City of
Fitchburg

Department of
Public Works

COMMISSIONER
301 Broad Street
978-829-1910
978-345-9687 FAX

STREETS & PARKS
301 Broad Street
978-829-1900
978-345-9687 FAX

WASTEWATER
166 Boulder Drive, Suite 108
978-345-9622
978-345-9623 FAX

SEWER COLLECTION
301 Broad Street
978-829-1900
978-345-9687 FAX

WATER
1200 Rindge Road
978-345-9616
978-345-9555 FAX

ENGINEERING
301 Broad Street
978-829-1917
978-345-9687 FAX

CEMETERIES
115 Mount Elam Road
978-345-9578
978-345-9686 FAX

February 28, 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
August 2019 – January 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 (August 2019 thru January 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
August 2019 through January 2020 Reporting Period

A. SEWER SYSTEM

Staffing

In the Fall of 2018, the Collection System Team had unexpectedly lost two (2) members of the crew to a resignation and an inter-departmental transfer to another DPW Division, which reduced the crew from four members to two members. In the previous reporting period (February 2019 – July 2019), the City reported we had increased our Collection System Team staffing from an unsatisfactory number of two (2) crewmen up to four (4) crewmen, after two additional Collection System Operators were added (one in February 2019 and one in March 2019).

Subsequent to the fourth team member joining us, the City pursued the hiring of a fifth member (called a "flex position"), who could at times assist the DPW Streets Division in stormdrain system work. After an unsuccessful job posting period in the Spring/Summer of 2019, the job description & posting was reevaluated & rewritten in the Fall 2019, and was reposted in November 2019. The City again experienced difficulty in receiving applicants, but at the tail end of this reporting period (January 30, 2020), we interviewed a qualified candidate, and subsequently (in early February 2020) extended an employment offer. The candidate accepted the position, and is scheduled to begin employment with us in mid-March 2020, and will increase 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 2019, and was also posted in November 2019. To date, the City has not received any applications from interested candidates meeting the qualifications requirements. The position's posting has been posted 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)

Semi-Annual Progress Report
August 2019 through January 2020 Reporting Period

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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.

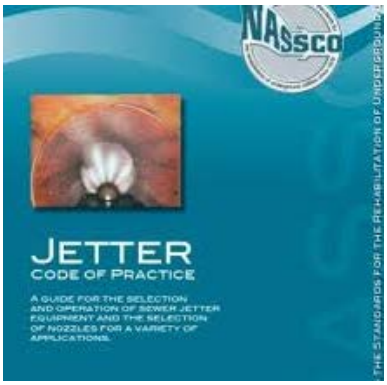
Priority Cleaning Plan

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

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 8 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 re-set manhole castings that were failing. Unless the manhole casting is in decent condition with less than 3 vent holes, or on an easement, the City replaced the casting with a new vent-less casting. The City also separated additional combination manholes. 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 43,109 feet, or approximately 8.16 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 92.55% 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 1.7 percent having been CCTV'd under the second round. Numerous manholes were also inspected during this reporting period. 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 the past reporting period, 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 will be incorporated into the Phase IV Sewer System Evaluation Study Report, which will be submitted in the next reporting period. 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.

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:

- 3,553 publicly-owned sewer manholes out of 3,575 (99.38% completed).
- 2,364 drain manholes (out of an unknown total).
- 3,881 catch basins (out of an unknown total).
- 269 sewer laterals
- 14 sewer clean-outs
- 997 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, additional laterals were marked and located by the City where Unitil gas work was being conducted.

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.
- 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 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 made 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 City also witnessed a demo of "Sedaru" in a neighboring community. 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 are 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. The Wastewater Division of DPW foresees using the software for assigning and tracking pipelines inspected each day, manhole inspections in a simple format, manhole improvements, and pump station inspections. Service call logging may also be used in this program depending on its ease-of-use. During the next reporting period, the City goal is to have settled on a software choice and to have begun the software implementation.

