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Robert G. Stubbe, P.E.
Public Works Director

December 28, 2018

Ms. Shelley Schneider
Nebraska Department of Environmental Quality
Suite 400, The Atrium
1200 N Street
P.O. Box 98922
Lincoln, NE 68509-8922

RE: 2017 -2018 CSO Annual Report
City of Omaha Combined Sewer Overflows NPDES Permit No. NE0133680

Ms. Schneider:

Attached please find three (3) copies of the 2018 City of Omaha CSO Annual Report as required in Part VIII of NPDES Permit No. NE0133680. The report documents activities related to the City of Omaha combined sewer system for the period of 10/1/2017 to 9/30/2018.

If you have any questions or require additional information, please feel free to contact me at (402) 444-3910 or Pat Nelson at (402) 444-5456.

Sincerely,

Michael T. Arends, Plant Manager
City of Omaha Missouri River WRRF

CC: Brett Anderson, NDEQ,
Patrick Ducey, NDEQ
James Theiler, City of Omaha,
Steve Andersen, City of Omaha
Jennifer Morales, City of Omaha
Wendy Robinson, City of Omaha
Adam Wilmes, City of Omaha
Tom Heinemann, CSO Program
Patricia Nelson, CSO Program

CSO!

Clean Solutions for Omaha

Annual Report | **2018**

October 1, 2017 - September 30, 2018

City of Omaha
Combined Sewer Overflow
Annual Report
NPDES Permit No. NE0133680
October 1, 2017 through September 30, 2018

CSO!
Clean Solutions for Omaha

Report of Certification:

"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 gathered and evaluated 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."

Signature of Authorized Representative or Cognizant Official

December 28, 2018
Date

Michael T. Arends, P.E.
Printed Name

WWTP Manager
Title

Table of Contents

Table of Contents i

Acronyms and Abbreviations v

I. Introduction I-1

II. Executive Summary II-1

A. Nine Minimum Controls II-1

B. LTCP Documentation II-4

C. Compliance Schedule II-6

D. CSO Outfall Monitoring II-7

E. In-Stream Monitoring II-7

F. Performance Report II-8

G. Other Information II-8

III. Nine Minimum Controls III-1

A. Proper Operation and Maintenance (O&M) III-1

B. Maximize Use of the Collection System for Storage III-3

C. Review and Modification of Pretreatment Programs III-8

D. Maximization of Flow to the Publicly Owned Treatment Works for Treatment III-9

E. Prohibition of CSOs during Dry Weather III-10

F. Control of Solid and Floatable Materials in CSOs III-13

G. Pollution Prevention III-14

H. Public Notification III-15

I. Monitoring to Characterize CSO Impacts and the Efficacy of CSO Controls III-16

IV. LTCP Documentation IV-1

A. Characterization and Modeling of the CSO System IV-1

B. Public Participation Plan IV-9

C. Consideration of Sensitive Areas IV-11

D. Evaluation of Alternatives IV-12

E. Cost/Performance Considerations IV-15

F. Operational Plan IV-16

G. Maximizing Treatment at the Existing POTW Treatment Facilities IV-16

H. Implementation Schedule IV-17

I. Post-Construction Compliance Monitoring Program IV-18

V. Compliance Schedule V-1

A. Implementation Requirements V-1

B. Major CSO Control Projects V-2

C. Sewer Separation Projects V-4
VI. CSO Outfall 102 and 205 Monitoring Data VI-1
A. Missouri River Resource Recovery Facility (MRWRRF) – Outfall 102 ..... VI-1
B. 64th and Dupont Retention Treatment Basin – Outfall 205 ..... VI-1
VII. In-Stream Monitoring Data VII-1
A. City In-Stream Monitoring VII-1
B. USGS Sampling and Analysis VII-5
VIII. Performance Report VIII-1
A. CSO Occurrence Inspection VIII-1
B. Evaluation of Completed Controls VIII-4
C. Wet Weather CSO Occurrences VIII-5
D. Percent by Volume Captured VIII-5
IX. Other Information IX-1
A. Reduction in the Number of Overflow Events IX-1
B. Reduction in the Number of CSO Outfalls IX-1
C. Receiving Water Quality IX-1
D. Additional Public Benefits of the Program IX-2
E. CMOM Gap Analysis and Related O&M Activities IX-3
F. Material Management IX-5
X. Works Cited X-1

Attachments

Attachment 1 – O & M Procedure Updates and Revisions Summary
Attachment 2 – LTCP Annual Project Progress Reports (APPR)
Attachment 3 – CSO Program: Change Notification and Request (CNR)
Attachment 4 – Wet Weather CSO Occurrences Report
Attachment 5 – USGS Missouri River Monitoring Provisional Data

Figures

Figure 1-1: CSO Outfall Locations I-2
Figure ES 2-1: Compliance Status of the 38 Listed Project in the Permit II-7
Figure ES 2-2: Modeled E. Coli Reduction over LTCP Implementation II-9
Figure 3-1: Missouri River Stage November 2017 through September 2018 with Flood Stages Associated with Action Levels for Operation of Wastewater and Levee Systems Emergency III-7
Figure 3-2: Missouri River Annual Flow Volume 2002 to 2018 ..... III-7
Figure 3-3: CSO 105 Outfall Sign III-15
Figure 3-4: Standard CSO Outfall Notice III-15
Figure 4-1: Flow and Rain Monitoring Locations IV-7

Figure 4-2: Contractor Outreach Event for Saddle Creek RTB Project IV-10
Figure 4-3: Example Graph of Results from an Optimization..... IV-14
Figure 4-4: MRWRRF Improvements under Construction..... IV-16
Figure 5-1: LTCP Projects Graph by Remaining and Completed..... V-8
Figure 5-2: LTCP Projects Graph by General Status..... V-8
Figure 5-3: Summary of Compliance Status V-9
Figure 7-1: In-Stream Water Quality Monitoring VII-2
Figure 9-1: Modeled E. coli Reduction over LTCP implementation IX-2
Figure 9-2: Spring Lake Park Multiuse Pond..... IX-3

Tables

Table 3-1. Missouri River Water Level Gauge Heights (in feet) at USGS Gate at I-480 Bridge III-6
Table 3-2: NPP Industries in CSS III-9
Table 3-3: Basement Backups or Contained Dry Weather Overflows (Bolded are manhole overflows) III-11
Table 3-4: Dry Weather Overflows Reached Waters of the State III-12
Table 3-5: Storm Events III-17
Table 3-6: Reported Basement Backups or Manhole Overflows During Wet-weather CSOs III-17
Table 4-1: Rain Gauges..... IV-3
Table 4-2: Permanent Flow Monitoring Sites IV-3
Table 4-3: Temporary Flow Monitoring Sites..... IV-4
Table 4-4: Comparison Between Previous and New Model..... IV-9
Table 5-1: Draft Compliance Schedule for the Minne Lusa Basin V-3
Table 5-2: Phase 1 Major CSO Project Status and Compliance V-3
Table 5-3: Phase 2 Major CSO Control Project Status and Compliance..... V-4
Table 5-4: System Reliability Projects - Activity during 10/1/2016 to 9/30/2017..... V-4
Table 5-5: Phase 3 Sewer Separation Projects Status and Schedule Compliance V-5
Table 5-6: Phase 4 Sewer Separation Projects Status and Schedule Compliance V-5
Table 5-7: Phase 5 Sewer Separation Projects Status and Schedule Compliance V-6
Table 5-8: Phase 6 Sewer Separation Projects Status and Schedule Compliance V-7
Table 5-9: Overview of Status of Phase Milestones V-10
Table 6-1: CSO 102 Monitoring..... VI-1
Table 7-1: 2018 In-Stream Monitoring Site Descriptions..... VII-3
Table 7-2: 2018 City In-Stream Monitoring Results VII-4
Table 7-3: 2018 USGS Monitoring Parameter Results VII-6
Table 8-1: Wet Weather CSO Occurrences..... VIII-3
Table 9-1: Volume of Waste Disposed during LTCP Projects..... IX-6

Acronyms and Abbreviations

°C	degrees Celsius
<	less than
APRR	Annual Project Progress Report
C&D	construction and demolition
CCTV	closed-circuit television
cfs	cubic feet per second
City	City of Omaha
CMOM	capacity, management, operations and maintenance
CNR	Change Notifications Request
CSO!	Clean Solutions for Omaha!
CSS	combined sewer system
DTS	deep tunnel system
FOG	Fats Oils and Grease
gpm	gallons per minute
I/I	inflow and infiltration
LF	linear feet
LTCP	Long Term Control Plan
MG	million gallons
mg/L	milligram per Liter
MGD	million gallons per day
MH	manhole
MPN	most probable number
MRWRRF	Missouri River Water Resource Recovery Facility
MS4	City of Omaha municipal separate storm sewer system
N/A	not applicable
NDEQ	Nebraska Department of Environmental Quality
NMC	Nine Minimum Controls
NPDES	National Pollutant Discharge Elimination System
NPP	Nebraska Pretreatment Program
NRD	Natural Resources District
O&M	operation and maintenance
OERP	Overflow Emergency Response Plan

OPW	Omaha Public Works
PCWRRF	Papillion Creek Water Resource Recovery Facility
PDR	Project Definition Report
PEX	Packinghouse Express
PM	preventive maintenance
PMT	Program Management Team
POTW	Publicly Owned Treatment Works
QCD	City of Omaha Environmental Quality Control Division
RTB	Retention Treatment Basin
SIFM	South Interceptor Force Main
SMA	sewer management area
SOIA	South Omaha Industrial Area
SOP	standard operating procedure
SSES	sanitary sewer evaluation survey
SSO	sanitary sewer overflow
SSOMM	Sewer System O&M Manual
TACS	Technical Assessment for Cost Savings
TSS	total suspended solid
USACE	U.S. Army Corps of Engineers
USGS	U.S. Geological Survey
VFD	variable frequency device
WRRF	Water Resource Recovery Facility

I. Introduction

A National Pollutant Discharge Elimination System (NPDES) Permit for City of Omaha (City) Combined Sewer Overflows (No. NE0133680) issued by the Nebraska Department of Environmental Quality (NDEQ) was reissued in 2015 and is effective from October 1, 2015, thru September 30, 2020.

This Annual Report is for the period of October 1, 2017, through September 30, 2018, and is submitted in accordance with the CSO Permit in effect for that period. The report meets the requirements of the permit, which is to submit a report within 90 days following each yearly (October 1 through September 30) anniversary. Throughout the report, the permit will be referred to as the CSO NPDES Permit or CSO Permit. All references to the CSO Permit are to that permit, which is in effect from October 1, 2015, to September 30, 2020.

The CSO NPDES Permit contains the following language:

> "This permit specifically authorizes wet weather discharges from the City of Omaha's combined sewer system (CSS) through CSO outfalls according to the requirements, conditions, and limitations set forth in the permit. CSO outfalls are defined as designated overflow points in the combined sewer system (CSS) designed for the purpose of allowing the discharge of wet weather flows to receiving waters prior to receiving complete treatment in the City's Wastewater Treatment Plants."

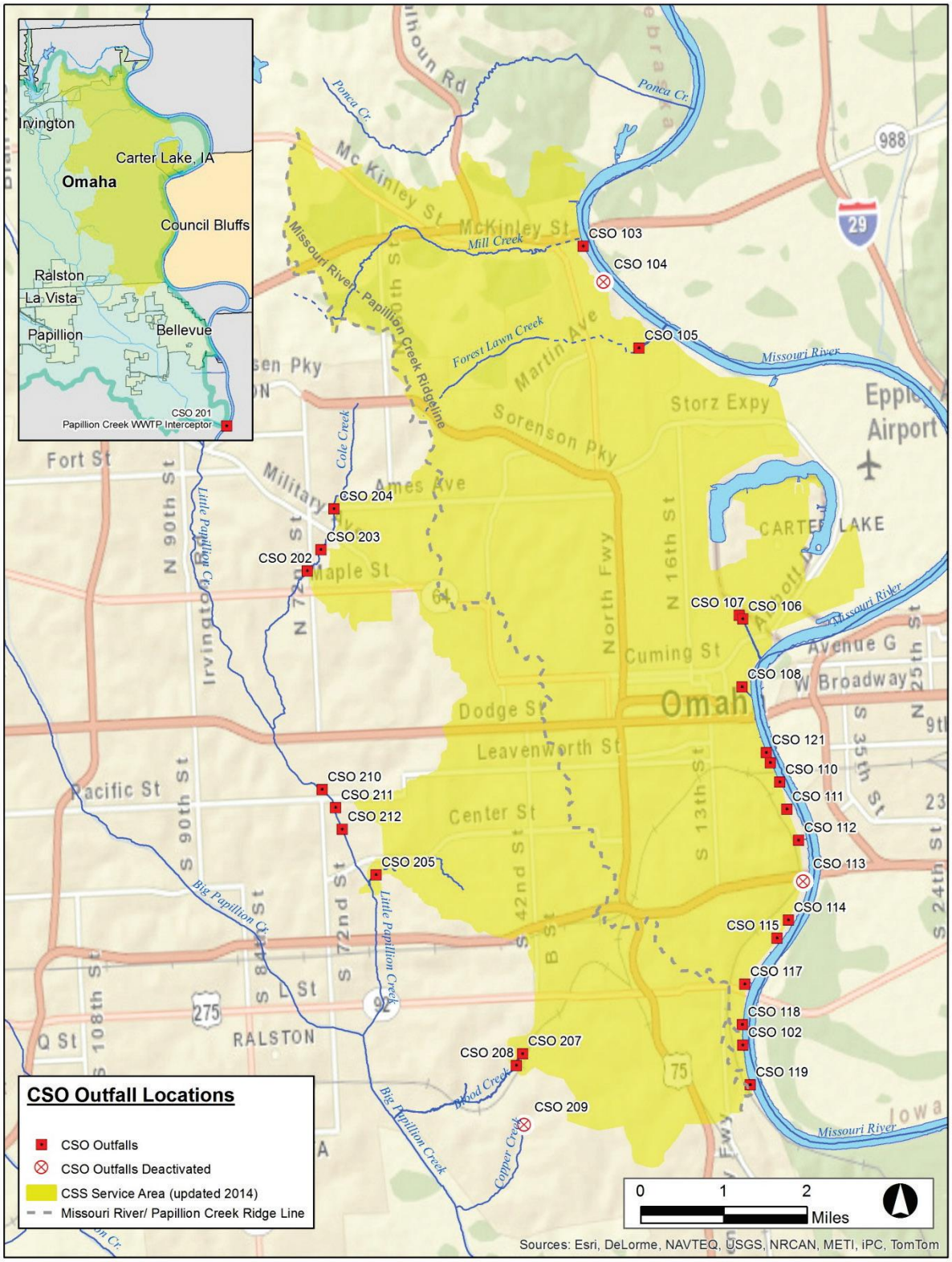
Under the CSO Permit, as shown on Figure 1-1, the City has 26 permitted CSO outfalls; 16 of these are associated with the Missouri River Water Resource Recovery Facility (MRWRRF) collection system; the other 10 are associated with the Papillion Creek Water Resource Recovery Facility (PCWRRF) collection system. At this time only CSO 102 at the MRWRRF undergoes treatment prior to discharge.[1]

This Annual Report includes actions, activities, and measures taken by the City with regard to the Nine Minimum Controls (NMC), the Long Term Control Plan (LTCP) and its compliance schedule, CSO outfall monitoring, in-stream monitoring, and Performance Report for CSO controls and if controls are achieving their intent. The last section is reserved for other information on measures of success for the Program not covered elsewhere in the report.

The City of Omaha Public Works Department, Environmental Services oversees the administration of the CSO NPDES Permit and ensures that the City is in compliance with the permit requirements. The information provided in this report is a result of the cooperation among the Sewer Maintenance Division, Environmental Quality Control Division (QCD), PCWRRF, MRWRRF, and consultant engineers and the City and Program Management Team (PMT) staff that formulate the CSO PMT.

[1] The MRWRRF manages CSO Outfall 102 which, under approved conditions, discharges combined wastewater that has received primary but not secondary treatment. The CSO 102 discharge will be disinfected once the B2 project is complete.

Figure 1-1: CSO Outfall Locations



II. Executive Summary

The 2018 CSO Permit Annual Report summarizes information on activities, actions, and measures taken by the City and the CSO PMT to comply with the CSO NPDES Permit. The items upon which the City is required to report are:

- NMC
- LTCP Documentation
- Compliance Schedule
- CSO Outfall Monitoring
- In-Stream Monitoring
- Other Information

Other information includes measures of success and other requested information that demonstrates the effective management of the wastewater collection and treatment systems in the Combined Sewer Service Area.

A. Nine Minimum Controls

The CSO NPDES Permit defines NMC as "…operations and procedures that will reduce combined sewer overflows and their effects in receiving water quality that do not require significant engineering studies or major construction and are consistent with the complete LTCP." The City continues to implement the NMC Plan[2] with the goal of reducing CSOs and improving water quality. Following is a brief review of each NMC and any advancements or modifications:

1. **Proper Operation and Maintenance (O&M):** As required, revisions or additions to the O&M procedures for the combined sewer treatment and collection systems are included in this section. The Sewer System O&M Manual (SSOMM) for the Sewer Maintenance Division (Brown and Caldwell, 2006) is reviewed semiannually. This year, three procedures documents were updated. The updated procedures documents are included in Attachment 1:

    - Appendix B –CSO Station & Monitoring Device
    - Appendix F –CSO Station Procedure Manual
    - Appendix I - Preventive Maintenance Work Order System

A new Overflow Emergency Response Plan (OERP) was drafted this year to combine several procedures already in place and make improvements.

2. **Maximizing the Use of the Collection System for Storage:** As required, the City shall continue to implement the programs to maximize the use of the collection system. Program element updates include:

    - Inspection of the collection system and removal of obstructions continued. The City inspected 102,821 linear feet (LF) in the CSS and cleaned approximately 500,000 LF.

[2] NMC Plan is defined in Section III, Nine Minimum Controls, and consists of a series of submittals to the NDEQ.

The City contracted two inspection projects to focus on large-diameter pipes in the MR-7 sub-basin (upstream of Leavenworth Lift Station).

- Improved maintenance inspection and cleaning of diversion structures and grit pits to improve flow to treatment and prevent dry weather CSOs.
- Continuous improvement in the Preventive Maintenance (PM) programs with revisions to continue to develop a PM Basis document for each sewer asset.
- Maintenance, repair, and replacement of tide (river) and control gates continued. Three projects to address river intrusion were performed: the replacement of the CSO 109 Leavenworth outfall dual flap gates in March 2018; the rebuilding of the Monroe CSO 119 outfall pipe; and the Leavenworth Flood Mitigation project design and advertisement for construction bids.
- Reduction and retardation of inflows and infiltration: An inflow reduction project was completed during the reporting period to remove stormwater inlets from loading to the South Omaha Industrial Area (SOIA) Lift Station, reducing the wet weather peaking factors at the lift station.

3. **Review and Modification of Pretreatment Programs:** As required, the City must continue to minimize impacts of industrial facilities and report any new significant industries.

   - This program is administered through the QCD. A total of 13 NPP permitted facilities are in the CSS area and were operating during this permit year.

4. **Maximization of Flow to the Publicly Owned Treatment Works (POTW) for Treatment:** As required, the City shall evaluate and implement simple modifications to the CSS and procedures at WRRFs, as appropriate, to achieve maximization of flow to the POTW. Activities this year included:

   - Continued to use the North Inlet to the MRWRRF (fed by the Burt-Izard Lift Station via the existing South Interceptor Force Main [SIFM]) concurrent with the Municipal Headworks Facility (fed by the lift stations connected to the new SIFM; Pierce Lift Station, Hickory Lift Station, Monroe Lift Station, and In-plant Lift Station). The transition to use only the Municipal Headworks Facility and decommission of the North Inlet Headworks (shifting the Burt-Izard Lift Station flows over to the new SIFM) is anticipated to take place in 2020. This transition is coordinated with the ongoing work to upgrade the pumping capacity and grit removal at the Burt-Izard Lift Station that began in the third quarter of 2018 and is anticipated to be complete by the end of 2020.

   - Refurbishment of one of the Transfer Lift Station pumps at the MRWRRF occurred in this reporting year. The completion of this project allows the facility to pump 64 MGD through secondary treatment during wet weather events. In 2020, the Transfer Lift Station pumps are scheduled to be replaced to ensure pump reliability.

   - As part of the Schedule B2 construction project at the MRWRRF, the odor control system for the Primary Clarifiers was brought online in May 2018. Construction continues for the Schedule B2 project, which is anticipated to be complete in the next

reporting year when the Chlorine Contact Basin is brought online to provide disinfection of wet weather flows that are greater than the secondary treatment capacity of 64 million gallons per day (MGD).

5. **Prohibition of CSOs during Dry Weather:** As required, the City shall document overflows that occur during dry weather and respective corrective actions:
   - The City adhered to the immediate reporting policies for all discovered dry weather overflows.
   - Twenty-one overflows in the system were contained or re-entered the system and continued to treatment (12 basement backups and 9 manhole overflows).
   - Eight overflows were reported during dry weather that reached waters of the State; three resulted from debris at the diversions.
6. **Control of Solid and Floatable Materials in CSOs:** As required, City shall implement site-specific controls, in relatively simple measures and as appropriate. Any reassessment or implementation of new controls is reported here:
   - Final Design of the Burt-Izard Lift Station was completed during the Annual Report year and includes replacement of the existing pumps to add more capacity, replacement of the mechanically cleaned bar screen with a new bar screen, addition of a gate for channel isolation, a new bar rack, and concrete modifications to the screen channel to accommodate the new bar screen and gate in the Bar Screen Room.
   - Grit and floatables control were included with the design of new Leavenworth Lift Station to protect the facility and pumps.
   - The Saddle Creek Retention Treatment Basin (RTB) design includes a new grit pit for the RTB and another grit pit for the dry weather flow. It is anticipated that the RTB should capture floatables at design flows.
7. **Pollution Prevention:** As required, the City shall document any new pollution prevention methods here:
   - The management of this item is shared between several Divisions and work groups within the City: Sewer Maintenance, QCD, and Street Maintenance Divisions.
   - The City's municipal separate storm sewer system (MS4) details much of the efforts in that Annual Report, including inlet cleaning and grit removal.
   - Efforts continue with Papillion Creek Watershed Partnership and *Keep Omaha Beautiful* for stormwater pollution prevention and outreach.
   - Except for continuous improvement in web-based information sharing, no additional pollution prevention measures have been implemented during this report period.
8. **Public Notification:** As required, the City shall document any revisions or updates to public notification procedures and provide any public announcement in Annual Report:
   - The Sewer Maintenance Division inspects signs at the CSO outfalls twice per year for visibility and condition, and replace as needed. CSO outfall sign inspections were

completed in this reporting period in fall 2017 (December 15, 2017) and spring 2018 (May 1, 2018). As a result of high river levels, some signs disappeared and are in process of getting replaced. They will all be in place prior to spring 2019.

- No public notifications were issued during the October 1, 2017, to September 30, 2018, reporting period because there were no untreated wastewater discharges from the MRWRRF or PCWRRF and there were no significant dry weather overflows at CSOs or in the collection system. The Public Works Assistant Director-Environmental Services determines "Significant" qualification in conjunction with NDEQ, on a case-by case basis under this guidance: duration greater 24 hours, quantity greater than 100,000 gallons, and considering the nature of pollutants and location.

9. **Monitoring to characterize CSO impacts and the efficacy of CSO controls:** As required, the City shall document any new CSOs discovered during routine inspections, and reports on other impacts of CSOs:

   - In the period of October 1, 2017 to September 30, 2018, there were no known beach closings or fish kills. There are no records of any wash-up of floatables.
   - Routine inspection of CSO diversions and outfalls continued this year. No new CSO locations were discovered. A new diversion was constructed as part of CSO 204 Phase 1 in Benson Park and is monitored with a flowmeter for evidence of overflow to the CSO 204 outfall.
   - Two rain events in March and one in August 2018 resulted in two system backups and two manhole overflows. Each related to storm debris or construction debris.

B. LTCP Documentation

Part V of the CSO NPDES Permit requires the City to document and submit reports showing compliance with the conditions and requirements of this section. A list of the required reporting elements under LTCP Documentation and a brief description any items of significance for each element are included.

1. **Characterization and Modeling of the CSO System.** As required, the City shall continue to characterize, monitor, and model the CSS.

   - The City reached a significant milestone this year, completing large portions of the effort to provide more detailed information on the CSS in upstream areas of the watersheds/sewersheds through an update to the InfoWorks collection system model. This added detail better allows for the evaluation of the effectiveness of Green Infrastructure and/or stormwater control measures at specific locations up in the system.
   - Other characterization efforts of the CSS include water quality monitoring of select outfalls (CSO 102 at this time, with future plans at CSO 205), gathering of field data in project areas, and overflow occurrence monitoring at CSO points through the CSO Block program.
   - For the reporting year, there were 29 permanent flow monitoring sites and 74 temporary flow monitoring sites to support a variety of efforts including Little

Papillion Interceptor study, an evaluation of the area upstream of CSO 205, various CSO Projects, and additional information for the CSO Model. Additionally, the City gathered precipitation data using 12 permanent City-managed and 6 temporary consultant-managed rain gauges and obtained radar processing of rainfall data for increased spatial accuracy.

2. **Public Participation Plan.** As required, the City shall continue a public participation process and document activities in Annual Report:
    - The focus of the Public Participation Program continues to be centered on two major efforts: (1) continued involvement, education, and acceptance by the public about the need for the CSO Program and (2) the progress on the specific projects, in particular during construction.
3. **Consideration of Sensitive Areas.** As required, the City shall include any changes to the status of previously identified sensitive areas in the Annual Report:
    - No changes were made to the sensitive areas in the Annual Report year.
4. **Evaluation of Alternatives.** As required, the City shall submit any significant changes or revisions to the LTCP by October 1, 2019 (modified to March 1, 2020 in the amended Consent Order) for review and approval according to the Part IX (F) of the CSO Permit, Revisions to the LTCP. The following is provided as an update:
    - The City completed its review of the controls that could affect the Minne Lusa Basin and the overall Missouri River Watershed. A letter documenting the results of this evaluation was submitted to the NDEQ in June 2018.
    - The City started working towards the LTCP Update. This included the City undertaking several tasks to define future projects or to evaluate potential alternative controls for the Missouri River Watershed, including the Deep Tunnel System (DTS) Project Definition Task and Optimization Evaluation.
5. **Cost/Performance Considerations.** As required, the City shall submit a financial report by October 1, 2019, that sets forth a strategy to obtain sufficient revenue to fund the CSO Program through at least 2024. The following is provided as an update:
    - The City adopted a new rate ordinance on August 21, 2018. The new ordinance sets sewer use fees for 2019 through 2023.
6. **Operational Plan.** As required, the City shall report updates to the wet weather operational strategy plan. This plan shall be updated as major CSO projects are constructed and are operationally complete.
    - There were no changes to the operational plan during the year.

The SOIA Lift Station wet weather operations were evaluated as there were indications that the facility was having to divert flow during a 5-year rain event to the Monroe North Barrel, which conveys combined sewer flow to the CSO 119 diversion structure and then to the Monroe Lift Station or CSO 119, an indication that it was not operating as designed. It was found that the lift station was having problems with the operations of the pumps as well as experiencing higher levels of inflow. The City brought in the pump manufacturer and, after several reviews and evaluations, have rebuilt and made several adjustments to the pumps

so that they are now operating properly. In addition, a review of flow data suggested that there was more stormwater entering the system than anticipated. A City review of the sewer system that contributes to the SOIA Lift Station resulted in the identification of several inlets that needed to be removed from the combined system and connected to the storm sewer. The City has addressed these areas and the initial flow monitoring results suggest that the lift station is now performing as originally designed. The City will continue to look for inflow and infiltration (I/I) sources as necessary.

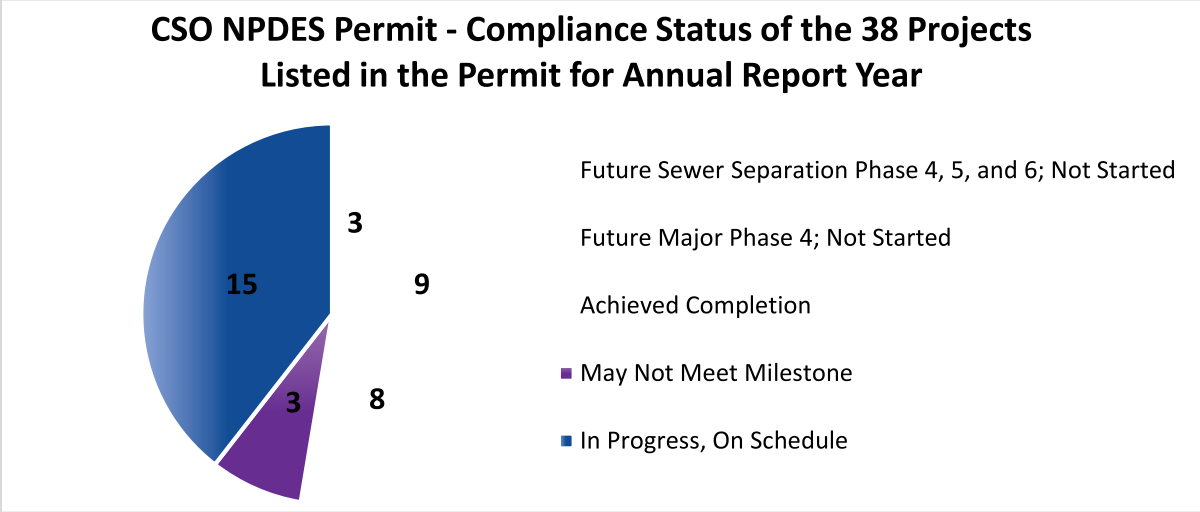
1. **Maximizing Treatment at the Existing POTW Treatment Facilities.** As required, the City must continue to evaluate opportunities to maximize treatment and a summary of any new processes shall be included in Annual Report. No new approaches were identified since the last Annual Report.
2. **Implementation Schedule.** As required, the City shall include progress reports on implementation of the CSO Projects as set forth in the compliance schedule:
    - During this permit reporting period, the City obtained a 10-year extension to the program, resulting in a final completion date of October 1, 2037.
    - Project-specific progress reports on implementation of the CSO major projects and sewer separation projects are included in Attachment 2.
3. **Post-Construction Compliance Monitoring Program.** As required, the Annual Report includes in-stream monitoring data, and the results of studies performed to verify eliminating CSO points following completion of sewer separation.
    - The City's Post Construction Monitoring Program includes outfall monitoring at designated CSO points, in-stream monitoring, and verification of sewer separation projects. See Sections VII, In-Stream Monitoring Data, and VIII, Performance Report, for results.

C. Compliance Schedule

As required, a summary of construction activities, actions, and other measures completed according to the Compliance Schedule for Implementation of CSO Control Projects set forth in Part V of the permit are included in this Annual Report (see Figure ES 2-1).

