



Sanitary Sewer Overflow Initiative

June 2019

This page is intentionally blank.

Table of contents

- 1) Introduction
- 2) Current SSO's (Sanitary Sewer Overflows)
- 3) Approach
- 4) Milestones and Timelines
- 5) Financial Plan
- 6) Monitoring of Program Effectiveness

This page is intentionally blank.

1. Introduction

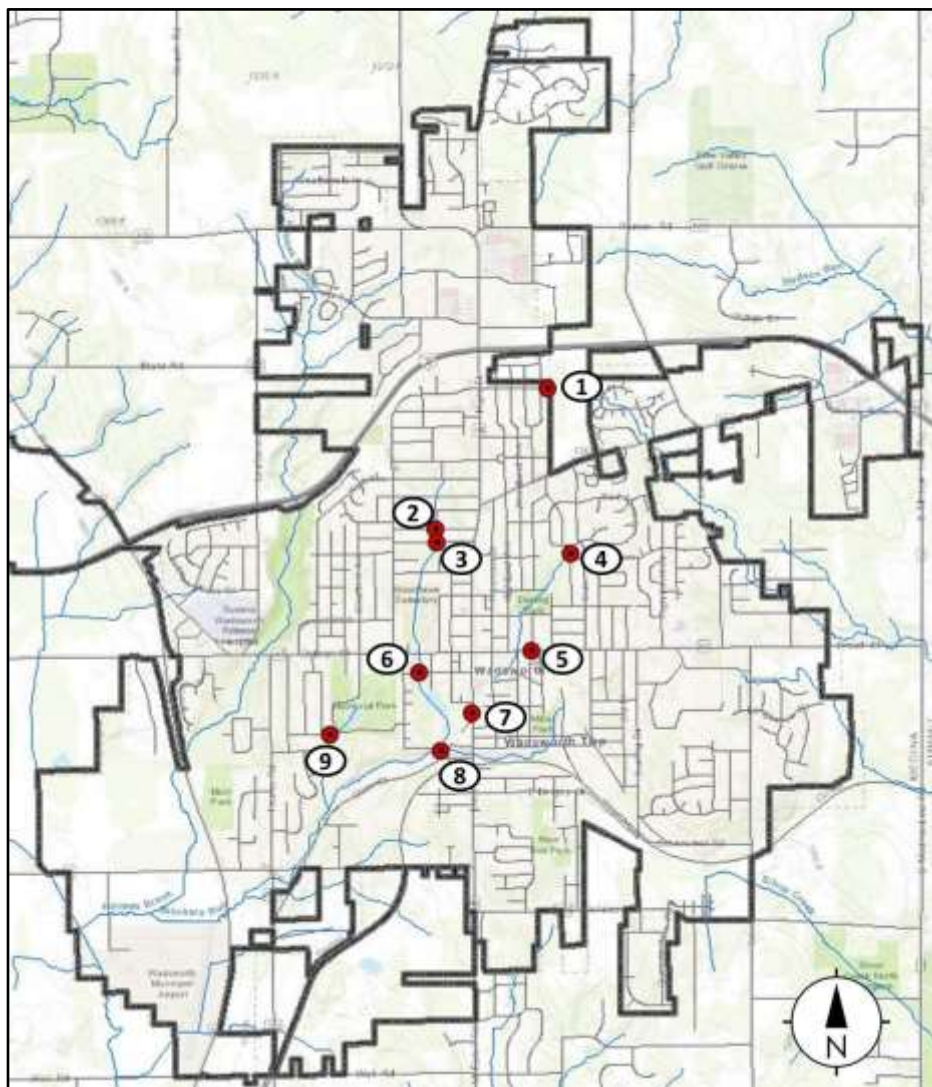
The City of Wadsworth (City) owns and operates its own collection system and wastewater treatment facility. The City recently became aware of nine sanitary sewer overflow (SSO) structures that alleviate the hydraulic loading during times of increased flows. The City is now looking at a proactive approach to remediate these nine overflows.

