



Haverhill

Robert E. Ward, Deputy DPW Director
Water/Wastewater Division
Phone: 978-374-2382 Fax: 978-521-4083
rward@haverhillwater.com

April 30, 2019

Environmental Protection Agency
Water Technical Unit (OES04-3)
U.S. EPA - New England, Region 1
5 Post Office Square, Suite 100
Boston, MA 02109-3912
Ms. Joy Hilton, EPA

Subject: City of Haverhill, MA NPDES Permit #MA 0101621
Consent Decree Submittal (Civil Action No. 16-11698-IT)
Compliance Report Number 5 – July 1, 2018 through December 31, 2018

Dear Ms. Hilton:

Enclosed is Compliance Report No. 5 as required by Section IX.67 of the Consent Decree (CD). This report is for the July 1, 2018 through December 31, 2018 reporting period.

If you require additional information, please call me at (978) 374-2382.

Sincerely,

Robert E. Ward
Deputy DPW Director

Enclosures

cc: Chief, Environmental Enforcement Section, U.S. DOJ
Susan Poswistilo, U.S. Attorney, MA District
Michael Wagner, USEPA, wagner.michael@epa.gov
Kevin Brander, DEP, kevin.brander@state.ma.us
I. Andrew Goldberg, MA Assistant Attorney General, andy.goldberg@state.ma.us
Mayor James J. Fiorentini, City of Haverhill, mayor@cityofhaverhill.com
William D. Cox, Jr., City Solicitor, billcoxlaw@aol.com
Michael Leon, Nutter, McClennen & Fish LLP, MLeon@nutter.com
Mike Stankovich, DPW Director, mstankovich@cityofhaverhill.com
Carrie Prescott, WWTP Collection System Supervisor, cprescott@haverhillwater.com
Isaiah Lewis, WWTP Facility Manager, ilewis@haverhillwater.com
Kevin Olson, Wright-Pierce, kmo@wright-pierce.com



CITY OF HAVERHILL, MASSACHUSETTS

NPDES PERMIT No. MA0101621

CONSENT DECREE

(Civil Action No. 16-11698-IT, 11/10/16)

COMPLIANCE REPORT No. 5

JULY THROUGH DECEMBER 2018

APRIL 2019

CITY OF HAVERHILL, MASSACHUSETTS
NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM
PERMIT No. MA0101621
CONSENT DECREE
(Civil Action No. 16-11698-IT, 11/10/2016)
COMPLIANCE REPORT No. 5
JULY THROUGH DECEMBER 2018

TABLE OF CONTENTS

SECTION	DESCRIPTION	PAGE
1	INTRODUCTION	
	1.1 Background	1-1
	1.2 Report Organization	1-1
	1.3 Certification Statement	1-2
2	IDDE Program	
	2.1 Introduction	2-1
	2.2 Current Revised Priority Listing	2-1
	2.3 IDDE Investigation Progress Reporting	2-2
	2.4 Identified Illicit Connections and Current Resolution Status	2-13
3	SSO AND BUILDING PRIVATE PARTY BACKUP EVENTS	3-1
4	CONSTRUCTION SITE INSPECTION AND ENFORCEMENT PROGRAM	4-1
5	GENERAL STATUS	
	5.1 Introduction	5-1
	5.2 Issues of Noncompliance	5-2
	5.3 Looking Ahead - Six Month Forecast	5-2
6	SECONDARY TREATMENT BYPASS	
	6.1 Introduction	6-1
	6.2 Bypass Events	6-1

TABLE OF CONTENTS (CONTINUED)

7	CMOM-CORRECTIVE ACTION PLAN	
7.1	Introduction	7-1
7.2	CMOM Corrective Actions.....	7-1
7.3	Additional CMOM-Related Activities	7-1

APPENDICES

A	MAINTSTAR GENERATED WORK ORDERS - OUTFALL INSPECTIONS
B	MAINTSTAR GENERATED WORK ORDERS - OUTFALL INVESTIGATIONS
C	IDDE PROGRAM SUPPORTING DOCUMENTS

LIST OF TABLES

TABLE	DESCRIPTION	PAGE
2-1	PRIORITIZED LIST OF OUTFALL SUB-AREA INVESTIGATIONS.....	2-4
2-2	SUMMARY OF IDDE INVESTIGATIONS OF SYSTEMS WITH POTENTIAL ILLICIT CONNECTIONS BY BASIN .	2-6
2-3	OUTFALL MAINTENANCE PRIORITY TABLE.....	2-9
2-4	SUMMARY OF ILLICIT DISCHARGES IDENTIFIED BY BASIN AND CURRENT STATUS (JULY THROUGH DECEMBER 2018)	2-15
3-1	SANITARY SEWER OVERFLOW EVENTS JULY THROUGH DECEMBER 2018	3-2
5-1	SUBMISSIONS WITHIN CURRENT REPORTING PERIOD	5-1
5-2	FUTURE DELIVERABLES DURING THE PROCEEDING REPORTING PERIOD (JANUARY THROUGH JUNE 2019)	5-2
7-1	CMOM CORRECTIVE ACTION PLAN & STATUS	7-2
7-2	CMOM-RELATED ACTIVITIES THAT OCCURRED DURING REPORTING PERIOD (JULY THROUGH DECEMBER 2018).	7-5

LIST OF FIGURES

FIGURE	DESCRIPTION	PAGE
3-1	SSO AND BUILDING/PRIVATE PARTY BACKUP LOCATIONS JULY THROUGH DECEMBER 2018	3-4

SECTION 1

INTRODUCTION

1.1 BACKGROUND

The United States Environmental Protection Agency (EPA), Massachusetts Department of Environmental Protection (MassDEP), and the City of Haverhill entered into a Consent Decree to require the City to take measures necessary to meet the requirements of the Clean Waters Act and the Massachusetts Clean Water Act, and to achieve and maintain compliance with the Small Municipal Separate Stormwater Sewer System (MS4) General Permit and the Publicly Owned Treatment Works (POTW) Permit, and all applicable federal and state regulations. The effective date of the Consent Decree is November 10, 2016.

As part of the Consent Decree, the City is required to submit a Compliance Report to EPA and MassDEP for the previous six-month period, referred to as a “Reporting Period.” The bi-annual Reporting Periods run from January through June and July through December, with the Compliance Reports due on April 30th and October 31st for the previous period.

The goal of this Compliance Report is to provide the EPA and MassDEP an updated summary of the work performed by the City to achieve and maintain compliance over the course of the Reporting Period.

1.2 REPORT ORGANIZATION

The Compliance Report is divided into several sections including:

- IDDE Program
- SSO and Building/Private Party Backup Events
- Construction Site Inspection and Enforcement Program
- General Status
- Secondary Treatment Bypass
- CMOM Corrective Action Plan (per MassDEP request)

Each section summarizes the City’s actions, activities, and events that have occurred over the previous Reporting Period in accordance with the Consent Decree.

1.3 CERTIFICATION STATEMENT

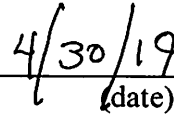
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage 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.



Robert E. Ward

Deputy DPW Director

City of Haverhill, Massachusetts


(date)

SECTION 2

IDDE PROGRAM

2.1 INTRODUCTION

The City identified and inspected 1,200 stormwater/combined sewer overflow (CSO) outfalls as part of the 2014/2015 Stormwater Outfall Inspection Report. Based on the findings, the City established a draft schedule of prioritized inspections.

In 2017, the City prepared the “Illicit Discharge Detection and Elimination (IDDE) Manual.” The manual identified the procedures that the City will follow to continue their comprehensive inspections of its stormwater outfalls, upstream system investigations, and enforcement procedures when an illicit connection is identified.

Most recently, the IDDE Manual was revised to include the EPA New England Bacterial Source Tracking Protocol. The IDDE inspection form was also revised to include previous rain end times, CMMS MaintStar work order and inspection numbers, additional asset flow and asset connection descriptions.

The IDDE Manual can be found on the City’s Stormwater website at:

www.cityofhaverhill.com/departments/storm_water_program/index.php

2.2 CURRENT REVISED PRIORITY LISTING

The City continues to review and update its list of IDDE Investigation Priorities as field investigations are performed. The revisions include private outfalls that were confirmed and removed from the list. The City will continue to determine ownership of drainage outfalls and remove privately owned outfalls from its list of future outfall investigations and responsibilities under the IDDE program. As the City confirms the ownership of these outfalls, private outfalls owners will be notified as conditions warrant. For some discharges that were originally identified as MS4 drain system outfalls in the 2014/2015 Outfall Inspection Report, the City has completed additional investigations and determined that these points are culverts with no

connections. Accordingly, they have been removed from the list of City owned MS4 infrastructure and the IDDE Investigation Priorities List.

The Revised IDDE Investigation Priorities as of April 2018 is shown in Table 2-1. There are now 31 outfalls with a High, Medium, or Low Priority; 24 Outfalls with non-bacteria indicators; and 8 outfalls requiring follow-up investigations. This list of priorities may change as the investigations progress. Table 2-1 lists the priority outfalls along with their worst case sample results. All sample results for each outfall are shown in the outfall investigation maps located on the City's Stormwater website.

It is important to note that these IDDE priorities were developed based on the City's November 2016 Consent Decree requirements. The 2016 NPDES General Massachusetts MS4 Stormwater Permit for Haverhill requires a different approach to prioritizing system investigations. As the City develops its Stormwater Management Plan, and revises its IDDE Manual, to meet the requirements of the new NPDES permit, the priority list will be updated

2.3 IDDE INVESTIGATION PROGRESS REPORTING

Table 2-2 shows the City's progress to date on their IDDE investigations during the reporting period (July through December 2018).

Using GIS, the City identified a total of 25.8 miles of storm drain piping and 2,651 drainage manholes and catch basins in the tributary area upstream of the outfalls included in the Priorities List as Low, Medium, and High priorities. As the other priorities are investigated, their characteristics will be added to the table. These characteristics, such as lengths of pipe and number of structures, have and will continue to change due to field investigations and updated MS4 mapping. The identified lengths of drain pipe and number of manholes for each basin are shown in Table 2-2, as well as the number of each that have been addressed by the IDDE investigations during the reporting period. A cumulative total for the IDDE Program is also included and has been updated from the previous Compliance Reports.

