



TOWN OF MONTAGUE, MASSACHUSETTS

DEC 2021

FINAL

Combined Sewer Overflow (CSO) Long Term Control Plan (LTCP) Update



Combined Sewer Overflow (CSO) Long Term Control Plan (LTCP) Update Town of Montague, Massachusetts

December 2021 – FINAL



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Section 1 Executive Summary

In December 2005, the Town of Montague developed a Long Term Control Plan (LTCP) for Combined Sewer Overflow (CSO) and Water Pollution Control Facility Plan, which included recommendations for reducing CSOs and complying with regulatory objectives. Since 2005, some of the LTCP's recommendations have been implemented while other recommendations were omitted or modified.

This LTCP Update includes information on measures the Town has implemented over the last 15 years to comply with the regulatory objectives for CSO abatement. The LTCP Update also details modifications to the Town's projects to help mitigate the two remaining CSOs in the Town's system in future years. It incorporates all new information provided by the Town, details of findings, recommendations for next steps, and an implementation schedule with planning level cost estimates, relative to reducing CSO discharging from the two remaining CSOs within the Town.

Wright-Pierce reviewed available information provided by the Town since 2005 to understand and identify the work completed by the Town to date and future work planned to address the two remaining CSOs. Based on our review of this information and as part of this project, we have developed a modified implementation plan that we are recommending to the Town. This modified implementation plan incorporates new information provided, details of our findings, and recommendations for next steps for the Town to reduce CSO discharges as part of its CSO LTCP. At this time, we do not believe that these CSOs can be completely eliminated.

1.1 Purpose

The Town was issued an Administrative Order (CWA-AO-R01-FY20-31) from the U.S. Environmental Protection Agency (EPA) on June 11, 2020, addressing compliance with its National Pollutant Discharge Elimination System (NPDES) permit (No. MA0100137) to meet numeric effluent limitations and minimize CSOs.

The Administrative Order specifically brings attention to "excursions of the water quality criterion for E. coli bacteria in the Connecticut River" from untreated combined sewage that was discharged from CSO outfalls between 2018 and 2019. In 2005, the Town developed a LTCP. Since 2005, the Town has implemented some of the LTCP's recommendations while other recommendations were omitted or modified. This LTCP Update is part of meeting the requirements of the Administrative Order, specifically item IV.3. The Town also received an 18-month extension to the deadline stated in the Administrative Order for the LTCP Update. Thus, this LTCP Update is an interim update prior to the final update due by June 30, 2023.

1.2 Summary of Combined Sewer Overflow Outfalls and Regulators

The Town has two permitted CSOs activated by three regulators. The two CSO outfalls are located on Greenfield Road, near the WPCF, and I Street, adjacent to the Power Canal. The Greenfield Road CSO is connected to the Greenfield Road Regulator, while the I Street CSO is connected to the regulator on Avenue A as well as a regulator at the intersection of 7th & L Streets.

1.3 Combined Sewer Overflow Improvements

In the 2005 LTCP, the following implementation plan was recommended to abate the Town’s CSOs:

1. Design and construct an off-line CSO storage facility at Avenue A
2. Raise weir levels at all three regulators and increase downstream pipe size
3. Replace approximately 750 linear feet (LF) of 15-inch sewer pipe with 21-inch sewer pipe on 7th Street
4. Design and construct a Wastewater Pollution Control Facility (WPCF) CSO preliminary treatment, storage, and disinfection facility
5. Conduct smoke/dye tests of downspouts at specific establishments in the village of Turners Falls to determine the quantity of the extraneous flows
6. Implement a sewer service replacement program

Work began on these recommendations, along with other recommendations in the LTCP specific to the WPCF. Then in 2006, the overall workplan was revised due to a nearly doubling of bid prices received on the first phase of work. As a result, work was only completed on the some of these recommendations specific to the CSOs.

1.4 Sewer and Stormwater Improvements and Infiltration/Inflow Abatement

In the village of Turners Falls, the Town separated one combined sewer segment on Crocker Avenue since 2016 by disconnecting catch basins from the sewer and re-connecting them to the storm drain. Between 2014 and 2016, the Town also completed approximately 6,000 LF of cured-in-place pipe (CIPP) lining of various sewers throughout the village of Turners Falls in an effort to eliminate infiltration and inflow (I/I).

In 2016, the Town completed cleaning and inspection of the 250-LF, 5-foot diameter, elliptical reinforced concrete pipe (RCP) double barrel siphon beneath the Power Canal and upstream of the I Street CSO. Overall, it was found that the southern barrel was in worse condition, due to structural defects, such as surface damage, and infiltration defects, and was taken offline at that time. As a result, the Town repaired the leaks found in the southern siphon barrel with chemical grout and cementitious patches and applied an abrasion resistant cementitious coating to a portion of the existing concrete encasement for the G Street pump station force main in the southern barrel. There were no post-rehabilitation evaluation results from these efforts. Given the absence of a post-rehabilitation evaluation and the time that has passed since the repair work was completed, Wright-Pierce recommends that the Town perform a post-rehabilitation closed-circuit television (CCTV) pipe inspection of both barrels to assess their condition and the quality of the repairs.

1.5 Operations and Maintenance Programs

Since 2016 and the CIPP lining work, the Town has considered prioritizing the CIPP lining of sewers made of asbestos cement, since these seem to be the most defective but have not proceeded with this work. The Town purchased a vactor cleaning truck in 2005 and since 2019, has been conducting mainline sewer cleaning one day per week between the months of March and September and on average cleans approximately 30,000 LF per year. The Town’s cleaning program is important in maintaining the consistent operation of the collection system and preventing blockages from forming, which could lead to potential sanitary sewer overflows.

This year, the Town also authorized the purchase of a CCTV pipe inspection camera truck. A CCTV camera truck will allow the Town to perform CCTV pipe inspections and gather condition assessment data on their collection system. This can aid in developing or refining the cleaning program and identify assets that require rehabilitation.

Since 2020, RCAP Solutions has been assisting the Town in asset inventorying and global positioning system (GPS) locating of sewer and stormwater assets to help build the Town’s geographic information system (GIS) database. In 2021, RCAP Solutions collected northing and easting data for sewer manholes, provided this data to the Town in Esri ArcGIS formats, and trained the Town in how to update and add to this information as additional data is collected.

1.6 Identified Projects

Many projects have already been identified by the Town and Wright-Pierce or in the 2005 LTCP as projects that can address CSO reduction or closures. These include Geographic Information System (GIS), hydraulic modeling, and field investigations projects. And additional identified projects are related to the Nine Minimum Controls (NMCs), as required to meet the Town’s NPDES permit.

Establishing a single GIS database of the Town’s sewer and stormwater assets is critical to understanding the Town’s system comprehensively and for use in other projects, such as pipe, manhole, and catch basin inspections, flow monitoring, and hydraulic modeling. Hydraulic modeling is necessary to further evaluate the capacity of the interceptor upstream of the WPCF and understand if and how CSO abatement could be achieved by any of these alternatives.

Whereas field investigations are important to capture current information on the impact of I/I and how potential reductions in I/I could affect CSO abatement. This work also collects data on the current condition of these assets, which leads to a more comprehensive understanding of the Town’s sewer system.

1.7 Best Practices

Based on Wright-Pierce’s review of available information provided by the Town and our industry experience, we recommend best practices as interim solutions for the Town over the next six years. The Town should proceed with these solutions immediately, and Wright-Pierce will update these solutions as work continues to meet the Administrative Order.

Refer to the modified implementation schedule provided in **Figure 1-1**. These recommendations do not currently include additional separation of the combined sewer system. These best practices include:

- A sewer rate study
- System maintenance, particularly for the Avenue A buffer line and at the influent of the WPCF
- Cleaning and inspection, particularly for the double barrel siphon, the siphon inlet sumps, and catch basins
- Observing and sampling the CSO outfalls
- Ordinances, particularly a review and update to ensure enforcement of industrial dischargers and private I/I sources
- Private systems, particularly monitoring and enforcement of industrial loadings, finding and disconnecting roof downspouts, and development of a sewer service replacement program

1.8 Public Education and Notification

One of the NMCs states that the Town needs “public notification to ensure that the public receives adequate notification of CSO occurrences and CSO impacts.” Furthermore, in the Massachusetts Department of Environmental Protection (MassDEP) “Act Promoting Awareness of Sewage in Public Waters” issued in January

2021, MassDEP now requires electronic public notification every eight hours for an ongoing CSO discharge and within two hours after a CSO discharge ends.

Wright-Pierce recommends that the Town post this information on a website or through social media announcements to meet these requirements, and possibly incorporate automated messaging and alerts based on existing and telemetered regulator monitoring equipment and data supplied by ADS Environmental Services. A sample of a public notification is provided in **Appendix A**. The requirements of MassDEP’s electronic public notification goes into full effect on July 6, 2022.

1.9 Modified Implementation Plan

Based on Wright-Pierce’s review of available information provided by the Town since 2005, we recommend an updated and modified implementation schedule and costs. This modified implementation plan incorporates new information provided, details of our findings, and recommendations for next steps for the Town to reduce CSO discharges.

For purposes of this report, general cost estimates were developed. On average, the annual cost of these recommendations ranges from \$240,000 to \$330,000 over the next six years, for a total of approximately \$1.4 to \$2.0 million. These costs simply represent placeholder planning level costs based on the interim recommendations for the Town and can be better defined as work continues to meet the Administrative Order.

These costs are not all inclusive and also do not intend to indicate that the Town’s CSOs will be eliminated by only completing the recommendations and spending the amount of the current cost estimates provided.

These recommendations represent a financial and economic challenge for the Town based on its limited annual budget. This is why we recommend that the Town seek out additional methods of funding through grant and loan programs. **Section 4** provides more details on these funding possibilities.

A modified implementation schedule based on the modified implementation plan recommendations is provided in **Figure 1-1** on the subsequent page.

