City of
Fitchburg

Department of
Public Works

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301 Broad Street
978-829-1900
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August 27, 2021

U. S. Environmental Protection Agency, Region 1
5 Post Office Square, Suite 100
Mail code OES04-04
Boston, Massachusetts 02109-3912
Attn: Neil Handler

Massachusetts D.E.P., CERO
8 New Bond Street
Worcester, MA 01606
Attn: David Boyer

Subject: Semi-Annual Progress Report
February 2021 – July 2021 Reporting Period
Consent Decree, IX. REPORTING, Paragraph 70

Dear Mr. Handler and Mr. Boyer,

In accordance with Section VII, paragraph 70 of the Remedial Measures of the Consent Decree (Decree) signed by Fitchburg's Mayor on June 1, 2012, this submission provides EPA and the MassDEP with a report on the City's compliance with Section VII during the preceding six months (February 2021 – July 2021 Reporting Period) as described by Paragraph 70.

The report organization structure is formatted to separately address each relevant section, as it appears in the Decree, and includes all pertinent attachments.

As requested in the February 2013 thru July 2013 Reporting Period, the City is not including a GIS map of water resources and topographic features, as the data contained therein has not changed from the original GIS mapping submission and will not likely change in the foreseeable future. In the event there are significant changes in either water resources or topography, the City shall provide GIS mapping submission reflecting those changes in that reporting period's submission with narrative explanation of said changes.

GIS maps updates and figures, will be provided (electronically and hard copies) under separate cover, and will be provided via email and as printed full-size copy, via U.S. mail.

Semi-Annual Progress Report
February 2021 through July 2021 Reporting Period

A. SEWER SYSTEM

Staffing

Many changes to the Sewer Collections team occurred during the reporting period. A General Foreman, a Working Foreman, a Sewer System Operator, and a Sewer/Stormwater Operator were hired. All positions were filled with candidates from within the DPW. A sixth position, which will be a Sewer/Stormwater Operator will likely be advertised and filled in the next reporting period.

By filling the General Foreman position, the Sewer System Manager will be able to allocate additional time to Consent Decree Compliance, software and hydraulic model management, and QA/QC of collection system investigations. Some of the day-to-day duties, such as vehicle repair and maintenance scheduling, have been delegated to the new General Foreman.

Long-Term Sewer System Preventative Maintenance Plan

The City's Long-Term Sewer System Preventive Maintenance Plan, submitted in January 2012, has been distributed to all collection system operators and copies are maintained in each vehicle for quick reference. This document is a "living/breathing document", and was most recently updated and submitted to the MassDEP and the EPA in March 2017.

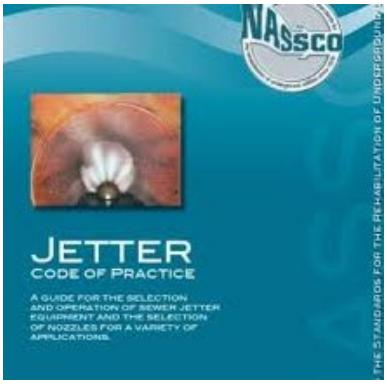
Priority Cleaning Plan

The City's Priority Cleaning Plan, submitted in January 2012, has been distributed to all collection system operators and copies are maintained in each vehicle for quick reference. This document is a "living/breathing document", and was most recently updated and submitted to the MassDEP and the EPA in March 2017.

Routine Cleaning Plan

The City's Routine Cleaning Plan, submitted in January 2012, has been distributed to all collection system operators and copies are maintained in each vehicle for quick reference. This document is a "living/breathing document", and was most recently updated and submitted to the MassDEP and the EPA in March 2017.

- As was recommended in the December 2018 EPA Audit, Wastewater has received a copy of NASSCO's "Jetter Code of Practice", and will utilize this resource to update our standard operating procedures and practices in sewer system jetting cleaning operations.



"Problem Area" Checks

The City has been more proactive in checking "problem areas" throughout the collections system that have a history of sewer system overflows. These areas have been checked on an approximate bi-weekly basis. The "Problem Area" list is continually updated based on both recent SSO events, and on improvements to a known "Problem Area" that would minimize future SSO occurrences.

Geographical Information Systems (GIS) Maps

Four maps were updated for this semi-annual report:

1.) "Base Map (Map 1 of 4): The City's parcel and roadway data is shown on this map along with municipal boundaries. The map has been updated with the latest parcel data from the City's Assessor and DPW – Engineering Division Offices.

2.) "Combined and Separate Sewers" (Map 2 of 4): The City's sewer system is shown including combined and separated sewers along with pipe sizes and materials. Regulator manholes, combination manholes, and standard sewer manholes are also shown. Lastly, the City is close to completion of sewer rim elevations survey with its GPS unit. Most of the few remaining manholes to locate are buried and will continue to be uncovered in the coming reporting period season. The City raised 1 buried manhole to grade during the reporting period, and repaired 13 manhole covers. These locations are shown.

3.) "Storm Drainage" (Map 3 of 4): This map depicts record drawing storm drain data including the City's current GPS shots of catch basins and drain manholes. We will continue to locate drain structures but the Wastewater Division's main concentration will continue to be to locate all sewer-related infrastructure. As part of the City's MS4 Program, a more aggressive GPS survey program for storm system assets location is ongoing, and is headed by the Fitchburg DPW – Engineering Division, with assistance from the Fitchburg DPW – Wastewater Division.

4.) "Extraneous Flow Investigation, Remediation, and Capital Projects" (Map 4 of 4): This map includes sewer projects that have been accomplished within the reporting period and projects that are planned following the reporting period. During the reporting period, the City replaced, raised, and reset numerous manhole frames and covers. If existing manhole castings were found in fair condition with fewer than 3 vent holes in the cover, or within a combined sewer area, or in an off-road easement, then the City did not replace the casting with a new vent-less casting. The City also: (1.) separated additional combination manholes, (2.) completed construction of the Highview Street Sewer Project, and (3.) continued the ongoing construction of the "***CSO 007, 011, 039, 048 Separation/ Rehabilitation Project***". An engineering services contract for the pre-design investigations, and engineering design services of the next combined sewer separation project, termed the "***Downtown Separation Project***" for CSO Regulators 010, 032, 045 and 083 was also executed. The locations of these improvements are noted on the map.

Also, contained on this "Extraneous Flow Investigation, Remediation, and Capital Improvement Projects" map (Map 4 of 4) is the City's current status of its sewer cleaning and CCTV program. On this map, pipes are color coded based on their condition rating.

The City is working diligently to separate its combined sewers. In early 2013 the City reported 71,097 feet of combined sewer pipe in its system. As of the close of this reporting period, the City has a total remaining combined sewer length of approximately 44,277 feet, or approximately 8.38 miles.

The in progress "***CSO 007, 011, 039, 048 Separation/Rehabilitation Project***" is anticipated to permanently separate approximately 4,800 linear feet (or, 0.90 miles) of combined sewers, and the "***Downtown Separation Project***" (more formally titled the "***CSO 010, 032, 045, 083 Separation/Rehabilitation Project***") is anticipated to permanently separate approximately 27,600 linear feet (or, 5.23 miles) of combined sewers. At the conclusion of the "***CSO 010, 032, 045, 083 Separation/Rehabilitation Project***", the remaining combined sewers are anticipated to be reduced to approximately 2.25 miles of combined sewers, an approximate 83% reduction from the existing combined sewer miles in early 2013. Additionally, at the conclusion of the "***CSO 010, 032, 045, 083 Separation/Rehabilitation Project***", only four (4) remaining active CSO Regulators will remain:

- CSO Regulator 004 (located at the intersection of Cleghorn Street and Oak Hill Road);
- CSO Regulator 041 (located at the intersection of Benson Street at Falulah Street);
- CSO Regulator 076 (located at the intersection of Birch Street at Heywood Street); and
- CSO Regulator 064 (located in an easement off of Water Street).

Capacity, Management, Operation & Maintenance (CMOM) Related Activities, and GIS Maps

The collection operators continue to make progress with CCTV inspections and condition coding all 143.5 miles (approximate length) of sewer pipe within the City. By the close of the reporting period, the City had condition coded approximately 93.1% of its sewer system. The majority of pipes remaining to be coded are either located within difficult to access easements, egg-shaped pipes, small 6-inch diameter pipes, or odd-shaped brick conduits. Some of the sewers are likely never to be inspected until they are replaced, as there are no existing access points. Some of the uninspected sewers are small diameter force mains where a CCTV camera is too large to fit into the pipe. The City has had great progress however using outside contractors to CCTV portions of its remaining sewers through SSES or combined sewer separation work. Many of the remaining sections will be televised within the next 4-years as part of the "Downtown Separation Project" (***CSOs 010, 032, 045, and 083 Separation/Rehabilitation Project***). Since many of the remaining sewers to be televised are beyond in-house capabilities, the City has begun a second round of CCTV of the entire system, with 3.2% having been CCTV'd under the second round. During manhole repairs or sewer line repair operations, CCTV operations are typically suspended due to the staffing need for more crew members to conduct the repairs. Also during the reporting period, the City experienced major functional issues with its CCTV Van, which severely limited the time spent conducting CCTV televising inspection work. The CCTV Van would stall and would not restart, or would start and then stall each time the camera system was run. After 4 trips to the vehicle dealer, and 2 trips to the

CCTV vendor, we believe the issue has been pinpointed to the inverter system on the vehicle. The inverter is currently undergoing replacement to allow for ramping up of CCTV operations during the next reporting period.

As the majority of the remaining sewers to be inspected are outside of the City's capabilities to inspect, the City has actively been outsourcing this work. During previous reporting periods, the City completed inspecting the remaining 7,000 feet of its 37,000 foot trunk sewer using multi-sensor inspection. The multi-sensor inspection system included CCTV, Sonar, and Radar, in order to assess pipe ovality, pipe wall loss, and sediment depth. Data from the multi-sensor inspection has been incorporated into the Draft Phase IV Sewer System Evaluation Study Report, which will be submitted in the next reporting period. After reviewing budget status, the City executed a second amendment to the SSES Phase IV Task Order to conduct additional cleaning and CCTV of a critical sewer under Route 2, and for a section of the trunk sewer that requires bypass to properly inspect. The additional work is expected to be completed in the next reporting period, and the submission of the formal SSES Phase IV report to EPA and MassDEP should follow soon thereafter.

