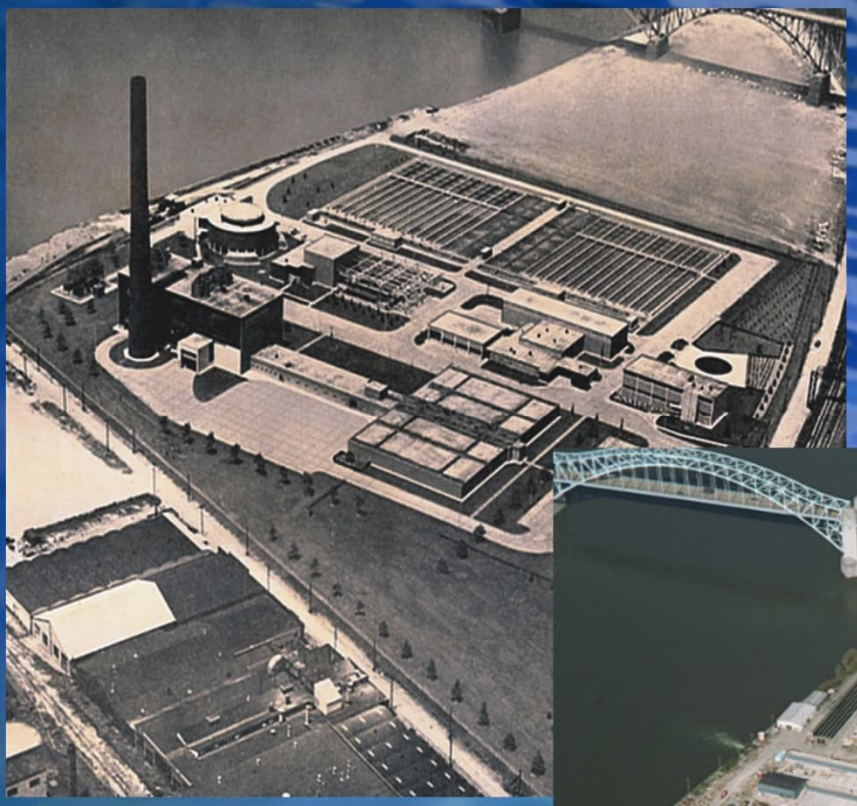
1942
1943
1944
1945
1946
1947
1948
1949
1950
1951
1952

ALCOSAN WET WEATHER PROGRAM

1956
1957
1958
1959
1960
1961
1962
1963
1964
1965
1966
1967
1968
1969
1970
1971
1972
1973
1974
1975
1976



ALCOSAN 2024 Municipal Source Reduction Measures Analysis

alcosan
allegheny county sanitary authority

2017
2018
2019
2020
2021
2022
2023
2024
2025
2026

Document No. 091
December 2024

Contents

Appendices

Figures

Section 3 Figures

Section 4 Figures

Section 5 Figures

Tables

Section 2 Tables

Section 4 Tables

Section 5 Tables

1.0 INTRODUCTION

1.1 Purpose

The purpose of the Municipal Source Reduction Measures Analysis report is to summarize the performance of municipal source reduction measures implemented in the previous 12 months (2023), as required by Appendix Z, Paragraph 1f of the Modified Consent Decree. The requirement reads as follows:

> *On an annual basis from 2019 through 2025, request information from the Customer Municipalities from the previous 12 months on any newly collected flow data or mapping changes regarding Municipal Source Reduction Measures. By December 31st of each year, ALCOSAN shall submit an analysis of the information to determine if the Municipal Source Reduction Measures are reducing the volume or rate of flow to the Conveyance and Treatment System.*

This report is the fifth in a series of seven reports. ALCOSAN submitted the first report, entitled *ALCOSAN 2020 Municipal Source Reduction Measure Analysis*, in December 2020, and the second, third, and fourth reports in December 2021, 2022, and 2023 respectively.

ALCOSAN has facilitated the acquisition of the above-listed data and evaluated the submitted data and recently completed municipal flow reduction measures as described by the customer municipalities / authorities (from here on referred to as municipalities). This report presents the findings of that review and evaluation.

More specifically, Section 1 of the report describes the purpose of the report and provides background information. Section 2 summarizes the information provided by the municipalities serving as an inventory of their responses. Sections 3, 4 and 5 provide an evaluation of the flow monitoring data, system mapping updates, and municipal source reduction projects, respectively.

1.2 Background

1.2.1 ALCOSAN's Clean Water Plan

In 2008, ALCOSAN entered into a negotiated Consent Decree (CD) with the U.S. Environmental Protection Agency (USEPA), Pennsylvania Department of Environmental Protection (PaDEP), and the Allegheny County Health Department (ACHD), agreeing to control sewer overflows as required by the federal Clean Water Act, 33U.S.C. § 1251 et seq. (the Clean Water Act). In 2012, ALCOSAN issued its Draft Clean Water Plan (formerly called Wet Weather Plan), including an alternative known as the Selected Plan, which provided for complete compliance with the requirements of the CD.

Overall, the majority of public comments received on the Draft Clean Water Plan (CWP) related to the potential for utilizing green stormwater infrastructure (GSI) and other flow reduction

measures as an alternative to the grey infrastructure (pipes, tanks and tunnels) proposed in the Draft CWP. ALCOSAN owns and operates interceptor sewers and intermunicipal trunk sewers but implementing GSI and other flow reduction measures is closely tied to municipal collection system characteristics and land development practices. Given their responsibilities for collection systems and land management practices, the municipalities are best situated to implement source control measures and related land development codes/ordinances. As a result, ALCOSAN began working on a greener wet weather strategy by making use of expanded municipal partnership efforts.

Following submission of the CWP in 2013, ALCOSAN and the regulatory agencies began negotiating a Modified CD that incorporates the use of GSI and other source control measures while recognizing the financial infeasibility of implementing all CD requirements by 2026. Through these discussions, the regulatory agencies required a compliance strategy to proceed with the design and construction of Interim Measures, or the Interim Wet Weather Plan (IWWP), that provides opportunities to integrate GSI and other source reduction practices, while prioritizing the regionalization of inter-municipal trunk sewers and key grey infrastructure projects.

The Modified CD includes an adaptive implementation framework that supports early implementation of source reduction projects, evaluation of their effectiveness, and if proven cost effective, the substitution or reduction of grey infrastructure where source controls can be shown to cost-effectively provide equivalent performance. Accordingly, the Modified CD includes several adaptive management milestones where new information can be used to propose modifications to projects and implementation schedules. Adaptive milestones include making good faith efforts to enter into municipal source reduction agreements, if applicable, as summarized in Section 6.2.3 of ALCOSAN's 2022 Modified CD progress report.

1.2.2 Municipal Source Reduction Studies

In 2004, municipalities with sanitary sewer systems were placed under Administrative Consent Orders (ACOs) from the ACHD and those municipalities outside of Allegheny County or with combined sewer systems were issued Consent Order and Agreements (COAs) from the PaDEP.

These initial ACOs/COAs required the municipalities to participate and cooperate with ALCOSAN in the development of a Wet Weather Plan and required submission of Feasibility Studies to evaluate a range of alternatives to eliminate municipal SSOs and regulate CSOs for policy compliance. This included the cost and time necessary to implement each alternative. The initial ACOs/COAs were subsequently replaced by the Interim Phase I Municipal Consent Orders, issued by the ACHD and PaDEP and signed by the municipalities during the period of December 2015 through January 2016 (Phase I Orders). In lieu of a Phase I Order, the Pittsburgh Water and Sewer Authority (PWSA) received a letter from USEPA with an Information Requirement pursuant to Section 308 of the Clean Water Act. The Phase I Orders and the PWSA letter required each of the municipalities to submit a source reduction study that evaluated opportunities to achieve flow reductions within their respective sewer systems. Those studies were submitted to the respective agencies and to ALCOSAN near the end of 2017.

In December 2018, ALCOSAN submitted a report titled ALCOSAN Regional Implications of Flow Reduction Measures to the regulatory agencies documenting the evaluation of the 2017 Municipal Source Reduction Studies (MSRS). The key outcome of the evaluation was that ALCOSAN would continue advancing regional flow reduction initiatives and partnerships using the framework in its CWP, which provides time to identify the best mix of green and grey facilities while IWWP implementation proceeds. ALCOSAN did not recommend modifications to the Interim or Final Measures of the CWP based on the MSRS.

Throughout 2024, ALCOSAN has been working with municipalities and 3 Rivers Wet Weather (3RWW) to prepare for potential source reduction projects as part of Phase II COAs as issued by state and local agencies. A key objective of these COAs is to require implementation of source reduction projects to reduce the amount of water entering the Regional Collection System.

1.2.3 ALCOSAN 2023 Municipal Source Reduction Measures Analysis

This section summarizes the key findings from the previous report, entitled *ALCOSAN 2023 Municipal Source Reduction Measure Analysis.*

The 2023 report summarized the performance of municipal source reduction measures analyzed for the year prior (2022), as required by Appendix Z, Paragraph 1f of the Modified CD.

The analysis of the information from the municipalities for the 2023 report regarding *whether the Municipal Source Reduction Measures are reducing the volume or rate of flow to the Conveyance and Treatment System* led to the following conclusions:

- The analysis confirmed that the Municipal Source Reduction Measures are reducing the volume to the Conveyance and Treatment System.
- The reported reduction in volume to the Conveyance and Treatment System associated with the evaluated projects was approximately 350 MG/yr based on reporting by municipalities and 180 MG/yr based on the ALCOSAN estimate. The annual volume removed as reported by municipalities represents approximately 0.45% of the average annual flow generated in the Regional Collection System. The annual volume removed as estimated by ALCOSAN represented 0.23% of the average annual flow generated in the Regional Collection System.
- As defined in Section 5.3.3 of the 2023 report, the volume reduction for each project was assigned a reliability category. A high reliability category shows high confidence in the reported volume, medium reliability signifies lesser confidence, but a reasonable estimate given the data collected, and low reliability indicates reported volumes that are not as reliable as the other categories (Table 5-5). For the 180 MG/yr annual volume removed as estimated by ALCOSAN, 90 MG/yr of the volume removed was considered to have high reliability, 50 MG/yr of the volume removed was considered to have medium reliability, and 40 MG/yr of the volume removed was considered to have low reliability.

The estimated volume removed as documented in all four annual reports to date (2020-2023) was shown in Table 5-8 of the 2023 report.

The report also noted that:

- As the monitoring programs by municipalities and ALCOSAN for on-going or future projects are refined, the reliability of the reported volume removed may improve. To support this effort, ALCOSAN is offering technical support to municipalities. For example, ALCOSAN published a GSI and Source Control Monitoring Guide in 2019 and ALCOSAN has provided pre- and post-construction monitoring support for many Green Revitalization of Our Waterways (GROW) projects.
- The evaluated projects are distributed throughout the ALCOSAN service area as illustrated in Figure 5-1 of the 2023 report. The local and regional impact on the Conveyance and Treatment System will continue to be evaluated by ALCOSAN.

2.0 MUNICIPAL SOURCE REDUCTION DATA REQUEST

2.1 Information Request

In December 2023, ALCOSAN requested that each municipality provide information related to their Municipal Source Reduction Measures as defined in the Modified CD[1] and as required by Appendix Z, Paragraph 1f of the Modified CD which read as follows:

> *On an annual basis from 2019 through 2025, request information from the Customer Municipalities from the previous 12 months on any newly collected flow data or mapping changes regarding Municipal Source Reduction Measures. By December 31st of each year, ALCOSAN shall submit an analysis of the information to determine if the Municipal Source Reduction Measures are reducing the volume or rate of flow to the Conveyance and Treatment System."*

The "Municipal Source Reduction Measures Annual Information Request" was sent out to all municipalities via official letter in December 2023 (see Appendix A for an example, the letter sent to the municipality of Aspinwall). Each municipality was requested to provide the following information:

Flow Data:

- Flow data related to source reduction projects collected over the previous 12 months (January 2023 – December 2023).
- A map showing the location where each flow meter was installed.
- Flow data in the ALCOSAN flow monitoring template. An ALCOSAN flow monitoring template in Microsoft Excel format was made available on the ALCOSAN Municipal Website to facilitate an efficient gathering and evaluation of the requested information (see Appendix B for an excerpt).

Mapping Changes:

- System mapping changes related to source reduction projects made over the previous 12 months (January 2023 – December 2023).
- A list of the changes made to the system.
- Updated shapefile(s) or geodatabase(s), if available.

Each municipality was asked to send an email with "no updates" if no system mapping changes or flow monitoring data were collected related to source reduction projects over the previous 12 months. In addition, if municipalities had submitted GROW project final reports with

---

[1] Page 14 of the Modified Consent Decree defines "Municipal Source Reduction Measures" as the range of measures, including without limitation, Green Infrastructure Measures, sewer separation, and Inflow and Infiltration control measures.

applicable flow data during the year as part of the GROW program, they were instructed in the data request that it was not necessary to re-submit the data.

For this year's report, ALCOSAN compiled in Appendix C a list of all awarded GROW projects that are not yet completed (did not submit a final report by the cutoff date of May 2024) and therefore the projects' source reductions have yet to be included in an Annual Report to date. Appendix C concisely describes the scopes and source reduction goals of these in-progress projects. As the GROW final reports are submitted and evaluated, the projects' source reduction will be included in the next applicable report. In addition, ALCOSAN maintains an online web map resource of all GROW projects and their source reduction goals.

2.2 Information Received

Of the 83 ALCOSAN customer municipalities, 12 did not respond, 44 responded with "no updates," 13 responded with flow monitoring data only, 6 responded with mapping changes only, and 8 responded with both flow monitoring data and mapping changes. Information on source reduction projects was also obtained through GROW project final reports submitted to ALCOSAN separately as part of the GROW program (see Section 5 for applicable flow monitoring data submitted separately through the GROW program).

2.2.1 Flow Monitoring Data

Two types of flow monitoring data were received by ALCOSAN from the municipalities, as listed and briefly described below.

- Flow Monitoring Data – flow isolation measurement data as well as flow and depth monitoring data for monitoring in sewers, pump stations, diversion structures, or outfalls not yet associated with a specific source reduction project(s).
- Source Reduction Project Flow Monitoring Data - monitoring data for pre- and/or post-construction monitoring of a source reduction project(s).

Flow monitoring data was provided by 21 of the customer municipalities, covering 56 monitoring sites. Two additional monitoring sites were submitted, however upon review, the submitted flow data was not from 2023 and therefore was not included in this report. Nine customer municipalities indicated in their responses that 33 of the 56 monitoring sites were not associated with specific source reduction projects (these are referred to as "non-source reduction project related"). These 33 monitoring sites were monitored by the municipalities. Figure 3-1 and Figure 3-2 summarize this information.

The remaining 23 monitoring locations submitted by 15 customer municipalities were noted to be associated with a source reduction project, which can include pre-construction and/or post-construction flow monitoring of a completed project or pre-construction flow monitoring for a current/future project. It is important to note that pre-construction flow monitoring may be conducted for a project that does not come to fruition in the future.

Table 2-1 summarizes the monitoring data potentially associated with source reduction projects. There were nine flow monitoring locations associated with pre-construction monitoring and 10 locations associated with post-construction monitoring. Two flow monitors in Carnegie Borough were associated with both pre- and post- construction. The pre-construction flow monitoring data for the McCandless Township Sewer Authority (MTSA) source reduction project was acknowledged in last year's report but not included in the flow monitoring statistics and it is now included in this year's flow monitoring data summary. The two flow monitors from MTSA were associated with both pre- and post- construction. This gives a total of 23 individual locations (27 data sets with four locations being both pre- and post-construction). If a municipality submitted any information about specific projects associated with the monitoring data, that information is also noted in Table 2-1.

Of the 23 monitoring locations associated with source reduction projects, the municipalities performed the monitoring at 22 of the sites while ALCOSAN conducted the monitoring at the one remaining site. Figure 3-3 summarizes this information.

A detailed evaluation of the flow monitoring data is available in Section 3 of this report.

