City of
Fitchburg

Department of
Public Works

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WATER
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August 31, 2020

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 2020 – July 2020 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 2020 thru July 2020 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. Additionally, the City is also not including the "Base Map" GIS map (Map 1 of 4) of parcel & roadways data and municipal boundaries which do not change frequently. In the event there are significant changes in either property parcels divisions or roadways data (most likely due to property subdivision and development), 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, hard copies will be provided together with a printed copy of this report, via U.S. mail. GIS maps updates will also be provided with the electronic submissions (via email) of this report.

Semi-Annual Progress Report
February 2020 through July 2020 Reporting Period

A. SEWER SYSTEM

Staffing

The Sewer Collections team gained a new member in March 2020. This employee is in a "flex" position, which means he assists the Streets Division of DPW 2 to 3 days a week, mainly performing work on the storm drainage system. The addition of this employee has increased the Collection System Team to a roster of five (5).

The Collection System Team's 6th roster spot is intended to be filled by a "General Foreman" overseeing the Collection Crew team, and who will be responsible for the running the in-field operations of the team and directing all work crews during a typical work day. The City first sought to fill this position in the Summer of 2018, but was unsuccessful in attracting qualified candidates to fill this important leadership position. In the absence of filling this position, more time and hands-on direction was required of the Sewer System Manager. By removing duties that could be handled by the General Foreman, 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. As a result, this position was also reevaluated & rewritten in the Fall of 2019, and was advertised in November 2019. To date, the City has not received any applications from interested candidates from outside DPW that meet the qualifications requirements. With over a year of having no experienced candidates apply for the position, the City will likely fill the position with an internal candidate that would be best suited to the position. The position's posting has been advertised to:

- Massachusetts Water Environment Association ('MAWEA', formerly MWPCA) Jobs Hotline webpage
- American Public Works Association ('APWA'), New England Chapter's Employment webpage
- Massachusetts Municipal Association's Municipal Career Opportunities webpage
- Worcester Telegram & Gazette (largest newspaper publication distributed in Central Massachusetts; and also included listing on the 'ZipRecruiter' job-posting website)
- Sentinel & Enterprise (local area newspaper)

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

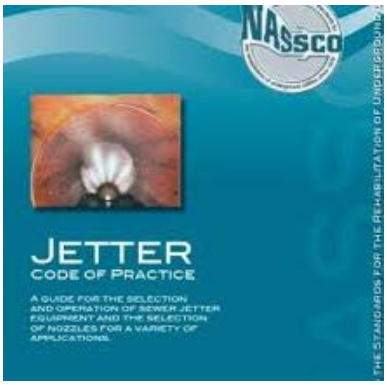
The City's Priority Cleaning Plan, submitted in January 2012, has been distributed to all collection system operators and copies are maintained in each vehicle for quick reference. This document is a

"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.

In the reporting period, three problematic manholes replacements and one sewer spot repair were completed at locations that have a history of SSOs due to root infiltration or poor pipe condition. These locations are noted on Map 4.

Geographical Information Systems (GIS) Maps

Three maps were updated for this semi-annual report.

1.) "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 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 has raised 2 buried manholes to grade during the reporting period. These locations are shown.

2.) "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

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.

3.) "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 conducted multiple spot repairs, raised buried sewer manhole frames and covers, and reset manhole castings that were failing. If the manhole castings found in fair condition with fewer than 3 vent holes in the cover, or is within a combined sewer area or in an off-road easement, then the City replaced the casting with a new vent-less casting. The City also separated additional combination manholes and constructed a new sewer on Wood Place in preparation for separation of catch basins on the City Hall Campus (fronting Main Street, between Main Street and Boulder Drive). 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. 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 43,763 feet, or approximately 8.28 miles.

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

The collection operators continue to make progress with CCTV inspections and condition coding all 142 miles (approximate length) of sewer pipe within the City. By the close of the reporting period, the City had condition coded approximately 92.7% of its sewer system. The majority of pipes remaining to be coded are either located within difficult to access easements, egg-shaped pipes, 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 access points. Some of the uninspected sewers are small diameter force mains where a CCTV camera is too large to fit in 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 5-years as part of the "downtown" sewer separation project (***CSOs 045, 083, 032, 010***). 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 2 percent having been CCTV'd under the second round. During manhole repairs or sewer line repair operations, CCTV operations are suspended due to the staffing need for more crew members to conduct the repairs.

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 TV, Sonar, and Radar, in order to assess pipe ovality, concrete 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 undergoing internal review and edits. The work conducted on the trunk sewer is identified as "Phase 4" under the Sewer System Evaluation Survey Scope of Work submitted to EPA and the MassDEP in June 2016. In addition to TV work conducted under the SSES Phase IV agreement, cleaning and TV of the City's Siphons and various portions of the trunk sewer was started during the reporting period as explained later in the report.

The following table (***Table No. 1***) 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-039, 048, 011, 007 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.

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:

- 3,552 publicly-owned sewer manholes out of 3,575 (99.36% completed).
- 2,445 drain manholes (out of an unknown total).
- 3,975 catch basins (out of an unknown total).
- 269 sewer laterals
- 14 sewer clean-outs
- 1,333 other asset types. Other asset types typically include other types of utility manholes, services, or locations of dig-safe mark-outs.

The City's gas company, Unitil, has been CCTV'ing sewer laterals in natural gas project areas, in order to reduce damage to private sewer laterals. As part of these investigations, Unitil marks out

the locations of the sewer laterals. The City has been following Unitil and locating the service laterals with the City's GPS, in order to update and improve the City's sewer system map. During the reporting period, no laterals were marked and located by the City where Unitil gas work was being conducted, however it is expected that additional laterals will be located in the coming reporting period.

Service Call Activities

The 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 lateral for blockages. If the issue is 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.