Figure 1-1 Modified Implementation Schedule

Typical Best Practices (Already Applied for Funding)	Typical Best Practices (Not Yet Applied for Funding)	FY22		FY23				FY24				FY25				FY26				FY27	
		2022		2023				2024				2025				2026					
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
GIS database development for storm and sewer systems			█	█																	
Hydraulic modeling			█	█	█	█	█														
Field investigations			█	█	█	█	█														
Sewer rate study																					
	Updated NMCs	█																			
	Avenue A regulator buffer line SOP	█	█																		
	Maintenance of WPCF influent pipes, screen, and channels	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	WPCF influent SOPs	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	Periodic cleaning of siphon inlet sumps				█	█	█	█									█	█			
	Post-construction inspection of double barrel siphon							█	█	█	█										
	Routine cleaning of catch basins		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	Monitoring and sampling CSO outfalls	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	Review/update sewer use regulations				█	█	█	█													
	Monitoring and enforcement of industrial loadings	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	Sewer service replacement program																		█	█	
	Public notification	█	█																		

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Section 2 Introduction

In December 2005, the Town of Montague developed a Long Term Control Plan (LTCP) for Combined Sewer Overflow (CSO) and Water Pollution Control Facility Plan, which included recommendations for reducing CSOs and complying with regulatory objectives. Since 2005, some of the LTCP's recommendations have been implemented while other recommendations were omitted or modified.

This LTCP Update includes information on measures the Town has implemented over the last 15 years to comply with the regulatory objectives for CSO abatement. The LTCP Update also details modifications to the Town's projects to help mitigate the two remaining CSOs in the Town's system in future years. It incorporates all new information provided by the Town, details of findings, recommendations for next steps, and an implementation schedule with planning level cost estimates, relative to mitigating CSO discharging from the two remaining CSOs within the Town.

There are five villages within the Town: Turners Falls, Millers Falls, Lake Pleasant, Montague Center, and Montague City. The focus of this LTCP Update is the village of Turners Falls, since the two remaining CSOs are located in that area.

Within the village of Turners Falls, the Town owns and operates one Wastewater Pollution Control Facility (WPCF), five wastewater pumping stations, three regulators with flow monitoring equipment installed, two CSOs, and one buffer line. As of 2005, approximately 90 percent of the Town's sewer system was separated. Since then, the Town has completed one additional sewer separation project on approximately 300 linear feet of combined sewer along Crocker Avenue between Avenue B and Marshall Street. Excess flow during rainstorms from the combined sewer systems can discharge through the Town's permitted CSO on Greenfield Road and/or the permitted CSO on I Street.

2.1 Purpose

The Town was issued an Administrative Order (CWA-AO-R01-FY20-31) from the U.S. Environmental Protection Agency (EPA) on June 11, 2020, addressing compliance with its National Pollutant Discharge Elimination System (NPDES) permit (No. MA0100137) to meet numeric effluent limitations and minimize CSOs.

The Administrative Order specifically brings attention to "excursions of the water quality criterion for E. coli bacteria in the Connecticut River" from untreated combined sewage that was discharged from CSO outfalls between 2018 and 2019. In 2005, the Town developed a LTCP with CDM Smith. Since 2005, the Town has implemented some of the LTCP's recommendations while other recommendations were omitted or modified. This LTCP Update is part of meeting the requirements of the Administrative Order, specifically item IV.3. The Town also received an 18-month extension to the deadline stated in the Administrative Order for the LTCP Update. Thus, this LTCP Update is an interim update prior to the final update due by June 30, 2023.

2.1.1 2005 Long Term Control Plan

In 2005, the Town developed the LTCP for CSO and WPCF Plan. As part of that LTCP and prior to any improvement projects were completed, a 1-year continuous model simulation was run that estimated that the CSO on Greenfield Road would have approximately 31 overflows annually, resulting in 3.48 million gallons (MG) per year of volume discharged, and the CSO on I Street would have approximately 26 overflows annually, resulting in 3.56 MG per year of volume discharged. Since 2005, the Town recorded an average of 24 overflows and 0.76 MG per year at the

Greenfield Road regulator, 5 overflows and 0.35 MG per year at the Avenue A regulator, and 6 overflows and 0.06 MG per year at the 7th & L Streets regulator. The annual breakdown is detailed in **Table 1** later in this section.

The LTCP’s recommendations for reducing the frequency and magnitude of annual overflows included adding off-line storage, improving the conveyance system, improving the WPCF, and removing inflow from roof leaders and service connections. The LTCP estimated that the Town would achieve a 96 percent reduction in CSO discharges by implementing these recommendations. This did not assume that any of the CSOs will be closed. In 2011, after some of these recommendations were implemented, the Town achieved an 86 percent reduction in CSO discharges. Based on the data received since 2005, Wright-Pierce estimates a 96 percent average overall reduction in CSO discharge volume. These details are provided in **Table 1** later in this section.

2.1.2 Regulatory Requirements

Since the original LTCP was written in 2005, there have been several updated policies and regulations that apply to the Town regarding the CSOs. The following subsections outline the original policies and regulations and any updates that apply.

2.1.2.1 Administrative Order

The Town was issued an Administrative Order (CWA-AO-R01-FY20-31) from the EPA on June 11, 2020, addressing compliance with its NPDES permit (No. MA0100137) to meet numeric effluent limitations and minimize CSOs.

This LTCP Update is part of meeting the requirements of the Administrative Order, specifically item IV.3, which states, “By December 31, 2021, the Town shall submit to EPA and MassDEP an updated CSO LTCP that complies with EPA’s Combined Sewer Overflow Control Policy (59 Fed. Reg. 18688, April 19, 1994), EPA’s guidance entitled Combined Sewer Overflows-Guidance for Financial Capability Assessment and Schedule Development (EPA832-B-97-004, March 1997), and including the elements described in Attachment 2 of this Order.”

As of October 1, 2021, the Town received an 18-month deadline extension from December 31, 2021 to June 30, 2023 to submit the LTCP Update along with other requirements of the Administrative Order. Thus, this LTCP Update is an interim update prior to the final update due by June 30, 2023.

2.1.2.2 National Pollutant Discharge Elimination System Permit

The Town has two CSOs authorized to discharge combined stormwater and wastewater to the Connecticut River during wet weather under its NPDES permit. The two CSO outfalls are located on Greenfield Road, near the WPCF, and on I Street, adjacent to the Power Canal. Both are subject to the rules and regulations outlined in NPDES Permit No. MA0100137. Discharges of wastewater from any other point sources, including sanitary sewer overflows (SSOs) from any portion of the collection system owned and operated by the Town are not authorized by the NPDES permit and shall be reported within 24 hours to the EPA and MassDEP.

As CSO-related projects are completed, the Town is required to submit updated documentation on the implementation of the Nine Minimum Controls (NMCs) outlined in **Section 2.2.2.3**. This permit also requires monthly inspections of each CSO structure/regulator, of which the results are to be recorded and maintained for at least three years. All discharges must also be recorded and quantified, and records must be maintained for at least six years.

2.1.2.3 Nine Minimum Controls

The EPA CSO Control Policy requires that the Nine Minimum Controls (NMCs) be implemented by the Town in accordance with its NPDES permit. The NMCs are defined in the CSO Control Policy as “technology-based controls that can be used to address CSO problems without extensive engineering studies or significant costs prior to the implementation of long-term control measures.” The nine minimum controls include:

1. Proper operation and regular maintenance programs for the sewer system and CSO outfalls.

The Town is implementing this control through a regular cleaning program of the sewer system and visually inspecting the CSO regulators on a monthly basis and documenting observations. As of Fall 2021, the Town began inspection of the CSO outfalls.

2. Maximum use of the collection system for storage.

The Town has implemented this control by raising the weir levels at all CSO regulators and increasing downstream pipe sizes from the Avenue A and 7th & L Street regulators to maximize the system’s use and capacity for storage. Additionally, the regular sewer system cleaning program also helps to meet this control measure, as it decreases any possible obstructions to flow.

Also, the off-line storage pipe on Avenue A, which consists of a weir and a 750-foot, 48-inch reinforced concrete pipe (RCP) buffer line can store approximately 70,500 gallons of combined flow. The buffer line does not have an automated valve to control it, but there is a manually operated slide gate in a manhole at the downstream end of the buffer line.

3. Review and modification of pretreatment requirements to ensure that CSO impacts are minimized.

The Town has two significant industrial users (SIUs): Lightlife Foods and Great Falls Aquaculture. In 2020, a review was conducted of wastewater discharge permits and a feasibility study of preventing batch discharges during wet weather events. However, both SIUs are continually operating and have no ability to hold back or store their discharge during wet weather. Lightlife installed a pretreatment system, and as of December 2020, Great Falls was in the process of building a digester for its effluent.

4. Maximization of flow to the POTW for treatment.

The Town’s regular collection system cleaning program helps to maximize pipe capacities by preventing debris and flow obstructions.

Also, the off-line storage pipe on Avenue A, can store approximately 70,500 gallons of combined flow and help optimize flow to the WPCF. The buffer line does not have an automated valve to control it, but there is a manually operated slide gate in a manhole at the downstream end of the buffer line.

The Town’s WPCF is designed to treat an average daily flow of 1.83 million gallons per day (MGD). With the assistance of Wright-Pierce, the Town recently completed a hydraulic model analysis of the WPCF’s influent flow and upstream interceptor pipe to evaluate capacity. Based on the model results, the WPCF’s influent pipe can convey an instantaneous peak flow of approximately 4.07 MGD before a CSO occurs at the

Greenfield Road CSO assuming that the pipes have full capacity and are properly maintained. In Fall 2021, the WPCF staff implemented the following standard operating procedure (SOP) to minimize the quantity and volume of discharges through the Greenfield Road CSO:

- Weekly monitoring of sediment accumulation in the influent pipes and channels;
- Daily monitoring of the influent screen to ensure proper operation of the equipment; and
- Cleaning of the influent pipes and channels as determined by the operators through weekly monitoring.

The performance and capacity of the secondary treatment process at the WPCF is directly correlated to the operating characteristics of the biological process. The WPCF is following recommended Operational Guidelines as of Fall 2021 to optimize the secondary treatment process at the WPCF. Flows in excess of the secondary treatment’s capacity can be diverted after primary clarification to the Wet Weather Chlorine Contact Tank (WWCCT), constructed in 2007. The secondary treatment system at the WPCF has a peak day capacity between 2.4 MGD and 3.5 MGD; the actual flow rate in which bypassing will occur is a function of several operations parameters of the secondary treatment system.

5. Elimination of CSOs during dry weather.

The Town has been recommended by Wright-Pierce to implement SOPs, including visual inspections, to consistently observe CSO dry weather conditions during various times each day and on different weekdays. A formal procedure for observing, sampling, and/or testing during dry weather conditions has not been implemented to date. More information is provided in Section 4.

6. Control of solid and floatable materials in CSOs.

The Town has considered installing trash hoods on problematic catch basins but has not yet moved forward with this work.