- Annual Project Progress Reports (APPR) are submitted in Attachment 2 for projects with reportable activity.
- Phase 3 Sewer Separation was completed with the completion of the Gilmore Phases 1 and 2 Sewer Separation Project in December 2017.
- A permit modification will be submitted during the next Annual Report year to address milestone dates that will not be met, including Phase 4 Major Projects. As part of the LTCP Update due in 2020 it will be necessary to either adjust milestones or projects within the phases as the result of delayed projects.

Figure ES 2-1: Compliance Status of the 38 Listed Project in the Permit



D. CSO Outfall Monitoring

As required, a summary of monitoring data from CSO Outfall 102 is included. The Interim Requirements for CSO Outfall 102, as defined in Table 3, Part II of the NPDES Permit, are in effect for this Permit year.

- The conditions for approved bypass of combined sewer complied with these requirements. CSO 102 had 50 overflow events from October 1, 2017 through September 30, 2018. Results from the monitoring are reported on quarterly discharge monitoring reports.
- Interim requirements for the monitoring of CSO Outfall 205 were not in effect this year. As the result of an approved Permit Modification, these requirements are not set to begin until the next permit cycle, with anticipated monitoring to begin in 2024.

E. In-Stream Monitoring

As required, a summary of in-stream monitoring data consistent with the Implementation Monitoring Plan objectives is included. The following is a summary of the City's efforts.

- Sewer Maintenance Division staff monitored 10 sites (7 along the Papillion Creek system and 3 along the Missouri River) for water quality parameters.
- U.S. Geological Survey (USGS) continued water quality sampling for the City at four sites along the Missouri River. There is a total of five Missouri River sites between the City and USGS in-stream sampling. Data provided by USGS for 2017 are approved. Data for 2018 are considered provisional.
- The City and USGS monitoring locations are listed in Section VII, In-Stream Monitoring Data, and shown on Figure 7-1.
- The USGS data are summarized in Table 7-3 in Section VII, In-Stream Monitoring Data.

F. Performance Report

As required, a performance report is submitted to demonstrate that each CSO overflow occurrence was the result of wet weather, and to report the number of CSO discharges and whether controls are achieving design intent. The following is a summary:

- During the report period, City staff logged 1,886 total CSO checks; 1,449 were post-rain and snowmelt checks, and the remainder were payday checks (every 2 weeks) for potential dry weather occurrences. There were a total of 437 routine inspections recorded for 23 of the CSO points that the City is able to check. Dry weather CSOs are reported in Section III, Nine Minimum Controls.
- City staff could not historically check CSO 119, Monroe Diversion Structure, for occurrence of overflow by utilizing the common practice of the block program as a result of the extreme and dangerous atmospheric conditions, and difficult accessibility. The CSO Permit application included this fact and reported this detail in subsequent Annual Reports. The City has incorporated simple visual inspections at other diversions structures upstream of the outfall. Periodic inspections are completed to check for dry weather CSO occurrence. Monroe Lift Station Improvements will aim to incorporate better flow measurement.
- Table 8-1 in Section VIII, Performance Report, provides a summary of the CSO frequency for each outfall, except for CSO 119. They range from 1 at CSO 103 and CSO 201 to 57 at CSO 205.
- The rainfall during the report year was about 37 inches. When compared against the average annual rainfall of 31 inches, this was a heavier-than-average rainfall year. The highest-impact storm was on August 20, 2018, at approximately 6.8 inches in 29 hours, or approximately a 50-year recurrence interval. Eppley Airport rain data registered 165 days with precipitation, including days with only trace amounts. Of that, 69 of the recorded rain events were 0.1-inch or greater.
- See Attachment 4 for reporting on CSO occurrence for each rain or snow melt event. Six dry weather occurrences are reported in Section III.E, Prohibition of CSOs during Dry Weather.

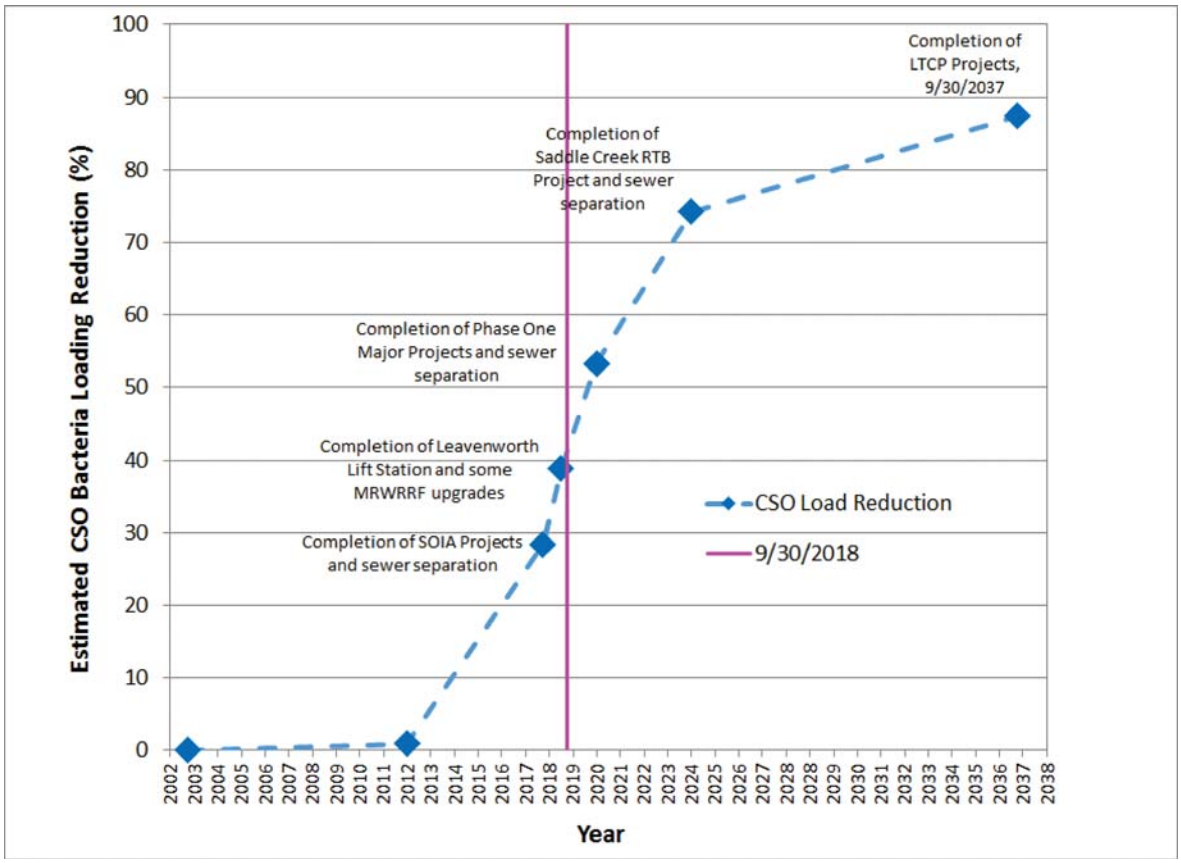
G. Other Information

The CSO NPDES Permit, Part VII.F, requires a section of the Annual Report be for other information. The City typically includes information in this section of the report that highlights factors relevant to the CSO Program not reported elsewhere. Following is a list and brief description for each item discussed in this year's report:

1. Reduction in the Number of Overflow Events and CSO Outfalls: No reduction in CSO outfalls or events were noted.
2. Receiving Water Quality: A significant reduction in *E. coli* load to the Missouri River occurred with the implementation of the SOIA Lift Station, Force Main, and Gravity Sewer projects and the MRWRRF Schedule A project. Another major reduction will occur when the SIFM and associated lift station projects and MRWRRF Schedule B projects currently under construction are completed in 2019. Figure ES 2-2 indicates a

prediction in the reduction of *E. coli* loading over time as a result of LTCP implementation.

Figure ES 2-2: Modeled E. Coli Reduction over LTCP Implementation



3. The City conducted a Capacity, Management, Operations and Maintenance (CMOM) Gap Analysis in late 2017 and early 2018 using the U.S. Environmental Protection Agency's (EPA) checklist to document the progress of CMOM-related activities in the wastewater collection system over the last decade, and it identified remaining gaps that the City will continue to address.

4. Material Management: During the 2017-2018 reporting year, waste material including building demolition materials, concrete, and soil were taken to landfills in the area from construction of capital projects associated with the CSO Program. Several projects commenced or continued construction in 2018, but only a few generated excess soil or waste material that required disposal in a landfill. Approximately 10,000 tons of the waste material from construction of capital projects associated with the CSO Program, mainly contaminated soil, were taken to the Waste Management Pheasant Point Landfill in the report year. Another 23 tons were taken to Sarpy county. Approximately 24 tons of construction and demolition (C&D) waste was disposed of locally in a C&D landfill. No hazardous waste was disposed of in 2018. The City monitors and tracks contaminated soils and other waste material and uses this report to update the NDEQ Waste Management Division.

III. Nine Minimum Controls

As defined in the CSO NPDES Permit, NMCs are operations and procedures that can reduce combined sewer overflows and their effects in receiving water quality, do not require significant engineering studies or major construction, and are consistent with the City's LTCP. The City and the NDEQ have worked together toward implementing NMCs per EPA's Guidance Document 832-B-95-003, *Combined Sewer Overflows - Guidance for Nine Minimum Controls* (1995), which states:

- "The NPDES Permitting authority should … develop and issue Phase I NPDES Permits requiring CSO communities to implement the NMCs."
- "The NPDES Permitting authority should… develop and issue Phase II NPDES Permits requiring continued implementation of the NMCs and implementation of an LTCP."
- "Minimum Controls are not temporary measures; they should be part of long-term efforts to control CSOs."

On October 1, 2002, the NDEQ issued a CSO Phase I Permit to the City, which contained a series of required submittals and reporting requirements that demonstrated the development and initial implementation of the NMCs. Summaries of the NMC objectives and required submittals are on record in the City of Omaha 2007 Combined Sewer Overflow Permit Annual Report NPDES Permit No. NE0133680. The collection of submittals and reports are on file at the Sewer Maintenance Division and referred in this report as the NMC Plan.

On October 1, 2007, the NDEQ issued to the City the Phase II CSO Permit. Subsequent CSO Program-related permits were issued in 2010 and 2015, which continue to fulfill the documentation and reporting requirements to assure the NMCs are met in accordance with the following:

- The initial NMC submittals that were a part of the Phase I Permit, as documented in the 2007 CSO Annual Report; and modifications/updates to those initial submittals along with subsequent CSO Annual Reports
- EPA NMC Guidance
- Environmental Protection Agency CSO Control Policy (April 19, 1994, at 59 Fed. Reg. 18688)

The City plans to submit an application in 2020 for a new CSO permit. In addition, the City has continued to implement the NMCs in accordance with the submittals on record with the NDEQ and in accordance with EPA guidance and policy. The NMC documentation that follows is written according to the conditions and requirements of Part IV of the CSO NPDES Permit. Additional information is included to annually document measures of success or identify a focal area of improvement.

A. Proper Operation and Maintenance (O&M)

Per the requirements of the CSO NPDES Permit, proper O&M of the CSS and CSO outfalls should include periodic reviews of O&M procedures, updates to the procedures as needed, and proper documentation of the procedures. A major emphasis of the NMC is the elimination of dry weather overflows. When a significant procedure is changed updated or added, the City

will provide the required documentation to NDEQ. Revisions and additions to the O&M procedures that occurred during the October 1, 2017, to September 30, 2018, reporting period are included in Attachment 1 of this Annual Report.

The City continues to follow a schedule of annual or semiannual review of procedures that are a part of proper O&M of the CSS. The O&M procedures involved are carried out across the following workgroups in the City's Public Works Department, Environmental Services:

1) Sewer Maintenance Division-Maintenance, also referred to as the O&M Group, maintains the gravity systems for combined, sanitary and storm sewers, which includes cleaning, inspection, minor repairs, and some construction projects. This group also performs PM at CSO regulators predominantly controlled by weirs and overflow pipes. They share force main maintenance responsibilities with the Levee Group.
2) Sewer Maintenance Division-Flood Control, also known as the Levee Group, maintains Lift Stations and Flood Control systems and share the responsibilities of maintaining force mains with the Sewer Maintenance O&M Group. Additionally, the Levee Group maintains CSO regulator gates at diversion structures. This group communicates regularly with the inspection group in the Sewer Planning Unit regarding CSO occurrences.
3) Sewer Maintenance Division- Sewer Planning Unit, also referred to as the Technical Services Group, consists of GIS, engineering, and field inspection staff to provide asset management and regulatory compliance support. This includes tracking and reporting of CSO discharges, planning programs, and procedures to minimizing SSO occurrence and CSO impacts. In January 2018, the field crew in this group took over all of the CSO device checks and tracking of CSO occurrence (responsibilities were once shared with the Levee Group).
4) Design Division provides engineering design services for the wastewater collection system and coordination on capital improvement projects relative to proper design for O&M.
5) QCD provides pollutant and fats, oils, and grease (FOG) source control.
6) The MRWRRF and PCWRRF work with collection system operations to maximize flow to treatment and minimize CSO impacts.

The SSOMM (Brown & Caldwell, 2006) has historically been reviewed semiannually. The following items were addressed as a part of the review process during this reporting year:

1) Refinement of the procedures that make up the OERP were drafted this year. The City is currently working toward finalizing the OERP document. This will include minor clarification and documentation procedure updates to the SSOMM Appendix H, Call-Out Procedure; SSOMM Appendix D, Standard Operating Procedure for Reporting and Public Notification of Bypass, Dry Weather Combined Sewer Overflow & Sanitary Sewer Overflow. The finalized OERP will become a new appendix in the SSOMM.
2) Updates to SSOMM Appendix B: CSO Station & Monitoring Device Procedures and Locations (included within Attachment 1) consist of a list and outline of general instruction for monitoring for wet weather CSO and prevention of dry weather CSOs. The one-page document Standard Operating Procedure (SOP) for Verification of Combined Sewer Overflows is a new internal SOP developed for Sewer Planning Unit-

Technical Services Crew. It is supplemental information to Appendix B. The SOP cover page is also provided in Attachment 1 and current versions of all procedures are filed at Sewer Maintenance.

3) SSOMM Appendix F: Combined Sewer Overflow Station Procedure Manual has been updated and is included within Attachment 1.

SSOMM Appendix I included a description of the PM program and example maps. This has been updated and is included in Attachment 1. Sewer Maintenance continued to refined processes related to implementation of field tablets and work management that integrate with GIS-based data management software. Several internal training workshops and guidance documents were prepared, however, they are not part of the SSOMM at this time. The City will continue to adhere to the NMC Guidance to properly operate and maintain the CSS and the CSO outfalls by using current procedures and implementing new procedures as necessary.

B. Maximize Use of the Collection System for Storage

The CSO NPDES Permit requires the City to continue to implement NMC efforts to maximize the use of the collection system for storage as well as review the CSS, as appropriate, to identify locations where minor modifications can be made to increase in-system storage. The permit requires that modifications be implemented as the City can do so and documented in this Annual Report.

The City's NMC Plan, as defined previously, outlines EPA's *CSO Technology Fact Sheet, Maximization of In-Line Storage* (EPA 832-F-99-036) (1999), which lists the following list of typical control measures for increasing in-system storage:

- Inspection of the collection system and removal of obstructions
- Maintenance, repair, and replacement of tide and control gates
- Installation and adjustment of regulators
- Reduction/retardation of inflows and infiltration
- Upgrade/adjustment of pumps
- Real-time monitoring

The City has standard practices and procedures in place that correspond to these measures. No modifications were made to the NMC Plan during this report period. The following is a summary of practices within the City that contribute to maximizing the use of collection system.

Inspection of the collection system and removal of obstructions. The Sewer Maintenance Division is the primary organization involved with inspection and maintenance of the collection system and lift stations. Procedures are in place to identify and provide corrective maintenance, which includes inspection, cleaning, and removing blockages. Several corrective repairs to inlet, manholes, and pipelines were achieved. A 5-year cycle jetting program for 15-inch and smaller pipes, and a PM program, are among the practices to meet this control. The City contracts services to clean a small percentage of large-diameter pipelines. For the report year, the City accomplishments include:

- Inspected 102,821 LF in the CSS
    - 36,227 LF of this was pipe larger than 15 inches in diameter.
- Performed PM cleaning on 437,057 LF in CSS

  - 352,917 LF were part of the 5-year cleaning program
  - 84,120 LF were part of the additional, more frequent PM program
- Performed corrective cleaning on 57,192 LF in CSS.
- As identified in past years, and as part of the goal of eliminating dry weather discharges through combined sewer outfalls, the City continued to increase efforts to plan for and conduct cleaning of the larger-diameter sewers.
  - Sewer Maintenance contracted out the heavy cleaning of large-diameter pipelines upstream of Bridge Street Lift Station. Preliminary data indicate that this cleaning effort, along with other efforts to maintain the bar screens at the lift station, correlate with eliminating dry weather CSOs at this location. The 2018 flow monitoring program data indicate this system still has a high level of I/I, and pipe defects were identified as allowing grit into the system. A repair project is under review at Sewer Maintenance. Other I/I reduction is under consideration for this system.
  - During summer 2018, the City inspected over 4,410 LF of the 60-inch-diameter South Interceptor gravity pipe from the CSO 106/107 area to Burt-Izard Lift Station using sonar technology. The results of this work allowed the development of sediment and water profiles through this pipe, which lies at a relatively flat slope. Cleaning and removing sediment from this section of pipe will require the construction of additional access manholes, the design for which is anticipated to begin in 2019.
  - Sewer Maintenance commissioned two projects in the MR-7 basin (upstream of the new Leavenworth Lift Station) with the primary goal of identifying debris deposits in the large-diameter sewers.
    - Closed-circuit television (CCTV) of 4,500 LF feet of 48-inches-and-greater sewer pipe immediately upstream of lift station. Major cleaning projects were identified (for example, the 54-inch new sewer to the new lift station has an estimated 5 to 8 inches of grit).
    - A manhole inspection project that included checking for debris and overall condition in over 200 manholes throughout the 2,420-acre sub-basin. Of the manholes inspected, approximately 18 contained debris (mostly a few inches of grit), and some had bricks and asphalt in the channel. As of July 2017, the City completed approximately 21,000 LF of cleaning and CCTV of 18-inch- to 36-inch-diameter pipes and intends to continue with another 15,000 LF of up to 54-inch-diameter pipe. Further cleaning of MR-7 basin will be contracted in the future.
- CSO 210 diversion structure current configuration allows for debris to accumulate in the junction box in the conveyance channel to the dry weather pipe that leads to the grit structure. There is currently a design project underway for sewer separation in CSO 210 area, with current schedule of completion in 2022. Sewer Maintenance is recommending an intermediate improvement to this diversion by 1) reconstructing the flat box channel to a half pipe with gradient toward the outlet and 2) consider raising the weir a few inches. The Design Team is developing a hydraulic model for their sewer separation

design and could be consulted for potential impacts of raising weir in the interim. The diversion remains on a robust inspection and maintenance schedule.

- CSO 207 diversion structure current configuration allows for debris to continuously accumulate in a 12-inch box dry weather flow conveyance regulated by a static gate closed approximately 75 percent of the way. A sewer separation project, 42nd and Q Street, is under construction with anticipated completion in 2019. Sewer Maintenance staff made a decision to remove the gate at the diversion to reduce the risk of dry weather CSO in this interim period. This could increase a risk of wet-weather manhole overflows downstream. No negative repercussions have resulted since the gate was removed on October 17, 2017.
- Sewer Maintenance initiated the process to revise the sewer PM program to refocus resources on areas needing maintenance and improving efficiencies of field crews by consolidating and removing redundant PM work orders. Sewer Maintenance completed activities such as grouping and labeling PM work orders into sewer management areas (SMAs) (also known as sub-sewersheds), and developing new processes for deploying field crews and documenting completed work through the Cityworks AMS work order system.
- These initial PM program revision efforts will be leveraged into a larger future effort to develop a PM Basis document for each PM to document:
    - What kind of PM is needed and why is it needed
    - The frequency of PM needed
    - Decision criteria and a feedback loop for when to convert the PM into a construction project to eliminate the need for the PM.

Maintenance, repair, and replacement of tide (river) and control gates. Gate inspections at key CSO facilities occur once every year, at a minimum, with appropriate actions to follow. Elevated Missouri River levels can impact O&M on the collection system and lift stations because reduced velocities in the CSO outfalls along the river allow grit and sediment to settle in the pipes and can increase corrosion. If the river water level is elevated for a long period of time, as it was in 2018, more frequent cleaning of pipes may be needed.

Elevated river levels can also result in intrusion of water from the Missouri River or groundwater into the collection system, particularly in low-lying areas along the Missouri River. The City has completed several projects over the years to replace CSO outfall flap gates and/or flap gate seals to reduce river intrusion. The following activities occurred during this reporting year:

- The replacement of the CSO 109 Leavenworth outfall dual flap gates was completed in March 2018.
- The Monroe CSO 119 North and South Barrel outfall pipes were rebuilt. This location does not have flap gates, but this construction project included the addition of adjustable stop logs that can be added or removed as river levels fluctuate.
- The City finished the design of and advertised for construction bids the Leavenworth Flood Mitigation project. This project is designed to reduce the influence of elevated river levels on the new Leavenworth Lift Station (the permanent replacement lift station)

by maximizing flow to the station via a closed pipe system that is not influenced significantly by river level or intrusion from the CSO 109 outfall pipes.

Future CSO Projects, which are still in the planning phases, may also reduce river intrusion by replacing flap gates at additional CSO outfall locations.

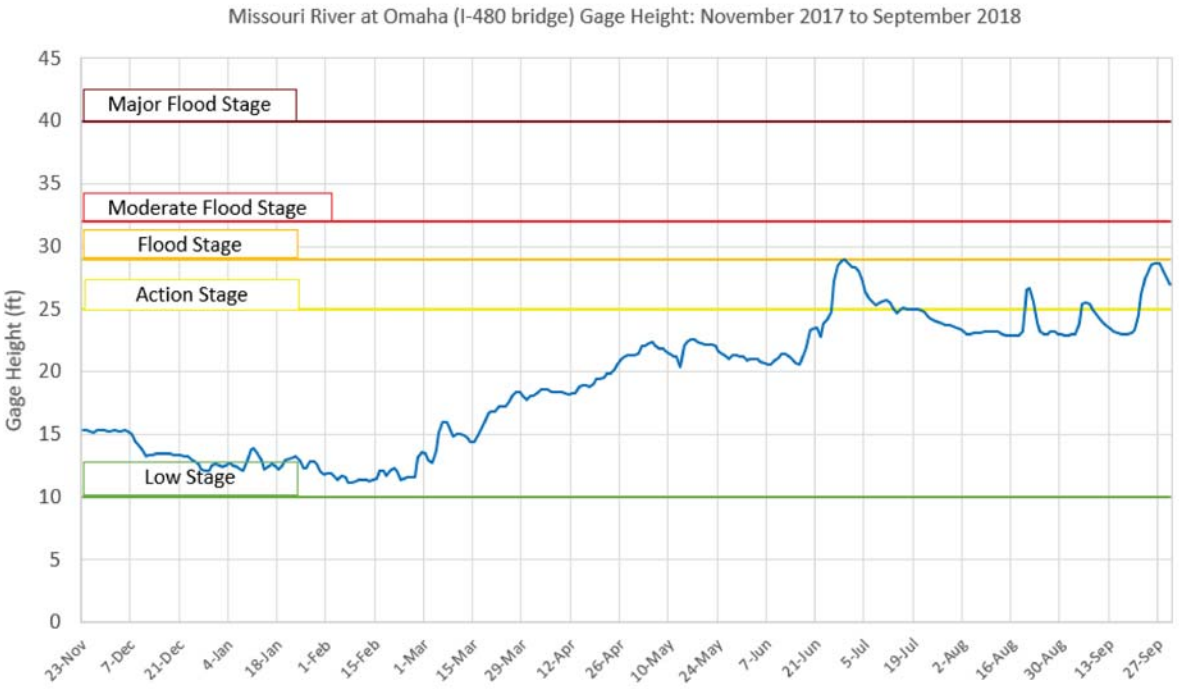
During periods of sustained river intrusion, the City uses existing infrastructure as much as possible to reduce river intrusion. Table 3-1 lists the Missouri River water level gauge heights associated with the City's action levels for emergency O&M of the wastewater and levee systems. In the reporting period, the Missouri River level, as measured by the USGS gauge at the I-480 bridge, had elevated water levels for much of the summer and fall of 2018 (see Figure 3-1).

Table 3-1. Missouri River Water Level Gauge Heights (in feet) at USGS Gate at I-480 Bridge

Gauge Height (ft)	Description of Impacts Related to Gauge Height
32	Interstate 680 West between the Mormon bridge and Interstate 29 begins to flood. Interstate 29 between Crescent and Council Bluffs begins to flood.
29	Water nears the base of the Council Bluffs levee. Significant lowland flooding occurs in NP Dodge Park, Freedom Park, Tom Hanafan Park, Fontenelle Forest, and Haworth Park. This is the official flood stage action level when the City initiates emergency operations of the wastewater and levee systems.
28	Most of the flood gates for the city of Council Bluffs are closed.
27	NP Dodge Park, Freedom Park, Tom Hanafan Park, and Fontenelle Forest begin to flood.
25	A casino parking lot begins to flood along the Iowa side of the river. In addition, Haworth Park located in Bellevue begins to flood.

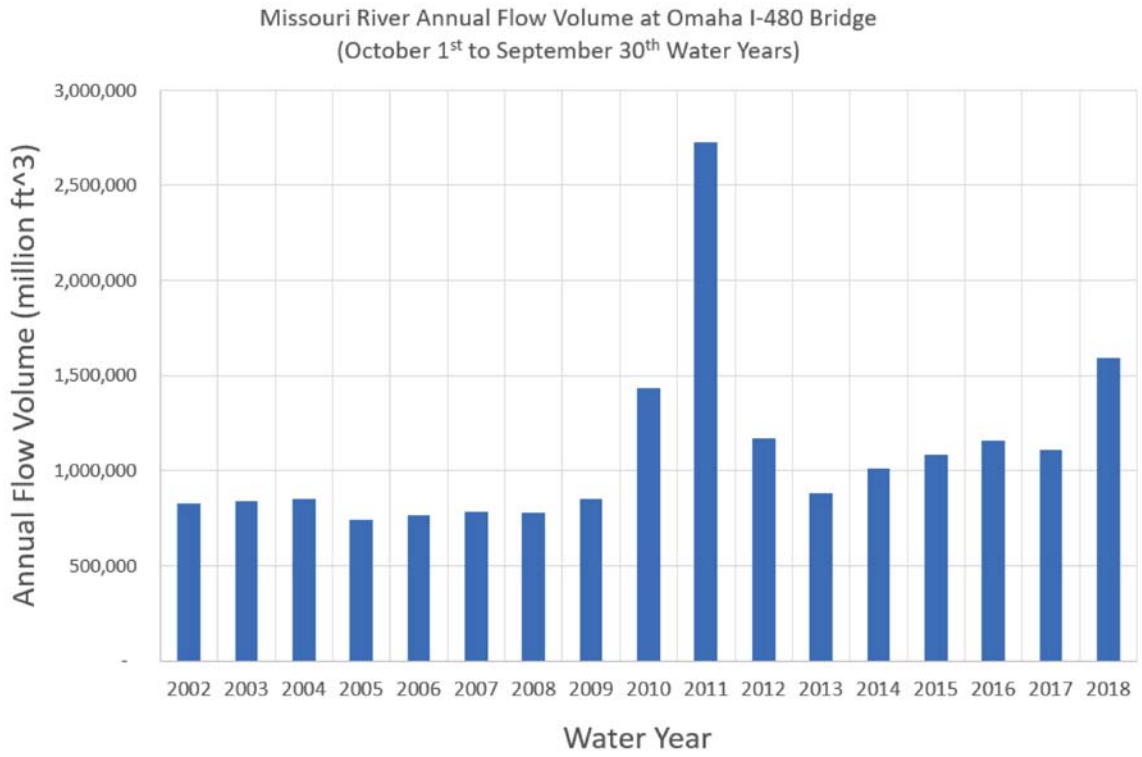
The City used the opportunity presented by the extended Missouri River levels in 2018 to continue the development of a High River Operation Plan. This work-in-progress includes identifying critical monitoring of locations impacted by elevated river levels, planning for the possible need to install temporary pumps, and identifying impacts to the system including changes to the cost, schedule, and design/construction of ongoing projects. These impacts to the wastewater system are related to the way the U.S. Army Corps of Engineers (USACE) operates the Missouri River by controlling the flow releases from upstream reservoirs. The USACE and USGS' 2018 water year coincides with this reporting period and, during this 2017-2018 period, the total volume of flow in the Missouri River was the second highest since 2002 (see Figure 3-2) and third highest historically. The only higher total annual volume during that time occurred during the 2011 Flood. While elevated water levels in the Missouri River are usually not frequent, what was once an anomaly is becoming a more common occurrence in recent years. The City is continually adapting O&M plans to improve the effectiveness of operating the wastewater system during high river levels.

Figure 3-1: Missouri River Stage November 2017 through September 2018 with Flood Stages Associated with Action Levels for Operation of Wastewater and Levee Systems Emergency



Source: USGS Gauge 06610000 Missouri River at Omaha, NE

Figure 3-2: Missouri River Annual Flow Volume 2002 to 2018



Installation and adjustment of regulators: Previous studies have indicated that there is limited capacity for in-line storage in the existing sewer system of the Missouri River Watershed. However, in the Papillion Creek Watershed the City uses regulators to maximize in-line storage in the Papillion Creek interceptor to maximize the amount of wet weather that goes to the PCWRRF and minimize activation of CSO 201. The use of the sewer model and other technologies to optimize the system that go beyond the NMC requirements may be pursued in the future with the City's adaptive management strategy as part of the LTCP. The City will evaluate the addition and modification of regulators on a case-by-case basis.

Reduction and retardation of inflows and infiltration: Inspections of sewer structures, removal of inflow sources, and rehabilitation projects continue. Reduction efforts include vented manhole cover replacement, sewer lining, sewer separation, and enforcing private property defect repairs and illicit connections. In addition, stormwater management practices are required to be evaluated during the design of all CSO projects for applicability, cost effectiveness, and long-term maintenance requirements. The City continues to include and evaluate these methods of inflow reduction in management of the CSS.

An inflow reduction project was completed during the reporting period to remove stormwater inlets from loading to the SOIA Lift Station, reducing the wet weather peaking factors at the lift station and overflows to the Monroe Barrels. An exposed 24-inch reinforced concrete sanitary pipe (in the combined system) crossing a stream at 48th and McKinley was stabilized and encased in 4 feet of additional reinforced concrete to reduce I/I.