The following table (***Table No. 1***, below) summarizes manhole inspections to date:

TABLE No. 1

CITY & CONSULTANTS SEWER MANHOLE INSPECTION TOTALS

Inspected by	Total Inspected	Total Manholes	Percent of Inspections Completed
City of Fitchburg	714	3,575	19.97%
Overlap (manholes inspected by both City and Consultant)	46	3,575	1.29%
Consultant	1,277	3,575	35.72%
Inspection Totals	**2,037**	**3,575**	**56.98%**

Table No. 1 above includes both City-inspected manholes, as well as past inspections performed by the City's consultant engineers that were conducted in conjunction with past and current projects, including CSS 4D, the CSO 007, 011, 039, and 048 Separation/Rehabilitation Project, SSES Phases I, II, and IV, and the Beech and Hazel Streets Sewer Separation Project. Between both the City's Engineer, and the City's in-house forces, 56.98% of manholes have been inspected. Hundreds of manholes will be inspected in the coming year as part of the upcoming "Downtown Separation Project".

Global Positioning Satellite (GPS) System Update

The City is continuing to locate all of its sewer manholes, drain manholes and catch basins with its GPS unit. To date the City has located the following assets:

- 3,599 publicly-owned sewer manholes out of 3,614 (99.5% completed), which leaves 15 manholes to be located.

- 2,495 drain manholes (out of an unknown total).
- 4,033 catch basins (out of an unknown total).
- 285 sewer laterals.
- 21 sewer clean-outs.
- 1,346 other asset types. Other asset types typically include other types of utility manholes, services, or locations of 'Dig-Safe' mark-outs.

Service Call Activities

The Sewer Collection Operators have been performing service calls for system users with sewer issues. Often the problem is a private matter, as sewer service laterals are private ownership (not City-owned) and the City is not responsible for blockages in private sewer laterals. Nonetheless, the City responds to all calls to determine the cause for the blockage because the cause of a problem for a service call is unknown until the City can investigate the call. Manholes in the street are inspected for surcharging. Inspection frequently includes cleaning the line where the private lateral enters blindly into the public sewer and occasionally includes CCTV'ing the line to look up the private service lateral connection for any observable blockages. If the service call issue is determined to be a private ownership issue, the City will inform the customer that a private infrastructure issue exists and the customer should call a private sewer service or plumbing company to address the problem.

Following a response to a service call, the collection operators fill out a Service Call Inspection Form which is then inputted in to the City's call-logging software, "See-Click-Fix". SeeClickFix creates a record of the service call including the issue, the date and time, the name and address of the customer, the details of the request and notes on how the matter was handled. If work was performed at the site, SeeClickFix allows entry of who performed the work, and what time the work was completed. The major benefit of SeeClickFix is the ability for residents and business owners to interact with City officials. Constituents can initiate an issue, can see that the City has responded to an issue, and see when an issue is resolved. Also included in SeeClickFix is a "commenting" feature which allows residents to express additional information on an issue.

To date, our experience with the SeeClickFix system has been useful in creating an electronic tracking system of service calls.

- During the previous reporting period, the City modified its SeeClickFix forms to better mimic the "***SSO Complaint Form***" and "***Service Call Inspection Report Form***" in its Emergency Response Plan.
- The City also trained its primary DPW Dispatcher on the SeeClickFix System, and has delegated entering of service call forms to the Dispatcher.

Asset Management

DPW - Wastewater Division adopted the "Asset Management" philosophy and approach to sustain levels of service, while minimizing risk of failure and the corresponding consequence of failure that

could result from the failure of a City wastewater infrastructure asset. This methodology will go hand-in-hand with capital planning and financial sustainability of the Wastewater Enterprise, and will help to prioritize and focus the limited financial resources towards the renewal of assets.

The City had successfully installed the "InfoAsset" asset management program, however due to the difficult technical workings of the program, the City will let its subscription to the service lapse. In addition, the program did not appear to have a very robust or simple-to-use computerized management maintenance system (CMMS) component, which is an important feature to make routine checks of the collection system more digital, searchable, and trackable. A CMMS is arguably the most critical piece to successful asset management, as it allows users to pinpoint determine problem areas within the system.

During the past reporting period, the Wastewater Division was incorporated into DPW – Streets Division attempts to find a CMMS/Asset Management Software. The purpose of the collaboration was to attempt to have one system that all of DPW uses for consistency. The DPW – Wastewater Division foresees using the software for assigning and tracking pipelines inspected each day, manhole inspections in a simple format, problem area and pump station inspections, combination manhole inspections and CSO Regulator inspections. Service call logging may also be used in this program, depending on the program's ease-of-use. With a change of leadership at the head of DPW, a more "needs based" view of a CMMS system is being considered. The Wastewater Division has an immediate and urgent need to have a functional system, whereas a CMMS for other DPW Divisions is not as high priority. During the next reporting period, the DPW – Wastewater Division's goal is to have settled on a software choice, and to have initiated the software implementation.

Intermittent Stream Connections to Sewer

No intermittent streams were removed from the sanitary system during the reporting period, however a drain that likely conveys a former brook contained an 8" dia. interconnection to the sanitary system, located at the intersection of Dover Street and Bemis Road, as shown on Map 4 of 4. The interconnection was believed to have been capped in the 1970s per City records, but this appears to not have been the case. Oftentimes the Sewer Collection Team targets specific areas of the sewer system for investigation where suspected inflow connections may occur based on irregularities in mapping, such as catch basins with no drainage nearby, or areas where drains and sewers were reconfigured multiple times through the years.

By installing a masonry plug in this interconnection, the City estimates approximately 6,000 gallons per day (or greater) of dry-weather inflow was removed from the sanitary system on a typical day. Wet-weather inflow amounts from this removed interconnection were estimated to have been much higher than 6,000 gallons per day.

Meter Maintenance

The City has been maintaining its 10 flow meters located at regulator manholes throughout the reporting period. ADS long-range ultrasonic depth sensors are also maintained at CSO Regulators 010, 032, 041, 045, 076, and 083 to provide additional monitoring redundancy and accuracy at the regulators.

The table below (***Table No. 2***) includes the reporting period's summary of CSO overflows. In accordance with Paragraph 70, Subparagraph d. of the Consent Decree, ***Table No. 2*** includes notes on whether or not the meter was malfunctioning for a time during the reporting period. During the reporting period, the City generally had good meter coverage.

TABLE No. 2

OVERFLOW DATA FOR REPORTING PERIOD FEBRUARY 1, 2021 TO JULY 31, 2021

Meter	Location	Events	Volume (Gallons)	Notes:
CSO-004	Cleghorn St. at Oak Hill Rd.	1	11,747	Weir wall was raised 6-inches on May 12, 2021.
CSO-007	Cushing St. at Riverfront Park	0	0	Regulator was permanently closed May 3, 2021.
CSO-010	Main St. at River St.	10	291,169	Will be closed as part of 'Downtown Separation Project' in 2025. Raised weir wall from 20" to 30" above sensor on May 12, 2021.
CSO-032	#543 Main St. at Post Office	10	218,000	Will be closed as part of 'Downtown Separation Project' in 2025. Experienced periodic connectivity issues near end of July. Weir wall raised.
CSO-039	Water St. at Walnut St.	20	2,810,000	Regulator will be permanently closed within the next reporting period, during 'CSO 007, 011, 039, 048 Separation/Rehabilitation Project'.
CSO-041	Benson Rd. near Falulah St.	1	1,172	Upsizing of pipe downstream and upstream I/I work necessary for closure. 5 catch basins upstream connected to sanitary sewer
CSO-045	Main St. at Oliver/Putnam St.	13	7,676,005	Down-looking sensor used to estimate overflows. Modified calculations by using Francis Formula weir equation for increased overflow estimation. Will be closed as part of 'Downtown Separation Project' in 2025.
CSO-048	#85 Water St.	1	81,095	Regulator permanent closure likely within the next reporting period, during 'CSO 007, 011, 039, 048 Separation/Rehabilitation Project'.
CSO-064	Water St. Easement near former "Halloween World"	11	2,236,519	Regulator on main interceptor sewer. Inflow removal upstream and sewer upsizing likely necessary for closure.
CSO-076	Birch St. at Heywood St.	7	14,770	Downstream pipe undersized. No known combined sewers upstream.
CSO-083	Main St. at Prichard St.	9	423,615	Will be permanently closed as part of 'Downtown Separation Project' in 2025.
	Totals	**83**	**13, 764, 092**	

The City has been servicing the meters on a roughly 3-month frequency to help maintain high data quality. During the reporting period, the meter manufacturer (ADS Environmental Services, or 'ADS') conducted multiple visits to all of the City's flow meters to ensure they were functioning as designed. Two of the flow meters needed to be replaced, due to parts corroding (age and service environment).

The City has been maintaining its ECHO down-looking sensors to keep abreast of potential problems in the collection system. In addition, the ECHO meters are also deployed at the City's four (4) major sewer siphons, to determine if the siphon cleaning started during this reporting period will have a noticeable effect on sewer surcharging in the siphon head chambers. The ECHO deployment locations are shown on Map 4 of 4 ("***Extraneous Flow Investigation, Remediation, and Capital Projects***"). On Map 4 of 4, the ECHOs are designated by an "**LS**" symbol (for "level sensor"), and are described in the legend as "wireless ultrasonic level sensors".

During previous reporting periods, discussions were had with ADS in an effort to provide better public notification for CSO Events. The ADS technology to provide accurate, prompt notification of CSOs events is in its infancy, leading the City to explore multiple options for better notification. Due to recent state legislation signed into law by Massachusetts Governor Baker on January 12th, 2021, the City is pursuing means to provide public notification of CSO events, compliant with the new legislation. The City will to comply with this legislation by or before the date the law goes into effect, in early July 2022.