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 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.
- Unfortunately, the City lost its primary DPW Dispatcher that used to enter service logs into the SeeClickFix System, and has reassigned entering the service logs to the Sewer System Manager and GIS Engineer. In the past, the City has used college interns to enter the data, however due to budgetary reasons related to COVID-19, interns were not hired this summer. In the coming months, the City will determine if interns could be hired on a part time basis, due to many colleges transitioning to on-line classes.

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 financial resources towards the renewal of assets.

The City has successfully installed the "InfoAsset" asset management program, however due to the technical workings of the program, the City will be consulting with an outside firm during the next reporting period to conduct initial model runs and outputs of this software. The model will be a focal point for the City going forward in prioritizing its management and rehabilitation of the collection system.

During the reporting period, the City continued contact with "Dude Solutions" and "Utility Cloud" computerized management maintenance systems (CMMS) to log and track work completed by the Collections Team each day. The purpose of these softwares are to assign and track work conducted each day, eliminate paper forms, and link the work to a GIS database in order to track trends. All the solutions are cloud-based, giving program access to all employee anywhere (in the field or in the office). The DPW's Streets Division and Engineering Division were teaming up with the Wastewater Division on this task to try and find a software solution that can also be used to track catch basin cleaning, sweeping, and manhole/catch basin inspections, however due to the COVID-19 crisis almost all large capital purchases have been halted. During the next reporting period however, the Wastewater Division of DPW foresees continued exploration of a CMMS, and possibly "breaking-away" from the other Divisions of DPW for obtaining a software, as it is critical to proper collection system operation.

During the past reporting period, the City executed an agreement with its Consultant to renumber (relabel) the sewer and drain assets in the City's GIS. The purpose of the proposal is to simplify the numbering system to reduce confusion and to remove the existing sewer "GIS sub-areas" which are not based on sewer-shed, but rather on a specific number of manholes. The new numbering system will also be useful during import of GIS data into the City's future CMMS. The consultant renumbered the GIS data during the reporting period, and is currently undergoing internal review at the City before finalization. During the next reporting period, the renumbering will be completed.

Intermittent Stream Connections to Sewer

For over six (6) years the City has attempted to gain access to #34 Highview Street, a foreclosed property, to determine if the sanitary lateral from the property was connected to a culverted stream that discharged to the sanitary system. Rehabilitation work has been underway at the property, and the City was finally able to gain access to the property during the last reporting period and determine that the sewer lateral was tied into the intermittent stream. During the previous reporting period, the City continually inspected the stream during conditions of high groundwater and frequent precipitation, and noticed that the stream no longer continues to run. It appears that construction development of some new homes upstream in the watershed may have changed runoff characteristics, limiting the amount of runoff that enters the intermittent stream. Due to these observations, the City installed a masonry plug at the headwall/inlet of the intermittent stream and converted the pipe into a dedicated sanitary-only pipe.

Meter Maintenance

For the entire reporting period, the City has been maintaining its 13 flow meters located at regulator manholes throughout the reporting period. One ADS ECHO ultrasonic sensor was also maintained at CSO-045. During the previous reporting period, the City purchased 10 ADS Environmental ECHO level sensors at various locations throughout the City. Typical locations for the sensor locations were combination manholes, "problem areas", four siphon head chambers, and CSO regulators. The City also has 3 ADS Triton+ flow meters at various locations for pre- and post-construction monitoring for the upcoming CSO-007, 011, 039, 048 Separation Project.

Current deployed meters include 15 ADS Triton+ Flow meters and 11 ADS ECHO down-looking ultrasonic meters. 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*** below 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, 2020 TO JULY 31, 2020

Meter	Location	Events	Volume (Gallons)	Notes:
CSO-004	Cleghorn St. at Oak Hill Rd.	2	17,392	Meter not operational for 20 days at beginning of period. Separation upstream and outlet pipe upsizing required for closure
CSO-007	Cushing St. at Riverfront Park	1	unknown	Tell-tale block activated, but meter did not pick up data. Regulator closure starting construction Fall 2020
CSO-010	Main St. at River St.	12	853,000	Separation project is required to close. Experienced meter issues between February and April. 3 Events missed by meter, but confirmed with tell-tale block during this time frame. Slated for closure 2024/2025 per Wastewater Management Plan (WMP).
CSO-032	543 Main St. at Post Office	15	232,100	Separation project is required to close. Slated for closure 2024/2025 per WMP.
CSO-039	Water St. at Walnut St.	11	1,493,000	Regulator closure/sewer separation starting construction Fall 2020.
CSO-041	Benson Rd. near Falulah St.	2	5,764	Upsizing pipe downstream and upstream I/I work necessary for closure.
CSO-045	Main St. at Oliver/Putnam St.	17	1,447,837	ADS ECHO down-looking sensor used to estimate overflows using weir equation.
CSO-048	85 Water St.	0	0	Regulator closure construction to begin Fall 2020. Reduced overflows since separating CMH upstream in 2018.
CSO-064	Water St. Easement at former "Halloween World"	9	885,729	Regulator on main interceptor sewer. Inflow removal upstream and sewer upsizing likely necessary for closure.

CSO-076	Birch St. at Heywood St.	1	17,622	Downstream pipe undersized. No known combined sewers upstream.
CSO-83	Main St. at Prichard St.	6	121,238	Sewer Separation required upstream to close regulator.
	Totals	**76**	**5, 073, 682**	

The City has been servicing the meters on a roughly 2-month frequency to help maintain high data quality. During the reporting period, the meter manufacturer (ADS Environmental Services) conducted visits to all of the City's flow meters to ensure they were functioning as designed. Most of the meters only needed minor maintenance (sensor and battery replacement).

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 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 the previous reporting period, discussions were had with ADS in an effort to provide better public notification for CSO Events. The technology to provide accurate and instant notification of CSOs is in its infancy, leading the City to explore multiple options for better notification.

The City has also been using ADS' new 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. Near the end of the reporting period, the City executed an agreement with ADS to keep the PRISM platform running for a year.