Investigations by the City were performed using a bottom up approach to look for dry-weather-flows. Manholes and piping were investigated upstream from the outfall until there was no more flow during dry-weather. For some outfalls, the entire inventory of pipes, catch basins, and

manholes in that catchment area may not have been physically inspected, however, because there was no upstream observed dry-weather-flow, the City assumed that there are no illicit connections further upstream and is marking that catchment's investigations as 100% complete.

As summarized in Table 2-2, the City has currently addressed 47% of the identified drain piping and 54% of the identified catch basins and manholes for the High, Medium, and Low Priorities. Table 2-2 lists both the upstream basin investigations that took place over the reporting period and the total to date.

Over the Compliance Reporting Period (July through December 2018), the City has continued to re-inspect, locate and/or unbury outfalls on the Outfall Maintenance Priority Table (Table 2-3). Thirteen outfalls were re-inspected, located, and/or cleared of sediment. The City is continuing to complete all high priority maintenance outfalls first and will then work on completing all medium priority outfalls. Also, two outfalls were inspected on the "Needs Follow-up Testing" section of Table 2-1. MR38712 was inspected and sampled on 7/12/2018. The results of this inspection are shown in Table 2-1. This outfall was determined to not have an illicit connection and will be removed from Table 2-1 for the next compliance report. UNK1188 was inspected on 7/11/2018 and determined that there was no flow. Although there was no flow at the time of inspection, this outfall will remain on the "Needs Follow-up Testing" section of Table 2-1 since the upstream trace data indicates possible contamination in a catch basin. The City will re-investigate UNK1188 and continue to inspect all of the outfalls identified as "Needs Follow-up Testing" in 2019. IDDE inspection supporting documentation is included in Appendix C.

Table 2-1
PRIORITIZED LIST OF OUTFALL SUB-AREA INVESTIGATIONS
(BASED ON OUTFALL INSPECTION PROGRAM)
2014-2018 Dry-Weather MS4/Stormwater Outfall Inspection Program
Summary of Water Quality Testing of Dry Weather Flow at MS4/CSO Outfalls

Outfall Information					Field Inspection Information				Dry-Weather Flow Characteristics					Field Parameter Test Results							Coliform Laboratory Sampling/Analysis								
					Date	Previous Rainfall	Dry Weather		Flow Description	Odor	Color	Floatables	Turbity	Sample Time	Sample Temp (F)	pH	Conduct- ivity	Ammonia (mg/l)	Surfactants (mg/l)	Chlorine (mg/l)	Sample Date for Bacteria	Previous Rainfall (inches)	Previous Rainfall (Date)	Previous Rainfall (End Time)	E.Coli (MPN/ 100 ml)	Entrococcus (MPN/ 100 ml)	Fecal (MPN/ 100 ml)		
< 24 hours	<48 hours																												
High Priority																													
UNK0955	36"	RCP	South Main St(Dominator Plaza)	City	9/29/2014	0.36" ON 9/21/14				MODERATE	NONE	CLEAR	NONE	NONE	1058	69.2	7.54	1673	0	0.5		9/21/2015	0.1	9/13/2015			>48,000		
MR24314	24"	RCP	Groveland Street/Water Street	City	9/2/2015	0.19" ON 8/23/15				NO INFORMATION	RANCID/SO UR	BROWN, YELLOW	GREASE	CLOUDY	800	70.1	7.6	1009	0	3	0	9/9/2015	0.19	8/23/2015			>24,000	>24,190	
PL0891	30"	RCP	Main St @ Marsh Ave	City	10/6/2014	0.12" ON 10/4/14				TRICKLE	SEWERAGE	GRAY	OTHER (DEBRIS)	CLOUDY	840	50	7.36	1123	0	3		9/9/2015	0.19	8/23/2015			>24,000		
MR1109	12"	RCP	350 Water Street	City	10/26/2015	0.06" ON 10/25/15				TRICKLE	''	NONE	NONE	NONE	930	59.3	7.31	3	0	0	0	12/10/2015	0.1	12/3/2015			1413.6	> 2420	
UNK1767	36"	CMP	Tudor Ct	City	10/10/2014	0.08" ON 10/8/14				TRICKLE	NONE	CLEAR	DEBRIS	CLEAR	1055	60.6	7.41	373	0	0.25		10/14/2014					2,420		
UNK0951	48"	RCP	61 Brook St	City	9/29/2014	0.36" ON 9/21/14				MODERATE	NONE	CLEAR	NONE	CLEAR	900	65.5	7.98	334	0	0.25		10/14/2014					>2419.6		
DPI10946	48"	RCP	High School	City	11/5/2015	0.02" ON 11/1/15				TRICKLE	NONE	NONE	NONE	NONE	815	56.4	7.22	849	0	0.25	0	12/10/2015	0.1	2/3/2015			>2420		
MR1141	36"	RCP	Merrimac River (River St)	State	9/23/2014	0.36" ON 9/21/14				TRICKLE	NONE	CLEAR	OTHER (DIRT)	CLEAR	945	62	7.88	694	0	0.25		9/30/2014	0.01	9/29/2014			>2,420		
DPO0696	12"	RCP	Pamela Lane	City	6/5/2015	1.38" ON 6/2/15				MODERATE	NONE	NONE	NONE	NONE	1010	64.2	6.75	365	0	0	0	6/12/2015	0.1	6/6/2015			>2,419		
MR1138	36"	RCP	Merrimac River (River St)	City	9/23/2014	0.36" ON 9/21/14				TRICKLE	NONE	CLEAR	OTHER (DIRT)	CLEAR	920	58.6	7.24	613	0	0		9/30/2014	0.01	9/29/2014			2420		
Medium Priority																													
LR1260	3'x4'	OTHER, Blocks	140 Hale Street	City	9/28/2015	0.10" ON 9/13/15				NO INFORMATION	NONE	NONE	NONE	NONE	1040	69.9	7.1	927	0	0.5	0	11/4/2015	0.02	11/1/2015			1986.3		
UNK1166	34"	RCP	8 Franzone Dr	Private	9/30/2014	0.03" ON 9/30/14				MODERATE	NONE	CLEAR	NONE	CLEAR	850	59.5	7.25	1437	0	0		10/6/2014	0.12	10/4/2014			1299.7		
UNK1177	48"	RCP	Franzone Dr	City	9/30/2014	0.03" ON 9/30/14				TRICKLE	NONE	CLEAR	NONE	NONE	1105	59	7.05	1537	0	0.25		10/6/2014	0.12	10/4/2014			1299.7		
DPI1074	24"	RCP	Amy Lynne Lane	Private	6/7/2015	0.1" ON 6/6/15		X		NO INFORMATION	NONE	NONE	NONE	NONE	905	61.5	6.97	700	0	0	0	7/7/2015	0.02	7/4/15			1218		
JC1028	15"	RCP	Kali Way	Private	10/7/2014	0.12" ON 10/4/14				TRICKLE	NONE	CLEAR	NONE	CLEAR	950	67.3	7.4	433	0	0		10/20/2014	0.02	10/18/2014			1046.2		
LR0993	16"	CMP	100 Newark Street	City	11/7/2015	0.02" ON 11/1/15				MODERATE	NONE	NONE	NONE	NONE	840	59.6	6.81	765	0	0	0	12/1/2015	0.39	11/28/2015			1046.2	33.6	
Low Priority																													
UNK1835	15"	PVC	Broadway	City	6/10/2015	0.1" ON 6/6/15				NO INFORMATION	NONE	NONE	NONE	NONE	935	69	7.08	240	0	0	0	6/12/2015	0.1	6/6/2015			980.4		
LR1103	15"	RCP	Bennington St	City	9/10/2014	0.5" ON 9/7/14				TRICKLE	NONE	CLEAR	NONE	NONE	830	68.1	7.35	683	0	0		9/16/2014	0.18	9/13/2014			920.8		
BZB0847	15"	RCP	Fermainagh St	City	10/20/2014	0.02" ON 10/19/14				TRICKLE	NONE	CLEAR	NONE	NONE	1306	60	7.7	287	0	1		11/13/2014	0.06	11/7/2014			770.1		
MR20718	10"	RCP	1 Water Street	City	8/14/2015	0.57" ON 8/11/15				NO INFORMATION	NONE	NONE	NONE	NONE	1000	78	7.99	2	0	0	0	8/31/2015	0.19	8/23/2015			556	631	
MR1164	36"	RCP	Water Street	City	8/25/2015	0.36" ON 8/21/15				TRICKLE	NONE	CLEAR	NONE	NONE		72.2	7.6	2	0	0	0	08/31/2015	0.19	08/23/2015			461	< 10	
DPO1079	24"	RCP	Amy Lynne Lane	Private	6/7/2015	0.1" ON 6/6/15		X		TRICKLE	NONE	NONE	NONE	NONE	905	61.5	6.97	700	0	0	0	7/7/2015	0.02	7/4/15			436		
FBO0638	12"	RCP	Hilldale Ave.	City	6/27/2015	0.04" ON 6/27/15				TRICKLE	NONE	NONE	NONE	NONE	945	64.5	6.91	453	0	0	0	7/7/2015	0.02	7/4/2015			435.2		
UNK0668	18"	RCP	Danielle Drive	City	6/8/2015	0.1" ON 6/6/15				TRICKLE	NONE	NONE	NONE	NONE	930	63.5	6.37	502	0	0	0	6/12/2015	0.1	6/6/2015			435.2		
PL1222	36"	RCP	West Gile St.	City	5/20/2015	0.07" ON 5/19/15				NO INFORMATION	NONE	NONE	NONE	NONE	825	65.4	7	548	0	0.25	0	6/5/2015	1.38	6/2/15			410.6		
UNK0661	24"	RCP		City	9/26/2014	0.36" ON 9/21/14				TRICKLE	NONE		NONE	NONE		67.1	7.84	815	0	0		11/13/2014	0.06	11/7/2014			365.4		
UNK1063	15"	RCP	Crystal Ct.	Private	5/26/2015	0.07" ON 5/19/15				TRICKLE	NONE	NONE	NONE	NONE	1015	66	7.6	49	0	0	0	6/5/2015	1.38	6/2/2015			344.8		
MR32720	36"	RCP	782/775 River Street	City	11/16/2015	0.04" ON 11/13/15				TRICKLE	NONE	NONE	NONE	NONE	900	57.2	7.31	7	0	0	0	12/1/2015	0.39	11/28/15			325.5		
UNK0836	6"	RCP	Beechwood Drive	City	6/6/2015	0.1" ON 6/6/15		X		TRICKLE	NONE	NONE	NONE	NONE	1025	57.2	7.2	385	0	0	0	7/7/2015	0.02	7/4/2015			325.5		
MR0982	18"	CLAY	20 Back Lane	City	10/14/2015	0.02" ON 10/13/15				NO INFORMATION	NONE	NONE	NONE	NONE	1150	63.1	7.25	3	0	0	0	11/4/2015	0.02	11/1/15			547.5	183.5	
MR23912	8"	STEEL	120 Merrimack St	City	8/27/2015	0.19" ON 8/23/15				TRICKLE	NONE	NONE	NONE	NONE	915	55.1	6.71	6	0	0	0	8/31/2015	0.19	8/23/2015			12.1	148	
Other Priorities (based on non-bacteria results)																													
MR1140	15"	RCP	River St	City	9/23/2014	0.36" ON 9/21/14				TRICKLE	NONE	BROWN	OTHER	CLOUDY		42.6	8.18	484	0	0		11/13/2014	0.06	11/7/2014			62.4		
LRO0995	18"	RCP	Newark St	City	9/10/2014	0.5" ON 9/7/14				TRICKLE	NONE	CLEAR	NONE	CLEAR	915	71.4	7.41	120	0	0.75		10/14/2014	0.18	10/11/2014			52		
MR0834	48"	RCP	Merrimac River (Bradley Ave)	City	9/19/2014	0.02" ON 9/16/14				MODERATE	NONE	CLEAR	NONE	NONE	831	50	7.6	295	0	0		11/13/2014	0.06	11/7/2014			43.2		
UNK0883	12"	CMP		City	9/24/2014	0.36" ON 9/21/14				TRICKLE	NONE	CLEAR	NONE	NONE	925	64.7	7.41	224	0	0.25		10/20/2014	0.02	10/18/2014			28.8		
MR0662	18"	RCP		City	9/25/2014	0.36" ON 9/21/14				TRICKLE	NONE	CLEAR	NONE	NONE	1120	65.4	7.5	475	0	0.25		10/6/2014	0.12	10/4/14			23.8		
LR0963	15"	HDPE	Alvanos St	City	9/11/2014	0.5" ON 9/8/14				MODERATE	NONE	CLEAR	NONE	SLIGHT CLOUDINESS	1015	68.1	7.87	855	0	0.25		9/16/2014	0.18	9/13/2014			22.6		
CB1198	NA	RCP	Research Dr	City	11/4/2014	0.25" ON 11/2/14				MODERATE	NONE	CLEAR	NONE	CLEAR	1003	50.2	7.06	208	0	0.25		11/13/2014	0.06	11/7/2014			21.3		
MR0770	36"	RCP	Merrimac River (River St)	City	9/23/2014	0.36" ON 9/21/14				TRICKLE	NONE	CLEAR	NONE	CLEAR	930	60.6	7.86	713	0	0.25		9/30/2014	0.01	9/29/2014			19.9		
UNK1836	36"	RCP	Computer Dr	City	11/6/2014	0.25" ON 11/2/14				MODERATE	NONE	CLEAR	NONE	CLEAR	850	53.7	7.48	3	0	0.5		11/13/2014	0.06	11/7/2014			18.3		
FP7115	12"	RCP	Brickett Ln	City	5/18/2015	0.03" ON 5/12/15				NO INFORMATION	NONE	BROWN	OTHER	CLOUDY	920	56	7.4	6	0	0.5	0.25	5/22/2015	0.07	5/19/15			8.4		
DPI0969	15"	RCP	Diana Road	City	6/4/2015	1.38" ON 6/2/15		X		MODERATE	N																		