The City received a proposal from 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. It is expected that this renumbering will happen during the next reporting period.

Intermittent Stream Connections to Sewer

For over five (5) 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 and determine that the sewer lateral was tied into the intermittent stream. During the next reporting period, the City will be redirecting the intermittent stream into the storm drainage system, and replacing the property's sewer lateral to tie the property into the sanitary sewer system.

Meter Maintenance

For the entire reporting period, the City has been maintaining its 14 flow meters located at regulator manholes throughout the reporting period. One ADS Echo ultrasonic sensor was also maintained at CSO-45. During the reporting period, the City entered into an agreement with ADS Environmental to install 10 Echo level sensors at various locations throughout the City. Typical locations for the sensor locations were combination manholes, "problem areas", and CSO regulators. As the result of a successful Echo level sensor product demonstration, the City exercised its option to purchase the installed Echo sensors.

Current deployed meters include 14 ADS Triton Flow meters and 11 ADS Echo down-looking ultrasonic meters (10 new Echoes from the product demo, plus one pre-existing Echo meter). 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 AUGUST 1, 2019 TO JANUARY 31, 2020

Meter	Location	Events	Volume (Gallons)	Notes:
CSO-004	Cleghorn St. at Oak Hill Rd.	1	0 *	* Unknown volume from one event due drop in pressure sensor on the meter
CSO-007	Cushing St. at Riverfront Park	0	0	Regulator closure starting construction Spring 2020
CSO-010	Main St. at River St.	6	616,000	Separation project is required to close. Experienced intermittent meter issues in January.
CSO-032	543 Main St. at Post Office	14	1,182,320	Separation project is required to close. Experienced connectivity issues in September.
CSO-039	Water St. at Walnut St.	15	1,874,000	Regulator closure/sewer separation starting construction Spring 2020.
CSO-041	Benson Rd. near Falulah St.	0	0	Upsizing pipe downstream and upstream I/I work necessary for closure.
CSO-045	Main St. at Oliver/Putnam St.	18	2,712,167	New ADS Echo down-looking sensor used to estimate overflows using weir equation.
CSO-048	85 Water St.	0	0	Regulator closure construction to begin Spring 2020. Reduced overflows since separating CMH upstream in 2018.
CSO-064	Water St. Easement at former "Halloween World"	4	2,008,506	Regulator on main interceptor sewer. Inflow removal upstream and sewer upsizing likely necessary for closure.
CSO-076	Birch St. at Heywood St.	1	0	Downstream pipe undersized. No known combined sewers upstream. Data dropped during storm event in August. Meter replaced with ultrasonic depth sensor.
CSO-83	Main St. at Prichard St.	5	87,125	Sewer Separation required upstream to close regulator.
	Totals	**64**	**8,479,798**	

The City has been servicing the meters on a roughly 2-month frequency to help maintain high data quality. Near the end of 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. Some of the meters needed to be replaced, due to parts corroding (age and service environment).

As stated previously, the City completed a trial of ten (10) ADS Echo ('Echo') level monitors. The level monitor is very low maintenance, as it is an ultrasonic, down-looking sensor and only connects wirelessly. The Echoes have allowed the City to calculate overflow volumes from various CSOs by using a weir equation method, as opposed to either (1) a sensor in the overflow pipe, which is not reliable, or (2) using ADS' "Iso-Q" method, which only provides reliable data for specific site setups. They will also allow the City to stay abreast of potential problems in the collection system.

The Echoes have allowed the City to stay abreast of potential problems in the collection system, sending alerts to the City should a meter fail, but also sends an alert if a manhole is showing signs of surcharging. This will allow crews to be dispatched to potentially prevent an SSO.

The Echo meters have also been deployed at the City's four (4) major siphons, to determine if the siphon cleaning to be performed this construction season has 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 Echoes are designated by an "LS" symbol (for level sensor), and are described in the legend as "new wireless ultrasonic depth 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 is currently coordinating with FlowWorks and ADS to have the Triton meters "talk" with the FlowWorks website. Near the end of the reporting period, ADS provided a procedure to have the meters "talk" with FlowWorks. This procedure is anticipated to be implemented in the next reporting period.