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.

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.

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. Investigative work for Phase 2 of the SSES has been completed, with the report likely to be submitted to the MassDEP and EPA in the next reporting period.

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. Two sections of the trunk sewer were also "heavy cleaned" as part of the investigations, with over 12 cubic yards of material removed from an 18-inch diameter sewer, vastly increasing carrying capacity of the line.

During this reporting period, Weston & Sampson provided the SSES Phase IV report to the City for review, and the City provided comments back to Weston & Sampson. The Phase IV report will be submitted to MassDEP and the EPA during the next reporting period.

Siphon Cleaning Design/Bid/Inspection Services

During Phase I of the City's SSES, significant debris buildup was identified in the City's three (3) major siphons along the interceptor leading to the Easterly Wastewater Treatment Facility. In addition, CCTV and sonar investigations also identified sewers on Airport Road with significant

debris buildup. Further investigations found the remaining two siphons in the City to also have debris buildup reducing capacity and blocking flow. As a result, the City executed a Siphon Cleaning Design/Bid/Inspection Services Agreement with Weston & Sampson in July 2019. During this reporting period, the contract was awarded to Ted Berry Cleaning Company, and the heavy cleaning/inspection work commenced on June 22, 2020. The project is anticipated to be completed during the next reporting period.

- During Ted Berry's cleaning operations, a severely deteriorated 26" wide by 39" tall egg-shaped intercepting combined sewer was discovered in Elm Street.
- Due to the likelihood of imminent collapse of this major sewer and the fact that the sewer has collapsed in the past, approximately 325 linear feet of existing Elm Street sewer will be replaced under DPW's On-Call Construction Contract.

Combination Manholes Program

There were no qualifying rain events during the reporting period that met the criteria necessary to perform combination manhole inspections (2-inches within a 24-hour period). However, the City performed checks following three substantial rain events during the reporting period. Rainfall data is recorded at the City's primary rain gage at the Department of Public Works (at #301 Broad Street, Fitchburg). An additional rain gauge is maintained at the east end of the City, at the Summer Street Fire Station.

During the reporting period, there were a total of 41 flow transferences to either the drain side or sewer side of the manholes during the three events that the manholes were inspected. These overflows are taking place in a total of ***161*** remaining combination manholes. The City reported ***262*** total combination manholes in 2008. Attachment 1 includes all combination sewer manhole checks during the reporting period in the remaining combination manholes.

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, and frequency of flow transference. The City has been concentrating separation in specific areas to receive better pricing, but also drastically reduce the chance for transference from a specific area or street.

During the reporting period, thirteen (***13***) combination manholes were 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 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 combination manholes that were separated during the reporting period.

TABLE No. 3 – Combination Manholes Separated	
CMH No.	**Location**
126	Normandy Rd. at Maintenance Office Entrance
131	#123 Normandy Rd.
341	#824 Water St.
224	Water St., 100 feet north of Duckmill Rd.
221	#762 Water St.
222	#792 Water Str.
232	Birch St. at Salem St.
200	#21 Theresa St.
197	Theresa St. at Delisle St.
201	#80 Theresa St.
196	Theresa St. at Legros St.
203	#143 Theresa St.
203	#143 Theresa 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 this reporting period, Weston & Sampson submitted draft separation designs to the City for review.

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 manholes, which minimized additional in-house progress on separating combination manholes.

During construction of the upcoming ***CSO-007, 011, 039, 048 Project***, which was bid in August 2020, seventeen (17) additional combination manholes will be separated.

Status of Regulators and Outfalls

During reporting period, the City's Consultant, Weston & Sampson, finalized design, and the City publicly bid the City's next sewer separation and rehabilitation project, in the areas of CSO Regulators 007, 011, 039, and 048. The project was bid on August 17, 2020 and is currently undergoing the Contract Award/Execution process, for a Fall 2020 construction start date.

Contingent on MassDEP and EPA approval (or conditional approval) of the City's Capacity Assessment Report, in the next reporting period the City intends to utilize the hydraulic model as a tool in determining how much combined sewer separation and inflow removal work is necessary for closure of each of the remaining CSO regulators.

The City also submitted for SRF funding under the 2021 Intended Use Plan for the planning phase of the City's next separation project as identified in the City's CSO Long-Term Control Plan. This project 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. The Project Evaluation Form for the SRF funding was submitted to MassDEP in August 2020.

On-Call Emergency Construction Services

Within the reporting period, the City executed a Contract for Emergency On-Call Services for Water, Sewer, and Storm Drain Construction. Work under this Contract will consist of sewer pipe lining and pipe replacement on Highview Street, river bank stabilization at the East WWTF to stabilize utilities that cross the river and service the plant (started during the reporting period), and any other needs that may arise such as pipe repair, bypass pumping, or jetting services. The City may also use this Contract for combination manhole separations. The City is also planning to utilize this contract for the previously noted (see under "**Siphon Cleaning Design/Bid/Inspection Services**") Elm Street egg-shaped sewer replacement.

City Hall Sewer Separation Project

During the current reporting period, the City received a 100% design from Bohler Engineering for final review by the City for separating the combined sewers around City Hall, which will remove 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 will be redirected to the storm drain system. During the reporting period, the City installed a new sewer on Wood Place, which allowed the City Hall Campus to be placed "on-line". The second phase of the project is to construct a sewer on Boulder Drive and a corresponding drain tie-over on the City Hall campus to completely separate the current combined sewer system. The Wastewater Division received formal approval from the City's Purchasing Department to construct the remaining sewer and drain work during the next reporting period under DPW's "On-Call" Construction Contract.

Sewer Rate Increase

During a recent earlier reporting period, the City developed 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 paragraphs.