Upgrade/adjustment of pumps: The Levee Group maintains the lift stations associated with the CSO system. Personnel are responsible for maintaining pumps as necessary so that the stations perform as designed. Upgrades to variable frequency devices (VFD) have occurred at lift stations as needed since 2004 as continuation of this NMC. Ongoing design projects continue to expand the capacity and/or replacing of pumps at the Burt-Izard, Monroe, and Riverview lift stations. More details about these projects are provided in later sections of this report.

Real-time monitoring: The operators at the MRWRRF are responsible for monitoring the SCADA system 24 hours per day. Most remote stations are on the SCADA system, and the remainder have auto dialers. The system includes gates that are controlled remotely to maximize flows into the WRRF. As new facilities are built, such as the Leavenworth and SOIA lift stations and the Saddle Creek RTB, permanent meters are installed and connected to the SCADA system for real-time monitoring.

C. Review and Modification of Pretreatment Programs

The CSO NPDES Permit requires the City to minimize the impacts of discharges into the CSS from non-domestic sources. When new significant industrial users are added to the CSS, the City is required to determine what impact the dischargers would have on the quality and quantity of CSO discharges during wet weather events. In addition, as current Service Agreements with bulk user customers expire, the City has been renegotiating new agreements with additional monitoring and other requirements.

The QCD is responsible for the review and modification of the Pretreatment Program. The facilities with Nebraska Pretreatment Program (NPP) permitted discharges, either through voluntary agreements or through the NPP permit, are requested, whenever possible, to restrict or prohibit discharges during rain events.

A total of 13 NPP permitted facilities were in the CSS area and were operating during this reporting period (see Table 3-2).

Table 3-2: NPP Industries in CSS

Name	Address	CSO area	Regulated Batch Discharge?
ABS Corp.	7031 No. 16th St.	106 and 107	Yes
Burn Off Services	1528 North 16th St.	102	[a]
E. A. Pederson	3900 Dahlman Ave.	118	Yes
G&G Manufacturing	4432 McKinley St.	103	Yes
Industrial Plating	1149 Florence Blvd.	102	Yes
Koleys	2951 Harney St.	108	Yes
Lozier Corp.	6316 John Pershing Dr.	106 and 107	Yes
Lozier Corp.	4224 No. 22nd St.	107, 106, and 108	Yes
Modern Equipment Company, Inc.	6161 Abbot Dr.	106	Yes
Roberts Dairy	2901 Cuming St.	108	[a]
Armour-Eckrich Meats LLC	5015 So. 33rd St.	119	[a]
Silverstone Inc.	4350 McKinley St.	103	Yes
Syngenta Crop Protection, Inc.	4111 Gibson Rd.	115	Yes

[a] Burn Off Services, Roberts Dairy, and Armour-Eckrich Meats LLC are included as NPP industries in the CSS; however, these industries are not batch dischargers and therefore the City does not regulate their discharges during wet weather. These industries are continuous dischargers.

D. Maximization of Flow to the Publicly Owned Treatment Works for Treatment

The CSO NPDES Permit requires, as appropriate, the City to evaluate and implement simple modifications to the CSS and procedures at the WRRFs to maximize flow to the POTWs; and such modifications are documented in Annual Reports.

In 2005 and 2006, the City evaluated various methods for maximizing flow to the WRRFs. Much of the evaluation supported the decisions that resulted in the LTCP; however, some operational changes were made immediately to allow for better wet weather management and improved water quality. As a goal for this NMC, the City continues to consider ways for maximizing treatment of wet weather flows.

During this reporting year, the City continued to use the North Inlet to the MRWRRF (fed by the Burt-Izard Lift Station via the existing SIFM) concurrent with the Municipal Headworks Facility (fed by the lift stations connected to the new SIFM north segment: Pierce Lift Station, Hickory Lift Station, Monroe Lift Station, and In-plant Lift Station). These combined facilities supply flow to meet MRWRRF's hydraulic capacity. The transition to use of only the Municipal Headworks Facility and decommissioning of the North Inlet Headworks (shifting the Burt-Izard Lift Station flows from the existing SIFM over to the new SIFM once the north segment is put in operation) is anticipated to take place in 2020. This transition is coordinated with the ongoing work to upgrade the pumping capacity at the Burt-Izard Lift Station that began in the third quarter of 2018 and is anticipated to be complete by the end of 2020. The City did not want grit that will be bypassed around the Burt-Izard Lift Station grit facilities to be allowed to enter the new SIFM while the upgrade construction work is underway. Therefore,

the Burt-Izard Lift Station was left connected to the existing SIFM and MRWRRF North Inlet during this reporting year. Upgrades to the Burt-Izard Lift Station (from 25 MGD to 50 MGD) will allow increased conveyance of wet weather flow to the MRWRRF during wet periods, and advertisement for construction bids occurred in the third quarter of 2018.

The project to increase pumping capacity at the MRWRRF's Transfer Lift Station for secondary treatment was completed and tested in the previous reporting year. Refurbishment of one of the Transfer Lift Station pumps occurred in this reporting year. The completion of this project allows the facility to pump 64 MGD through secondary treatment during wet weather events. The Transfer Lift Station pumps are scheduled to be replaced for long-term reliability within the next few years.

As part of the Schedule B2 construction project at the MRWRRF, the odor control system for the Primary Clarifiers was brought online in May 2018, within this reporting year. Construction continues for the Schedule B2 project, which is anticipated to be complete in the next reporting year when the Chlorine Contact Basin is brought online to provide disinfection of wet weather flows that are greater than the secondary treatment capacity of 64 MGD.

E. Prohibition of CSOs during Dry Weather

As stated in the CSO NPDES Permit, "Dry weather overflows from the City CSS are prohibited." The CSO NPDES Permit requires the City to document all dry weather overflows related to the CSS and the measures taken to correct the cause of the overflow and report in this Annual Report.

The City continues to work to comply with meeting the control of prohibition of dry weather overflows. The City exercises procedures for response, documentation, and reporting of dry weather overflows to prevent subsequent events where possible. Table 3-3 includes summaries of the dry-weather overflows discovered during the report period that did not reach a water of the State. Table 3-4 lists the locations where discharges did reach waters of the State.

> *"Waters of the State means all waters within the jurisdiction of this State including all streams, lakes, ponds, impounding reservoirs, marshes, wetlands, watercourses, waterways, wells, springs, irrigation systems, drainage systems, and all other bodies or accumulations of water, surface or underground, natural or artificial, public or private, situated wholly or partly within or bordering upon the State."* (Title 123, Ch. 1, Nebraska Department of Environmental Quality)

Additional information for each event was submitted to NDEQ, in accordance with reporting requirements in the CSO NPDES Permit.

- There were 21 overflows that were contained and did not reach a water body:
    - 7 resulting from construction debris or debris/tile and rocks
    - 2 resulting from to water main breaks
    - 1 resulting from sewer overload, private business FOG contributor
    - 3 resulting from grease or roots
    - 2 resulting from lift station operations affected by high Missouri River levels
    - 6 resulting from line defects

- There were 8 overflows that reached waters of the State, 6 directly through the permitted CSO discharge point, and 2 by a waterway or nearby separate storm sewer:
    - 4 resulting from grit/debris
    - 2 resulting from a water main break in area overloading the sewer system capacity
    - 2 resulting from a line defect or mechanical malfunction

Each of these events were evaluated for true cause and appropriate long-term corrective action. The CMOM Gap Analysis completed during this reporting period is highlighted in Section IX, Other Information. One of the results is an emphasis on design and construction controls. Sewer Maintenance had added, for an interim period, review of 100 percent of post-construction CCTV. Construction specifications regarding pipeline and manhole channel construction, and removing debris remaining in new pipe, is being enforced, with the goal of eliminating maintenance issues and dry weather CSOs.

Table 3-3: Basement Backups or Contained Dry Weather Overflows (Bolded are manhole overflows)

Start (Discovery) Date	Location of Overflow	Cause	Mitigation Steps	LTCA
10/3/2017	**5102 and 26 St.**	Sewer Overload Entity Overloaded	Jet Line Vacuumed Other	Coordination To QCD for FOG
10/16/2017	**N 45 St. and Saratoga St.**	Debris	Jet Line	None[a]; one-time debris
11/19/2017	7947 Raven Oaks Dr.	Debris	Saw Line	None[b]; one-time debris
11/24/2017	2738 Harrison St.	Construction Debris	Jet Line	Coordination w/Construction Division Inspectors
11/24/2017	2740 Harrison St.	Construction Debris	Jet Line	Coordination w/Construction Division Inspectors
11/24/2017	2742 Harrison St.	Construction Debris	Jet Line	Coordination w/Construction Division Inspectors
11/24/2017	2746 Harrison St.	Construction Debris	Jet Line	Coordination w/Construction Division Inspectors
11/24/2017	2748 Harrison St.	Construction Debris	Jet Line	Coordination w/Construction Division Inspectors
12/1/2017	222 N. 10th St; Backup	Line Defect Construction Debris	Jet Line Vacuumed	Repair/Replace Scheduled Inspection
12/1/2017	**222 N 10th St.; MH overflow contained**	Line Defect Construction Debris	Jet Line Vacuumed	Repair/Replace Scheduled Inspection
12/28/2017	4219 Himebaugh Ave.	Water Main Break	Notified Other Entity	None/Unavoidable
12/28/2017	4221 Himebaugh Ave.	Water Main Break	Notified Other Entity	None/Unavoidable

Start (Discovery) Date	Location of Overflow	Cause	Mitigation Steps	LTCA
1/16/2018	4752 S. 19 St.; Backup	Line Defect	Jet Line	Repair/Replace Scheduled Inspection
1/16/2018	**4752 S 19 St; MH overflow contained**	Line Defect	Jet Line	Repair/Replace Scheduled Inspection
2/6/2018	**1306 S. 3 St.**	Line Defect	Jet Line	Repair/Replace Scheduled Inspection
4/3/2018	3016 Young St.	Grease Line Defect	Jet Line	Scheduled Inspection Correct Defect
5/24/2018	4921 Browne St.	Roots	Jet Line	Preventive Maintenance
7/23/2018	**1200 Mike Fahey St.**	High River Grease Rags	Jet Line Vac	Procedure Development for High River Level Operations
7/26/2018	**1200 Mike Fahey St.**	High River Grease Rags	Jet Line Vac	Procedure Development for High River Level Operations
8/13/2018	**501 Avenue H.**	Line Defect	Bypass Pumped	To Engineering – Force main Asset Management
8/27/2018	**6915 N. 50 Ave.**	Roots Line Defect	Jet Line	Repair/Replace Scheduled Inspection

[a] None as LTCA because it was a large rock causing the blockage.
[b] None as LTCA because it was a piece of clay pipe causing the blockage. Work Order 438313 – CCTV did not find any broken pipe. Determined likely due to private plumber tapping sewer main.
MH = manhole

Table 3-4: Dry Weather Overflows Reached Waters of the State

Start (Discovery) Date	Location of Overflow	Duration	Estimated Quantity or Rate	Cause	Mitigation Steps	Receiving Water	Long-term Corrective Action
10/10/2017	69th & Evans **(CSO 203)**	Unknown	10 gpm	Grit Debris	Jet Line Vacuumed	Cole Creek	Scheduled Inspection
10/21/2017	69th Evans **(CSO 203)**	Unknown	10 gpm	Line Defect	Jet Line	Cole Creek	Repair/Replace, Scheduled Inspection
3/23/2018	7224 N 44 St	Unknown	Unknown	Roots Grit Grease	Jet Line	Forest Lawn Creek	Preventive Maintenance
3/28/2018	72nd and Bedford **(CSO 202)**	Unknown	7 gpm	Mechanical Malfunction	Repaired	Cole Creek	Modify Procedure, OPW Project
4/2/2018	Monroe Outfall **(CSO 119)**	Unknown	50 gpm	Grit	Jet Line Vacuumed	Missouri River	Preventive Maintenance, OPW Project

Start (Discovery) Date	Location of Overflow	Duration	Estimated Quantity or Rate	Cause	Mitigation Steps	Receiving Water	Long-term Corrective Action
8/28/2018	101 S 9 St	Unknown	Unknown	Water Main Break	Water Main Repaired	Missouri River	None/Unavoidable
8/31/2018	2615 S 64 St **(CSO 205)**	30 minutes	< 35 gpm (0.2-inch over weir)	Water Main Break	Water Main Repaired	Little Papio Creek	None/Unavoidable
9/21/2018	66th & Blondo St **(CSO 210)**	1 hour	5 gpm	Debris Grit	Jet Line	Little Papio Creek	Preventive Maintenance, OPW Project

< = less than
gpm = gallons per minute
OPW = Omaha Public Works

F. Control of Solid and Floatable Materials in CSOs

The CSO NPDES Permit restates the objective of this NMC as "control of solid and floatable materials in CSOs is intended to reduce visible floatables and solids using relatively simple measures." The permit requires the City to, as appropriate, reassess and implement site-specific processes to control solids and floatables in CSOs using relatively simple measures. Reassessments, the conclusions, and implementation of control measures are documented in this Annual Report.

Based on previous evaluations, many of the CSO points are not conducive to the implementation of floatable controls without significant modification. Mechanical bar screens are at CSO 106/107 North Interceptor/Grace Street and CSO 108 Burt-Izard Lift Station. These sites continue to be maintained by the Levee Group that is now under the Sewer Maintenance Division. As new stormwater facilities are built, grit and floatables controls are incorporated into these designs.

The existing Burt-Izard Lift Station was originally constructed in the 1960s as part of the South Interceptor Sewer Project. The station has three equal-sized pumps with a firm capacity of 50 MGD. However, the station currently operates at only 25 MGD or less because of the condition of the existing SIFM and the lack of redundancy on the drives in the lift station. The diversion structure, one grit basin, screens, and the lift station pumps were designed to convey flow into the existing 48-inch-diameter SIFM. In 1978, improvements were made to the grit system to add two additional grit basins. In 2000, improvements were made to the grit handling methods.

As described in the 2009 LTCP, several improvements are planned for the Burt-Izard Lift Station. These improvements will ensure reliable delivery of 50 MGD to the new SIFM during wet weather. This pumping capacity already exists at the station, but modifications are needed to put the changed operation reliably into effect, as well as to keep the station performing well.

Final Design of the Burt Lift Station was under way for the report year and includes replacement of the existing mechanically cleaned bar screen with a new bar screen, addition of a gate for channel isolation, a new bar rack, and concrete modifications to the screen channel to accommodate the new bar screen and gate in the Bar Screen Room. This work will include updating the Bar Screen room plans and sections for addition of a second screen, new gates, and installation of new screenings handling. The project also includes replacement of the existing

flap gates on the CSO 108 outfall pipes. The final design that went to bid in the third quarter of 2018 expanded upon the improvements identified in the LTCP.

Grit and floatable controls were included with the design of the new Leavenworth Lift Station to protect the facility and pumps. For the Saddle Creek RTB design, there is a grit pit for the RTB and another grit pit for the dry weather flow, and floatables capture at design flows. No additional processes or controls have been implemented this year for solids and floatables control for combined sewer overflow. The LTCP is intended to provide for adequate control of solids and floatables throughout the system, with improvements being implemented over time as projects in the LTCP take place. Further information may be found in Section IV, LTCP Documentation.

G. Pollution Prevention

As stated in the CSO NPDES Permit, "Pollution prevention is intended to keep contaminants from entering the CSS and accordingly the receiving waters by way of the CSOs." The CSO NPDES Permit requires the City to document in this Annual Report any new pollution prevention measures enacted by the City.

Pollution prevention efforts are shared between several Divisions and work groups within the Public Works Department. Most records for pollution prevention are compiled and included in an Annual Report as required by the City's MS4 NPDES Permit NE0133698. Specifically, the MS4 Annual Report contains a section on Pollution Prevention/Good Housekeeping and includes a summary of storm sewer cleaning and other sewer maintenance records as well as street sweeping efforts for record in January 1 to December 31, 2017. A specific query of routine PM jet-vac tasks for the 2017-2018 Annual Report period showed that the City completed 264 work orders, with 138 of these on the combined system. Additional corrective measures included (unplanned) cleaning tasks on 1,406 storm structures (for example, inlet/catch basin, grated manholes, and/or junction boxes): 833 in the Missouri River sub-basins and 376 in the Little Papillion sub-Basins. Approximately 70 percent of PM and 35 percent of corrective cleaning efforts are on storm-only conveyance systems; however the maintenance efforts impacted the adjacent CSS'.

Additional measures for pollution prevention in the sewer collection system are shared duties between the Sewer Maintenance Division O&M Group and the Levee Group for sewer system grit removal. In general, the Levee Group is responsible for the maintenance of structures associated with the CSO lift stations, the CSO screens located at CSO 106/107 and CSO 108, and aerated and non-aerated grit facilities associated with some of the larger CSO points. The Sewer Maintenance O&M Group is responsible for maintenance of small grit pits located throughout the collection system, with some of these being associated with diversion structures and pits located near the smaller CSO overflow points. Each Maintenance Group is responsible for recording and documenting their own activities. The Levee Group maintains these records in a log located at the MRWRRF. The Sewer Maintenance O&M Group tracks work in Cityworks AMS, a GIS-centric and web-based software package to help schedule and track operations and maintenance work.

The QCD also continues its outreach through the Papillion Creek Watershed Partnership and through a contract with *Keep Omaha Beautiful* to implement a stormwater pollution prevention and public education program that also provides benefits to the CSO program. No additional pollution prevention measures have been implemented during this report period.

H. Public Notification

As stated in the CSO NPDES Permit, "Public notification is intended to inform the public of location of CSO outfalls, occurrences of CSOs, plus health and environmental effects of CSOs." The CSO NPDES Permit requires the City to document revisions or updates to public notification procedures in the Annual Report and include public announcements related to CSO discharges.

Locations of CSOs have been identified for the public through specific signage posted near the outfalls, as well as along marina locations and public trails that parallel receiving streams (see Figures 3-3 and 3-4). Per standard procedure, signs at the CSO outfalls are inspected twice per year for visibility and condition. Procedure responsibilities continue to be carried out by Sewer Maintenance Division staff. CSO outfall sign inspections were completed in this reporting period in fall 2017 (December 15, 2017) and spring 2018 (May 1, 2018). As a result of high river levels, some signs disappeared and are in the process of getting replaced. They will all be in place prior to Spring 2019.

Figure 3-3: CSO 105 Outfall Sign

Figure 3-4: Standard CSO Outfall Notice

The Public is not directly notified of each individual occurrence of a rain-induced CSO. Rather, the public is informed and educated through several means of media and public outreach, reminding the public of the nature of combined sewer overflows and the impacts or effects to receiving streams. The signs posted at each outfall follow this template:

COMBINED SEWER OUTFALL CSO ###

DISCHARGE MAY INCLUDE UNTREATED SEWAGE
UNDER WET-WEATHER CONDITIONS

FOR INFORMATION OR TO REPORT PROBLEMS
CALL CITY OF OMAHA QUALITY CONTROL DIVISION
402-444-3908

For occurrences of dry weather overflows, overflows that continue after the effects of wet weather have subsided, or any other instance of a non-permitted overflow or bypass, the City follows reporting requirements outlined in the City's SOP for Reporting and Public Notification of Dry Weather Sewer Overflows and Bypasses. This SOP is reviewed semiannually and no modifications were made this year. No other policies or procedures for Public Notification have been revised or updated.

No public notifications were issued during the October 1, 2017, to September 30, 2018, reporting period because there were no untreated wastewater discharges from the Missouri River or Papillion Creek WRRFs and no significant dry weather overflows at CSOs or in the collection system. Public Works Assistant Director-Environmental Services determines "Significant" qualification in conjunction with NDEQ, on a case-by-case basis under these guidelines: duration greater than 24 hours, quantity greater than 100,000 gallons, considering nature of pollutants and location. Under LTCP Documentation for Public Participation, a summary is provided documenting methods of informing the public with regarding to understanding CSOs and the CSO program.

I. Monitoring to Characterize CSO Impacts and the Efficacy of CSO Controls

As stated in the CSO NPDES Permit, "Monitoring to Characterize CSO impacts involves inspections and other simple methods to determine the occurrence and apparent impact of CSOs." The CSO NPDES Permit requires the City to document in this Annual Report any additional CSOs discovered by the City during routine inspections.

Information on efforts made during implementation of the LTCP to characterize the CSS system can be found in Section IV.A, Characterization and Modeling of the CSO System. No additional CSO outfalls were identified during this reporting year. A new diversion was constructed as part of Sewer Separation project CSO 204 Phase 1 in Benson Park and is monitored with a flowmeter for evidence of overflow to the CSO 204 outfall.

Monitoring of CSO impacts is reported in this section as per previous years' reporting. The efficacy of CSO Controls is in Section VIII, Performance Report.

Monitoring of CSO Impacts

During the implementation of this NMC, under requirements of a preceding NPDES Permit, a report to record beach closings, wash-up of floatables, fish kills, hazards to navigation, and

basement flooding caused by CSO events was established. The following is provided to meet this requirement:

In the period of October 1, 2017 to September 30, 2018, there were no known beach closings or fish kills. There are no records of any wash-up of floatables.

The City monitors and tracks any occurrence of basement backup or manhole overflows in the CSS. Dry weather occurrences are reported in Section III.E, Prohibition of CSOs during Dry Weather. During the report year, two basement backups were recorded during wet weather and both were related to the same combined sewer line. A single occurrence of a manhole overflow occurred during wet weather. The storm events are outlined in Table 3-5, and additional information regarding these three reported events are listed in Table 3-6.

Table 3-5: Storm Events

Date	Duration (Hours)	Total Rainfall (Inches)	Reoccurrence Interval (NOAA)
March 16, 2018	Approx. 8	0.87	< 1 year
Summary: Peak Hour intensity of 0.2-inch per hour			
March 24, 2018	Approx. 1.5	0.56	< 1 year
Summary: Peak 15-min intensity of 0.32-inch per hour			
August 20, 2018	29	6.79	> 50 year
Summary: 1.7 to 8.8 inches with a mean of 3.7 inches, from Radar Rainfall Analysis Report, August 1 – August 31, 2018, Omaha, NE, reports gauge-adjusted radar rainfall. 6.79-inch rain total over 29 hours at OMA-RG-7 near JJ Pershing Dr. and Read St., which correlates to a greater that 50-year reoccurrence interval.			

Table 3-6: Reported Basement Backups or Manhole Overflows During Wet-weather CSOs

Date	Category	Location of Overflow	CSO Basin
3/16/2018	Other Notification/No Action Required (manhole overflow re-entered combined system)	1054 S 20 St.	Leavenworth, CSO 109
3/24/2018	Excursion/Backup (Confined to Basement or Private Property)	4017 S 36 St.	Ohern/Monroe, CSO 119
3/24/2018	Excursion/Backup (Confined to Basement or Private Property)	4019 S 36 St .	Ohern/Monroe, CSO 119
08/20/2018	Other Notification/No Action Required (manhole overflow re-entered combined system)	501 Ave. H Carter Lake, Iowa	North Interceptor, CSO 106

All basement backups and manhole overflows are evaluated for actual cause or conditions that lead to the backup or overflow. Omaha Public Works Environmental Services engineering groups will refer properties for back-water valves if CSS capacity is determined to be the cause. Sewer system evaluation surveys are referred if chronic occurrences and regions of the service area are affected by wet weather. In some cases, minor repairs to reduce I/I sources are

completed. The City uses all assessment information to determine if a capital project may be required or if modifications to O&M procedures are needed.

The properties at 4017 and 4019 S. 36th St. experienced basement backups resulting from storm debris in the 12-inch combined sewer reducing capacity during wet weather. Sewer Maintenance construction crews rebuilt a manhole channel to improve hydraulics. This is a first-time occurrence and therefore will remain on the 5-year cleaning cycle.

The manhole overflow from the 24-inch CSS north of Abbot Dr. (near 501 Ave. H, Iowa) resulted from debris with a flat gradient of 0.0987 percent pipeline and was exacerbated by a private entity pumping drainage into the system. Sewer Maintenance Division plans to evaluate a separate cleaning project for this large-diameter combined sewer.

The manhole overflow at 1054 S. 20 St., the intersection of 20th and Pierce St., was the result of prior construction blocking off the 15-inch combined sewer main and only leaving the 12-inch drop connection. The 12-inch drop connection was full of construction debris. This was a prior Sewer Separation Project in the area. Sewer Maintenance Division provides an annual summary to Public Works Construction and Design Divisions regarding sanitary sewer overflows (SSO) resulting from design and construction issues. Flows from the manhole re-entered the combined system. No CSO discharge was recorded at CSO 109 and it has been determined that flow continued to treatment.

IV. LTCP Documentation

The City submitted the original LTCP to NDEQ on September 25, 2009, in fulfillment of NPDES Permit requirements and EPA's CSO Control Policy. The LTCP was approved by NDEQ on February 10, 2010. An update to the LTCP was submitted to NDEQ on September 29, 2014, which was approved by NDEQ on Jan. 23, 2015. Minor modifications to the LTCP Update were submitted and approved by the NDEQ on April 3, 2015; August 28, 2015; and July 19, 2017. The purpose of these LTCP modification requests was to modify dates and, in the case of the July 2017 approval, to remove projects from the LTCP that were no longer needed.

The City is required through the Permit and Consent Order to submit documentation and reports applicable to the LTCP in the Annual Report according to the conditions and requirements specified in each document. The following nine sections in this Annual Report address those requirements and are presented in the order found in the outline in Part VIII of the Permit.

A. Characterization and Modeling of the CSO System

As stated in the CSO NPDES Permit, protocols for characterization, monitoring, and modeling of the CSS are included in Section 2 of the 2009 LTCP, Baseline Conditions/Study Basins Descriptions. This section of the LTCP addressed the response of the CSS to various precipitation events; identified the number, location, frequency, and characteristics of CSOs; and identified water quality impacts that resulted from CSOs. The LTCP Update provided new information on these items. The permit requires that the City continue to characterize, monitor, and model the CSS. A narrative summary of changes over the last 12 months to the characterization, monitoring, and modeling of the CSS as construction projects and sewer separation projects are implemented is to be included in each Annual Report.

Currently the CSS is almost completely mapped in GIS with regular updates occurring as field differences are discovered or per as-built record drawings. The CSO system characterization continues to be updated as LTCP projects are designed and implemented. Consultants are asked to review existing system data and to gather additional information to form the basis of their designs. The data and designs are then included in the City's sanitary and CSS computer model to ensure that the level of control specified in the LTCP is ultimately achieved. The following is a summary of the City's activity during this report period.

Characterization Efforts

Characterization efforts of the CSS can be broken down into several areas. These efforts include:

1. **Water quality monitoring of select outfalls:** During the CSO NPDES Permit renewal in 2015 it was demonstrated that most of the CSO outfall samplings were erratic and inconclusive over the long term as a result of the nature of the various rain events. It did not provide meaningful data to determine the impacts of the projects and was discontinued. No monitoring is required by the CSO NPDES permit of the combined overflow points. There are two outfalls that have regular

monitoring requirements in the permit to determine compliance with current or future effluent limitations, not for characterization. CSO 102 at the MRWRRF is required to be sampled during all wet weather events and will be required to meet effluent limits upon completion of the construction of the MRWRRF Improvements Project. CSO 205 currently is not being monitored; however, upon completion of the Saddle Creek RTB construction, CSO 205 will have required sampling of its discharge and will be required to meet effluent limits.

2. **Documentation and recording of additional collection system information:** As part of the study phase for sewer separation projects, field data are obtained on the conditions of the CSS. Such field data include smoke testing, CCTV of sewer lines, dye testing, and manhole evaluation and lamping. In addition, the City conducts its own Sewer System Evaluation Studies (SSES) either with City staff or through managed Field Services contracts. The findings of the studies are incorporated back into the City GIS and result in updated sewer mapping. Improvements to the collection system that result from the completion of CSO and other projects are then uploaded back into the City's GIS.
3. **CSO Block Program:** The City maintains a block program also commonly referred to as CSO device checks. Under this program a "block" or some type of device is placed to indicate if there is an overflow. Section VIII, Performance Report, will report further on the results of this Program.
4. **Flow monitoring:** Temporary and permanent flow monitoring continues in both the CSS and sanitary collection system to support long-term planning and individual projects. Rainfall monitoring is included in this effort.

Monitoring Efforts

The City has been performing flow monitoring of its CSS, specifically related to the characterization of the system, since 2004. The City continued City-wide flow monitoring of the Papillion Creek Interceptors as well as conducting temporary flow monitoring in multiple locations. For the reporting year, there were 29 permanent flow monitoring sites and 74 temporary flow monitoring sites to support a variety of studies. Additionally, the City gathered precipitation data using 12 permanent City-managed and 6 temporary consultant-managed rain gauges. The City also obtained radar processing of rainfall data from April through August to provide increased spatial accuracy. The Sewer Maintenance Division coordinates with the CSO Program Management Team and other City Divisions to plan the flow and rain monitoring program and meet the needs of the CSO Program.

Figure 4-1 provides a location map for the flow monitors and rain gauges including locations of gauges within the Papillion Natural Resources District (NRD)Alert Rain gauge system, which is used to supplement the City's rain gauge network. Rain gauges are listed in Table 4-1 and permanent and temporary flow monitoring locations are listed in Tables 4-2 and 4-3, respectively.