In addition to FlowWorks, the City has been using ADS' new flow monitoring web-based management platform, called PRISM, as part of the Echo meters demo. 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.

During this reporting period, Weston & Sampson conducted building inspections throughout the project, and completed CCTV inspection of the trunk sewer. The Phase 4 report will likely be submitted to MassDEP and the EPA in 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, Weston & Sampson developed contract documents for bidding for the heavy cleaning of the City's five (5) siphons. In addition, heavy cleaning of sewers 300 LF upstream and downstream of each siphon will be included as bid alternates, along with the heavy cleaning of interceptor sewers on Airport Road and Elm Street. The project is anticipated to be advertised, bid, awarded, commenced, and nearly completed within the next reporting period.

Combination Manholes Program

There were two qualifying rain events during the reporting period that met the criteria necessary to perform combination manhole inspections (2-inches within a 24-hour period). In addition, the City performed checks following one other event 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 36 flow transferences to either the drain side, or sewer side of the manholes. These overflows are taking place in a total of 174 remaining combination manholes. 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 location and concentrating in specific areas to receive better pricing, but also drastically reduce the chance for transference from a specific area.

During the reporting period, eight manholes were separated during the reporting period via in-house forces. 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 are likely to 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 three fiscal years for combination manhole separation. In Table No. 3 below, during the reporting period, the following combination manholes were separated:

TABLE No. 3			
CMH No.	**Location**	**CMH No.**	**Location**
91	Leyte Rd./98 Normandy	95	52 Leyte Rd.
92	Leyte Rd./Normandy	96	66 Leyte Rd.
93	37 Leyte Rd.	300	59 Appleton Circle
94	18 Leyte Rd.	309	Valley St. Easement

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 continued creating the contract bidding documents for City review and future use.

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 buried sewer manholes, which delayed additional in-house progress on separating combination manholes.

- During the current reporting period, DPW – Wastewater Division coordinated with the Fitchburg Housing Authority to separate six (6) combination manholes in the "Green Acres" neighborhood (Normandy Road and Leyte Road). The project was necessitated due to a Fitchburg Housing Authority drainage and sewer lateral improvement project within the development. One additional manhole is slated for separation in the Spring by open cut excavation and construction, and an additional two manholes are slated to be separated via lining (trenchless method) using either in-house or external, contracted forces.

Status of Regulators and Outfalls

During reporting period, the City's Consultant, Weston & Sampson, continued with the design of the City's next sewer separation and rehabilitation project in the areas of CSO Regulators 039, 007, 048, and 011, for an expected 2020 construction start date. The City also received the draft Intended Use Plan for the MassDEP State Revolving Fund (SRF), which indicated that the City received SRF loan funding for the project. The reasoning for the targeting of these regulators is as follows:

- CSO-039 is one of the most active regulators in the City, and has a history of dry-weather overflow events due to poor regulator configuration leading to blockages. MassDOT is replacing the bridge at CSO Regulator 039's location, prompting the City to coordinate with MassDOT to close the regulator and re-route or replace the sewer suspended from the bridge.
- CSO-007 is located adjacent to the CSO-039 project area and consists of a problematic chamber configuration prone to blockages. The sewer upstream on South Street is also in very poor condition.
- CSO-048 is relatively inactive but is also located within the MassDOT Project area, prompting the City to schedule this regulator's closure.

- CSO-011 is closed, however on an approximate annual basis, basement backups occur due to combined sewer in the former CSO-011 area.
- In addition, the CSO Project will include the permanent separation of 17 combination manholes.

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.

City Hall Sewer Separation Project

During the current reporting period, the City received a 60% design from Bohler Engineering 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. The City currently is waiting on 100% design plans and specifications in order to bid the project and construct it in the next reporting period.