Outfall Information					Field Inspection Information				Dry-Weather Flow Characteristics					Field Parameter Test Results							Coliform Laboratory Sampling/Analysis						
					Date	Previous Rainfall	Dry Weather		Flow Description	Odor	Color	Floatables	Turbity	Sample Time	Sample Temp (F)	pH	Conduct- ivity	Ammonia (mg/l)	Surfactants (mg/l)	Chlorine (mg/l)	Sample Date for Bacteria	Previous Rainfall (Inches)	Previous Rainfall (Date)	Previous Rainfall (End Time)	E.Coli (MPN/ 100 ml)	Entrococcus (MPN/ 100 ml)	Fecal (MPN/ 100 ml)
GIS Identifier	Diameter	Material	Outfall Location	Owner-ship	< 24 hours	<48 hours																					
Other Priorities (based on non-bacteria results)																											
DPI0947	18"	RCP	177 Brook Street	City	10/31/2015	0.66" ON 10/29/15			MODERATE	RANCID/ SOUR	NONE	NONE	NONE	800	52.3	7.4	283	0	0	0	12/10/2015	0.1	12/3/15		1		
UNK1189	NA	NA	Primrose St (Dpw)	City	9/12/2014	0.01" ON 9/9/14			TRICKLE	NONE	CLEAR	NONE	CLEAR	1025	64.7	7.86	343	0	0.25		9/16/2014	0.18	9/13/2014		<1		
TS0984	24"	RCP		City	5/11/2015	0.03" ON 5/12/15			MODERATE	NONE	BROWN	NONE	SLIGHT CLOUDINESS	1111	62.2	6.81	76	0	0	0.25	5/22/2015	0.07	5/19/15		<1		
TS0989	24"	RCP	Newton Rd	City	5/18/2015	0.03" ON 5/12/15			SUBSTANTIAL	NONE	Clear	NONE	SLIGHT CLOUDINESS	1100	63.3	7.2	48	0	0	0.25	5/22/2015	0.07	5/19/15		<1		
UNK1020	24"	RCP		Private	9/30/2014	0.36" ON 9/21/14			TRICKLE	NONE	NONE		SLIGHT CLOUDINESS	840	44.9	7.77	301	0	0		11/13/2014	0.06	11/7/2014		34.1		
UNK1750	24"	RCP	36 Magnavista	City	5/18/2015	0.03" ON 5/12/15			TRICKLE	NONE	NONE	NONE	NONE	955	64.7	7.6	574	0	0	0.25	5/22/2015	0.07	5/19/2015		<1		
UNK1040	24"	RCP	Gile St.	City	5/20/2015	0.07" ON 5/19/15			TRICKLE	NONE	ORANGE	NONE	SLIGHT	930	63.1	7.3	877	0	0.25	0	5/22/2015	0.07	5/19/2015		<1		
UNK0902	40"	CMP	Shelley Rd	City	9/24/2014	0.36" ON 9/21/14			MODERATE	NONE	CLEAR	OTHER (RUST)	CLEAR		62.6	7.02	1567	0	0.25								
UNK1680	15"	HDPE	Colonial Farm Road	Private	6/27/2015	0.04" ON 6/27/15			TRICKLE	NONE	BROWN	NONE	NONE		66.9	6.9	238	0	0	0							
DPI1007	54"	CMP	Kenilworth Ln	#N/A	10/10/2014	0.08" ON 10/8/14			TRICKLE	NONE	CLEAR	OTHER (DIRT/DEBRIS)	CLEAR	1040	51.5	7.86	471	0	0.25								
Needs Follow-up Testing (City has attempted to make follow-up visits to these sites but there was no flow)																											
UNK0848	18"	RCP	Woodrow Ave	City	5/15/2015	0.03" ON 5/12/15			SUBSTANTIAL	NONE	NONE	NONE	NONE		69.3	7.38	2	0	0	0							
FBO0723	18"	RCP	Hanna Ridge Rd.	City	5/28/2015	0.07" ON 5/19/15			TRICKLE	NONE	NONE	NONE	NONE		77	7.49	385	0	0	0							
UNK0888	NA	NA	West Lowell Street	City	6/12/2015	0.1" ON 6/6/15			MODERATE																		
UNK1188	32"	RCP	Primrose Street	City	Broken pipe needs to be re-inspected																						
MR38714	6"	PVC		City	3/9/2016	0.01" ON 3/4/16			TRICKLE																		
MR38712	36"	RCP	Merrimack River	City	3/9/2016	0.01" ON 3/4/16			TRICKLE																		
					7/12/2018				TRICKLE	NONE	NONE	NONE	NONE	900	59	6.99	250	0	<0.05		7/12/2018	0.22	7/10/2018	1130	26.2		
MR38718	18"	RCP	Merrimack River	City	3/9/2016	0.01" ON 3/4/16			MODERATE																		
LR39512	48"	RCP	Little River	City	3/31/2016	0.85" ON 3/29/16			MODERATE					1130							4/1/2016	0.7	3/28/2016				5

NOTE: Data exceeds one of the parameter thresholds that suggest it should be added to the IDDE program

Laboratory Sampling Dates in Red are the samples taken with less than 48 hours of dry weather.