- However, as of the writing of this Semi-Annual Report, MassDEP has not yet issued draft regulations for review and comment, for the regulation of the subject cities, towns, and sewer districts within the Commonwealth that will affected by the new legislation. Fitchburg Wastewater's understanding is that MassDEP will issue out the DRAFT regulations for public comment in the Fall of 2021.

- During the next reporting period, the City will likely execute an agreement with a consultant to build out a public notification system for the remaining CSOs.

The City has also been using ADS' flow monitoring web-based management platform, called PRISM. As a web-based platform, the City can log-in from any computer or phone, and access flow meter data. The website also allows the City to set up alarms, perform data calculations, and set-up new meter sites.

The City is always exploring new and different technologies for level sensing and increased monitoring accuracy and reliability. During the reporting period, a flow sensor from "SmartCover Systems" was purchased, after a free 3-month demonstration of the unit. The sensor is similar to ADS Environmental's "ECHO" unit, however the connectivity and reliability has proven to be superior to the ADS Environmental's "ECHO" unit. A weir equation was set up in the system's software to calculate overflow volumes at CSO Regulator 004. During the next reporting period, the City will compare and contrast readings from both the ADS and SmartCover monitors at the site.

CSO Weir Wall Adjustments

During the reporting period, the City adjusted the weir walls on 3 CSO Regulators on May 12, 2021. Weir walls within CSO Regulators 004, 010, and 032 were raised 6", 15", and 3.75", respectively. The weirs were raised based on historic trends in the meter data that led the City to believe the weirs could be raised without causing sewage to surcharge out of the manholes. In addition, the weirs were raised using a method that did not restrict the overflow size, but allowed for extra storage in the upstream system. To date, no SSOs have been known to occur as a result of these modifications.

Post-Construction Monitoring Plan & Post-Construction Monitoring Report

In late May 2016, the City was approved to proceed with the Post-Construction Monitoring Plan (PCMP) field sampling program. The City requested and received an extension from MassDEP and EPA to extend the performance of PCMP sampling, as working hours, lab hours, and timeliness of events limits the time available to sample a wet weather event to only 4 or 5 hours a day. The City finished the final wet weather sampling within calendar 2017, and the Post-Construction Monitoring Report (PCMR) was submitted for review and approval at the end of February 2018. To date, we have not received a response from either the MassDEP or EPA.

"Post-Construction Monitoring" services are incorporated into the engineering services contract (with Weston & Sampson) for the in-progress 'CSO 007, 011, 039, 048 Separation/Rehabilitation Project', currently under construction.

Emergency Response Plan

The City's Emergency Response Plan, submitted in August 2011, subsequently revised in January 2012, has been distributed to all collection system operators and copies are maintained in each vehicle for quick reference. This document is a "living/breathing document", and was most recently updated and submitted to the MassDEP and the EPA in March 2017.

Hydraulic Model & Hydraulic Capacity Assessment

As required under Paragraphs 41 through 46 of the Consent Decree, the City is required to develop a hydraulic model for all pipes in the City 12-inches and larger, and for all CSOs. During the previous reporting period, the City received conditional approval of its Hydraulic Model. The model was approved based on the understanding that additional model runs and analyses would be conducted under the Capacity Assessment Report which was submitted (under separate cover) at the end of August 2018. To date, we have not received a response from either the MassDEP or EPA on the Capacity Assessment Report.

The City, in discussions with its Consultant, has determined that the most appropriate time for a full hydraulic model update of the system will be after the Downtown Separation Project in the 2025 time frame. Updating the model before this time seems ill advised, due to the drastic changes that will occur to the collection system as a result of this project.

Sewer System Evaluation Survey

As required under Paragraphs 26 and 27 of the Consent Decree, the City was required to submit a SSES Scope of Work (SOW) for approval, to conduct an SSES in accordance with the approved SSES SOW, and to submit a SSES report for approval by EPA and MassDEP. The City submitted the draft SSES SOW before the December 31, 2015 deadline. The final SSES SOW was submitted to the MassDEP and EPA on August 12, 2016, and there were subsequent electronic correspondence between the City, Wright-Pierce and MassDEP later in the month of August 2016. However, to date, the City has received neither a formal approval, nor a conditional approval of the SSES Scope of Work. The City has proceeded forward with the phased SSES investigative work entailed in the SSES Scope of Work. The SSES Phase 1 report was submitted at the end of 2016. Comments from the MassDEP have been received and will be responded to concurrently with any comments that EPA may have. The SSES Phase 2 Report was submitted on March 19, 2020.

As a strategic deviation, largely due to the criticality of the trunk line sewer asset, the City has prioritized the investigative work associated with the trunk sewer line ("Phase 4" in the Scope of Work), ahead of the "Phase 3" SSES work (meter basins M06, M14, and M18). As part of the project, approximately 30,150 LF of interceptor sewers ranging from 18 to 48-inches in diameter were inspected using a combination of CCTV, laser, sonar, and hydrogen sulfide monitoring.

Additionally, 138 manholes were inspected along the interceptor, including manholes along the interceptor not inspected during Phase I of the SSES. The project also includes 60 successful building inspections and approximately 18,500 LF of smoke testing.

During the next reporting period, the City plans to have completed additional CCTV work related to Phase IV, and also anticipates submitting the SSES Phase IV report to MassDEP and the EPA.

Combination Manholes Program

There were two (2) qualifying rain events during the reporting period that met the criteria (2 or more inches of rainfall, within a 24-hour period) necessary to perform combination manhole (CMH) inspections. Rainfall data is recorded at the City's primary rain gage at the Department of Public Works Building (at #301 Broad Street, Fitchburg). An additional rain gauge is also maintained at the east end of the City, at the Summer Street Fire Station. The City often inspects all the combination manholes after a large rain less than 2-inches, as seen in the attached table (Attachment 1).

During the reporting period, there were a total of ***62*** flow transferences to either the drain side or sewer side of the CMHs during the three events that the manholes were inspected. These overflows are taking place in a total of ***132*** remaining combination manholes. The City reported ***262*** total combination manholes existing in the system in 2008. Attachment 1 includes all CMH checks during the reporting period in the remaining CMHs.

The NPDES permit states that the City has two years to separate CMHs if they show evidence of transference. In the past, the City has prioritized CMHs that transfer sanitary water to the storm drain over CMHs that transfer storm drain water to the sanitary sewer. As a result, in the past the City has first prioritized those manholes that show evidence of transference to the drain side of a manhole. In the past 5 years however, the City has received multiple prices for separating combination manholes. It has been determined that pricing is very unfavorable when mobilizing

and demobilizing multiple times throughout the City to separate manholes. In addition, separating one manhole on a street does not solve transference issues if other combination manholes remain on the same street. Due to the aforementioned reasons, the City has been prioritizing separation of manholes based on a number of factors including road paving locations, frequency of flow transference, and locations within a combined sewer separation project area. The City has been concentrating separation in specific areas to receive better pricing, but also to drastically reduce the chance for transference from a specific area or street.

During the reporting period, twenty three (**23**) combination manholes were permanently separated. All manholes separated during the reporting period are noted on the "***Extraneous Flow Investigation, Remediation, and Capital Improvement Projects***" map (Map 4 of 4). Additional manholes will be likely be separated during the next reporting period that are not shown on the map. The City has currently budgeted over $350,000 for each of the next two fiscal years for combination manhole separation.

Table No. 3 (below) notes the CMHs that were separated during the reporting period.

TABLE No. 3

CMH No.	Location	CMH No.	Location
74	Henry St./Mountain Ave. Intersection	13	#429 Beech St.
75	Henry St./Marion St. Intersection	15	#490 Beech St.
118	#22 Marion St.	16	Beech St./Legros St. Intersection
344	#167 Woodland St.	44	#26 Chabot Dr.
228	#184 Woodland St.	198	Theresa St./Hope St. Intersection
345	#100 Saint Camille St.	343	Ronald St./Theresa St. Intersection
230	Woodland St./Alden St. Intersection	135	Oak Hill Rd./McDonald Ave. Intersection
12	Beech St./Alden St. Intersection	140	#570 Oak Hill Rd.
241	#377 Beech St.	173	#65 Sawyer Passway
149	#42 Rainville Ave.	139	#541 Oak Hill Rd.
150	#68 Rainville Ave.	29	Berry St./Hardy Passway Intersection
13	#429 Beech St.		

In Spring 2019, the City executed an agreement with Weston & Sampson to develop contract documents for bidding with design plans for the separation of combination manholes that have shown signs of transference. During the previous reporting period, the City provided review comments to Weston & Sampson.

During the reporting period, the Wastewater Division executed a task with an engineering consultant to complete a "budget analysis". One of the purposes of the task order is to analyze the Division's existing finances and rate structure to see if a large scale combination manhole project can be undertaken to separate almost all remaining manholes, which is estimated to cost $6 million. If the analysis is favorable, the City will complete designs on its remaining manholes and place a project out do bid within the next year. Nine existing combination manholes located within the Downtown Separation Project area limits will be reserved to be separated within the upcoming Downtown Separation Project.

The City also has plans to separate additional combination manholes using DPW crews, many of the combination manholes are shallow in depth, and relatively simple for separation. In the coming reporting period the City expects to make additional progress in separating manholes. During the reporting period, the City was much occupied raising failing sewer manhole covers, which minimized additional in-house progress on separating combination manholes.

During construction of the in-progress 'CSO 007, 011, 039, 048 Separation/Rehabilitation Project', 16 combination manholes have been separated to date.

During the coming reporting period, the City will also complete a hydraulic model analysis on the six (6) combination manholes on Lunenburg Street that have a history of major transference. The purpose of the analysis is to determine whether redirecting storm water down an adjacent street will free enough capacity in the existing drain on Lunenburg Street to prevent manhole surcharging. The study is being completed at the request of MassDOT, as the combination manholes are located within a state road (Route 2A).