7. Pollution prevention programs to reduce contaminants on CSOs.

The Town has a couple control measures in place for reduction of pollutants and contaminants entering the combined system. These include a regular street cleaning program with the Department of Public Work’s (DPW) street sweepers, trash receptacles in recreational areas and on streets with heavy pedestrian traffic such as Avenue A, and a town-wide curbside solid waste and recycling collection program.

8. Public notification to ensure that the public receives adequate notification of CSO occurrences and CSO impacts.

The Town has signs posted at the CSO outfalls that state, “Town of Montague Wet Weather Sewer Discharge Outfall”. The Town does not currently have any public notification system for when CSO discharges occur.

9. Monitoring to effectively characterize CSO impacts and the efficacy of CSO controls.

The Town actively monitors the CSO regulators and records the date and time of each overflow event based on the flow meter sensors installed in the regulators. In addition, the Town measures and records total daily rainfall using a localized rain gauge.

2.1.2.4 Massachusetts Policy for Abatement of Combined Sewer Overflows

The Town is subject to the Massachusetts Department of Environmental Protection (MassDEP) Water Quality Standards (314 CMR 4.00) dated December 2013. This requires the Town to develop water quality standards applicable to the classification of its receiving water body. In the Town’s case, the Connecticut River is designated as a Class B water body. In the 2005 LTCP, this is described as meaning that “CSOs may remain but must be compatible with water quality goals of the receiving water. The water body must meet uses more than 95 percent of the time. DEP considers four or fewer overflow events per year as satisfying the 95 percent time period. The intent of this designation is to allow on average up to four untreated discharges per year.” The number of annual CSOs is detailed in **Table 2-1** on the following pages. **Town is not currently meeting this standard.**

In January 2021, the Governor of Massachusetts signed into law “An Act Promoting Awareness of Sewage Pollution in Public Waters.” This act requires that CSO permittees must issue a public advisory when there is one or more discharge(s) from the permittee’s outfall every eight hours for an ongoing discharge and within two hours of when a discharge ceases or is projected to cease. A combined advisory message may be sent when the occurrence involves more than one of the permittee’s outfalls discharging into the same body of water. The public advisory must describe the following items, to the extent a permittee has the information available, in plain language:

1. The outfall’s location
2. The approximate time, date, and duration of the discharge
3. The estimated volume of the outfall discharge based on the average discharge from data reported to the department for the prior three calendar years
4. The waters and land areas affected or expected to be affected by the discharge
5. The identity of the outfall permittee
6. The precautionary measures for the public to avoid health risks from contact with effluent
7. Any other information required by the department

In addition, the public advisory must include a statement that the outfall discharge consists, or likely consists, of untreated sewage and waste. The advisory must be issued to the department of public health, the municipal board of health, the two largest news organizations that report on news in communities near the outfall, and all individuals subscribed to receive text or email notifications of the permittee’s discharges. This law goes into full effect 540 days after the passage of this act, which is on July 6, 2022.

2.2 Summary of Combined Sewer Overflow Outfalls and Regulators

The Town has two permitted CSOs activated by three regulators. The two CSO outfalls are located on Greenfield Road, near the WPCF, and I Street, adjacent to the Power Canal. The Greenfield Road CSO is connected to the Greenfield Road Regulator, while the I Street CSO is connected to the regulator on Avenue A as well as a regulator at the intersection of 7th & L Streets.

Flow monitoring equipment is installed at all three of the regulators, which consists of ADS Environmental Services Echo and Triton+ meters. The Greenfield Road regulator meter includes a depth and velocity sensor that calculates flow in the active sewer pipe. The Avenue A regulator meter includes a depth sensor only that calculates flow in the active sewer pipe. The 7th & L Streets regulator meter includes a depth and velocity sensor that calculates flow in the active sewer pipe. At the Avenue A and 7th & L Streets regulators, depth sensor floats are also installed on the weir to measure the depth of flow in overflow conditions.

2.2.1 Annual Reporting

The Town submits annual CSO reports to the EPA in accordance with Part I.B.5.c. of its NPDES permit. The report details the locations of the Town's two permitted CSOs, as well as inspection and overflow frequency of the three regulators. A summary of this information is provided in **Table 2-1**.

Table 2-1 Breakdown of CSOs by Year Since 2005

Year	Greenfield Road		Avenue A		7th & L Streets		Combined Total
	Number of Overflows	Volume (MG)	Number of Overflows	Volume (MG)	Number of Overflows	Volume (MG)	Volume (MG)
2005	31	3.48	21	2.33	10	1.23	7.04
2006	42	.3	.4	.3	.4	.3	.3
2007	-	.3	.4	.3	.4	.3	.3
2008	44	.3	.4	.3	.4	.3	.3
2009	25	.3	0 ⁶	.3	0 ⁶	.3	.3
2010	13	0.26	2	0.20	3	0.04	0.50
2011	17	0.47	3	0.10	1	0.00	0.57
2012	9	0.08	1	0.17	1	0.01	0.26
2013	32	1.78	3	0.55	8	0.10	2.44
2014	20	0.89	4	0.68	5	0.05	1.62
2015	9	1.02	2	0.27	9	0.09	1.39
2016	26	.3	4	.3	4	.3	.3
2017	33	. ⁵	8	. ⁵	0	. ⁵	2.36 ⁵
2018	43	2.55	12	1.09	14	0.11	3.76

Year	Greenfield Road		Avenue A		7th & L Streets		Combined Total
	Number of Overflows	Volume (MG)	Number of Overflows	Volume (MG)	Number of Overflows	Volume (MG)	Volume (MG)
2019	19	0.21	5	0.11	7	0.05	0.37
2020	10	0.19	2	0.05	5	0.06	0.3
2021 ¹	15	0.11	8	0.29	18	0.11	0.52
Total²	357	7.57	54	3.51	75	0.63	14.08
Annual Average	24	0.76	5	0.35	6	0.06	1.28
Reduction in Annual Average from 2005 data	23%	78%	79%	85%	38%	95%	-
Reduction in 2020 from 2005 data	68%	95%	90%	98%	50%	95%	-

Note:

1. 2021 data is only February through October.
2. Total does not include 2005 data.
3. No volumes reported.
4. Monitoring at all 3 regulators by ADS Environmental Services began in September 2009. Up to that time only the Greenfield Road regulator had event volume estimates, thus the number of overflows at the Avenue A and 7th & L Streets regulators is not known.
5. Only combined total reported in 2017.
6. 2009 data for Avenue A and 7th & L Streets is only September through December.

Since 2009, the Town has had continuous flow monitoring in place at all three of its CSO regulators conducted by ADS Environmental Services (ADS). This monitoring is accomplished using a pressure sensor and float to acquire velocity and depth measurements. Data is collected via radio telemetry and is compiled into monthly reports by ADS.

2.2.2 Observations

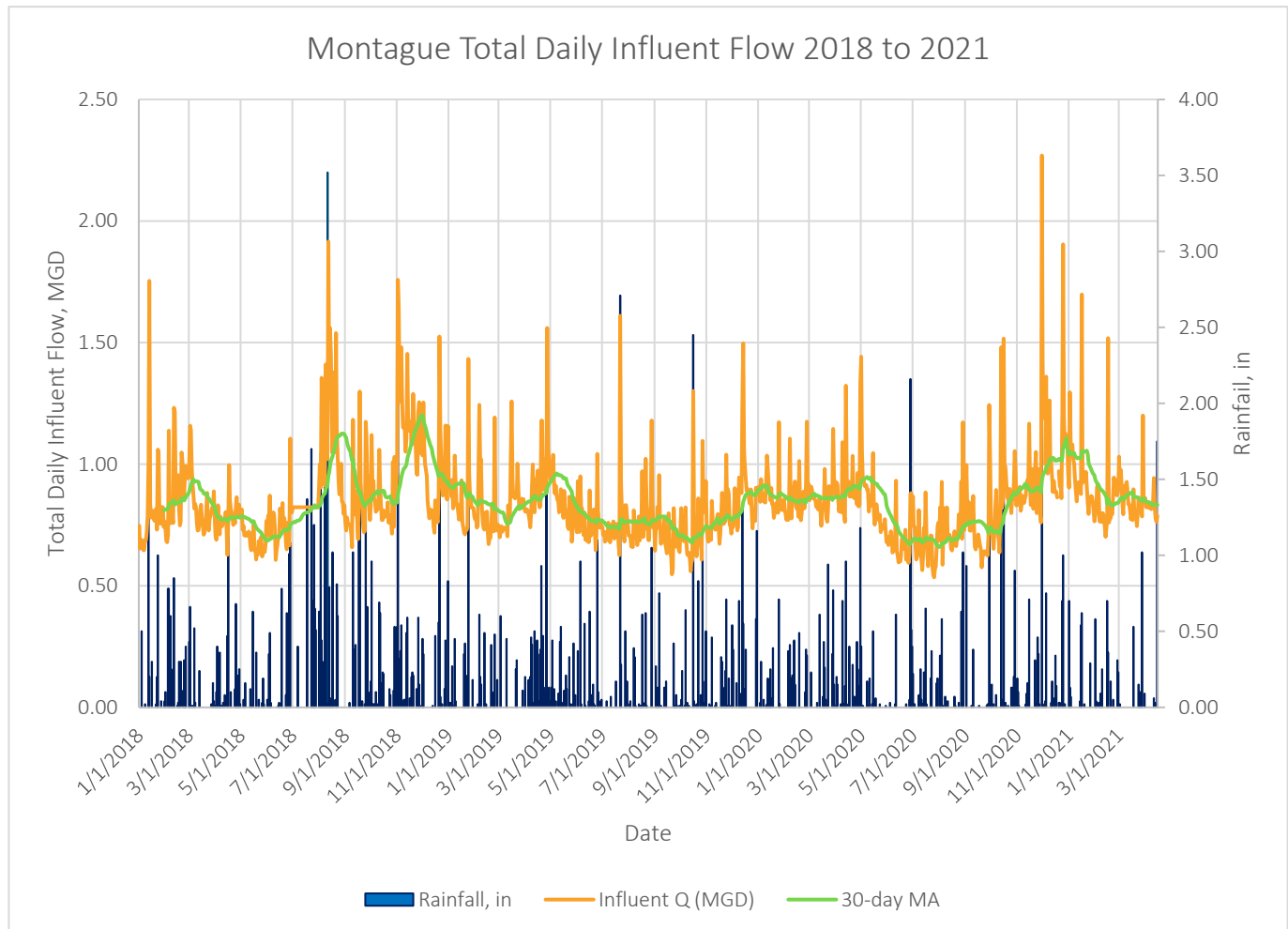
Staff from the WPCF, DPW, and ADS regularly go out to inspect the CSO regulators and flow monitoring equipment. ADS inspects its equipment approximately every eight weeks, and the Town staff inspect the regulators during pump station rounds and during occasional rain events. While in the field, the Town staff observe the structural integrity of the regulator as well as its operational status to ensure that water is only going over the weirs when there is wet weather. According to all of the Town’s annual reports since 2005, the conditions of the facilities have been good, and they have been operating satisfactorily during each inspection.