- 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, but the Secondary Systems Upgrades (SSU) Project which began on March 3, 2017 required us to take portions of our treatment process offline while the work was performed.
- The reduced treatment process has lowered our treatment capacity, and as a result the City has not been complying with the interim phosphorus limits and have had a 12-month rolling phosphorus average of 0.65 ppm, which is above the interim phosphorus limit of 0.5 ppm.
- The City attributes the exceedance due to the SSU project requirement of taking all of 1st Stage offline and the corresponding reduction of the plant's treatment capacity. Prior to the last phase of SSU Project construction work, which began on June 21, 2019 and ended on October 3, 2019, the city was complying with the interim phosphorus limit of 0.5 ppm.
- All Secondary Systems work was completed on August 24th, 2020, and the final tank (Second Stage, Secondary Clarifier No. 2) was refilled and put into service. As of this writing, the Plant has full treatment capacity restored.
- As a result, the City fully expects the 12-month rolling phosphorus average to trend back down now that the majority of SSU Project work is completed, and to be significantly under the interim phosphorus limit of 0.5 ppm as a result of the biological nutrient removal improvements implemented by the SSU Project.

Secondary Systems Upgrades (SSU) Project

The SSU Project commenced in February 2017.

Within the reporting period, the project reached "final completion" in terms of Massachusetts contractual language. However, there were a number of punchlist items and "under warranty" repairs that were yet to be performed following "final completion", and the City has held onto retainage dollars for this purpose. Following the end of the reporting period, the major process work repairs were completed, and the Plant was restored to full treatment capacity. The City expects the final project Payment Requisition to close out the contract in the next reporting period (August 2020 – February 2021).

Prior to the Secondary Clarifiers work in June & July 2020, as the SSU Project progressed we had seen substantial treatment process improvements as the new Aeration Tanks' *Selector Zones* 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.

These benefits took a "step back" when Secondary Clarifier tanks were taken down for "warranty" repairs in June & July 2020, but the City fully expects to recover the excellent treatment performances that were seen during the latter stages of the SSU Project.

The City anticipates that "representative data" of the fully online and operational Secondary Systems Upgrades improvements will begin in the September NPDES DMR Reporting Period (which will be reported in mid-October 2020).

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 and July 31st, 2020 included:

February 2020

- Aerated Grit Chamber Blower Room: Applied floor coating system;
- Primary Basin No. 1: Replaced 2 flights; replaced broken drive chain, replaced broken flights reinstalled and align idler sprocket;
- Grit Chamber Room: Serviced ceiling vent fans and louvers;
- Hoists and Cranes: Annual OSHA inspections performed;
- #3 Fournier Press: Replaced scraper knives;

- CEPT Building's Sodium Hydroxide System: Replaced broken fill line;
- West Plant Elevator: Annual State Safety inspection performed;
- Aerzen Blower No. 2AB-3: Motor failure waiting for warranty repair;
- Duall Odor Control System: Repaired chemical leaks;
- Incinerator Ramp: Removed a section of old scrubber line, and replaced section of sewer drain line above the scrubber line; and
- SSU Project: ongoing (working on punch list items).

➢ ***Completed 56 Preventative Maintenance Work Orders and 22 Demand Work Orders.***

March 2020

- COVID- 19, Pandemic Preparedness Response Plan: Started prepping, and developed plans and procedures;
- Fournier Press No. 1: Replaced failed VFD drive;
- 2016 Ford Escape: Replaced brakes, rotors and serviced vehicle;
- Fournier Press #2 Flocculator: Replaced mixing shaft seal and sleeve;
- Aerzen Blower 2AB-1: Manufacturer repaired faulty blower;
- 2012 Silverado: Serviced brakes, alignment, and performed oil service;
- Fournier Press #1 Blended Sludge Pump: Replaced motor bearings;
- Gravity Belt Thickener No. 1: Replaced the scraper blade prior to the sludge hopper; and
- SSU Project: ongoing (working on punch list items).

➢ ***Completed 67 Preventative Maintenance Work Orders and 17 Demand Work Orders.***

April 2020

- COVID- 19, Pandemic Preparedness Response Plan: Implemented 'minimum staffing plan'; 6 out of 8 maintenance personnel were quarantined, of which 3 maintenance personnel were COVID-19 positive;
- Primary Basin, No. 2: Replaced broken shear pin;
- Septage Receiving Station: Replaced key pad terminal;
- Wet Well Pump: Replaced cleanout gasket and repaired air release valve;
- RKI 2009 Personal Gas Monitor: Replaced O2 sensors, on gas monitor #13 & #14; and
- SSU Project: ongoing (working on punch list items and Project SCADA work).

➢ ***Completed 45 Preventative Maintenance Work Orders and 3 Demand Work Orders.***

May 2020

- COVID- 19, Pandemic Preparedness Response Plan: Implemented 'minimum staffing plan' (ongoing); quarantined personnel returned to duty prior to end of April;
- Primary Basin Cross Collector Project: Wall bearings in process of being re-machined;
- Fournier Press No. SC-4 Conveyor: Replaced broken adaptor plate;
- Gas Service Line (feeding East WWTF) Replacement Project: Was conducted from Dec. 2019 – Jan. 2020; disturbed paved plant access drives areas were repaved;
- 1st Stage, Secondary Clarifier No. 1: Repaired outer skimming blade;
- Penn Valley TWAS Pump No. 4: Replaced pump discs and seals; and
- SSU Project: ongoing (working on punch list items, warranty repair work and Project SCADA work).

- ***Completed 74 Preventative Maintenance Work Orders and 3 Demand Work Orders.***

June 2020

- COVID- 19, Pandemic Preparedness Response Plan: Implemented 'minimum staffing plan' (ongoing);
- Fournier Press No. 2, Compressor: Replaced condensate trap on the air dryer;
- TWAS Tank No. 2, Vaughn Pump: Pump failed; switched to TWAS Tank No. 1;
- Septage Receiving Station: Repaired septage discharge hose;
- Fire Alarm Panel: Trouble shot a "System Trouble" system code; replaced batteries;
- Primary Basin No. 1, Gear Reducer Replacement: Fabricated adaptor plate; and
- SSU Project: ongoing (working on punch list items, warranty repair work and Project SCADA work).