Status of Regulators and Outfalls

During the reporting period, the City continued construction of the 'CSO 007, 011, 039, 048 Separation/Rehabilitation Project'. This project involves the closure of CSO Regulators 007, 039, and 048. In addition, combined sewers upstream of the previously closed CSO 011 will be separated on Clarendon Street. In total, approximately 4,800 linear of combined sewers will be separated through the installation of 4,850 linear feet of PVC sewers and 2,700 linear feet of HDPE drains. Approximately 2,100 linear feet of existing sewers will be replaced, and approximately 20,000 linear feet of sewers will be rehabilitated to repair structural defects and reduce infiltration/inflow within the project area. In addition, the project (as bid) will permanently separate seventeen (17) CMHs. Construction commenced in November 2020 and is currently ongoing. This project is funded through the Clean Water State Revolving Fund (CWSRF). As part of the in-progress 'CSO 007, 011, 039, 048 Separation/Rehabilitation Project', CSO Regulator 007 was permanently closed on May 3, 2021, as shown in the picture to the right.

The City applied for and received CWSRF funding under the 2021 Intended Use Plan for the planning phase of the City's next separation project ('CSO 010, 032, 045, 083 Separation/Rehabilitation Project') as identified in the City's CSO Long-Term Control Plan. This next combined sewer separation project (the City's largest combined sewer separation project to date) will involve the separation of approximately 27,600 LF of combined sewers, and the rehabilitation of 33,000 LF of sanitary sewers. This separation project will result in the closure of CSO regulators 010, 032, 045, and 083, and will be descriptively referred to as the 'Downtown Separation Project'. During this reporting period, the Draft Intended Use Plan (IUP) was released by MassDEP and the planning phase of the next separation project was included in the plan. During

the reporting period, the City also executed engineering service task orders under the on-call engineering services agreement with its engineering Consultant to begin the pre-design investigation work and the engineering design work for the 'Downtown Separation Project'.

On-Call Emergency Construction Services

During the reporting period, the City did utilize its Contract for Emergency On-Call Construction Services Contract for Water, Sewer, and Storm Drain Construction. Work under the contract during the reporting period consisted of completion of the Highview Street Sewer Rehabilitation Project. This project consisted of lining and/or replacing approximately 1,100 feet of 8-inch diameter problematic sewer that predominantly runs along an off-road easement through people's yards, under pools, and under decks.

Other needs that may arise such as pipe repair, bypass pumping, or jetting services may also be conducted under this Contract. The City will also likely use this Contract for combination manhole separations, or inflow removal projects, during the next reporting period.

City Hall Sewer Separation Project

During the reporting period, the City completed the separation of combined sewers around Fitchburg City Hall (#718 Main Street, Fitchburg). This project consisted of the removal of inflow from eight (8) catch basins, removing a large amount of inflow from the sanitary system. In addition, roof leaders from the City Hall building and the adjacent property were redirected to the storm drain system. Since this work was similar in nature, and close to the project area, the Wastewater Division issued a "change-order" under the 'CSO 007, 011, 039, 048 Separation/Rehabilitation Project', and the work was completed in Spring 2021.

Sewer Rate Increase

In previous reporting period, the City reported developing a rate study model which incorporated estimated expenses in order to further the City's goals in regard to Consent Decree, NPDES Permit and Clean Water Act Compliance. The rate is expected to increase approximately 42% over five years, and be close to (but under) the 2% Medium Household Income threshold for the City.

On April 17th, 2018, City Council passed an Ordinance revision, amending and adopting the sewer use rates as presented in ***Table No. 4*** below:

TABLE No. 4

Minimum Monthly Sewer Use Charges (includes usage of up to and including 300 cubic feet per month)					
Current Rate	June 1, 2018	June 1, 2019	June 1, 2020	June 1, 2021	June 1, 2022
$18.85	$20.36	$21.99	$23.53	$25.17	$26.81

Monthly Sewer Rate to be charged for usage in excess of 300 cubic feet per month						
	Current Rate	June 1, 2018	June 1, 2019	June 1, 2020	June 1, 2021	June 1, 2022
Rate per 100 cubic feet (which equals 748 gallons)	$7.30	$7.88	$8.51	$9.11	$9.75	$10.38

Monthly 'Sewer-Only' Sewer Use Charges					
Current Rate	June 1, 2018	June 1, 2019	June 1, 2020	June 1, 2021	June 1, 2022
$60.83	$65.67	$70.92	$75.92	$81.25	$86.50

B. POTW TREATMENT PLANT

Chemically Enhanced Primary Treatment (CEPT) Upgrade Project

As noted in the City's February 2017 Semi-Annual Remedial Measures reporting on this Consent Decree project, we herein and henceforth limit reporting to operational comment updates, as noted in the following paragraph.

Plant operations have maintained a continuous CEPT mode for the plant process. Wet-weather CEPT operations appear to be increasingly effective, and operations staff appear to have addressed process issues that relate to low pH. The overall compliance of the treatment operation appears to be significantly improved.

Secondary Systems Upgrades (SSU) Project

The SSU Project commenced in February 2017.

The City procured the renewal flood insurance policies certificates, as required by the MassDEP – Division of Municipal Services prior to the Project contract award to the construction contractor. The policies effective dates run from January 4, 2020 thru January 4, 2021.

While the Project fully completed within the previous reporting period (August 2020 – January 2021), the City opted to renew these policies through the National Flood Insurance Program, for the period of January 4, 2021 thru January 4, 2022, and were for the following buildings within the Easterly Wastewater Treatment Facility:

Chlorination Building ……...…….. Policy No. 87058631232020
Blower Building ……...…. Policy No. 87058631242020
Process Building & Primary Gallery ….. Policy No. 87058631252020

With the SSU Project completion, we have seen substantial treatment process improvements as the new *Selector Zones* have become operational. The addition of selector zones has:

- enabled us to reduce our chemical addition of Ferric Chloride to the process trains,

- promoted better settling in the secondary clarifiers; and
- improved our nutrient removal of Phosphorus and Nitrogen in the plant's final effluent.

Long-Term Preventative Maintenance Plan

The Long Term Preventative Maintenance Plan has been implemented and practices and protocols contained therein are being carried out. The system is continually being populated with new systems and equipment as work is being performed in an effort to build a completed history of maintenance procedures.

The plan is also reviewed with any new employees to insure they are familiar with the practice and procedures in the plan.

Preventative maintenance work completed between February 1st 2021 and July 31st, 2021 included:

February 2021

- COVID-19, Pandemic Preparedness Response Plan: implemented 'minimum staffing plan' for Treatment Plant Maintenance Staffing; (ongoing)
- Primary Sludge Pump No. 1: replaced corroded nipple
- Aerzen Blower No. 2AB-4: performed maintenance service
- Incline Screw Sludge Conveyor No. SC-4: replaced broken bolt gear reducer to conveyor shaft
- Primary Basin No. 3: drained, cleaned and replaced floor carrying wear shoes
- CEPT Building, MCC Center: scheduled performed the bi-annual fire suppression system inspection
- East Plant 2-Way Radios: renewed operating license, with FCC
- Sludge Blend Tank: cleaned the tank

➢ ***Completed 65 Preventative Maintenance Work Orders and 5 Demand Work Orders.***

March 2021

- COVID-19, Pandemic Preparedness Response Plan: implemented 'minimum staffing plan' for Treatment Plant Maintenance Staffing; (ongoing)
- Sodium Hydroxide Transfer Pump: repaired coupling
- Sludge Bay No. 4, Screw Conveyor: re-fed the electrical supply
- Primary Sludge Transfer Pump No. 2: replaced drive key
- Northeast Air Handler: replaced drive belt
- CEPT Building, Magnesium Fill Line: line was discovered plugged; removed and cleaned the line, and reassembled
- Gravity Belt Thickener ('GBT') No. 2, Penn Valley Pump: replaced belts
- Aerzen Blower No. 2AB-2: performed maintenance service
- Headworks Building, Odor Control System: cleaned filters
- CEPT Building, Hypochlorite Transfer Pump: replaced discharged ball check cap

- Power Outage March 26th: damaged the dewatering computer; had to replace the computer

➢ ***Completed 76 Preventative Maintenance Work Orders and 12 Demand Work Orders.***

April 2021

- COVID-19, Pandemic Preparedness Response Plan: implemented 'minimum staffing plan' for Treatment Plant Maintenance Staffing; (ongoing)
- Plant Influent Caustic Line: hose was discovered leaking at hose connection; repaired the connection.
- Aerzen Blower No. 2AB-1: performed maintenance service
- Plant Fleet Vehicle, 2017 F-350: replaced battery
- Gravity Thickener No. 2, Hypochlorite Line: line was discovered plugged at check valve; removed the check valve and repaired
- Plant Fleet Vehicle, 2012 Silverado 3500: preventative maintenance, oil service performed
- Sludge Blend Tank: cleaned sensors
- Headworks Building, Odor Control System: replaced bearings and belts on fan driveshaft
- Plant Fleet Vehicle, 2016 Escape: preventative maintenance, oil service performed
- 1st Stage Aeration Basin, Side No. 1, Selector Zone B Mixer: replaced motor

➢ ***Completed 71 Preventative Maintenance Work Orders and 14 Demand Work Orders.***

May 2021

- COVID-19, Pandemic Preparedness Response Plan: implemented 'minimum staffing plan' for Treatment Plant Maintenance Staffing; (ongoing)
- Sodium Hydroxide Transfer Pump: replaced broken pump switch
- 2nd Stage Transfer Slide Gate Valve: gearbox and chain were seized; freed the chain and lubricated
- 2nd Stage Secondary Clarifier No. 1: adjusted skimming arm
- East Plant, Parking Area: repainted parking lines
- Primary Basin No. 1, Gear Reducer: replaced the shear pin, on side 1
- 2nd Stage MCC Center: repaired AC
- Administration Wing: replaced two (2) electronic boards

➢ ***Completed 70 Preventative Maintenance Work Orders and 8 Demand Work Orders.***

June 2021

- COVID-19 Pandemic Staffing reverted back to Pre-Pandemic normal Maintenance Staffing
- Plant Fleet Vehicle, 2013 Transit: replaced battery
- Fournier Flocculator No. 3: replaced VFD Drive
- 1st Stage Secondary Clarifier No. 2: repaired drive chain