Future corrective measures set forth in this SSO Initiative include a thorough mapping of the sanitary infrastructure, a comprehensive evaluation of causes and frequency of overflows, prioritization of problem areas, a capital program of repair and replacement, an extensive sanitary management program, and operations and maintenance practices.

This plan outlines the City's strategy and intentions on addressing the sanitary sewer overflows.

2. Current SSO's

The City is aware of nine (9) existing SSO's in the system. Below is a map and a brief description of each:



1. **271 Brouse** – The sanitary line is an 8” line with an 8” overflow discharging into a storm sewer that ultimately discharges to a tributary to Blockers Creek. There is no device on this overflow to prevent stormwater from entering the sanitary sewer.
2. **Orchard & Tolbert** – The sanitary line is a 10” line with a 12” overflow discharging into a storm sewer. There is an inline tideflex on the overflow pipe in the sanitary manhole to prevent stormwater from entering the sanitary sewer. This ultimately discharges to Orchard Creek.
3. **Orchard & Simcox** – The sanitary line is a 10” line with a 10” overflow discharging directly into Orchard Creek. There is an external tideflex on the end of the discharge pipe into the creek to prevent stormwater from entering the sanitary sewer.
4. **Brookwood Lift Station** – There is a 10” overflow on the wet well of this lift station. It discharges into a storm sewer that ultimately discharges to a tributary to Blockers Creek. There is a tide flex on the discharge of the overflow in the storm basin.
5. **253 Broad** – The sanitary line is an 8” line with a 10” overflow discharging into a storm sewer that ultimately discharges to a tributary to Blockers Creek. There is no device on this overflow to prevent stormwater from entering the sanitary sewer.
6. **236 Mills St.** – The sanitary line is an 8” line with a 10” overflow discharging into a tributary to Blockers Creek. There is no device on the overflow to prevent stormwater from entering the sanitary sewer.
7. **251 Main St.** – The sanitary line is an 8” line with a 10” overflow discharging into a storm sewer that ultimately discharges to a tributary to Blockers Creek. There is no device on this overflow to prevent stormwater from entering the sanitary sewer.
8. **Rainbow & Mill**– The sanitary line is a 15” line with a 12” overflow discharging directly to Blockers Creek. There is no device on this overflow to prevent stormwater from entering the sanitary sewer.
9. **Ringer** – The sanitary line is a 10” line with a 12” overflow discharging to a tributary to Blockers Creek. There is no device on this overflow to prevent stormwater from entering the sanitary sewer.

3. Approach

A multi-pronged approach to address SSO's is proposed. This has been broken down by the following categories:

- Assessment & Evaluation
- Capital Improvements and Rehabilitation
- Sanitary Management Programs
- Operations and Maintenance

Assessment and Evaluation

A three-step process is proposed. The first step is to assess the nature of the SSO, including a determination of its cause, frequency and impacts. This information is then used in the second step which is to evaluate the applicability of a wide range of available tools in the process of determining an appropriate course of action. The third step is to select and implement the most applicable mechanism(s).

In determining the nature of the overflow, each SSO must be evaluated individually. The investigation may include flow monitoring, condition assessment of upstream and downstream systems, determining the extents of the sewershed, modeling, and quantifying the structural components of each individual overflow.

The second step is to evaluate the appropriateness of the range of tools available for remediating the SSO. Following is a list of the many tools available for remediating an SSO.

- Expand the capacity of the system (transport, pump stations, treatment, etc.)
- Expand storage capacity
- Reduce inflow and infiltration (private and public)
- Provide some level of treatment prior to discharge
- Apply proactive operation & maintenance measures
- Educate users to reduce flow
- Apply enforcement powers (federal/state/local)
- Retrofit sewer system
- Retrofit private structures/buildings (check valves, isolation of basement plumbing)

The third step involves creating an implementation strategy, including the selection of the most appropriate measure. Explicit in this approach is the recognition that the implementation strategy and implementation mechanism are dependent on the nature of the SSO. The solution can be tailored to solve the "problem."