- ***Completed 64 Preventative Maintenance Work Orders and 5 Demand Work Orders.***

July 2020

- COVID- 19, Pandemic Preparedness Response Plan: Implemented 'minimum staffing plan' (ongoing);
- Switch Gear to 13,800 Volt Transformer, Blown Fuse: cleaned switch gear and replaced fuses; in diagnostic inspection, we also found signs of feeders heating up; as a result, we also repaired feeders to avoid future problems;
- Primary Basin No. 1 Speed Reducer: Replaced Speed reducer installed new shear pin hub assemblies;
- Bucket Truck: Annual OSHA inspection of boom lift; and had vehicle state-inspected;
- Raw Influent pH: Probe Failure: Replaced probe and recalibrated;
- Primary Basin Cross Collector Project: All components received; project to commence on Primary Basin No. 1, beginning on August 3rd;
- Aerzen Blower 2AB-4: Performed preventative maintenance motor service;
- Chemical Building (Building No. 6): Replaced valve on the Sodium Hypochlorite fill station;
- 2nd Stage Aeration Tank, Invent Mixers No. 1C & No. 2C: Cleaned vents & checked oil levels; and
- SSU Project: ongoing (working on punch list items, warranty repair work and Project SCADA work).

- ***Completed 70 Preventative Maintenance Work Orders and 3 Demand Work Orders.***

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

East Plant

- Primary Basin Gear Reducers Project: Primary Basins #3 and #1 Gear Reducers Replacement was completed in the reporting period. We will install the Gear Reducers Replacement in Primary Basin #2 in August 2020.

- Primary Basins Cross Collector Project: Primary Basins #1 Cross Collector Replacement Completed (August 3rd - 5th); we plan to complete Primary Basins #2 & #3 before Winter 2020/2021.
- Lab and Control Room Upgrade Design (in progress): Kick-Off Meeting was in held in August 2020.
- SSU Project (started in February 2017) is anticipated to reach final completion (all final punchlist items and warranty repairs work) by end of August 2020.
- Aerated Grit Chamber Stairwell: Replace floor coating system.

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

In the previous reporting period, the City contracted with a legal firm, West Group Law PLLC, to provide the City with expert assistance in pursuing the procurement of a development partnership to repurpose the under-utilized Westerly Wastewater Treatment Facility. The procurement process is to be a two-phased approach, where the first phase (which was accomplished within the reporting period) involved the development and issuance of a "Request for Expressions of Interest", or "RFEI". Respondents to the RFEI indicated their interest in pursuing a potential project with the City, and also indicated their technology approach, and the project team partners the prospective developer will be "bringing to the table".

The City objectives that were incorporated into the RFEI which respondents addressed in their submissions included:

1. Useful repurposing of an underutilized City-Wastewater property asset (former "Westerly Wastewater Treatment Facility", at #230 Princeton Road, Fitchburg, MA, on Parcel ID #: 254-4-0; recorded in the Worcester Registry of Deeds in Book 1051, Page 593);
2. Address and mitigate long-term sustainability of the Wastewater Enterprise's needs for cost effective wastewater treatment solids residuals management and disposal, and for reduced operating natural gas and/or electrical costs of the subject property;
3. Provide the most beneficial project life cycle (design, construction, operation and maintenance costs), first to the Wastewater Enterprise, and secondly to the City;
4. Provide the most beneficial project to the City, in terms of "host benefits" realized;
5. Divert organic wastes, that may otherwise be useful for an anaerobic digestion feed stock, away from landfill disposal at the Fitchburg/Westminster Landfill to help extend the useful life of the Fitchburg/Westminster Landfill;
6. Competitively market and attract organic wastes source generators to use the repurposed Fitchburg Westerly Wastewater Treatment Facility for final disposition of organic substrates, for anaerobic digestion feed stock;
7. Pursue project procurement and facilitation (construction, operation & maintenance) in a manner acceptable to the Wastewater Enterprise."

The RFEI timeline was affected by the COVID-19 pandemic impacts, but was issued out early in the reporting period (dated April 15, 2020), and submissions of Expressions of Interest were received on June 22, 2020. Review and evaluation of submissions received occurred through the remainder of the reporting period. Subsequent to the end of the reporting period, on August 24th, 2020, the City issued a 'Notice to Proceed' to West Group Law PLLC to provide the City with assistance in the process of the second phase (full and formal "Request For Proposals", or "RFP") of the procurement process, which 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).

In the RFP timeline, the City anticipates receiving RFP submissions in early February 2021, short-listing submissions, conducting interviews with short-listed submission teams, and if favorable to the City to do so – pursuing contract terms with the selected, highest rated and most Fitchburg-favorable RFP respondent.

City Ordinance Revisions

In the previous reporting period, the final, revised "Development of Industrial Pretreatment Technically-Based Local Limits" report (dated August 2019) was transmitted to USEPA Region 1 for review and approval (submitted August 30th, 2019) to the Office of the EPA Region 1 Industrial Pretreatment Coordinator. Late in the reporting period (December 6, 2019), the EPA published the City's proposed local limits for public comment. At the end of the public comment period, having received no comments, EPA approved (on January 7th, 2020) the City's proposed modification of Local Limits.

In the next reporting period (September/October 2020), Wastewater will submit an Ordinance update petition to City Council for:

- Implementation of updated local limits, incorporating the changes into the City Code, Chapter 147 – Sewers; and

- Implementation of 40 CFR 403 'Pretreatment Streamlining Rule' requirements, incorporating the changes into the City Code, Chapter 147 – Sewers.

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 repairs, which began with 2nd Stage Clarifier No. 1 on June 3, 2020.