- Chlorine Contact Chamber: replaced sample pump, and inspected rapid mixer
- Plant Fleet Equipment, John Deere Gator TX: preventative maintenance service performed
- Primary Basin No. 1: replaced all wear shoes
- Plant Fleet Equipment, 2010 Case Farmall Tractor: replaced rear tires
- Aerated Grit Chamber No. 1: drained, cleaned, and inspected
- Plant Fleet Vehicle, 2012 Silverado 3500: replaced oil cooler lines and radiator
- Plant Fleet Vehicle, 2015 Transit: preventative maintenance, oil service performed
- Plant Fleet Equipment, 2016 Gravely Mower: preventative maintenance service performed
- Plant Fleet Vehicle, 2013 Chevy Equinox: serviced heater blower for "shake"

➢ ***Completed 76 Preventative Maintenance Work Orders and 23 Demand Work Orders.***

July 2021

- Normal Maintenance Staffing
- Plant Fleet Equipment, 2010 Case Farmall Tractor: replaced loader hydraulic hose
- Blower Building: replaced ceiling tile
- Aerzen Blower No. 2AB-3: serviced motor
- Primary Skimming's Line: opened up a plugged line, by jetting the line
- Plant Fleet Vehicle, 2012 Silverado 3500: replaced starter, and painted the truck bed
- Primary Basin No. 2: replaced shear pin
- Chlorine Contact Chamber: replaced faulty walkway grating
- Blended Sludge Pump No. 1: replaced motor
- Plant Fleet Equipment, John Deere Gator TX: replaced drive belt
- Fournier Press No. 2: replaced washers on the cell cleaning system
- 1st Stage Secondary Clarifier No. 2: repositioned Return Activated Sludge ('RAS') Box seal
- Aerzen Blower No. 2AB-4: serviced motor
- Fournier Flocculator No. 2: repaired poly leak at the flow meter
- CEPT Building, Hypochlorite Fill Station: repaired leak

➢ ***Completed 79 Preventative Maintenance Work Orders and 28 Demand Work Orders.***

Looking forward to the coming six months, the City plans to:

East Plant

- East Plant, Process Wing, Garage Bays Nos. 4 & 5: replace roll-up doors.
- East Plant, Control Building: replacement of SCADA computer terminals and historian computer.
- 'Lab and Control Room Upgrade Project': in progress, working on preliminary design ('20% design'); advance the design of Plant capital improvement project to "For Bid" documents.
- Aerated Grit Chamber Stairwell: replace the floor coating system.

Anaerobic Digestion Facility Feasibility Study, for Siting at the Westerly Wastewater Treatment Facility.

In the reporting period, the City's legal consulting firm, West Group Law, PLLC, continued to provide the City with expert assistance in advancing development of "Request For Proposals" (RFP) documents, to solicit proposals to repurpose the under-utilized Westerly Wastewater Treatment Facility. This second phase of the procurement process will involve soliciting formal qualifications and proposals to:

1. Identify the most qualified project developer and process
2. Determine the most economically beneficial project proposal, offering the best overall value to the City, considering a number of financial and revenue models for the City, including any combination of such components as:
    - Reduced costs of biosolids processing, transportation and disposal.
    - Host community fees and benefits.
    - Real and personal property tax revenue resulting from the construction of new facilities to process biosolids.
    - Pilot agreements.
    - Additional economic benefits from the sale of environmental attributes such as renewal energy or fuel certificates.
    - Reduced energy costs.
    - Sale of offtake and residuals (energy, fuels, compost or other aggregate byproduct of the technology).
3. Award contract and determine development and commercial operations period.

Also in the reporting period, the City issued out the RFP on March 24th, 2021, inviting approved "Request For Expressions of Interest" (the first phase of procurement) respondents to participate in the RFP (the second phase of procurement). Additionally, the City has hosted site tours of the Westerly Wastewater Treatment Facility for prospective RFP respondents, and Addendum No. 1 to the RFP was issued out on May 10th, 2021.

Within the next reporting period, the City did also issue out Addendum No. 2 to the RFP, on August 13th, 2021. From the most current RFP schedule (in Addendum No. 2), the City has set the deadline for receipt of RFP Proposals to no later than 4:00 PM on Friday – December 3rd, 2021. Thereafter, the City will review and evaluate the received proposals, conduct interviews with proposal teams, select the most advantageous proposer, and initiate contract negotiations with the most advantageous proposer. Tentatively, the City hopes to execute the contract with the selected proposer by approximately mid-May 2022 and issue Notice to Proceed for commencement of the Project Development Period.

City Sewer Ordinance Revisions

In the previous reporting period, on December 15th, 2020, the final, updated City Ordinances (Fitchburg City Code, Chapter 147 – Sewers) received it third and final hearing reading in City Council session, and was voted by City Council to be "enrolled and ordained". On December 18th, 2020, the Mayor of Fitchburg signed off on the Council-approved Sewer Ordinance changes. The Sewer Ordinance changes included updated "Technically-Based Local Limits" and also included other provisions required to comply with the National Pretreatment Program (40 CFR 403) "Pretreatment Streamlining Rule".

Notice correspondences were transmitted to both the Town of Westminster and the Town of Lunenburg (both correspondences were dated January 4, 2021) informing both communities (who each have an "Intermunicipal Agreement" ('IMA') with the City of Fitchburg, for providing sewage collection and treatment services), informing same of their IMA requirements to update their own Sewer Ordinances so as to be as stringent (or more stringent) that Fitchburg's Sewer Ordinance.

This reporting period, Fitchburg will receive (for review and approval) the draft updated Sewer Ordinances of the Town of Westminster, and the Town of Lunenburg. The Westminster ordinance update was received early in the period, and was reviewed, approved, and passed at annual Town meeting on April 27th, 2021. Lunenburg's updated sewer rules and regulations were received later in the reporting period, and are still under review by the City of Fitchburg.

Wet-Weather Operations

The City has not introduced any septage or other high strength side streams not associated with plant operations during times that any portion of the flow was bypassing the secondary treatment system, or during times when a secondary system bypass was likely to occur within two hours. We are continuing this practice as required, and will conduct periodic review sessions with plant staff to ensure all personnel are aware of wet weather operational procedures. The Secondary System Upgrade (SSU) Project began on March 3, 2017. The Project required us to take portions of our treatment process offline during construction upgrades.

- This first phase of this project has been completed with the installation of selector zones within the 1st Stage Aeration Tanks (Side 1 and Side 2) on March 14th, 2018.
- The second phase of the project required us to take 2nd Stage, Side 1 Aeration Tank and Clarifier offline, and this was performed between March 16th, 2018 and October 2nd, 2018.
- The third phase of the project (2nd Stage Aeration selector zone installation) began on October 4th, 2018, and was completed on June 19th 2019.
- The fourth phase of the SSU Project required us to revisit 1st Stage Secondary System for unfinished repair work, and required us to take all of 1st Stage Secondary System offline. This began on June 21st, 2019 and was placed fully back in service on October 3, 2019.
- The Final phase of the project required us to revisit 2nd stage Clarifiers for warranty maintenance repair and 2nd Stage Side 1 began on June 3, 2020 and was completed on August 24th, 2020. The treatment capacity was reduced during this time period. Since systems have been restored, we have been steadily lowering our Total Phosphorus (TP)

numbers to where the NPDES permit requires them to be. Presently our current Monthly Total Phosphorus average is 0.3 mg/L for the period of January 1, 2021 to July 31, 2021.

Comparing April 2016 (pre-SSU project), April 2020 (prior to SSU project completion), and April 2021 (post-SSU project) plant performance:

Metric	April 2016	April 2020	April 2021
Total Flow, MG (month)	246.3 MG	378.4 MG	248.5 MG
Max. Daily Flow, MG	11.8 MG	17.1 MG	17.5 MG
Total Rain, inches (month)	1.89"	7.7"	4.62"
Max. Daily Rain, inches	0.8"	1.6"	1.74"
Rain Events >1.0"	0	4	2
Total Bypass, MG (month)	0.051 MG	6.354 MG	2.940 MG
Max. Daily Bypass, MG	0.051 MG	4.85 MG	2.940 MG
BOD_5 In (Pounds)	525,857	444,049	577,420
BOD_5 Out (Pounds)	14,056	17,279	19,622
BOD_5 Removal Efficiency	97.3%	95.47%	97.0%
TSS In (Pounds)	667,896	655,596	1,043,342
TSS Out (Pounds)	26,619	22,632	24,872
TSS Removal Efficiency	96.0%	95.6%	97.6%

Plant performance metrics (post- SSU Project), considering that the newly completed plant upgrades will continue to improve treatment performance, together with the continuing combined sewers separation program, combination manholes separation, and infiltration and inflow removal program, will all further assist and improve (reduce) effects on the plant from wet-weather, and gives the City an expectation for continuing improved plant performance and continuing improved Permit compliance.

Additionally, Wastewater has observed a growing concern of an increasing trend in septage receiving gallons per day. This has been an increasing trend over the last couple years. Our daily septage amounts had increased to the point that we had to maintain a substantial biomass inventory in order to properly treat the large increased waste load demand from the septage. Lowering the daily septage limits to the levels used to establish our *Daily Local Limits* will allow us to increase our wet-weather bypass limits. This limiting change will also decrease the amount of solids that could be adversely affected by large wet-weather influent flows. Due to the risk of waste overloading the Plant treatment processes, later in the reporting period Wastewater developed a new Septage Receiving Policy that was put into effect on Monday – August 16th, 2021 (after the subject Semi-Annual Consent Decree reporting period close). Septage Haulers who frequent the East Plant, or who have "active" customer accounts in good standing, were provided a 1-month advance notification of the Septage Receiving change. The implemented change will limit the maximum amount of septage discharged per day to 35,000 gallons (except that the discharger who crosses the daily limit is enabled to complete the discharge), and the system "locks out" once the daily limit has been reached. Wastewater also implemented a "red", "yellow", "green" display light notification, to visually indicate the Septage Receiving status. Wastewater also maintains a phone message system that septage haulers can call to find the Plant's current Septage Receiving status. Wastewater will periodically review and evaluate the set daily limit of septage gallons received relative to Plant process performance, and will adjust the set daily limit of septage gallons if Wastewater believes

that we can do so without adversely impacting the Plant's ability to meet NPDES Permit discharge limits.

