Public Works and Buildings Committee
City Hall Council Chambers
Meeting Minutes
March 17, 2022

MEMBERS PRESENT

Councilor Donald Hamann, Chairman
Councilor Jim Gray- Vice Chairman
Councilor John LaRochelle

MEMBERS ABSENT

Councilor Chris Rice
Councilor Steve Beaudoin

OTHERS PRESENT

Peter C. Nourse PE, Director of City Service
Lisa J. Clark, Administrative Supervisor
John Sykora, PE Weston & Sampson Engineers
Sarah Viola Weston & Sampson Engineers

MINUTES

Councilor Hamann called the Public Works and Building Committee to order at 7PM

1. **Approval of February 17, 2022 Meeting Minutes**
   Councilor LaRochelle made a motion to accept the minutes as presented. Councilor Gray seconded the motion. The motion passed unanimously.
2. **Public Input**
   No Public Input.
3. **Sewer System Master Plan (SSMP) – Presentation by Weston & Sampson Engineers**
   Mr. Nourse stated that the Sewer System Master Plan development was an approved Capital Improvement Plan (CIP) budgeted project and he stated it is also a requirement of the Administrative Order of Consent in regards to the Great Bay General Permit for Nitrogen Reduction. He also explained that we are awaiting our WWTP NPDES Phosphorus Permit issuance and he noted that standard language in these permit does require a SSMP. Mr. Nourse briefly describe what a SSMP is and stated that it is a holistic process for a Community to grow its sewer system while complying with environmental law. Mr. Nourse explained that a large component of the SSMP involves investigation, quantification and the elimination of Inflow and Infiltration (I&I). Mr. Nourse introduced John Sykora and Sarah Viola as the City's Consultant for the SSMP Project. Mr. Sykora displayed a PowerPoint presentation on the monitors. The first screen defined all acronyms and several terms that would be in use during the slideshow presentation. He explained the term Infiltration in regards to the sewer system means groundwater entry via defective pipes and manholes and he explained Inflow as the surface run off into the sewer system via intentional storm water systems, roof leaders and sump pumps for example. Mr. Sykora explain that Weston & Sampson is working

on the initial part of the SSMP which is the investigations of sewer flows and determining how much Infiltration and Inflow (I/I) is occurring within Rochester's sewer system. Ms. Viola described CCTV, flow meters and other equipment as types of equipment in use for the investigation and she explained that they would be using die testing and smoke testing as well as completing residential surveys with homeowners. Mr. Sykora explained that the Sewer System Master Plans will determine the schedule for planning Capital Improvement Plans based on the areas of the Community that have the highest I/I rates. Eliminating the I/I in a system gains the City back Wastewater System Capacity, improves the Wastewater Treatment Plant control process and reduces unit process stressors. Mr. Sykora explained that Weston & Sampson has broken the sewer system down into 23 separate areas for metering and they are gathering data to support the SSMP. He stated that the Administrative Consent Order for Nitrogen Reduction requires this work and it will likely be requirement of the pending NPDES permit. He also stated it is a good practice for lowering treatment cost. Councilor LaRochelle asked if they could give a ball park dollar amount to the treatment of storm water and ground water entering the sewer system. Mr. Nourse stated that a preliminary estimate is $500,000 annually in additional chemical and electrical cost. He stated that the pumping and use of other treatment plant equipment in regards increased use is harder to quantify so they do expect that this estimate might be low. Mr. Sykora stated that they are in the preliminary investigation phase and that they will be able to hone in on those costs and will be able to provide a better estimate. Mr. Sykora discussed the cost saving of being proactive to repair in advance of issues vs. the cost to repair if there are breaks and other issues. Councilor Hamann asked about the customer surveys. Ms. Viola explained that customers are given many forms of advance notice, such as door hangers and letters and she stated they would not push back on those that were against providing access. Mr. Nourse discussed the Woodman Area Reconstruction Project that is due to start up soon. He stated that this area has been found to have the highest Inflow concentration in the City and the project will address both groundwater penetrations into the sewer system and the rainwater penetrations from homeowner connections. Councilor Hamann asked for the PowerPoint Presentation to be attached to the minutes. (SEE ATTACHED)