TABLE 2-2
SUMMARY OF IDDE INVESTIGATIONS OF SYSTEMS WITH POTENTIAL ILLICIT CONNECTIONS BY BASIN
(BASED ON OUTFALL INSPECTION PROGRAM)
2014-2018 Dry-Weather MS4/Stormwater Outfall Inspection Program
REVISED (February 2019) IDDE INVESTIGATION PRIORITIES

Basin ID	Outfall ID	Existing System Estimates		Current Report Period				Completed to Date			
				July 2018 to December 2018				Including this Reporting Period			
		Length of Pipe (ft)	Number of Manholes and Catch Basins	Upstream Basin Investigations				Upstream Basin Investigations			
				Length of Pipe (ft)	Percent Completed	Number of Manholes and Catch Basins	Percent Completed	Length of Pipe (ft)	Percent Completed	Number of Manholes and Catch Basins	Percent Completed
Buswell Brook	BZB0847	1,697	46								
Buswell Brook TOTAL		1,697	46	0	0%	0	0%	0	0%	0	0%
Creek Brook	CB1193	70	0					70	100%		
	CB1198	144	1								
	CB1710	71	0					71	100%		
Creek Brook Outlet TOTAL		285	1	0	0%	0	0%	141	49%	0	0%
Detention Pond Outlet	DPO0657	422	7								
	DPO0696	61	2					61	100%	2	100%
	DPO1079	37	2								
Detention Pond Outlet TOTAL		520	11	0	0%	0	0%	61	12%	2	18%
Detention Pond Inlet	DPI0946	7,421	172					7,421	100%	172	1
	DPI0947	1,360	11								
	DPI0969	1,515	10								
	DPI1007	1,634	24								
	DPI1074	694	7								
	DPI1094	22	0					22	100%		
Detention Pond Inlet TOTAL		12,646	224	0	0%	0	0%	7,443	59%	172	77%
Fishing Brook	FBO0638	852	24								
Fishing Brook TOTAL		852	24	0	0%	0	0%	0	0%	0	0%
Frey's Pond	FP7115	72	1								
Frey's Pond TOTAL		72	1	0	0%	0	0%	0	0%	0	0%
Johnston's Creek	JC1028	1,397	26								
Johnston's Creek TOTAL		1,397	26	0	0%	0	0%	0	0%	0	0%
Little River	LR0952	7,268	170								
	LR0963	703	2								
	LR0993	539	8								
	LR0995	822	0								
	LR1103	4,418	62								
	LR1260 ¹	26,134	614					6,214	24%	146	24%
Little River TOTAL		39,884	856	0	0%	0	0%	6,214	16%	146	17%

TABLE 2-2 CONTINUED

Basin ID	Outfall ID	Current Report Period						Completed to Date			
		Existing System Estimates		July 2018 to December 2018				Including this Reporting Period			
				Upstream Basin Investigations				Upstream Basin Investigations			
		Length of Pipe (ft)	Number of Manholes and Catch Basins	Length of Pipe (ft)	Percent Completed	Number of Manholes and Catch Basins	Percent Completed	Length of Pipe (ft)	Percent Completed	Number of Manholes and Catch Basins	Percent Completed
Merrimack River	MR0662	210	2								
	MR0770	2,980	18								
	MR0834	756	8								
	MR0982	128	6								
	MR1109	941	12	941	100%	12	100%	941	100%	12	100%
	MR1138	289	18					289	100%	18	100%
	MR1140	90	2								
	MR1141 ²	3,899	104	3,899	100%	104	100%	3,899	100%	104	100%
	MR1164	1,746	116					1,746	100%	116	100%
	MR20718	NA									
	MR23912	0	0								
	MR24314	541	24					541	100%	24	100%
	MR32720	NA									
Merrimack River TOTAL		11,580	310	4,840	42%	116	37%	7,416	64%	274	88%
Pentucket Lake	PL0891	5,463	128					5,463	100%	128	100%
	PL1222 ¹	3,292	102					65	2%	2	2%
Pentucket Lake TOTAL		8,755	230	0	0%	0	0%	5,528	63%	130	57%
Tilton Swamp	TS0984	52	0								
	TS0989	3,893	12								
Tilton Swamp		3,945	12	0	0%	0	0%	0	0%	0	0%
Unknown	UNK0627	254	3								
	UNK0661	410	14								
	UNK0668	854	36								
	UNK0788	869	16					869	100%	16	100%
	UNK0836	842	22								
	UNK0883	570	1								
	UNK0898	91	0					91	100%		
	UNK0902	54	0								
	UNK0951	1,910	34					1,910	100%	34	100%
	UNK0953	225	0					225	100%		
	UNK0954	81	0					81	100%		
	UNK0955	6,058	146					6,058	100%	146	100%
	UNK1011	5306	14								
	UNK1020	71	4								
	UNK1040	1,414	7								
	UNK1063	49	2								
	UNK1166 ¹	1,079	28					77	7%	2	7%
	UNK1177	156	4								
	UNK1188	25,926	470					25,926	100%	470	100%
	UNK1189	2,043	4								
	UNK1680	719	8								
	UNK1750	1,239	13								
	UNK1767	2,077	52	2,077	100%	52	100%	2,077	100%	52	100%

TABLE 2-2 CONTINUED

Basin ID	Outfall ID	Current Report Period						Completed to Date			
		July 2018 to December 2018						Including this Reporting Period			
		Existing System Estimates		Upstream Basin Investigations				Upstream Basin Investigations			
		Length of Pipe (ft)	Number of Manholes and Catch Basins	Length of Pipe (ft)	Percent Completed	Number of Manholes and Catch Basins	Percent Completed	Length of Pipe (ft)	Percent Completed	Number of Manholes and Catch Basins	Percent Completed
Unknown	UNK1835	761	20								
	UNK1836	1,179	12								
	UNK1886	20	0					20	100%		
	UNK1887	20	0					20	100%		
	UNK1888	21	0					21	100%		
	UNK1889	21	0					21	100%		
Unknown TOTAL		54,319	910	2,077	4%	52	6%	37,396	69%	720	79%
West Meadow Brook	WMB0738	80	0					80	100%		
	WMB0739	80	0					80	100%		
	WMB0740	82	0					82	100%		
	WMB0759	20	0					20	100%		
West Meadow Brook TOTAL		262	0	0	0%	0	0%	262	100%	0	0%
GRAND TOTAL		136,214	2,651	6,917	5%	168	6%	64,461	47%	1,444	54%
		25.80mi.		1.31mi.				12.21mi.			

¹ Estimate Base upon Percentage of Manholes Inspected

² Catchment includes State owned drainage and outfall. City inspected City owned drainage.

TABLE 2-3
OUTFALL MAINTENANCE PRIORITY TABLE
July through December 2018

Outfall ID	Work Order Number	High Priority		Medium Priority	Low Priority					Inspection Number	Inspection Date
		Could Not Locate	Buried	Fully Submerged in Sediment	Partially Submerged in Sediment	Fully Submerged in Water	Partially Submerged in Water	Abnormal Vegetation	Outfall Damage		
DPI1056	ST00000521	X								STI0001317	June-18
KL1227	ST00001275	X								STI0001327	June-18
LR1101	ST00001276	X								STI0001319	June-18
UNK1015	ST00001278	X								STI0001325	June-18
UNK1016	ST00001279	X								STI0001324	June-18
UNK1035	ST00001280	X								STI0001322	June-18
DPI0942	ST00000517		X							STI0001350	August-18
DPI0943	ST00001281		X							STI0001352	August-18
DPI0944	ST00000518		X							STI0001355	August-18
LR1150	ST00001282		X							STI0001318	June-19
MR0778	ST00000536		X							STI0001361	August-18
UNK0888	ST00000478		X								
UNK0889	ST00000554		X							STI0001356	August-18
UNK0905	ST00000556		X							STI0001354	August-18
UNK0997	ST00000560		X							STI0001351	August-18
UNK1033	ST00000562		X							STI0001321	June-18
UNK1136	STI0001311		X							STI0001359	August-18
UNK1207	STI0001312		X								
UNK1221	ST00000568		X							STI0001362	August-18
UNK1907	STI0001313		X							STI0001358	August-18
UNK35912	STI0001314		X							STI0001357	August-18
UNK1773	ST00000575		X								
UNK1774	ST00000576		X							STI0001363	August-18
BZB0959	ST00000508			X							
CB1196	ST00000510			X							
DPI0655	ST00000514			X							
DPI1008	ST00000520			X							
DPO1154	ST00000524			X							
FP7112	ST00000529			X							
JP1179	ST00000530			X							
KL1230	ST00001152			X							
LR0844	ST00000083			X							
LR1118	ST00001283			X							
MR1278	ST00000541			X							
MR24329	ST00000544			X							
SB11512	ST00000545			X						STI0001364	August-18
TS0987	ST00000548			X							
UNK0064	ST00000551			X							
UNK0782	ST00000553			X							
UNK0935	ST00000558			X							
UNK1017	ST00000561			X							
UNK1076	ST00000563			X							
UNK1137	ST00000564			X							
UNK1183	ST00000566			X							
UNK1678	ST00000572			X							
UNK1748	ST00000573			X							
UNK1772	ST00000574			X							
UNK1906	ST00000580			X							
UNK25513	ST00000583			X							
UNK31513	ST00000584			X							
CB1148	ST00000591				X						
CB1199	ST00000595				X						
CB1200	ST00000596				X						
CB1201	ST00000597				X						
CL0681	ST00000600				X						
CL0683	ST00000601				X						
CL0690	ST00000602				X						
CL0701	ST00000603				X						
CLO0688	ST00000605				X						
DPI0634	ST00000606				X						
DPI0841	ST00000608				X						