Current Investigations:

a) The City installed a “block and string” method to tentatively give us an idea which ones are actively discharging. This method entails placing a block of wood attached to a string to determine if sanitary sewage is discharging through the overflows to the storm. These were installed in April 2019. Below is a table of our findings to date:

Address	4/15/19	4/22/19	5/15/19	6/1/19
271 Brouse	N	N	N*	N
Orchard & Tolbert	N	N	N	N
Orchard & Simcox	N	N	N	N
Brookwood lift station	N	N	N	N
253 Broad	N	N	N	N
236 Mills	N	N	N*	N
251 Main St.	N	N	Y	N
Rainbow & Mill	U**	U**	U**	Y
Ringer	N	N	N	N
Peak flow at plant (MGD)	8.0	7.56	8.85	10.11
Total precipitation of event (inches)	0.75	.06	0.68	1.45

*Storm water entered the sanitary sewer through sanitary sewer overflow.

**U=Unknown. Issue with the block and string did not allow for a proper assessment.

Table 1

The peak flow at the plant was the recorded influent during and immediately after a storm event. The total precipitation is a total of the entire storm event which may have been over a couple day period. The City has purchased a weather station that will not only measure precipitation but also duration. This should be installed in the near future.

These “blocks and string” are checked after every significant rain event or the flows at the plant warrant them being checked. The City will continue to check these until a more permanent decision is made.

Capital Improvements & Rehabilitation

Following the Assessment & Evaluation Period, in particular, the SSO Implementation Plan, the City will commence remediating the SSO issues. As studies described

previously are completed, the specific rehabilitation projects identified will be incorporated into the phased improvements, through updates to the Capital Improvements Program (CIP). Additionally, if during the assessment period, an early win or an easily attainable action is identified, the City will seek to implement the measure.

Current Capital Improvements & Rehabilitation:

- a. The City has budgeted \$200,000 in 2019 for rehabilitation and improvements to sanitary sewers. Areas suspected of high inflow and infiltration and in need of structural repairs are targeted for improvements.

Sanitary Management Program

While the Assessment & Evaluation and the Capital Improvement & Rehabilitation actions will notably have the most impact on addressing the nine (9) SSO's, a comprehensive sanitary management program will provide interim measures to assist with reducing the extent and frequency of the SSO's and provide a better level of service to the rest of the system. Below is a listing of programs which either the City currently undertakes or plans to institute.

- a. Public Education

During 2018, the City began a public education program with topics such as: "Wipes Clog Pipes"; "Stuff the Turkey, not the Sewer"; "Cease the Grease" and FOG (Fats, Oils & Grease). These outreach items came in the form of facebook posts, City monthly newsletters and First Friday events.

The First Friday events have been a great outreach tool to the public and have spurred many conversations about Wastewater. Additionally, we are also reaching out to the commercial and industrial customers. A FOG program is currently being created which will include best management practices for oil and grease interceptors as well as grit separators.

The City will continue with its public education program and will continue to expand to reach more people and a variety of audiences. Besides the above listed campaigns other avenues for public education can take the form of utility bill inserts, public service announcements, links on the home page of the City's website, and outreach to businesses.

- b. Dry Basement Program

On November 15, 2011, the City adopted an ordinance to establish a Dry Basement Program to provide limited reimbursement to property owners for investigation and construction costs to mitigate problems related to stormwater

inflow into the sanitary sewer system and public health hazards associated with sanitary sewer backups into homes.

Those selected as participants in the program may be reimbursed for up to 50% of approved construction costs with each applicant limited to a total payment of \$2,500 (including no more than \$1,000 for the investigation of the problem).

The City is currently reviewing the entire program to consider expanding the allowable retrofit measures as well as looking at increasing the maximum allocation per property.

c. Industrial Pretreatment Program

The City implements and maintains an Industrial Pretreatment Program per the NPDES permit. There are currently four industries on the program and questionnaires are being sent to evaluate what other industries may need to be added to the program.