2.2.3 Data Review

As part of this LTCP Update, Wright-Pierce received documentation of the Town’s WPCF influent flows, water use data, and pump station runtimes. The following sections summarize the information that came out of the review of the data provided.

2.2.3.1 Influent Flow

In reviewing influent flow data received from the Town for January 2018 through April 2021, Wright-Pierce noted that there is an average daily flow of 0.84 MGD entering Montague’s WPCF. Trends showed more influent flow than usual entering the WPCF after large rain events. The maximum amount of average daily flow seen entering the treatment plant was approximately 2.27 MGD after a 3.35-inch rain event on November 30, 2020 with a peak hourly flow of 4.85 MGD. CSO discharges occurred at all three regulators during this rain event. **Figure 2-1** shows the total monthly flow influent data to the WPCF as compared to the rainfall from 2018 through 2021.

Figure 2-1 Total Daily WPCF Influent Flow as Compared to Rainfall

2.2.3.2 Water Use

In reviewing water use data from the village of Turners Falls received from the Town for 2016 through 2020, Wright-Pierce noted that there is an average annual usage of 0.53 MGD. Trends showed generally consistent water usage each year. The maximum water usage was approximately 0.55 MGD in 2017. Comparatively, the influent average daily flow at the WPCF was 0.84 MGD from 2018-2021, and the highest influent average daily flow at the WPCF was 2.27 MGD in 2020. The large difference in flow measured at the WPCF over this timeframe compared to the consistent water usage indicates significant infiltration and inflow (I/I) influence.

2.2.3.3 Pump Stations

In reviewing the pump station (PS) runtime data provided by the Town for January 2017 through September 2021, Wright-Pierce found that an average of 4,700 gallons per day is being pumped through all five of the pump stations within the village of Turners Falls on an annual basis. The flow measured through these pump stations is not inclusive of all flows to the WPCF and it is only approximately 0.56 percent of the average influent flow at the WPCF.

Trends typically showed longer runtimes or more pump ejections following rain events, which means more extraneous water than usual was flowing through the pump stations. The five stations analyzed for this section were the First Street PS, the Poplar Street PS, the Tech School PS, the J Street PS, and the G Street PS. **Figures 2-2 through 2-6** show the total volume of water pumped through each of the five pump stations as compared to the rainfall from January 2017 through September 2021.