Comparing April 2020 plant performance with April 2016 performance shows that the process can handle greater peak/monthly flows with better results:

Metric	April 2016	April 2020
Total Flow, MGD (month)	246.3 MGD	378.4 MGD
Max. Daily Flow, MG	11.8 MG	17.1 MG
Total Rain, inches (month)	1.9″	7.7″
Max. Daily Rain, inches	0.8″	1.6″
Rain Events >1.0″	1	4
Total Bypass, MGD (month)	0.051 MGD	6.354 MGD
Max. Daily Bypass, MG	0.051 MG	4.85 MG
BOD_5 In	525,857	444,049
BOD_5 Out	14,056	17,279
BOD_5 Removal Efficiency	97.08%	95.47%
TSS In	667,896	655,596
TSS Out	26,619	22,632
TSS Removal Efficiency	96.15%	95.6%

The comparative performance of pre- and post- SSU Project, considering that the newly implemented plant upgrades will continue to improve treatment performance and the continuing sewer separation program will further assist and improve (reduce) wet-weather impact on the plant, gives the City an expectation for improved plant performance and improved permit compliance.

Since the implementation of the State Point Analysis system, developed by Wright-Pierce, plant operations have seen reductions in the length of time 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 the 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 reports.

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.

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 is due December 31, 2020, as stipulated in the CD. The Report is 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.

"Green Infrastructure"

As the City "green infrastructure" initiative develops, the City's DPW – Wastewater Division will have a key participating and leadership role in this program, either as the City Departmental lead, or as a supportive initiative champion, 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.

On June 6, 2019, the City received notice from the State, indicating that Fitchburg was awarded a Municipal Vulnerability Preparedness (or 'MVP') program grand through the Massachusetts Executive Office of Energy and Environmental Affairs (EOEEA). On June 18, 2020, the City submitted two applications for FY21 MVP Action Grants to the MVP Program Manager, one of which was project titled "***John Fitch Highway – A Resilient Road Corridor***", and was a resilient redesigns and retrofits for critical facilities and infrastructure project type. The project designs will focus on incorporating green infrastructure solutions, such as bioretention, water quality swales, impervious cover removal, tree box planters and green-scaping of commercial parking areas.

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

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

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 ***118*** 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, ***53*** rain barrels were sold. The vendor 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.

As the City 2020 Rain Barrels Program was launching into the promotion and sales ordering period, the COVID-19 pandemic was sweeping into the U.S. and Massachusetts. Because of early pandemic

uncertainties, the City decided to push back the ordering deadline dates and purchases distribution date approximately six weeks, and ended up selling a record number (***176***) of rain barrels in 2020.

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.

D. ILLICIT CONNECTIONS

During the period, the City identified three additional illicit connections to the drainage system located at #123 St. Joseph's Ave, #403 Pratt Road, and at #129 Theresa Street. The illicit connection at #123 Theresa Street was redirected to the sanitary system during the reporting period.

The City identified a large roof drain at #200 Daniels Street that discharged to the sanitary system. The City has been working with the new property owner, with removal of the inflow source expected during the next reporting period. The Wastewater Division has coordinated with the Building Department to halt acceptance of any Building Permits/Occupancy Permits at the property until the 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.

E. INTERIM PHOSPHORUS LIMITS

At the last update the monthly rolling average for Total Phosphorus was 0.65 ppm. Since that last update, the Total Phosphorus monthly rolling average dropped to 0.54 ppm, and as of May 31, 2020 (prior to the beginning of the Final Phase of the SSU Project) the monthly average Total Phosphorus for May was 0.27 ppm. We expect the Total Phosphorus test results (and the monthly rolling average) to be affected with the Final Phase of the SSU Project which required us to remove Second Stage Secondary Clarifiers from the treatment process for needed warranty repair work which began on June 3, 2020. Upon the completion of the SSU Project work, the City fully expects that the 12-month rolling phosphorus average will recover, and again achieve a sub-0.5 ppm rolling average.

VIII. SUPPLEMENTAL ENVIRONMENTAL PROJECT (SEP)

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:

- As noted previously in this report, the City increased the Collection System Operations staffing up to five Sewer Operators, and in the next reporting period. Further, the City has aggressively increased its efforts to add a sixth Collection System Operations team member, to head the crew as the General Foreman.
- The City has received delivery of a new replacement Combination Jetter/Vacuum Sewer Truck. The Collection System Operations team has been fully trained on the new Combination Jetter/Vacuum Sewer Truck by the manufacturer, and has an additional training scheduled in August or September 2020.
- During the next reporting period, and depending on travel restrictions due to COVID-19, the City plans on having the sewer CCTV manufacturer (CUES) conduct a re-training on the City's sewer camera, as many of the new employees do not have experience in CCTV operation.
- In the next reporting period, the City will be likely be putting out to bid a project to separate a large percentage of its remaining combination manholes, using designs prepared by the City's engineering consultant.
- 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 settle on a more formal Computerized Management Maintenance System, with or without conjunction with DPW. The City attempted to use SeeClickFix for work order tracking, however it is time consuming and not well suited to the City's needs.
- The City promptly implemented (previous reporting periods) new signage at the City's remaining CSO outfalls.
- In the previous 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.
    - In the next reporting period (September/October 2020 time frame), the City will formalize training and instruction to septage haulers, and will thenceforth hold septage haulers accountable and responsible for adhering to new operating procedures that will be required by the City as a condition of permitting haulers to dispose septage at the East Plant.
    - We will document the training attendees (and retain on file in our records), and

- We will provide follow-up correspondence to those septage haulers, indicating the City's expectations and requirements conditions for the septage haulers continued access privilege to our Easterly Wastewater Treatment Facility.