The industries on the pretreatment program are required to perform in-house sampling as well as the City performing their own sampling. These industries are inspected on an annual basis with various reports due to the City on a regular basis.

d. Fats, Oils, and Grease (FOG)

In 2012 a revision to the *City of Wadsworth, Ohio General Rules and Regulations Covering the Control and Use of City's Sewers and Treatment Facilities; Chapter 4: Regulation and Use of Public Sewers* was implemented to allow for the development of a FOG program. We are working diligently on compiling a list of businesses with oil and grease interceptors. We are planning to send out a questionnaire to these businesses as well as some educational information as to why FOG management is so important. We will also share with them some best management practices for the proper disposal of FOG.

By managing FOG through this plan we will increase the treatment plant efficiency as well as reduce the operation and maintenance costs of the collection system. This program will include education to the business owners, ensuring proper size of grease interceptors and ensuring cleaning is done on a regular basis.

e. GIS Mapping

The City has recently commenced building a GIS map and database which will facilitate an asset management system. As field data is collected and recorded, the GIS system can continue to be updated, providing a tool for further more proactive system management.

f. Inflow and Infiltration Program (I/I)

We suspect that there is a large amount of I/I in the sanitary system. Not only may this be a major contributor to the SSO issues but it decreases the level of service of the overall system. The City intends to initiate a program to reduce I/I by incorporating sanitary sewer rehabilitation, as necessary, in other City infrastructure projects; evaluate the condition of the sewers through CCTV; and conduct dye and smoke testing. The first area to be tackled will occur in the downtown area where some of the oldest sewers in the City are located.

Operations & Maintenance

The City's Water Distribution and Wastewater Collection Department operates and maintains approximately 110 miles of sanitary sewers as well as 120 miles of water distribution lines. They also maintain the four City owned lift stations. This department consists of five full time employees and one working supervisor. They spend approximately 35% of their time on wastewater and 65% on water. Below is a summary of the equipment and tasks utilized by the department.

Inventory

The City owns a Vactor truck that is used to clean and vacuum out sewers as the need arises.

The City owned CCTV camera is used by the city crews to camera areas of immediate concern.

The City also owns a 6" diesel and a 4" gas pump to help relieve the system in case of emergencies. Two of the lift stations are capable of bypass pumping where these pumps would be utilized. They may also be used to bypass pump a gravity sewer in cases of a collapse.

An easement machine owned by the City is not used very often, but is a valuable tool when needed. This allows us to have access to many of our manholes that the Vactor truck is not capable of reaching or protect the integrity of a homeowners' property.

The City owns various sizes of root cutters (up to 27") which are used to remove roots from lines in between root foaming. The City has contracted with Duke's Root Control for the last several years to perform root foaming on approximately 10,000 feet of sewer line every year. This not only removes the roots that are present but also helps with slowing down regrowth between applications.

Operations

City crews visit each lift station on a daily basis to ensure all equipment is functioning as needed. They will also examine the wet wells to determine when it needs to be cleaned.

Chemicals are added to the wet well of one lift station that experiences odor and H₂S issues. These chemicals aid in odor, hydrogen sulfide and grease reduction.

Maintenance

Crews will clean the wet wells at the lift stations on an as needed basis.

As stated before, root foaming is contracted out to Duke's Root Control. Approximately 10,000 feet of sewer line is treated every year.

In the near future, the City plans on creating an O&M Standard Operation Procedure (SOP) Manual to ensure proper attention is given to the system. This SOP will include (but not limited to):

- Lift station daily inspections
- Lift station wet well cleaning
- Sewer line sectional cleaning
- Pipe and manhole inspections
- Root control program (to include root foaming)
- Gravity line preventative maintenance
- Force main preventative maintenance
- Training of staff
- Sanitary Sewer Overflow Response Plan (SORP)

4. Milestones and Timelines

At this point, the specifics of the SSO initiative plan are undetermined. During this next five year NPDES permit cycle we anticipate contracting for professional services by the end of the first quarter of 2020 to assist with the assessment and evaluation phase. This will enable us to better understand what projects need to be done as well as cost analysis of each project. We also anticipate performing flow monitoring and modeling to be included within the next five years.