Figure 2-2 First Street Pump Station Volume Pumped as Compared to Rainfall

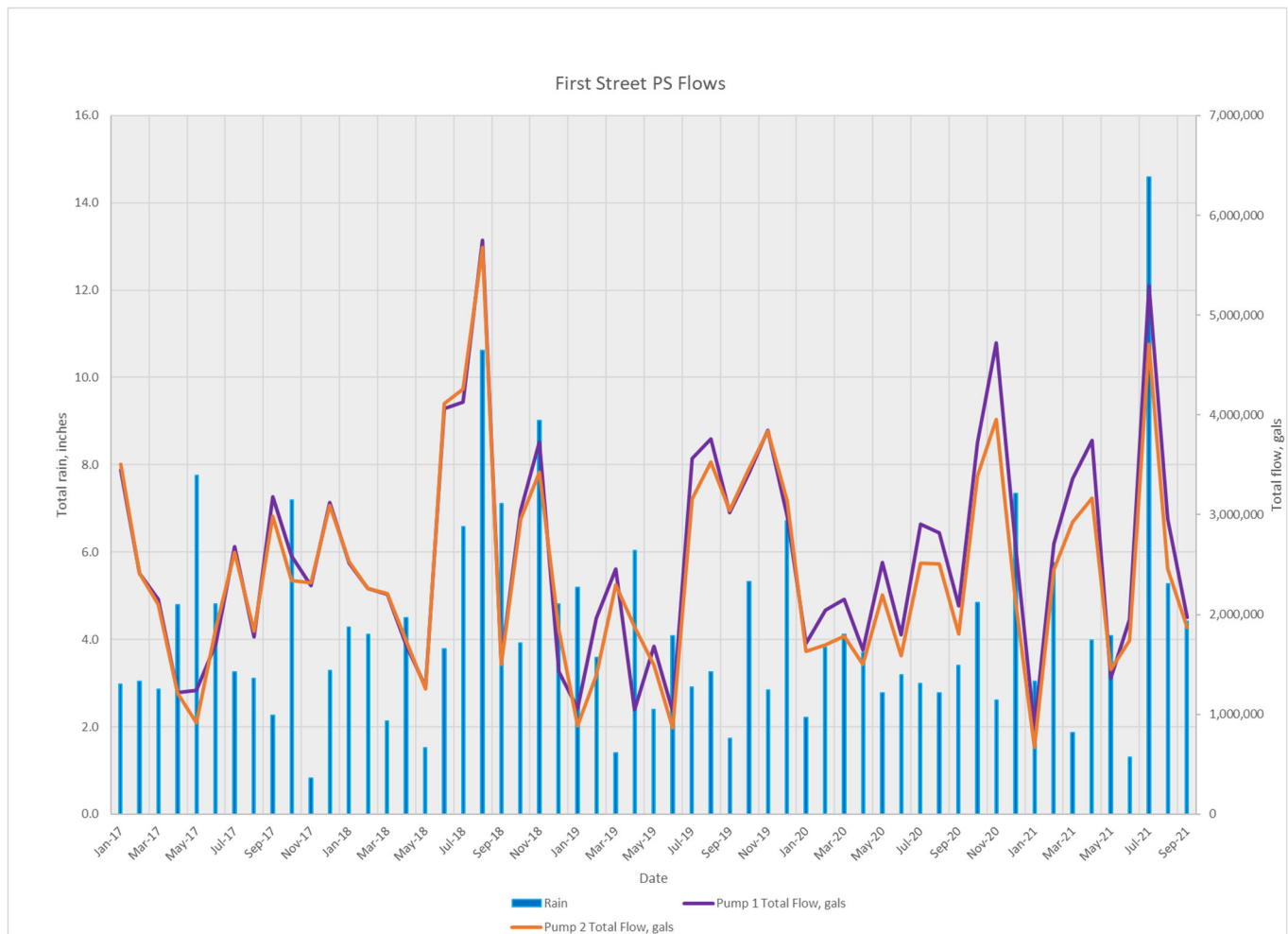


Figure 2-3 Poplar Street Pump Station Volume Pumped as Compared to Rainfall

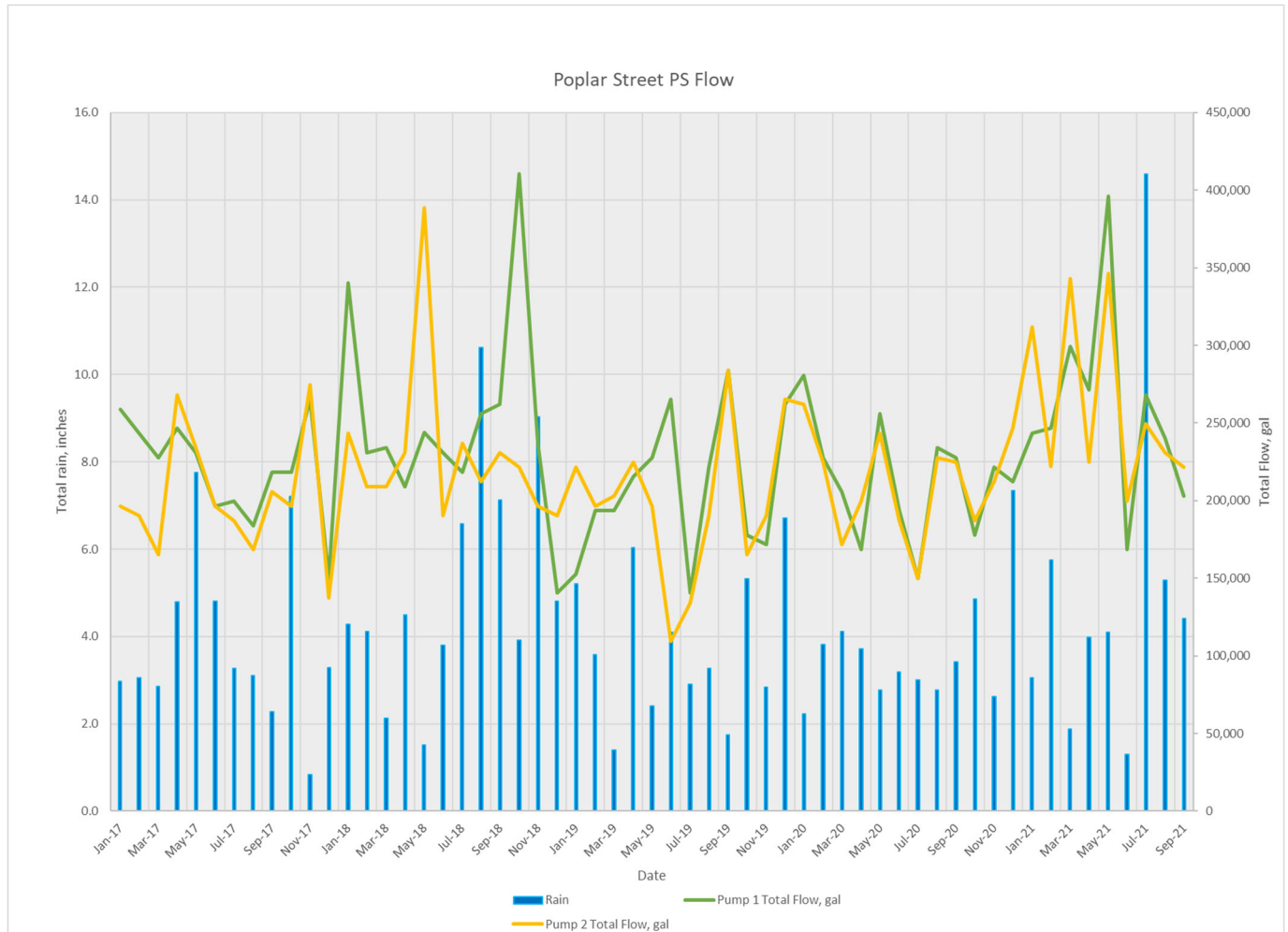


Figure 2-4 Tech School Pump Station Volume Pumped as Compared to Rainfall

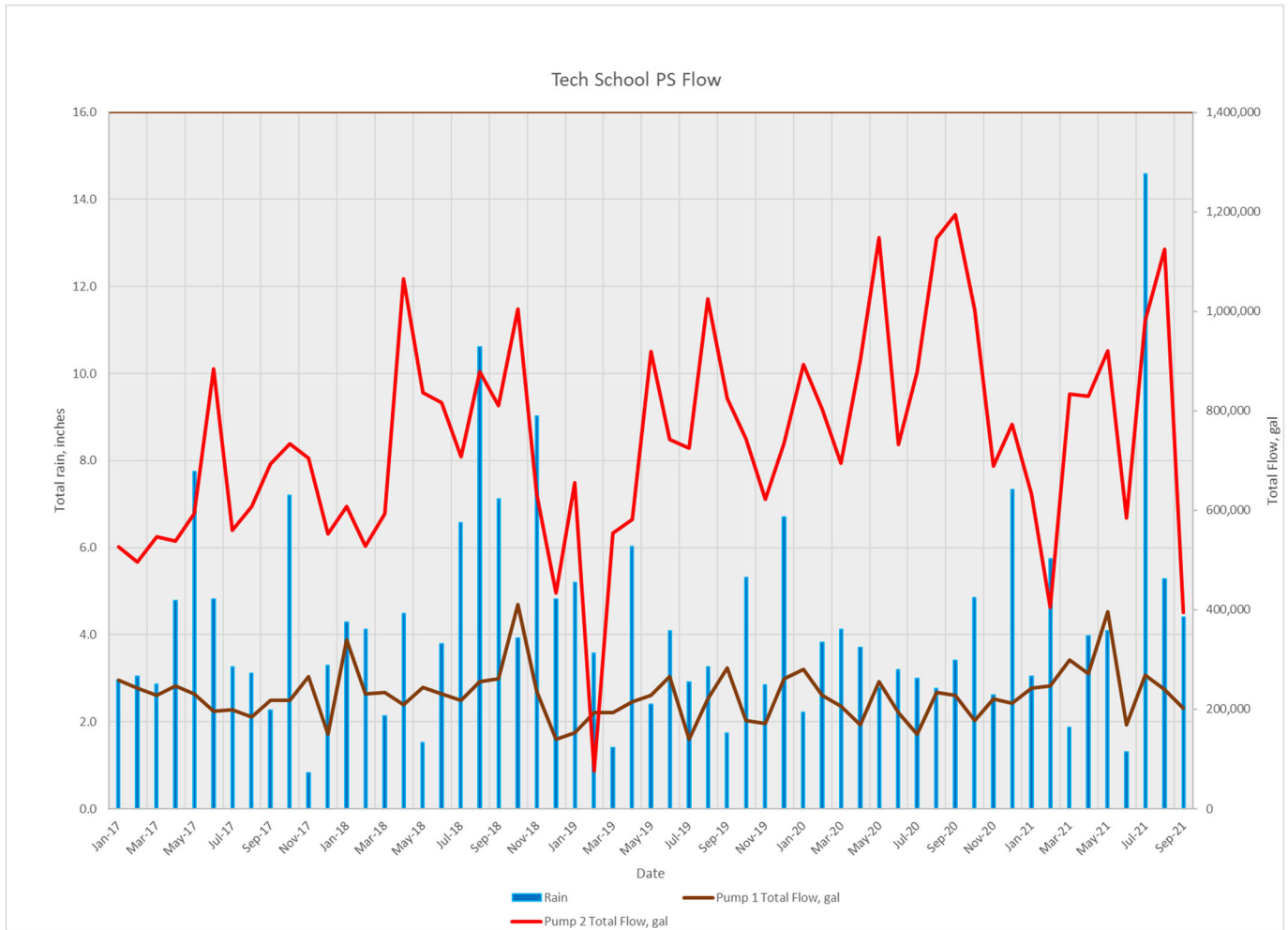


Figure 2-5 J Street Pump Station Volume Pumped as Compared to Rainfall

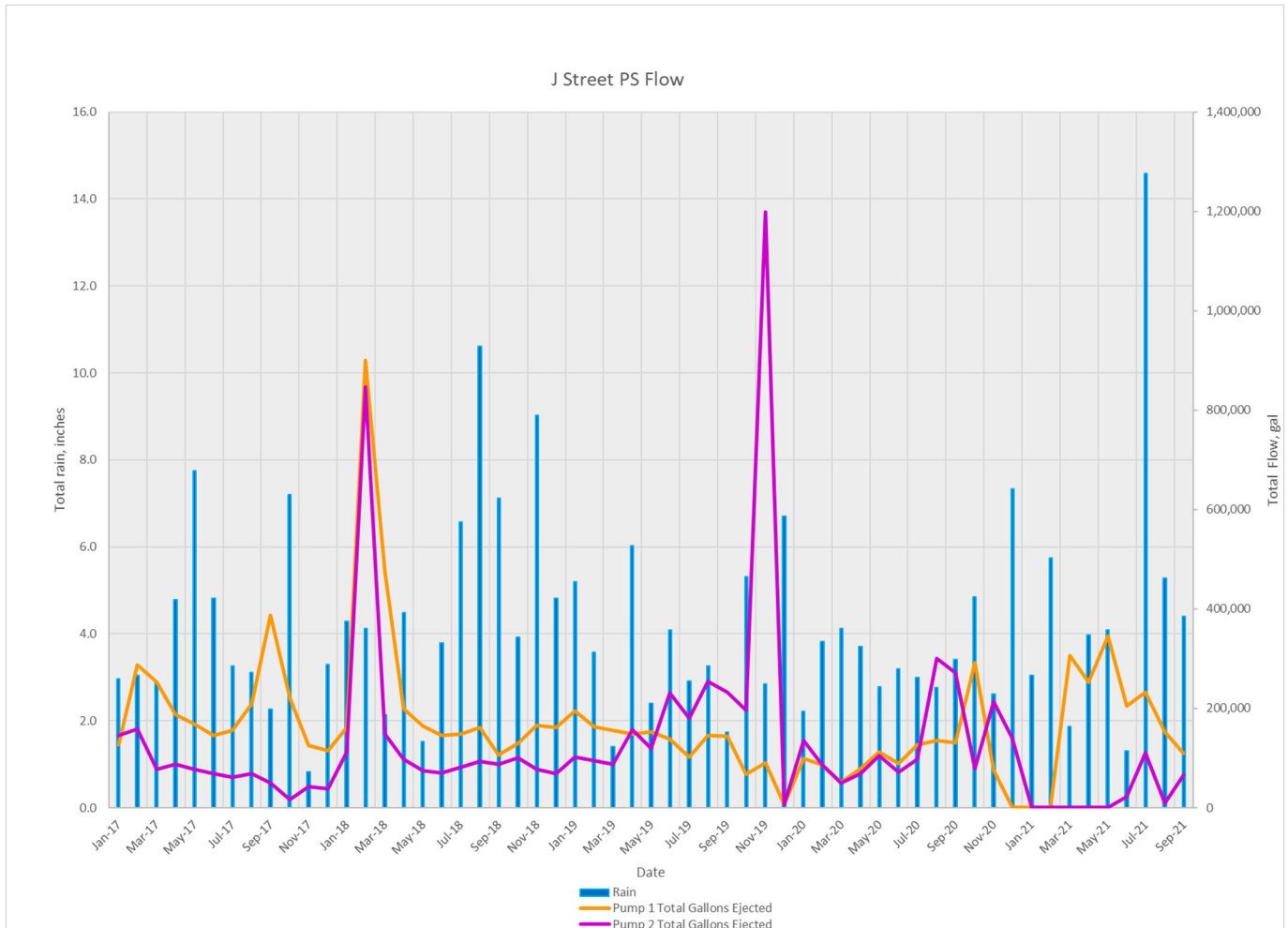
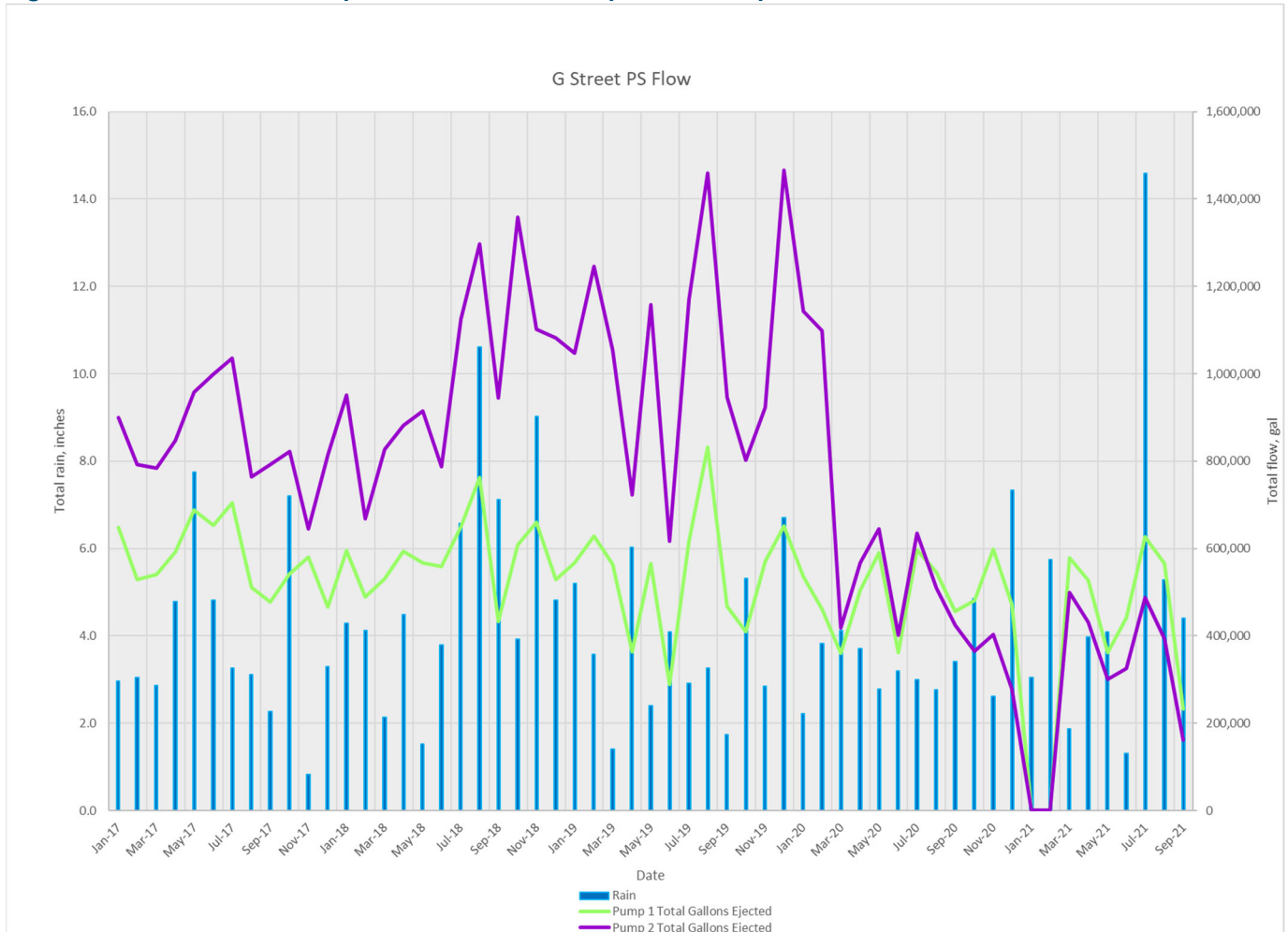