Table 2-1: Summary of Source Reduction Project Flow Monitoring Information

Municipality	Number of Pre-Construction Monitoring Locations	Number of Post-Construction Monitoring Locations	Associated with GROW Project?	Project Details (if applicable)
Avalon Borough	0	1	Yes	Noted to be related to the 2021_01-023 Spruce Run Sanitary Sewer Repairs
Baldwin Borough	0	1	Yes	Noted to be related to the 2021_01-001 Streets Run Multi-Municipal Sewer Repair Work
Carnegie Borough	2	2	Yes	Noted to be related to the 2020_01-008 Cubbage Street Sewer Separation (Final Report pending)
Castle Shannon Borough	2	2	Yes	Noted to be related to three projects: 1) post-construction data at two locations for 2019_01-006 Connor Road/South McCully Sewer Repairs; 2) pre-construction data at one location for 2023_01-002 Killarney/Hamilton O&M Repairs (applied to GROW in 2023 but not awarded); 3) pre-construction data at one location for 2024_01-004 Killarney Drive Phase II COA Source Flow Reduction (awarded 2024)
Churchill Borough	0	1	Yes	Inferred to be related to the 2020_01-007 Collins Rd Pump Station Redirection
Crafton Borough	0	3	Yes	Noted to be related to two projects: 1) post-construction data at one location for 2020_01-

Municipality	Number of Pre-Construction Monitoring Locations	Number of Post-Construction Monitoring Locations	Associated with GROW Project?	Project Details (if applicable)
				009 Crafton Boulevard Sewer Separation; 2) post-construction data at two locations for 2020_01-012 Woodlawn and Fountain Street sewer separation
Edgewood Borough	1	0	Yes	Inferred to be related to the 2024_01-007 Edgewood Phase II COA Source Flow Reduction
McCandless Township Sanitary Authority (MTSA)	2	2	No	Noted to be related to Lowries Run CIPP (cured-in-place-pipe) 2022 project (initial data submitted last year but not reported)
Monroeville Municipal Authority	0	1	Yes	Inferred to be related to the 2018_01-011 Woodhaven Drive SSO Sanitary Sewer Rehabilitation
North Fayette Township	1	0	No	Future project(s) may be implemented
O'Hara Township	0	1	Yes	Noted to be related to the 2021_01-017 2021 Sanitary Sewer Lining Repairs
Ohio Township	1	0	Yes	Inferred to be related to the 2024_01-019 LeGrogan Road Sewer Replacement
Scott Township	1	0	Yes	Inferred to be related to the 2024_01-026A C-48 Phase II COA Source Flow Reduction
South Fayette Township	0	2	Yes	Inferred to be related to two projects: 1) post-construction data at one location for 2019_01-047 Millers Run Trunk Sewer Lining (+Grouting) project; 2) post-construction data at one location for 2021_01-028 Portman Run Sewer Main and Lateral Lining
West Homestead Borough	1	0	Yes	Inferred to be related to the 2023_01-018 West 7th Avenue Separation
TOTAL[1]	11	16		

[1] There are a total of 23 monitoring locations potentially associated with a source reduction project. Two monitors in Carnegie Borough and two monitors from MTSA are associated with both pre- and post-construction. This gives a total of 23 individual locations (27 data sets with 4 locations being both pre- and post-construction).

2.2.2 System Mapping Updates

Two types of mapping data were received by ALCOSAN from the municipalities consistent with the request:

- A list of mapping changes made and/or

- Updated shapefile(s) or geodatabase(s)

Fourteen customer municipalities provided mapping data in response to this year's request, including shapefiles, geodatabases, and/or lists of mapping changes. Upon review, 13 of the 14 submissions included mapping changes. A detailed evaluation of this data is included in Section 4 of this report.

3.0 EVALUATION OF FLOW MONITORING DATA

This section describes the evaluation of the flow monitoring data provided to ALCOSAN as required by Appendix Z, Paragraph 1f of the Modified CD.

3.1 Information Requested

The information requested and information received from the municipalities is summarized in Section 2.

3.2 Evaluation Approach and Results

ALCOSAN facilitated the acquisition of the data listed in Section 2 and evaluated the contents and completeness of the data and information that were received. The following subsections describe the evaluation approach and results associated with the two defined categories of flow monitoring data, i.e., source reduction project flow monitoring data and other flow monitoring data.

3.2.1 Flow Monitoring Data

Municipalities who collected flow monitoring data related to a source control project over the previous 12 months were requested to provide that data to ALCOSAN using a Microsoft Excel template as described in Section 2. Instructions for filling out the template were included on the first tab of the template. A map showing the location of the flow monitor(s) was requested to be provided in the designated spreadsheet tab.

Review focused on the number of flow monitoring sites submitted, whether the monitoring was conducted by the municipality or by ALCOSAN, and whether the monitoring was in support of quantifying the performance of a source reduction project. When it was observed that the data provided by the municipality supported quantifying the performance of a source reduction project the data was flagged for consideration as part of the source reduction project flow monitoring data under Section 3.2.2.

Figure 3-1 is a map of the number of non-source reduction project related monitoring sites provided by municipality. Figure 3-2 shows the number of non-source reduction project related monitoring sites by municipality and distinguishes the number of sites where the municipality conducted the monitoring from the number of sites where ALCOSAN conducted monitoring on behalf of the municipality.

In all, flow monitoring data was provided by 21 municipalities for a total of 56 monitoring sites. Data from 33 monitoring sites was identified as not being associated with source reduction projects (i.e., non-source reduction project related monitoring sites), and data from 23

monitoring sites was identified as being associated with pre- and/or post-construction monitoring associated with a completed, current, or potential future source reduction project (i.e., source reduction project monitoring sites). Table 2-1 in the previous section summarizes the monitoring data potentially associated with source reduction projects.

3.2.2 Source Reduction Project Flow Monitoring Data

This section discusses the flow monitoring data provided by municipalities that was pre- and/or post-construction monitoring data associated with a source reduction project.

The review focused on the number of source reduction projects with submitted flow monitoring data for each municipality, the number of sites with pre-construction flow data, the number of sites with post-construction flow data, and whether the monitoring was conducted by the municipality/authority or by ALCOSAN.

Figure 3-3 is a map of the number of source reduction projects with flow monitoring data from the previous 12 months, by municipality. The numeric values on the map indicate, for each municipality, the number of pre- and post-construction flow monitoring sites for which data was submitted by the municipality or collected by ALCOSAN. Pre-construction data for a potential project that may be implemented in the future was not identified as being associated with a completed source reduction project for Figure 3-3, which is why five municipalities are shown as having zero source reduction projects associated with their submitted flow monitoring data (for example North Fayette and Monroeville). Some municipalities may also use more than one monitoring site to monitor the same project. Information on pre- and post-construction monitoring is reported in Table 2-1. Some pre-construction flow monitoring information is associated with awarded GROW projects that will be included in future Municipal Source Reduction Measures Analysis reports, while some flow monitoring information is for unknown potential future projects which may or may not come to fruition.

There is only one non-GROW project, the Lowries Run CIPP project submitted by McCandless Township Sanitary Authority (MTSA), which has both pre- and post-construction flow monitoring. However, the flow monitoring covered a very large sewershed of which the project only involved 0.4% of the pipes and there may have been other source reduction projects completed in the sewershed. In addition, analysis of the flow monitoring data showed a significant reduction in volume, much more than would be expected for the scale of the Lowries Run project. As a result, it was not possible to determine a direct connection between the Lowries Run project, the flow data provided, and the estimated volume reduction. Therefore, this project was not included in the source control measures evaluation described in Section 5. The project and flow data will be re-evaluated as additional information is obtained.

Figure 3-4 shows the number of flow monitoring sites associated with a source reduction project. Source reduction project flow monitoring data submitted by 15 of the customer municipalities was found to be associated with 23 monitoring sites and at least 17 identified source reduction projects. Between the pre-and post-construction flow monitoring data, there are 15 GROW projects, one source reduction project (GROW ID 2023_01-002) that applied for GROW but was not awarded, and one non-GROW source reduction project (MTSA) referenced by the municipalities. Out of the 15 GROW projects, 14 have either been reported in previous reports, or had not submitted a GROW final report by May 2024, and are therefore not included in Section 5. Only flow data for the Crafton Boulevard Sewer Separation GROW project is included in Section 5 (project #10 in Table 5-1).

Out of the 23 monitoring sites, nine sites had only pre-construction flow monitoring data, 10 sites had only post-construction flow monitoring data, and the other four sites had both pre- and post-construction flow monitoring data at the same site. The municipalities performed the monitoring at 22 sites, while ALCOSAN performed the monitoring at one site (West Homestead). Other information that was reviewed when available was the approximate duration and time periods of the monitoring.

In addition to responses to the annual information request, 10 GROW project final reports were submitted to ALCOSAN between June 2023 and May 2024 separately as part of the GROW program, along with relevant flow monitoring data. As noted above, one flow monitor site submitted through the annual information request was related to one of these projects (Crafton Boulevard Sewer Separation GROW project). The 10 source reduction projects are included in Section 5 (Evaluation of Municipal Source Control Measures), including flow monitoring information for each project in Table 5-2.

Figure 3-1: Number of Non-Source Reduction Project Related Flow Monitoring Sites by Municipality

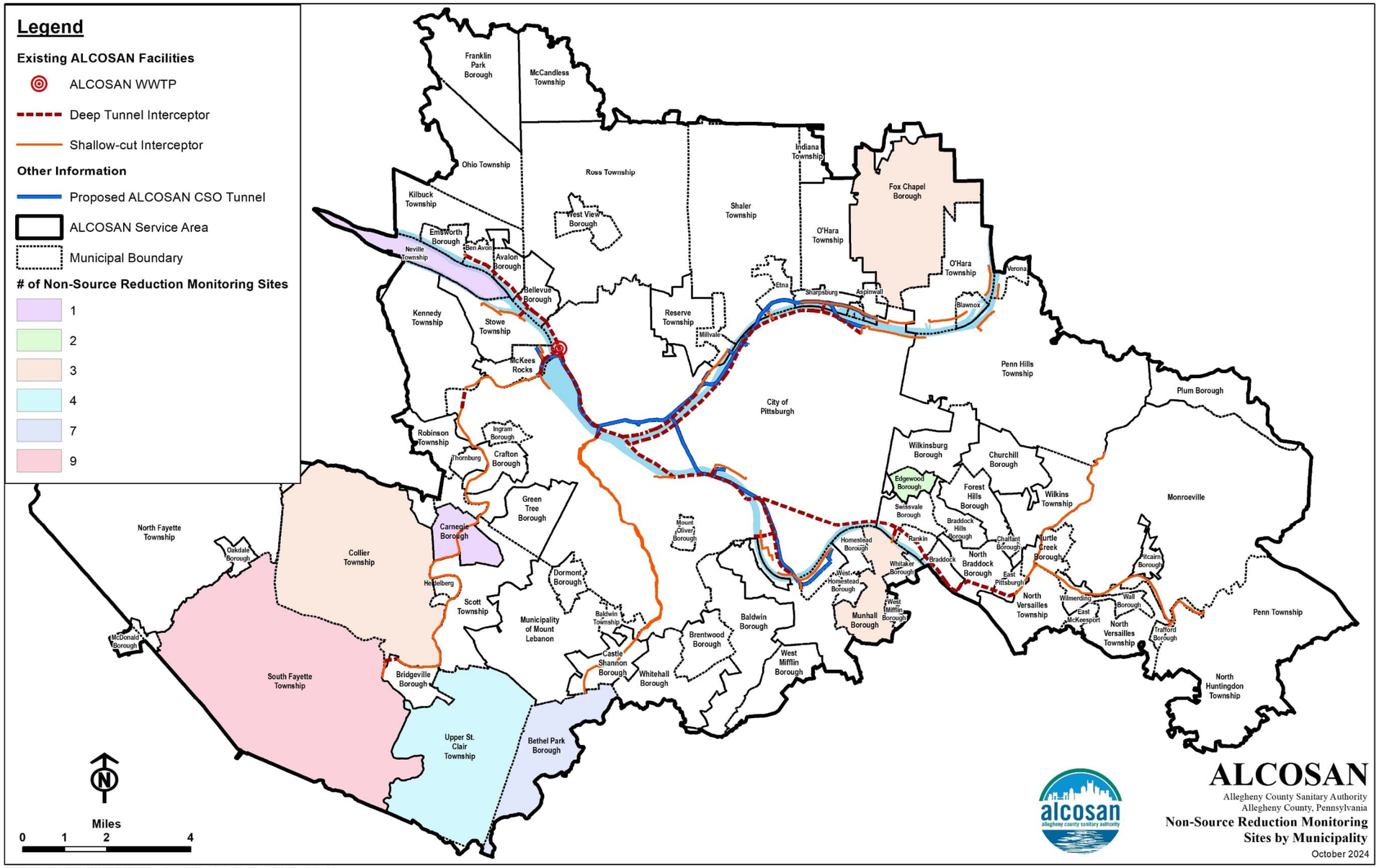


Figure 3-2: Number of Non-Source Reduction Project Related Flow Monitoring Sites by Municipality

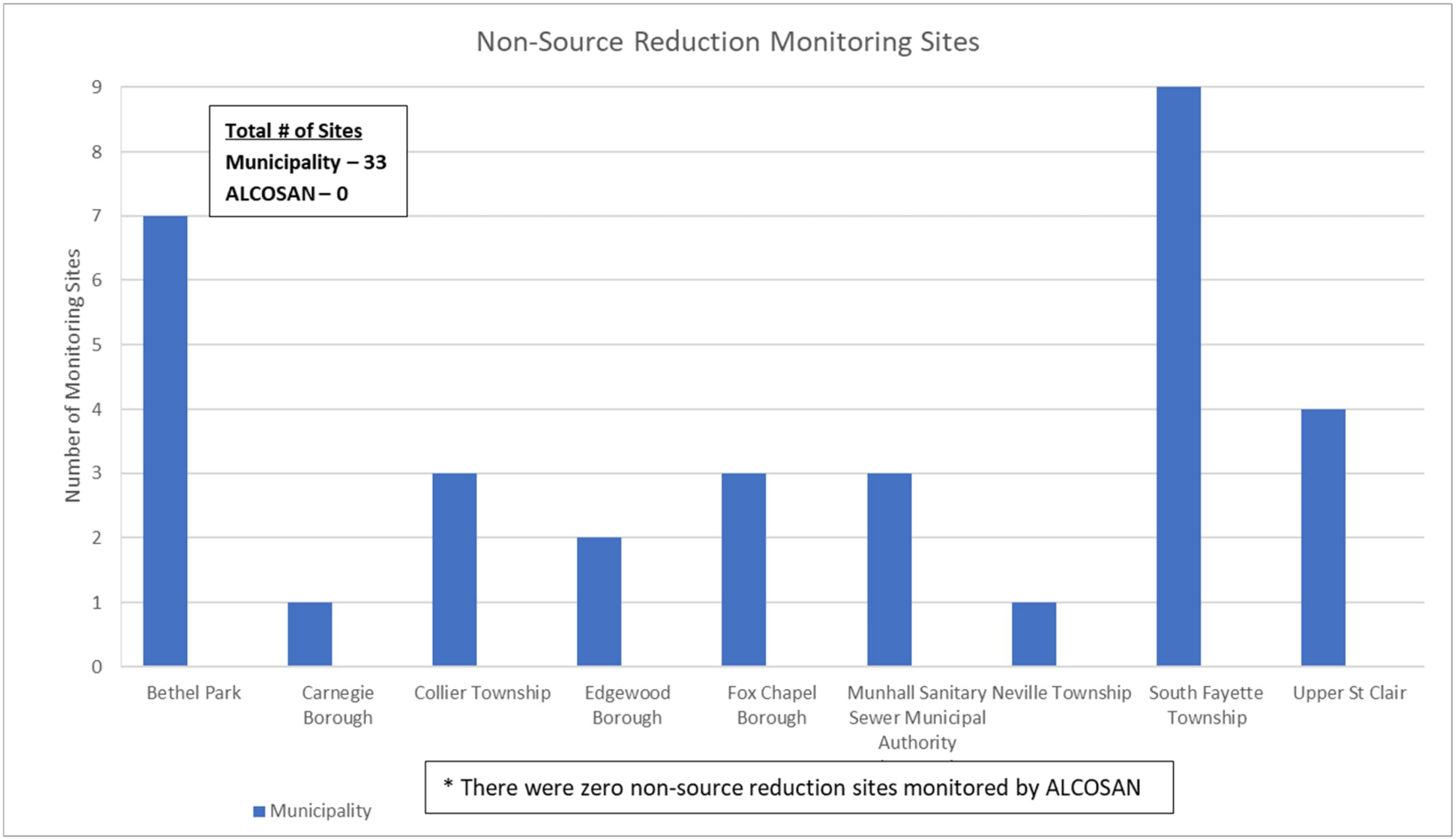


Figure 3-3: Number of Source Reduction Project Flow Monitoring Data Locations Submitted by the Municipality or Collected by ALCOSAN