Table 4-1: Rain Gauges

City Rain Gauge Title	Longevity	Purpose
RG 1 - 10205 U Street (Oak Heights Pool)	Permanent	Sanitary
RG 2 - 3200 Ed Creighton (Hanscom Park)	Permanent	CSS
RG 3 - 5120 Maple Street (Benson High School)	Permanent	CSS
RG 4 - 4845 Curtis Avenue (Wakonda Elementary School)	Permanent	CSS
RG 5 - 1313 N. 156th Street (Grace Abbott Elementary School)	Permanent	Sanitary
RG 6 - 5304 S. 172nd Street (Russell Middle School)	Permanent	Sanitary
RG 7 - 7198 JJ Pershing Drive (Minne Lusa Grit Station)	Permanent	CSS
RG 8 - 5425 S. 43rd & T Street (Roth)	Permanent	CSS
RG-9 - 100 Martha Street (Martha CSO Diversion)	Permanent	CSS
RG-10 - 19615 Old Lincoln Highway (Elkhorn WRRF)	Permanent	Sanitary
RG-11 - 24th & Dodge (Family Lutheran Service Bldg.)	Permanent	CSS
RG-12 - 1110 S. 67th Street (PKI Maintenance Bldg.)	Permanent	CSS
GBA RG 1 - 3047 S. 72nd Street	Temporary	CSS
GBA RG 2 - 11809 Old Maple Road	Temporary	Sanitary
GBA RG 3 - 404 S. 108th Avenue	Temporary	Sanitary
GBA RG 4 - 124 S. Stark Street, Bennington	Temporary	Sanitary
TREKK RG 1 - 2214 Washington Street (SOIA Lift Station) (2 months) 30th & Babe Gomez Avenue (Metro College) (3 days) 4916 S. 24th Street (P&M Hardware) (3 months)	Temporary	CSS
TREKK RG 2 - 2214 Washington Street (SOIA Lift Station)	Temporary	CSS

Table 4-2: Permanent Flow Monitoring Sites

Location	Pipe Size	Longevity	Purpose
0225352 6900 Ames Avenue	30-inch circular	Permanent	Sanitary
0225354 6900 Ames Avenue North	12-inch circular	Permanent	Sanitary
0225354 6900 Ames Avenue Southwest	21-inch circular	Permanent	Sanitary
0265099 8019 Cass Street	42-inch circular	Permanent	Sanitary
0293022 1501 N 85th Street	36-inch circular	Permanent	Sanitary
0297005 3020 Keystone Drive	24-inch circular	Permanent	Sanitary
0302017 8769 Browne Street	30-inch circular	Permanent	Sanitary
0390004 10875 West Dodge Road	30-inch circular	Permanent	Sanitary
0699028 6303 L Street	66-inch circular	Permanent	Sanitary
0719008 4949 South 66th Plaza	72-inch circular	Permanent	Sanitary
0726052 402 Rose Blumkin Drive	60-inch circular	Permanent	LP Interceptor Study
0839020 10800 Leavenworth Street	54-inch circular	Permanent	Sanitary
0941005 4131 S 143rd Circle	48-inch circular	Permanent	Sanitary

Location	Pipe Size	Longevity	Purpose
0942004 4526 S 140th Street	30-inch circular	Permanent	Sanitary
1141001 - 16226 Harney Street	18 inches	Permanent	Sanitary
1141017 - 323 S 166th Street	30 inches	Permanent	Sanitary
4001001 15705 Harlan Lewis Road	9-foot by 9-foot box	Permanent	Sanitary/CSS
4026001 - 25th & Hwy 370	96-inches	Permanent	Sanitary
4051002 11820 Harry Andersen Avenue	60-inch circular	Permanent	Sanitary
4052005 10808 Olive Street	18-inch circular	Permanent	Sanitary
4052015 10900 Harry Andersen Avenue	72-inch circular	Permanent	Sanitary
4052051 11435 S 36th Street	78-inch circular	Permanent	Sanitary
4052060 10808 Olive Street	30-inch circular	Permanent	Sanitary
4062002 8970 S 48th Street	90-inch circular	Permanent	Sanitary/CSS
4079029 - 8001 S 120th Street	30-inch	Permanent	Sanitary
4088200 - 8001 S 120th Street	42 inches	Permanent	Sanitary
MRWRRF- SIFM	48-inch force main	Permanent	Lift Station
0517512 – Leavenworth Diversion	144 inches by 100 inches	Permanent	Lift Station (level only)
0517514 – Leavenworth Interceptor	54-inches	Permanent	Lift Station (level only)

Table 4-3: Temporary Flow Monitoring Sites

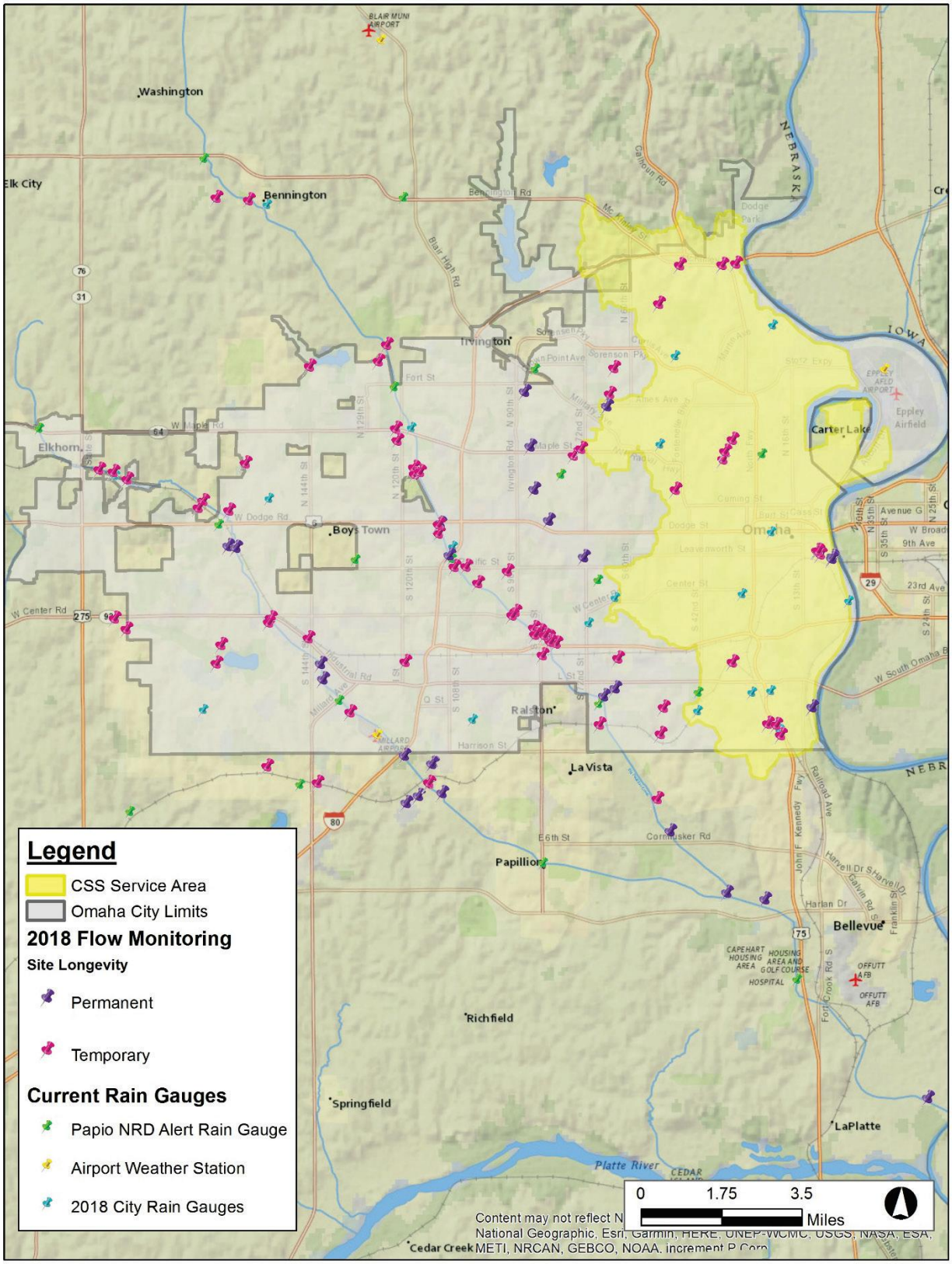
Location	Pipe Size	Longevity	Purpose
0063006 - Dick Collins Road	36 inches	Temp	Post Separation
00711002 - Adams Park Inflow	72 inches	Temp	Inflow Monitoring
00711004 - Adams Park Inflow	84 inches	Temp	Inflow Monitoring
0072363 - Adams Park Outflow (1st meter)	48 inches	Temp	Outflow Monitoring
0072363 – Adams Park Outflow (2nd meter)	48 inches	Temp	Outflow Monitoring
0096029 - 3608 Ohio Street	46 inches	Temp	Post Separation
0114005 - McKinley Street	30 inches	Temp	Post Separation
0138015 - 9229 Mormon Bridge Plaza	24 inches	Temp	Post Separation
0143120 - 1437 N. Saddle Creek Road	15 inches	Temp	Post Separation
0159003 - Forest Lawn Cemetery	10 inches	Temp	Post Separation
0202005 - Grand Avenue and 66th Street	12 inches	Temp	LP 12 I/I Study
0204011 - Orchard Park	15 inches	Temp	LP 12 I/I Study
0390010 - 11201 Davenport Street	15 inches	Temp	BP 20 I/I Study
0420002 - 2110 Papillion Parkway	24 inches	Temp	BP 24 I/I Study
0420005 - 2301 N. 117th Avenue	36 inches	Temp	BP 25 I/I Study
0420081 - 2121 N. 117th Avenue	24 inches	Temp	BP 23, 25 I/I Study

Location	Pipe Size	Longevity	Purpose
0448046 - 12102 Stonegate Drive	24 inches	Temp	BP 27 I/I Study
0449006 - W. Maple and Tranquility Road	15 inches	Temp	BP 29 I/I Study
0456020 - 12221 Mary Plaza	54 inches	Temp	BP 33, 35, 39 I/I Study
0479011 - 12661 Kansas Avenue	30 inches	Temp	BP 32 I/I Study
0516022 - 9th and Jones Street	106 inches	Temp	CSO
0517001 - 9th and Leavenworth Street	144 inches	Temp	CSO
0535077 - 9th and Jones Street	90 inches	Temp	CSO
0569083 - SOIA Diversion Line	24 inches	Temp	CSO
0570202 - PEX Line	42 inches	Temp	CSO
0570355 - 6217 Gilmore Avenue	18 inches	Temp	Post Separation
0663039 - 5224 S. 50th Avenue	12 inches	Temp	BP 4 I/I Study
0665014 - 50th and Jefferson Street	18 inches	Temp	BP 4 I/I Study
0696029 - 6298 Buckingham Avenue	15 inches	Temp	LP 3 I/I Study
0721005 - 5701 S 72nd Street	21 inches	Temp	BP 15 I/I Study
0751061 - 82nd & Grover Street	12 inches	Temp	BP 11 I/I Study
0752001 - 8260 Grover Street	42 inches	Temp	BP 11 I/I Study
0752026 - 7936 Nina Street	10 inches	Temp	BP 8 I/I Study
0752035 - 3618 S 82nd Street	66 inches	Temp	BP 16 I/I Study
0753011 - 84th and UP Railroad	21 inches	Temp	BP 9 I/I Study
0770024 - Conoco Park	8 inches	Temp	BP 10 I/I Study
0770035 - 3052 S 84th Street	12 inches	Temp	BP 11 I/I Study
0770087 - 5890 Frederick Street	15 inches	Temp	BP 12 I/I Study
0787010 - 9106 W Center Road	12 inches	Temp	BP 14 I/I Study
0788056 - Earl May Nursery	12 inches	Temp	BP 13 I/I Study
0804033 - S 103rd, South of Big Papio Trail	21 inches	Temp	BP 15 I/I Study
0821020 - 10322 Pacific Plaza	18 inches	Temp	BP 16 I/I Study
0822004 - 10720 Pacific Street	18 inches	Temp	BP 18 I/I Study
0838063 - 113 N 114th Street	18 inches	Temp	BP 20 I/I Study
0887004 - 4109 S 120th Street	30 inches	Temp	WP 2.2 I/I Study
0926003 - 5225 S 136th Street	54 inches	Temp	WP 7 I/I Study
0958017 - Industrial Road & 144th Street	15 inches	Temp	WP 9 I/I Study
0975053 - 2727 156th Street	24 inches	Temp	WP 13, 14 I/I Study
0975059 - 3131 S 156th Street	42 inches	Temp	WP 12 I/I Study
1054202 - Saddlebrook Dr. & Ellison Avenue	48 inches	Temp	BP 38 I/I Study
1105006 - 2508 N 161st Street	24 inches	Temp	WP 18.2 I/I Study
1144001 - 656 N 164th Street	27 inches	Temp	WP 18.1 I/I Study
1175005 - Zorinsky Lake Trail & 168th Street	18 inches	Temp	WP 3.4 I/I Study

Location	Pipe Size	Longevity	Purpose
1177018 - 16811 Pasadena Ct	30 inches	Temp	WP 10.1 I/I Study
1189006 - 174th Street & Old Lincoln Hwy	18 inches	Temp	WP 20 I/I Study
1189007 - 17223 Seward Street	24 inches	Temp	WP 19 I/I Study
1354001 - S 192nd Street & Spring Street	24 inches	Temp	WP 10.4 I/I Study
1355010 - Lahona Nursery	30 inches	Temp	WP 10.5, 10.7 I/I Study
1368014 – 19615 Old Lincoln Hwy	18 inches	Temp	Sanitary
2293992 - Bennington Road & 157th Street	15 inches	Temp	BP 42, 43 I/I Study
2307005 - Bennington High School	21 inches	Temp	BP 43 I/I Study
4052001 - 118th & Olive Street	60 inches	Temp	WP 4, 5, 6, 8 I/I Study
4052067 - 118th & Olive Street	15 inches	Temp	I/I Study
4066001 - 50th & Robin Dr.	18 inches	Temp	LP 5 I/I Study
4079051 - 14201 Chalco Valley Parkway	27 inches	Temp	WP 3.4 I/I Study
4937009 - 156th & Chandler Road	21 inches	Temp	WP 3.4 I/I Study
0246042 - 7601 Corby Circle	24 inches	Temp	LP-Cole Creek Interceptor study
0247046 - 7306 Maple Street	18 inches	Temp	LP--Cole Creek Interceptor study
0588065 – 2505 Edward Babe Gomez Av	21 inches	Temp	SOIA I & I Study
0602058 – 3301 G Street	12 inches	Temp	SOIA I & I Study
1367001 - 1902 N 192nd Street	8 inches	Temp	Elkhorn I/I Study
1368004 - 19301 Blondo Pkwy	18 inches	Temp	Elkhorn I/I Study
1412019 – 19954 Old Lincoln Highway	18 inches	Temp	Elkhorn I/I Study
0784023 – 1138 S 93rd Street	10 inches	Temp	Shamrock I/I Study

PEX = Packinghouse Express

Figure 4-1: Flow and Rain Monitoring Locations



Modeling Efforts

The City is continuing to use and upgrade its sanitary and CSS model during the implementation phase of the CSO Program. Updates to the model are made on an ongoing basis. The updates occur as additional information in the system is discovered and as the system is modified as the CSO controls are implemented.

In addition to these upgrades, the City reached a significant milestone this year, completing large portions of the effort to provide more detailed information on the CSS in upstream areas of the watersheds/sewersheds. This added detail better allows for the evaluation of the effectiveness of Green Infrastructure and/or stormwater control measures at specific locations up in the system. The model, when originally built, focused on detailed information and calibration at the CSO outfalls and included information on pipes with diameters of 24 inches and larger. The updated model includes pipes with diameters of 12 inches and larger. The updated model will better support decisions on CSO controls and will provide more reliable information on the impacts in the CSO basins where combined and storm sewer systems are operating side-by-side. Major changes included the following:

- Upgrades to the level of detail in the Burt-Izard, Minne Lusa, Leavenworth, South Interceptor, Ohern/Monroe, Cole Creek, and Saddle Creek basins were completed.
- The standard minimum pipe diameter was decreased to 12 inches.
- Subcatchment areas were reduced and the number of subcatchments was greatly increased to match the increased detail in the pipe network.
- Storm and sanitary subcatchments are modeled separately now in the combined sewer focus areas. Storm subcatchment boundaries follow topography, and sanitary subcatchments match census areas.
- Separate storm sewers are modeled in the areas where additional detail was added (Burt-Izard, Minne Lusa, Leavenworth, South Interceptor, Ohern/Monroe, Cole Creek, and Saddle Creek basins).
- Industrial and commercial flows are modeled separately based on water use data. About a dozen large users were previously modeled separately; the updated model includes thousands of separate inputs for these flows, which helps increase the accuracy of the spatial distribution of sewer flows.
- Infiltration is modeled separately based on pipe length and diameter instead of being included in the population-based sanitary flow rate.
- Base sanitary flow rates were updated with the latest long-term average Water Resource Recovery Facility flow rates.
- Planimetric data acquired by the City in 2013 are used in the updated model to determine impervious areas. The improved accuracy resulted in some flow shifting among the CSO outfalls, although the overall CSO volume estimated by the model is about the same. This result shows the importance of obtaining the planimetric data and adding a significant level of detail to the model.

Table 4-4 lists some comparison statistics between the previous and new models, showing the significant amount of detail added.

Table 4-4: Comparison Between Previous and New Model

	Previous Model	Updated Model
Subcatchments (No.)	1,055	12,019
Nodes (No.)	7,690	20,939
Pipes (No.)	7,911	20,294
Pipe Length (Miles)	404	797
Pumps (No.)	41	57
Pumps w/VFD (No.)	13	27
Orifices (No.)	23	31
Sluice gates (No.)	61	92
Weirs (No.)	47	112
Regulators w/real-time controls (No.)	28	28
Flap gates (No.)	27	35
Bar screens (No.)	15	21

Flow monitoring at 51 temporary meter locations was conducted April through August of 2016. Rainfall data were also acquired, and radar processing of the rainfall data was conducted during fall 2016. The flow and rain data were used to check and adjust the updated model's calibration. The calibration effort has been completed for the portion of the CSS in the Missouri River Basin and is nearly complete for the Papillion Creek Watershed CSS. In addition, the updated model was used as a basis to create new LTCP and 2002 Existing Conditions models in the Missouri River Watershed. New versions of those models will soon be created for the Papillion Creek Watershed CSS as well.

In addition to the Program-level work, models of smaller areas are created as part of many of the design efforts for individual projects under the CSO Program. A hydrologic and hydraulic modeling approach technical memorandum is developed by each project's design consultant to ensure consistency with CSO Program goals. The details added to these models are included where deemed appropriate in the City's sanitary and CSS model.

B. Public Participation Plan[3]

The CSO NPDES Permit requires the City to engage in a public participation process throughout LTCP implementation and document public participation activities in this Annual Report.

In spring 2018, the Program Public Participation Coordinator contract was moved under the City's CSO PMT. Public participation continues to focus on engaging and educating the public about the Clean Solutions for Omaha (CSO!) Program.

[3] The information in this section was formerly presented in an attachment.

Community acceptance is one of three CSO! Program goals, along with regulatory compliance and economic affordability. Over the past 8 years, public outreach has evolved to meet the needs of the community. In 2010, when the LTCP was approved, there were more than 90 projects across almost one-fourth of eastern Omaha with a completion timeline of 2024. This has changed to 59 projects to be complete by 2037. Because of the long timeframe for implementation of the program, communications must anticipate an influx of new ratepayers, turnover in neighborhoods, new residents to the City who are unaware of the program, and community meeting fatigue around the required construction.

Initially, dozens of public meetings, a public website, and media attention were important to building public engagement in the CSO! Program. Communications are important, not just in the areas impacted by CSO Projects, but also across the community with ratepayers, elected officials, large industrial users, and businesses. Consistent and transparent communications focused on residents and businesses where projects are in progress continues to build community acceptance. Outreach is an integral part of the Program and each project during design and construction (see Figure 4-2).

Figure 4-2: Contractor Outreach Event for Saddle Creek RTB Project

Omaha's CSO Program has employed an adaptive management strategy for planning and executing the Program. Public outreach has adapted its strategies and tactics to mirror the Program and maximize the effectiveness of public communications. Public information and engagement has several roles—provide a value message to all ratepayers that includes the necessity for new infrastructure and the added community benefits; demonstrate the leadership Omaha has shown in meeting EPA's mandate; develop an ongoing, trusted relationship with the residents and businesses who are impacted by the design and construction of projects; and communicate opportunities for small business and youth to engage in workforce opportunities within the projects.

The public outreach effort is a collaboration between the Program's planning and the implementation of multiple projects. An outreach protocol is designed to keep communications consistent and accurate. The CSO Program has a robust website, www.omahacso.com, which serves as the in-depth library for public information about the Program and projects, and for contractors. Public and stakeholder meetings remain a dynamic way to allow the flow of information between the Program and the public. One best practice being incorporated is frequent interaction with neighborhood associations and alliances, as grassroots communications. By presenting the projects at regular neighborhood meetings there is improved attendance and duplicative meetings are avoided. Over the last year there have been presentations at neighborhood meetings and civic organizations including: the North Omaha Neighborhood Alliance, South Omaha Neighborhood Alliance,

Aksarben-Elmwood Neighborhood Association, Spring Lake Park Neighborhood, Kiwanis; and Cosmopolitan Clubs, Chamber outreach meetings, and others. In addition, a workshop and tour of the Spring Lake Park project was organized for the South Omaha Magnet School's bilingual science class.

The Program created a bilingual display that travels around the city to events, libraries, and other public places to educate and showcase the CSO efforts. In addition, a CSO Hotline is answered live weekdays to address questions from the public and the website has a web e-mail feature for questions.

The CSO Program uses multiple tactics to communicate the story of this major public infrastructure project. One focal point is the website. Features of the site include:

- An interactive map where residents can locate their address and CSO projects in the area
- Construction bid information linked to the City's website
- The LTCP, Program documents, and Annual Reports
- Project descriptions for each project in design, under construction, completed, or planned in the future
- Public meeting notices with a calendar
- A newsroom that provides information resources to media and archives major articles

The website has been a widely used outreach tool. Between October 1, 2017, and September 30, 2018, there were nearly 5,393 unique visitors and close to 23,000 page views. Of people visiting the site, 86 percent were new visitors. To make the communications more engaging, a series of videos have been produced to help tell the story of the CSO Program, its history, accomplishments, and plans for the future. Drone footage and photographs are being used to tell the visual story of progress and completion on many projects. These will be used on the website, in social media, and numerous other communications

Finally, public outreach also works to keep the broadcast, print, and digital media informed about the Program. During the Annual Report year, the Program's earned media is estimated to have reached over 1.3 million people with a value of approximately $186,000. The stories covered green solutions, completed projects, and rate changes.

Public outreach is the connection that educates, engages, and builds relationships between the City, the CSO Program, and the community.

C. Consideration of Sensitive Areas

Sensitive areas include waters with threatened or endangered species and their designated critical habitat, waters with primary contact recreation, public drinking water intakes, and any other areas identified by state or federal agencies. An update of the known sensitive areas was included in the LTCP Update. The CSO NPDES Permit states that the City should provide any changes to the status of previously identified sensitive areas in the Annual Report. No changes were made to the sensitive areas over the last year.

D. Evaluation of Alternatives

The process that the City originally undertook to identify, screen, evaluate, and select CSO control technologies and alternatives for the Missouri River and the Papillion Creek watersheds was included in Section 3, CSO Control Alternatives Evaluation, of the 2009 LTCP (see also LTCP Update.) This process resulted in a group of selected CSO controls that included two retention treatment basins, upgrades to the MRWRRF, replacement of force mains, a deep tunnel for conveyance and equalization, green infrastructure, and sewer separation projects, all of which were anticipated to satisfy the presumption approach of the EPA CSO Control Policy and will not preclude meeting water quality standards.

The CSO NPDES Permit requires any significant changes or revisions to the controls set forth in the LTCP be submitted to the NDEQ by October 1, 2019 (this date was changed in the amended Consent Order to March 1, 2020) for review and approval according to the Part IX (F) Revisions to the LTCP. During the last year the City has started taking steps toward the 2020 LTCP Update by completion of its review of the controls that could affect the Minne Lusa Basin and the overall Missouri River Watershed. This includes the City undertaking several tasks to define future projects or to evaluate potential alternative controls for the Missouri River Watershed, including the DTS Conceptual Development Task and Optimization Evaluation. These tasks and the results of the Technical Assessment for Cost Savings are summarized in this report.

Technical Assessment for Cost Savings

In 2016, the City put the Minne Lusa Stormwater Tunnel System and associated projects on hold pending a re-evaluation of the Minne Lusa Basin. This decision was based on several factors, including cost and operational concerns. The path forward for the Minne Lusa Basin, as communicated to NDEQ in a February 2016 letter, involved the completion of a re-evaluation of the entire basin to determine the most cost-effective way to reduce the volume of combined sewage that overflows at CSO 105.

The re-evaluation, referred to as the Technical Assessment for Cost Savings (TACS) Evaluation, started in early 2017 and was finalized in early 2018. One of the goals of the evaluation was to reduce costs by 20 percent while still achieving a minimum of 85 percent capture for the watershed. The TACS Evaluation was broken into two Phases. The initial evaluation reviewed over 20 alternatives with the focus on evaluating how best to meet the EPA CSO Control Policy requirement of a minimum of 85 percent capture in the Missouri River Basin. Three alternatives were chosen for further evaluation in Phase 2.

Upon review of the alternatives, the City determined that the best alternative included increasing the weir height at CSO 105 and modified use of the Minne Lusa Relief Sewer; both could include real-time active controls. This alternative also includes the construction of the DTS. This alternative reduces the flow significantly from CSO 105, achieves about 86 percent wet weather volume capture for the Missouri River CSS, and results in approximately 8 overflows at CSO 105. This was the first step toward updating the LTCP.

This alternative will be further evaluated as part of the City's efforts to optimize the remaining projects. It is estimated that the City is currently at approximately 70 percent capture based on modeling. The goal of additional evaluations is to ensure the best and

most cost-effective alternative for the last 15 percentage points of volume capture is being implemented. The results of the study were provided to NDEQ on June 27, 2018.

Deep Tunnel System

A Project Definition Report (PDR) was finalized in March 2018 for the DTS, which includes the deep tunnel, near-surface facilities (diversion structure and grit removal facilities), the tunnel lift station and screening facility, MRWRRF RTB, and Omaha Public Power District Substation. The PDR included the following elements:

- Geotechnical – Recommendations and budgeting for future subsurface investigations for the deep tunnel.
- Hydraulics – Tunnel diversion locations, peak flow rates, emergency overflow, development of a tunnel model, tunnel velocities, and surge potential
- Alternative Evaluations – Preliminary tunnel and MRWRRF RTB sizing, de-aeration and tunnel adit connections, wet pit/dry pit versus submersible pump station, and other studies.
- Implementation – Updated project cost estimate, schedule, risk register, construction contract packages, and project delivery evaluation (considerations for alternative project delivery).

After completion of the PDR, and based on the findings and recommendations, conceptual development of the DTS commenced in 2018. This is a 3-year evaluation of the deep tunnel that includes supplemental geotechnical site investigations, selection of a horizontal and vertical alignment for the tunnel, property acquisition assistance, hydraulics updates, a Conceptual Development Document, and Procurement Evaluations (including alternative delivery). In July 2018, the City selected Shannon & Wilson to perform the Phase 1A Geotechnical Site Investigations, which consists of 15 rock borings to be used in the determination of the horizontal alignment for the deep tunnel. This work will commence in November 2018. Once the horizontal alignment is determined, a Phase 1B geotechnical investigation will commence. This will involve additional borings and investigations needed to determine the vertical alignment.

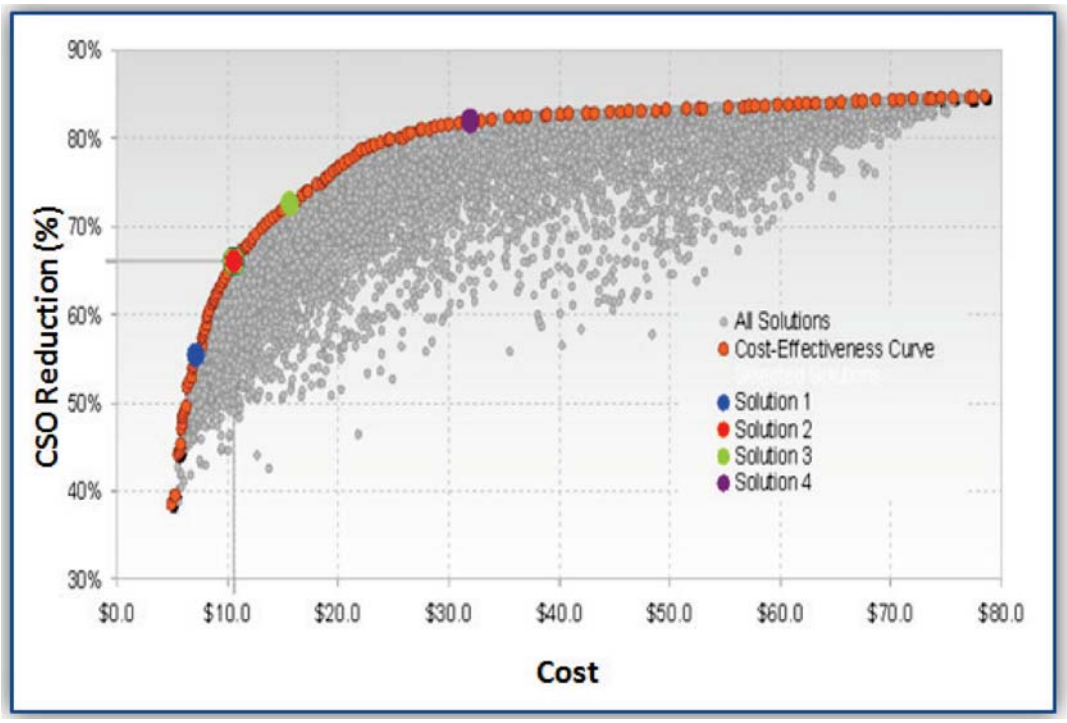
Optimization Evaluation

The LTCP Update calls for the construction of a DTS to provide the additional 15 percentage points of volume capture in the Missouri River Watershed that is required to achieve a minimum of 85 percent volume capture in the representative year as stated in the City's amended Consent Order. The basic components of the DTS include collector sewers, drop shafts, a deep tunnel, a deep tunnel lift station, and a retention treatment basin for high-rate treatment. Because of the significant costs associated with the DTS, an optimization evaluation is being conducted by the City to make sure that the City ultimately follows the most cost-effective and beneficial approach for volume capture. The result of this evaluation could range from maintaining the current DTS concept "as-is" to replacing this concept with a no-tunnel combination of other improvements, or some combination thereof.

The optimization evaluation will employ the Program's InfoWorks Model, combined with optimization software called Optimizer. Alternative components will first be identified, using technologies such as sewer separation, conveyance, green infrastructure, storage

tanks, real time controls and retention treatment basins, in addition to various tunnel configurations. These alternative components will be added to the InfoWorks Model. The Optimizer Model orchestrates the InfoWorks model by having it run thousands of combinations of these components to see how they perform, and what they would cost. A huge number of points on a volume-capture-versus-cost graph will be developed, with each point representing an alternative made up of alternative component combinations. An example of this type of graph is shown on Figure 4-3, which displays individual dots for each of the solutions simulated by the model, with the most cost-effective solutions at any given level of CSO reduction or cost shown in color. This type of graph facilitates understanding the tradeoffs between benefit (CSO reduction) changes and related cost changes.

Figure 4-3: Example Graph of Results from an Optimization



About 100 high-priority components have initially been identified, along with about 50 lower-priority components. Out of the 100, about 40 are Green Infrastructure components. Rather than evaluating specific Green Infrastructure components individually, this type of CSO control will be considered collectively through a process that will consider the inflow reduction benefit of reducing the impervious area in portions of the Missouri River Watershed. The other 60 high-priority components will be evaluated in the first round of optimization evaluation. Assuming five sizing or configuration variations for each component, well over 10^35 alternative combinations could potentially be evaluated; however, performing this many evaluations is not practical, though many thousands of evaluations will be performed.