As data is collected and the results allow, we plan on remediating the most easily attainable SSO's within the next five years. After this five year period, we will have a better understanding of the magnitude of the remediation. At the end of the five year period, we believe that we would have a solid plan in place to remediate all of the SSO's. The remediation measures are described below and set forth in a tabular form, with associated start dates and costs, in Table 2.

City of Wadsworth - SSO Remediation Action Plan		
Task	Start Date	Estimated Cost
Assessment & Evaluation		
Block and String	2 nd qtr 2019	Internal
Assess Composition of each Overflow Structure	1 st qtr 2020	\$18,000
Flow Monitoring	2 nd qtr 2020	\$220,000
Rainfall Monitoring	3 rd qtr 2019	Internal
Condition Assessment of Adjacent Systems	4 th qtr 2019	\$20,000
Contract for Professional Services for items such as unsteady state modeling; system evaluation; SSO Implementation Plan	1 st qtr 2020	\$250,000
Capital Improvements & Rehabilitation		
Incorporate rehabilitation/replacement needs into CIP		
SSO Area 1 Improvements	TBD	\$TBD
SSO Area 2 Improvements	TBD	\$TBD
SSO Area 3 Improvements	TBD	\$TBD
SSO Area 4 Improvements	TBD	\$TBD
SSO Area 5 Improvements	TBD	\$TBD
SSO Area 6 Improvements	TBD	\$TBD
SSO Area 7 Improvements	TBD	\$TBD
SSO Area 8 Improvements	TBD	\$TBD
SSO Area 9 Improvements	TBD	\$TBD
Sanitary Sewer Management Programs		
Review and update the current commercial grease trap and oil interceptor ordinance.	2 nd qtr 2019	Internal
Continue and implement new educational programs for residential and commercial customers.	3 rd qtr 2018	Internal
Continue Dry Basement Program	Ongoing	\$10,000/yr
Continue Industrial Pretreatment Program	Ongoing	Internal
Develop, maintain and update as necessary GIS Mapping of the wastewater system.	2 nd qtr 2019	Internal
Evaluate sanitary collection system in downtown	1 st qtr 2019	\$20,000
Operations and Maintenance		
Sewer cleaning	Ongoing	Internal
Root foaming	Ongoing	\$20,000/yr
CCTV	Ongoing	Internal
Create O&M Standard Operation Procedure Manual	3 rd qtr 2019	Internal
Monitoring of Program Effectiveness		
Annual SSO Remediation Report submitted to OEPA	1 st qtr 2020	Internal
Monitoring of Effectiveness	TBD	TBD

Table 2

5. Financial Plan

One of the key elements for implementation of this plan will be the ability to fund it. Some of the projects may include costly, capital-intensive projects. The City will explore all options as necessary to finance the remediation of the SSO's. This may include bonds, grants, loans, annual funding options and/or capital funding options.

At this point, the specifics of the SSO plan are unknown. During this next five year NPDES permit cycle we anticipate completing the assessment and analysis of each overflow. This will enable us to better understand what remediation measures are needed for each area, as well as cost implications for each project.

The City's Capital Improvements Program (CIP) is developed in five year increments and is revised annually during the budgeting process. The SSO Initiative will be included in the CIP beginning in 2020. The specific rehabilitation projects identified will be incorporated into the phased improvements, through updates to the Capital Improvements Program (CIP).

6. Monitoring of Program Effectiveness

We will keep the OEPA updated with an annual report beginning January 31st 2020 and each following year outlining what had been completed in the prior year as well as what is anticipated for the upcoming year.