Table 2-3 Continued

Outfall ID	Work Order Number	High Priority		Medium Priority	Low Priority					Inspection Number	Inspection Date
		Could Not Locate	Buried	Fully Submerged in Sediment	Partially Submerged in Sediment	Fully Submerged in Water	Partially Submerged in Water	Abnormal Vegetation	Outfall Damage		
DPI0965	ST00000609				X						
DPI1001	ST00000612				X						
DPI1004	ST00000613				X						
DPI1081	ST00000615				X						
DPI1090	ST00000617				X						
FBO0721	ST00000628				X						
FP7114	ST00000629				X						
FP7115	ST00000630				X						
KL30718	ST00000634				X						
LR0931	ST00000635				X						
LR1099	ST00000636				X						
LR1102	ST00000637				X						
LR1251	ST00000641				X						
MR23513	ST00000650				X						
MR23514	ST00000651				X						
MR23515	ST00000652				X						
MR23516	ST00000653				X						
MR23517	ST00000654				X						
MR23518	ST00000655				X						
MR23519	ST00000656				X						
MR23520	ST00000657				X						
MR23522	ST00000659				X						
MR23523	ST00000660				X						
MR23524	ST00000661				X						
MR23525	ST00000662				X						
MR24316	ST00000663				X						
MR24318	ST00000664				X						
MR24718	ST00000665				X						
MR5112	ST00000666				X						
PL1181	ST00000667				X						
SB1117	ST00000668				X						
UNK0626	ST00000674				X						
UNK0663	ST00000677				X						
UNK0669	ST00000682				X						
UNK0756	ST00000691				X						
UNK0882	ST00000700				X						
UNK0885	ST00000701				X						
UNK0950	ST00000706				X						
UNK0962	ST00000709				X						
UNK1000	ST00000710				X						
UNK1005	ST00000711				X						
UNK1006	ST00000712				X						
UNK1111	ST00000717				X						
UNK1123	ST00000718				X						
UNK1158	ST00000721				X						
UNK1160	ST00000722				X						
UNK1170	ST00000724				X						
UNK1174	ST00000726				X						
UNK1205	ST00000732				X						
UNK1213	ST00000734				X						
UNK1263	ST00000736				X						
UNK1265	ST00000737				X						
UNK13512	ST00000738				X						
UNK16715	ST00000741				X						
UNK1684	ST00000742				X						
UNK1685	ST00000743				X						
UNK1686	ST00000744				X						
UNK1738	ST00000751				X						
UNK1801	ST00000758				X						
UNK1802	ST00000759				X						
UNK1806	ST00000760				X						
UNK1864	ST00000767				X						
UNK1865	ST00000768				X						
UNK1867	ST00000770				X						
UNK1868	ST00000771				X						

Table 2-3 Continued

Outfall ID	Work Order Number	High Priority		Medium Priority	Low Priority					Inspection Number	Inspection Date
		Could Not Locate	Buried	Fully Submerged in Sediment	Partially Submerged in Sediment	Fully Submerged in Water	Partially Submerged in Water	Abnormal Vegetation	Outfall Damage		
UNK1880	ST00000772				X						
UNK1891	ST00000773				X						
UNK1896	ST00000774				X						
UNK1899	ST00000775				X						
UNK1900	ST00000776				X						
UNK24721	ST00000780				X						
UNK32717	ST00000791				X						
UNK34712	ST00000793				X						
UNK34713	ST00000794				X						
UNK26725	ST00001286				X						
UNK26726	ST00000784				X						
UNK29512	ST00000787				X						
CB0976	ST00001287							X			
CB0977	ST00001288							X			
CB1147	ST00001289							X			
DPO0657	ST00001291							X			
DPO1007	ST00001292							X			
FB0715	ST00001293							X			
UNK0906	ST00001294							X			
UNK1901	ST00001295							X			
UNK1902	ST00001296							X			
UNK5113	ST00001297							X			
CB1198	ST00001298					X					
DPI0945	ST00000519					X					
DPI1133	ST00000522					X					
MR20719	ST00000542					X					
TS0989	ST00000549					X					
KL26714	ST00000533					X					
DPI0970	ST00000610						X				
DPI1007	ST00000614						X				
DPI1084	ST00000616						X				
DPI1125	ST00000618						X				
DPI1131	ST00000619						X				
DPI1162	ST00000621						X				
DPI1197	ST00001299						X				
FBO0719	ST00000627						X				
KL1178	ST00000633						X				
LR1260	ST00000642						X				
TS0984	ST00000670						X				
TS33514	ST00000673						X				
UNK0665	ST00000678						X				
UNK0666	ST00000679						X				
UNK0728	ST00000688						X				
UNK0728	ST00000688						X				
UNK0729	ST00000689						X				
UNK0730	ST00000690						X				
UNK0902	ST00000703						X				
UNK0955	ST00000708						X				
UNK1168	ST00000723						X				
UNK1176	ST00000728						X				
UNK1177	ST00000729						X				
UNK1188	ST00001301						X				
UNK1206	ST00000733						X				
UNK1220	ST00000735						X				
UNK1695	ST00000745						X				
UNK1696	ST00000746						X				
UNK1749	ST00000752						X				
UNK1767	ST00000755						X				
UNK1823	ST00000761						X				
UNK1829	ST00000762						X				
UNK1835	ST00000763						X				
UNK1910	ST00000777						X				
UNK6316	ST00001303						X				
UNK8312	ST00000797						X				
UNK1775	ST00000756						X				

Table 2-3 Continued

Outfall ID	Work Order Number	High Priority		Medium Priority	Low Priority					Inspection Number	Inspection Date
		Could Not Locate	Buried	Fully Submerged in Sediment	Partially Submerged in Sediment	Fully Submerged in Water	Partially Submerged in Water	Abnormal Vegetation	Outfall Damage		
LR0979	ST00001304								X		
MR0607	ST00001305								X		
TS0983	ST00001307								X		
UNK1173	ST00001308								X		
MR0927	ST00001309										
UNK1189	ST00001310										
Unknown Ownership Outfalls											

2.4 IDENTIFIED ILLICIT CONNECTIONS AND CURRENT RESOLUTION STATUS

The ongoing and cumulative status of the City's efforts to remove any identified illicit connections or discharges is summarized in Table 2-4.

The status of the four most recently identified illicit connections is as follows:

- Pentucket Lake Basin
 - Outfall PL0891: This catchment area is located on Marsh Avenue and Main Street, and the source of dry weather flow was determined to be from a sewer exfiltrating into an under drain. Correction action has been designed, bid, and the notice of award has been issued to National Water Main. To date the following work has been completed:
 - Cleaning and CCTV inspections of all sewer laterals and mains in the project areas
 - Point repair and rehabilitation of SMH-2190
 - Installation of CIPP main line liner on Main Street
 - Installation of CIPP main line liner on Marsh Avenue
 - Installation of two CIPP sewer lateral liners

Due to high groundwater levels causing flooding in a home during lining of sewer laterals, the project has been on hold until groundwater levels lower and weather permits. Also, during inspection and CCTV of sewers, it was discovered that three sewer lateral connections tied into the top of the sewer main. Due to the angle of the connection, the service laterals cannot be lined. Therefore, the lateral connections will be dug and replaced. Once these connections are replaced, lining can be completed. Work is expected to begin again mid-to-late March 2019, with a project completion date of June 30, 2019. The cost of this project is approximately \$446,000.

- Merrimack River Basin
 - Outfall MR1141: The City conducted IDDE investigations on 12/20/2018. This outfall is believed to be owned by the State. The City conducted IDDE investigations on all the City owned drains that discharge to this outfall. It has

been determined that the City owned drains are not the cause of the contamination in this catchment area. See map of progress in Appendix D.

- Outfall MR1109: The City conducted IDDE investigations on 10/22/2018. High enterococci results start in segment DMH-366:DMH-364. Raccoons and animal feces have been observed in pipes upstream of this segment. Sewer main adjacent to DMH-366:DMH-364 was CCTV'd on 1/4/2019 and has no signs of infiltration crack, or fractures. The City will seek assistance from a consultant regarding next steps. See map of progress in Appendix D.
- Unknown or Unnamed Basins
 - Outfall UNK1767: The City conducted IDDE investigations on 7/16/2018. All sampling results were below threshold limits except for an ammonia sample coming from a PVC pipe in the direction of 50 Sherwood Drive. This pipe will be investigated. The City will seek assistance from a consultant regarding next steps. See map of progress in Appendix D.

TABLE 2-4
SUMMARY OF ILLICIT DISCHARGES IDENTIFIED BY BASIN AND CURRENT STATUS
(July through December 2018)

Description		Illicit Discharge/Connection Verified				Ongoing Illicit Discharge Removal Activities					Final Illicit Connection Removal Actions				Assessment: Is the City in compliance with the schedule?
CD Requirement		67.a.iii.1			67.a.iii.2	67.a.iii.7		67.a.iii.8		67.a.iii.9	67.a.iii.3		67.a.iii.4	67.a.iii.5	
Basin ID	Outfall ID	Date Verified	Address Location	Type of Discharge ¹	Estimated Flow (gpd)	Removed?	Reasons Why Not	Schedule for Removal	Reason why expedited	Legal Actions against Private Property Owners	Actions Taken (with Dates)	Date Connection Eliminated	Est. Cost of Removal	Estimated Volume Removed (gallons)	
Little River	LR1260	10/26/2017	29 Union Street	Single family broken sewer	400 gpd	not removed	gave extension	Was removed on 2/24/18						60,000	
Merrimack River	MR1164	11/19/2016	Market Basket Parking Lot	groundwater into drain	Seasonal Flow/ Not able to estimate	N/A	N/A	N/A	N/A	N/A	This dry weather flow appears to be from a groundwater discharge into the drainage system across a parking lot. Additional testing is required to confirm bacteria source is groundwater.	N/A	N/A	N/A	Yes, the City is in compliance with resolving this "illicit discharge".
	MR1141	12/20/2018	River St	IDDE conducted and no contamination found from City drains. State owned drains need to be investigated.											
	MR1109	10/22/2018	350 Water St	IDDE conducted and needs further investigation to determine the source.											
	MR1138	10/20/2017	River St	Upstream contamination from culvert inlet.											
	MR24314	7/27/2016	15 Groveland St., 19 Groveland St, 312 Water St	3 Single family	N/A		N/A	N/A	N/A	N/A	New gravity sewer installed on Nov 11, 2016 and 3 homes removed from drain system	11/4/2016	\$ 12,788	26,377	Yes, the City is in compliance
Pentucket Lake	PL0891	10/5/2016	Marsh Avenue	leaking sewer/ exfiltration	Not able to estimate	X	Sewer replacement costs/lengths are extensive; cost exceeds discretionary funds; new fund required in next fiscal year to complete project	Fiscal Year 2019	This connection is being removed as quickly as possible and dependent on the availability of funds within the fiscal year.	N/A	10/5/18-10/10/18: SMH-2190 point repair and manhole rehabilitation complete. 10/11/18-10/16/18: Installation of CIPP main line liner on Main St 10/17/18-10/23/18: Installation of CIPP main line liner on Marsh Ave. 10/24/18: Began installing CIPP of sewer laterals. Groundwater too high causing flooding in homes. Project on hold until mid-end March. Contract extended until 6/ /19.	-	-	-	Marsh Ave sewer repair project was bidded and awarded to National Water Main Cleaning Co. and contract had to be extended to 6/30/19 due to high groundwater.
Unknown	UNK0951	11/1/2017	Brook Street	Leaking sewer running through drain	Not able to estimate	not removed	Not able to fix due to weather	As soon as weather permits	-	-	Section of sewer was dug up and replaced	4/17/2018	\$ 4,277	-	
	UNK0788	7/27/2016	West Lowell Ave	Possible contamination from leaching septic system	Not able to estimate	N/A	N/A	N/A	N/A	N/A	City drain was disconnected from culvert and residence was connected to City sewer.	Jun-18	\$ 16,700	-	
	UNK1767	7/16/2018	Tudor Ct	IDDE conducted and all results were below limits.											