Figure 2-6 G Street Pump Station Volume Pumped as Compared to Rainfall



3

Section 3 Completed and Planned Projects

Wright-Pierce reviewed available information provided by the Town of Montague since 2005 to understand and identify the work completed by the Town to date and future work planned to address the two remaining combined sewer overflows (CSOs). This section summarizes our review and findings from this information.

3.1 Combined Sewer Overflow Improvements

In the 2005 Long Term Control Plan (LTCP), the following implementation plan was recommended to abate the Town's CSOs:

1. Design and construct an off-line CSO storage facility at Avenue A (buffer line)
2. Raise weir levels at all three regulators and increase downstream pipe size
3. Replace approximately 750 linear feet of 15-inch sewer pipe with 21-inch sewer pipe on 7th Street
4. Design and construct a Wastewater Pollution Control Facility (WPCF) CSO preliminary treatment, storage, and disinfection facility
5. Conduct smoke/dye tests of downspouts at specific establishments in the village of Turners Falls to determine the quantity of the extraneous flows
6. Implement a sewer service replacement program

Work began on these recommendations under the March 2006 Avenue A and Seventh Street Sewer Pipeline Improvements Contract No. 2006-1 (CWSRF 2788) and the June 2007 WPCF CSO Improvements Contract No. 2007-1 (CWSRF 2788) construction contracts prepared by CDM Smith, along with other recommendations in the LTCP specific to the WPCF. Then in 2006, the overall workplan was revised due to a nearly doubling of bid prices received on the first phase of work. Since 2007, work was completed on the following recommendations that were specific to the CSOs:

1. Design and construct an off-line CSO storage facility at Avenue A

This included a new off-line storage pipe on Avenue A, which consists of a weir and a 750-foot, 48-inch reinforced concrete pipe (RCP) buffer line. The storage pipe was constructed to store approximately 70,500 gallons of combined flow. The buffer line does not have an automated valve to control it, but there is a manually operated slide gate in a manhole at the downstream end of the buffer line.

2. Raise weir levels at all three regulators and increase downstream pipe size.

This included raising the weir level 18 inches at the Greenfield Road regulator, along with raising the weir level approximately 18 inches at the Avenue A regulator and approximately 14 inches at the 7th Street regulator. Work also included increasing the downstream pipe sizes at the Avenue A regulator from 12-inch RCP to 21" polyvinyl chloride (PVC) pipe and increasing the downstream pipe sizes at the 7th Street regulator from 5" RCP to 21" PVC pipe. The downstream pipe at the Greenfield Road regulator was not increased.

3. Replace approximately 750 linear feet of 15-inch sewer pipe with 21-inch sewer pipe on 7th Street.

This included replacing the existing 15-inch RCP with 21-inch PVC pipe.

4. Design and construct a WPCF CSO preliminary treatment, storage, and disinfection facility.

In 2007, a Wet Weather Chlorine Contact Tank (WWCCT) was installed at the WPCF to allow for some primary effluent flow to be bypassed from secondary treatment to maximize the amount of influent that can be provided disinfection with adequate contact time before discharging. The Town did not construct a preliminary treatment or storage facility for CSO / wet weather flow conditions.

The performance and capacity of the secondary treatment process at the WPCF is directly correlated to the operating characteristics of the biological process. The WPCF is following recommended Operational Guidelines as of Fall 2021 to optimize the secondary treatment process at the WPCF. Flows in excess of the secondary treatment’s capacity can be diverted after primary clarification to the WWCCT. The secondary treatment system at the WPCF has a peak day capacity between 2.4 million gallons per day (MGD) and 3.5 MGD; the actual flow rate in which bypassing will occur is a function of several operations parameters of the secondary treatment system.

For more details on the WWCT operation and function, refer to the technical memorandum prepared by Wright-Pierce (“Montague, MA WPCF Effluent Limit Compliance Plan”) to the Town dated September 24, 2021.

However, to date, the following recommendations have not yet been completed:

- 5. Conduct smoke/dye tests of downspouts at specific establishments in the village of Turners Falls to determine the quantity of the extraneous flows.
- 6. Implement a sewer service replacement program.

After improvements 1 through 4 were completed, CDM Smith performed post-construction flow monitoring in 2010. In a January 6, 2011 memorandum from the Massachusetts Department of Environmental Protection (MassDEP) to the Town, MassDEP summarized the results of post-construction flow monitoring data and compared it to pre-construction data from 2005. It revealed that the volume of CSOs and the number of CSO events at each of the three regulators decreased significantly. A summary of this information is provided in **Table 3-1** on the following page.

Table 3-2 on the following page also provides a comparison of the post-construction from 2010 and the current 2021 data. Although the number of discharges increased, the total volume from all the regulators did not significantly change, which indicates that the improvements made are still aiding in the abatement of CSOs in the Town.

Table 3-1 2011 Comparison of CSO Volumes and Total Events from 2005 to 2010

Regulator	Pre-construction 2005		Post-construction 2010	
	Number of Overflows	Volume (MG)	Number of Overflows	Volume (MG)
Greenfield Road	31	3.48	9	0.24
Avenue A	21	2.33	2	0.20
7 th & L Streets	10	1.23	3	0.04
Totals	62	7.04	14	0.48
Reduction	-	-	77%	93%

Note:

1. Data from January 6, 2011 memorandum from MassDEP to the Town and 2005 LTCP by CDM Smith.

Table 3-2 2021 Comparison of CSO Volumes and Total Events from 2010 to 2021

Regulator	Post-construction 2010		2021 ¹	
	Number of Overflows	Volume (MG)	Number of Overflows	Volume (MG)
Greenfield Road	9	0.24	15	0.11
Avenue A	2	0.20	8	0.29
7 th & L Streets	3	0.04	18	0.11
Totals	14	0.48	41	0.52

Note:

1. Data from Town's annual CSO reports to the EPA.

3.2 Sewer and Stormwater Improvements and Infiltration/Inflow Abatement

In the village of Turners Falls, the Town separated one combined sewer segment on Crocker Avenue since 2016 by disconnecting catch basins from the sewer and re-connecting them to the storm drain. Between 2014 and 2016, the Town also completed approximately 6,000 LF of cured-in-place pipe (CIPP) lining of various sewers throughout the village of Turners Falls in an effort to eliminate infiltration and inflow (I/I).

The CIPP lining work areas included:

- One sewer segment on Third Street
- Two sewer segments on Ninth Street
- One sewer segment upstream of the I Street CSO outfall, also referred to as the “brick drain”
- Multiple sewer segments between the “brick drain” and the CIPP lined segments on Ninth Street
- Multiple sewer segments on Turnpike Road
- Three sewer segments on Industrial Boulevard
- Multiple sewer segments on Montague City Road

In July and August 2016, CDM Smith and National Water Main Cleaning Company (NWMCC) cleaned and inspected the 250-LF, 5-foot diameter, elliptical reinforced concrete pipe (RCP) double barrel siphon beneath the Power Canal and upstream of the I Street CSO. This work was completed as part of the Turners Falls Main Drain Rehabilitation and Siphon Cleaning Project. Overall, it was found that the southern barrel was in worse condition, due to structural defects, such as surface damage, and infiltration defects, and was taken offline at that time. The G Street pump station force main is also encased in the invert of the southern barrel.

Surface damage and infiltration defects were also found in the northern barrel and significant amounts of debris (approximately 40 cubic yards of sand, bricks, and concrete) in each barrel. CDM Smith recommended a periodic cleaning schedule for the four siphon inlet sumps to prevent debris from accumulating. The Town performs annual cleaning of the inlet sumps as part of its agreement with Eversource/FirstLight.

CDM Smith also recommended rehabilitation of the southern barrel to address the structural and infiltration defects. The Town followed up by repairing the leaks found in the southern siphon barrel with chemical grout and cementitious patches and applied an abrasion resistant cementitious coating to a portion of the existing concrete encasement for the G Street pump station force main in the southern barrel. There were no post-rehabilitation evaluation results from these efforts.

3.3 Operations and Maintenance Programs

Since 2016 and the CIPP lining work listed in **Subsection 3.2**, the Town has considered prioritizing the CIPP lining of sewers made of asbestos cement, since these seem to be the most defective but have not proceeded with this work. The Town purchased a vactor cleaning truck in 2005 and since 2019, has been conducting mainline sewer cleaning one day per week between the months of March and September and on average cleans approximately 30,000 linear feet per year. The Town’s cleaning program is important in maintaining the consistent operation of the collection system and preventing blockages from forming, which could lead to potential sanitary sewer overflows.