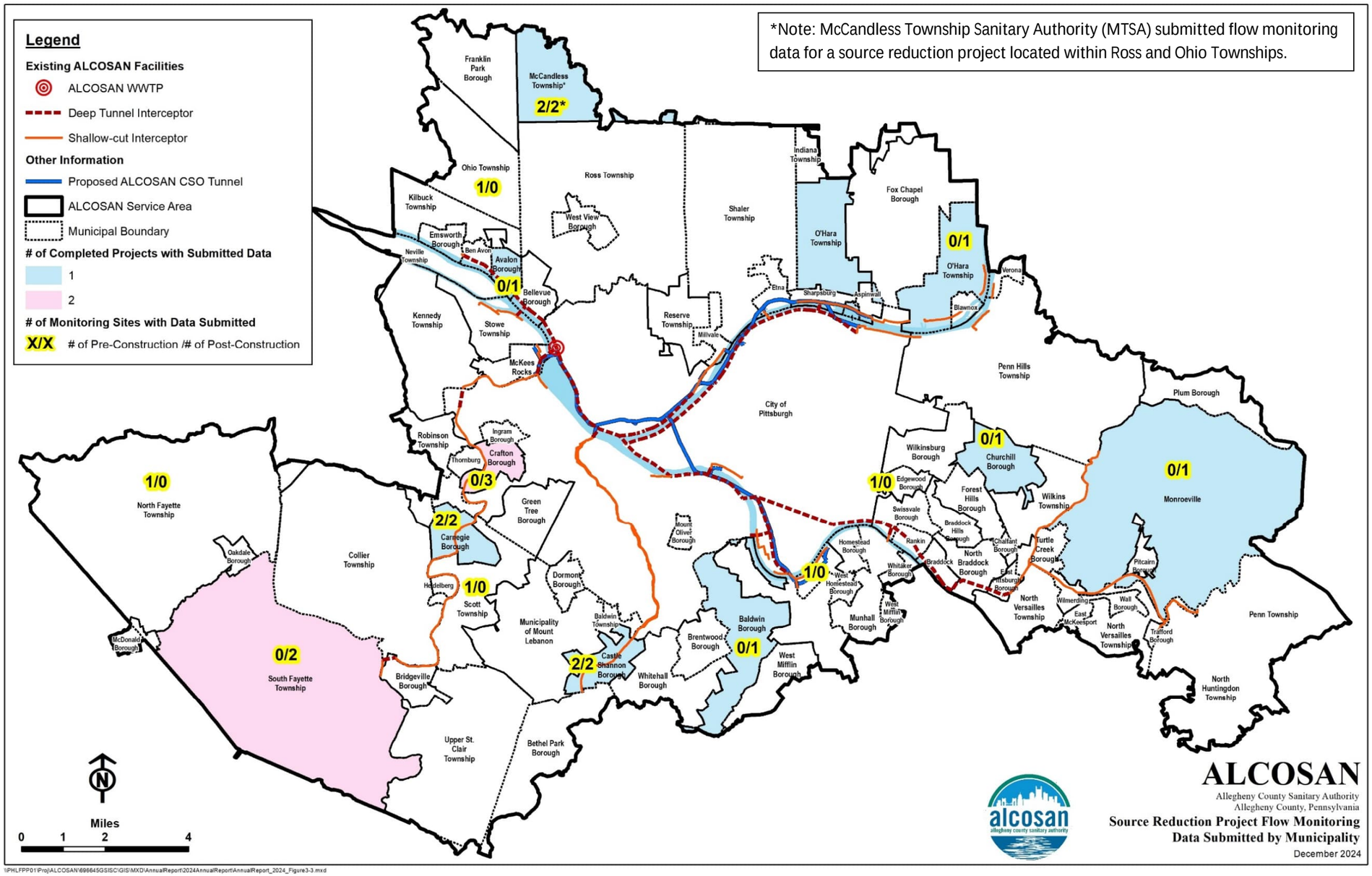
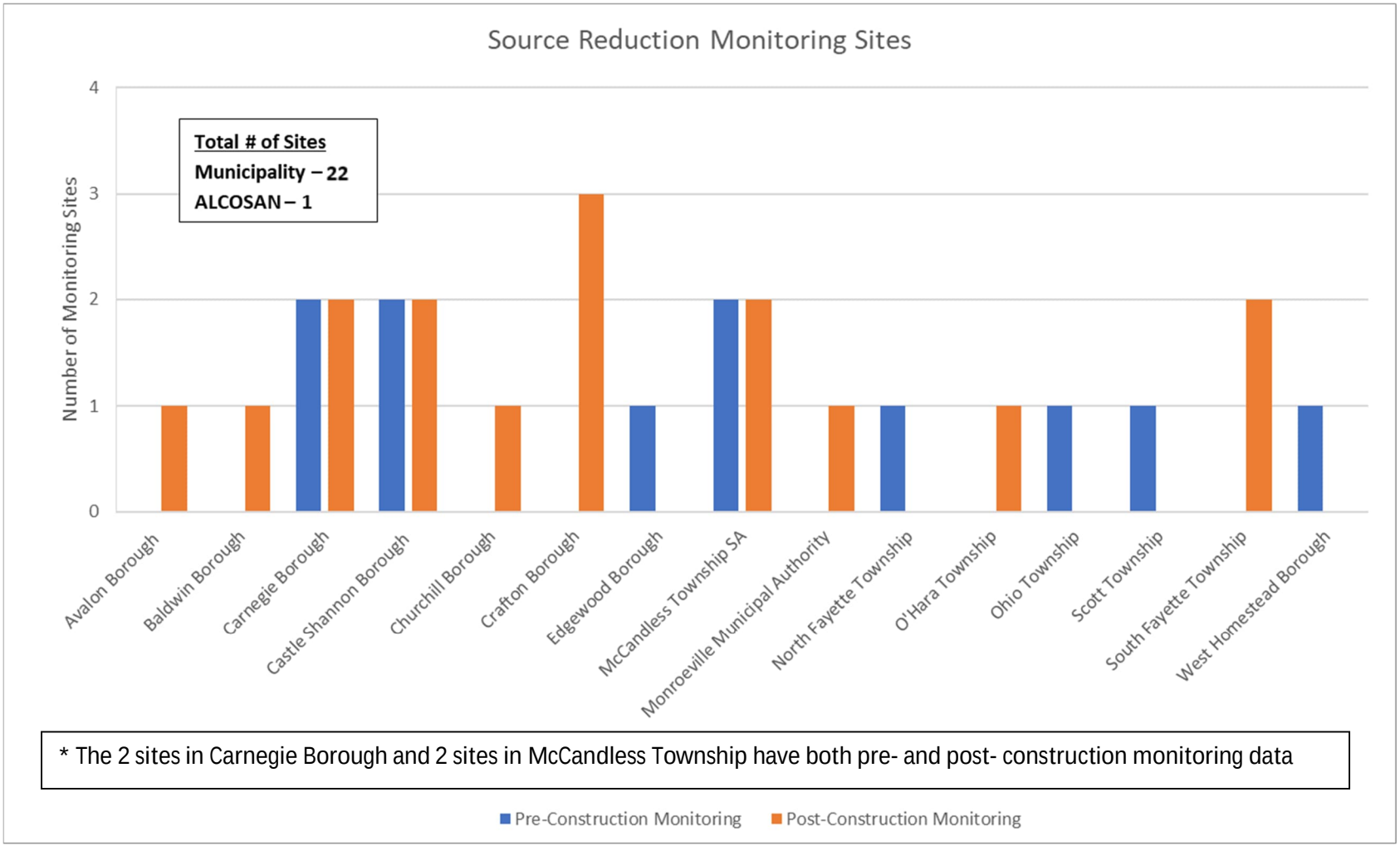


Figure 3-4: Number of Source Reduction Project Flow Monitoring Sites by Municipality



4.0 EVALUATION OF SYSTEM MAPPING UPDATES

This section describes the evaluation of the mapping data provided to ALCOSAN as required by Appendix Z, Paragraph 1f of the Modified CD.

4.1 Information Requested

The information requested and information received from the municipalities is summarized in Section 2.

4.2 Evaluation Approach and Results

ALCOSAN facilitated the acquisition of the data listed in Section 2 and evaluated the contents and completeness of the data and information that was received. The following subsections describe two aspects of the evaluation performed. First, an inventory was prepared for all submitted collection system GIS mapping data and mapping changes / updates. Then, the submitted mapping data was reviewed in relation to the primary focus of Section 5 (Evaluation of Municipal Source Control Measures) of this report: the evaluation of all source reduction projects identified by the municipalities in their response to the request described in Section 2 or identified by ALCOSAN based on GROW project final reports submitted separately by the customer municipalities from June 2023 through May 2024.

Information on the type of mapping changes submitted is summarized in Sections 4.2.1 and 4.2.2. No specific source reduction projects were identified in the municipalities' submitted mapping changes.

4.2.1 Collection System Mapping

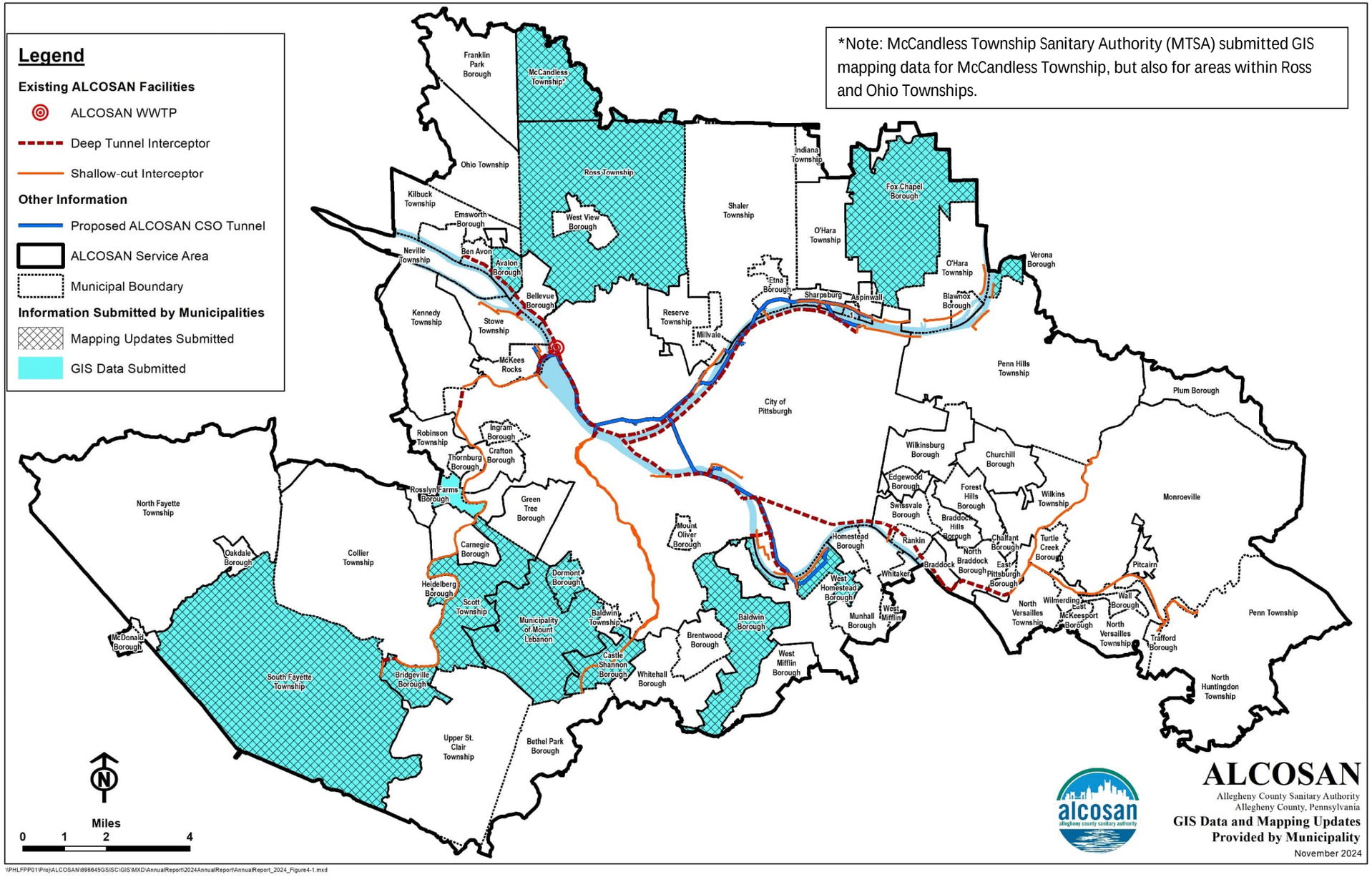
Municipalities were requested to provide mapping changes related to source reduction projects made over the previous 12 months in the form of a list of changes and updated shapefile(s) or geodatabase(s), if available.

In all, mapping files were submitted by 14 customer municipalities. Figure 4-1 indicates which municipalities submitted mapping files (in the form of a pipe network geodatabase or shapefiles) and which ones indicated mapping changes / updates. Table 4-1 provides a detailed description of each municipality's submission. Pipe network shapefiles and / or geodatabases containing sewers, manholes and / or other structures were provided by all 14 customer municipalities that submitted mapping files. West Homestead Borough also submitted shapefiles of mapping changes, including a new "area removed from combined sewer." This new area borders the West Homestead New 8th Avenue Sewer Improvements GROW project (reported in the 2023 Municipal Source Reduction Measures Analysis Report) but does not align

with the drainage areas indicated in the GROW final report for that project. ALCOSAN followed up with West Homestead for additional information regarding this submitted mapping change, however, not enough information was provided to determine if a new source reduction project was completed. Therefore, this information submitted by West Homestead has been reported only under mapping changes for this 2024 Report.

Of the 14 municipalities that submitted mapping files, 13 municipalities indicated that there were mapping changes / updates from the previous year either through email correspondence or attribute fields in the geodatabase layers. The remaining municipality, Rosslyn Farms Borough, submitted a geodatabase but did not specify whether mapping changes related to source reduction projects were made over the previous 12 months. Upon reviewing the geodatabase, there were no apparent changes identified and therefore Rosslyn Farms was not reported as a municipality with mapping updates, even though they submitted GIS data.

Figure 4-1: Municipalities that Provided GIS Mapping Data and/or Documentation of Mapping Updates



4.2.2 Mapping of Completed Source Reduction Projects

While there were 14 municipalities that submitted mapping changes in the form of geodatabases and / or shapefiles, there was not sufficient information provided in the mapping files to be able to identify and evaluate a project's source control reduction in Section 5 of this report. The submitted mapping changes alone cannot be used to quantify a reduction in the volume or rate of flow to the Conveyance and Treatment System.

Five submissions (Avalon Borough, Baldwin Borough, McCandless Township Sewer Authority, Municipality of Mt. Lebanon, and Verona Borough) indicated that there was sewer lining performed in 2023. The extent of this sewer lining was analyzed, and it was determined by ALCOSAN that the submitted information included partial or complete overlaps with GROW projects. Baldwin Borough also submitted flow monitoring data (noted in Section 2) related to their mapping submission. However, these sewer lining projects will not be analyzed in Section 5 of this year's report because the associated GROW projects were either already reported in previous years or will be reported in future years once the GROW final report is received from the municipality, as indicated in Table 4-1. McCandless Township Sanitary Authority (MTSA) also submitted mapping changes associated with one non-GROW source reduction project, the Lowries Run CIPP project. Per Section 3, this project is not included in the analysis in Section 5 due to having insufficient information for determining a direct connection between the flow data provided and the reduction resulting solely from the Lowries Run project. No other municipalities submitted pre- and post-construction flow monitoring data that was able to be associated with their mapping changes (Table 4-1). The mapping data may be associated with projects that will have their flow reductions evaluated in a future report if additional information is submitted by the municipalities.