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

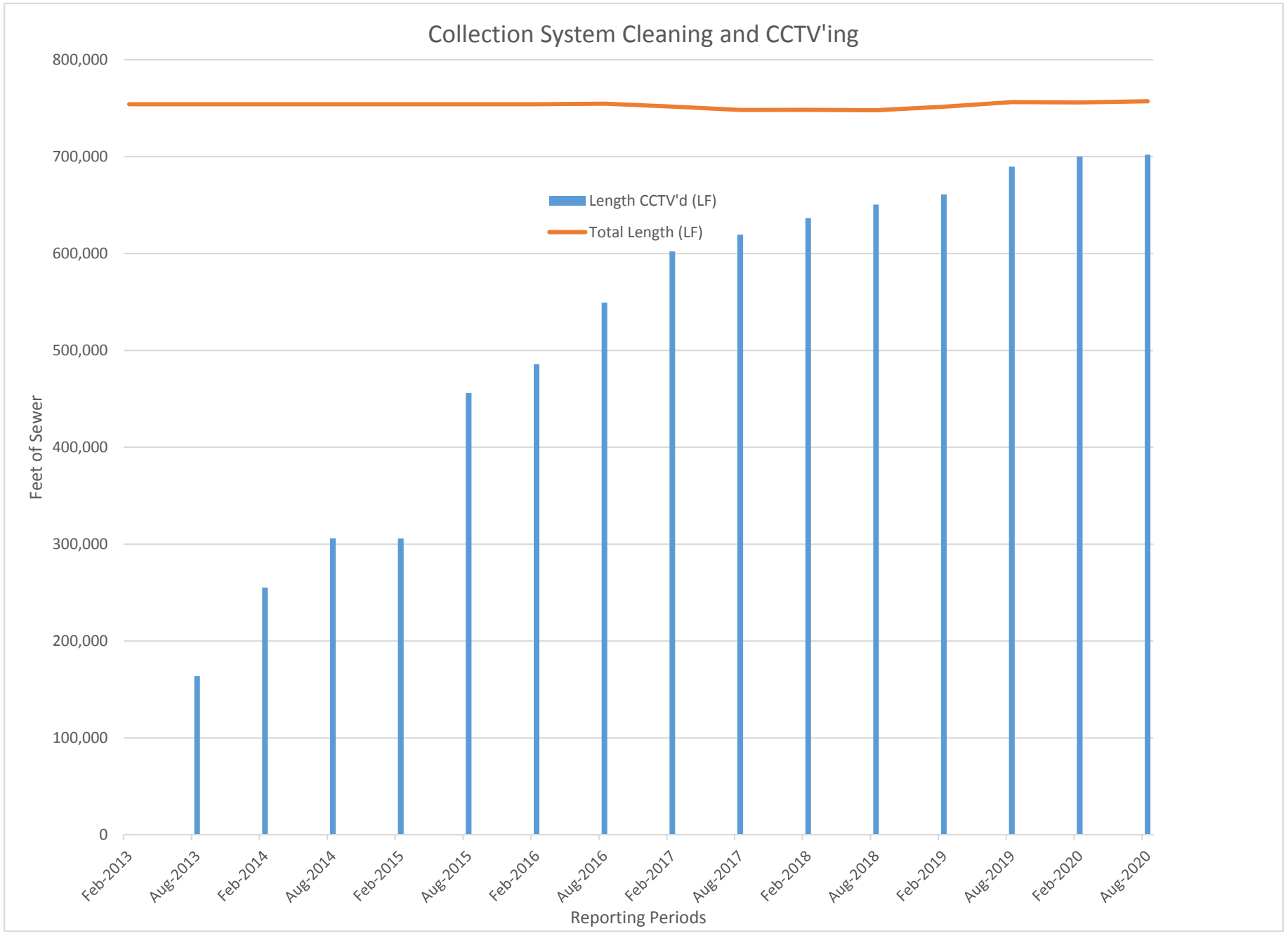
Jeffrey A. Murawski, P.E.
Fitchburg DPW Deputy Commissioner of Wastewater

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:	Nicolas H. Bosonetto, P.E., Fitchburg Commissioner of Public Works Anthony Maressa, P.E., Sewer System Manager Vincent Pusateri, II, Fitchburg City Solicitor Nicholas J. Ericson, P.E., Fitchburg DPW Civil Engineer

"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


Collection System Cleaning and CCTV'ing
800,000
700,000
600,000
500,000
400,000
300,000
200,000
100,000
0
Feet of Sewer
Length CCTV'd (LF)
Total Length (LF)
Feb-2013
Aug-2013
Feb-2014
Aug-2014
Feb-2015
Aug-2015
Feb-2016
Aug-2016
Feb-2017
Aug-2017
Feb-2018
Aug-2018
Feb-2019
Aug-2019
Feb-2020
Aug-2020
Reporting Periods

Attachment 1 - Combination manhole inspections during reporting period on remaining CMHs									
			6/28/2020		6/6/2020		Rain Date: 4/13/20	
			Rainfall: 1.13"		Rainfall: 0.85"		Rainfall: 1.67"	
Sub Watershed	CMH#	CMH Location	BLOCK IN DRAIN	BLOCK IN SEWER	BLOCK IN DRAIN	BLOCK IN SEWER	BLOCK IN DRAIN	BLOCK IN SEWER
1	3	Albee St/Belli						
1	5	Albee St/Krysiak Ave Intersection						1
1	6	399 Albee St				1		
1	7	219 Albee St				1		
1	8	364 Albee St						
1	40	Canton Street/Valley St Place Easement				1		
1	42	Canton Street, 50 N of Romano						
1	86	27 Krysiak						
1	87	56 Krysiak				1		
1	340	Courtyard between 23 and 1 Leyte						
1	125	26 Nimitz						1
1	127	Normandy Rd/Office Parking Lot			1		1	
1	129	62 Normandy Rd						
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						1
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						
3	347	Salem St @ Birch St (10' north on Salem)						
3	172	Salem St/Beekman St Intersection						
3	173	65 Sawyer Passway (Quality Fab)						
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			1			