Since the implementation of the State Point Analysis system, developed by Wright-Pierce, plant operations have seen reductions in the length of time (duration) of secondary system bypasses, reduction in E. Coli violations, and reductions in both BOD and TSS violations of the NPDES permit.

C. WASTEWATER MANAGEMENT PLAN

In accordance with the Consent Decree, a first draft of the City's Wastewater Management Plan (WWMP) was submitted to the EPA and the MassDEP on May 15, 2019 for review and approval. This plan lays the framework for the City to come into compliance with the Federal Clean Water Act and the terms of the Consent Decree. To date, we have not received a response from either MassDEP or EPA on the Wastewater Management Plan, Deliverable No. 1.

The WWMP is required by the Consent Decree to include facility upgrades required to meet seasonal total phosphorus concentration-based limits and collection system upgrades necessary to meet federal water quality standards for combined sewer overflows (CSOs). As part of the WWMP, a CSO Long-Term Control Plan (LTCP) was created in accordance with EPA's *Combined Sewer Overflows Guidance for Long-Term Control Plan*, EPA's *Coordinating CSO Long-Term Planning with Water Quality Standards Reviews*, MassDEP's *Guidance for Abatement of Pollution from CSO Discharges*, and other relevant state and federal CSO guidance documents.

Estimated costs for sewer separation projects and CSO Control Alternatives were analyzed to determine their extent of social and economic impact on the community. Based on the findings of these steps, recommendations were formulated for the City's approach for future CSO mitigation. In addition, recommendations for improvements to the Easterly WWTF were created based on current loads and projected requirements of the City's next NPDES Permit. These tasks were incorporated into the CSO LTCP.

The Consent Decree's WWMP Remedial Measure also stipulates (within Para. 55.a) that, in developing the WWMP, the City is encouraged to consider evaluating potential Best Management Practices, including the use of all appropriate "green infrastructure" and "low-impact development" techniques currently available to reduce inflow.

In May 2020, the City executed an agreement with Weston & Sampson to develop the second phase of the City's WWMP. The WWMP Phase II Report was due to be submitted by or before December 31, 2020, as stated in the CD. The Report was required to include the following:

- A description of all infrastructure improvements and programs that have been implemented during the previous period to comply with the conditions of the CD and meet limits and other conditions of the City's NPDES Permit.
- The cost of the above listed efforts to date.
- A description of efforts planned for the next 3-year period.
- An assessment of the abatement anticipated to be achieved from the efforts for the next 3-year period.

During the previous reporting period, the City submitted the WWMP Phase II Report to MassDEP and EPA. The report included the above requirements specified in the CD. In addition, the report included a preliminary performance review of the SSU upgrades. Limited Plant performance data was available for the report, since the improvements were not fully complete until August 2020. However, the preliminary performance results has indicated improvements in BOD, TSS, and Ammonia treatment, although further analysis is required with a larger and more substantial set of data. To date, we have not received a response from either MassDEP or EPA on the Wastewater Management Plan, Phase II Report.

The City will provide a more detailed analysis of the treatment improvements under the SSU in the next submittal of the WWMP in 2023.

Fitchburg City 'Rain Barrels Program', 2018, 2019, 2020 and 2021

In the Spring 2018 reporting period, the City (collaboration between the DPW - Wastewater Division, DPW - Engineering Division, and the Fitchburg Conservation Commission) reported launching a 'Rain Barrels Program'. The City partnered with the 'Great American Rain Barrel Company' to facilitate a program where residents can purchase rain barrels to harvest rainwater runoff from rooftops for beneficial use in irrigating the private property where the runoff was captured, thereby diverting this runoff from the MS4 system, and promoting the infiltration and bioattenuation of the runoff.

In the program's inaugural year, the collaborating City partners offered the rain barrels at discounted purchase pricing, and sold a total of 98 rain barrels, which were distributed to the purchasers in early June 2018. The City partners were pleased with the success of the program's inaugural year, and continued the program in the Spring of 2019. In the Program's 2nd year, 50 rain barrels were sold. The vendor also provided a display/demonstration rain barrel to a local school (McKay Arts Academy, a Pre-K to 8th Grade School) for educational purposes for school children. Additionally, the vendor provided a second display/demonstration rain barrel to the City, for City use in promoting the Rain Barrels Program, in advance of the Program's third year in 2020.

At the end of February 2020, City Program Partners (Wastewater, Conservation Commission, and DPW – Engineering on behalf of stormwater & MS4 interests) reaffirmed partnership commitments for a Third Rain Barrels Program year (2020), and the City launched into the 2020 Rain Barrels Program promotion in March 2020. Given the uncertainties of how the Coronavirus pandemic might affect the 'Rain Barrels Program', the City was pleasantly surprised to have the largest sales success to date in Program Year #3, selling 176 rain barrels (more than Program Years 1 and 2 combined).

Early this reporting period, in February 2021 City Program Partners (Wastewater, Conservation Commission, and DPW – Engineering on behalf of stormwater & MS4 interests) again reaffirmed partnership commitments for a Fourth Rain Barrels Program year (2021). In the Program's 4th year, the City sold a total of 155 rain barrels. Over the Program's four years, the City has sold a total of 500 rain barrels.

The 'Rain Barrels Program' will also be a key development and networking tool to help grow 'green infrastructure' in the City into other forms that will serve to help attenuate and infiltrate stormwater

runoff on private properties, helping to prevent that water from entering into and adversely affecting both the City's sewer system and the hydraulic loading to the WWTF that is associated with wet weather events.

City Ordinances & "Green Infrastructure"

As noted previously in this report, the development of updated City Ordinances will help to facilitate and encourage the implementation of "green infrastructure" (G.I.) and "low-impact development" techniques. As this City initiative develops, the City's DPW – Wastewater Division will have a key participating and leadership role in this program, which will also involve and depend upon a number of other program partners from within the City departments and offices, but also with private partners and stakeholders from the community.

Toward this end, DPW – Wastewater Division has impressed upon our consultant that we want G.I. best management practice techniques and technologies considered for incorporation into the 'Downtown Separation Project', for its multiple benefits and to showcase G.I. in the downtown corridor of the City.

The City's Conservation Commission (or 'Con. Comm.', the municipal local authority designated to enforce the provisions and requirements of the Massachusetts Wetlands Protection Act) has been preparing to begin City Ordinances update within Con. Comm. purview, to further encourage/enforce requirements (as may be appropriate for the given application) for those project proponents coming before the Commission to investigate implementation of "Green Infrastructure" and "Low-Impact Development" techniques into the applicants' projects, however COVID-19 remote/virtual meetings has been an impediment to Con. Comm. pushing this initiative forward. Checking with the City's Conservation Agent and Principal Planner, Wastewater understands that the process of Ordinance updating is hoped to commence in the next reporting period.

Early efforts partnering with Fitchburg Conservation Commission, Fitchburg Public Schools, Fitchburg State University (etc.) have established the foundational relationships for interdepartmental partnering, and public outreach and engagement.

D. ILLICIT CONNECTIONS

During the reporting period, the City dye tested two suspected sanitary to storm illicit connections at #128 St. Joseph Avenue and #403 Pratt Road. Dye was visible in the sanitary sewer from both homes, indicating the dwellings were not connected to the drainage system as shown on record drawings. The GIS mapping was updated to reflect these investigations.

A stream/culvert connection on Dover Street at Bemis Road was closed, as indicated previously in this report.

A catch basin was found to discharge to a sanitary service at #550 Oak Hill Road during the reporting period. In the next reporting period, the City plans to redirect and repair this connection removing a large amount of inflow to the sanitary system, upstream of CSO Regulator 004.

One sump pump was redirected from the sanitary system at #10 Brigham Street. The connection was removed under the City's Financial Assistance Program for removing private I/I sources. Under this program, the City has been reimbursing homeowners up to 50% of the cost to remove an I/I source within the 'CSO 007, 011, 039, 048 Separation/Rehabilitation Project' area. During the next reporting period, more sources are expected to be removed, and the program is planned to be extended to the 'Downtown Separation Project' area.

The Wastewater Division has continued coordinating with the Building Department to halt acceptance of any Building Permits/Occupancy Permits at properties until the any discovered inflow source is removed. Going forward, in the course of ongoing and periodic repeat CCTV work, any suspected illicit connections will be identified for further investigation, to confirm or rule out as an illicit connection. If determined to be illicit connections, the area infrastructure will be reviewed and evaluated for the feasibility of redirecting confirmed illicit connections. In addition, the City plans to incorporate all building inspection data gathered as a result of SSES work conducted by its Consultant, into the City's GIS, for tracking purposes.

E. INTERIM PHOSPHORUS LIMITS

Since the completion of the Secondary System Upgrades Project, on August 24, 2020, we had a slight increase in the phosphorus average for the months of September 2020 and October 2020 until the facility recovered from the process interruptions that were needed to accommodate construction. Since October 2020, the Plant performance has seen a steady decline in the monthly phosphorus averages of:

Oct. 2020 …… 0.52 mg/L;

Nov. 2020 ….. 0.25 mg/L;

Dec. 2020 …… 0.17 mg/L;

Jan. 2021 ……. 0.2 mg/L;

Feb. 2021 ……. 0.2 mg/L;

Mar. 2021 …..... 0.2 mg/L;

Apr. 2021 …..... 0.2 mg/L;

May 2021 …..... 0.2 mg/L;

Jun. 2021 ……. 0.3 mg/L;

Jul. 2021 …….. 0.5 mg/L.