Table 4-1: Mapping Changes Evaluated

Municipality	Sewer Lining or Replacement Included in Mapping Changes?	Manhole Rehab or Replacement Included in Mapping Changes?	Mapping Changes Associated with GROW Project?	Pre- and Post-Construction Flow Monitoring Associated with Mapping Changes Provided?	Evaluated in Section 5 (Evaluation of Municipal Source Reduction Measures)?
Avalon Borough	Yes	Yes	2020_01-002*	No	No*
Baldwin Borough	Yes	Yes	2021_01-001*	Yes*	No*
Bridgeville Borough	Yes	Yes	No	No	No
Castle Shannon Borough	Yes	Yes	No	No	No

Municipality	Sewer Lining or Replacement Included in Mapping Changes?	Manhole Rehab or Replacement Included in Mapping Changes?	Mapping Changes Associated with GROW Project?	Pre- and Post-Construction Flow Monitoring Associated with Mapping Changes Provided?	Evaluated in Section 5 (Evaluation of Municipal Source Reduction Measures)?
Dormont Borough	Yes	Yes	No	No	No
Fox Chapel Borough	Yes	No	2024_01-009**	No	No
McCandless Township Sewer Authority	Yes	No	2023_01-011*	No	No***
Municipality of Mt. Lebanon	Yes	Yes	2023_01-010*	No	No*
Ross Township	Yes	No	No	No	No
Rosslyn Farms Borough	No	No	No	No	No
Scott Township	Yes	Yes	No	No	No
South Fayette Township	Yes	No	No	No	No
West Homestead Borough	Yes	No	No	No	No
Verona Borough	Yes	No	2018_01-007	No	Yes (2022 Report)

* GROW project final report not received by May 2024; project to be reported in future.
**GROW award has not been granted; project has been offered an extended review as of October 2024 and will be reported in future as applicable.
*** MTSA submitted mapping changes for two different project locations. The first location had partial overlap with GROW Project 2023_01-011 (final report pending). The second location is the Lowries Run CIPP project which is not evaluated in Section 5 due to having insufficient information to determine the direct connection between the flow data provided and the source reduction.

None of the submitted mapping changes specifically referenced the 10 source reduction projects that are evaluated in Section 5. Those 10 source reduction projects were primarily identified by ALCOSAN based on GROW project final reports submitted separately by customer municipalities from June 2023 through May 2024 (in addition to the GROW project final report, Crafton submitted flow data for the Crafton Boulevard Sewer Separation GROW project in response to the annual information request). The 10 projects are described further in Section 5 of this report and are summarized in Table 4-2.

Table 4-2: Source Reduction Projects to be Evaluated in Section 5

Project Type	Number of Projects
Infiltration/Inflow Reduction	7
Sewer Separation	2
Direct Stream Inflow Removal	1
Total	10

5.0 EVALUATION OF MUNICIPAL SOURCE REDUCTION MEASURES

This section addresses the bolded portion of the Modified CD requirement set forth in Appendix Z, paragraph 1f (emphasis added):

> *On an annual basis from 2019 through 2025, request information from the Customer Municipalities from the previous 12 months on any newly collected flow data or mapping changes regarding Municipal Source Reduction Measures. By December 31st of each year, ALCOSAN shall submit an analysis of the information to determine if the Municipal Source Reduction Measures are reducing the volume or rate of flow to the Conveyance and Treatment System.*

5.1 Evaluation Steps

The first step involved identifying the specific "Municipal Source Reduction Measures" that would be evaluated. Section 5.2 presents the detailed methodology and results of this first step. The "Municipal Source Reduction Measures" refer to individual source reduction projects identified by the municipalities in their responses to the request described in Section 2 or identified by ALCOSAN based on GROW project final reports submitted separately by customer municipalities. There were 10 GROW projects with final reports submitted from June 2023 through May 2024 that have been included in this year's report, regardless of when the post-construction flow monitoring ended.

The second step involved analyzing the information associated with the selected measures to determine if the measures (from here on referred to as "projects") are reducing the volume or rate of flow to the Conveyance and Treatment System, which is defined as the ALCOSAN-owned portion of the regional collection and treatment system. Section 5.3 presents the detailed methodology, results, and conclusions of this second step.

5.2 Completed Source Reduction Projects Evaluated

A total of 10 projects were evaluated, which were all identified through GROW project final reports obtained by ALCOSAN. For one of the projects (Crafton Boulevard Sewer Separation GROW project), flow data was also submitted in response to this year's information request.

The projects were split into the five source reduction project types that were included in ALCOSAN's template: green stormwater infrastructure (GSI), infiltration/inflow (I/I) reduction, direct stream inflow removal (DSIR), sewer separation (SS) and system optimization (SO). I/I, SS and DSIR project types are represented in this year's report.

Table 5-1 lists the 10 projects evaluated including municipality/authority, project name, type of source reduction project, GROW ID (if applicable), completion year, project scope, source

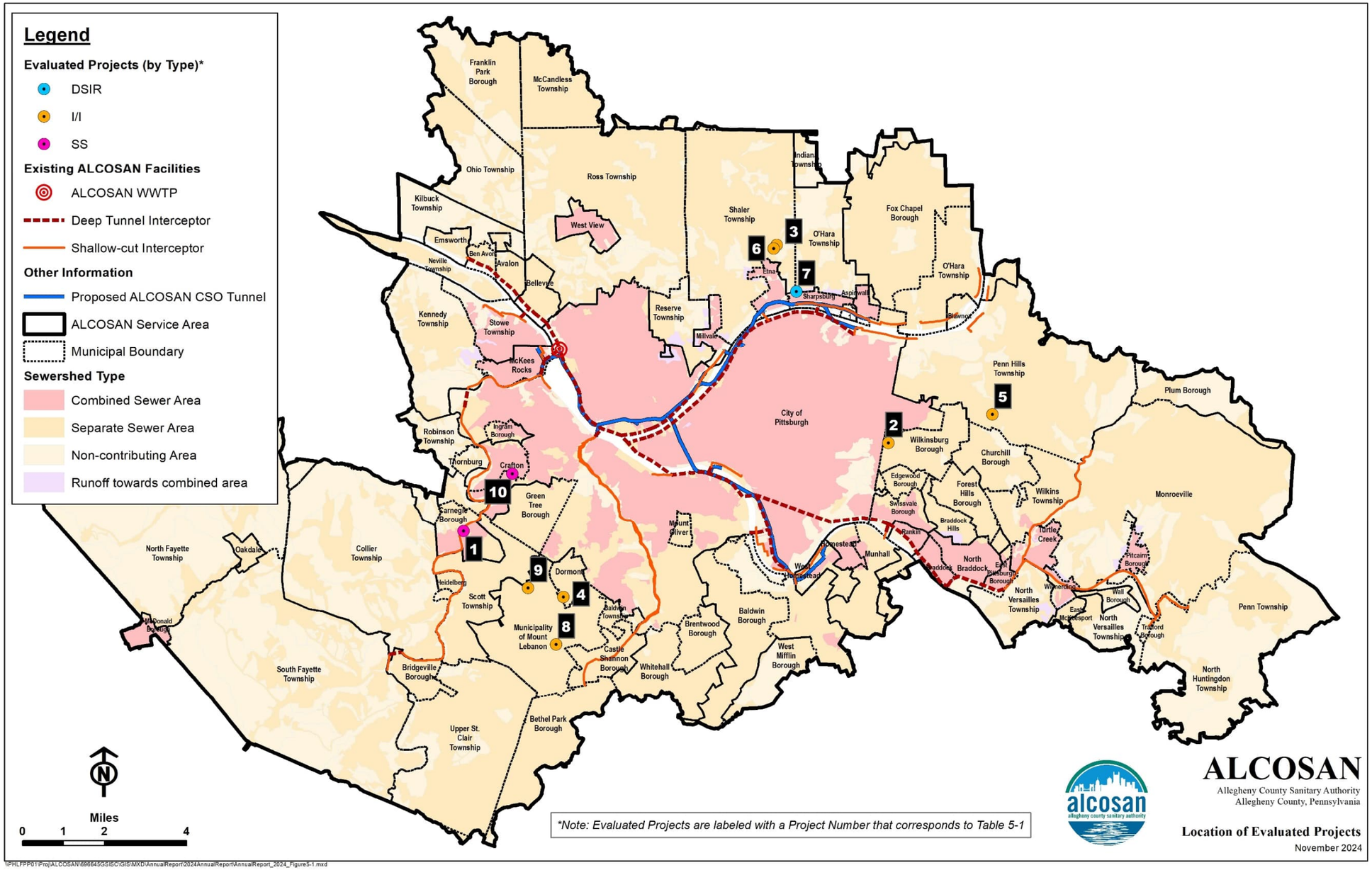
reduction goal, and estimated source reduction achieved (as determined by the process described in Section 5.3). The projects were arbitrarily numbered 1 through 10 for the purpose of this report. Figure 5-1 illustrates the location of these projects.

Table 5-1: List of Evaluated Projects (GROW)

#	Municipality / Authority	Project Name	Project Type	GROW ID (If Applicable)	Project Completion Year [1,2]	Description of Project Scope	Anticipated Source Reduction Goal (MG/yr)	Estimated Source Reduction Achieved (MG/yr)
1	Carnegie Borough	Broadway Street Separation	SS	2017_01-018	2021	Construction of 1,123 LF of new storm sewer along Broadway Street, 200 LF of steel casing, a new storm outfall, 11 new storm inlets, 6 manholes, a new end wall, paving and restoration.	6.4	6.4
2	Wilkinsburg Borough	South Avenue Area Sewer Rehabilitation	I/I	2017_01-022	2021	Lining approximately 3,670 LF of sanitary sewer, as well as point repairs and 8 new manholes.	1.0	1.0
3	Shaler Township	Saxonburg Boulevard Sewer Rehab	I/I	2019_01-046	2022	Lining approximately 5,400 LF of sanitary sewer, as well as rehabilitation of manholes, reinstatement of active service laterals, manhole frame and lid replacement, and top hat liners to seal the later connections to the main.	4.2	21.2
4	Borough of Dormont	Meter #6 Area I&I Removal	I/I	2020_01-013	2021	Lining approximately 4,110 LF of 12" sanitary sewer.	1.3	7.6
5	Borough of Penn Hills	MacFarlane Drive Sewer Rehabilitation	I/I	2020_01-029	2023	Lining 1,900 LF of 8" sanitary sewer, as well as manhole rehabilitation, reinstatement of active service laterals, and top hat liners to repair tap connections.	1.7	1.7
6	Shaler Township	Saxonburg Boulevard Sewer Rehab Phase II	I/I	2020_01-035	2022	Lining 1,600 LF of sanitary sewer, as well as rehabilitation of manholes, reinstatement of active service laterals, manhole frame and lid replacement, and top hat liners to seal the later connections to the main.	2.3	6.6
7	Sharpsburg Borough	Ravine Street Stream Removal and Sewer Separation	DSIR	2021_01-027	2022	Eliminated Shaler/O'Hara stream flow connection to combined sewer and installed 872 LF of new storm sewers, 11 inlets, 19 manholes and reconnection of sanitary laterals.	45.1	75.2
8	Municipality of Mt. Lebanon	SMRCS35-MB-L-05 Reimbursement Sewer Rehab	I/I	2022_01-014	2021	Lining approximately 1,040 LF of sanitary sewer.	0.5	9.4
9	Municipality of Mt. Lebanon	C4800-MB-L-03 Sewer Rehab	I/I	2022_01-014A	2021	Lining approximately 3,820 LF of sanitary sewer.	3.4	17.2
10	Crafton Borough	Crafton Boulevard Sewer Separation	SS	2020_01-009	2023	Construction of 2,837 LF of new storm sewer along Crafton Blvd., inlets, and detention tank.	5.8	5.9

(1) Completion year based on construction end date. When the end of construction was not specified, the completion year was inferred from information available to the GROW Program and the start date of the post-construction monitoring.
(2) Some projects have completion dates before 2023. They are included in this report because their GROW project final report and associated monitoring information were received between June 2023 and May 2024.

Figure 5-1: Location of Evaluated Projects



5.3 Performance of Source Reduction Projects

The second step involved analyzing the information associated with the projects selected for evaluation to determine whether the projects are reducing the volume or rate of flow to the Conveyance and Treatment System.

The analysis was performed as follows:

- The available flow monitoring data, including any newly collected data from the previous 12 months, was summarized for each project. See Section 5.3.1.
- The annual volume removed from the Conveyance and Treatment System based on the reporting by the municipalities was documented for each project, if applicable. This reduction in volume is expressed in million gallons per year (MG/yr). See Section 5.3.2.
- The available flow monitoring data and an interpretation of the robustness of the results based on a specific set of criteria was used to assess the reliability of the estimated volume reduction.
- The annual volume removed from the Conveyance and Treatment System was estimated by ALCOSAN considering all available information (GROW project final report, monitoring and modeling results, scaling and extrapolation, calculations, etc.).
- The above elements were then considered to determine whether the projects are reducing the volume or rate of flow to the Conveyance and Treatment System and in what estimated quantities. See Section 5.3.5.

5.3.1 Available Flow Monitoring Data

Table 5-2 summarizes the flow monitoring data available to ALCOSAN for each project evaluated and the pre- and post-construction monitoring periods. Except for the Crafton Boulevard Sewer Separation Project, source reduction related flow data received in response to the information request and discussed in Section 3 was determined to be associated with GROW projects that either have been previously reported or did not submit a GROW project final report as of May 2024. Therefore, only data from the Crafton Boulevard project and data provided with the GROW project final reports submitted between June 2023 through May 2024 are presented here.

Table 5-2: Summary of Available Flow Monitoring Data and Monitoring Periods

#	Project Type	Available Flow Monitoring Data	Pre-Construction Monitoring Period Start Date[1]	Pre-Construction Monitoring Period End Date[1]	Post-Construction Monitoring Period Start Date	Post-Construction Monitoring Period End Date[2]
1	SS	Post	N/A	N/A	6/4/2022	1/9/2023
2	I/I	Pre and Post	12/1/2016	6/30/2017	4/8/2022	8/31/2022
3	I/I	Pre and Post	1/1/2019	8/1/2019	8/1/2022	4/1/2023
4	I/I	Pre and Post	12/11/2019	1/28/2020	12/14/2022	1/31/2023
5	I/I	Pre and Post	4/21/2019	6/30/2019	4/21/2023	6/30/2023
6	I/I	Pre and Post	1/1/2019	8/1/2019	8/1/2022	4/1/2023
7	DSIR	Post	N/A	N/A	10/10/2022	10/24/2023
8	I/I	Pre and Post	12/1/2019	6/30/2020	3/1/2022	5/31/2022
9	I/I	Pre and Post	1/1/2008	12/31/2008	9/30/2021	5/2/2022
10	SS	Post	N/A	N/A	4/27/2023	11/29/2023

(1) When raw municipal data was made available/provided to ALCOSAN it is noted in the table. "N/A" = not applicable since flow monitoring was only done in the new storm sewer after construction.

(2) Some projects have post-construction flow monitoring end dates before 2023. They are included in this report because their GROW project final report and associated monitoring information were received between June 2023 and May 2024.