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

			6/28/2020 Rainfall: 1.13"		6/6/2020 Rainfall: 0.85"		Rain Date: 4/13/20 Rainfall: 1.67"	
Sub Watershed	CMH#	CMH Location	BLOCK IN DRAIN	BLOCK IN SEWER	BLOCK IN DRAIN	BLOCK IN SEWER	BLOCK IN DRAIN	BLOCK IN SEWER
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	214	Cascade/Plain						
9	314	Cascade/Overland	1		1			
9	322	Westminster/Overland						
9	226	Westminster St/Princeton Rd Intersection						
9	227	Westminster St/Eureka St Intersection		1	1			
9	342	Westminster St at Cascade St						
11	29	Berry St/Hardy Pass Intersection						
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						
11	113	49 Mack						
12	37	Downstream from 50 Brown Ave						
12	76	Highland Ave/Brown Ave Intersection						
12	98	Lincoln St/Rogers Ave Intersection						
12	99	320 Lincoln St						

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			Rainfall: 1.13"		Rainfall: 0.85"		Rainfall: 1.67"	
Sub Watershed	CMH#	CMH Location	BLOCK IN DRAIN	BLOCK IN SEWER	BLOCK IN DRAIN	BLOCK IN SEWER	BLOCK IN DRAIN	BLOCK IN SEWER
12	147	Rogers Ave/Highland Ave Intersection						
12	148	Rogers Ave/Brown Ave Intersection						
12	233	32 Rogers Ave						
13	32	436 Blossom St						
13	33	Blossom/Crescent				1		
13	242	Blossom St/Ryefield Rd Intersection						
13	141	Osgood/Longwood						
13	320	Blossom at Ross					1	
13	158	91 Ryefield						
13	159	45 Ryefield						
13	339	30 Ryefield / Wendell Rd Intersection						
14	238	Pearl/Charlton						
14	348	100 Edlee Street						
14	317	640 Pearl			1			1
15	207	Townsend St/Normal Rd Intersection						
15	210	67 Townsend St					1	
15	211	91 Townsend St					1	
15	304	31 Townsend St						
18	61	Forest Hill Rd/J Keating Rd Intersection						
18	62	Forest/Paulsons						
18	63	Forest Hill Rd/Forest Pk Intersection		1	1		1	
18	64	Forest Hill Rd/Forest Hill Ave						
18	315	21 Forest Park						
18	73	Henry St/Rainville Ave Intersection						
18	74*	Henry St/Mountain Ave Intersection						
18	75	Henry St/Marion St Intersection						
18	118	22 Marion St						
18	144	31 Putnam Pk						
18	145	61 Putnam	1					
18	349	34 Pine Street in gravel driveway						
18	149	42 Rainville Ave						
18	150	68 Rainville						
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						
19	152	Rollstone/100' Fr Shattuck						
19	153	Rollstone/Bruce 50 Downhill						
20	241	377 Beech St						

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			6/28/2020		6/6/2020		Rain Date: 4/13/20		
			Rainfall: 1.13"		Rainfall: 0.85"		Rainfall: 1.67"		
Sub Watershed	CMH#	CMH Location	BLOCK IN DRAIN	BLOCK IN SEWER	BLOCK IN DRAIN	BLOCK IN SEWER	BLOCK IN DRAIN	BLOCK IN SEWER	
20	12	Beech/Alden							
20	13	429 Beech St							
20	14	Beech/Delisle				1			
20	15	490 Beech							
20	16	Beech/Legros							
20	17	Beech/200 From Franklin							
20	142	Parker/Thurston							
20	143	Parker/Thurston			1				
20	228	184 Woodland St							
20	230	Woodland St/Alden St Intersection							
20	344	167 Woodland Street							
20	345	100 Saint Camille St							
21	44	26 Chabot Drive				1			
21	115	427 Madison							
21	116	Madison/Cemetery							
21	123	44 Miami St							
22	46	Clearview Ave/Foch Ave Intersection							
22	48	174 Columbus							
22	49	152 Columbus							
22	78	Hope St/Fredette St Intersection							
22	79	Hurd/St Andrew							
22	80	60 Hurd St							
22	81	94 Hurd St							
22	88	150 Legros							
22	119	39 Maryland Ave			1				
22	124	Newtonville/Foch							
22	133	Oak Hill Rd/Exeter St Intersection							
22	134	Oak Hill Rd/Hurd St Intersection							
22	135	Oak Hill/Mcdonald							
22	138	Oak Hill/Daniels 30 feet uphill.							
22	318	Oak Hill/Jeanette							
22	139	541 Oak Hill Road							
22	140	570 Oak Hill							
22	157	43 Ronald Ave							
22	160	St. Joseph St/Pratt Rd Intersection							
22	161	St Joseph/Delisle		1					

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Sub Watershed	**CMH#**	**CMH Location**	**BLOCK IN DRAIN**	**BLOCK IN SEWER**	**BLOCK IN DRAIN**	**BLOCK IN SEWER**	**BLOCK IN DRAIN**	**BLOCK IN SEWER**
22	162	St Joseph/St Andrew		1		1		
22	163	St Joseph/Legros				1		
22	164	153 St Joseph						
22	165	210 St. Joseph St						
22	166	282 St Joseph St						
22	195	Theresa St/St. Andrew St Intersection		1				
22	198	Theresa St/Hope St Intersection						
22	204	192 Theresa St		1				
22	302	Newtonville/Oak Hill						
22	335	24 York Avenue			1			
22	336	44 York Avenue	1		1			
22	346	240 Fairmount (off pavement on other side of street in gutter)	1					
22	343	Ronald St at Theresa St		1		1		
23	9	97 Appleton Circle						
23	10	79 Appleton Circle						
23	11	97,105,108 Appleton						
23	59	Fairmount/Leroy						
23	89	Leroy St/Clearview Ave Intersection						
23	90	Leroy St/Newtonville Ave Intersection						
23	301	80 Appleton Circle						
		Totals	4	7	11	10	5	4