On-Call Emergency Construction Services

The City completed bidding documents 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, and any other needs that may arise such as pipe repair, bypass pumping, or jetting services. Depending on pricing, the City may use this Contract for combination manhole separations. The document is scheduled for bidding in Spring 2020, and has the potential to be a 3-year contract.

Sewer Connection Summary

Table No. 4 below is a report of all new sewer connections to the sewer system in Calendar Year 2019, which includes the type of connection and the estimated average daily flow for each connection. A list of any I/I work conducted to offset the new flows is also listed, or if an I/I fee was assessed instead.

Table No. 4
New Sewer Connections – 2019 Calendar Year

Date Issued	House #	Street	Occupancy Type	Work Description	Estimated Flow (GPD)
2/1/2019	151	Tibbett Circle	Residential	New sewer connection	330

Table No. 4 (continued)
New Sewer Connections – 2019 Calendar Year

Date Issued	House #	Street	Occupancy Type	Work Description	Estimated Flow (GPD)
3/13/2019	114	Nigal Ct.	Residential	New sewer connection	330
4/10/2019	115	Nigal Ct.	Residential	New sewer connection	220
4/18/2019	139	Tibbett Circle	Residential	New sewer service for proposed single family. E-1 pressure system	330
4/25/2019	124	Nigal Ct.	Residential	New sewer connection	220
5/14/2019	185	Tibbett Circle	Residential	Sewer Connection for proposed house. Stubbed at property line.	330
6/6/2019	600	Pearl Hill Rd.	Residential	New sewer service	330
6/7/2019	1015	Franklin Rd.	Residential	New sewer service	330
7/19/2019	130	Nigal Ct.	Residential	New sewer service connection	330
7/23/2019	22	Plymouth St.	Residential	Payment for new sewer connection	330
11/4/2019	24	Warner Ave.	Residential	New sewer service from house, down Warner Ave. to Westminster St.	440
12/20/2019	138	Nigal Ct.	Residential	New sewer service	330
2/13/2020	121	Valley St.	Residential	New sewer service	330
2/13/2020	122	Valley St.	Residential	New sewer service	330
2/13/2020	133	Valley St.	Residential	New sewer service	330
				Total Estimated Added Average Daily Flow (ADF):	**4,840**

Sewer Rate Increase

During the previous 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. 5 below:

TABLE No. 5

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 but the SSU Project which began on March 3, 2017 requires us to take a portion of our treatment process offline. 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, 2109, the city was complying with the interim phosphorus limit of 0.5 ppm. The City 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 within the SSU Project.

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. The policies effective dates run from January 4, 2020 thru January 4, 2021. The policies were through the National Flood Insurance Program, 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

Through the end of the current reporting period, the SSU Project has progressed to 100% of Substantial Completion (and approximately 97% of Final Completion), and the work completed represents approximately 99.2% of the construction contract price.

By the SSU Contract's Contract Days, the Project is to be substantially complete within 961 consecutive calendar days, on or before October 1, 2019, and is to be final complete within 1,265 consecutive calendar days, on or before July 31, 2020.

As the SSU Project progresses, we have seen substantial treatment process improvements as the new *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.

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 August 1, 2019 and January 31, 2020 included:

August 2019

- 2nd Stage Settled Effluent Skid: repaired 8" valve
- Primary Basin No. 2: replaced 2 flights; repaired idler sprockets; and redesigned flight tracks at skimmings box
- 1st Stage, Side-2 Aeration Basin: drained, cleaned, and removed grit for Secondary Systems Upgrades (SSU) Project
- 1st Stage, Clarifier No. 2: drained and cleaned for SSU Project
- Primary Basin No. 3: repaired isolation valve from Gravity Thickeners
- CEPT Building Sodium Hypochlorite Transfer Pump: rebuilt pulsation dampener
- Primary Basin No. 3: repaired broken flight
- Aerzen Blower No. 2AB-1: performed preventative maintenance service