Description		Illicit Discharge/Connection Verified				Ongoing Illicit Discharge Removal Activities					Final Illicit Connection Removal Actions				Assessment: Is the City in compliance with the schedule?			
CD Requirement		67.a.iii.1			67.a.iii.2	67a.iii.7		67.a.iii.8		67.a.iii.9	67.a.iii.3		67.a.iii.4	67.a.iii.5		67.a.iii.6		
Basin ID	Outfall ID	Date Verified	Address Location	Type of Discharge ¹	Estimated Flow (gpd)	Removed?	Reasons Why Not	Schedule for Removal	Reason why expedited	Legal Actions against Private Property Owners	Actions Taken (with Dates)	Date Connection Eliminated	Est. Cost of Removal	Estimated Volume Removed (gallons)				
	UNK0955	10/14/2016	South Main St	Contaminated private line discharges to City line.														
	UNK1188	12/25/2012	34 Columbia Pk., 66 Columbia Pk., 74 Columbia Pk., 80 Columbia Pk., 90-92 Columbia Pk.	5 Single family		N/A	N/A	N/A	N/A	N/A	5-house sewer services through a drain pipe that were dripping. Install a PVC sleeve through drain	6/8/2016	\$ 13,000	26,481	City is in compliance. 60 day deadline was not applicable until November 2016.			
Detention Pond Outlet	DPO0696	6/12/2015	Pamela Lane	Private drain and outfall DPI0697 that discharge to detention pond and not contaminated. Contaminated detention pond.														
¹ Type of Discharge											Current Report Period Total =			\$ -		-		
											Grand Total =			\$ 46,765		112,858		

SECTION 3

3.1 SSO AND BUILDING/PRIVATE PARTY BACKUP EVENTS

A chronological list of the sanitary sewer overflows (SSO) and building/private party backup events that occurred during this Reporting Period (July through December 2018), are listed in Table 3-1 and shown in Figure 3-1.

Over the Reporting Period, there were a total of thirteen reportable SSO events associated with the City's sewer collection system and are listed in Table 3-1. One of the thirteen reported SSO's, SSO 18-08 associated with the City had occurred previously and was associated with a high intensity rain event.

Over the Reporting Period, calls to the City associated with building/private party backup events were determined to be blockages in service connections to a property or blockages in the internal plumbing system and not caused by conditions within the city-owned sewer collection system. Building/private party backup events are not required to be reported per the MassDEP SSO/Bypass Notification Form and are not included as part of this Compliance Report.

**TABLE 3-1
SANITARY SEWER OVERFLOW EVENTS
JULY THROUGH DECEMBER 2018**

SSO Ownership City or Private	CITY	CITY	CITY	CITY	CITY	NATIONAL GRID	CITY
MaintStar Work Order	WW00001369	WW00001375	WW00001373	WW00001397	WW00001416	WW00001485	WW00001493
SSO ID	SSO-18-06	SSO-18-07	SSO-18-08	SSO-18-09	SSO-18-10	SSO-18-11	SSO-18-12
SSO Address	95 PLAISTOW RD	41 CLIFTWOOD ST	81 WINTER ST	40 SOUTH PORTER ST	44 BROOKLINE AVE	AMESBURY RD	656 MAIN ST
Start Date/Time	7/12/18 10:00 AM	7/17/18 3:30 AM	7/17/18 2:45 AM	8/8/18 6:00 AM	8/21/18 4:45 AM	9/22/18 11:00 AM	10/4/18 4:00 PM
End Date/Time	7/12/18 10:30 AM	7/17/18 4:00 AM	7/17/18 3:15 AM	8/8/18 6:30 AM	8/21/18 5:30 AM	9/22/18 1:30 PM	10/4/18 4:30 PM
Date Reported EPA/DEP	7/13/2018	7/18/2018	7/18/2018	8/9/2018	8/22/2018	9/23/2018	10/5/2018
Who notified	ENGINEERING DEPARTMENT	HAVERHILL POLICE DEPARTMENT	HOMEOWNER	WASTEWATER TREATMENT PLANT OPERATOR	HOMEOWNER	HAVERHILL POLICE DEPARTMENT	HAVERHILL POLICE DEPARTMENT
Reason for occurrence	FOG IN CITY SEWER	RAIN EVENT-HIGH INTENSITY STORM	RAIN EVENT-HIGH INTENSITY STORM	EJECTOR PUMP FAILURE	DEBRIS IN SEWER MAIN	NATIONAL GRID DRILLED THOUGH A FORCE MAIN WHILE MAKING A REPAIR	GREASE IN SEWER MAIN
Date of last SSO occurrence	FIRST OCCURANCE	FIRST OCCURANCE	SECOND OCCURANCE	FIRST OCCURANCE	FIRST OCCURANCE	FIRST OCCURANCE	FIRST OCCURANCE
SSO est. vol.	40	50	50	100	100	10,000	1
Receiving Waters if sewerage entered	NONE	NONE	NONE	MERRIMACK RIVER	NONE	TILTON SWAMP	LITTLE RIVER
Method Use to Estimate volume	VISUAL	VISUAL	VISUAL	VISUAL	VISUAL	VISUAL	VISUAL
Nearest CB location ID	CB-3441	NONE	NONE	CB-7980 and CB-7981	CB-6274	NONE	CB-1525
Distance to Nearest CB (ft.)	278	N/A	N/A	40	92	0	25
Name of receive Water whether or not there was a release	NONE	NONE	NONE	MERRIMACK RIVER	SNOW BROOK	TILTON SWAMP	LITTLE RIVER
Entered CB Yes or No	NO	NO	NO	YES	NO	NO	YES
MEASURED TAKEN STOP SSO	Flushed Sewer Main	Rain Event Stopped	Rain Event Stopped	Ejector Pumps Repaired	Flushed Sewer Main	Shutdown Peartree Lift Station, called in vac truck company to bypass break; repaired broken pipe	Flushed Sewer Main
Decontaminate	YES grass area was hosed down and vacuuumed up with vac truck	NO	NO	YES	NO	YES	YES
Measures taken to prevent future overflows	A PM was created to flush sewer lines periodically	Sewer capacity anaylsis and modeling will be conducted to determine solutions	Sewer capacity anaylsis and modeling will be conducted to determine solutions	A PM was created to inspect ejector pumps periodically	A PM was created to flush sewer lines periodically	A PM was created to flush sewer lines periodically	A PM was created to flush sewer lines periodically
SEWERAGE LOCATION INTO STREAM	NONE	NONE	NONE	MR23513	NONE	DIRECT DISCHARGE	PL0891

**TABLE 3-1 CONTINUED
SANITARY SEWER OVERFLOW EVENTS
JULY THROUGH DECEMBER 2018**

SSO Ownership City or Private	CITY	CITY	CITY	CITY	CITY	CITY
MaintStar Work Order	WW00001504	WW00001506	WW00001528	WW00001530	WW00001530	WW00001557
SSO ID	SSO-18-13	SSO-18-14	SSO-18-15	SSO-18-16	SSO-18-17	SSO-18-18
SSO Address	50 STETSON ST	SOUTH WEBSTER CSO	41 CURTIS CT	10 SHAWMUT AVE	50 SOUTH WILLIAMS	WASHINGTON AVE
Start Date/Time	10/14/18 10:30 AM	10/16/18 8:30 AM	11/12/0218 11:00	11/13/18 12:30 PM	11/13/18 12:30 PM	12/28/18 3:00 PM
End Date/Time	10/14/18 11:00 AM	10/16/18 9:00 AM	11/12/18 12:15 PM	11/13/18 5:00 PM	11/13/18 5:00 PM	12/28/18 5:30 PM
Date Reported EPA/DEP	10/15/2018	10/17/2018	11/13/2018	11/14/2018	11/14/2018	12/29/2018
Who notified	HOMEOWNER	FLOW METER EMAIL NOTIFICATION	RESIDENT	HAVERHILL FIRE DEPARTMENT	HAVERHILL FIRE DEPARTMENT	RESIDENT
Reason for occurrence	SEWER SYSTEM BLOCKAGE	SEWER SYSTEM BLOCKAGE, Collapsing upstream structure caused bricks to block pipe	SEWER SYSTEM BLOCKAGE	SEWER SYSTEM BLOCKAGE; Broken pipe upstream (fixed), rags and grease in line	SEWER SYSTEM BLOCKAGE; Broken pipe upstream (fixed), rags and grease in line	SEWER SYSTEM BLOCKAGE; Broken pipe upstream (fixed), rags and grease in sewer main
Date of last SSO occurrence	FIRST OCCURANCE	FIRST OCCURANCE	FIRST OCCURANCE	FIRST OCCURANCE	FIRST OCCURANCE	FIRST OCCURANCE
SSO est. vol.	5	2,553	2,000	3,000	3,000	1,500
Receiving Waters if sewerage entered	NONE	MERRIMACK RIVER	PEABODY BROOK	NONE	NONE	NONE
Method Use to Estimate volume	VISUAL	LEVEL METER/FLOW OVER WEIR	VISUAL	VISUAL	VISUAL	VISUAL
Nearest CB location ID	CB-2855	NONE	NONE	CB-8218	CB-8220	CB-8241
Distance to Nearest CB (ft.)	80	NONE	NONE	NA	NA	100
Name of receive Water whether or not there was a release	PEABODY BROOK	MERRIMACK RIVER	PEABODY BROOK	PEABODY BROOK	PEABODY BROOK	MERRIMACK RIVER
Entered CB Yes or No	NO	NO	NO	NO	NO	YES, CB CONNECTED TO SEWER
MEASURED TAKEN STOP SSO	FLUSHED SEWER MAIN	FLUSHED SEWER MAIN	FLUSHED SEWER MAIN	FLUSHED SEWER MAIN	FLUSHED SEWER MAIN	FLUSHED SEWER MAIN
Decontaminate	YES	NO	YES	YES	YES	YES
Measured taken to prevent future overflows	A PM was created to flush sewer lines periodically	CCTV LINE TO DETERMINE CAUSE; STRUCTURE WAS REPAIRED	A PM was created to flush sewer lines periodically	CCTV sewer main; A PM was created to flush sewer lines periodically	CCTV sewer main; A PM was created to flush sewer lines periodically	CCTV sewer main; A PM was created to flush sewer lines periodically, repaired pipe; sent brochures to residents in service area.
SEWERAGE LOCATION INTO STREAM	NONE	LR1743	DIRECT DISCHARGE OUT OF MANHOLE	NONE	NONE	NONE

Roads, surface water, and town boundaries from MassGIS. SSO and facility locations from City of Haverhill. Map produced by Wright-Pierce.