5.3.2 Estimated Volume Reduction

The ALCOSAN estimated annual volume reduction was documented for each project in Table 5-3 based on one of three different sources:

- Source #1: Volume reduction as estimated by ALCOSAN. The volume reduction was estimated after an analysis of a variety of sources including GROW project final reports, monitoring data, calculations, and hydrologic and hydraulic (H&H) modeling. If necessary, the resulting reduction volumes are scaled and extrapolated to Typical Year conditions.
- Source #2: Estimated volume reduction based on reporting and/or monitoring data provided by municipalities in a GROW project final report submitted to ALCOSAN. If necessary, the resulting reduction volumes are scaled and extrapolated (by ALCOSAN if not included in the final report) to Typical Year conditions.
- Source #3: Volume reduction obtained from the ALCOSAN hydrologic and hydraulic (H&H) model that was used to estimate the project benefits at the time of application of each GROW project. In cases where Source #3 was used, the available data was reviewed, and the H&H model was determined to provide the best volume reduction estimate for that specific project. This applied to only two of the 10 projects evaluated (see Table 5-3).

Table 5-3 summarizes the source of information ALCOSAN used to document each project's estimated volume reduction as described above.

Table 5-3: Source of Estimated Volume Reduction by Project

#	Municipality / Authority	Project Name	Project Type	GROW Final Report Submitted to ALCOSAN	Source of Volume Reduction as Estimated by ALCOSAN [1]
1	Carnegie Borough	Broadway Street Separation	SS	Yes	3
2	Wilkinsburg Borough	South Avenue Area Sewer Rehabilitation	I/I	Yes	1
3	Shaler Township	Saxonburg Boulevard Sewer Rehab	I/I	Yes	2 [2]
4	Borough of Dormont	Meter #6 Area I&I Removal	I/I	Yes	2
5	Borough of Penn Hills	MacFarlane Drive Sewer Rehabilitation	I/I	Yes	3
6	Shaler Township	Saxonburg Boulevard Sewer Rehab Phase II	I/I	Yes	2 [2]
7	Sharpsburg Borough	Ravine Street Stream Removal and Sewer Separation	DSIR	Yes	2
8	Municipality of Mt. Lebanon	SMRCS35-MB-L-05 Reimbursement Sewer Rehab	I/I	Yes	2 [3]

#	Municipality / Authority	Project Name	Project Type	GROW Final Report Submitted to ALCOSAN	Source of Volume Reduction as Estimated by ALCOSAN [1]
9	Municipality of Mt. Lebanon	C4800-MB-L-03 Sewer Rehab	I/I	Yes	2
10	Crafton Borough	Crafton Boulevard Sewer Separation	SS	Yes	1

(1) 1 – Estimated by ALCOSAN based on all available data; 2 – Based on GROW project final report and/or associated monitoring data from municipality; 3 – Based on ALCOSAN H&H modeling at time of GROW application.
(2) Municipality monitored the combined volume reduction for projects #3 and #6 and split them proportionally between the two projects based on the amount of lining performed in each.
(3) Municipality monitored the combined volume reduction for projects #8 and GROW Project 2020_01-023 and split them proportionally between the two projects based on the amount of lining performed in each. Since the GROW final report for 2020_01-023 was not received as of May 2024, it is not included in this report and will be included in an applicable future report.

Table 5-4 summarizes the annual volume estimated to have been removed from the Conveyance and Treatment System[1] by type of source reduction project as reported by the municipalities (Source #2) and as estimated by ALCOSAN (source as noted in Table 5-3). The volume reduction includes both dry and wet weather flows.

Table 5-4: Annual Volume Removed from the Conveyance and Treatment System Based on Reporting by Municipalities and Estimated by ALCOSAN by Project Type

Project Type	Project Count	Annual Volume Removed as Estimated by ALCOSAN (MG/yr)	Estimated Annual Volume Removed Based on Reporting by Municipalities (MG/yr)
Direct Stream Inflow Removal (DSIR)	1	75	75
Infiltration/Inflow Reduction (I/I)	7	64.7	56.1
Green Stormwater Infrastructure (GSI)	0	-	-
Sewer Separation (SS)	2	12.3	9.8
System Optimization (SO)	0	-	-
Total[1]	10	150	140

(1) Rounded to the nearest 10 MG/yr.

Figure 5-2 shows the annual volume estimated to have been removed for each of the 10 projects evaluated as reported by the municipalities and as estimated by ALCOSAN. The ALCOSAN estimate is categorized by its reliability level of High, Medium, or Low. The reliability levels are described in Section 5.3.3.

[1] Depending on the exact location of the projects, a portion of the volume removed reported by the municipalities may translate into reduction in municipal overflows as opposed to reduction in flow to the Conveyance and Treatment System. This volume is assumed to be negligible compared to the total annual volume removed.

Figure 5-2: Annual Volume Removed by Project

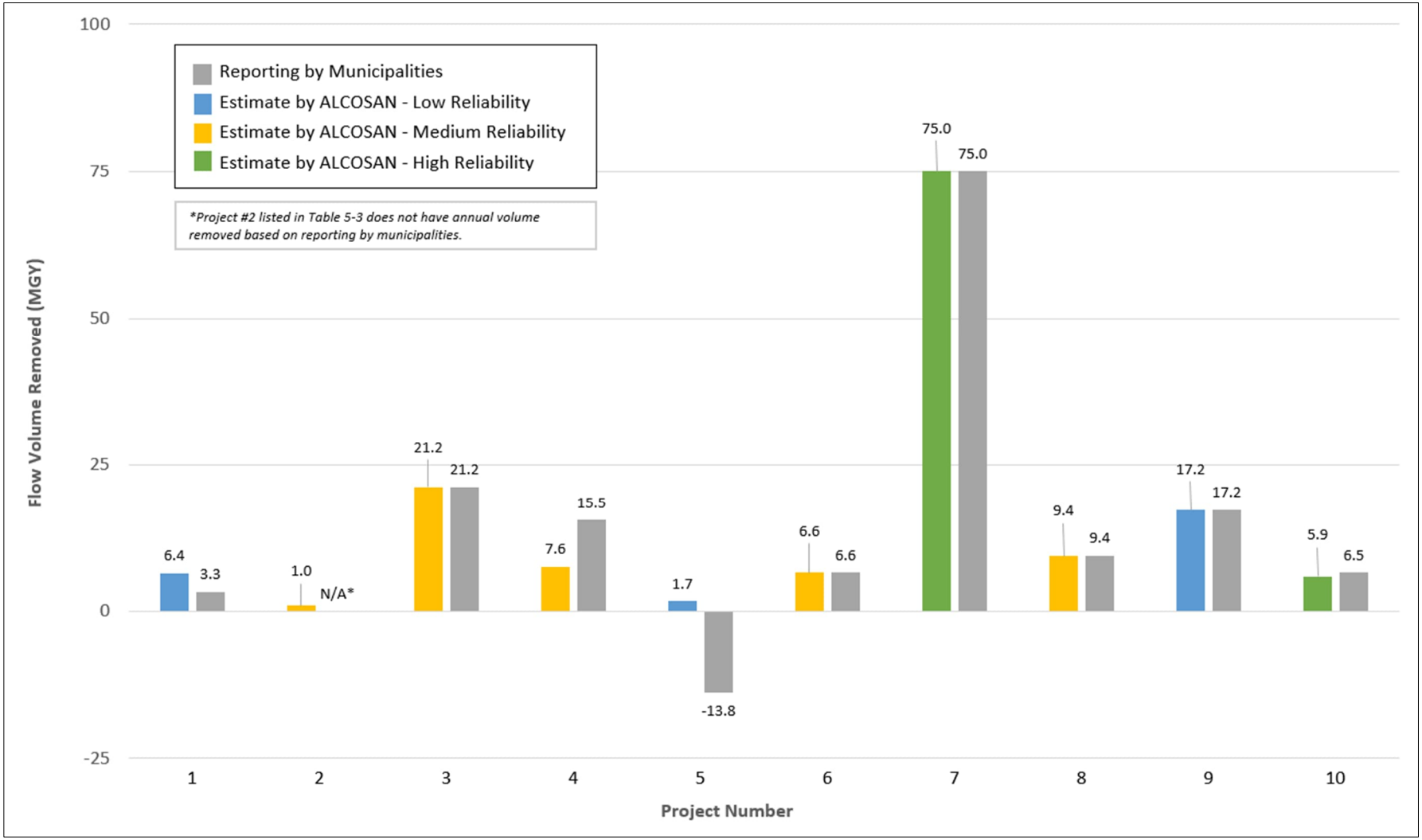


Table 5-4 and Figure 5-2 account for the following:

- All 10 projects have an ALCOSAN Estimated Annual Volume Reduction. Project #2 listed in Table 5-3 does not have an annual volume removed based on reporting by municipalities. Only a percentage reduction (3.6%) was stated in the GROW final report.
- Some project monitoring appeared to show increased flow between the pre- and post-construction monitoring. Possible causes include meter error, differing rainfall / groundwater conditions between the pre- and post-construction monitoring periods, and / or the improvement of pipes that leaked out during pre-construction, therefore keeping more sewage in the system (which is a positive outcome even if the overall flow in the pipe increased).
- Larger discrepancies between the annual volume reductions reported by municipality and those estimated by ALCOSAN are typically due to the use of modeled results when reliable results cannot be obtained from the monitoring data or differences in scaling / extrapolating the results to Typical Year conditions. For example, several projects had pre-construction monitoring conducted during the extremely wet year of 2019 and ALCOSAN accounts for those wetter conditions when comparing to the drier post-construction monitoring periods.

5.3.3 Reliability Assessment of Volume Reduction

A qualitative assessment of the reliability of the reported volume reduction was performed by project, based on the available project information including the flow monitoring data summarized in Section 5.3.1. Based on Agency comments on the 2022 report, the methodology was refined as described below. Table 5-5 summarizes the specific criteria used in assessing the reliability of the reported volume. Tables 5-5a and 5-5b indicate the rainfall criteria for GSI and SS projects for the High and Medium reliability categories, respectively.

Three levels of reliability were used:

- "High" (i.e., high confidence in reported volume).
- "Medium" (i.e., lesser confidence in reported volume but reasonable estimate given data collected / available).
- "Low" (i.e., reported volumes are not as reliable as other categories).

Table 5-5: Reliability Criteria

Reliability Criteria	Reliability Category
• No major data quality issues are apparent; • Monitoring Duration/Rainfall Characteristics[1]: o For I/I and DSIR projects that involve continuous flow and require longer monitoring to capture seasonal groundwater trends: >3 months pre-construction and >6 months post-construction;	High

Reliability Criteria	Reliability Category
o GSI and SS projects whose performance is driven by storm events rather than continuous flow must meet four of the following five criteria: >3 months post-construction monitoring, a minimum total rainfall volume of 11.5 inches, and a minimum of one 1-inch storm, three 0.7-inch storms, and 15 0.2-inch storms. See Table 5.5a below. • Appropriate monitoring periods and monitored area[2]; • Complete hydrograph analysis (as applicable); and • Model[3] (as applicable) agrees well with monitored data.	
• Minor data quality issues but overall dataset appears reliable; • Monitoring Duration/Rainfall Characteristics[1]: o For I/I and DSIR projects: Short-term Flow Isolation Study or 1-3 months pre-construction monitoring or 2-6 months post-construction monitoring; o GSI and SS projects whose performance is driven by storm events rather than continuous flow must meet four of the following five criteria: >1.5 months post-construction monitoring, a minimum total rainfall volume of 6.5 inches, and a minimum of one 1-inch storm, two 0.7-inch storms and 10 0.2-inch storms. See Table 5.5b below. • Some issues with monitoring periods or monitored area[2]; • Partial hydrograph analysis (as applicable); and • Model[3] (as applicable) has minor but acceptable disagreement with monitored data	Medium
• Major data quality or quantity issues appear to render dataset unreliable; • Monitoring Duration/Rainfall Characteristics: does not meet criteria for medium or high reliability**;** • Issues with both the monitoring periods and monitored area[2]; • Hydrograph analysis (as applicable) is incomplete or has major flaws; and/or • Model[3] (as applicable) has major disagreement with monitored data	Low

(1) Based on Agency comments on the 2022 report, ALCOSAN refined the criteria for GSI and SS projects to allow for shorter overall monitoring periods if they included appropriate rainfall characteristics.

(2) Ratio of project area vs. monitored area is adequate (at least 10%, more than 25% preferred); pre- and post-construction monitoring data are available in the same seasons.

(3) Refers to any local site model that was done to aid performance assessment; does not refer to ALCOSAN model used to evaluate GROW applications.

Table 5-5a: GROW High Reliability Rainfall Criteria for GSI/SS Projects

Reliability	Min. Duration (months)	Min. Total Rainfall (in.)	Min. # Storms > 1"	Min. # Storms > 0.7 inch[1]	Min. # Storms > 0.2"
High	<3	11.5	1	3	15
High	3	<11.5	1	3	15
High	3	11.5	0	3	15
High	3	11.5	1	<3	15
High	3	11.5	1	3	<15

(1) 0.7 inches of rainfall capture represents nearly 85% of the total typical year rainfall and is therefore important for being able to determine the annual performance of GSI/SS projects.

Table 5-5b: GROW Medium Reliability Rainfall Criteria for GSI/SS Projects

Reliability	Min. Duration (months)	Min. Total Rainfall (in.)	Min. # Storms > 1"	Min. # Storms > 0.7 inch[1]	Min. # Storms > 0.2"
Medium	<1.5	6.5	1	2	10
Medium	1.5	<6.5	1	2	10
Medium	1.5	6.5	0	2	10
Medium	1.5	6.5	1	<2	10
Medium	1.5	6.5	1	2	<10

(1) 0.7 inches of rainfall capture represents nearly 85% of the total typical year rainfall and is therefore important for being able to determine the annual performance of GSI/SS projects.

Tables 5-6 and 5-7 summarize the annual volume removed from the Conveyance and Treatment System (MG/yr) by Project Type and Reliability Category.

Table 5-6: Annual Volume Removed from the Conveyance and Treatment System Based on Reporting by Municipalities by Project Type and Reliability Category

Project Type	Project Count[1]	Annual Volume Removed Based on Reporting by Municipalities (MG/yr)			
		Total	High Reliability[3]	Medium Reliability[3]	Low Reliability[3]
Direct Stream Inflow Removal (DSIR)	1	75	-	-	-
Infiltration/Inflow Reduction (I/I)	6	56.1	-	-	-
Green Stormwater Infrastructure (GSI)	0	-	-	-	-
Sewer Separation (SS)	2	9.8	-	-	-
System Optimization (SO)	0	-	-	-	-
Total[2]	9	140	-	-	-

(1) Project count does not include one project without annual volume removed based on reporting by municipalities (Project #2 in Table 5-3).
(2) Overall totals rounded to nearest 10 MG.
(3) Reliability categories are not assigned to volume removed based on reporting by municipalities. Reliability categories are only assigned to ALCOSAN estimates.

Table 5-7: Annual Volume Removed from the Conveyance and Treatment System as Estimated by ALCOSAN by Project Type and Reliability Category

Project Type	Project Count	Annual Volume Removed as Estimated by ALCOSAN (MG/yr)			
		Total	High Reliability	Medium Reliability	Low Reliability
Direct Stream Inflow Removal (DSIR)	1	75	75	-	-
Infiltration/Inflow Reduction (I/I)	7	64.7	-	45.8	18.9
Green Stormwater Infrastructure (GSI)	0	-	-	-	-
Sewer Separation (SS)	2	12.3	5.9	-	6.4
System Optimization (SO)	0	-	-	-	-
Total[1, 2]	10	150	80	50	30

(1) Overall totals rounded to nearest 10 MG.
(2) The grand total may not equal the sum of the rounded totals due to rounding.

The results show that:

- The Municipal Source Reduction Measures are reducing the volume to the Conveyance and Treatment System.
- All projects are assigned one of the three reliability categories, and the reason for projects being assigned a lower reliability category this year is primarily due to insufficient flow monitoring data, metersheds too large to be representative of the project, or an excessive time gap between pre-construction and post-construction monitoring period.
- The estimated annual volume removed based on reporting by municipalities is 140 MG/yr, while the annual volume removed as estimated by ALCOSAN (sources vary between flow monitoring and modeling) is higher at 150 MG/yr. The discrepancy is mainly due to the use of modeled results when reliable results cannot be obtained from the monitoring data or differences in scaling/extrapolating the results to Typical Year conditions.

