates during data collection and formatting based on feedback with Town staff.
- > Ongoing maintenance throughout the life-cycle of the Phase 2 study.

- > For condition assessments, we will take detailed pipeline ratings and defect codes and build related tables that can be viewed via a GIS geodatabase. We will also catalogue CCTV inspection video and attach to the pipeline condition rating and records for the applicable features via a video link from an online library.

**D4.61 CIP Prioritization Development + Implementation:**

FEE: \$55,000 (lump sum)

Based on the results of the above investigations and analyses, McAdams will perform the following tasks and prepare the following final deliverable items:

We will review all video recordings and assess the storm drainage system to determine current condition and where immediate, remedial action may be necessary. A prioritization list relative to repairs needed based on current conditions will be provided. Based on assessment and analysis of storm drainage, McAdams will develop a detailed prioritization of capital improvement projects (CIP) for the Town to utilize for budgetary planning purposes.

Deliverables:

- > Structural assessments of pipes, catch basins, and other storm structures within the area of interest.
- > Opinions of Probable Construction Costs (OPCC) for necessary improvements (up to **50 potential stormwater CIP projects** have been assumed for the Pilot Phase).
- > Development of scoring matrix based on structural conditions of pipe.
- > Development of Capital Improvement Plan, including prioritization development and design criteria.
- > Preliminary Engineering Report (PER) and draft product delivery, including preliminary exhibits and schematic drawings.
- > Revisions and updates based on feedback from Town of Apex.

**OVERALL PHASE 2 FEE = \$323,200 (NTE, INCLUDING REIMBURSABLES)****EXTRA SERVICES****J. Additional Services Reserve:**

FEE: To be used only upon written approval by Owner

When requested by the Owner and confirmed by the Owner and/or Firm in writing, the Firm shall perform services in addition to those described above in this Agreement and the Owner shall compensate the Firm by hourly charges in accordance with the attached Rate Schedule.

**EXPENSES + REIMBURSABLES**

Valid expenses include reproduction and express delivery service as well as any permitting and application fees with an anticipated total budget of \$2,500 for Phase 2. These expenses may be paid by the city in addition to the fees listed above. Travel and lodging costs are not considered valid expenses. The Contractor shall submit invoices for valid expenses with each payment request.

**FEE SUMMARY**

Our proposed fee for the scope of services described herein is Not to Exceed **\$323,200** including reimbursables. Please refer to the attached fee summary for more information.

<b>Phase 2 Peakway Area</b>	<b>\$323,200</b>
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**PROJECT SCHEDULE**

The Firm’s services shall be performed as expeditiously as is consistent with professional skill and care and the orderly progress of the project. The following is the expected schedule for completion of work on this project:

An estimated schedule has been included below. McAdams is proposing to complete all work within approximately **250 working days** of completion of Phase 1: Pilot Study – Milestone 3, including the below breakdown by phase. Milestone dates below are approximate and shall be adjusted throughout the duration of the project based on any major changes to the scope of the project and/or site conditions. A more detailed schedule will be provided upon completion of Phase 1: Pilot Study – Milestone 3 with more specific deadlines.

**Phase 2: Remaining Basins Inside Peakway Boundary – approx. 250 working days from completion of Phase 1**

- > **Milestone 1:** Pipe Cleaning/CCTV + Storm Structure Inspections/Field Data Collection: **+140-days** from completion of Ph. 1, Milestone 3
- > **Milestone 2:** Geodatabase Management + Dashboard Creation: **+30-days** from Ph. 2, Milestone 1
- > **Milestone 3:** CIP Prioritization Development + Implementation: **+80-days** from Ph. 2, Milestone 2

The time limits and schedule set forth above have been agreed to by the Owner and Firm, but the time limits and schedule shall be extended for (1) reasonable cause, or for (2) any delays associated with the Firm’s work on the project that are not the sole responsibility of the Firm.

**OWNER RESPONSIBILITIES**

Owner shall be responsible for the following:

- > Notification to proceed.
- > Timely approval of sketches or other information presented for Owner approval.
- > Payment of invoices in accordance with Terms and Conditions.
- > Notification to Firm of any problems, in accordance with Terms and Conditions.



**EXCLUSIONS**

The following services are not included in this Agreement:

- > Any engineering or surveying service not specifically described above.
- > Court appearances for litigation, or preparation for same.
- > Legal advertisements for construction contracts.
- > Revised directives from Owner after design has begun.
- > Historical, archeological, insect, or terrestrial or aquatic animal surveys that require highly specialized expertise.
- > Oversight and direction for vegetation clearing to facilitate evaluation of stormwater outfalls.

**GENERAL CONDITIONS**

- > This proposal is valid for 60 days from the above date.
- > Reimbursable expenses will be billed in accordance with the attached Rate Schedule.
- > Owner is responsible for all application and permit fees.

**CONCLUSION**

We appreciate this opportunity to propose our services on this project and look forward to continuing to serve the Town of Apex!

Sincerely,

**MCADAMS**

Chris M. Stanley, PE, CFM  
Practice Lead, Capital Improvement Projects

CS / cg