- Wet Well Pump: removed rags from pump; and repaired air release valve
- Bucket Truck (fleet vehicle): replaced brake lines

➢ ***Completed 76 Preventative Maintenance Work Orders and 16 Demand Work Orders.***

September 2019

- Primary Basin No. 3: replaced all longitudinal flights and wear shoes; replaced cross collector wear shoes; and replaced speed reducer with new speed reducer
- Manich Polymer System: cleaned system and fixed side 2 control issue
- West Plant Transfer Pump System: troubleshot and repaired PLC controls
- Aerzen Blower No. 2AB-4: replaced VFD cabinet cooling fan
- Gravity Belt Thickeners: replaced belt on GBT No. 1; and replaced PLC power supply
- 2nd Stage Hypochlorite Transfer Line: repaired leak
- Duall Odor Control System: repair hypochlorite leak on the 2nd Stage tank
- Aerzen Blower No. 2AB-3: performed preventative maintenance service
- Primary Basin No. 2: redesigned flight tracks at skimming boxes

➢ ***Completed 73 Preventative Maintenance Work Orders and 9 Demand Work Orders.***

October 2019

- Primary Basin No. 1: started longitudinal flight replacement project
- Solar Domestic Hot Water Project: completed and online by end of October
- 1st Stage Aeration Tank, Ferric Chloride Leak: repaired leak at chemical vault; and cleaned vault
- Chlorine Contact Chamber Rapid Mixer: troubleshot and repaired erratic reading during rain event
- #1st Stage Clarifier No. 2: replaced gear reducer drive oil

➢ ***Completed 88 Preventative Maintenance Work Orders and 4 Demand Work Orders.***

November 2019

- Primary Basin No. 1: completed flights replacement and cross collector wear shoes replacement
- Aerated Grit Chamber No. 1: drained and removed grit
- Primary Basin No. 2: started longitudinal flights replacement
- Secondary Treatment System Clarifiers and Aeration Basins: winterized Settled Effluent lines
- Fournier Press No. 2: repaired Cell #1 inlet valve
- Primary Basin No. 3: replaced newly installed speed reducer, sending back to manufacturer for paint failure and bearing noise
- Aerated Grit Chamber No. 2: drained, started to remove grit
- Sampler No. 3: troubleshot and replaced battery
- 2017 Ford F-350 (fleet vehicle): serviced

➢ ***Completed 63 Preventative Maintenance Work Orders and 23 Demand Work Orders.***

December 2019

- Aerated Grit Chamber No. 2: completed grit removal
- Primary Basin No. 2: completed flight replacement and cross collector wear shoes
- CEPT Building Magnesium Hydroxide Fill Line: replaced the line
- Case Farmall Tractor (fleet vehicle/equipment): serviced
- East & West Plant Backflow Preventers: completed bi-annual testing
- 2nd Stage Eaton Strainer: replaced actuator on flushing valve
- 2nd Stage Emergency Eyewash/Shower Station: started replacement
- 2nd Stage Clarifier No. 2: – repaired skimming paddle
- In-coming Gas Line: Unitil started gas service line replacement

➢ ***Completed 72 Preventative Maintenance Work Orders and 10 Demand Work Orders.***

January 2020

- 2nd Stage Emergency Eyewash/Shower Station: completed replacement
- Building Air Handlers: replaced all filters
- CEPT Motor Control Center (MCC) Room: performed fire suppression system bi-annual check
- Fournier Press No. 1: replaced scraper knives
- Wet Well Tank Drain Pump: opened pump and removed rags; and cleaned air release valve
- Administration Building Fire Alarm System: troubleshot & repaired
- Fournier Press No. 2: replaced scraper knives
- In-coming Gas Line Replacement: completed
- CEPT Building Fire Alarm System: troubleshot a "corrupt program" system fault code; reloaded program
- Headworks Aerated Grit Chamber Room: serviced vent fans and crane cable track
- Blower Building: replaced all emergency lighting batteries
- East & West Treatment Facilities' Boilers: annual boilers inspections were performed
- CEPT Ferric Chloride System: serviced all pumps