4. **Colonial Pines Sewer Extension Project – Phase 3 Update**

Mr. Nourse stated we are currently in Phase 3 of the Sewer System Extension Project. He stated that Phase 1 brought sewer pipe under the Spaulding Turnpike to this neighborhood. Phase 2 installed sewer mains to a portion of the neighborhood streets and connected approximately 100 homes to the system. He stated that the current Phase 3 is in progress and includes installation of approximately tall 7300 feet of sewer main, 4000 feet of closed drainage pipes, and could connect up to 71 additional homes to the sewer system. He stated that the construction company has run into more ledge than expected, but the project is on schedule to be completed in March of 2023. Mr. Nourse briefly discussed Phase 4 of the project. He stated that the Phase 4 homes are newer and likely have working septic systems and approximately ½ are located outside the 100 feet mandate for connection. He stated that and updated survey will be conducted to determine the need and interest in the sewer system extension. Councilor LaRochelle asked when tie-in to the sewer system is mandated. Mr. Nourse stated that if homes are within 100 feet of the sewer main and have been notified to connect. He stated that those contacts are made when the sewer system is being installed to an area.

5. **Sandina Drive Pavement Conditions**
   Mr. Nourse stated that last month the Sandina Drive roadway came up as one of the recommended streets for paving. He stated there was questions as to the age of roadway and about the documentation of the material of the original installation. Mr. Nourse explained that the road was accepted by the City in 1989, he also display pictures of the poor road conditions. Mr. Nourse stated that there is not documentation of the material underlying the street. Mr. Nourse did state that he believed this to be the original pavement and that it has held up for approximately 33 years. He also stated that the reclaim and pave will add a better base under the new pavement. Councilor Gray stated he did not need additional information but expressed he would like to know that we are learning as we go forward about the need for documentation of newly accept streets regarding the construction materials under the pavement. There was a brief discussion regarding the annual paving budget.
6. **Other**:
   Four Rod Road New Pavement - Councilor Hamann discussed the conditions of new pavement at the intersection of Ten Rod and Four Rod Road and also at the intersection of Ian's Way and Four Rod Road. Mr. Nourse stated he would look at the conditions in the area.
   Ten Rod Road Concrete Curbing – Councilor Hamann noted that he had been made award of rebar sticking out from the curbing and expressed his safety concerns. Ms. Clark stated she would complete a service request for the rebar to be addressed.
   RT 202A Water Main Extension and Tank Project Update – Mr. Nourse stated that this is a 13.5 million dollar project to bring water mains to the Rt 202A corridor and its neighboring streets. He stated that the Winkley Farm Lane segment is nearly complete and service taps and hydrant valves are in progress. Mr. Nourse explained that the consultant is meeting with homeowners and working up estimates for cost to the individual homes. He stated that currently they have been in contact with approximately 84% of the abutters. He stated that those estimates will be delivered in mid-April and the homeowners will need to commit to the tie-ins by mid-May. Mr. Nourse stated that there is a ductile iron pipe shortage that is causing delivery issues and could delay the project. Mr. Nourse stated that the project called for trench patching only on Winkley Farm Lane, Fiddlehead Lane and the paved portion of Bickford Road. He stated that the pavement is in such poor conditions that he is recommending paving vs. trench patching. He displayed picture of the roadway that depicted the poor conditions. Mr. Nourse stated that the general contractor for the project has given us and estimate of $208,000, which includes a trench patch credit, to reclaim and pave Winkley Farm Lane, $71,000 for Fiddlehead Lane and $18,000 for the paved portion of Bickford Road. He stated that this work would be scheduled for June 2022. Mr. Nourse explained that there is sufficient contingency budgeted in the project to cover the paving, but he expressed concern for expending the contingency this early in the project due to other possible needs for unforeseen conditions and the high cost of homeowner options. Mr. Nourse stated that an alternate to using the project contingency would be to wait until the FY 2023 Paving funds are appropriated and to pre-select this street vs. using the Paving Conditions Index (PCI) for street selection. He stated that waiting to use the paving funds retards the analytical process used to select streets, we will lose the trench patch credit, and we will pay the escalated cost of the pavement. Mr. Nourse stated that funding is not needed at

this time and he does recommend that we pave it now as we have the contingency, but he did want to consult with the Committee and make the Committee aware that about 1/3 of the contingency will be used early in the project and there could be unforeseen conditions that may require a supplemental appropriation later. Councilor Hamann stated that he agrees that it should be paved to get the road done right. Councilor Gray suggested that he could add the additional funds to FY2023 Paving appropriation to cover the cost or add a ½ million to the current paving account to be used for these roads and any remaining funds be used toward additional streets for paving based on the CPI. Councilor LaRochelle stated that there is only ¼ of the City Council present and that he believes that Mr. Nourse can make this decision based on his judgement at this point if he is not requesting additional funds. Councilor Gray voice his preference for using the undedicated funds for paving vs. selecting some personnel items.