5.3.4 Conclusions

The analysis of the information from the municipalities from the previous 12 months (i.e., 2023) regarding *whether the Municipal Source Reduction Measures are reducing the volume or rate of flow to the Conveyance and Treatment System* led to the following conclusions:

- The analysis confirmed that the Municipal Source Reduction Measures are reducing the volume to the Conveyance and Treatment System.
- The reported reduction in volume to the Conveyance and Treatment System associated with the evaluated projects is approximately 140 MG/yr based on reporting by municipalities and 150 MG/yr based on the ALCOSAN estimate. The annual volume removed as reported by municipalities represents approximately 0.18% of the average annual flow generated in the Regional Collection System. The annual volume removed

as estimated by ALCOSAN represents 0.19% of the average annual flow generated in the Regional Collection System.

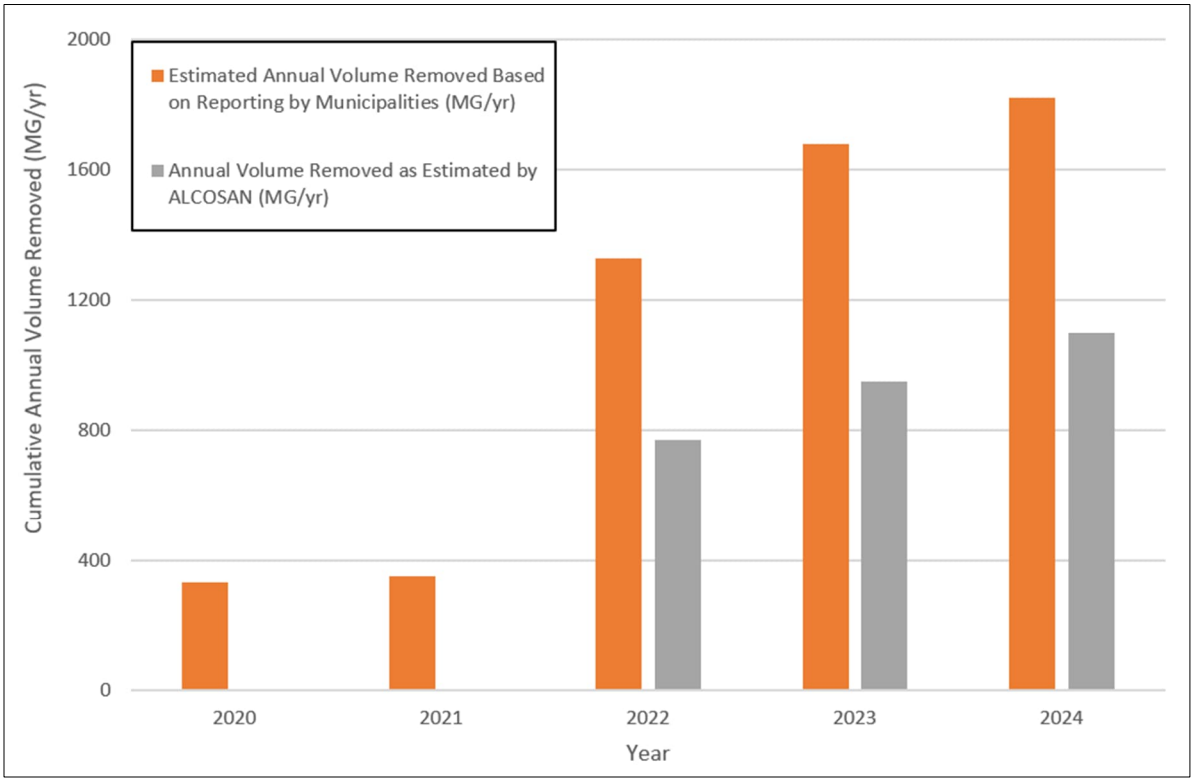
- The reported volume removed as documented in all five annual reports to date (2020-2024) is shown in Table 5-8 below.

Table 5-8: Estimated Volume Removed by Year[1]

Municipal Source Reduction Measures Analysis Report Year	Estimated Annual Volume Removed Based on Reporting by Municipalities (MG/yr)	Cumulative Estimated Annual Volume Removed Based on Reporting by Municipalities (MG/yr)	Annual Volume Removed as Estimated by ALCOSAN (MG/yr)[2]	Cumulative Annual Volume Removed as Estimated by ALCOSAN (MG/yr)
2020	330	330	-	-
2021	20	350	-	-
2022[2]	980	1,330	420	770[3]
2023	350	1,680	180	950
2024	140	1,890	150	1,100
Total[1,2]	1,820	-	1,100[3]	-

(1) Annual values rounded to nearest 10 MG.
(2) Reported annual volume removed was not estimated by ALCOSAN in the 2020 and 2021 Municipal Source Reduction Measures Analysis Reports, so the volume removed based on reporting by municipalities is the primary metric for those years.
(3) 350 MG/yr was the cumulative reduction in 2021 based on the reporting by the municipalities and is used as the starting point for ALCOSAN's cumulative totals and included in the total estimated volume removed as estimated by ALCOSAN.

Figure 5-3: Cumulative Estimated Volume Removed by Year



(1) Reported annual volume removed was not estimated by ALCOSAN in the 2020 and 2021 Municipal Source Reduction Measures Analysis Reports, so the volume removed based on reporting by municipalities is the primary metric for those years.
(2) Annual values rounded to nearest 10 MG.
(3) 350 MG/yr was the cumulative reduction in 2021 based on the reporting by the municipalities and is used as the starting point for ALCOSAN's cumulative totals.

As the monitoring programs by municipalities and ALCOSAN for on-going or future projects are refined, the reliability of the reported volume removed may improve. To support this effort, ALCOSAN is offering technical support to municipalities. For example, ALCOSAN published a GSI and Source Control Monitoring Guide in 2019 and ALCOSAN has provided pre- and post-construction monitoring support for many GROW projects.

The evaluated projects are distributed throughout the ALCOSAN service area as illustrated in Figure 5-1. The local and regional impact on the Conveyance and Treatment System will continue to be evaluated by ALCOSAN.

Appendix A.

Sample Municipality Information Request Letter

alcosan
allegheny county sanitary authority

December 1, 2023

Members of the Board

Sylvia C. Wilson
Chair Person
Shannah Tharp-Gilliam, Ph.D.
Harry Readshaw
Emily Kinkead
Paul Klein
Theresa Kail-Smith
Darrin Kelly

Arletta Scott Williams
Executive Director
Douglas A. Jackson, P.E.
Director
Operations & Maintenance
Michelle M. Buys, P.E.
Director
Environmental Compliance
Kimberly N. Kennedy, P.E.
Director
Engineering & Construction
Karen Fantoni, CPA, CGMA
Director
Finance
Michael Lichte, P.E.
Director
Regional Conveyance
Jeanne K. Clark
Director
Governmental Affairs
Julie Motley-Williams
Director
Administration

CERTIFIED MAIL – RETURN RECEIPT REQUESTED

Melissa Lang O'Malley, Manager
Aspinwall Borough
217 Commercial Avenue
Aspinwall, PA 15215

Re: 2023 Wasteload Management and Municipal Information Requests

Dear Ms. O'Malley:

Title 25 of the Pennsylvania Code, Section 94.12 and ALCOSAN's Modified Consent Decree require multiple annual submissions to the Regulatory Agencies. This letter contains four requests for information to satisfy each requirement, the following will be requested annually:

- ALCOSAN is required to submit an annual Wasteload Management Report by March of each year. Please submit the 2023 Report for your Municipality to: Wasteload@alcosan.org. The latest version of Title 25 PA Code §94.12 is also enclosed.

- ALCOSAN's Modified Consent Decree requires ALCOSAN to request information annually on newly collected flow data or mapping changes regarding Municipal Source Reduction Measures. If no flow monitoring data or system mapping changes were collected over the previous 12-months, please respond with **"No updates"** in the subject line of the email. Please submit to MSRS@alcosan.org **See Attachment 1**

- If your municipality has a combined sewer system, please include the following submissions:

  - Nine Minimum Control Number 6 Practices Survey. Please submit to NMC6@alcosan.org **See Attachment 2**

  - PA DEP Form 3800-PM-BCW0076e - Annual Combined Sewer Overflow (CSO) Status Report. Please submit to Wasteload@alcosan.org **See Attachment 3**

Thank you in advance for submitting the above requests by **March 1, 2024**. If you have any questions, please contact me at 412-734-6216 or Kim Marunczak at 412-734-6289.

Sincerely,

ALLEGHENY COUNTY SANITARY AUTHORITY

Michelle M. Buys

Michelle M. Buys, P.E.
Director, Environmental Compliance

MMB/mp
Enclosures

§ 94.12. Annual report.

(a) To provide for annual review of sewerage facilities and ensure that there is sufficient time to address existing operational or maintenance problems or to plan and construct needed additions, plant permittees shall submit a complete and accurate wasteload management annual report, in duplicate, by March 31 of each year to the appropriate regional office of the Department. The report shall be signed by the preparer and by the permittee of the plant and include the following:

(1) A line graph depicting the monthly average flows (expressed in millions of gallons per day) for each month for the past 5 years and projecting the flows for the next 5 years. The graph shall also include a line depicting the hydraulic design flow (also expressed in millions of gallons per day) of the plant included in the water quality management permit (Part II permit issued under Chapter 91 (relating to general provisions)).

(2) A line graph depicting the monthly average organic loading (expressed as pounds per day of BOD_5) for each month for the past 5 years and projecting the monthly average organic loading for the next 5 years. The graph shall also include a line depicting the organic loading design (also expressed in pounds per day of BOD_5) of the plant included in the water quality management permit (Part II permit issued under Chapter 91).

(3) A brief discussion of the basis for the projections referred to in paragraphs (1) and (2), as well as a description of the time needed to expand the plant to meet the load projections, if necessary. Data used to support those projections should be included in an appendix to the annual report.

(4) A map showing all sewer extensions constructed within the past calendar year, sewer extensions approved or exempted in the past year in accordance with the Pennsylvania Sewage Facilities Act (35 P. S. § § 750.1—750.20) and Chapter 71 (relating to administration of the sewage facilities program), but not yet constructed, and all known proposed projects which require public sewers but are in the preliminary planning stages. The map shall be accompanied by a list summarizing each extension or project and the population to be served by the extension or project. If a sewer extension approval or proposed project includes schedules describing how the project will be completed over time, the listing should include that information and the effect this build-out-rate will have on populations served.

(5) A discussion of the permittee's program for sewer system monitoring, maintenance, repair and rehabilitation, including routine and special activities, personnel and equipment used, sampling frequency, quality assurance, data analyses, infiltration/inflow monitoring, and, where applicable, maintenance and control of combined sewer regulators during the past year.

(6) A discussion of the condition of the sewer system including portions of the system where conveyance capacity is being exceeded or will be exceeded in the next 5 years and portions where rehabilitation or cleaning is needed or is underway to maintain the integrity of the system and prevent or eliminate bypassing, combined sewer overflow, sanitary sewer overflow, excessive infiltration and other system problems.

(7) A discussion of the condition of sewage pumping stations, including a comparison of the maximum pumping rate with present maximum flows and the projected 2-year maximum flows for each station.

(8) A report, if applicable, of industrial wastes discharged into the sewer system. This report shall include the following:

(i) A copy of any ordinance or regulation governing industrial waste discharges to the sewer system or a copy of amendments adopted since the initial submission of the ordinance or regulation under this chapter, if it has not previously been submitted. Ordinances, regulations or fee structures may provide incentives to industrial waste dischargers to use pollution prevention techniques to reduce or eliminate the generation of industrial wastewater discharges to the sewer system.

(ii) A discussion of the permittee's or municipality's program for surveillance and monitoring of industrial waste discharges into the sewer system during the past year.

(iii) A discussion of specific problems in the sewer system or at the plant, known or suspected to be caused by industrial waste discharges and a summary of the steps being taken to alleviate or eliminate the problems. The discussion shall include a list of industries known to be discharging wastes which create problems in the plant or in the sewer system and action taken to eliminate the problem or prevent its recurrence. The report may describe pollution prevention techniques in the summary of steps taken to alleviate current problems caused by industrial waste dischargers and in actions taken to eliminate or prevent potential or recurring problems caused by industrial waste dischargers.

(9) A proposed plan to reduce or eliminate present or projected overloaded conditions under § § 94.21 and 94.22 (relating to existing overload; and projected overload).

(b) Permittees of sewer systems which contribute sewage flows to the plant shall submit information to the permittee of the plant as required to facilitate preparation of the annual report.

Authority

The provisions of this § 94.12 issued under section 9 of the Pennsylvania Sewage Facilities Act (35 P. S. § 750.9).

Source

The provisions of this § 94.12 adopted November 4, 1977, effective November 21, 1977, 7 Pa.B. 3259; amended October 3, 1980, effective October 4, 1980, 10 Pa.B. 3917; amended September 4, 1998, effective September 5, 1998, 28 Pa.B. 4517. Immediately preceding text appears at serial pages (228278) to (228279).

Cross References

This section cited in 25 Pa. Code § 94.13 (relating to measuring, indicating and recording devices).

No part of the information on this site may be reproduced for profit or sold for profit.

This material has been drawn directly from the official Pennsylvania Code full text database. Due to the limitations of HTML or differences in display capabilities of different browsers, this version may differ slightly from the official printed version.

Attachment 1

MUNICIPAL SOURCE REDUCTION MEASURES
ANNUAL INFORMATION REQUEST

ALCOSAN's Modified Consent Decree requires ALCOSAN to request information annually on newly collected flow data or mapping changes regarding Municipal Source Reduction Measures. ALCOSAN is requesting each Customer Municipality to provide the following information:

Flow Data:

- Provide only data related to source control projects collected over the previous 12 months (January 2023 - December 2023)
    - Note: If your municipality had submitted a GROW Final Report with pre- and/or post-construction data in 2023, you do NOT need to re-submit the data per this request for that specific project. If you are unsure if this applies to your municipality, contact ALCOSAN at MSRS@alcosan.org.
- For each location source control flow monitoring was conducted, provide a map showing the location where each flow meter was installed.
- Provide flow data in the ALCOSAN flow monitoring template available on the Municipal Website: **http://portal.alcosan.org/consentdecree/SitePages/Home.aspx**. You will be prompted to enter your ALCOSAN municipal login username and password. Please email MSRS@alcosan.org if you need your username or password.

Mapping Changes:

- Provide only system mapping changes related to source control projects made over the previous 12 months (January 2023 - December 2023)
- Provide updated file geodatabase (.gdb)
- Clear identification of the changes made to the system

No Updates:

- If no flow monitoring data or system mapping changes were collected over the previous 12 months, you should still send an email to MSRS@alcosan.org.
- In the subject line, include "**MSRS - No updates -**" and the name of the Customer Municipality (i.e. "MSRS - No Updates – [Municipality name]")

All information related to this request must be emailed to MSRS@alcosan.org.

By December 31st of each year, ALCOSAN will submit an analysis of the information provided by Customer Municipalities to determine if the Municipal Source Reduction Measures are reducing the volume or rate of flow to the Conveyance and Treatment System. *Every Customer Municipality is expected to be accounted for in this annual report.* Thank you in advance for submitting this information by Friday, March 1, 2024.

Any questions regarding this request for information should be directed to Timothy D. Prevost, P.E., Manager of Wet Weather Programs, at: MSRS@alcosan.org.

Nine Minimum Control #6 - Solids and Floatables Practices Survey

Name of Municipality _____

Name of person completing this survey_____

Occupation of person completing this survey_____

Email of the person completing this survey_____

Phone number of the person completing this survey _____

1) Does your municipality conduct street sweeping?
   a. ☐ Yes
   b. ☐ No (skip questions 2 and 3)

2) How often does your municipality conduct street sweeping?
   a. ☐ Weekly
   b. ☐ Bi-Weekly
   c. ☐ Monthly

   ☐ Other (please specify) _____

3) Does your municipality contract out for street sweeping services?
   a. ☐ Yes
   b. ☐ No, our Department of Public Works conducts our street sweeping.
   c. ☐ No, we share street sweeping services with a neighboring community or COG.

   If 'c' was chosen, with whom do you share street sweeping services?