This year, the Town also authorized the purchase of a CCTV pipe inspection camera truck. A CCTV camera truck will allow the Town to perform CCTV pipe inspections and gather condition assessment data on their collection system. This can aid in developing or refining the cleaning program and identify assets that require rehabilitation.

Since 2020, RCAP Solutions has been assisting the Town in asset inventorying and global positioning system (GPS) locating of sewer and stormwater assets to help build the Town's geographic information system (GIS) database. In 2021, RCAP Solutions collected location data for sewer manholes, provided this data to the Town in Esri ArcGIS formats, and trained the Town in how to update and add to this information as additional data is collected.

As of November 2021, RCAP Solutions is beginning similar work on the inventorying and locating of stormwater assets. Wright-Pierce plans to assist the Town in collecting data as part of the MassDEP and Massachusetts Clean Water Trust Asset Management Program Grant.

Establishing a single GIS database of the Town's sewer and stormwater assets is critical to understanding the Town's system comprehensively and for use in other projects, such as pipe, manhole, and catch basin inspections, flow monitoring, and hydraulic modeling.

4

Section 4 Recommended Projects and Modified Implementation Plan

Based on Wright-Pierce's review of available information provided by the Town of Montague since 2005 and presented in the previous sections, we have developed a modified implementation plan that we are recommending to the Town. This modified implementation plan incorporates new information provided, details of our findings, and recommendations for next steps for the Town to mitigate combined sewer overflow (CSO) discharges as part of its CSO Long Term Control Plan (LTCP). At this time, we do not believe that these CSOs can be completely eliminated.

4.1 Identified Projects

The projects detailed in the subsequent subsections have already been identified by the Town and Wright-Pierce, or in the 2005 LTCP as projects that can address CSO mitigation. Many of these are already funded by sources described in **Subsection 4.4.2.2**.

4.1.1 Geographic Information System

As stated in **Subsection 3.3**, RCAP Solutions will be assisting the Town in asset inventoring and Global Positioning System (GPS) locating of stormwater assets to help the ongoing efforts to build the Town's Geographic Information System (GIS) database. Wright-Pierce will also assist in these ongoing data collection efforts, by obtaining invert elevations and confirming pipe diameters for sewer assets, especially as it relates to the development of the hydraulic model as described in **Subsection 4.1.2**.

Establishing a single GIS database of the Town's sewer and stormwater assets is critical to understanding the Town's system comprehensively and for use in other projects, such as pipe, manhole, and catch basin inspections, flow monitoring, and hydraulic modeling.

4.1.2 Hydraulic Modeling

As part of the requirements of the Administrative Order, Wright-Pierce will be completing a separate task order to expand on the Town's existing sanitary hydraulic model. This update of the model will incorporate information gathered during the field investigations described in **Subsection 4.1.3**.

The model update task order will include calibrations using post-construction flow monitoring data, extending the physical model limits, determining the storage capacity and potential flow restrictions of the system based on design storms, the flow thresholds at the regulators, and assisting in the determination of the operation of the Avenue A buffer line, and evaluating alternatives based on model outputs. One of these alternatives is upsizing the influent Wastewater Pollution Control Facility (WPCF) line along Greenfield Road to increase capacity and mitigate the CSO discharges at this outfall. This is necessary to further evaluate the capacity of the interceptor upstream of the WPCF and understand if and how CSO abatement could be achieved by any of these alternatives.

4.1.3 Field Investigations

As part of the requirements of the Administrative Order, Wright-Pierce will also be completing a separate task order to gather data on existing conditions to confirm or address current infiltration and inflow (I/I) mitigation effectiveness or to identify sources of I/I. This work will consist of field investigative tasks that include, post-construction flow monitoring, night flow isolations, manhole inspections, and pipe inspections. It would also include

smoke and dye testing to identify potential private I/I sources, like roof downspouts. Manhole and pipe inspections will be performed following National Association of Sewer Service Company (NASSCO) Manhole Assessment Certification Program (MACP) and Pipeline Assessment Certification Program (PACP) standards.

This is important to capture current information on the impact of I/I and how potential reductions in I/I could affect CSO abatement. This work also collects data on the current condition of these assets, which leads to a more comprehensive understanding of the Town's sewer system.

4.1.4 Previous Alternatives Evaluated and Recommended

In the 2005 LTCP, CDM Smith evaluated multiple alternatives for CSO abatement that included hydrologic response improvements, storage alternatives, system conveyance improvements, treatment improvements, and CSO control facilities at the WPCF and Greenfield Road regulator. Out of these alternatives came the final recommendations for the implementation plan.

Upon review of the work completed as part of the implementation plan and the Town's current work and conditions, Wright-Pierce re-evaluated these alternatives to determine if any were applicable now. **Table 4-1** shows these alternatives along with our re-evaluation.

Table 4-1 Re-evaluation of Alternatives

	Alternative	Completed	Recommended
Hydrologic Response Improvements	System-wide sewer separation	No	No – not cost-effective for Town
	Downspout disconnection (smoke testing and building inspections)	No	Yes – smoke/dye testing to determine potential private inflow sources
	Catch basin modifications (flow slipping)	No	No – not cost-effective for Town
	Urban parks and green spaces	No	No – not cost-effective for Town
	Sliplining selected areas	No	No – not cost-effective for Town
	Infiltration sumps	No	No – not cost-effective for Town
	Service connection replacement program	No	Yes – to remove potential private I/I sources
	Sump pump identification and removal	No	No – identification can be challenging; not cost-effective for Town
Storage Alternatives	Inline storage	No	No – not cost-effective for Town
	Offline storage	Yes	No – already completed with Avenue A buffer line.
System Conveyance Improvements	Increased WPCF influent capacity	No	No – not at this time and until hydraulic modeling work is completed per Subsection 4.1.2
	Diversion of flow	No	No – not cost-effective for Town
	Increased pumping at pump stations	No	No – pumps appear to be operating as intended
	Decreased pumping at pump stations	No	No – pumps appear to be operating as intended

4 – Recommended Projects and Modified Implementation Plan

	Alternative	Completed	Recommended
CSO Control Facilities at WPCF and Greenfield Road Regulator	Relocate Greenfield Road CSO regulator to head of WPCF with preliminary treatment (screening/grit removal) and disinfection	Partially – installed WWCCCT	No – not cost-effective for Town
	Site screening, grit removal, and disinfection at existing Greenfield Road regulator	No	No – not cost-effective for Town
	Relocation of regulator to head of WPCF and primary treatment	No	No – not cost-effective for Town

In addition to the alternatives evaluated, Wright-Pierce also reviewed the Town's National Pollutant Discharge Elimination System (NPDES) permit. In order to meet the requirements of this permit, the Town should submit updated documentation on its implementation of the Nine Minimum Controls (NMCs) as soon as possible. Based on Wright-Pierce's review of the NMCs in **Section 2**, some of these have been implemented since 2005, while others should be addressed. These include the 1st, 4th, 5th, 6th, and 8th NMCs, which are:

1. Proper operation and regular maintenance programs for the sewer system and CSO outfalls

The Town has a regular cleaning program of the sewer system, inspects the CSO regulators on a monthly basis, and inspects the CSO outfalls on a weekly basis. The Town should also sample the CSO outfalls. More details are provided in Subsection 4.2.4.

4. Maximization of flow to the POTW for treatment

Wright-Pierce will assist the Town in determining if the influent pipes to the WPCF need to be upsized based on the results of the hydraulic model analysis. The Town should develop and implement a standard operation procedure (SOP) for the proper maintenance and operation of the Avenue A buffer line, in order to optimize flows in the system and mitigate the CSO discharges. More details are provided in Subsection 4.2.2.

5. Elimination of CSOs during dry weather

The Town has been recommended by Wright-Pierce to implement SOPs, including visual inspections, to consistently observe CSO dry weather conditions during various times each day and on different weekdays. A formal procedure for observing, sampling, and/or testing during dry weather conditions has not been implemented to date. More details are provided in Subsection 4.2.4.

6. Control of solid and floatable materials in CSOs

The Town has considered installing trash hoods on problematic catch basins but has not yet. Wright-Pierce recommends routine cleaning of catch basins to address this control first, before installing trash hoods.

The Town can also control solid and floatable materials by monitoring and enforcing the industrial loadings to the WPCF from wastewater discharges from significant industrial users (SIUs). More details are provided in Subsection 4.2.6.

8. Public notification to ensure that the public receives adequate notification of CSO occurrences and CSO impacts

Although the Town has signs posted at the CSO outfalls, the Town should have website or social media announcements to meet this control. More details are provided in Subsection 4.3.

4.2 Best Practices

The best practices described in the subsequent subsection are based on Wright-Pierce’s review of available information provided by the Town and our industry experience and represent interim solutions for the Town over the next six years. These recommendations do not currently include additional separation of the combined sewer system.

4.2.1 Sewer Rate Study

In the 2005 LTCP, CDM Smith completed an affordability analysis following the procedures in the U.S. Environmental Protection Agency’s (EPA) “Guidance for Financial Capability Assessment and Schedule Development” which is required for a CSO Control Plan. This analysis included evaluation of the Town’s sewer rates over the next 20 years.

Wright-Pierce recommends that the Town complete an updated sewer rate study that takes new information into consideration. This will help to determine the financial burden placed on sewer users and whether a new fee structure or policy is needed. This effort is included in the application for the Asset Management Program Grant, which is discussed in more detail in **Subsection 4.4.2.2**.

4.2.2 System Maintenance

In 2006, the Town constructed a 750-foot, 48-inch reinforced concrete pipe (RCP) buffer line for the Avenue A regulator. The storage pipe was constructed to store approximately 70,500 gallons of combined flow. The buffer line does not have an automated valve to control it, but there is a manually operated slide gate in a manhole at the downstream end of the buffer line.

The buffer line was intended to be operated manually during wet weather events, and the Town is not currently using the buffer line as it was originally intended. We recommend that the Town develop and use a SOP for the maintenance and operation of the buffer line for system optimization, and possibly retrofit the buffer line to be operated remotely based on existing and telemetered regulator monitoring equipment and data supplied by ADS Environmental Services.