ATKINSON, NH

PLAISTOW, NH

MERRIMAC

SALEM, NH

WEST NEWBURY

GROVELAND

METHUEN

NORTH
ANDOVER

BOXFORD

Legend

- SSO
- Water Treatment Facility
- WPAF



0 0.25 0.5 1 Miles

SSO and Building/Private Party
Backup Locations
July through December, 2018
City of Haverhill, MA



Haverhill

DATE: 4/26/2019

FIGURE: 3-1

J:\N W:\GIS_Development\Projects\MA\Haverhill\13703_EPA-ConsentDecree\MXDs\SSOs_Dec2018_11x17.mxd

SECTION 4

4.1 CONSTRUCTION SITE INSPECTION AND ENFORCEMENT PROGRAM

At their June 26, 2018 Haverhill City Council meeting, the Council passed and adopted a Pre and Post Construction Stormwater Management Ordinance as required as part of the Consent Decree.

Currently, there are no projects within the City that meet the requirement of one acre or more of land disturbance and thus no site inspections have been conducted and enforcements made during this Reporting Period.

SECTION 5

GENERAL STATUS

5.1 INTRODUCTION

This section summarizes the actions taken by the City of Haverhill to achieve Consent Decree compliance within the Reporting Period.

For the fifth Reporting Period (July through December 2018) there were two deliverables and/or activities due within that timeframe to achieve compliance. Those two deliverables/activities are shown in Table 5-1 below.

Work orders generated from the City's computerized maintenance management system, MaintStar, for the outfall inspection (prefix STI) programs from July through December 2018 are attached to this Compliance Report in Appendix A. Work orders generated for outfall investigations (prefix ST) during this reporting period are attached in Appendix B.

TABLE 5-1
SUBMISSIONS WITHIN CURRENT REPORTING PERIOD

Part	Activity	Due Date	Submittal Date
Effective Date of Consent Decree (11/10/2016)			
VIII	SEP		
	From Appendix 8 Design and Permits	8/31/2018	All Permits are in Place; Construction has Commenced
IX	Compliance Reporting		
	Compliance Report No. 4	10/31/2018	10/29/2018

5.2 ISSUES OF NONCOMPLIANCE

The City is in compliance with the requirements of this Consent Decree.

5.3 LOOKING AHEAD - SIX MONTH FORECAST

The anticipated future deliverables required under the Consent Decree for the next Reporting Period, January to June 2019, are shown in Table 5-2.

TABLE 5-2
FUTURE DELIVERABLES DURING THE PROCEEDING REPORTING PERIOD
(JANUARY THROUGH JUNE 2019)

Part	Activity	Trigger Event	# Days Due	Due Dates
			Post Trigger Event	
Effective Date of Consent Decree		11/10/2016		
M	CSO Monitoring			
	Submit Annual CSO Activation Report	4/30/2018	Annually	4/30/2019
IX	Compliance Reporting			
	Compliance Report No. 5	10/31/18	180	4/30/2019
VIII	SEP			
	From Appendix 8 Construction Completion	Effective Date	Time Extension	5/10/2019
C	Illicit Discharge Prohibition and Removal from MS4 System			
	Eliminate all sources known as of Effective Date to cause pollutants in stormwater	Effective Date	Time Extension for Marsh Ave, due to high groundwater conditions	6/30/2019

In addition to the deliverables due within the proceeding reporting period, the City intends to solicit and enter into agreement with a consulting firm to perform design services related to the Final Combined Sewer Overflow Control Plan, which includes an estimated design fee of \$2.5 million and sewer improvements with an estimated construction cost of \$3 million. The City also intends to hire a mechanic as part of their labor force.

SECTION 6

SECONDARY TREATMENT BYPASS

6.1 INTRODUCTION

The intent of this section is to summarize the secondary treatment bypass events that occurred at the City of Haverhill's Water Pollution Abatement Facility during the reporting period, July through December 2019.

6.2 BYPASS EVENTS

There were no secondary treatment bypass events that occurred during the reporting period.

SECTION 7

CMOM CORRECTIVE ACTION PLAN

7.1 INTRODUCTION

Pursuant to the Consent Decree, the City of Haverhill submitted the Capacity, Management, Operation, and Maintenance Program Assessment Corrective Action Plan (CMOM), dated February 22, 2017, to MassDEP and EPA. In their review letter dated August 3, 2017, MassDEP requested that a summary of the status of CMOM-Related corrective actions that occurred during the reporting period be including in the Compliance Reporting.

7.2 CMOM CORRECTIVE ACTIONS

The CMOM identified 27 deficiencies, their recommended corrective actions, and an implementation schedule, which are listed below in Table 7-1. Table 7-1 also provides an updated status for each corrective action.

7.3 ADDITIONAL CMOM-RELATED ACTIVITIES

In addition to the corrective activities, the City has also performed additional activities as outlined and recommended in the CMOM Program. The collection system maintenance activities that were performed from July through December 2018 (Reporting Period 5) and their associated costs are listed in Table 7-2 below.

Table 7-1
CMOM Corrective Action Plan & Status

Action #	Deficiency	Recommended Corrective Action	Implementation Schedule	Status
1	The City does not have a formal long-term plan to mitigate SSO.	The recommendations in the Wastewater Treatment Plant & Collection System Staffing Analysis (Woodard & Curran, 2017), Collection System CIP and Sewer Inspection SOP (Appendices B and F), and the Pump Station Evaluation (Wright-Pierce, 2016) will serve as a long term plan to reduce the causes of SSOs.	Ongoing	The City had developed a job description for a new Collection System MEO/laborer and will hire a qualified candidate in the near future. The Carleton Street and North Avenue WW Pump Stations Upgrade Project is currently under construction.
2	The City does not have a comprehensive system to prioritize investigations, repairs, and rehabilitation.	Use the risk-based methods described in Appendices B and F to prioritize investigations, repairs, and rehabilitation.	Ongoing	The City has focused on cleaning major interceptors and siphons to increase capacity within the system and increase storage. The Lower Siphons were cleaned May-June 2018. This includes 18", 20", and 30" siphons across the Merrimack River. The Middle Siphons are expected to be cleaned by the end of 2019. A PEF was submitted to complete planning and implementation of various CMOM corrective action plans including pipe inspections.
3	The City does not have updated job descriptions that match technical requirements for a modern collection system utility.	Update job descriptions for the revised organizational structure proposed in the Wastewater Treatment Plant & Collection System Staffing Analysis (Woodard & Curran, 2017)	Within one year after EPA approves the CMOM Action Plan	The Collection System Operator job description was updated. A Collection System MEO/laborer job description was developed.
4	Although the City training program includes some key safety training, staff would benefit from a formalized safety and technical training program.	Implement a staff training program using the guidelines outlined in Appendix C.	Within one year after EPA approves the CMOM Action Plan	The city is in contact with Innovative Safety to put a training schedule in place. The City plans to get all necessary training done to be OSHA compliant
5	Although the City uses MaintStar to track customer complaints, they do not use the database to prioritize preventative maintenance.	Annually review customer complaint data using GIS to identify areas that may require further investigation.	Within one year after EPA approves the CMOM Action Plan	The City has hired an asset and information management specialist to review customer complaint data. The City has begun tracking sewer flushing and cleaning preventative maintenance operations.
6	The City lacks a comprehensive, risk based approach to maintenance planning.	Use the risk-based methods described in Appendices B and F of, the Collection System CIP and Sewer Inspection SOP, to prioritize investigations, repairs, and rehabilitation.	Ongoing	The City has been using GIS to analyze the current collection system and to prioritize investigations. The City will also be performing another assessment study of certain areas in the City. Also, the City has begun implementing a new CMMS software that is map based. This software will include easy access to CCTV, pipe ratings, CoF, and LoF.
7	Local limits need to be updated.	Perform a local limits study and update the limits table in the ordinance (per Appendix E, Sewer Ordinance Review).	Within one year after EPA approves the CMOM Action Plan	A contract for Local Limits Development was signed on April 3, 2018 with Hoyle and Tanner as the engineering firm. To date, a draft for the local limits evaluation is almost complete and hope to have a submittal ready for the EPA by the end of 2019.
8	The City needs to improve implementation and enforcement of their Sewer Use Ordinance (SUO).	Improve implementation and enforcement of the SUO. Begin mapping Food Service Establishments in GIS and building database of grease trap inspectional data.	Within one year after EPA approves the CMOM Action Plan	An excel database of all Food Service Establishments has been created. The City has hired an engineering firm to conduct all Food Service Establishment Inspections. Using the excel database, the City has begun implementing a new CMMS software (Utility Cloud) to manage FOG inspections. This is expected to go live in the near future.
9	The City should update recordkeeping pertaining to private systems.	Input private lift stations into CMMS to track issues & contact information.	Within three months after EPA approves the CMOM Action Plan	Complete