➢ ***Completed 66 Preventative Maintenance Work Orders and 29 Demand Work Orders.***

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

East Plant

- Primary Basin Gear Reducers: repaired coatings gear reducers are anticipated to be received, and Primary Basin No. 3 new reducer will be installed, waiting for third reducer to arrive; will complete last two installations 2020.
- Primary Basins: complete the longitudinal flights, cross collector head shaft, and corner shaft assemblies project.
- Lab and Control Room Upgrade Design: in progress.
- SSU Project (started in February 2017) is anticipated to reach final completion by end of June 2020.
- Aerated Grit Chamber Blower Room, Stairwell & MCC 11: Replace floor coating system.

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

In the 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 will involve the development and issuance of a "Request for Expressions of Interest", or "RFEI". Respondents to the RFEI will be indicating their interest in pursuing a potential project with the City, and will be indicated the technology approach, and the project team partners the prospective developer will be "bringing to the table".

The City objectives that will be incorporated into the RFEI which respondents will be addressing include:

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 is to be issued out early in the next reporting period (March 2020), and is anticipated to be concluded by or before June 2020. Late in the next reporting period (June/July 2020), the City expects to commence the second phase (full and formal "Request For Proposals") 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.

On a related front, the City and the Town of Westminster are continuing to pursue an expansion of the jointly owned "Fitchburg/Westminster Landfill". An expansion of the landfill's volumetric capacity will correspondingly also extend the landfill's useful life, however such an expansion will only allow a finite term extension, and will not be a long-term, sustainable management practice for the disposal of wastewater treatment sludge residuals.

City Ordinance Revisions

In the 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, 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.

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 treatment capacity was reduced during this time period. October 2019 permit exceedances came after 1st Stage Secondary System came back online, and was primarily associated with four (4) wet-weather events (Oct. 7th, Oct. 16th, Oct. 27th, and Oct. 31st.

Comparing October 2019 plant performance with October 2016 performance:

Metric	October 2016	October 2019
Total Flow, MGD (month)	175.3 MGD	198.8 MGD
Max. Daily Flow, MG	10.4 MG	13.4 MG
Total Rain, inches (month)	5.3″	7.1″
Max. Daily Rain, inches	2.6″	2.4″
Rain Events >1.0″	2	3
Total Bypass, MGD (month)	11.17 MGD	5.67 MGD
Max. Daily Bypass, MG	8.73 MG	2.99 MG
BOD_5 In	740,267	512,756
BOD_5 Out	9,748	22,858
BOD_5 Removal Efficiency	98.7%	95.5%
TSS In	1,496,261	838,264
TSS Out	18,429	40,028
TSS Removal Efficiency	98.8%	95.2%

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) effects on the plant from wet-weather, 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.

The Consent Decree's WWMP Remedial Measure also stipulates (via 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.

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 will launch into the 2020 Rain Barrels Program promotion in March 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.

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" 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.

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.

D. ILLICIT CONNECTIONS

During the period, the City did not identify any additional illicit connections to the drainage system. The City did however, identify numerous sump pumps or other illicit inflow sources to the sanitary system as part of its trunk sewer investigation work and CSO design work. The City is currently assessing the viability of removing these inflow sources

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

The City has not been complying with the interim phosphorus limits contained in Attachment 9b of the Consent Decree 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 Secondary Treatment offline, reducing the plant's treatment capacity. Prior to the last phase of SSU Project, which began on June 21, 2019 and ended on October 3, 2109, the City was complying with the interim phosphorus limit of 0.5 ppm. 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, in the previous reporting period the City increased the Collection System Operations staffing up to four Sewer Operators, and in the next reporting period (March 2020), a hired fifth Sewer Operator will be joining the City's Collection System Operations team. 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 will be reviewing sewer cleaning procedures and practices, and incorporating any beneficial practices into standard operating procedures from NASSCO's "Jetter Code of Practice". The City has also purchased, and is awaiting delivery in June 2020 of a new replacement Combination Jetter/Vacuum Sewer Truck. The Collection System Operations team will be fully trained on the new jet/vac truck by the manufacturer.
- In the next reporting period, the City will 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 Systems in 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 (in the previous reporting period) new signage at the City's remaining CSO outfalls.
- In the 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, 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.