Councilor Gray made a motion to recommend that the full City Council approve a supplemental appropriation in the amount of $500,000 from the General Fund Unassigned Fund Balance for the Paving Rehabilitation Program to include Winkley Farm Lane, Fiddlehead Lane, Bickford Road and other PCI selected streets with City Council approval. Councilor LaRochelle seconded the motion. The motion passed unanimously.

There was discussion regarding the full City Council sending the discussion to Finance Committee or if doing that would lengthen the process and prohibit the contractor's ability to get the funding approved in time for general contractor to get on the sub-contractor's June paving schedule. Mr. Nourse explained that he could commit to the contractor in advance as he does have the contingency funds available if the full City Council did not proceed with the supplemental appropriation. Mr. Nourse then discussed the progress on the temporary access through the Highfield Commons property. He stated that the road from Eisenhower Drive to the tank site is at the desired sub-base elevation and the water pipe is in place to the tanks site. He stated that the road should be completed in April so that the water pipe can be installed from the tank site down to Bickford Road.

Strafford Square Utility Relocation Project – Councilor Hamann asked if the Utility Relocation Project was to start up soon. Mr. Nourse stated that it was and that there is a meeting schedule for next week.

NHDOT Spaulding Turnpike Blasting – Mr. Nourse wanted to mention that blasting will be starting on this Turnpike Sound Wall Project and that there is more information posted on the City's website.

2022 Household Hazardous Waste Day (HHWD) – Mr. Nourse stated that the annual HHWD for Rochester and 9 surrounding communities will be held Saturday May 21. 2022 from 8:30 – 12:30 at the Waste Management Residential Drop off Center located at 18 Isinglass Road. He stated that the Residential Drop off will be closed for drop off of other trash related items.

Federal Budget & Congressional Delegated Funding – Mr. Nourse stated that the Federal Budget has been approved signed by the President. He stated that this budget does include some funding for the Congressional Delegated Spending Projects. He said for Rochester that includes the Wastewater Septage Receiving Facility Project in the amount of $900,000 and Municipal Alliance for Adaptive Management (MAAM) has

received $1,000,000 for Adaptive Management Projects.

Councilor Larochelle motioned to adjourn meeting at 8:14pm. The motion was seconded by Councilor Gray. The motion passed unanimously.

Minutes respectfully submitted by Lisa J. Clark, City of Rochester Administration and Utility Billing Supervisor.

welcome


Weston & Sampson
SM
transform your environment

INTRODUCTIONS

- John Sykora, Weston & Sampson
- Sarah Viola, Weston & Sampson

TERMS & DEFINITIONS

- gpd: gallons per day
- mgd: million gallons per day
- gpdim: gallons per day per inch per mile
- SSO: Sanitary Sewer Overflow
- SSES: Sewer System Evaluation Survey
- Infiltration: Groundwater entry into sewer system via pipe and manhole defects
- Inflow: Surface runoff entry into sewer system via storm system, roof leaders, sump pumps, etc.
- I/I: Infiltration and Inflow
- CCTV: Closed Circuit Television Inspection

WHAT IS I/I?

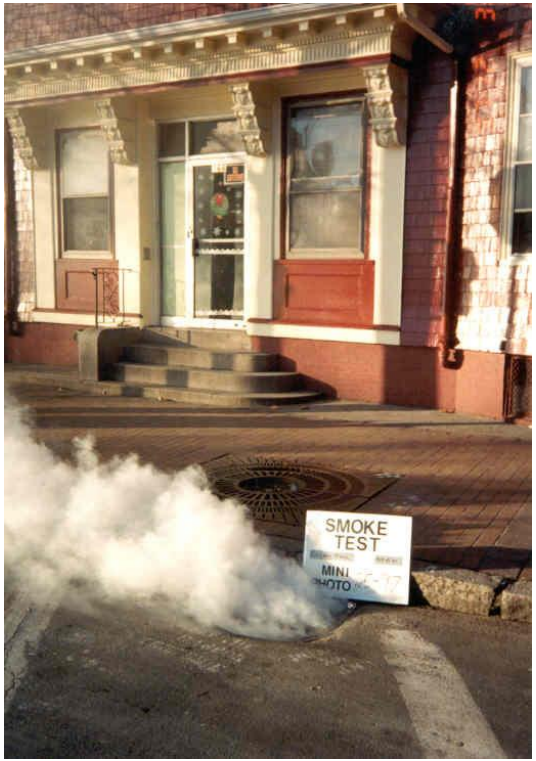
Infiltration and Inflow (I/I) is extraneous water that enters a sewer and reduces the useful life and capacity of the sewer system and treatment facility

WHAT IS INFILTRATION?