It is currently anticipated that the first round of evaluation will be done in the first quarter of 2019, followed by a second round, then development of detailed costs for the two or three best alternatives. The plan is to finish in time to incorporate the results in the 2020 LTCP Update.

Other Evaluations

There are other tasks that the City will be working on in the October 1, 2018, to September 30, 2019, timeframe. These include performing condition assessments on some of the large sewer pipes that may be important elements of the LTCP and development of a Green Infrastructure Program, among others. These may impact the alternatives included in the LTCP and their status will be provided in next year's Annual Report.

In addition to these areas, the City is implementing an ongoing process that will review the business case for current and future projects to ensure that the projects are appropriate and cost effective to meet the 85 percent volume capture requirement.

Also, as noted in the modeling section, the City has begun to implement an evaluation program of the completed projects to ensure that they are performing as anticipated. These projects will be assessed for their performance and effectiveness at meeting the goals they were designed to achieve. It is also important that the operation of the controls be optimized for best performance, and to verify that the results of the modeling of the controls reflects their actual performance. This is essential to confirming that the final level of control required under the CSO Program is reliably achieved.

The City is scheduled to submit a revised LTCP on March 1, 2020, that includes a revised schedule that reflects these changes and others that are developed.

E. Cost/Performance Considerations

An evaluation of the benefit/cost ratios for CSO control levels and financial capability analysis is included in Section 3, Control Alternative Evaluation, and Section 6, Financial Capability Evaluation, of the LTCP (see also LTCP Update).

The CSO NPDES Permit requires that the City submit a financial report to the NDEQ by October 1, 2019. The report must set forth a strategy to obtain sufficient revenue to fund the CSO program. Sufficient funding means that it must be through at least the year 2024 for the specific projects in the Implementation Schedule, Section 7 of the LTCP and LTCP Update.

The City adopted a new rate ordinance on August 21, 2018. The new ordinance sets sewer use fees for 2019 through 2023. These sewer user fees are based on a rate study performed by the City's rate consultant and consider the Financial Capabilities Assessment that evaluated the burden of the sewer rate increases on the Omaha community, and on various sectors of the community. Based on EPA Residential Indicator calculations, the Financial Capabilities Assessment showed that the overall City and service area experience a Medium Burden as defined by EPA. However, it was also shown that a significant portion of the City (more than 44,000 households) is already well above the High Burden threshold, and this will get worse over time. By reducing the rate of increase in sewer use fees compared with previous forecasts, the City was able to reduce the burden on City ratepayers. However, areas of high financial burden remain. Key factors that allowed the City to implement slightly reduced rate increases include:

- More favorable borrowing terms
- Fund balance validation

- Low interest loans, such as the Water Infrastructure Finance and Innovation Act (WIFIA) loan for the Saddle Creek RTB project and State Revolving Loans for the MRWRRF.
- Updates to CSO cost projections and cost savings

F. Operational Plan

The CSO NPDES Permit requires the City to update the *Monitoring Program and CSO Wet Weather Operations Plan* as CSO controls are constructed and sewers are separated.

A submittal was provided on November 13, 2015, to NDEQ. The Plan included a summary of the anticipated operation of the MRWRRF once the construction is complete (see Figure 4-4). It is important to note that the modifications addressed in the Plan are still under construction and the system as a whole will not be operational until mid-2019. The construction projects will provide for the initial flush from the SIFM during wet weather to be managed in a manner that limits the concentration of ammonia in the CSO 102 disinfection facilities so that disinfection efficiency is maximized as noted in previous Annual Reports.

Figure 4-4: MRWRRF Improvements under Construction

During the Annual Report Period, the SOIA Lift Station wet weather operations were evaluated as there were indications that the facility was not operating as designed. It was found that the lift station was having problems with the operations of the new pumps as well as experiencing higher levels of inflow than anticipated. The City brought in the pump manufacturer and, after several reviews and evaluations, have made several adjustments to the pumps so that they are operating properly. In addition, a review of the flow data suggested that there was more stormwater entering the system than anticipated. A review of the sewer system that contributes to the SOIA Lift Station by the City resulted in the identification of several inlets that needed to be removed from the combined system and connected to the storm sewer. The City has addressed these areas and the initial flow monitoring results suggest that the lift station is now performing as originally designed.

G. Maximizing Treatment at the Existing POTW Treatment Facilities

An evaluation of the feasibility of expanding wet weather treatment at both the MRWRRF and the PCWRRF is included in Section 3 of the 2009 LTCP and the LTCP Update. Major projects included in the LTCP and being implemented during the next few years (including completion of Schedule B2 facilities at the MRWRRF; and design/construction of the Burt-Izard, Riverview, and Monroe Street lift stations) will be major factors in maximizing treatment of combined wastewater at the MRWRRF.

The CSO NPDES Permit requires the City to continue to evaluate opportunities to maximize treatment at the WRRFs as part of the adaptive management strategy for implementation of the LTCP and provide a summary of any new approaches identified to maximize treatment of combined wastewater at the WRRFs in this Annual Report. No new approaches have been identified since the last Annual Report.

The City has contracted with a specialty consultant to help identify opportunities to use technology, such as sensors and real-time controls, to develop possible operational strategies for operation of the collection system in the Missouri River Watershed. The inclusion of this technology is intended to maximize flows to the WRRFs through improved operation of the existing and future controls in the collection system. These strategies will be incorporated into the optimization evaluation and LTCP Update as appropriate.

Projects related to current strategy are discussed in more detail in the relative progress report in the APPRs in Attachment 2. Expansion of the treatment capacity of the PCWRRF has not been identified under the CSO program and falls under the NPDES permit for that facility.

H. Implementation Schedule

The 2009 LTCP Section 7, Implementation Schedule, outlined an implementation schedule that complied with the October 1, 2024 deadline for completing the CSO projects. The 2011 Missouri River Flood constituted a force majeure event that impeded the City's design and construction efforts and impacted the schedules of several projects. As a result of the 2011 Missouri River Flood, a modified deadline of October 1, 2027 was put into effect.

On January 17, 2018, NDEQ approved a 10-year extension to the CSO Consent Order, resulting in a final completion date of October 1, 2037. The need for the extension was based on:

a. Uncertainty as to how component projects within the LTCP can be funded in the future
b. Fluctuation in costs of the component projects
c. Unknown physical conditions of soil in the areas where construction is expected to occur
d. Unanticipated limitations in engineering or construction capacities in the area
e. Changes in NPDES requirements and Nebraska Water Quality Standards

This additional time will:

a. Provide the City with additional time to implement the projects
b. Accommodate the DTS design and construction schedule
c. Allow the City to evaluation and optimize the CSO controls currently in place to determine their effectiveness
d. Evaluate the collection system and optimize its operation
e. Integrate both CSO and non-CSO project schedules so that costs and sewer rates are balanced
f. Allow for a more gradual increase in sewer rates

The benefits of the longer time are also reflected in the new rate ordinance. The LTCP Update will provide a schedule that incorporates this additional time to reflect the current completion date of October 1, 2037.

The modified CSO NPDES Permit, October 1, 2015, Part VI. Compliance Schedule for Implementation of CSO Control Projects, lists the construction and sewer separation projects that will be designed, constructed, or operationally completed during the current permit term and the compliance milestones. The CSO NPDES Permit requires the City to include progress reports on implementation of the CSO projects in the Annual Report.

During this permit reporting period, the City continued to implement projects and adhere to the compliance schedule as approved in the LTCP Update and its amendments.

Section V, Compliance Schedule, provides a status update on the implementation of the CSO Major and Sewer Separation projects. Attachment 2 contains an APPR for each of the active projects that are under a compliance schedule.

The LTCP had identified five other projects as system reliability projects to address current and future system support. The implementation schedule is "as necessary and when funding is available." Two of these projects continued final design during this report year: Burt-Izard Lift Station and Riverview Lift Station Improvements, with the Burt-Izard Lift Station project starting construction. A conceptual design was developed for the Monroe Lift Station. The City is currently reviewing the conceptual design and cost estimate to determine next steps.

I. Post-Construction Compliance Monitoring Program

An outline of a post-construction compliance monitoring program is included in Section 8 of the 2009 LTCP Monitoring Program and CSO Wet Weather Operations Plan; in addition, a draft document *Water Quality Monitoring for the Implementation Monitoring Plan (IMP)* was included with CSO NPDES Permit application received by NDEQ on March 29, 2010. As required by CSO NPDES Permit, in-stream monitoring data are provided in Section VII, In-Stream Monitoring Data, and Attachment 5.

V. Compliance Schedule

The purpose of this section is to provide information on the status of the implementation of the LTCP as required both in the City's CSO NPDES Permit and the Complaint and Compliance Order by Consent-August 8, 2007, NDEQ Case No. 2710 (or Consent Order) issued to the City (amended May 30, 2012 and January 17, 2018) as well as the status of the individual or component projects. The most recent amendment to the Consent Order changed the completion date from October 1, 2027, to October 1, 2037, and required an update to the LTCP to be submitted to the NDEQ by March 1, 2020.

The City, through quarterly progress meetings and correspondence, has communicated any potential changes to the schedule. The CSO NPDES Permit sets compliance schedules for this permit cycle based on the LTCP Update schedule and subsequent schedule approval with NDEQ.

During the Annual Report year, the City worked with NDEQ to obtain an additional 10 years for implementation of the LTCP. This will result in a modification to the schedule in the LTCP, which will impact the schedule of future projects but will not affect projects under construction. There will be a small number of projects under design that may be impacted.

A. Implementation Requirements

The requirements for implementation are set forth in the CSO NPDES Permit as well as the Consent Order. Details about each are presented in this section. The CSO NPDES Permit specifically states: "…the City of Omaha shall implement the compliance schedule [as listed in the Permit] for construction projects set forth in the Long Term Control Plan (LTCP). This schedule may be modified in accordance with NDEQ Title 119 and written notice from the NDEQ. The City of Omaha shall include a yearly summary of construction activities, actions, and other measures applicable to this compliance schedule in the Annual Report."

These requirements are achieved though the summary tables and figures in this section as well as through the APPRs in Attachment 2. As stated in the CSO NPDES Permit, the following definitions shall apply to compliance schedule dates. The italicized wording has been added in this Annual Report to provide additional clarification:

- Bid Year – The year when the bidding process for a specific project is started. *This will be noted in the tables below as "bidding" date and corresponds to the day the project was advertised for bid. This compliance action only applies to Sewer Separation Projects.*
- Begin Final Design – The date when a Notice to Proceed is issued to a design consultant, or in the case of a design that is completed by City staff, the date when work is started by City staff. *In some projects, an amendment to the original contract for Preliminary Design will serve as the date the Final Design began.*
- Commence Construction – The date the Notice to Proceed is issued to the construction contractor.
- Complete Construction – When a major project or sewer separation project is substantially complete. *For Sewer Separation as well as Major Facility Projects, substantial completion is issued to the construction contractor. For Major Projects*

"Completion of Construction" is when the project is considered "Operationally Complete" as defined below.

- Operationally Complete – When a Major CSO project is substantially complete, is ready for its intended use, and has been made ready to operate by the City. *For Sewer Separation Projects in general, the "complete construction" and "operationally complete" date will be the same date.*

Consent Order Directives

In addition to the current CSO NPDES Permit, implementation and reporting requirements for this Annual Report are requirements in the Consent Order, which states the report shall contain:

- A statement identifying each component project time frame in the period preceding the initial, or thereafter, the most recent previous report, calling for commencement, completion, implementation or some other action to be taken, and whether and to what extent such action was taken by the City within the respective component project time frame.
- A general description of the work performed pursuant to the LTCP and component project time frame schedule for the period covered by the report and whether it conformed to the LTCP and time frame schedule.
- A statement of any future planned or expected deviations from the LTCP and component project time frame schedule and the reasons for such deviations.

These requirements are achieved through the submittal of the APPRs in Attachment 2. In addition, planned or expected deviations are tracked through an internal CSO Program process to document variations in schedule, scope, or budget. The Change Notifications Requests (CNRs) process includes identifying the reason or justification for a schedule change, potential impacts to related projects or LTCP Phases, and possible mitigation efforts. Current CNRs for the reporting year can be found in Attachment 3.

B. Major CSO Control Projects

Implementation of the Major CSO Control Projects continued in the reporting year. Major CSO control Projects in Phase 1 and 2 are listed in Tables 5-2 and 5-3. These tables cite the action or activity that took place during the reporting period, the LTCP Milestone date facing the project, the actual date the milestone was achieved, and a brief summary on compliance with the LTCP Update schedule. All completed component projects will continue to be included in the Annual Report until the particular phase is completely achieved.

Phase 3 projects were removed from the Permit as well as the LTCP and are no longer tracked or reported on in this Annual Report. The City submitted the required report to NDEQ on June 27, 2018. This report detailed the potential controls for the Minne Lusa Basin as noted in Section IV, LTCP Documentation. The modified schedule as noted in the June 27 letter is shown in Table 5-1.

Table 5-1: Draft Compliance Schedule for the Minne Lusa Basin

Draft Compliance Schedule for the Minne Lusa Basin	Start	Finish
Forest Lawn Sewer Separation Construction	9/1/19	12/31/21
Flow Monitoring of CSO 105	1/1/22	1/1/23
Design of CSO 105 Weir Modifications	1/1/23	6/30/24
Construction of CSO 105 Weir Modifications	7/1/24	6/30/25
Flow Monitoring of the CSO 105	7/1/25	9/30/26
Design of Modifications to Minne Lusa Relief Sewer	10/1/26	10/1/28
Construction of modifications to the Minne Lusa Relief Sewer	10/1/28	3/31/30
Monitoring of CSO 105	4/1/30	9/30/31

The schedule in Table 5-1 is a draft schedule and will be reviewed as part of the development of the LTCP Update due on March 1, 2020.

Phase 4 of the Major Projects have no required activity to report this period and therefore is not included in this Annual Report. See LTCP Update for list of those projects and planned schedules. It is not anticipated that the permit dates for Phase 4 will be met and a permit modification will be requested prior to June 30, 2019, to address this issue. Table 5-4 lists system reliability projects that have had activity, but do not have a specific schedule for construction under the LTCP.

Table 5-2: Phase 1 Major CSO Project Status and Compliance

Major Projects Phase 1: South Interceptor Force Main (SIFM)

CSO Permit Requirement: All projects shall be operationally complete by June 30, 2018

ID	Project Name	OPW Number	Action	*LTCP Milestone Date*[b]	Actual Date	Compliance
1C	South Interceptor Force Main	51873 52223 52222 52134	Under Construction	*6/30/2018*[a]	**1/18/18**	ACHIEVED

Major Project Phase 1: Missouri River Wastewater Treatment Facility Improvements

CSO Permit Requirement: All projects shall be operationally complete by December 31, 2019

ID	Project Name	OPW Number	Action	*LTCP Milestone Date*[b]	Actual Date	Compliance
1D	MRWRRF Improvements	51875 52200 52570 52494 52648	Under Construction	*12/31/2019*	**In Progress**	On Schedule

[a] Extended 12 months because of Force Majeure on geotechnical anomaly

[b] LTCP Milestone Date is the next milestone name and associated date. For Major Projects there are three Milestone dates, start final design, commence construction and complete construction.

Table 5-3: Phase 2 Major CSO Control Project Status and Compliance

Major Projects Phase 2 *CSO Permit Requirement:* Project shall be operationally complete by December 31, 2023						
ID	**Project Name**	**OPW Number**	**Action**	**LTCP Milestone Date[a]**	**Actual Date**	**Compliance**
2C	Saddle Creek CSO 205 – 64th & Dupont Retention Basin	52049	Final Design	*10/1/2018*	**Achieved**	On Schedule

[a] LTCP Milestone Date is the milestone name and associated date with the next milestone. For Major Projects there are three Milestone dates: start final design, commence construction, and complete construction.

Table 5-4: System Reliability Projects - Activity during 10/1/2016 to 9/30/2017

System Reliability Projects *CSO Permit Requirement: NONE; LTCP Critical Milestones: NONE*					
Project Name	**OPW Number**	**Action**	***LTCP Milestone Date[b]***	**Actual Date**	**Compliance**
Burt-Izard Lift Station Improvements	52472	Final Design	*N/A*	**In progress**	N/A
Riverview Lift Station Replacement	52402 52402a 53270[a]	Final Design	*N/A*	**In progress**	N/A
Monroe Street Lift Station Improvements	53082	Preliminary Design	*N/A*	**In progress**	N/A

[a] Includes the Blake Street Lift Station and associated gravity sewer/force main construction contract

[b] LTCP Milestone Date is the milestone name and associated date as noted in Chapter 4 of the LTCP Update. For Major Projects there are three Milestone dates: start final design, commence construction, and complete construction.

N/A = not applicable

C. Sewer Separation Projects

Implementation of Sewer Separation Projects continued in the reporting year. Sewer Separation Phase 1 and 2 are complete and will not be further reported here. Sewer Separation Phases 3 through 6 are listed in Tables 5-5 through 5-8. These tables cite the action or activity that took place during the reporting period, the LTCP target date for a particular action, the actual date if achieved, and compliance with the LTCP Update schedule. Future phases are included only to show if any projects within that phase have taken action during the report year. All completed projects will continue to be included in the Annual Report until the particular phase is completely achieved. During this period, Phase 3 Sewer Separation was completed.

Sewer Separation projects listed in LTCP Update under Phase 7 had no projects with activity in the report year.

Table 5-5: Phase 3 Sewer Separation Projects Status and Schedule Compliance

Sewer Separation Phase 3 *CSO Permit Requirement:* Complete construction on all of the following projects by December 31, 2018						
ID	**Project Name**	**OPW Number**	**Action**	***LTCP Milestone Date*[a]**	**Actual Date**	**Compliance**
3C	Burt-Izard (CSO 108-3B, Nicolas Street Phase 2)	52297	Complete	*12/31/2016*	**6/24/2016**	ACHIEVED
3D	Cole Creek (CSO 204, Phase 1)	51995	Complete	*6/30/2016*	**7/30/2016**	ACHIEVED
3G	Ohern/Monroe (CSO 119-6, Gilmore Avenue Phase 1 & 2)	52184	Complete	*12/31/2017*	**12/21/17**	ACHIEVED

[a] LTCP Milestone Date is the milestone name and associated date of the next milestone as noted in Chapter 4 of the LTCP Update.
For Sewer Separation Projects there are two milestone dates: start bidding and complete construction.

Table 5-6: Phase 4 Sewer Separation Projects Status and Schedule Compliance

Sewer Separation Phase 4 *CSO Permit Requirement:* Commence bidding on one of project on or before December 31, 2016 *LTCP Requirement: Complete Construction of all projects by June 30, 2022*						
ID	**Project Name**	**OPW Number**	**Action**	***LTCP Milestone Date*[d]**	**Actual Date**	**Compliance**
4B	Burt-Izard (CSO 108-3, Nicholas Street, Phase 3)	52721	Preliminary Design	*Commence bidding by 7/1/19*	**In Progress**	On Schedule[a]
4G	Minne Lusa (CSO 105-15, Forest Lawn Separation)	52470	Final Design	*Commence bidding by 3/21/19*	**In Progress**	On Schedule [b] See CNR
4M	Lake James to Fontenelle Park	52658/ 52659	Under Construction	*Complete construction by 12/31/2019*	**In Progress**	On Schedule
4N	South Interceptor (CSO 117-1, Missouri Avenue Phase 2)	51997b	Under Construction	*Complete construction by 12/31/19*	**In Progress**	On Schedule
4P	Papillion Creek South (CSOs 207/208, 42nd & Q)	52257	Under Construction	*Complete construction by 6/1/19*	**In Progress**	On Schedule
4Q	Cole Creek (CSO 204, Phase 2)	52814	Final Design	*Commence bidding by 1/1/2019*	**On hold**	On Hold
4R	Burt-Izard (CSO 108-3, Nicolas & Webster Separation, Phase 2)	N/A	No activity this report period	*Commence bidding by 1/1/2019*	**Not Started**	Delayed[c] See CNR

[a] At the end of the Annual Report year it was anticipated to meet LTCP milestone completion, but has since been delayed.

[b] Slight delay in construction schedule,due to coordination with Metropolitan Utilities District (M.U.D.) but anticipated to meet LTCP milestone completion

[c] Scheduled start of preliminary design was Aug 2017. Currently evaluating need for project. See CNR.

[d] LTCP Milestone Date is the milestone name and associated date of the next milestone as noted in Chapter 4 of the LTCP Update. For Sewer Separation Projects there are two milestone dates: start bidding and complete construction.

Table 5-7: Phase 5 Sewer Separation Projects Status and Schedule Compliance

Sewer Separation Phase 5 *CSO Permit Requirement:* Commence bidding on one of the following projects on or before December 31, 2019 *LTCP Requirement: Complete construction of all projects on or before December 31, 2023*						
ID	**Project Name**	**OPW Number**	**Action**	***LTCP Milestone Date*[a]**	**Actual Date**	**Compliance**
5A	Papillion Creek North 210-2 Inflow Reduction Project	N/A	No activity to report this period	*Commence bidding by 1/1/2020*	**Future** (2018)	See CNR
5B	Cole Creek 204, Phase 3	N/A	Final Design	*7/1/2020*	**In Progress**	On Schedule
5C	Cole Creek 203-1 Sewer Separation	53059	Preliminary Design	*Commence bidding by 7/1/2020*	**In Progress**	On Schedule, See CNR
5D	Cole Creek 202, Phase 1	53059	Final Design	*Commence bidding by 7/1/2020*	**In Progress**	On Schedule, See CNR
5E	Cole Creek 202, Phase 2	53059	Preliminary Design	*Commence bidding by 7/1/2020*	**In Progress**	See CNR
5F	Papillion Creek North 212-1, Separation	51685	No activity to report this period	*Commence bidding by 1/1/2022*	**Future** (2020)	Not Applicable
5G	Papillion Creek North 210-1, Separation	53320	Preliminary Design	*Commence bidding by 1/1/2022*	**In Progress**	On Schedule
5H	Papillion Creek North 211-2, Inflow Reduction Project	N/A	No activity to report this period	*Commence bidding by 3/1/2020*	**Future** (2020)	Not Applicable

[a] LTCP Milestone Date is the milestone name and associated date of the next milestone as noted in Chapter 4 of the LTCP Update.
For Sewer Separation Projects there are two milestone dates: start bidding and complete construction.

Table 5-8: Phase 6 Sewer Separation Projects Status and Schedule Compliance

Sewer Separation Phase 6 *CSO Permit Requirement:* Commence bidding on one of the following projects on or before June 30, 2020 *LTCP Requirement: Complete construction of all projects by September 30, 2027*						
ID	**Project Name**	**OPW Number**	**Action**	***LTCP Milestone Date[b]***	**Actual Date**	**Compliance**
6B	South Interceptor 110-1, Pierce Street	NA	No Activity During Reporting Period	*Commence bidding by 7/1/2020*	**Future** (2018)	Delayed, See CNR
6C	Ohern/Monroe - 119-5A, South Barrel Conversion	53149	Preliminary Design	*Commence bidding by 7/1/2020*	**In Progress**	On Schedule
6D	Ohern/Monroe - 119-5B, South Barrel Conversion	53149	Preliminary Design	*Commence bidding by 7/1/2020*	**In Progress**	On Schedule
6F	Burt-Izard 108-8, 18th & Seward	52721	Preliminary Design	*Commence bidding by 1/1/2021*	**In Progress**	On Schedule[a]

[a] Project is part of Nicholas Street Phase 3, Sewer Separation Phase 5. See CNR.

[b] LTCP Milestone Date is the milestone name and associated date of the next milestone as noted in Chapter 4 of the LTCP Update.
For Sewer Separation Projects there are two milestone dates: start bidding and complete construction.

The Consent Order in Paragraph 29 item b, requires that as part of the Annual Report the City provide, "A general description of the work performed pursuant to the LTCP and component project time frame schedule for the period covered by the report and whether it conformed to the LTCP and time frame schedule." The APPRs provide summary information regarding this objective in Attachment 2. This section addresses the overall status of the LTCP implementation.

Schedule

The schedule for the overall program considers phasing and future financial planning to achieve the goals of the LTCP. Adaptive Management of the LTCP allows for the implementation of lessons learned and the adjustment of scheduling of the projects in the LTCP, with the concurrence and approval of the NDEQ. As noted previously, the City has communicated and will continue to communicate any potential impacts it may have to the scheduling and completion of projects to the NDEQ.

Table 5-9 provides a summary of the status of the milestones as described in the permit and LTCP Update along with subsequent modifications. Anticipated schedules for specific projects have been reported in the APPRs for each active project and can be found in Attachment 2.

As noted in last year's report, modifications to the projects in the permit and the LTCP Update resulted in 60 projects. This includes the removal of several projects in the Minne Lusa basin. A further review of the projects showed that there were actually only 59 projects as the result of inclusion of a project that was not a LTCP Project.

Figure 5-1 shows the count of projects per the LTCP Update with the June 2017 LTCP modifications reflected. Figure 5-2 shows the general status of completed and in-progress projects relative to their stage of study, design, and construction.

Figure 5-1: LTCP Projects Graph by Remaining and Completed

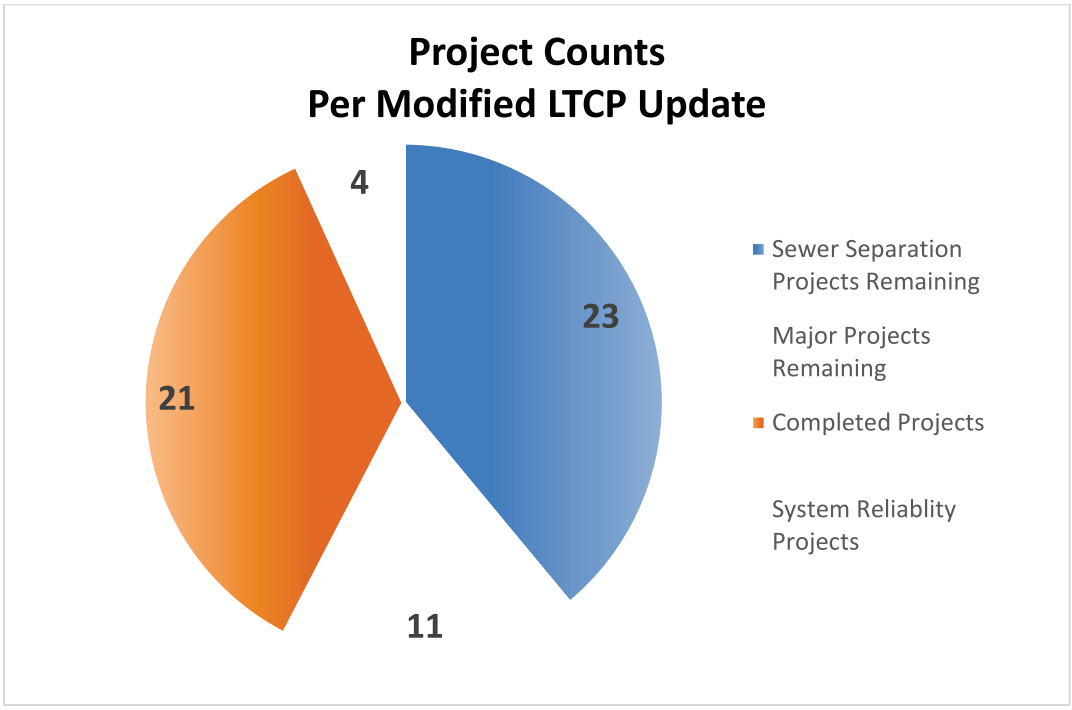
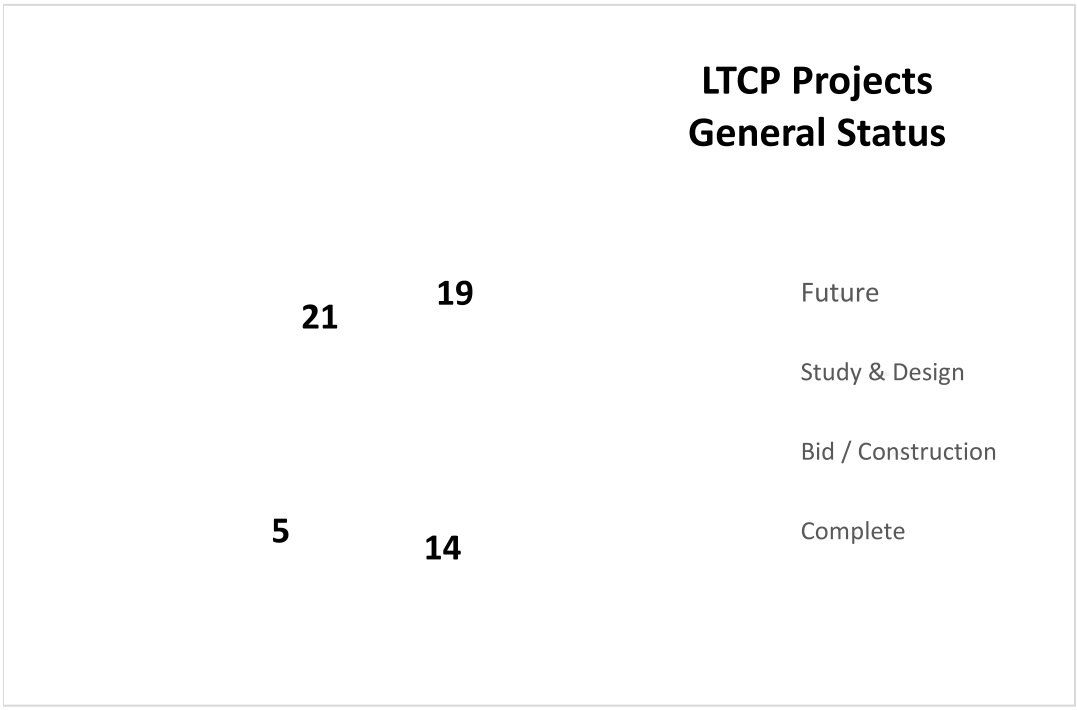


Figure 5-2: LTCP Projects Graph by General Status



In the CSO Permit there are currently 38 projects listed, of which 18 projects with milestone dates are being reported on in this Annual Report. As shown on Figure 5-3, the majority of these projects are active or construction has been completed (two projects were completed within the last year). Of the active projects none are delayed. There are two non-active projects that that have CNRs, which have moved dates into the future (Nicholas Webster Phase 2 and Pierce Street).

CSO 204 Phase 2 continues to be on hold while the City evaluates the best approach for the area. It is anticipated that a revised schedule will be developed and provided in the LTCP Update. The LTCP schedule for this project does not call for it to go to bid until January 1, 2019; with construction complete by December 31, 2020, this project is not yet late.