If there are any comments or questions regarding the above subject please contact the undersigned at (978) 345-9622.

Sincerely,

FITCHBURG DPW, WASTEWATER DIVISION

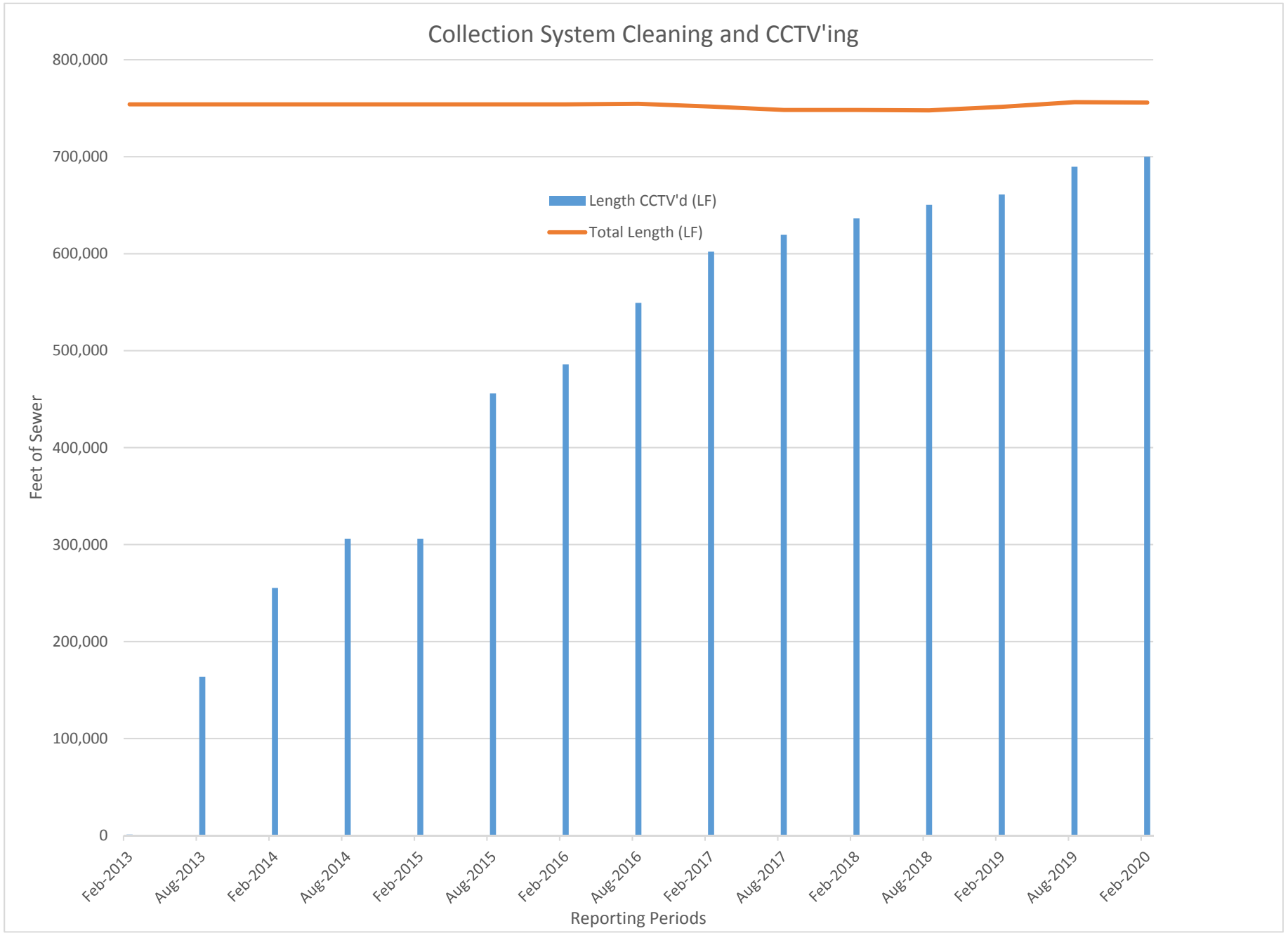
Jeffrey A. Murawski, P.E.
Fitchburg DPW Deputy Commissioner of Wastewater