   _____

4) Do you have a complete GIS map of locations for catch basins in your municipality?
   a. ☐ Yes
   b. ☐ No
   c. ☐ Not sure

5) How often does your municipality clean its catch basins?
   a. ☐ Monthly
   b. ☐ Quarterly
   c. ☐ Yearly
   d. ☐ Only when they are clogged
   e. ☐ Not sure

6) Does your municipality contract out for catch basin cleaning?
   a. ☐ Yes
   b. ☐ No, our Department of Public Works conducts our catch basin cleaning.
   c. ☐ No, we share catch basin cleaning with a neighboring community or COG.

   If 'c' was chosen, with whom do you share catch basin cleaning services?

   _____

7) Does your municipality have ordinances governing littering and dumping?
   a. ☐ Yes
   b. ☐ No
   c. ☐ Not sure

8) Does your municipality sponsor anti-litter and anti-dumping campaigns?
   a. ☐ Yes
   b. ☐ No (skip question 9)

9) If yes, how often does your community sponsor litter and/or dump site cleanups
   a. ☐ Once a year
   b. ☐ Twice a year
   c. ☐ 3 times a year
   d. ☐ More than 3 times a year

10) Does your municipality sponsor storm drain stenciling events?
   a. ☐ Yes
   b. ☐ No
   c. ☐ Not sure

11) How does your municipality communicate to the public about your NMC programs? Please check all that apply.
   a. ☐ On our website
   b. ☐ E - newsletter
   c. ☐ Print newsletter
   d. ☐ Local newspaper
   e. ☐ Chamber of Commerce

   ☐Other (please describe)_____
   _____
   _____

Please scan and submit the completed form to NMC6@alcosan.org

Any questions regarding this request for information should be directed to Timothy Prevost, Manager of Wet Weather Programs, at: **timothy.prevost@.alcosan.org**

Thank you for participating in ALOCSAN's Municipal NMC 6 survey!

3800-PM-BCW0076e Rev. 7/2022
Annual CSO Status Report

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF CLEAN WATER

ANNUAL COMBINED SEWER OVERFLOW (CSO) STATUS REPORT

REPORTING PERIOD: _____ to _____

Permittee: _____ Permit No.: _____

Address: _____ Municipality: _____

_____ County: _____

Phone: _____ Email Address: _____

Permit Eff. Date: _____ Permit Exp. Date: _____

Name(s) of Downstream POTW(s) or WWTP: _____

Facility Type: ☐ Conveyance and Treatment ☐ Conveyance Only (Satellite System) ☐ Other: _____

☐ The permittee intends to continue operating under the PAG-06 General Permit in the next calendar year.

☐ The permittee **does not** intend to continue operating under PAG-06 and requests termination of permit coverage. A complete NOT is attached (3800-PM-BCW0410). All discharges have been or will be terminated by the report due date.

PART A – NINE MINIMUM CONTROLS (NMCs) AND LONG-TERM CONTROL PLAN (LTCP)

1. Date of NMC report submission to DEP:

2. Were all NMCs implemented during the reporting period? ☐ Yes ☐ No

   If No, identify the NMCs not implemented during the reporting period and provide a schedule for implementation.

3. Date of LTCP submission to DEP:

4. Has LTCP been approved by DEP? ☐ Yes ☐ No (If Yes, Date of Approval: _____)

5. If the LTCP has not been approved, identify any outstanding issues that remain with DEP or EPA on the LTCP and the status of resolving those issues.

6. Is the permittee under an agreement with DEP and/or EPA for any aspect of the CSS or CSO discharges?

   ☐ Yes ☐ No

   If Yes, describe the terms and conditions of the agreement.

7. Have all tasks and milestones for the LTCP been completed? ☐ Yes ☐ No

   If Yes, Date of Completion:

   If No, identify all outstanding tasks and milestones for complete implementation of the LTCP.

8. Identify all anticipated modifications to NMC and/or LTCP implementation plans or facility improvements planned for the next reporting period.

ANNUAL MONITORING, INSPECTION AND MAINTENANCE ACTIVITIES

1. CSO Inventory (attach additional sheets as necessary):

CSO Outfall No.	Latitude			Longitude			Location Description	Receiving Waters
	Deg	Min	Sec	Deg	Min	Sec		

Indicate if there are CSO-related overflows at the permittee's: ☐ Pump Station(s) ☐ POTW / WWTP

Explain any changes to the CSO Inventory during the reporting period.

2. Dry Weather Inspections during the reporting period:

CSO Outfall No.	Date(s) of Dry Weather Inspection(s)	Discharge(s) Observed During Dry Weather? (Yes/No)	Remedial Measures Taken for Dry Weather Discharges (if applicable)

3. Wet Weather Inspections during the reporting period:

CSO Outfall No.	Date(s) of Wet Weather Inspection(s)	Date(s) of Wet Weather Discharge(s)	Minimum Precipitation Causing a Discharge for each CSO Outfall (in)

4. Provide a description of all maintenance and remedial activities completed during the annual period on the CSS. Attach additional sheets as necessary.

5. Have there been dry weather discharges during the reporting period that are expected to continue during the next calendar year? ☐ Yes ☐ No

   If Yes, describe a plan to eliminate the dry weather discharges with a completion date.

6. Did the permittee collect samples of CSO discharges or receiving waters during the reporting period? ☐ Yes ☐ No

   If Yes, indicate the sample collection location (CSO Outfall No. or receiving water name and proximity to CSO outfalls) and list the analytical results.

7. For all locations that have automatic level monitoring of the regulators, report all exceedances of the overflow level during the reporting period, including location, date, time and duration of wet weather overflows.

8. For all locations where flows in the interceptors can be controlled by throttling and/or pumping, report all instances where the overflow level was reached or the gates were lowered. For each instance provide the location, date, time and duration of the overflow.

CERTIFICATION

FOR PAG-06 PERMITTEES: I have read the latest PAG-06 General Permit issued by DEP and agree and certify that (1) the permittee continues to be eligible for coverage under the PAG-06 General Permit and (2) the permittee will continue to comply with the conditions of the General Permit, including any modifications thereto. I understand that if I do not agree to the terms and conditions of the PAG-06 General Permit, I will apply for an individual permit within 90 days of publication of the General Permit. I also acknowledge that any facility construction needed to comply with the General Permit requirements shall be designed, built, operated, and maintained in accordance with operative laws and regulations.

FOR ALL PERMITTEES: I certify under penalty of law that this report was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

Prepared By: _____ **Signature:** _____

Title: _____ **Date:** _____

Appendix B.

Municipal Information Request Flow Monitoring Data Template

Municipal Information Request Flow Monitoring Data Template

Site Name: *[Enter Monitoring Site Name]*
Municipality: *[Enter Municipality/Authority Name]*
Manhole ID: *[Enter Municpal Manhole ID Where Monitoring was Conducted]*
ALCOSAN POC: *[Enter ALCOSAN Point of Connection]*
Pipe Size: *[Enter Pipe Size in Inches]*
Equipment: *[Enter Equipment Type]*
Data Range: *[Enter Period of Monitoring]*
Monitoring Location Coordinates: *Latitude Longitude*
Has Data Been Quality Reviewed?: *[Y or N]*
Was Location Previously Monitored as Part of the 2008 RCS-FMP?: *[Y or N]*
Was Monitoring Conducted to Quantify the Performance of a Source Reduction Project?: *[Y or N]*
If so, Pre- or Post-Construction?: *[Pre- or Post-]*

Monitoring Description: *[Enter Brief Description of Project and Monitoring Activity]*

Rain Gauge Used: *[Enter Source of Precipitation Data Provided in Column (k)]*
[Use local gauge if available, otherwise nearest 3FWW gauge should be referenced]

** As Applicable*

(a)	*(b)*	*(c)*	*(d)*	*(e)*	*(f)*	*(g)*	*(h)*	*(i)**	*(j)**	*(k)*
Month	Day	Year	Hour	Minute	Flow (MGD)	Level (in)	Velocity (fps)	Redundant Level Measure		Rainfall (in)
								Flow (MGD)	Level (in)	
##	#	####	0	0	###	###	###	###	###	##
##	#	####	0	15	###	###	###	###	###	##
##	#	####	0	30	###	###	###	###	###	##
##	#	####	0	45	###	###	###	###	###	##
##	#	####	1	0	###	###	###	###	###	##
##	#	####	1	15	###	###	###	###	###	##
##	#	####	1	30	###	###	###	###	###	##

Source: excerpt from Source Reduction Data Request template.xls made available by ALCOSAN on the Municipal Website.

Appendix C.

Summary of In-Progress Awarded GROW Projects

GROW ID	Municipality or Municipal Authority	Project Name	Type	Project Description	Source Reduction Goal (MGY)
2016_01-028	Pittsburgh Water and Sewer Authority	Larimer Park GI	GSI	Installation of trees and bioswales along the street, directing stormwater runoff into over 17,800 square feet of terraced bioswale.	0.89
2016_01-033	Pittsburgh Water and Sewer Authority	McKinley Park GI	GSI	Installation of 21,780 square feet of GSI including a rain garden with subsurface storage managing 3 acres of directly captured impervious area.	1.49
2016_01-056	McKees Rocks Borough	Chartiers Ave.	SS	Installation of 48" outfall to Chartiers Creek, 8 manholes, 10 inlets and 850 linear feet of new stormwater pipes that connects to the new outfall.	1.91
2017_01-004	Wilkins Township	Linhart Area Phase IIA Sewer Separation	SS	Following completion of Phase IIA, 850 linear feet of the combined system and connection of 13 structures makes up the newly installed sanitary system.	0.65
2017_01-029	Pittsburgh Water and Sewer Authority	South 21st Street Green Street Project	GSI	23,200 square feet of distributed GSI that will manage runoff from a total impervious drainage area of 4.24 acres	3.18
2017_01-031	Pittsburgh Water and Sewer Authority	SoHo Green Infrastructure Project Phase I: MLK Field Stormwater Park	GSI	Stormwater Park featuring 20,000 square feet of GSI including regenerative step pools, rain gardens, underground detention facilities, and community gardens.	4.29
2017_01-032	Pittsburgh Water and Sewer Authority	Thomas and McPherson Green Infrastructure	GSI	Installation of 28,000 square feet of GSI including bioretention systems and retrofit of existing catch basins to divert stormwater to bioretention systems.	3.37
2017_01-036	Pittsburgh Water and Sewer Authority	Lawn and Ophelia Green Infrastructure Project	GSI	Stormwater park with 3,200 square feet of GSI including bioretention facilities and permeable pavers that capture 1.86 acres of impervious area runoff.	0.59
2017_01-043	Stowe Township	Fleming Ave GSI Project	GSI	Installation of 4,000 square feet of GSI including a rain garden and bioretention area receiving runoff via curb cuts and sheet flow.	0.93
2018_01-016	Borough of Braddock	First Street Sewer Separation Project-Phase II	SS	Installation of 677 linear feet of new storm sewer, 4 new inlets, and 1 new manhole.	1.51
2019_01-024	Monroeville Municipal Authority	Woodhaven Drive SSO/TR-06 Sanitary Sewer Rehabilitation	SO	Addressed I/I by lining 35,000 linear feet of existing sanitary sewer	14.12
2019_01-034	City of Pittsburgh	Bob O'Connor Golf Course Clubhouse	GSI	Installation of GSI featuring 4,800 square feet of permeable pavers, 1,570 square feet of rain gardens, 4,700 square feet of bioretention areas, 690 square feet of retentive berm area, and 1,270 square feet of retention system.	0.27
2019_01-036	Pittsburgh Water and Sewer Authority	Maryland Avenue Green Infrastructure Project	GSI	Installation of over 15,600 square feet of permeable pavers and 24 new inlets to convey stormwater flow into 18,000 square feet of proposed rock storage units.	0.00[(1)]
2019_01-038	Pittsburgh Water and Sewer Authority	Woods Run Stream Removal – Phase 1	GSI	Includes 17,000 square feet of stream restoration and 16,000 square feet of surface storage near park entrance and the distribution of BMPs in upper parts of watershed.	0.16
2019_01-051	Wilkins Township	Queenston Sewer Lining Project	I/I	Lining approximately 5,900 linear feet of sanitary sewer and the reinstatement and grouting of 105 service laterals.	1.60
2019_01-052	Wilkinsburg Borough	South Avenue Area Sewer Rehabilitation (Cross Connections Removal)	I/I	Lining approximately 2,590 linear feet of sanitary and storm sewer, reinstatement of 100 service laterals, installation of 8 manholes.	4.16
2020_01-001	Borough of Aspinwall	Western Avenue Sewer Separation Project	SS	Installation of 1,780 linear feet of new storm sewer, 15 new inlets, and 7 new manholes.	5.39
2020_01-002	Avalon Borough	2020 Regionalization and Source Flow Reduction Sewer Repairs	I/I	Lining approximately 610 linear feet of sanitary sewer and raising to grade 5 manholes.	6.35
2020_01-003	Borough of Bellevue	O-18 Sewer Rehabilitation	I/I	Lining approximately 5,980 linear feet of sanitary sewer and grout reinstated laterals.	8.54
2020_01-005	Brentwood Borough	Wanley Avenue Sewer Lining	I/I	Lining approximately 1,925 linear feet of sanitary sewer and repairs to various manholes.	7.30
2020_01-007	Churchill Borough	Collins Road Pump Station Redirection	SO	Installation of new 10-inch SDR 35 gravity sewer and connection to an existing gravity sewer to eliminate overflows. Includes installation of 1,870 linear feet of sewer pipes, 3 manholes, diversion of 19,300 linear feet of sewer pipes, lining of 870 linear feet of sewer.	0.05
2020_01-008	Carnegie Borough	Cubbage Street Sewer Separation	SS	Installation of 1,900 linear feet of new storm sewer, 10 new inlets, and 18 new manholes.	15.86
2020_01-012	Crafton Borough	Woodlawn and Fountain Street Sewer Separation	SS	Installation of 3,360 linear feet of new storm sewer, 31 new inlets, and 23 new manholes.	5.93