Figure 5-3: Summary of Compliance Status

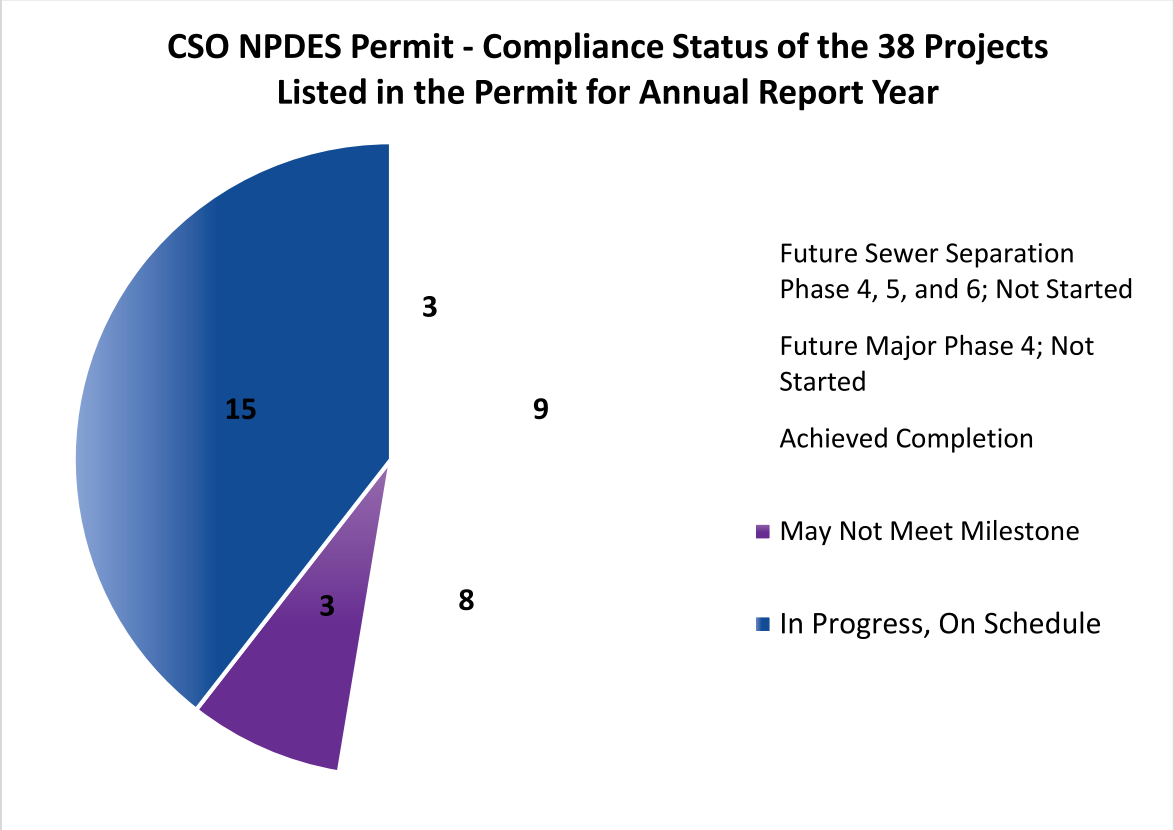


Table 5-9 provides an overview of the status of milestones as noted in the LTCP Update and CSO NPDES Permit. As previously noted, Phase 3 Major Projects has been removed and Phase 3 – Sewer Separation Projects were completed during this Annual Report year. As noted in Table 5-9, a permit modification is being developed for Major Projects Phase 4. As part of the LTCP Update due in 2020 it will be necessary to either adjust milestones or projects within the phases as the result of delayed projects.

Table 5-9: Overview of Status of Phase Milestones

PHASE MILESTONES				
Milestone Name	**Projects**	**Milestone Date**	**Compliance/ Anticipated Date[a]**	**Notes**
MAJOR CSO				
SIFM - Complete Construction	SIFM	30-Jun-18	18-Jan-18	SIFM North is substantially complete. Actual startup of north segment in 2020. South & Central in operation. Letter sent to NDEQ on 6/8/2018.
MRWRRF Improvements - Complete Construction	MRWRRF Improvements	31-Dec-19	*08-Jul-19*	MRWRRF Schedule B2.
Phase 2 - Complete Construction	Saddle Creek RTB, Aksarben Village, Bohemian Cemetery	31-Dec-23	*06-June-2023*	Saddle Creek RTB is the last project to be completed. Final design on the RTB has been completed.
Phase 4 - Begin Final Design of one project	Jones St. to Leavenworth Diversion, Deep Tunnel Lift Station, Deep Tunnel and Drop Shafts, Deep Tunnel Girt Basin Facilities, Conveyance to Tunnel Drop Shafts, CSO 119 - Monroe Storage Basin, CSO 118 - Ohern Storage Basin, MRWRRF RTB, Cole Creek Storage Facility;	31-Dec-19		Permit Modification needed.
Phase 4 – Begin construction of one project	Jones St. to Leavenworth Diversion, Deep Tunnel Lift Station, Deep Tunnel and Drop Shafts, Deep Tunnel Girt Basin Facilities, Conveyance to Tunnel Drop Shafts, CSO 119 - Monroe Storage Basin, CSO 118 - Ohern Storage Basin, MRWRRF RTB, Cole Creek Storage Facility;	31-Dec-23		Date will be addressed in LTCP. Update due in 2020.
Phase 4 – Complete Construction	Jones St/ to Leavenworth Diversion, Deep Tunnel Lift Station, Deep Tunnel and Drop Shafts, Deep Tunnel Girt Basin Facilities, Conveyance to Tunnel Drop Shafts, CSO 119 - Monroe Storage Basin, CSO 118 - Ohern Storage Basin, MRWRRF RTB, Cole Creek Storage Facility;	30-Sep-27		Date will be addressed in LTCP. Update due in 2020.

PHASE MILESTONES				
Milestone Name	**Projects**	**Milestone Date**	**Compliance/ Anticipated Date[a]**	**Notes**
Sewer Separation				
Phase 4, Complete Construction	Lake James to Fontenelle Park; Forest Lawn Separation, Missouri Avenue Phase 2, Nicholas Phase 3, 42nd & Q; CSO 204 Phase 2; Nicholas & Webster Separation Phase 2;	30-Jun-22		Nicholas Webster will be delayed or eliminated and therefore will not meet the date. Date will be addressed in LTCP. Update due in 2020.
Phase 5, Complete Construction	210 Inflow Reduction Project, CSO 204 Phase 3, CSO 202 Phase 1 & 2, CSO 212 Sewer Separation, CSO 210 Sewer Separation, CSO 211 Inflow Reduction	31-Dec-23		
Phase 6, Sewer Separation, Begin Bidding of one project	Pierce St. Sewer Separation, South Barrel Conversion A & B, 18th & Seward	30-Jun-20	*30-Jun-20*	119-5A and 119-5B South Barrel Conversion projects area are on schedule to achieve this date.
Phase 6, Complete Construction	Pierce St Sewer Separation, South Barrel Conversion A & B, 18th & Seward	31-Dec-23		Pierce St. will not meet this date. Date will be addressed in LTCP Update due in 2020.
Phase 7, Sewer Separation, Begin Bidding of one project	Hickory Street Sewer Separation, CSO 204 Phase 4 & 5, Cole Creek Diversions	30-Jun-22		Hickory St. Sewer Separation on Critical Path.
Phase 7, Complete Construction	Hickory Street Sewer Separation, CSO 204 Phase 4 & 5, Cole Creek Diversions	30-Sep-27		Cole Creek Diversions and CSO 204 Phase 5 on Critical Path.

[a] Anticipated dates are in italics

Costs

The City uses various tools to track the costs of the LTCP projects as controlling costs ensures that the program continues to be as affordable as possible for the ratepayers while maintaining the LTCP Compliance schedule. The estimated cost of the program has been escalated using the Capital Infrastructure Plan (CIP) tool developed by the CSO Program. The current cost of the Program with contingencies is $2.12 billion (August 2016 dollars). Rates are in place for 2019 to 2023, as noted previously. The City has been successful in reducing the cost of the remaining cost of the program by 20 percent, with additional savings as a result of the modifications to the controls in the Minne Lusa Basin as noted in Section IV.C, Evaluation of Alternatives.

Through September 2018 the City has paid out $614 million on the implementation of the LTCP. Once the projects currently in design and under construction have been constructed, the City will have spent approximately $1.16 billion (just over half the cost of the program) and will be over 85 percent capture in the Papillion Creek Watershed and about 70 percent wet weather volume capture for the Missouri River Watershed.

Adjustments in schedules and costs of the individual projects within the program are included in Attachments 2 and Attachment 3.

VI. CSO Outfall 102 and 205 Monitoring Data

The CSO NPDES Permit requires a summary of monitoring data from Outfall CSO 102, located at MRWRRF, and Outfall CSO 205, located at 64th and Dupont. Figure 7-1, in Section VII, shows the locations of the CSO outfalls, along with the in-stream monitoring locations.

A. Missouri River Resource Recovery Facility (MRWRRF) – Outfall 102

The Interim Requirements for CSO Outfall 102, as defined in Table 3, Part II of the NPDES Permit, are in effect for this Permit year. The conditions for approved bypass of combined sewer complied with these requirements.

There were 50 overflow events at CSO 102 from October 1, 2017, through September 30, 2018. Results from these events are reported on quarterly discharge monitoring reports submitted to NDEQ. The data for CSO 102 have been summarized in Table 6-1. The value reported for Flow Rate is the average flow rate of all of the events in the reporting period. The value reported for Total Flow is the total of all the events in the reporting period. The value reported for Duration of Discharge is the total of all the events in the reporting period. The value reported for Total Suspended Solids and Biochemical Oxygen is the average concentration of all the events in the reporting period. The value reported for Dieldrin and Polychlorinated Biphenyls are less than 0.0001 milligrams per liter (mg/L), which is the analysis detection limit. The value reported for *E. coli* is the geometric mean of all of the events in the reporting period. The values reported for pH are the maximum and minimum values of all of the events in the reporting period.

Table 6-1: CSO 102 Monitoring

Parameter	Value		Units
Flow Rate	6.63		MGD
Total Flow	331.59		MG
Duration of Discharge	401.20		Hours
Total Suspended Solids	181		mg/L
Biochemical Oxygen Demand	106		mg/L
Dieldrin	< 0.0001		mg/L
Polychlorinated Biphenyls	< 0.001		mg/L
E. coli	1,403,203		No. 100 mL
pH 00400	Min = 7.06	Max = 7.76	Standard Units

MG = million gallons

B. 64th and Dupont Retention Treatment Basin – Outfall 205

The CSO NPDES Permit, Part III specifies Interim Requirements for the Monitoring of CSO Outfall 205. This requirement was originally drafted in the permit to be effective on October 1, 2020. During a Permit modification, effective June 2016, this was changed to January 1, 2024. Additional information can be found in Section IV for flow monitoring update; Section V for LTCP project status and compliance schedule; and Section VIII for CSO occurrences during wet weather.

VII. In-Stream Monitoring Data

The current NPDES Permit requires a summary of in-stream monitoring data consistent with the *Draft-Implementation Monitoring Plan* objectives to include monitoring station identification, stream identification, the list of parameters, and monitoring results. The *Draft-Implementation Monitoring Plan* was originally submitted with the 2009 LTCP and was resubmitted in 2010 with the CSO Permit Modification. It is important to note that although in-stream monitoring was included as part of the *Draft-Implementation Monitoring Plan, March 2010*, it also states in the plan:

> "Although not legally required by state or federal regulations, the City has included in-stream water quality monitoring as part of the water quality monitoring plan. An in-stream water quality monitoring network within portions of the Papillion Creek, its tributaries, and the Missouri River will provide water quality data that benefits both the CSO Program and the Stormwater Program."

A permit modification was accepted by the NDEQ with regard to the City's MS4 NPDES Permit, April 5, 2016 that modified the Program Elements of the Stormwater Monitoring Plan. With that, the in-stream monitoring was removed from the plan, and alternate elements approved.

A summary of in-stream monitoring data is reported in this Annual Report. Figure 7-1 is a map showing the locations of the in-stream monitoring sites. A summary of the data is provided in the following two sections: City In-Stream Monitoring and USGS Sampling and Analysis.

A. City In-Stream Monitoring

The in-stream monitoring for this reporting year was performed by the City's Sewer Maintenance Division. The objectives of the monitoring were twofold: to meet requirements of CSO NPDES Permit and City's MS4 NPDES Permit. However, the MS4 Permit submitted a modification request in March of 2016, which was approved by NDEQ in April 2016, that eliminated an element of the Stormwater Monitoring Plan that included the in-stream monitoring.

Although Sites PC1, LPC1, and BPC4 were eliminated in the new MS4 permit, they were sampled this year. The CSO Program in-stream monitoring sites MR 1, MR2, MR5, CC1, CC2, LPC3, BPC3, PC1, LPC1, and BPC4 were collected by Sewer Maintenance Division staff and analyzed through Midwest Laboratories Inc. in accordance with the Implementation Monitoring Plan. Refer to Table 7-1 for descriptions of each monitoring site. As stated in this plan, the frequency of sampling is as follows:

> "… The in-stream monitoring will be performed during the spring (March 1 to May 31), summer (June 1 to August 31) and fall (September 1 to November 30) seasons. The frequency of monitoring will be twice per season, one of which will be during wet weather."

The results for the wet weather and dry weather sampling for the 2018 reporting period are summarized in Table 7-2. The most apparent conclusion to be drawn from this data is that there is a significant increase in Total Coliform/*E. Coli* during wet weather. The Missouri River sites were also sampled by USGS during this report period as described in more detail in the next section.

Figure 7-1: In-Stream Water Quality Monitoring

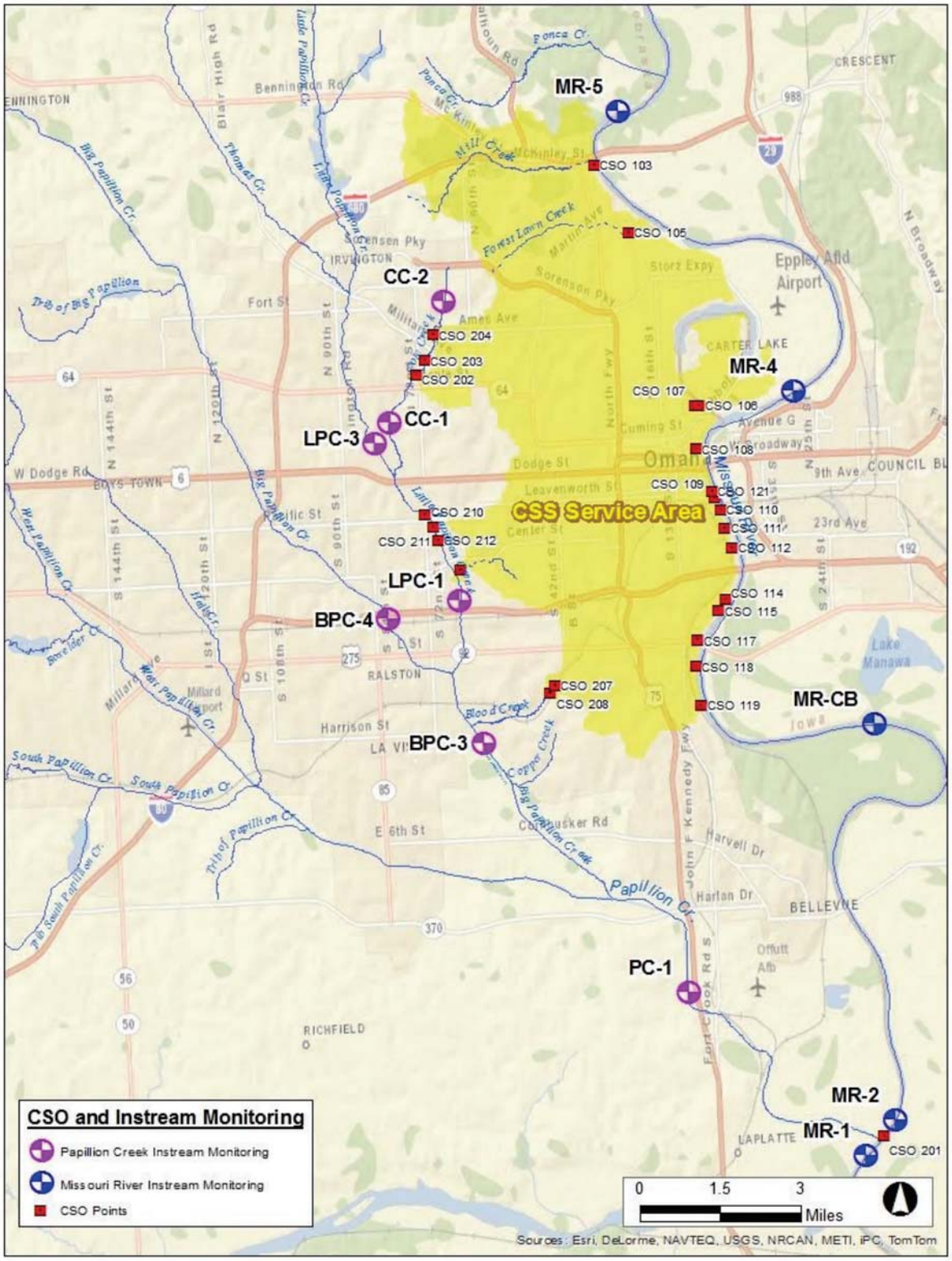


Table 7-1: 2018 In-Stream Monitoring Site Descriptions

Monitoring Station Identification	Stream	Location Description
MR-5 (N.P. Dodge Park)	Missouri River	Upstream of all CSO points
MR-4 (Freedom Park)	Missouri River	Upstream of the confluence with Papillion Creek
MR-CB (Near Council Bluffs, IA)	Missouri River	Downstream of the MRWRRF but upstream of the PCWRRF
MR-1 (Near LaPlatte)	Missouri River	Downstream of the confluence with Papillion Creek
PC-1	Papillion Creek	Downstream of the confluence with Big Papillion Creek
BPC-4	Big Papillion Creek	Upstream of the confluence with Little Papillion Creek
BPC-3	Big Papillion Creek	Downstream of the confluence with Little Papillion Creek
LPC-3	Little Papillion Creek	Upstream of the confluence with Cole Creek
LPC-1	Little Papillion Creek	Downstream of CSO discharges and upstream of confluence with Big Papillion Creek
CC-2	Cole Creek	Upstream of CSO discharge points
CC-1	Cole Creek	Downstream of CSO discharge points

Table 7-2: 2018 City In-Stream Monitoring Results

2018 SEASON 1 - DRY - MARCH 1ST TO MAY 31ST

PARAMETER/SITE	MR - 5	CC - 2	LPC - 3	CC - 1	BPC - 3	MR - 2	MR - 1	LPC-1	BPC-4	PC-1
DATE	4/24/2018	4/24/2018	4/24/2018	4/24/2018	4/24/2018	4/24/2018	4/24/2018	4/24/2018	4/24/2018	4/24/2018
FIELD TEMP, C°	9.40	10.80	14.50	14.30	17.50	10.50	11.40	17.10	15.60	17.60
FIELD CONDUCTIVITY (mMHO/cm)	750	1008	598	1435	576	746	761	636	669	594
FIELD pH	8.54	8.24	8.65	8.55	8.81	9.08	8.60	8.68	8.60	8.82
FIELD DO (%)	86%	88%	89%	116%	124%	89%	86%	127%	115%	123%
FIELD DO (mg/L)	9.80	9.72	9.01	11.91	11.80	9.92	9.37	12.27	11.38	11.68
BOD (mg/L)	3	4	4	5	4	<	3	3	5	4
TSS (mg/L)	138	6	10	5	18	110	124	8	12	12
Total Coliforms (MPN/100ml)	1733	>2419.6	770	816	866	2420	>2419.6	1046	1046	727
E. coli (Cfu/100ml)	60	570	90	90	<	670	1820	50	40	<
Solids or Foam Present?	No	No	No	No	No	No	No	No	No	No

NOTE: SAMPLES FOR MR-5, CC-2, LPC-3, AND CC-1 HAD EXPIRED THE 6 HOUR MAXIMUM TRANSIT TIME FROM BETWEEN 11 MINUTES TO 100 MINUTES.

2018 SEASON 1 - WET - MARCH 1ST TO MAY 31ST

NOTE: FIELD CREW WAS UNABLE TO COLLECT WET SAMPLES DUE TO LACK OF RAINFALL CORRESPONDING WITH LAB WORKING HOURS

PARAMETER/SITE	MR - 5	CC - 2	LPC - 3	CC - 1	BPC - 3	MR - 2	MR - 1	LPC-1	BPC-4	PC-1
DATE										
FIELD TEMP, C°										
FIELD CONDUCTIVITY (mMHO/cm)										
FIELD pH										
FIELD DO (%)										
FIELD DO (mg/L)										
BOD (mg/L)										
TSS (mg/L)										
Total Coliforms (MPN/100ml)										
E. coli (Cfu/100ml)										
Solids or Foam Present?										

2018 SEASON 2 - DRY - JUNE 1ST TO AUGUST 31ST

PARAMETER/SITE	MR - 5	CC - 2	LPC - 3	CC - 1	BPC - 3	MR - 2	MR - 1	LPC-1	BPC-4	PC-1
DATE	8/14/2018	8/14/2018	8/14/2018	8/14/2018	8/14/2018	8/14/2018	8/14/2018	8/14/2018	8/14/2018	8/14/2018
FIELD TEMP, C°	26.80	22.00	24.10	23.60	23.90	26.30	26.70	24.50	23.80	24.50
FIELD CONDUCTIVITY (mMHO/cm)	720	1125	530	731	567	854	837	816	755	724
FIELD pH	8.50	7.77	8.36	8.31	8.44	8.51	8.40	8.14	8.42	8.41
FIELD DO (%)	86%	50%	69%	74%	73%	93%	91%	86%	86%	89%
FIELD DO (mg/L)	6.90	4.37	5.80	6.28	6.14	7.47	7.30	7.14	7.29	7.39
BOD (mg/L)	<	<	8	8	7	2	3	3	2	<
TSS (mg/L)	61	4	72	6	832	38	48	20	74	42
Total Coliforms (MPN/100ml)	727	548	1120	345	201	125	15	17	411	238
E. coli (Cfu/100ml)	4	2900	12400	4300	2900	80	<	170	600	210
Solids or Foam Present?	No	No	No	No	No	No	No	No	No	No

2018 SEASON 2 - WET - JUNE 1ST TO AUGUST 31ST

PARAMETER/SITE	MR - 5	CC - 2	LPC - 3	CC - 1	BPC - 3	MR - 2	MR - 1	LPC-1	BPC-4	PC-1
DATE	8/24/2018	8/24/2018	8/24/2018	8/24/2018	8/24/2018	8/24/2018	8/24/2018	8/24/2018	8/24/2018	8/24/2018
FIELD TEMP, C°	23.60	20.50	22.80	24.10	23.00	25.40	25.30	22.80	22.20	24.40
FIELD CONDUCTIVITY (mMHO/cm)	878	1320	485	978	733	832	820	615	7	677
FIELD pH	8.48	7.86	8.35	8.27	8.34	8.38	8.31	8.33	8.40	8.35
FIELD DO (%)	81%	74%	98%	87%	89%	93%	90%	97%	94%	102%
FIELD DO (mg/L)	6.89	6.64	8.42	7.31	7.60	7.64	7.40	8.36	8.19	8.51
BOD (mg/L)	2	3	11	4	6	<	6	4	4	3
TSS (mg/L)	66	13	174	9	201	77	82	82	115	146
Total Coliforms (MPN/100ml)	10460	648800	>241960	727000	45500	16160	17300	435200	613100	135000
E. coli (Cfu/100ml)	236	22000	16000	8100	14900	570	500	7300	7000	1900
Solids or Foam Present?	No	No	No	No	No	No	No	No	No	No

2018 SEASON 3 - DRY - SEPTEMBER 1ST TO NOVEMBER 30TH

PARAMETER/SITE	MR - 5	CC - 2	LPC - 3	CC - 1	BPC - 3	MR - 2	MR - 1	LPC-1	BPC-4	PC-1
DATE		10/18/2018	10/18/2018	10/18/2018	10/18/2018			10/18/2018	10/18/2018	10/18/2018
FIELD TEMP, C°		11.00	11.60	10.20	10.30			10.00	10.30	10.90
FIELD CONDUCTIVITY (mMHO/cm)		654	626	977	730			749	775	756
FIELD pH		7.88	8.38	8.37	8.23			8.25	8.42	8.50
FIELD DO (%)		81%	95%	79%	83%			99%	96%	89%
FIELD DO (mg/L)		8.91	10.36	8.90	9.31			11.16	10.74	9.80
BOD (mg/L)		2	2	<	<			<	<	2
TSS (mg/L)		5	16	9	81			9	83	33
Total Coliforms (MPN/100ml)		17850	9590	14390	20100			5200	21870	15000
E. coli (Cfu/100ml)		1480	380	872	550			400	380	250
Solids or Foam Present?		No	No	No	No			No	No	No

NOTE: SITES MR-1, MR-2, AND MR-5 WILL NO LONGER BE SAMPLING BY SEWER MAINTENANCE. THESE LOCATIONS ARE BEING SAMPLED BY THE USGS

2018 SEASON 3 - WET - SEPTEMBER 1ST TO NOVEMBER 30TH

PARAMETER/SITE	MR - 5	CC - 2	LPC - 3	CC - 1	BPC - 3	MR - 2	MR - 1	LPC-1	BPC-4	PC-1
DATE	9/25/2018	9/25/2018	9/25/2018	9/25/2018	9/25/2018	9/25/2018	9/25/2018	9/25/2018	9/25/2018	9/25/2018
FIELD TEMP, C°	18.60	17.80	16.90	16.80	17.40	18.10	18.70	17.70	17.70	17.80
FIELD CONDUCTIVITY (mMHO/cm)	526	303	203	207	478	615	611	352	359	707
FIELD pH	8.36	7.66	8.37	8.78	8.48	8.20	8.13	8.16	8.37	8.33
FIELD DO (%)	46%	54%	51%	59%	74%	73%	71%	83%	89%	86%
FIELD DO (mg/L)	4.34	5.17	4.95	5.75	7.10	6.92	6.62	7.85	8.59	8.15
BOD (mg/L)	3	4	8	16	15	3	3	9	9	4
TSS (mg/L)	14	184	872	884	1210	276	172	664	532	388
Total Coliforms (MPN/100ml)	>24196	1733000	>241960	1414000	3730000	36540	48800	920800	547500	135000
E. coli (Cfu/100ml)	2800	10800	23000	29900	28000	1610	1100	22400	31000	22000
Solids or Foam Present?	No	No	No	No	Yes	Yes	No	Yes	Yes	No

B. USGS Sampling and Analysis

In July 2012, the City requested the USGS Nebraska Water Science Center to implement a Missouri River water-quality monitoring program at selected points on the Missouri River near the Omaha metropolitan area. The agreement with USGS has been extended through to 2020, and it is anticipated that continuation of this program will be done in the future. The City has requested that USGS complete a data analysis for the *E. coli* parameter for the samples collected to date. This program is consistent with the *Draft-Implementation Monitoring Plan*. The scope for the USGS work includes the following key components:

1. Provide continuous stage and discharge records for the Missouri River at locations important to the pursuit of understanding the water quality in the river. Continuous stage discharge is provided by the USGS for the Omaha area at the I-480 Bridge gauging station. Data from location at the I-480 bridge can be found at: http://waterdata.usgs.gov/nwis/uv?site_no=06610000

2. Provide monthly discrete water-quality sampling of selected compounds at locations important to the pursuit of understanding on water quality in the river. The four discrete sampling locations are:

   MR-5 USGS Site Number: 412126095565201
   Missouri River at NP Dodge Park (above the City)

   MR-4 USGS Site Number: 411636095535401
   Missouri River at Freedom Park (below the Airport)

   MR-CB USGS Site Number: 06610505
   Missouri River near Council Bluffs, IA (below MRWRRF and above the confluence
   with Papillion Creek, North/East side of the river)

   MR-1 USGS Site Number: 410333095530101
   Missouri River near La Platte (downstream of the PCWRRF and below the confluence with Papillion Creek but above the Platte River)

   Field parameters monitored at these locations include stream discharge, pH, temperature, dissolved oxygen, specific conductance, turbidity, *E. coli* and total coliforms, total suspended solids (TSS), total phosphorous, 5-day biochemical oxygen demand (BOD_5), total Kjeldahl nitrogen (TKN), nitrogen, nitrate, ammonia nitrogen, and floating debris. Table 7-3 provides a range of results for some of the parameters listed at each of the monitoring sites. These results show the general increase in discharge, TSS, total coliform, and *E. coli* as the gauge locations move downstream. In addition, it shows that at times the *E. coli* levels can be very low at times.

   The USGS indicates whether there were wet weather conditions in Omaha or upstream during the sampling event. With the exception of *E. coli* and total coliforms, samples are a composite of the cross section of the stream. Discrete sampling data were collected by USGS staff and analyzed through Midwest Laboratories, Inc. and USGS Labs. Samples were collected from a boat and are based on depth-integrated sampling procedures used by the USGS to obtain samples that represent a composite of the cross section of the Missouri River at the sampling location. In addition to monthly sampling, the City may request specific studies from the USGS as needed. An example is that the USGS is currently collecting samples from the bank that

correspond to the four site locations where they are collecting discrete river samples, to see if a relationship can be developed between the bank cross-sectional stream samples. Starting in 2015, the City asked the USGS to collect two additional discrete samples during the recreational season targeting wet weather events. The City also asked the USGS to code the samples to identify if weather conditions immediately prior or during sampling were dry upstream, wet upstream, dry locally, and/or wet locally. Discrete sampling locations as described are shown on Figure 7-1.

3. Provide continuous monitoring of selected water-quality parameters at locations important to the pursuit of understanding the water quality in the river. USGS obtains continuous data for the Missouri River at the following sites for pH, temperature, dissolved oxygen, specific conductance, and turbidity. All data are provided to the City directly as well as published on the USGS website for the sampling site.

   Data for MR-5 may be found at:
   http://waterdata.usgs.gov/ne/nwis/uv/?site_no=412126095565201

   Data for MR-CB can be found at:
   http://waterdata.usgs.gov/ne/nwis/uv/?site_no=06610505

   Data for MR-1 can be found at:
   http://waterdata.usgs.gov/ne/nwis/uv/?site_no=410333095530101

Results from this effort will provide the City with information to support long-term planning goals and regulatory compliance. Results from these monitoring sites are summarized in Attachment 5. The data from this study could be used to study temporal trends and evaluate water-quality variations during different discharge conditions. This study reinforces the goals of the USGS science direction by providing citizens, communities, natural-resources managers, and policymakers with clearer knowledge of the status of the Missouri River, an increased capacity to discover trends over time, and an improved ability to make decisions about future strategies and policies.