Groundwater entering through leaking pipe joints, breaks, or manhole defects. This occurs when the system undergoes material and joint degradation, as well as when it is poorly designed and constructed

WHAT IS INFLOW?

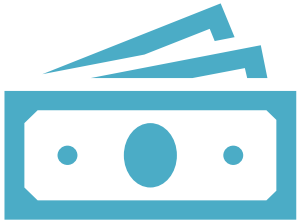
Rainfall entering through direct connections such as roof leaders, yard drains, catch basins, sump pumps, defective manhole covers and frame seals, or indirect connections with storm sewers



WHY CONDUCT I/I STUDIES & REMOVAL PROJECTS?

High Flows

Condition



Budgetary

Regulatory

High Flows

I/I removal can reduce these problematic events and gain back WWTF capacity, improve process control, and reduce unit process stressors

A proactive I/I investigation & removal program can gain back reliability & prevent small problems from becoming large problems

Condition

Budgetary

I/I study & removal is a cost-effective method to prevent emergencies, costly reactive repairs, insurance claims, etc. by focusing on high priority areas and working within available budget

Regulatory

I/I study, condition assessment, flow metering & modeling, and associated I/I & CSO removal may be required to address & resolve SSOs, NPDES O&M requirements, enforcement order requirements or other systemic issues

ADMINISTRATIVE ORDER ON CONSENT

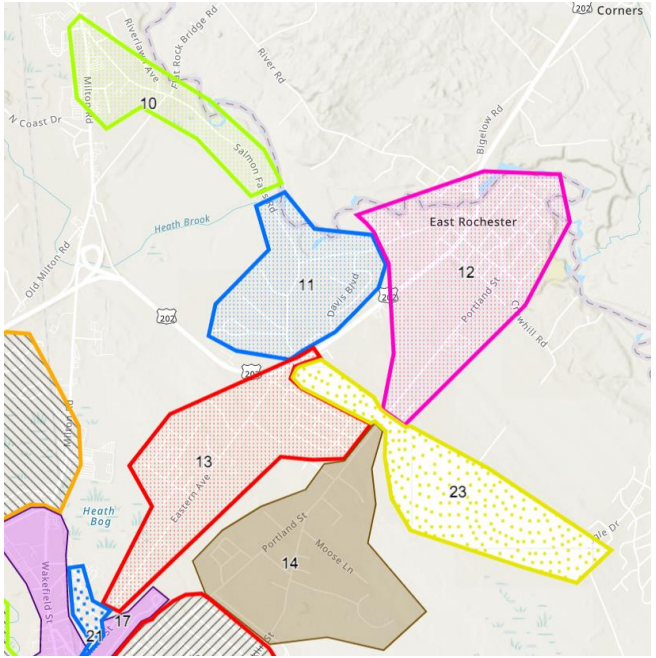
- EPA administered enforcement order – March 2021
- Sets forth requirements to be completed by October 31, 2024
  - Nitrogen Reduction Report
  - Sewer System Master Plan
    - Efforts to reduce sources of inflow and infiltration