We have seen an increase in our monthly average Total Phosphorus (TP) when the season changed and the weather warmed. In the course of investigating and trouble-shooting the Total Phosphorus (TP) performance change, after reviewing and studying the "Anaerobic Selector Operation" training event that was provided to Fitchburg Wastewater personnel during the Secondary System Upgrade Project, it was noted that the SSU Project added anaerobic selector zones within the Aeration Tanks could be adversely affected with the addition of Ferric Chloride to the treatment process. As a result, as a process modification, the Ferric Chloride chemical addition was discontinued on August 9th,

2021. Since the discontinuation of Ferric Chloride addition, the Total Phosphorus (TP) weekly results have begun to improve (decrease) once again.

VIII. SUPPLEMENTAL ENVIRONMENTAL PROJECT (SEP)

The City asserts that the SEP fiscal obligation (expending more than $100,000 in SEP costs, as required under Paragraph 61 of the Consent Decree), which offset part of what would have been a higher Civil Penalty at the execution of the Consent Decree, has been fulfilled. No SEP activities took place during the reporting period.

EPA/MassDEP Inspection Activities

In December 2018, the EPA and MassDEP conducted an inspection of the City's Sewer System Operations. During the inspection, some deficiencies were noted in the Division's daily operations. The largest deficiencies seemed to be a lack of separation of combination manholes, SSO tracking, and a computerized daily work system. During the reporting period, the City made numerous improvements to its processes, as listed below:

- During the reporting period, the City hired more Sewer Collection Team operators, and now has 5 out of 6 positions filled within the Sewer Crew.
- The City will be reviewing sewer cleaning procedures and practices, and incorporating any beneficial practices into standard operating procedures from NASSCO's "Jetter Code of Practice". During the reporting period, the City was able to receive a 6 month warranty extension on its Combination Jetter/Vac Truck, due to numerous mechanical issues after receiving the vehicle. Fortunately, the truck has been much more reliable during the reporting period.
- During the current reporting period, the sewer CCTV manufacturer (CUES) conducted a 3-day re-training on the City's sewer camera, as many of the new employees did not have experience in CCTV operation. Unfortunately, the CCTV camera van has had an ongoing mechanical issue that no dealer or mechanic was able to pinpoint until the end of the reporting period. During the next reporting period, the City expects to have the van fully operational to begin ramping up CCTV operations again.
- In the next reporting period, the City will be utilizing a variety of methods to separate many of its remaining combination manholes, as noted previously in the report.
- The City has been using a Microsoft-Word based searchable document to track all daily activities. In the next reporting period, the City plans to execute a contract for the purchase of a Computerized Management Maintenance System. The City attempted to use SeeClickFix for work order tracking, however it has proved to be time consuming and not a well-suited program application for the City's needs.
- The City promptly implemented (in an earlier reporting period) new signage at the City's remaining CSO outfalls.

- In an earlier reporting period (in late 2019), the City implemented the proposed improvements at the Treatment Plant's Septage receiving station as an added item (by contract change order) to the 'Secondary Systems Upgrades Project' at the East Plant. These implemented protective measures help prevent accidental discharges of septage from entering into the catch basin in near proximity to the septage receiving station.

If there are any comments or questions regarding the above subject please contact the undersigned at (978) 829 - 1930.

Sincerely,

FITCHBURG DPW, WASTEWATER DIVISION

Jeffrey A. Murawski, P.E.
Fitchburg DPW Deputy Commissioner of Wastewater

Electronic & Hard Copy:	Neil Handler, USEPA, Region 1 Office David Boyer, MassDEP, Central Region Office
Electronic copy: (Transmittal letter only)	Chief, Environmental Enforcement Section, DOJ Susan M. Poswistilo, Assistant U.S. Attorney Michael Wagner, U.S.E.P.A. Louis Dundin, Assistant Attorney General, Massachusetts AG
Electronic copy:	Anthony Maressa, P.E., Sewer System Manager Vincent Pusateri, II, Fitchburg City Solicitor Nicholas J. Ericson, P.E., Interim Commissioner of Public Works

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate 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."

Jeffrey A. Murawski

Jeffrey A. Murawski, P.E., DPW Deputy Commissioner Wastewater

Attachment 1 - Combination manhole inspections during reporting period on remaining CMHs

			7/17&18/2021 Rain: 2.7"		5/28/21 to 5/31/21 Rain: 2.94"		4/30/21 to 5/1/21 Rain: 1.39"		1/16/2021 Rain: 1.61"	
Sub Watershed	**CMH#**	**CMH Location**	**BLOCK IN DRAIN**	**BLOCK IN SEWER**	**BLOCK IN DRAIN**	**BLOCK IN SEWER**	**BLOCK IN DRAIN**	**BLOCK IN SEWER**	**BLOCK IN DRAIN**	**BLOCK IN SEWER**
1	3	Albee St/Belli			1			1		
1	5	Albee St/Krysiak Ave Intersection						1		
1	6	399 Albee St		1	1		1			
1	7	219 Albee St			1		1			1
1	8	364 Albee St		1		1				1
1	40	Canton Street/Valley St Place Easement								
1	42	Canton Street, 50 N of Romano								
1	86	27 Krysiak				1		1		
1	87	56 Krysiak						1		
1	340	Courtyard between 23 and 1 Leyte			1					1
1	125	26 Nimitz			1				1	
1	127	Normandy Rd/Office Parking Lot						1		
1	155	Romano/Canton		1						
1	156	37 Romano								
1	167	33 St Paul St								
1	325	56 St. Peter St								
1	307	73 Valley St								
1	308	95 Valley St								
1	310	Easement Second CMH at Rock								
1	313	49 Valley St								
3	18	22 Beekman								
3	350	Beekman St at Cliff St								
3	239	38 Birch St								
3	55	76 Everett St								
3	56	Everett St/Maplecrest Ave Intersection								
3	231	Fairbanks St/Everett St Intersection								
3	57	44 Fairbanks St								
3	58	Fairbanks St/Maplecrest Ave Intersection								
3	235	21 Fairbanks St								
3	169	Salem/St Anthony Church		1						1
3	347	Salem St @ Birch St (10' north on Salem)								
3	172	Salem St/Beekman St Intersection								
3	187	South St/Everett St Intersection								
4	51	Elm St/Marshall Dr Intersection								
4	117	Marshall St/Dr								
4	338	491 Main Street (On Oliver St @ Main)								
5	39	Caldwell St/Arlington St Intersection								
5	146	25 Read St								
5	329	166 Ashburnham Hill Road								
5	330	130 Ashburnham Hill Road								
5	331	100 Ashburnham Hill Road								
5	332	88 Ashburnham Hill Road								
5	333	36 Ashburnham Hill Road								
5	334	115 Arlington Street								
9	322	Westminster/Overland							1	
9	226	Westminster St/Princeton Rd Intersection				1				
9	227	Westminster St/Eureka St Intersection		1		1			1	
9	342	Westminster St at Cascade St								
11	106	Lunenburg/Berry								
11	107	Lunenburg/Perkins								
11	108	Lunenburg St/Garland St Intersection								
11	109	185 Lunenburg St/Oakland St Intersection								
11	110	Lunenburg/Redman Pl/171								
11	236	Lunenburg St/Linwood Ave Intersection								
11	112	37 Mack Rd		1						1
11	113	49 Mack Rd								
12	37	Downstream from 50 Brown Ave								
12	76	Highland Ave/Brown Ave Intersection								
12	98	Lincoln St/Rogers Ave Intersection		1						
12	99	320 Lincoln St		1						
12	147	Rogers Ave/Highland Ave Intersection								

Attachment 1 - Combination manhole inspections during reporting period on remaining CMHs										
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			Rain: 2.7"		Rain: 2.94"		Rain: 1.39"		Rain: 1.61"	
Sub Watershed	CMH#	CMH Location	BLOCK IN DRAIN	BLOCK IN SEWER	BLOCK IN DRAIN	BLOCK IN SEWER	BLOCK IN DRAIN	BLOCK IN SEWER	BLOCK IN DRAIN	BLOCK IN SEWER
12	148	Rogers Ave/Brown Ave Intersection								
12	233	32 Rogers Ave								
13	32	436 Blossom St			1					
13	33	Blossom/Crescent			1					
13	242	Blossom St/Ryefield Rd Intersection		1	1			1		1
13	141	Osgood/Longwood								
13	320	Blossom at Ross	1		1		1			
13	158	91 Ryefield								
13	159	45 Ryefield								
13	339	30 Ryefield / Wendell Rd Intersection								
14	238	Pearl/Charlton		1						
14	348	100 Edlee Street								
14	317	640 Pearl					1		1	
15	207	Townsend St/Normal Rd Intersection						1		1
15	210	67 Townsend St					1			
15	211	91 Townsend St					1		1	
15	304	31 Townsend St							1	
18	61	Forest Hill Rd/J Keating Rd Intersection								
18	62	Forest/Paulsons								
18	63	Forest Hill Rd/Forest Pk Intersection								
18	64	Forest Hill Rd/Forest Hill Ave								
18	315	21 Forest Park								
18	144	31 Putnam Pk								
18	145	61 Putnam								
18	349	34 Pine Street in gravel driveway		1						
18	189	500 Old South St								
18	190	480 Old South St								
18	191	Old South St/St. Peter St Intersection								
18	192	Old South/Heywood								
19	151	182 Rollstone St.								
19	152	152 Rollstone St.								
19	153	127 Rollstone St.								
20	14	Beech/Delisle					1			
20	17	Beech/200 From Franklin				1				
20	352	Beech St/Franklin Rd								
20	142	Parker/Thurston								
20	143	Parker/Thurston								1
21	115	427 Madison							1	
21	116	Madison/Cemetery	1						1	
21	123	44 Miami St								
22	46	Clearview Ave/Foch Ave Intersection								
22	48	174 Columbus			1			1		
22	49	152 Columbus					1			
22	78	Hope St/Fredette St Intersection								
22	88	150 Legros								
22	119	39 Maryland Ave		1			1			
22	124	Newtonville/Foch								
22	133	Oak Hill Rd/Exeter St Intersection								
22	134	Oak Hill Rd/Hurd St Intersection								
22	138	Oak Hill/Daniels 30 feet uphill.								
22	318	Oak Hill/Jeanette		1				1		
22	157	43 Ronald Ave		1			1		1	
22	160	St. Joseph St/Pratt Rd Intersection								
22	161	St Joseph/Delisle		1		1		1		
22	162	St Joseph/St Andrew		1			1			
22	163	St Joseph/Legros								
22	164	153 St Joseph						1		
22	165	210 St. Joseph St				1	1			
22	166	282 St Joseph St				1				
22	302	Newtonville/Oak Hill								
22	335	24 York Avenue								