Table 7-3: 2018 USGS Monitoring Parameter Results

Parameter	Monitoring Site (Upstream to Downstream)							
	MR-5 N.P. Dodge		MR-4 Freedom Park		MR-CB Council Bluffs		MR-1 LaPlatte	
	Max	Min	Max	Min	Max	Min	Max	Min
Discharge (cfs)	74,000	25,000	74,700	25,000	75,500	25,000	76,400	25,000
Temperature (^{0}C)	26.3	0	26.4	0	26.4	0	26.4	0.1
Dissolved Oxygen (mg/L)	13.5	6.5	13.5	6.3	13.3	6.2	13.2	6
BOD5 (mg/L)	6	2	4	2	4	2	6	2
pH	8.4	7.9	8.4	8	8.4	8	8.4	7.9
TSS (mg/L)	328	22	368	15	484	33	716	35
E. Coli (MPN/100 mL)	1,600	17	5,500	27	6,700	13	25,000	11
Total Coliform (MPN/100 mL)	24,000	1,200	24,000	1,100	160,000	880	240,000	2,200

°C = degrees Celsius
cfs = cubic feet per second
MNP = most probable number

VIII. Performance Report

As stated in the CSO permit, Part VIII, Section E, the performance report consists of A) reporting the number of times each CSO outfall has an overflow and an evaluation as to whether the controls are achieving their design intent; B) providing documentation that demonstrates that each CSO overflow occurrence was the result of a wet weather event; and C) once in the term of the Permit, providing the percent by volume of the combined sewage collected in the CSS during precipitation events on a systemwide annual average basis that is eliminated or captured for treatment.

A. CSO Occurrence Inspection

Per *Combined Sewer Overflow Guidance for Nine Minimum Controls* (EPA, 1995), "The municipality should record the number of CSO overflows at as many outfalls as feasible." The City maintains records of CSO overflow events at a majority of the outfalls in the system. As a result of access or safety considerations, the outfalls are not monitored at the discharge point to the receiving stream, but rather in an upstream diversion structure. The City maintains a block program also commonly referred to as CSO device checks. Under this program a "block" or device is placed as a simple physical indicator that an overflow has occurred. A typical arrangement would be the placement of the device on the top of a weir wall in a CSO diversion structure. The occurrence of an overflow is indicated when the device is moved off of the weir wall in the downstream direction.

CSO occurrence is not tracked at CSO 119 per the block program. This discharge point is just upstream of the Monroe Lift Station and historically has not had a device at the diversion structure as the result of extreme hazardous atmospheric conditions and difficult accessibility. The CSO Permit application included this fact and reported this detail in subsequent Annual Reports. Reporting the number of CSOs at each outfall is a requirement of this Annual Report. The City does not have that accounting for CSO 119. However, the City acknowledges the need to attempt to meet this requirement and has begun an evaluation to do so. The following are additional facts:

- The invert elevation of the outfalls at the Missouri River are almost always under the river level elevation and an overflow device placed here would not result in certainty.
- The South Barrel will always outfall storm water during a rain event.
- The Monroe diversion structure previously received all the SOIA packing house waste. Once the SOIA Lift Station came online, operating as designed, the Monroe diversion structure began to only receive combined wet weather and high strength waste in greater than a 10-year event. A volume of flow would divert to the Monroe Lift Station for pumping to MRWRRF for treatment. Flow in excess of the Monroe Lift Station capacity would then overflow to the CSO.
- To understand this potential overflow occurrence, the City does monitor the diversion overflow line upstream of the SOIA Lift Station, approximately 1 mile upstream of Monroe Lift Station, and coordinates with Monroe Lift Station Operations and wet-well level readings.

- Routine visual inspection of the discharge point was incorporated earlier this year for floatables and other signs of dry weather CSOs . Other upstream diversions on the South Barrel are visually inspected for routine maintenance needs to prevent dry weather CSOs.
- LTCP system reliability project for Monroe Lift Station Improvements conceptual design was submitted and is in review. This project will incorporate better flow monitoring.

The City has incorporated simple visual inspections at other diversions structures upstream of the outfall. Periodic inspections are completed to check for dry weather CSO occurrence. Monroe Lift Station operations staff report to Sewer Maintenance Division when wet-well levels reach the max height of 12.5 feet. This is level is approximately 8 feet below elevation of the weir wall at the diversion and will trigger a dispatch of crews to visually inspect the outfall and record if a CSO is occurring during wet weather. For the report year, the wet-well level registered 11.34 feet as its highest reading in 15-minutes increments on August 20. It is inconclusive if this resulted in a wet-weather CSO discharge. In the coming year, the City will look for future monitoring opportunities to account for all wet-weather CSO discharges at this location.

City procedure is to inspect the designated CSO structures and devices after rain or snow melt events and make a record of the inspection in the bypass tracking database if there is evidence of an overflow. City procedures were revised to meet requirements of the new permit starting October 1, 2015. City personnel are dispatched within 24 hours of wet weather occurrences, including weekends and holidays, to meet current permit requirements. The inspections are performed and documented by the Sewer Maintenance Division. Routine PM checks at the lift stations and control gates also allow for a check for occurrence of CSOs. The water resource recovery facilities are responsible for recording the number of occurrences for CSOs 102 and 201. With the exception of CSO 102, all of the visual observations are logged into a single database maintained at the Sewer Maintenance Division.

During the report period, City staff logged 1,886 total CSO checks; 1,449 were post-rain and snowmelt checks, and the remainder were payday checks (every 2 weeks) for potential dry weather occurrences. There were a total of 437 routine inspections recorded for 23 of the CSO points that the City is able to check. Dry weather CSOs are reported in Section III.D.

Table 8-1 shows the counts of wet weather CSOs in the reporting year as confirmed by the CSO visual checks procedure, meter data at CSO 109, or MRWRRF reports. There are occasional visual inspections performed where multi-day rain or snowmelt events were only counted once in the tracking database. The tracking for CSO 102 is based on daily records, so multi-day rain or snowmelt events are logged each day for this CSO only, potentially leading to a higher count at this location. The Missouri River had higher than normal levels for the period of late June through the end of the reporting period on September 30. During that period from late June through September, there were 51 days with rain events, 30 of which had rain greater than 0.1-inch. The CSO occurrences during this period, including the very large storm event on August 20, 2018, could not be verified with visual inspections and are therefore not accounted for in Table 8-1. The CSO locations in the Papillion Creek Basin reflect a CSO frequency as high as 57, while the CSO locations

along the Missouri River show a frequency that is much lower than values reported in previous years as a result of the high river level precluding visual inspections.

Table 8-1: Wet Weather CSO Occurrences

CSO Outfall	CSO Frequency	Water Quality Sample Required[a]
Missouri River Watershed		
102	50	Yes
103	1	N/A
105	26	N/A
106	35	N/A
107	32	N/A
108	37	N/A
109	43	N/A
110	12	N/A
111	11	N/A
112	38	N/A
114	11	N/A
115	13	N/A
117	17	N/A
118	44	N/A
119	[c]	N/A
121	33	N/A
Papillion Creek Watershed		
201	1[b]	N/A
202	42	N/A
203	51	N/A
204	51	N/A
205	57	Not required until 2024
207	42	N/A
208	16	N/A
210	37	N/A
211	14	N/A
212	31	N/A

[a] As required by CSO NPDES Permit.

[b] The bypass gate to allow a CSO at 201 was opened on August 20, 2018, for a period of 11 minutes. The river level was too high to
allow bypassing, and river flow was taken into PCWRRF, so the gate was closed. It is unlikely any flow actually bypassed.

[c] CSO 119 was not monitored for CSO frequency under the block program because of unsafe conditions.

B. Evaluation of Completed Controls

The CSO NPDES Permit requires reporting annually as to whether the controls are achieving their design intent. When CSO Controls are completed as identified in the LTCP, the City monitors the effectiveness of that control.

CSO 102; CSO 119. The South Omaha Industrial Area Sewer Separation (SOIASS), the SOIA Lift Station, and the South Omaha Industrial Area Force Main and Gravity Sewer projects have been completed. The objective of these projects was to eliminate the overflow of high-strength waste streams occurring during wet weather periods that are less than or equal to the 10-year design storm to the City's CSS.

Currently, six industrial facilities deliver high-strength flows via the PEX sewer to the SOIA Lift Station, where they are pumped to industrial primary treatment facilities at the MRWRRF.

During the report year, the City has continued to perform flow monitoring. Mapping of the contributing system is continuously being updated as new field findings show changes. Several sources of inflow have been addressed during this reporting period: 1) a few curb inlets from a 2014 public improvement area had inadvertently been connected to the PEX system; these inlets were redirected to a storm sewer in May 2018; 2) the private property large area drain connected to the PEX system identified last year was separated in the spring. With these changes and flow monitoring results showing improvement, a large system smoke testing project for the SOIA area was placed on hold.

During the flow monitoring period, a 10-year 24-hour storm was recorded on August 20, 2018, at the rain gauge closest to the SOIA Lift Station. No overflow occurred at the SOIA Lift Station during the storm, indicating that the recent projects eliminated significant sources of inflow and the goal set in the LTCP for the SOIA Lift Station has been achieved.

CSO 211; 69th & Pierce. A few inlets are still connected and are planned for inclusion in the Sewer Separation Project for CSO 212 as part of Phase 5, which is scheduled to begin in 2022 according to the LTCP. The field study for the next separation project started in fall 2018. This area has improved greatly in that for every five rain events of 0.1-inch or greater, only one has resulted in an overflow. Prior to sewer separation and the weir improvement, overflows occurred during almost every rain event of at least 0.1-inch. The City will continue to monitor this CSO.

CSO 103; Bridge Street Lift Station. The 36th Street and McKinley sewer separation project was completed in November 2014. A small isolated sanitary system evaluation survey was completed and GIS was updated with the finding of no storm sewer cross connections during the report year. An exposed pipe in Mill Creek was stabilized and may have reduced a source of I/I. Several I/I sources remain in the system as identified through CCTV. A potential lift station upgrade or replacement has been under consideration for a future project. Additional I/I reduction projects are also under consideration. The objective in the LTCP is to deactivate this CSO outfall pending verification of effective inflow reduction and additional monitoring. This CSO discharged only once during the report period, which previously averaged about 11 overflows per year. The City will continue to monitor this site for potential CSO deactivation to support the goals of the CSO Program.

C. Wet Weather CSO Occurrences

The CSO NPDES Permit requires that documentation is provided in the Annual Report that demonstrates that each CSO overflow occurrence was the result of a wet weather event. If there is a CSO discharge that occurred during dry weather, this will be reported in Section III.D, Prohibition of CSOs during Dry Weather.

Documentation is provided in Attachment 4 to demonstrate that each CSO overflow occurrence was the result of a wet weather event. The rainfall during the report year was about 37 inches. When compared against the average annual rainfall of 31 inches, this was a heavier-than-average rainfall year. The highest-impact storm was on August 20, 2018, at approximately 6.8 inches in 29 hours, or approximately a 50-year recurrence interval. This storm varied in intensity spatially within the service area, as it is the same storm previously discussed as a 10-year event in the vicinity of the SOIA Lift Station.

Attachment 4 identifies the CSO outfall inspected, the date and time, and the person who completed the inspection. It provides the reason for the overflow, whether an overflow occurred, and if it was still occurring. Comments and the rainfall amount are noted. The depth of flow at CSO 205 is also recorded as per City procedure.

The City reviews available rain data during the year and compares to the results of the inspections. The MRWRRF is responsible for recording and reporting wet weather discharges from CSO 102. There were 50 days with overflows at CSO 102. The City uses this accounting as an additional check for the other CSOs. If there is another CSO with a greater frequency than at CSO 102, City staff will take a closer look at the data and perform quality assurance queries to confirm the CSO occurred during a wet weather event.

Part of procedure is to check against Eppley Airport rain data, which registered 165 days with precipitation; this total includes days with only trace amounts. Of that, 69 of the recorded rain events were 0.1-inch or greater. The highest frequency of CSO occurrences of 57 is within this rain event count.

As a result of the spatial variation of rain, the number of occurrences and amount of rain recorded at Eppley is only used as a starting point of reference. On dates where only trace amounts are recorded by Eppley, a comparison to the City-maintained rain gauges in the CSS area is performed and corrections are made to the tracking database to more accurately represent rainfall totals.

D. Percent by Volume Captured

The CSO NPDES Permit requires that once in the term of the Permit, the City should provide the percent by volume of the combined sewage collected in the CSS during precipitation events on a systemwide annual average basis that is eliminated or captured for treatment. The percent by volume eliminated or captured will be determined in a future Annual Report within the permit term. It is anticipated that the evaluation will be completed for submission in the 2019 Annual Report.

IX. Other Information

The CSO NPDES Permit, Part VII.F, suggests that the City could include other information on measures of success for the Program such as reduction in the number of overflow events, reduction in the number of CSO outfalls, or other indicators or improvements of receiving water quality.

This year's report includes information on the reduction in overflows and CSO outfalls, receiving water quality, and associated benefits of the program. At the request of the NDEQ Waste Management Division, a section is included for Materials Management within the CSO Program projects.

A. Reduction in the Number of Overflow Events

As CSO LTCP projects are implemented, the number of overflow events will reduce. To date in the program, the City has performed work to eliminate the occurrence of CSO at three permitted outfalls: CSO 209, CSO 104, and CSO 113. Of the remaining 26 outfalls, the level of reduction in the number of overflow events will vary because of:

- The type of control that is being established for a given CSO point through the implementation of the LTCP
- The point in time when the control of a CSO point will be fully implemented as a part of the LTCP
- The unpredictability and varied nature of wet weather that impacts the magnitude, volume, and duration of the overflows at a given CSO point

The monitoring of the overflows will help the City track the progress of and understand the success of the LTCP and its projects as they are being implemented. As more projects come online, a system to report the compliance monitoring associated with the CSO program will be developed in cooperation with NDEQ.

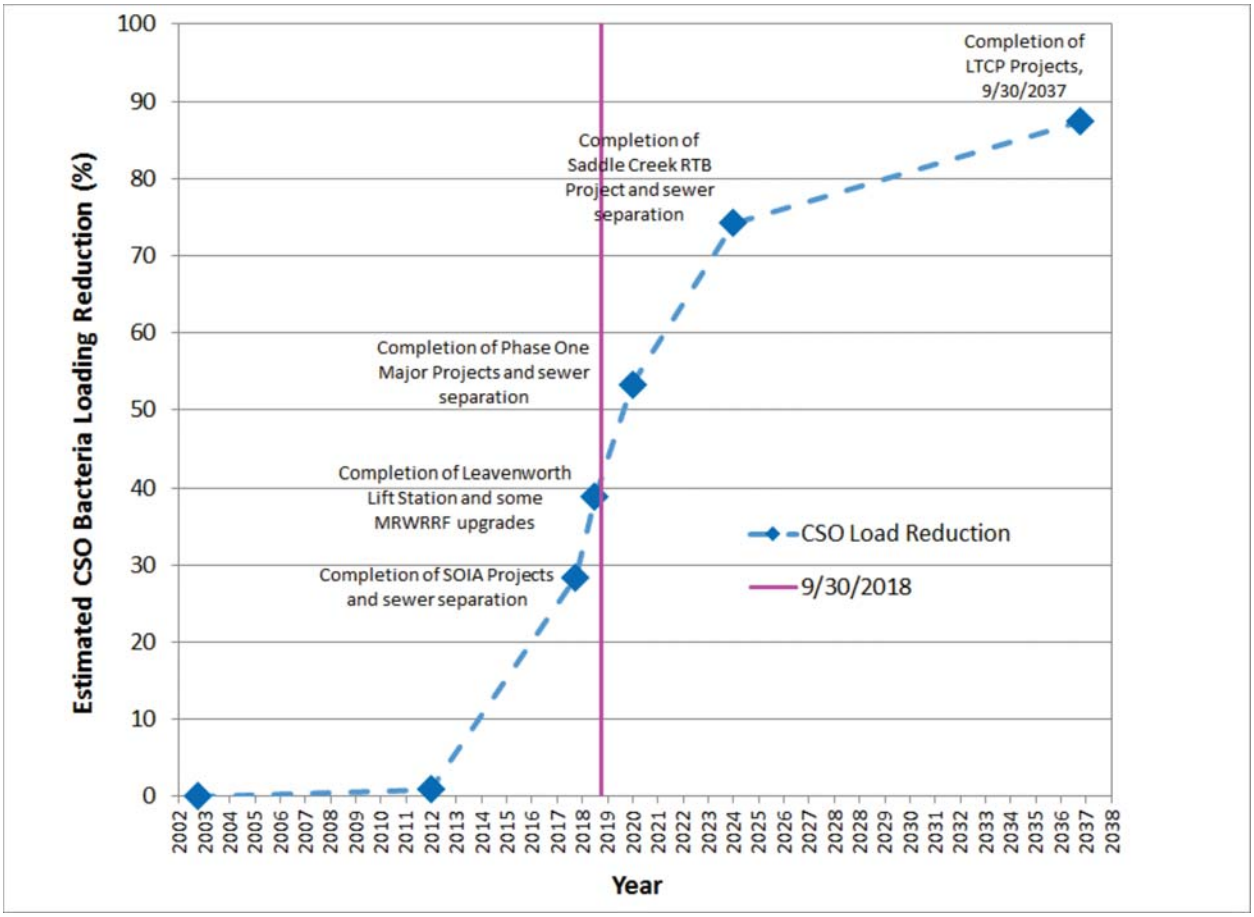
B. Reduction in the Number of CSO Outfalls

During this report year there has been no reduction of CSO outfalls. CSO Outfall 103 is currently actively being evaluated for deactivation. Projects for CSOs 202, 202, 207, 208, and 210 are currently underway and may result in deactivation of these CSOs in the future.

C. Receiving Water Quality

Figure 9-1 shows the expected reduction in *E. coli* resulting from the implementation of the LTCP, based on the 2014 LTCP Update. A significant reduction in *E. coli* load to the Missouri River occurred with the implementation of the SOIA Lift Station, Force Main, and Gravity Sewer and the MRWRRF Schedule A improvements. Another major reduction will occur when the SIFM and associated lift station projects and MRWRRF Schedule B projects currently under construction are completed.

Figure 9-1: Modeled E. coli Reduction over LTCP implementation



D. Additional Public Benefits of the Program

For each Program construction project, the City evaluates opportunities to improve, enhance, or replace adjacent infrastructure within the Project footprint. Program projects that involve the installation of new or upgraded sewer, street surfaces, and utilities represent an opportunity to potentially improve nearby features and adjacent infrastructure. These are tracked by the CSO PMT. Since the Program's inception, the following items have been concurrently installed or replaced to benefit the surrounding community:

- 410 equivalent city blocks of street paving
- 136,000 LF of gas and water utility infrastructure
- 869 driveway approaches
- 489 equivalent city blocks of improved sidewalks
- 1,139 ADA-compliant curb ramps
- 76 acres of park and open space enhancements
- 7,043 LF of recreational trails
- 1,973 new trees

In addition to helping meet CSO goals, these enhancements provide long-term community benefits that are realized as CSO Program construction projects are completed (see Figure 9-2).

Figure 9-2: Spring Lake Park Multiuse Pond

E. CMOM Gap Analysis and Related O&M Activities

The City conducted a CMOM Gap Analysis in late 2017 and early 2018 using the EPA checklist to document the progress of CMOM-related activities in the wastewater collection system over the last decade. This CMOM Gap Analysis, which included over 40 hours of interviews of City staff from several departments and divisions, resulted in the identification of gaps to be addressed over time. These gaps were organized into a series of potential initiatives that were prioritized at a high level by City staff in the Public Works Department, Environmental Services Divisions. This work is documented in the *CMOM Gap Analysis Summary* report (CH2M, 2018).

In addition to this CMOM Gap Analysis, the City's progress was significant and major O&M related activities documented over the last decade are summarized below:

- Conducted 2007 CMOM Gap Analysis project as part of the initial CSO Program work.
- Developed the CSO Program's LTCP and continued to implement several sewer separation and WRRF projects that have produced significant level-of-service improvements and added capacity to the collection system and WRRFs, reducing CSO volume and frequencies, sewer backups, and street flooding.
- Continued work on implementation of NMCs specified in EPA's CSO guidance.
- Improved policies/protocols/standards/procedures/processes:
    - Established and refined protocols for collection system field investigations.
    - Updated several standard policies/protocols/standards/procedures/processes for design and construction activities implemented (and continuing to be refined) as part of

the CSO Program. These updates include field investigations, contracting, communications, design standards, construction contract documents, design review quality assurance, risk, cost estimating, environmental protocols, and construction management.

  - Developed preferred list of materials and providers for pumps and other specialized equipment.
  - Updated collection system PM processes and made plans for more PM process updates in 2019.
  - Improved SSO and CSO tracking, documentation, and annual reporting.
  - Updated Sewer Use Ordinance and Service Agreement standard language and made plans for more updates in coming years as Service Agreements expire and are renegotiated.
  - Continued progress integrating backlog of historic as-built plans into GIS. Improved processes for routing as-built drawings from the Public Works Construction Division to the Sewer Maintenance Division GIS staff for updating GIS sewer lines and sewer nodes and digitally scanning as-builts for permanent record retainage in City's archives.

- Increased understanding of the collection system.
  - Implemented technology (hardware, software, and processes) and documentation improvements such as increased use of and access to digital data collection and processing techniques for asset management and planning purposes.
  - When conducting field investigations, collected sewer asset condition data in a database format that can be integrated into GIS and Cityworks AMS for coordination with work orders and field activities. Sewer Maintenance Division continues to manage field investigations through a limited number of contractors who are managed directly by Sewer Maintenance staff instead of subcontracted to multiple design consultants. This process has improved efficiency and data quality.
  - Increased extent and variety of data, level of detail and quality, and availability of GIS data for the collection system, while managing an expanding and aging system.
  - Used contracted services to continue efforts to reduce the backlog for updating the sewer GIS data with as-built information.
- Implemented several flow and rainfall monitoring projects to improve understanding of system capacity and planning.
  - Implemented major flow monitoring programs in 2007, 2008, 2010, 2016, and 2018. Flowmeters were installed in 12 locations in the CSS area from mid-April through mid-September 2018, and analysis of these data is ongoing.
  - Installed and continued to maintain temporary and permanent rain gauges.

  - Installed and continued to maintain permanent flowmeters in several locations.
  - Coordinated with Papio-Missouri River NRD for use of NRD's rain gauge network along with several temporary and permanent City-owned and maintained rain gauges.
  - Updated Papillion Creek Sanitary Sewer System Master Plan in 2009 and 2015, and made plans to update again as needed.
- Conducted multiple major updates to the systemwide InfoWorks hydrologic and hydraulic collection system models.
  - Progressively updated combined and sanitary sewer system hydrologic and hydraulic models. Model updates included additional details such as siphons, lift stations, variable speed drives for pumps, and real-time controls for gate operations.
  - The CSS area model now includes pipe details for 12-inch-diameter and larger pipes. In the separate sanitary sewer areas, 24-inch-diameter and larger pipes are included.
- Developed draft Fats Oil and Grease (FOG) Program Manual.
- PM optimization by Sewer Maintenance Division
  - Used GIS to group similar work and combine schedules.
  - Started a PM CCTV program to assess pipelines that have been on perpetual PM schedules with no PM basis.
- Implemented SSES projects.
- Continued to implement 5-year PM cleaning cycle on smaller-diameter (less than or equal to 15 inches in diameter) sewers to reduce SSO and sewer backup potential. Met annual goal of cleaning approximately 20 percent of small-diameter sewers per year.
- Continued to use SMAs as sub-sewersheds for the sewer system for organizing, planning, and prioritizing maintenance activities and understanding capacity.

F. Material Management

During the 2018 reporting year, waste material including building demolition materials, concrete, and soil were taken to landfills in the area from construction of capital projects associated with the CSO Program. The City monitors and tracks contaminated waste materials and soils and uses this report to update the NDEQ Waste Management Division.

Several projects commenced or continued construction in 2018, but only a few generated excess soil or waste material that required disposal in a landfill. These projects and the volume of soil or waste material disposed are presented in Table 9-1. With the exception of one project, all of the soil and waste material were disposed of at the Pheasant Point Landfill.

No hazardous waste was disposed in 2018.

As part of the design process, additional environmental and geotechnical investigations occurred on a variety of projects. All of the cuttings were disposed in accordance with all applicable rules and regulations.

Additionally, to provide the Contractor with the necessary guidance and protocols to manage and dispose of soil and groundwater generated during the implementation of the LTCP Program, the City collaborated with NDEQ to develop an NDEQ approved Materials Management Plan for Soil and Groundwater for the CSO Program. This Plan was approved by NDEQ in April of 2012 and amended in July of 2013 and is referenced in the Project Manual of the Construction Documents.

Table 9-1: Volume of Waste Disposed during LTCP Projects

LTCP Project	OPW Number	Material Taken to Landfill	Material Taken to C&D Landfill
Spring Lake Phase 2 - Missouri Ave CSO 117	51197B	Pheasant Point: 9,566 tons (refuse, debris, and soil)	0
Gilmore Avenue Sewer Separation –Phase 1	52184	Pheasant Point: 261.79 tons (refuse, debris, and soil) Sarpy County: 22.86 tons (debris)	0
Gilmore Avenue Sewer Separation –Phase 1	52184A	Pheasant Point: 6.27 tons (refuse and debris)	0
MRWRRF Improvements – Schedule B2	52642	Pheasant Point: 165.34 tons (refuse, debris, wood, paper/cardboard, and plastic)	0
Lake James to Fontenelle: Fontenelle Park Lagoon Improvements	52658	Pheasant Point: 7.18 tons (refuse, debris, and soil)	Hawkins C&D Landfill: 24 tons (C&D material)

X. Works Cited

Brown and Caldwell. 2006. Sewer System Operation and Maintenance Manual for Sewer Maintenance Division. Updated January 2018.(in attachment 1 text)

CH2M HILL Engineers, Inc. (CH2M). 2018. *Capacity, Management, Operation, and Maintenance (CMOM) Gap Analysis Summary*. March.

City of Omaha (City). 2009. *Long Term Control Plan for the Omaha Combined Sewer Overflow Control Program*. October 1.

City of Omaha (City). 2014. *Update to the Long Term Control Plan for the Omaha Combined Sewer Overflow Control Program*. October.

U.S. Environmental Protection Agency (EPA). 1995. *Combined Sewer Overflows - Guidance for Nine Minimum Controls*. Guidance Document 832-B-95-003. May.

U.S. Environmental Protection Agency (EPA). 1999. *Combined Sewer Overflow Technology Fact Sheet -Maximization of In-line Storage.* Guidance Document 832-F-99-036. September.

Attachment 1 – O & M Procedure Updates and Revisions Summary

The O & M procedures, as documented in the *Sewer System Operation and Maintenance Manual for Sewer Maintenance Division* (Brown & Caldwell, 2006), had the following updates:

- Appendix B: CSO Station & Monitoring Device Procedures and Locations
- Appendix F: Cover Sheet of CSO Station Procedure Manual, updated January 2018
- Appendix I: Jetting Work Order System - Updated 2017

Appendix B

CSO STATION AND MONITORING DEVICE PROCEDURES AND LOCATIONS

ALL CSO LOCATIONS ARE CHECKED EVERY OTHER WEEK ON PAYDAYS AND WITHIN 24 HOURS OF ANY WET WEATHER EVENT. ALL STATIONS WITH MANUALLY CLEANED BARSCREENS ARE TO BE CHECKED PRIOR TO ANY RAIN EVENT AND IMMEDIATELY FOLLOWING THE RETURN TO NORMAL OPERATION OF THE NORTH INTERCEPTOR, GRACE, BURT-IZARD AND LEAVENWORTH STATIONS.

EQUIPMENT AND STATIONS ARE CHECKED AT LEAST ONCE DURING THE WORK WEEK, MONDAY THROUGH FRIDAY.

			Equipment and Stations	CSO Device Check (routine)	CSO Device Check (WW)
BRIDGE ST	CSO 103		Levee Crew	Sewer Tech	Sewer Tech
MORMON ST (DEACTIVATED)	CSO 104		na	na	na
MINNE LUSA	CSO 105		Levee Crew	Sewer Tech	Sewer Tech
NORTH INT DIV	CSO 106		Levee Crew	Sewer Tech	Sewer Tech
GRACE DIVERSION	CSO 107		Levee Crew	Sewer Tech	Sewer Tech
BURT IZARD	CSO 108		Levee Crew	Sewer Tech	Sewer Tech
6TH LEAVENWORTH	CSO 109		Levee Crew	Sewer Tech	Sewer Tech
PIERCE	CSO 110		Levee Crew	Sewer Tech	Sewer Tech
HICKORY	CSO 111		Levee Crew	Sewer Tech	Sewer Tech
MARTHA ST	CSO 112		Levee Crew	Sewer Tech	Sewer Tech
SPRING ST (DEACTIVATED)	CSO 113		na	na	na
GROVER	CSO 114		Levee Crew	Sewer Tech	Sewer Tech
RIVERVIEW	CSO 115		Levee Crew	Sewer Tech	Sewer Tech
MO AVE	CSO 117		Levee Crew	Sewer Tech	Sewer Tech
SO OMAHA/OHERN	CSO 118		Levee Crew	Sewer Tech	Sewer Tech
JONES ST	CSO 121		Levee Crew	Sewer Tech	Sewer Tech
72ND BEDFORD	CSO 202	*	Levee Crew	Sewer Tech	Sewer Tech
69TH EVANS	CSO 203	*	Levee Crew	Sewer Tech	Sewer Tech
61ST TAYLOR	CSO 204	*	Levee Crew	Sewer Tech	Sewer Tech
63RD PRATT	CSO 204	*	Levee Crew	Sewer Tech	Sewer Tech
66TH AMES (NEW)	CSO 204	*	na	Sewer Tech by FM	Sewer Tech by FM
64TH DUPONT	CSO 205		Levee Crew	Sewer Tech	Sewer Tech
43RD & R ST	CSO 207	**	na	Sewer Tech	Sewer Tech
45TH & V ST	CSO 208	***	na	Sewer Tech	Sewer Tech
44TH & HARRISON ST	CSO 209	(DEACTIVATED)	na	na	na
66TH & BLONDO	CSO 210		na	Sewer Tech	Sewer Tech
66TH & PACIFIC	CSO 211		na	Sewer Tech	Sewer Tech
64TH & WOOLWORTH	CSO 212		na	Sewer Tech	Sewer Tech

* CSO SITES LOCATED IN THE BENSON AREA

** THIS CSO CHECK ALSO REQUIRES AN INSPECTION OF MH 0644082 FOR DEBRIS. (Coordinate a service truck as needed)

*** THIS CSO CHECK ALSO REQUIRES AN INSPECTION OF MH 0645025 AND CHECK OF DEVICE IN DITCH (END OF CORRUGATED METAL PIPE SEWER NODE #045036F)

DRY WEATHER CSOs PROHIBITED - INSTRUCTIONS TO PREVENT

ENSURE THE GATES ARE OPEN

CHECK FOR OBSTRUCTION BETWEEN GATE, DRY WEATHER SANITARY LINE, AND THE GRIT PIT

IF UNABLE TO CLEAR THE OBSTRUCTION, THEN CALL SEWER MAINTENANCE FRONT DESK 402-444-5332 IMMEDIATELY

THIS WILL INITATE A SERVICE REQUEST: NEED TO RECORD WHO MADE DISCOVERY, WHO WAS NOTIFIED, DATE, TIME, OBSERVATIONS

IF OVERFLOWING WITHIN 24HRS OF STORM EVENT, SUBMIT OBSERVATIONS TO COMPLIANCE DESIGNEE FOR REPORTABLE DETERMINATION

ALL DRY WEATHER CSOs REQUIRE IMMEDIATE REPORTING AND MITIGATION EFFORTS

NOTIFY DIVISION MANAGER, 402-444-5265 AND COMPLIANCE DESIGNEE, 402-444-7136

THESE RECORDS ARE SUBJECT TO AN SEMI-ANNUAL REVIEW FOR REVISIONS

REVISED 10/2018

Appendix F

COMBINED SEWER OVERFLOW STATION PROCEDURE MANUAL

FOR

SEWER MAINTENANCE DIVISION

CITY OF OMAHA, NEBRASKA

REVISED JANUARY 2018:
DIVISION RESPONSIBLE CHANGED

SEPTEMBER 2017

SSOMM Appendix I
City of Omaha Sewer Maintenance Division Area
Jetting Work Order System -Updated 2017

The City of Omaha is comprised of two major drainage systems, the Missouri River and Papillion Creek watersheds. The Missouri River watershed covers the eastern third of the City. The Papillion Creek watershed covers the remainder of the drainage area within the City limits, and is further divided into three sub-basins, the Little Papio, Big Papio and West Papio.