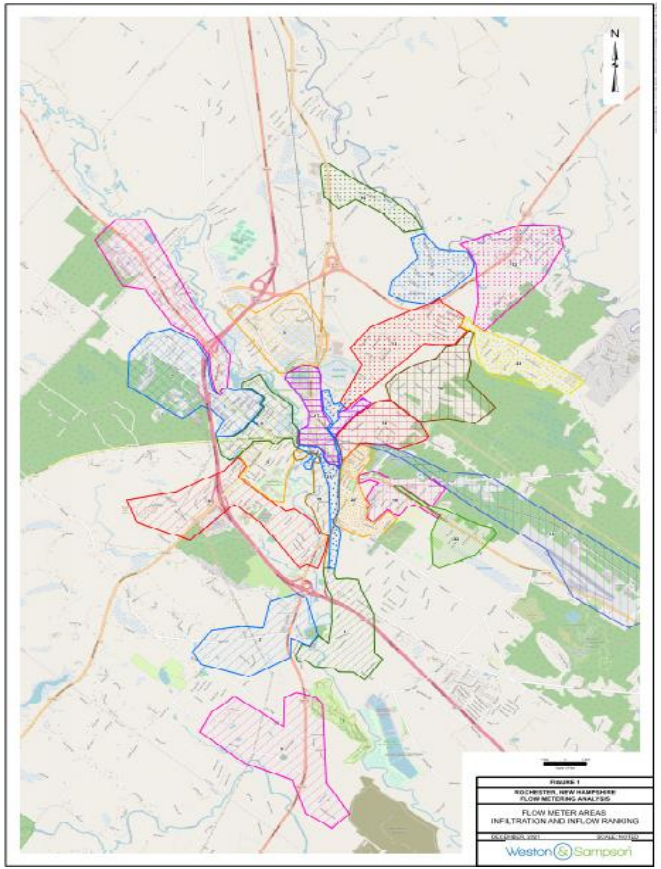
SEWER SYSTEM MASTER PLAN COMPONENTS

- Subarea Delineation
- Flow Metering and Analysis
- Sewer System Evaluation Survey (SSES) Investigation Plan Development
- Hydraulic Sewer Modeling
- Evaluation of Sewer System Expansion Areas
- Pump Station Upgrade Prioritization Plan Update

FLOW METERING

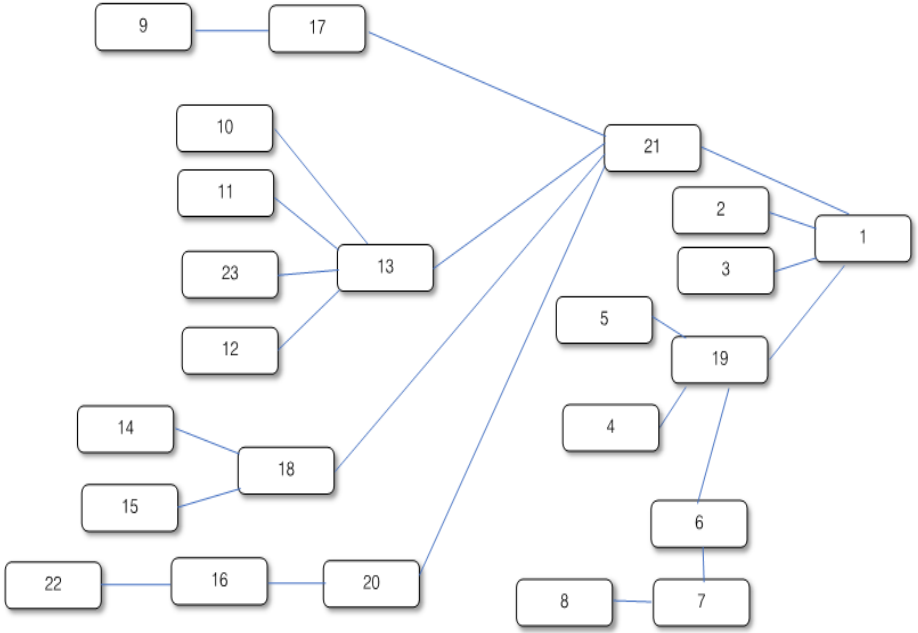
- Subarea Delineation- Defined 23 separate areas for metering
- Collected depth and velocity data for roughly 12 weeks
- Installed five rainfall gauges
- Use Flow Monitoring to estimate peak Infiltration and Inflow rates per subarea





CITY OF ROCHESTER, NH

CITY-WIDE FLOW METERING



FLOW METERING ANALYSIS

INFILTRATION

- Estimated 1.10 MGD of peak infiltration calculated
  - Several metered areas considered excessive, near or over the 4,000 gpdim threshold

INFLOW

- Estimated 2.83 MGD of peak inflow calculated
  - 5-year, 24-hour storm of 0.18 in/hour intensity
  - 80% of total inflow volume occurs in 43% of total LF

SIMPLE ASSET MANAGEMENT APPROACH

1. Inventory System (What do you have?)
2. Mapping/Recordkeeping (Where do you keep it?)
3. Prioritized Capital Plan (What's first and why?)
4. Collect Data (What do you need?)
5. Condition Assessment – FIND IT!
6. Repairs/Improvements – FIX IT!
7. Benchmarking (How is it going?)