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:	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
Reporting Periods

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

			Rain Date: 12/15/19 Rainfall: 2.48"		Rain Date: 11/24/19 Rainfall: 1.56"		Rain Date: 10/17/19 Rainfall: 2.8"	
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		1		
1	5	Albee St/Krysiak Ave Intersection						
1	6	399 Albee St					1	
1	7	219 Albee St						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	87	56 Krysiak						
1	340	Courtyard between 23 and 1 Leyte						
1	125	26 Nimitz						
1	126	Normandy Rd/Office Entrance						
1	127	Normandy Rd/Office Parking Lot						
1	129	62 Normandy Rd						
1	131	123 Normandy					1	
1	155	Romano/Canton						
1	156	37 Romano						
1	167	33 St Paul St						
1	325	56 St. Peter St						
1	221	762 Water St						
1	222	792 Water St	1		1			
1	341	824 Water Street						
1	224	Water/100 N of Duckmill						
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						1
3	350	Beekman St at Cliff St						
3	239	38 Birch St		1		1		
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						
3	347	Salem St @ Birch St (10' north on Salem)						
3	232	Birch St @ Salem St Intersection						
3	172	Salem St/Beekman St Intersection					1	
3	173	65 Sawyer Passway (Quality Fab)						
3	187	South St/Everett St Intersection						
4	51	Elm St/Marshall Dr Intersection						
4	53	Elm/Mattson						1
4	117	Marshall St/Dr						
4	338	491 Main Street (On Oliver St @ Main)						

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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**
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	214	Cascade/Plain						
9	314	Cascade/Overland	1		1			1
9	322	Westminster/Overland						
9	226	Westminster St/Princeton Rd Intersection						
9	227	Westminster St/Eureka St Intersection						
9	342	Westminster St at Cascade St						
11	29	Berry St/Hardy Pass Intersection						
11	106	Lunenburg/Berry						
11	107	Lunenburg/Perkins						1
11	108	Lunenburg St/Garland St Intersection						1
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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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						1
13	141	Osgood/Longwood						
13	320	Blossom at Ross						
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						
15	207	Townsend St/Normal Rd Intersection						
15	210	67 Townsend St						
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						
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						
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						
20	12	Beech/Alden						
20	13	429 Beech St						
20	14	Beech/Delisle						
20	15	490 Beech						
20	16	Beech/Legros						
20	17	Beech/200 From Franklin						

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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**
20	142	Parker/Thurston						
20	143	Parker/Thurston						
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						
21	115	427 Madison						1
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			1			
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						

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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
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	196	Theresa/Legros						
22	197	Theresa/Deslisle						1
22	198	Theresa St/Hope St Intersection						
22	200	21 Theresa St						
22	201	80 Theresa St						1
22	203	143 Theresa						
22	204	192 Theresa St						
22	302	Newtonville/Oak Hill						
22	335	24 York Avenue			1		1	
22	336	44 York Avenue			1			
22	346	240 Fairmount (off pavement on other side of street in gutter)						
22	343	Ronald St at Theresa St						1
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						
23	90	Leroy St/Newtonville Ave Intersection						
23	301	80 Appleton Circle						
		Totals	3	2	7	2	6	16