Based on Wright-Pierce’s WPCF High Flow Management Plan, dated September 28, 2021, we continue to recommend proper maintenance of the WPCF’s influent pipes, mechanical bar screen, and influent channels to avoid overflows at the Greenfield Road CSO in the future. This also includes implementation of SOPs to minimize the quantity and volume of discharges through the Greenfield Road CSO. These SOPs should consist of:

- Weekly monitoring of sediment accumulation in the influent pipes and channels
- Daily monitoring of the influent screen to ensure proper operation of the equipment
- Cleaning of the influent pipes and channels as determined by the operators through weekly monitoring

These system maintenance efforts will ultimately help the Town’s sewer system operate more efficiently and should abate CSOs.

4.2.3 Cleaning and Inspection

As a follow-up to the rehabilitation of the double barrel siphon beneath the Power Canal and upstream of the I Street CSO, Wright-Pierce recommends that the Town perform a post-rehabilitation closed-circuit television (CCTV)

pipe inspection of both barrels to assess their condition and the quality of repairs. This will require by-passing of flow and coordination with Eversource Inc. on its annual maintenance and draining of the entire canal system.

Wright-Pierce also recommends a routine catch basin cleaning program to control solid and floatable materials in CSOs. This will improve flow through the siphon and the collection system, increase capacity, and decrease the probability of blockages. This will achieve the 6th NMC.

4.2.4 Observing and Sampling Combined Sewer Overflow Outfalls

Wright-Pierce recommends that the Town track, document, and photograph or video both CSO outfalls during different conditions (i.e., dry weather, wet weather, times of day) on a weekly basis to monitor for patterns or consistencies. This will achieve the 1st and 5th NMCs.

4.2.5 Ordinances

The Town's Sewer Use Regulations were last updated in December 2013. The regulations include permit and monitoring requirements for industrial waste users and industrial pretreatment requirements. The regulations also include prohibition of illicit connections, such as roof downspouts, exterior foundation or other drains, sump pumps, and areaway drains, from connecting to the Town's sanitary sewer collection system.

Wright-Pierce recommends that the Town review these ordinances to ensure that sufficient language is included to enforce these regulations and permits and restrict potential sources of industrial discharges and private I/I from entering the sanitary sewer collection system and contributing to CSOs. The Town should also have a plan in place to enforce these ordinances.

4.2.6 Private Systems

Based on Wright-Pierce's draft WPCF EPA Administrative Order Technical Memorandum, dated July 30, 2021, we continue to recommend that the Town prioritize monitoring and enforcement of industrial loadings to the WPCF including the wastewater discharges from SIUs like LightLife, to prevent high strength waste slugs, fats, oils, and grease (FOG), floatables, and other debris from entering the public system. Although Lightlife installed a pretreatment system, the Town should enforce this permit by ensuring that remedies and/or penalties exist and are issued, and that ordinances are in place to support these efforts.

As previously included in the 2005 LTCP, Wright-Pierce recommends that the Town conduct smoke/dye tests of roof downspouts at specific establishments in the village of Turners Falls to determine the sources of potential private I/I and estimate the quantity of I/I from these sources, as they may be contributing to CSOs.

As also included in the 2005 LTCP, we recommend that the Town develop and implement a sewer service replacement program to address potential sources of private I/I from defective sewer laterals. Similar to private I/I from roof downspouts, defective sewer laterals can contribute to overall system I/I and CSOs. A sewer service replacement program will aid the Town in addressing and financing these needs when issues arise, and also overcome the typical legal and ownership challenges of maintaining private sewer laterals.

4.3 Public Education and Notification

One of the NMCs states that the Town needs "public notification to ensure that the public receives adequate notification of CSO occurrences and CSO impacts." Furthermore, in the Massachusetts Department of Environmental Protection (MassDEP) "Act Promoting Awareness of Sewage in Public Waters" issued in January

2021, MassDEP now requires electronic public notification every eight hours for an ongoing CSO discharge and within two hours after a CSO discharge ends.

In the Town's April 14, 2021 response to the Administrative Order issued by the EPA in June 2020, the Town stated that public notices would be posted on its website about CSO information and river water quality. To date, this information is not on the Town's website.

Wright-Pierce recommends that the Town proceed with website or social media announcements to meet these requirements, and possibly incorporate automated messaging and alerts based on existing and telemetered regulator monitoring equipment and data supplied by ADS Environmental Services. A sample of a public notification is provided in **Appendix A**. The requirements of MassDEP's electronic public notification goes into full effect on July 6, 2022.

4.4 Modified Implementation Plan

Based on Wright-Pierce's review of available information provided by the Town since 2005, we recommend the following updated and modified implementation schedule and costs. This modified implementation plan incorporates new information provided, details of our findings, and recommendations for next steps for the Town to mitigate CSO discharges.

4.4.1 Schedule

A modified implementation schedule based on the modified implementation plan recommendations is provided in **Figure 4-1** on the subsequent page.

Figure 4-1 Modified Implementation Schedule

Typical Best Practices (Already Applied for Funding)	Typical Best Practices (Not Yet Applied for Funding)	FY22		FY23				FY24				FY25				FY26				FY27	
		2022		2023				2024				2025				2026					
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
GIS database development for storm and sewer systems			█	█																	
Hydraulic modeling			█	█	█	█	█														
Field investigations			█	█	█	█	█														
Sewer rate study				█	█	█	█														
	Updated NMCs	█																			
	Avenue A regulator buffer line SOP	█	█																		
	Maintenance of WPCF influent pipes, screen, and channels	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	WPCF influent SOPs	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	Periodic cleaning of siphon inlet sumps				█	█	█										█	█			
	Post-construction inspection of double barrel siphon							█	█	█	█										
	Routine cleaning of catch basins		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	Monitoring and sampling CSO outfalls	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	Review/update sewer use regulations				█	█															
	Monitoring and enforcement of industrial loadings	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
	Sewer service replacement program																		█	█	
	Public notification	█	█																		

4.4.2 Costs

For purposes of this report, general cost estimates were developed based on the modified implementation plan recommendations presented in this section. On average, the annual cost of these recommendations ranges from \$240,000 to \$3350,000 over the next six years, for a total of approximately \$1.4 to \$2.01 million. These costs simply represent placeholder planning level costs based on the interim recommendations for the Town and can be better defined and finalized as work continues to meet the Administrative Order, which includes the GIS development, hydraulic modeling, and field investigations efforts.

These costs are not all inclusive and also do not intend to indicate that the Town's CSOs will be eliminated by only completing the recommendations and spending the amount of the current cost estimates provided. For example, the results from the hydraulic modeling efforts may lead to additional recommendations, such as pipe upsizing, and costs for those improvements. The results from the field investigative efforts may also lead to additional recommendations, such as manhole and pipe rehabilitation, and costs for those improvements. Development of these costs is explained in **Subsection 4.4.2.1**.

4.4.2.1 Development Basis of Costs

Planning level costs were developed using standard cost estimating procedures consistent with industry standards and our knowledge of typical best practices. The cost information presented herein is in current (2021) dollars and escalated by three percent annually to account for inflation.

4.4.2.2 Funding Considerations

These recommendations represent a financial and economic challenge for the Town based on its limited annual budget. This is why we recommend that the Town seek out additional methods of funding through grant and loan programs, which are described in more detail in this subsection.

The Town's fiscal years begin on July 1 and end on June 30. The Town's fiscal year 2022 (FY22) budget for the DPW is \$1.5 million. This includes many typical services that the DPW provides, including public buildings, streets, parks, as well as the sewer collection system and CSOs. We recommend that the Town itemize and keep separate line items for collection system needs.

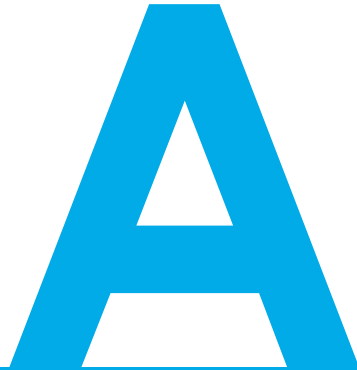
The MassDEP and the Massachusetts Clean Water Trust provides up to \$2 million in grant funding through their Asset Management Program Grant. These grants are available for utility planning projects for drinking water, wastewater, and stormwater systems.

Wright-Pierce assisted the Town in applying for an asset management grant in 2021 for the projects identified in **Subsection 4.1**. This includes the GIS, hydraulic modeling, and field investigations projects. Announcement of the grant award will be in Winter/Early Spring 2022. We recommend that the Town consider applying for another asset management grant for future work, such as for the post-rehabilitation inspection of the double barrel siphon.

The MassDEP State Revolving Funding (SRF) is another funding opportunity for the Town. SRF loans at two percent interest and 20-year terms are available for wastewater collection system and stormwater management projects that relate to compliance with federal and state water quality requirements. Wright-Pierce recommends that the Town consider SRF loans for larger projects only.

The United States Department of Agriculture (USDA) also offers loans and grants through the Rural Development program. This funding assistance is offered to low-income rural communities, like Montague, on utility service projects. Wright-Pierce recommends that the Town utilize USDA Rural Development funding for a pre-planning grant to develop future projects that will result from the hydraulic modeling project identified in **Subsection 4.1**, and to fund that future project work when it is performed.

Finally, the American Rescue Plan Act (ARPA), through the State and Local Fiscal Recovery Fund and the Capital Projects Fund can provide additional financial assistance to the Town in the wake of the COVID-19 pandemic. The State and Local Fiscal Recovery Fund can provide emergency funding for local governments for essential workers and infrastructure, including sewer services. The Capital Projects Fund is focused on rural and low- to moderate-income communities, like Montague, for modern infrastructure needs. Potential projects that could be funded through this source, include maintenance of the WPCF influent pipes, screen, and channels; routine cleaning of catch basins and installing trash hoods on problematic catch basins; and monitoring and sampling the CSO outfalls. Wright-Pierce recommends that the Town allocate part of its ARPA funding to the collection system and also wait to see how MassDEP will allocate additional funding.



Combined Sewer Overflow Notification

This email is to notify you the Town of Montague has experienced a combined sewer overflow (CSO) activation from one or more of its CSO regulators. For more information about this CSO activation, click [\(hyperlink\)](#).

CSO discharges consist, or likely consist, of untreated or partially treated sewage and waste. Public health officials recommend avoiding contact with water bodies during rainstorms and for 48 hours afterward, as there may be increased health risks due to bacteria or other pollutants associated with urban stormwater runoff or discharges of untreated or partially treated wastewater.

For additional information about CSOs and Montague's CSO Abatement Program, click [\(hyperlink\)](#).

To unsubscribe from these alerts, click [\(hyperlink\)](#).

This email is system-generated. Please do not reply.



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