INVESTIGATIONS

INFILTRATION INVESTIGATIONS

- Television Inspection
- Manhole Inspections
- Flow Isolation

INFLOW INVESTIGATIONS

- Smoke Testing
- Internal Building Inspections
- Dye Testing

SEWER SYSTEM EVALUATION SURVEY

FLOW ISOLATION

- Estimates infiltration per segment
- Isolates each segment to identify problem areas
- Quick & cost efficient

SEWER SYSTEM EVALUATION SURVEY

TELEVISION INSPECTION

- Inspect each municipally-owned sewer segment
- Visually identify defects – infiltration sources and structural
- Document issues
- Develop recommendations for rehabilitation

SEWER SYSTEM EVALUATION SURVEY

MANHOLE INSPECTIONS

- Two-person crew
- Inspect each sewer manhole in the project areas
- Visually identify defects – infiltration sources and structural
- Document issues
- Develop recommendations for rehabilitation

SEWER SYSTEM EVALUATION SURVEY

SMOKE TESTING

- Simple and effective
- Quick & Inexpensive
- Identify potential sources of inflow
- Visually document defects
- Collaborate with local authorities during field investigations
- Keep public involved

SEWER SYSTEM EVALUATION SURVEY

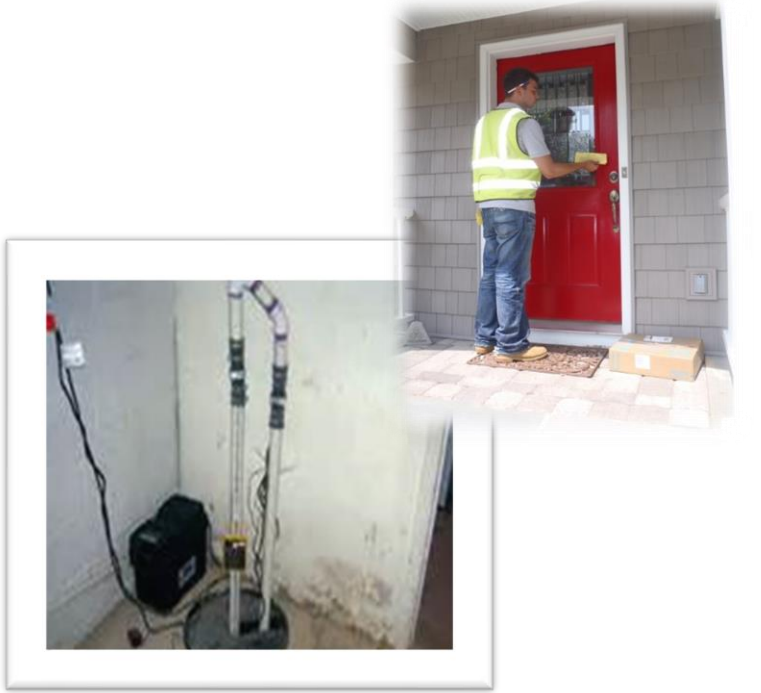
DYE TESTING & FLOODING

- Quick & Inexpensive
- Follow-Up Investigation
- Confirm sources of infiltration and inflow
- Visually document defects

SEWER SYSTEM EVALUATION SURVEY

BUILDING INSPECTIONS

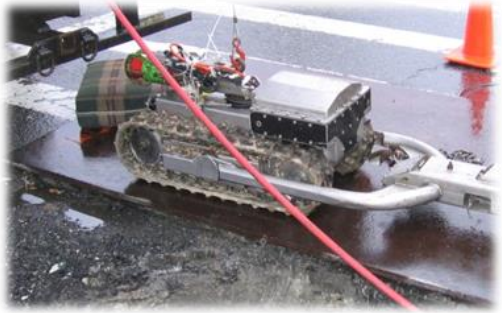
- Crew Identification
- Two-person team
- Homeowner approval
- Visually identify potential inflow sources and document defects
- Collaborate with local authorities during field investigations
- Keep public involved



WHAT IS PRIVATE INFLOW?