Action #	Deficiency	Recommended Corrective Action	Implementation Schedule	Status
10	The City does not have a finalized version of their capital improvement plan – which will include pump station upgrades, collection system rehabilitation, and WWTP upgrades.	The City should finalize their CIP and appropriate funds as necessary.	Within three months after EPA approves the CMOM Action Plan	Complete
11	The City does not have a finalized version of their capital improvement plan – which will include pump station upgrades, collection system rehabilitation, and WWTP upgrades.	The City should finalize their CIP and appropriate funds as necessary.	Within three months after EPA approves the CMOM Action Plan	Complete
12	The City has not verified that other air relief valves do not exist. Maintenance of air relief valves has not been performed historically.	Review record drawings and inspect force main routes to confirm location of air relief valves. If located, enter in GIS and schedule routine maintenance in CMMS.	Within one year after EPA approves the CMOM Action Plan	
13	The City does not have a standard procedure for maintaining safety training records.	The City will utilize their CMMS program to organize safety training records.	Within one year after EPA approves the CMOM Action Plan	The City is utilizing their MaintStar along with problem code training.
14	The City has a general emergency response plan (ERP). The Division recently completed an ERP for responding to SSOs. The Division lacks ERP for other collection system emergencies.	Develop ERP for collections-specific emergencies, in particular those affecting critical assets. For example, there should be an SOP for providing backup power to pump stations during a system-wide power outage.	Within one year after EPA approves the CMOM Action Plan	SOP For Generators completed
15	The City does not have formal emergency response training.	Implement a program for training and practicing emergency response.	Within one year after EPA approves the CMOM Action Plan	The city is working with Innovative Safety to put a training schedule in place. The city plans to get all necessary training done to be OSHA compliant.
16	The City has a hydraulic model for interceptors and CSOs, but there is no city-wide hydraulic model.	Although developing a comprehensive hydraulic model is not a high priority, Woodard & Curran recommends building out the model as required to address capacity issues and plan for new development as the need arises.	As Needed	
17	The City does not have adequate staff to perform sufficient preventative maintenance on all 36 pump stations part of the collection system.	Follow the recommendations of the Wastewater Treatment Plant & Collection System Staffing Analysis (Woodard & Curran, 2017) to assign sufficient resources to keep up with required maintenance.	Within one year after EPA approves the CMOM Action Plan	The City had developed a job description for a new Collection System MEO/laborer and will hire a qualified candidate in the near future. The City also outsources many tasks.
18	Although there is generally sufficient redundancy of pumps and level controls, some stations require specific upgrades related to redundancy.	The City will utilize the recommendations of the Pump Station Evaluation (Wright Pierce, 2016) to evaluate future rehabilitation. The City is planning for Carleton Street PS and North Ave PS to be in construction by EOY 2019.	Ongoing	North Avenue and Carleton Street Pump Stations upgrades went out to bid, a contract was signed with Methuen Construction, and expected to be completed mid-2019. The City will be standardizing all their pump stations during upgrades.
19	Not all pump stations have communication ability. Lack of communication at pump stations has contributed to SSOs.	The City will utilize the recommendations of the SCADA Study (Woodard & Curran, 2011) and Pump Station Evaluation (Wright Pierce, 2016) to evaluate communication improvements.	Ongoing	City has selected the use of Mission RTU for communication. The City had hired Weston and Sampson to install 7 new Mission alarms at Clydedale Ave, Hoyt Rd, Russet Hill, Bradford Glen, Calewood Dr, Coffin Ave, and Hanover St sewer lift stations. This was completed by June 2018. The City has budgeted money to install Mission RTU alarms at 5+/- additional stations this fiscal year (the number of stations will depend on the bid price).
20	11 pump stations do not have working backup power, though most of these have connections for a portable generator or are small enough to pump out.	The City will utilize the recommendations of the SCADA Study (Woodard & Curran, 2011) and Pump Station Evaluation (Wright Pierce, 2016) to evaluate emergency power improvements. Develop an ERP to address a system-wide power outage including monitoring fuel supplies, mobilizing portable generators, and pumping out with trucks.	Ongoing ERP for system wide power outage will be developed within three months after EPA approves the CMOM Action Plan	Complete and will be updated annually.
21	There is currently no schedule for cleaning sewer lines on a system-wide basis.	The City will utilize a 20-year plan to inspect all sewer pipes calculated to have a consequence of failure value ≥ 3 (approximately 57% of system). See the Collection System CIP (Appendix B) for additional information.	Will begin to implement program within six months after EPA approves the CMOM Action Plan	Ongoing

Action #	Deficiency	Recommended Corrective Action	Implementation Schedule	Status
22	The City does not have a dedicated location for offloading and dewatering sewer cleanings. The City does not have an enclosed location for storage of their sewer maintenance vehicles.	The City will purchase a dewatering dumpster for sewer cleanings. The City will construct a facility for storage of sewer maintenance vehicles during a future plant upgrade.	Within three years after EPA approves the CMOM Action Plan	The City currently rents dumpsters and stores them at the Wastewater Treatment Plant. These dumpsters are water tight and covered. Cleaning debris are dewatered at the septage receiving area and then are offloaded into the dumpsters.
23	The City does not have a list of assets located on right-of-ways. The City has also not developed an SOP for maintenance of right-of-ways and easements.	Identify off-street assets using GIS. Schedule preventative maintenance for maintaining accessibility in CMMS. Develop SOPs for specific easements as necessary, including contacting property owners to obtain keys, etc.	Within two years after EPA approves the CMOM Action Plan	The City has inputted easements into GIS. These assets will be populated and SOPs will be made, including annual inspection of easements.
24	There is no systematic program for uncovering manholes that have been paved over.	Develop an SOP which includes: <ul style="list-style-type: none"> • Identification of paved over manholes as part of routine inspections • Add paved-over manholes to GIS. • Adding work orders to CMMS for raising paved-over manholes. 	Within two years after EPA approves the CMOM Action Plan	The City's highway department distributes a street paving list to each department. The wastewater department investigates those streets and puts a list together of buried manholes. This list is then given to the contractor and the contractor raises the manholes.
25	Although the City has identified areas with high measured inflow, building inspections have not been performed.	The City will perform trial building inspections to a sample of 10% of buildings located in Areas 14 & 23 Infiltration and Inflow Report (CDM Smith, 2011). Sample brochures will be sent out to buildings where inspections are not successfully completed.	Within two years after EPA approves the CMOM Action Plan	The City is currently focused on the investigation of the Locke Street Area, and will defer Areas 14 and 23.
26	The City lacks public education materials associated with roof leaders and sump pumps.	The City will consider using a public education campaign to inform residents of proper plumbing in areas of separated sewer.	Within one year after EPA approves the CMOM Action Plan	The City has developed brochures which are used to inform the public.
27	The City does not have a system-wide manhole inspection program.	Perform manhole inspections using NASSCO Level 1 MACP. Prioritize and schedule using the risk-based approach described in Appendices B and F rehabilitation. The City plans to complete manhole inspections while performing pipe inspections.	Will begin to implement program within six months after EPA approves the CMOM Action Plan	As part of ongoing O&M operations, the City contracts CCTV and manhole inspections

TABLE 7-2
CMOM-RELATED ACTIVITIES THAT OCCURRED
DURING REPORTING PERIOD 5
(JULY THROUGH DECEMBER 2018)

Month	Project	Costs
July	CSO Flow Metering	\$4,785
	ESRI App	\$1,320
	Sewer & Drain Assessment, Inspection, and Cleaning	\$2,960
	Sludge Disposal and Dumpster Rental for Grit Removal	\$5,630
	Sewer & Drain Repairs, Replacement, and Materials	\$12,800
	Pretreatment Software	\$2,225
August	Sewer & Drain Repairs, Replacement, and Materials	\$37,067
	Lift Station Valve Replacement	\$1,108
	Lift Station Pump Replacement	\$17,496
	Lift Station Cleaning	\$2,475
	Lift Station Electrical Repairs	\$1,394
	Lift Station Compressors Repairs	\$6,868
	CSO Flow Metering	\$4,785
	ESRI	\$10,075
	Sewer & Drain Assessment, Inspection, and Cleaning	\$8,460
	Engineering Services for SMH replacement	\$3,450
	Sludge Disposal and Dumpster Rental for Grit Removal	\$175
	Local Limits re-evaluation	\$15,434
	Public Education Brochures	\$765
	Backhoe Repairs	\$1,690
September	Siphon Cleaning and Inspection	\$49,880
	Food Service Establishments FOG Inspections	\$6,177
	Lift Station Electrical Repairs	\$1,474
	Lift Station Pump Repairs	\$3,479
	Lift Station Cleaning	\$775
	Jet Truck Water Pump Rebuild	\$8,318
	Lift Station Compressors Replacement	\$1,172
October	CSO Flow Metering	\$4,785
	Sewer & Drain Repairs, Replacement, and Materials	\$37,592
	Sewer & Drain Repairs, Replacement, and Materials	\$37,495
	Household Hazardous Waste Program	\$6,750
	Lift Station Generator Maintenance	\$6,090
	CSO Flow Metering	\$4,785
	Siphon Cleaning and Inspection	\$12,500
	Sewer & Drain Assessment, Inspection, and Cleaning	\$10,740

November	Utility Cloud (CMMS) software implementation	\$900
	Lift Station Generator Maintenance	\$2,164
	CSO Flow Metering	\$4,785
	Sewer & Drain Repairs, Replacement, and Materials	\$43,927
	Sewer & Drain Assessment, Inspection, and Cleaning	\$33,110
December	Utility Cloud (CMMS) software implementation	\$2,387
	Sewer & Drain Repairs, Replacement, and Materials	\$107,322
	CSO Flow Metering	\$4,785
	Sewer & Drain Assessment, Inspection, and Cleaning	\$19,940
	Sludge Disposal and Dumpster Rental for Grit Removal	\$9,619
Total Spent During Reporting Period		\$561,913