GROW ID	Municipality or Municipal Authority	Project Name	Type	Project Description	Source Reduction Goal (MGY)
2020_01-020	Borough of Homestead	Hazel Way Sewer Separation Project	SS	Installation of 3,900 linear feet of new separate storm sewer, 18 new manholes, and 7 new inlets within Hazel Way to McClure Street.	5.31
2020_01-022	Monroeville Municipal Authority	T-29A-10 Sanitary Sewer Rehabilitation Project	I/I	Rehabilitation of 25,113 linear feet of sanitary sewer and transfer of 4,256 linear feet of sewer to ALCOSAN.	8.99
2020_01-023	Municipality of Mt. Lebanon	Orchard Drive Sewer Lining and Thornwood Drive Stream Sewer Lining	I/I	Lining approximately 1,641 linear feet of sanitary sewer, 4,712 linear feet of lateral launch CCTV investigations, lateral connection repair liners, and 4 manhole replacements.	0.88
2020_01-024	Municipality of Mt. Lebanon	Scrubgrass Road Sewer Lining	I/I	Lining approximately 2,961 linear feet of sanitary sewers, 4,065 linear feet of lateral launch CCTV investigations, and lateral connection repair liners.	4.99
2020_01-030	Pittsburgh Water and Sewer Authority	Woodland Road GSI	GSI	Installation of 7,860 square feet of underground storage and associated conveyance elements (pipe and inlets).	0.00[(2)]
2020_01-031	Pittsburgh Water and Sewer Authority	Wightman Park PWSA	GSI	Installation of 690 square feet of stormwater cascade systems, 11,190 square feet of rain gardens, and 25,000 square feet of underground storage.	0.00[(3)]
2020_01-032	Borough of Rankin	Rankin Recreation Site Green Infrastructure and Flow Removal Project	GSI	Redirection of stormwater flow from existing combined system to 980 square feet of new infiltration BMPs.	0.23
2020_01-038	Wilkinsburg Borough	2021 NW Area Sewer Rehabilitation Project	I/I	Lining approximately 11,055 linear feet of sanitary sewer, the reinstatement and grouting of 150 service laterals and installation of 7 sanitary manholes.	15.89
2021_01-001	Baldwin Borough	Streets Run Multi-Municipal Sewer Repair Work	I/I	Lining approximately 23,600 linear feet of sewer, boring/jacking/tunnelling of 350 linear feet of gravity sewer, and installation of 7 new manholes.	66.79
2021_01-008	Etna Borough	Dewey Street	SS	Removal of direct stream inflows and separate portions of the Dewey Street and Park Avenue areas from the combined sewer system. Installation of 2,370 linear feet of new storm sewer, 200 linear feet of new sanitary sewer, 12 new storm structures, and 2 new sanitary structures.	4.64
2021_01-011	Ingram Borough	Ingram Borough Source Reduction Repairs and Separation	SS, I/I	Lining approximately 2,000 linear feet of sewer lines. Installation of 450 linear feet of new separate storm sewer, 4 new inlets, and 4 new manholes.	0.65
2021_01-012	Monroeville Municipal Authority	East Thompson Run Sanitary Sewer Rehabilitation Project	I/I	Lining approximately 4,200 linear feet of sanitary sewer line.	0.93
2021_01-014	Municipality of Mt. Lebanon	Cedar Blvd Sewer Lining	I/I	Lining approximately 1,400 linear feet of sanitary sewer, replacing 11 manhole frames, and rehabilitating 8 existing manholes.	1.40
2021_01-015	Municipality of Mt. Lebanon	Eisenhower Drive Sewer Lining	I/I	Lining approximately 2,000 linear feet of sanitary sewer, replacing 16 manhole frames, and rehabilitating 7 existing manholes.	1.73
2021_01-017	Township of O'Hara	2021 Sanitary Sewer Lining Repairs Project	I/I	Lining approximately 7,300 linear feet of sanitary sewer.	2.42
2021_01-019	Pittsburgh Water and Sewer Authority	Small Diameter Sewer - Maytide Phase II	I/I	Lining approximately 21,000 linear feet of sanitary sewer, reinstating service laterals, heavy cleaning, and removal of break-in connections.	13.21
2021_01-026	Scott Township	2021 Kane Boulevard Source Flow Reduction and Sanitary Sewer Improvements	I/I	Lining approximately 3,350 linear feet of sanitary sewer and 21 sanitary sewer manholes and replacing 270 linear feet of sanitary sewer.	13.51
2021_01-029	Wilkinsburg Borough	Laketon Sewer Rehabilitation	I/I	Lining approximately 8,000 linear feet of sanitary sewer and the reinstatement and grouting of 100 service laterals.	11.08
2022_01-001	Borough of Bellevue	Upper O-21 Lining and Smoke Testing	I/I	Lining approximately 5,005 linear feet of sanitary sewer.	4.51
2022_01-002	Bridgeville Borough	McLaughlin Run / C-54 Sanitary Sewer Re-Routing Project	I/I	Lining approximately 4,300 linear feet of sanitary sewer, installing 480 linear feet of new pipe, 3 new manholes, and replacing 30 linear feet of existing sewer.	1.63
2022_01-004	Crafton Borough	Broadhead Storm Sewer Separation	SS	Installation of 8,180 linear feet of new storm sewer, 54 new inlets, and 50 new manholes.	7.53
2022_01-005	Emsworth Borough	Ohio River Blvd Lining Project	I/I	Lining approximately 3,407 linear feet of sanitary sewer and installation of 9 manhole inserts.	4.82

GROW ID	Municipality or Municipal Authority	Project Name	Type	Project Description	Source Reduction Goal (MGY)
2022_01-007	Girty's Run Joint Sewer Authority	Goldsmith Valley Sanitary Sewer Repairs and Rehabilitation	I/I	Lining approximately 5,260 linear feet of sanitary sewer, rehabilitation of 17 manholes, and replacing 35 sewer lateral connections.	3.27
2022_01-008	Borough of Homestead	Transforming 12th	GSI	Installation of 10,570 square feet of permeable pavement parking lot above 6,400 square feet of underground storage system and 720 square feet of bioretention bumpouts.	5.82
2022_01-012	Municipality of Mt. Lebanon	SMRCS35-MB-L-02 Reimbursement Sewer Rehab	I/I	Lining approximately 5,400 linear feet of sanitary sewer.	2.77
2022_01-013	Municipality of Mt. Lebanon	SMRCS35-MB-L-03 Sewer Rehab	I/I	Lining approximately 6,700 linear feet of sanitary sewer.	14.04
2022_01-016A	Pittsburgh Water and Sewer Authority	2023 Small Diameter Sewer Rehabilitation - Contract 2 - Maytide Phase III (MH-80)	I/I	Lining approximately 10,568 linear feet of sanitary sewer.	13.83
2022_01-019	Ross Township	Sangree Park Sanitary Sewer Lining	I/I	Lining approximately 3,000 linear feet of sanitary sewer and rehabilitation of 1 manhole.	2.11
2022_01-021	Whitehall Borough	Highgrove Road Sanitary Sewer Improvements	I/I	Installing approximately 2,000 linear feet of new sanitary sewer and the conversion of the old sanitary sewer into separate storm sewer.	8.63
2023_01-003	Dormont Borough	Dormont S-15 Phase II COA Lining Project	I/I	Lining approximately 4,125 linear feet of sanitary sewer and reinstatement of 90 service laterals	4.89
2023_01-004	Borough of East Pittsburgh	Grandview Ave Storm Sewer Separation Project	SS	Installation of 1,600 linear feet of new storm sewer, 9 new inlets, and 7 new manholes.	2.25
2023_01-006	Girty's Run Joint Sewer Authority	Greenhill Area Sanitary Sewer Rehabilitation	I/I	Lining approximately 8,100 linear feet of sanitary sewer.	5.16
2023_01-009	Municipality of Mt. Lebanon	Cochran Rd/Larchmont Rd: C4800-MB-L-03 Sewer Rehab	I/I	Lining approximately 6,255 linear feet of sanitary sewer and rehabilitation of 56 existing manholes.	5.07
2023_01-010	Municipality of Mt. Lebanon	Little Saw Mill Run - MH1800-MB-L-05 Sewer Rehab	I/I	Lining approximately 8,900 linear feet of sanitary sewer, replacement of 2 manholes, and rehabilitation of 55 existing manholes.	17.90
2023_01-011	McCandless Township Sanitary Authority	Foxridge Plan	I/I	Lining approximately 25,079 linear feet of sanitary sewer.	6.26
2023_01-012	Borough of North Braddock	O'Connell Boulevard Storm Sewer Separation Project	SS	Installation of 1,700 linear feet of new storm sewer, 16 new inlets, and 6 new manholes.	2.59
2023_01-013	Pittsburgh Water and Sewer Authority	2023 Small Diameter Sewer Rehabilitation	I/I	Lining approximately 30,000 linear feet of sanitary sewer and manhole rehabilitation.	8.26
2023_01-014	Pittsburgh Water and Sewer Authority	Bus Rapid Transit	GSI	6,000 square feet of total GSI footprint incorporating bioswales, tree trenches, and storage trenches.	0.70
2023_01-014A	Pittsburgh Water and Sewer Authority	Bus Rapid Transit	GSI	5,500 square feet of total GSI footprint incorporating bioswales, tree trenches, and storage trenches.	0.27
2023_01-016	Ross Township	York Drive Infiltration Control Project	I/I	Lining approximately 1,700 linear feet of sanitary sewer and manholes, and the replacement of 1 manhole.	2.74
2023_01-017	Borough of Swissvale	M-48 Groundwater and Surface Water Remediation Project	SS	Installation of 390 linear feet of new storm sewer, 5 new inlets, and 3 new manholes.	6.93
2023_01-018	West Homestead Borough	West 7th Avenue Separation Project	SS	Installation of 1,640 linear feet of new storm sewer and 12 new inlets.	1.50
2024_01-001	Avalon Borough	O-18A Phase II COA Source Flow Reduction Project	I/I	Lining approximately 3,500 linear feet of sanitary sewer and replacing over 100 linear feet of sanitary sewer.	2.59
2024_01-002	Baldwin Borough	M-34 Phase II COA Source Flow Reduction Project	I/I	Lining approximately 3,100 linear feet of sanitary sewer.	2.32
2024_01-003	Baldwin Borough	M-42 Phase II COA Source Flow Reduction Project	I/I	Lining approximately 9,400 linear feet of sanitary sewer, in-trench repair of 140 linear feet of sanitary sewer, replacing 1 manhole, and reinstating service laterals.	4.88
2024_01-004	Castle Shannon Borough	Killarney Drive Phase II COA Source Flow Reduction Project	I/I	Lining approximately 3,400 linear feet of sanitary sewer, in-trench replacement of 40 linear feet of sanitary sewer, replacing 1 manhole and cutting and removal of laterals.	2.80

GROW ID	Municipality or Municipal Authority	Project Name	Type	Project Description	Source Reduction Goal (MGY)
2024_01-006	Crafton Borough	W Steuben Street Separation Projects	SS	Installation of 3,000 linear feet of new storm sewer, 10 new manholes, 4 new inlets, and 12 replacement inlets.	4.11
2024_01-007	Edgewood Borough	Phase II COA Source Flow Reduction Project	I/I	Lining approximately 4,200 linear feet of sanitary sewer, in-trench replacement of 15 linear feet of sanitary sewer, and reinstating laterals.	3.46
2024_01-008	Forest Hills Borough	Upper Falls Run Phase II COA Source Flow Reduction Project	I/I	Lining approximately 6,850 linear feet of sanitary sewer and in-trench replacement of 32 linear feet of sanitary sewer.	9.53
2024_01-010	Girty's Run Joint Sewer Authority	Lower Shaler/Geyer Sanitary Sewer Rehabilitations	I/I	Lining approximately 10,400 linear feet of sanitary sewer, including cutback of 15 lateral intrusions and reinstatement of 150 sanitary sewer lateral connections.	13.38
2024_01-013	Ingram Borough	Ingram Borough Source Flow Reduction Project	I/I	Lining approximately 2,016 linear feet of sanitary sewer.	1.54
2024_01-015	Municipality of Mt. Lebanon	Beggs Snyder Park: S1500-MB-L-04 Sewer Rehab and Replacement	I/I	Lining approximately 2,620 linear feet of sanitary sewer, replacing 50 linear feet of sanitary sewer, concrete encasement of a sanitary sewer stream crossing, replacing 2 sanitary manholes, and rehabilitating 3 manholes.	1.83
2024_01-017	Mt. Oliver Borough	Mt. Oliver M-34 Source Flow Reduction Project	I/I	Addressed I/I by lining 3,700 linear feet of sanitary sewer and rehabilitating 14 manholes.	4.48
2024_01-018	Munhall Sanitary Sewer Municipal Authority	M-49 Phase II COA Source Flow Reduction Project	I/I	Lining approximately 11,350 linear feet of sanitary sewer, repairing 52 linear feet of sanitary sewer, removing and replacing 1 manhole, and reinstating service laterals.	16.98
2024_01-020	Peters Township Sanitary Authority	Joint Sealing and Trenchless Sanitary Sewer Partial Pipe Length Repair	I/I	Lining approximately 3,911 linear of sanitary sewer.	2.02
2024_01-021	Pittsburgh Water and Sewer Authority	South Side Flats Sewer Separation Project	SS	Installation of 6,805 linear feet of new storm sewer.	0.30
2024_01-023	Reserve Township	A-60 Sanitary Sewer Source Flow Reduction Project	I/I	Lining approximately 4,690 linear feet of sanitary sewer.	3.59
2024_01-024	Municipal Authority of the Township of Robinson	Chartiers Basin Sanitary Sewer Lining Project	I/I	Lining approximately 2,623 linear feet of sanitary sewer, grouting sanitary laterals and reinstating sanitary lateral connections.	1.99
2024_01-025	Ross Township	Connie Drive Lining Project	I/I	Lining approximately 2,000 linear feet of sanitary sewer, replacing over 600 linear feet of full pipe segments, 3 manhole rehabilitations, and 2 point repairs.	5.90
2024_01-026	Scott Township	C-53 Phase II COA Source Flow Reduction Project	I/I	Lining approximately 5,800 linear feet of sanitary sewer as well as replacing 50 linear feet of existing sewer.	5.48
2024_01-026A	Scott Township	C-48 Phase II COA Source Flow Reduction Project	I/I	Lining approximately 2,800 linear feet of sanitary sewer as well as replacing 70 linear feet of existing sewer.	2.08
2024_01-027A	Shaler Township	A-68 Source Flow Reduction Project (FM A-68-FIS-S67)	I/I	Lining approximately 4,350 linear feet of existing sewers, replacing 80 linear feet of existing sewers, rehabilitating 23 manholes, and installing 3 new manholes.	1.16
2024_01-027C	Shaler Township	A-68 Source Flow Reduction Project (FM A-68-FIS-S59)	I/I	Lining approximately 3,300 linear feet of existing sewers, replacing 145 linear feet of existing sewers, , rehabilitating 21 manholes, and installing 2 new manholes.	10.95
2024_01-027D	Shaler Township	A-68 Source Flow Reduction Project (FM A-68-FIS-S55)	I/I	Lining approximately 3,210 linear feet of existing sewers, replacing 150 linear feet of existing sewers, rehabilitating 16 manholes, and installing 5 new manholes.	0.91
2024_01-027E	Shaler Township	A-68 Source Flow Reduction Project (FM A-68-OSS-L27)	I/I	Lining approximately 1,930 linear feet of existing sewers, replacing 25 linear feet of existing sewers, rehabilitating 13 manholes, and installing 7 new manholes.	0.47
2024_01-027F	Shaler Township	A-68 Source Flow Reduction Project (FM A-68-FIS-S43)	I/I	Lining approximately 11,145 linear feet of existing sewers, replacing 370 linear feet of existing sewers, rehabilitating 66 manholes, and installing 10 new manholes.	6.82
2024_01-028	Verona Borough	A-45 Sanitary Sewer Source Flow Reduction Project	I/I	Lining approximately 8,400 linear feet of sanitary sewer.	4.59
2024_01-029	West View Water Authority	Cresson Avenue CSO Sewer Separation Project	SS	Installing 3,800 linear feet of sanitary sewer, 6 new inlets, and 21 stormwater manholes. Also, removing and replacing 17 inlets.	2.95
2024_01-030	Whitaker Borough	Manhole to Manhole Trenchless Sewer lining	I/I	Lining approximately 2,400 linear feet of sanitary sewer.	10.62

GROW ID	Municipality or Municipal Authority	Project Name	Type	Project Description	Source Reduction Goal (MGY)
2024_01-031	Whitehall Borough	Whitehall Borough Streets Run (M42-MB-L-14) Source Flow Reduction Project	I/I	Lining approximately 4,200 linear feet of sanitary sewer and rehabilitating all brick manholes showings signs of infiltration.	2.49
2024_01-032	Whitehall Borough	Whitehall Borough Streets Run (M42-MB-L-15) Source Flow Reduction Project	I/I	Lining approximately 1,200 linear feet of sanitary sewer and rehabilitating all brick manholes showings signs of infiltration.	1.65
2024_01-033	Whitehall Borough	Whitehall Borough Sawmill Run Source Flow Reduction Project	I/I	Lining approximately 3,700 linear feet of sanitary sewer and rehabilitating all brick manholes showings signs of infiltration.	3.38
2024_01-034	Wilkinsburg Borough	2025 Western Sewer Rehabilitation	I/I	Lining and/or rehabilitating approximately 14,305 linear feet of sanitary sewer, reinstating and grouting 250 service laterals, installation of 6 new manholes, replacement of 9 access manholes and 150 linear feet of sanitary sewer spot repairs.	21.80
2024_01-036	Munhall Sanitary Sewer Municipal Authority	M-45 Green Infrastructure and Stormwater System Improvements	GSI, SS	Installation of over 17,700 square feet of subsurface crate storage, as well as installation of 2,375 linear feet of new stormwater sewer.	7.94

(1) This project was designed to reduce combined sewer overflow instead of stormwater flow. The overflow reduction goal for this project is 1.46 MGY.
(2) This project was designed to reduce combined sewer overflow instead of stormwater flow. The overflow reduction goal for this project is 3.28 MGY.
(3) This project was designed to reduce combined sewer overflow instead of stormwater flow. The overflow reduction goal for this project is 7.51 MGY.