- Rainwater that enters the collection system from private property connections:
  - Sump pumps
  - Driveway and area drains
  - Roof leaders
  - Open clean-out
- Identify illicit discharges during building inspection and smoke testing

SPRING INVESTIGATIONS 2022



- Focus on Subareas with highest Infiltration & Inflow
  - Focus on CIP project areas this spring
- Spring Investigations
  - Perform CCTV- 50,000 lf
  - Flow Isolation -35,000 lf
  - Roughly 215 manhole inspections
  - Building Inspections – 120 homes

SUMMER INVESTIGATIONS 2022

- Summer Investigations
  - Smoke Testing-230,000 lf
  - Approximately half of the city-wide sewerage linear footage
- Reporting

ROCHESTER'S PLAN

Annual Program Year	Subarea	Estimated Cost	Area Description	FY Estimated Costs
Year 1 (2022)	9	$141,573	Spring 2022 Infiltration Investigations	FY 2022 $160,000
	3			
	19			
	14	TBD	TBD - Infiltration Investigations in Select Areas in 14/17	
	17			
	19	$18,427	Spring 2022 Building Inspections	
	TOTAL	**$160,000**		$160,000
	1	$178,113	Summer 2022 smoke testing representing 80% of the city-wide inflow	FY 2023 $580,000
	2			
	6			
	11			
	12			
	13			
	14			
	19			
	21			
	9			
	17			
	22			
	23			
	Total	**$178,113**		
Year 2 (2023)	9	$356,323	Spring 2023 Infiltration Investigations	
	3			
	2			
	17			
	14			
		$44,000	Select Sewer System Expansion Areas Study and Select Pump Station Evaluations	
	Total	**$400,323**		$578,436
	2	$389,838	Summer 2023 building inspections representing 80% of the city-wide inflow	FY 2024 $810,000
	6			
	11			
	12			
	13			
	14			
	22			
	1			
	9			
	17			
	21			
	23			
	Total	**$389,838**		
Year 3 (2024)		$310,000	Pump Station Evaluations, Sewer System Modelling and Complete City-Wide Manhole Inspections	
		$110,000		
	Total	**$420,000**		$809,838
Year 4 (2025)	21	$125,000	Complete Select Sewer System Expansion Areas Study, Update Siphon BODR, SSMP Development	FY 2025 $1,355,000
	9	$868,898	Infiltration Construction	
	3			
	2			
	19			
	Total	**$993,898**		
Year 5 (2026)	16	$234,464	Spring 2026 Infiltration Investigations	
	18			
	Total	**$234,464**		$1,353,362
	14	$829,646	Infiltration Construction	FY 2026 $830,000
	17			
	16			
	Total	**$829,646**		$829,646

- 13 Year Program
  - Approx. $1 million/year

Annual Program Year	Subarea	Estimated Cost	Area Description	FY Estimated Costs
Year 6 (2027)	12	$748,389	Spring 2027 Infiltration Investigations	FY 2027 $750,000
	8			
	1			
	23			
	15			
	22			
	13			
	21			
	Total	**$748,389**		$748,389
Year 7 (2028)	12	$1,335,839	Infiltration Construction	FY 2028 $1,340,000
	8			
	18			
	23			
	Total	**$1,335,839**		$1,335,839
Year 8 (2029)	1	$1,036,066	Inflow Construction	FY 2029 $1,040,000
	19			
	13			
	21			
	12			
	14			
	23			
	Total	**$1,036,066**		$1,036,066
Year 9 (2030)	22	$1,348,036	Infiltration Construction	FY 2030 $1,350,000
	15			
	13			
	21			
	Total	**$1,348,036**		$1,348,036
Year 10 (2031)	4	$825,597	Spring 2030 Infiltration Investigations	FY 2031 $830,000
	11			
	10			
	6			
	20			
	7			
	5			
	Total	**$825,597**		$825,597
Year 11 (2032)	4	$1,141,179	Infiltration Construction	FY 2032 $1,145,000
	11			
	10			
	1			
	Total	**$1,141,179**		$1,141,179
Year 12 (2033)	6	$1,837,530	Infiltration Construction	FY 2033 $1,840,000
	20			
	7			
	5			
	Total	**$1,837,530**		$1,837,530
Year 13 (2034)	2	$853,435	Inflow Construction	FY 2034 $855,000
	6			
	11			
	17			
	9			
	22			
	Total	**$853,435**		$853,435

Weston & Sampson SM

WHERE ARE WE DOING THIS TYPE OF WORK?

- Over 40 municipalities in New England
- Previous and current CMOM projects in NH:
  - Lebanon
  - Portsmouth
  - Hudson
  - Concord

THANK YOU!

Contact info:
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Questions?