Attachment 1 - Combination manhole inspections during reporting period on remaining CMHs

			7/17&18/2021		5/28/21 to 5/31/21		4/30/21 to 5/1/21		1/16/2021	
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22	336	44 York Avenue		1				1		
22	346	240 Fairmount Street (off pavement on other side of street in gutter)								
23	9	97 Appleton Circle								
23	10	79 Appleton Circle								
23	11	97,105,108 Appleton								
23	59	Fairmount/Leroy								1
23	89	Leroy St/Clearview Ave Intersection				1				
23	90	Leroy St/Newtonville Ave Intersection								
23	301	80 Appleton Circle								
23	351	34 Southwick Street								
		Totals	**2**	**17**	**10**	**9**	**12**	**12**	**9**	**9**

ASHBY

ASHBURNHAM

WESTMINSTER

LUNENBURG

LEOMINSTER

WESTMINSTER

Legend

- PRIVATE PROPERTY DELINEATIONS
- PUBLIC WAY
- PRIVATE WAY
- MUNICIPAL BOUNDARIES

City of Fitchburg, Massachusetts

BASE MAP

PARCEL & ROADWAY DATA
MUNICIPAL BOUNDARIES
MAP 1 OF 4

August 1, 2021

NORTH

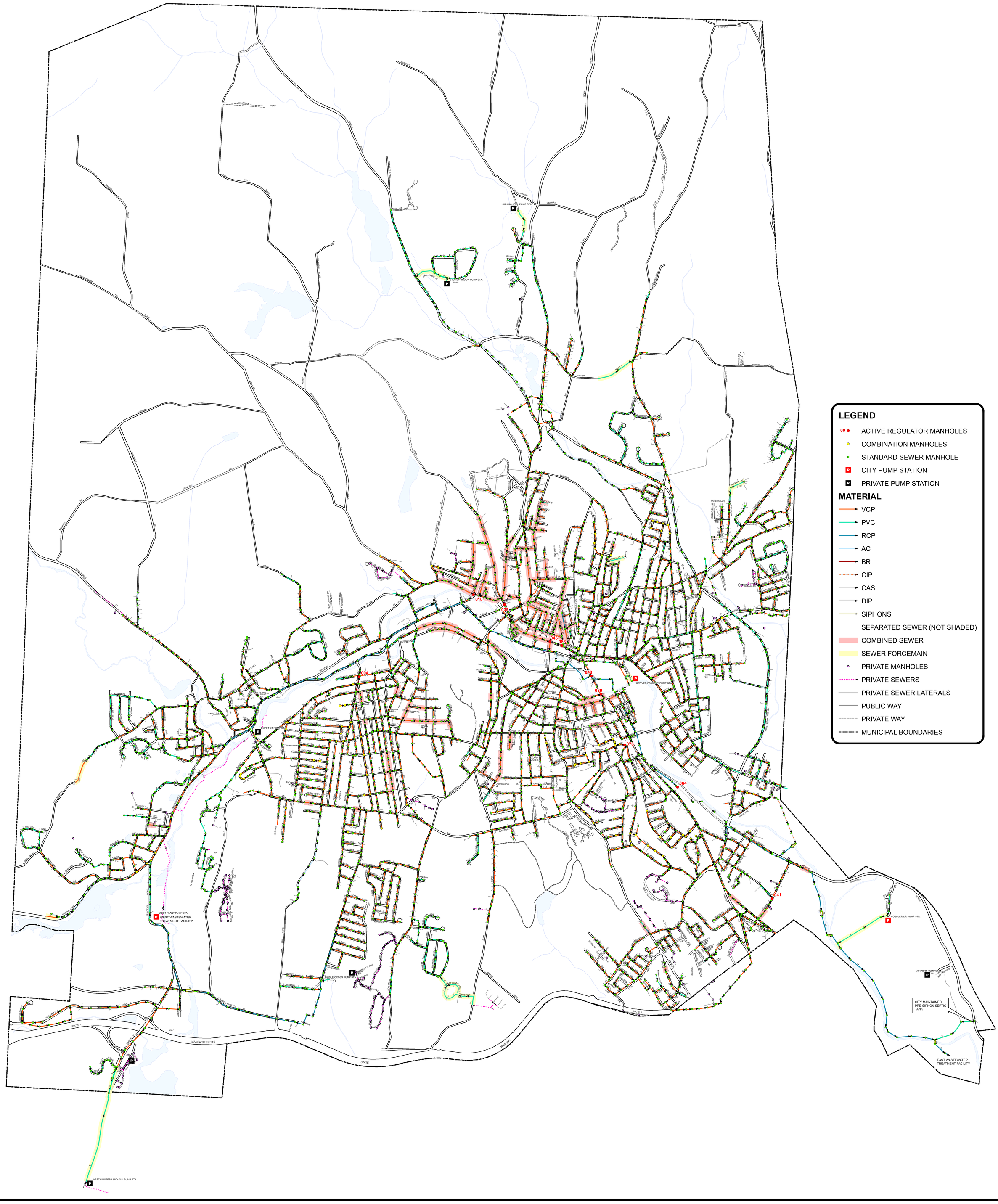
0 0.25 0.5 1 1.5 2 Miles

SCALE: 1 INCH = 1,000 FEET

Prepared by:
The City of Fitchburg Massachusetts,Wastewater, GIS Engineer.

Author: kdupont

Path: P:\WASTE WATER\GIS\GIS Maps\Consent Decree\2021-08 Semi Annual Report\Map_1of4_Base_Map.mxd



City of Fitchburg, Massachusetts

COMBINED AND SEPARATE SEWERS

SEWER MATERIAL AND SIZE

MAP 2 OF 4

August 1, 2021

NORTH

0 0.25 0.5 1 1.5 2 Miles

SCALE: 1 INCH = 1,000 FEET

Prepared by:
The City of Fitchburg Massachusetts,Wastewater, GIS Engineer.

Author: kdupont

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LEGEND

STORMWATER FEATURES

- DRAIN MANHOLES
- CATCH BASINS
- STORM DRAINS

OTHER DATA

- ROADWAYS
- WATER FEATURES
- MUNICIPAL BOUNDARIES

City of Fitchburg, Massachusetts

STORM DRAINAGE

MAP 3 OF 4

August 1, 2021

NORTH

0 0.25 0.5 1 1.5 2 Miles

SCALE: 1 INCH = 1,000 FEET

Prepared by:
The City of Fitchburg Massachusetts,Wastewater, GIS Engineer.

Author: kdupont

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ASHBY

ASHBURNHAM

WESTMINSTER

LUNENBURG

LEOMINSTER

WESTMINSTER

DOWNTOWN SEWER SEPARATION DESIGN

REMOVE (2) CATCH BASINS FROM SANITARY SYSTEM. INSTALL NEW STORM DRAIN.

RAISE CSO REGULATOR WEIR WALLS

HIGHVIEW ST. SEWER REHABILITATION PROJECT

SEWER SEPARATION AROUND CITY HALL

CATCH BASIN REMOVAL FROM SANITARY SEWER SYSTEM

CLOSURE OF CSO-007

CSO 039, 048 & 007 SEPARATION PROJECT

REINGOLD SCHOOL SEWER SPOT REPAIR

FORMER CSO 011 COMBINED SEWER SEPARATION.

RE-DIRECT PRIVATE CATCH BASIN TO STORM DRAIN

PLUG 8" DIAMETER INTERCONNECTION FROM STORM DRAIN TO SANITARY SEWER SYSTEM

REPLACE 8" DIA. SEWER AND REMOVE PROBLEMATIC DROP MANHOLE FOR SSO PREVENTION

RE-DIRECT CATCH BASIN FROM SANITARY SYSTEM TO STORM SYSTEM

COBBLER DR. PUMP STATION ENGINEERING ASSESSMENT

CLEAN AND CCTV INSPECTION OF SEWER UNDER ROUTE 2 (SSES PHASE IV)

CLEAR SEWER EASEMENT

004 010 032 039 041 045 048 064 076 083

LS

LEGEND

CCTV'D & GRADED SEWERS

- 0 - NO DEFECTS
- 1 - EXCELLENT
- 2 - GOOD
- 3 - FAIR
- 4 - POOR
- 5 - FAIL
- NOT GRADED
- PRIVATE SEWER

PROJECTS

- WORK DURING CURRENT REPORTING PERIOD
- (....) DESCRIPTION OF WORK DURING CURRENT REPORTING PERIOD
- WORK PROPOSED FOLLOWING REPORTING PERIOD
- (....) DESCRIPTION OF WORK FOLLOWING REPORTING PERIOD

MANHOLES RAISED/ADJUSTED

- BURIED MANHOLE RAISED TO GRADE
- MANHOLE ADJUSTED TO GRADE

COMBINATION MANHOLES (CMH)

- EXISTING CMH
- CMH SEPARATED DURING CURRENT PERIOD

ACTIVE REGULATORS

- REGULATOR 004
- REGULATOR 010
- REGULATOR 032
- REGULATOR 039
- REGULATOR 041
- REGULATOR 045
- REGULATOR 048
- REGULATOR 064
- REGULATOR 076
- REGULATOR 083

MANHOLE METERING

- LS WIRELESS ULTRASONIC LEVEL SENSORS

City of Fitchburg, Massachusetts

EXTRANEOUS FLOW INVESTIGATION, REMEDIATION, AND CAPITAL PROJECTS MAP 4 OF 4

August 1, 2021

NORTH

0 0.25 0.5 1 1.5 2 Miles

SCALE: 1 INCH = 1,000 FEET

Prepared by:
The City of Fitchburg Massachusetts,Wastewater, GIS Engineer.

Author: kdupont

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