Within each of these four major basins are smaller drainage areas. These drainage areas are identified with a prefix and a number. The prefix identifies the watershed such as "**MR**" for Missouri River, "**LP**" – Little Papio, "**BP**" – Big Papio and "**WP**" – West Papio. Within each major drainage sub-division exists one or more **S**ewer **M**anagement **A**reas that are comprised of approximately 20 to 35,000 linear feet of sewerlines.

For example; Major Basin **MR** is subdivided into 10 drainage subdivisions. MR-4 is an example of an MR drainage subdivision. Within the MR-4 drainage subdivision exist 25 **S**ewer **M**anagement **A**reas appropriately titled MR-4.1 through MR-4.25.

Area jetting work orders are created per Sewer Management Area, and each accounts for interconnected SMA flow direction within their drainage subdivisions. Work order project maps are then created to represent 2,500 to 3,500 linear feet of sewerlines to be sequentially cleaned within each SMA.

Major Basin: **MR** **(Image1)**
Drainage subdivision: **MR-4** **(Image 2)**
Sewer Management Areas (1 thru 25): **MR-4** **(Image 3)**
Sewer Management Area MR-4.7: **Work Order Projects: A1 thru A9** **(Image 4)**

Image 1

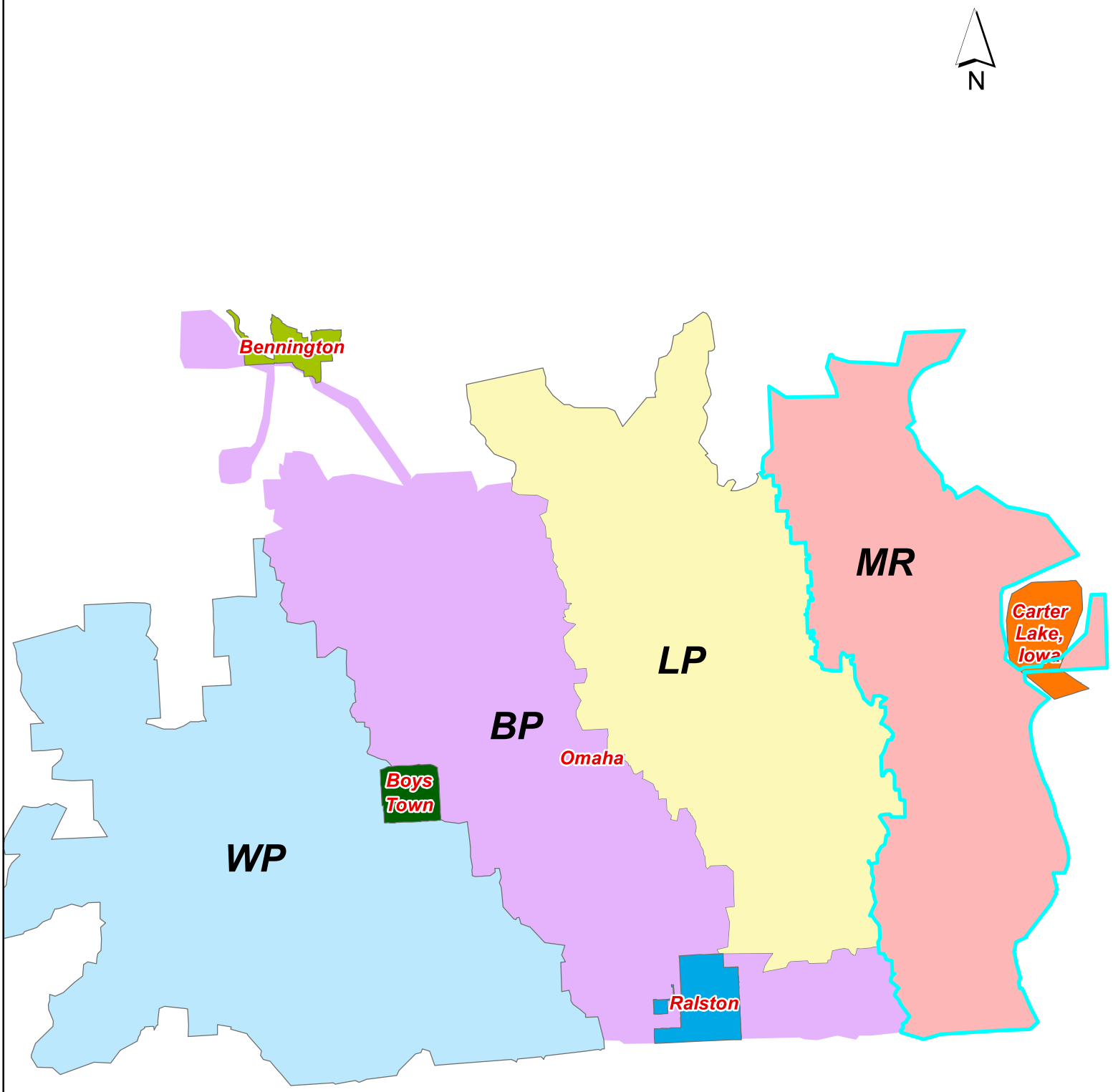
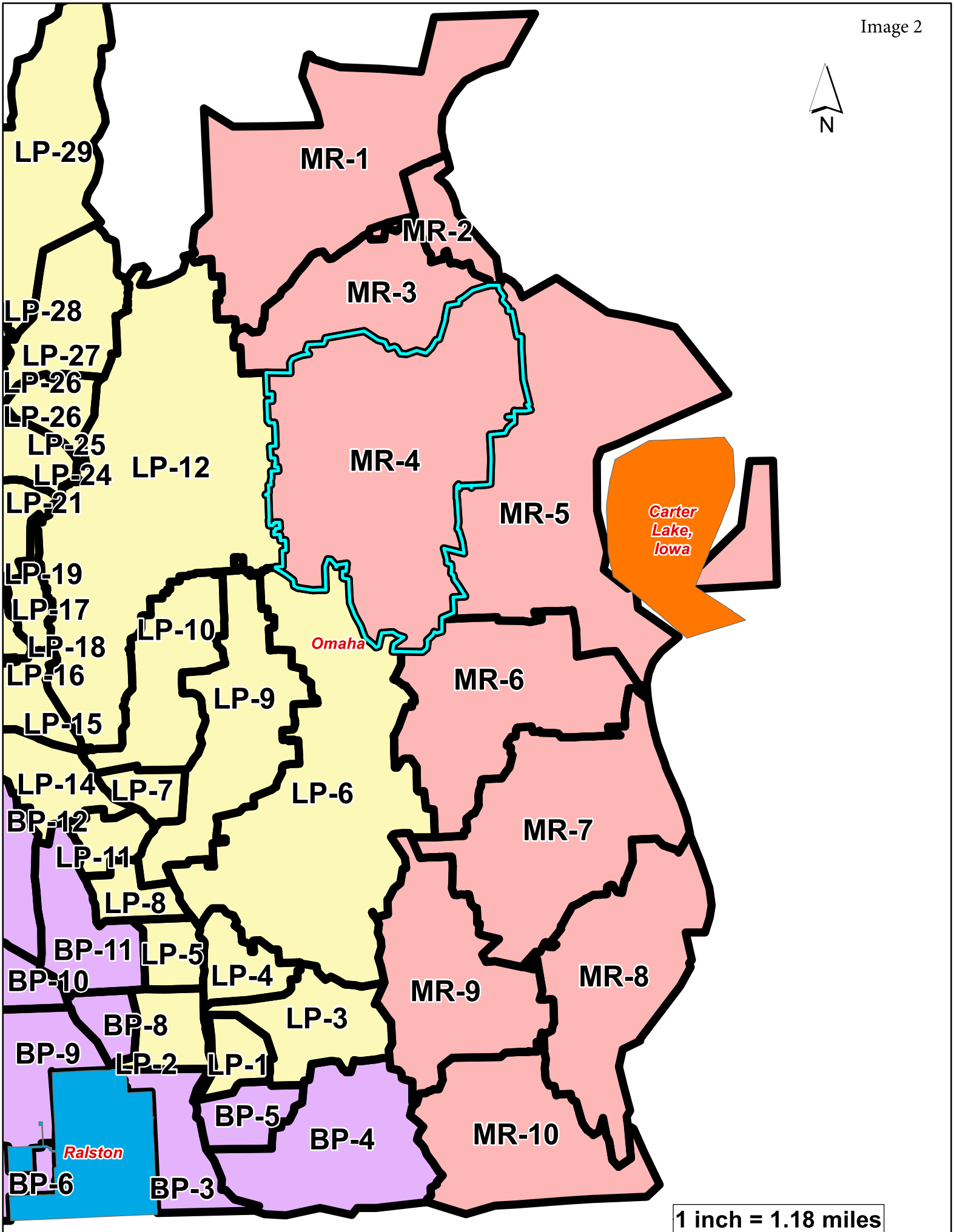

N
Bennington
MR
Carter Lake, Iowa
LP
BP
Omaha
Boys Town
WP
Ralston
1 inch = 2.37 miles

Image 2


N
LP-29
MR-1
MR-2
MR-3
LP-28
LP-27
LP-26
LP-26
LP-25
LP-24
LP-12
LP-21
MR-4
MR-5
Carter Lake, Iowa
LP-19
LP-17
LP-10
LP-18
Omaha
LP-16
MR-6
LP-9
LP-15
LP-14
LP-7
LP-6
BP-12
MR-7
LP-11
LP-8
BP-11
LP-5
LP-4
BP-10
MR-9
MR-8
BP-8
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Ralston
BP-6
BP-3
1 inch = 1.18 miles

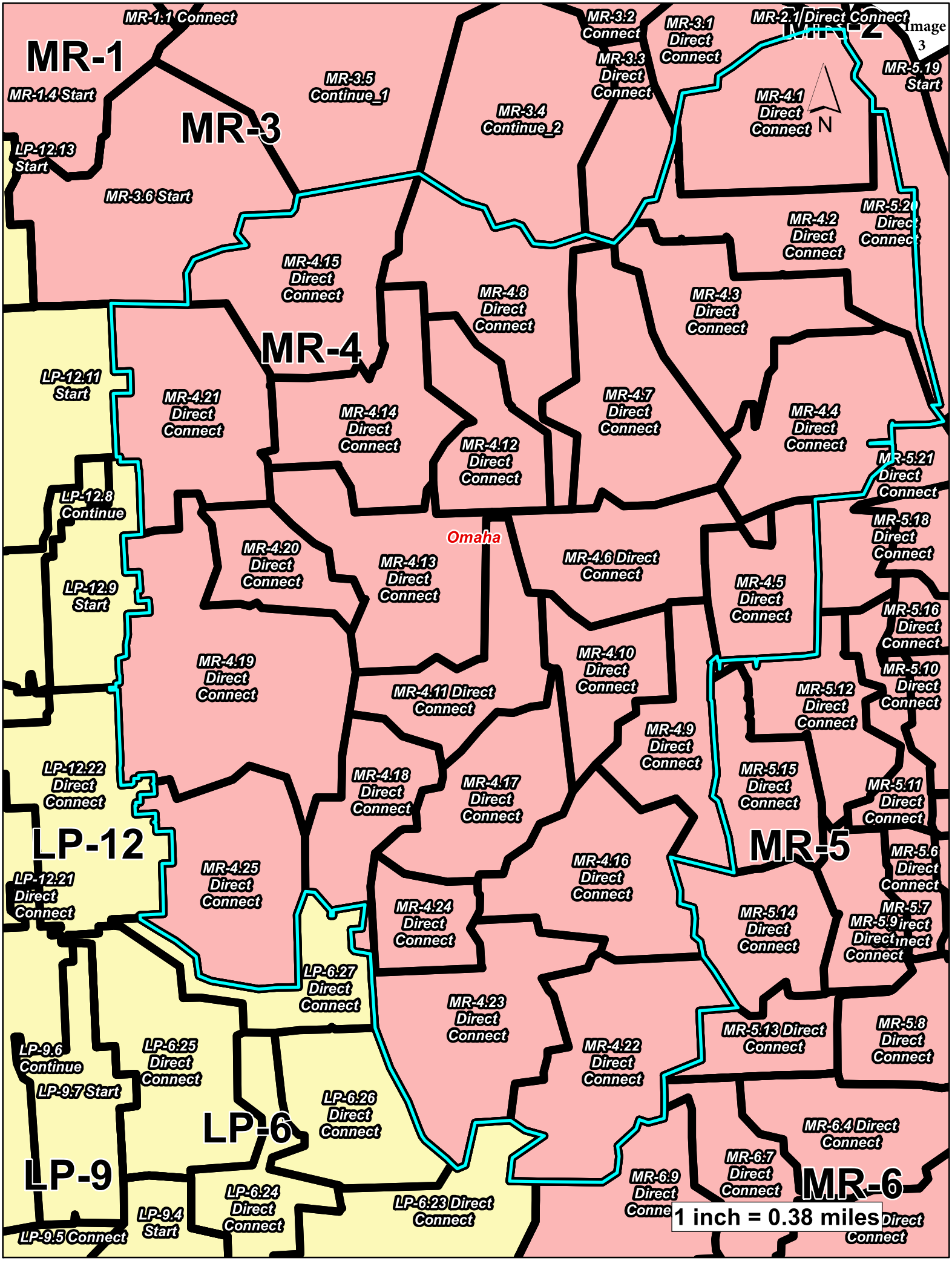
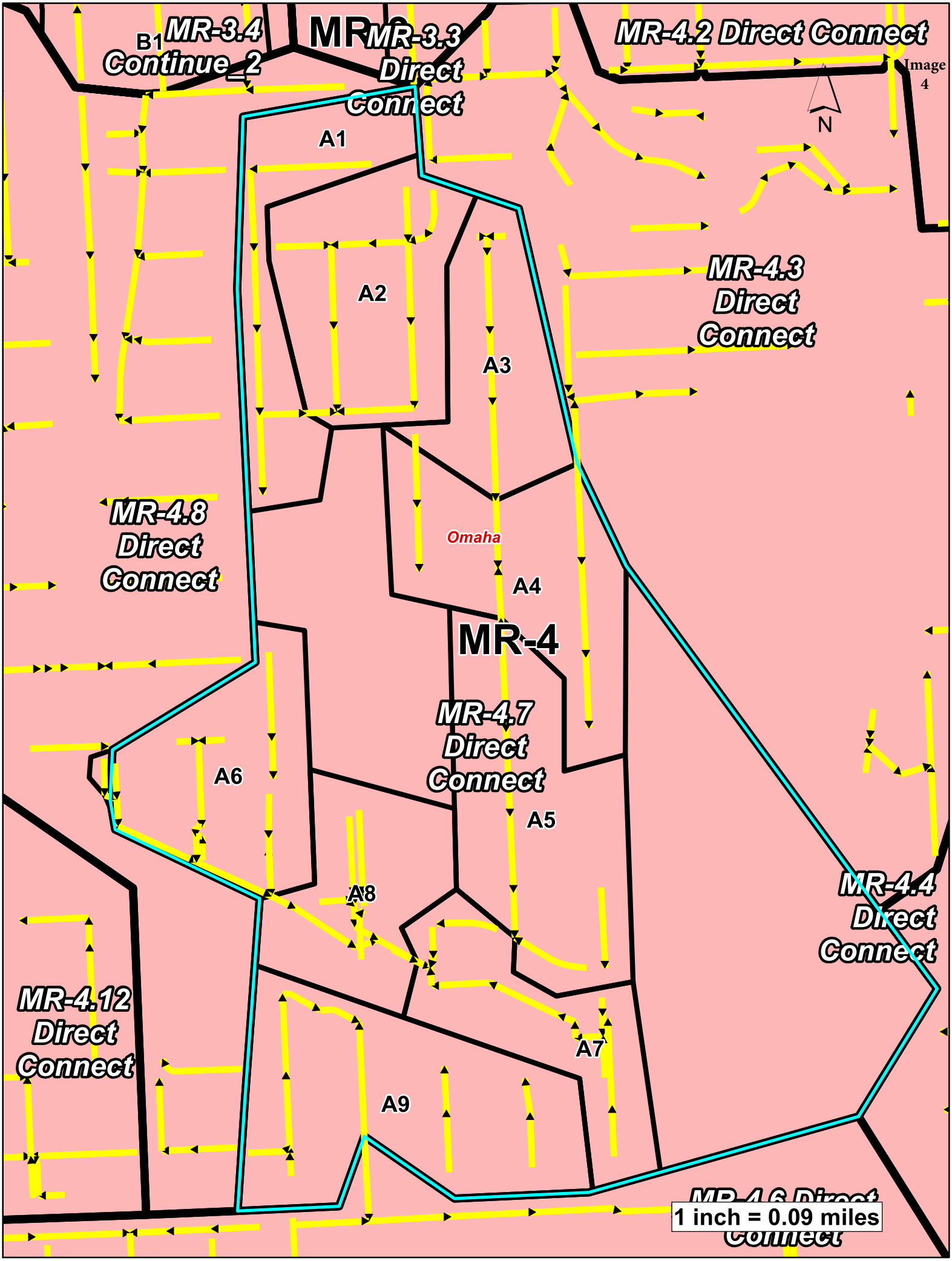


Image 3
MR-1
MR-1.1 Connect
MR-1.4 Start
MR-3
MR-3.5 Continue_1
MR-3.6 Start
MR-3.4 Continue_2
MR-3.2 Connect
MR-3.3 Direct Connect
MR-3.1 Direct Connect
MR-2.1 Direct Connect
MR-2
MR-5.19 Start
MR-4.1 Direct Connect
N
LP-12.13 Start
MR-4.2 Direct Connect
MR-5.20 Direct Connect
MR-4.15 Direct Connect
MR-4.8 Direct Connect
MR-4.3 Direct Connect
MR-4
LP-12.11 Start
MR-4.21 Direct Connect
MR-4.14 Direct Connect
MR-4.12 Direct Connect
MR-4.7 Direct Connect
MR-4.4 Direct Connect
MR-5.21 Direct Connect
LP-12.8 Continue
Omaha
MR-4.20 Direct Connect
MR-4.13 Direct Connect
MR-4.6 Direct Connect
MR-5.18 Direct Connect
LP-12.9 Start
MR-4.5 Direct Connect
MR-5.16 Direct Connect
MR-4.19 Direct Connect
MR-4.10 Direct Connect
MR-5.10 Direct Connect
MR-4.11 Direct Connect
MR-5.12 Direct Connect
MR-4.9 Direct Connect
LP-12.22 Direct Connect
MR-4.18 Direct Connect
MR-4.17 Direct Connect
MR-5.15 Direct Connect
MR-5.11 Direct Connect
LP-12
MR-5
MR-4.25 Direct Connect
MR-4.16 Direct Connect
MR-5.6 Direct Connect
LP-12.21 Direct Connect
MR-4.24 Direct Connect
MR-5.14 Direct Connect
MR-5.7 Direct Connect
MR-5.9 Direct Connect
LP-6.27 Direct Connect
MR-4.23 Direct Connect
MR-5.13 Direct Connect
MR-5.8 Direct Connect
LP-9.6 Continue
LP-6.25 Direct Connect
MR-4.22 Direct Connect
LP-9.7 Start
LP-6.26 Direct Connect
LP-6
MR-6.4 Direct Connect
LP-9
MR-6.7 Direct Connect
MR-6.9 Direct Connect
MR-6
LP-6.24 Direct Connect
LP-6.23 Direct Connect
LP-9.4 Start
LP-9.5 Connect
1 inch = 0.38 miles
Direct Connect


MR-3.4
B1
Continue_2
MR
MR-3.3
Direct
Connect
MR-4.2 Direct Connect
Image
4
N
A1
A2
A3
MR-4.3
Direct
Connect
MR-4.8
Direct
Connect
Omaha
A4
MR-4
MR-4.7
Direct
Connect
A6
A5
A8
MR-4.4
Direct
Connect
MR-4.12
Direct
Connect
A7
A9
1 inch = 0.09 miles


A4
0831002
350' 3"
10202 J ST
341' 8"
0831010C
30' 8"
0831011
220' 8"
0831012
36' 8"
S 102nd St
0831001
A5
J St
BP-9.2
Direct
Connect
305' 8"

Crew Form Example

Subbasin	Project#	Address	City Works #
BP 9.2	A5	10202 J ST	

(6)

Clean Order	Up Manhole	Down Manhole	Length	Line Size	NAMES	DATE
1	0831010C.	0831011	30'	8"	KRIEGLER / ALLEY	11-5-18
comments						
2	0831011	0831012	220'	8"		
comments	M/H # 0831012 IS BURIED					
3	0831012	0831001	36'	8"		
comments						
4	0831002	0831001	341'	8"		
comments						
5	0831001	0812018	305'	8"		11-6-18
comments						
6	0812018	0812019	246'	8"		/ /
comments						
7						11-6-18
comments					COMPLETED	
8						
comments						

work order written

Attachment 2 – LTCP Annual Project Progress Reports (APPR)

This section is ordered by Work Breakdown Structure (WBS)

Work Breakdown Structure (WBS)	Annual Project Progress Report Title
CSOP.01.01.1C	South Interceptor Force Main
CSOP.01.01.1D	Missouri River Wastewater Treatment Plant (MRWWTP) Improvements Schedule A, B1, and B2
CSOP.01.02.2C	Saddle Creek Retention Treatment Basin (CSO 205)
CSOP.02.03.3G	Gilmore Avenue Sewer Separation Phase 1 and 2
CSOP.02.04.4B CSOP.02.05.6F	Nicholas Street Phase 3 18th & Seward
CSOP.02.04.4G	Forest Lawn Sewer Separation
CSOP.02.04.4M	Lake James to Fontenelle Park
CSOP.02.04.4N	Missouri Avenue Sewer Separation Projects Phase 2 (CSO 117 - Spring Lake Park)
CSOP.02.04.4P	42 Street & Q Street Sewer Separation
CSOP.02.04.4Q & CSOP.02.05.5B	Cole Creek CSO 204 Phase 2 Cole Creek CSO 204 Phase 3
CSOP.02.05.5D, CSOP.02.05.5E00 & CSOP.02.05.5C	Cole Creek (CSO 202) Phase 1 and 2 & CSO 203 Sewer Separation (Cole Creek)
CSOP.02.05.5G	Papillion Creek North 210 Separation
CSOP.02.05.6c CSOP.02.05.6D	CSO 119 South Barrel Conversion Phase 5A CSO 119 South Barrel Conversion Phase 5B

Missouri River Water Resource Recovery Facility (MRWRRF) Improvements Schedule A, B1, and B2

CSOP.01.01.1D00 1D - MRWRRF Improvements

LTCP Project Description:

MRWRRF Improvements were identified to treat an increase in combined sewage flow during wet weather of up to approximately 150 million gallons per day (MGD) through preliminary and primary treatment, and to provide a firm capacity for secondary treatment of 64 MGD for both dry and wet weather flows. Flow in excess of the secondary treatment system capacity will be discharged through CSO 102 after chlorination and dechlorination.

Key components of the MRWRRF Improvements described in the 2009 LTCP include a new headworks facility, primary clarifier splitter structure improvements, odor control facilities, chlorine contact basin, industrial waste treatment system, and an upgraded Transfer Lift Station.

LTCP Phase: Phase 1 Major CSO Control Projects

CSO Permit Requirement:
A chlorine contact basin shall be constructed to disinfect that portion of the effluent from the primary clarifiers that is discharged through CSO Outfall 102 rather than being treated by MRWRRF's secondary treatment system. The system shall also include the capability to chlorinate the effluent from CSO 102 followed by dechlorination by December 31, 2019. The project shall be operationally complete by December 31, 2019.

LTCP Schedule:
Construction Completion is expected to be in compliance with the LTCP.

Compliance Report

The completion of Schedule A, Schedule B1, and Schedule B2 are anticipated to be complete by the LTCP date of December 31, 2019.

Activity	LTCP Schedule Date	Actual or Anticipated Date
Substantial Completion for Schedule B2	9/13/2019	*5/8/2019*
Operational Completion for Schedule B2	12/31/2019	*8/14/2019*

The following is the status of the Schedule B2 portion of this project.

Action This Term	Target Date[a]	Actual Date
Completion of Schedule B2 Milestone A (Primary Clarifier Odor Control Facilities)	6/8/2018	6/3/2018
Action Next Term	**Target Date**	**Anticipated Date**
Substantial Completion for Schedule B2	9/13/2019	*5/8/2019*

[a] Target date means the goal date that the construction contractor is currently working toward (or was working toward, in case achieved).

Costs

LTCP Estimated Construction Cost (April 2009 dollars): $52 million

Current Estimated Construction Cost: $132,502,683.61[1,2,3]

[1] Comprising: Schedule A final payment of $19,606,842; Schedule B1 final payment of $61,650,375.61 (not counting $1,014,828.36 in costs not related to the CSO Program); Schedule B2 current contract is $51,245,466.

[2] This cost does not include the Missouri River Bank Stabilization Project construction costs nor the Transfer Lift Station Pump Replacement Costs. Missouri River Bank Stabilization actual construction cost was $7,055,316. The Transfer Lift Station Pump Replacement Costs has a construction budget of $3,250,000.

[3] As noted in prior communications, caused by the 2011 Missouri River Flood, the reasons for the significant difference between the 2009 estimated construction cost and the current estimated construction cost include: 1) Breaking the project into three schedules or contracts was a direct outcome of the Missouri River flood, including the bank instability problems that occurred at the MRWRRF as the result of the flood; 2) Reconfiguration of disinfection and odor control facilities to less cost-effective layouts in consideration of future flood events, and to minimize the impacts on the wetlands in the area; and 3) Implementation of the Bank Stabilization Project to not only allow for construction of new facilities in Schedule B2, but also to protect the existing WRRF, which could be threatened if the bank failure continued.

Project Activities and Progress

CSO Capital Improvement Project(s) and Current Status (as of 9/30/2018):

City Project #	City Project Name	Status	Percent Complete
OPW 52200	Schedule A	Final Completion	100
OPW 51875	Schedule B1	Final Completion	100
OPW 52648	Schedule B2	In Construction	90

The following is a brief synopsis of project activities and progress that has taken place during this period for B2:

- High river elevations on the Missouri River impacted construction progress starting on June 25, 2018. High river levels were sustained through the remainder of the reporting period as a result of elevated discharges to the Missouri River from Gavins Point Dam. Because of this river flow condition, any rain events downstream of Gavins Point had the potential to cause the river to rise, and thus stop construction work. Fortunately, there were only two events that caused construction work to stop. The initial delay was approximately 1 month; subsequent rain events upstream of Omaha resulted in an additional delay in September, with another work stoppage on September 23, 2018. The two events impacted construction of the chlorine contact basins, site process piping, site electrical, earth fill and grading, and other project elements.
- Construction and testing of Primary Clarifier Odor Control Facilities was completed. This activity was completed and Milestone A was achieved on June 3, 2018.
- Diaphragm wall for the chlorine contact basin was completed. Chemical building structural, tanks, pumps, and other elements were also completed.

Anticipated Project Activity for Next Period

- Achieve substantial completion for all elements remaining on Schedule B2, including the chlorine contact basin, chemical building, connection to the outfall tunnel with the 84-inch chlorine contact basin effluent line, and other facilities.

Changes from the LTCP

There were no changes since the last report. Schedule is on target with LTCP Update.

Other Items of Interest

Bank Stabilization Construction on this project began in spring 2016. All elements have been installed and project achieved substantial completion on April 17, 2017, and final completion on July 5, 2017. The cost for Bank Stabilization of $7,055,316 is not part of the MRWRRF Improvements project. It was paid for with CSO funds, however.

A project team was selected in July 2018 to begin design of the MRWRRF Transfer Lift Station Pump Replacement project. This project will include replacement of the pumps installed under Schedule A. Although the pumps are currently able to deliver the 64 MGD as designed, replacement is needed for long-term reliability. Design will commence in late 2018 and extend through 2019. Construction of the MRWRRF Transfer Lift Station Pump Replacement project is anticipated to commence in early 2020.

Construction of odor control facilities and ductwork near the south end of the MRWRRF site, looking northeast.

-ANNUAL PROJECT PROGRESS REPORT-
OCTOBER 1, 2017 THROUGH SEPTEMBER 30, 2018

Saddle Creek CSO 205 Retention Treatment Basin (RTB)

CSOP.01.02.2C00 2C - Saddle Creek Retention Treatment Basin

LTCP Project Description:

The Saddle Creek Retention Treatment Basin (RTB) will be located at 64th Avenue and Dupont Street, and will provide treatment and disinfection of combined sewage prior to discharge to Little Papillion Creek. The RTB will provide an underground basin where combined sewage is stored during wet weather events and treated (grit and screenings removal, settling, chlorination, and dechlorination) before discharge.

The RTB is being designed to accept a peak-hour flow rate of 160 MGD to provide equivalent-to-primary treatment, with provisions to allow up to 320 MGD of peak wet weather flows for disinfection. The completion of this facility will result in a significant reduction in the volume of untreated CSO, total suspended solids (TSS), and *E. coli* bacteria entering Little Papillion Creek. Flows in excess of the facility capacity will be routed around the RTB and discharged into Little Papillion Creek.

LTCP Phase: Phase 2 Major CSO Control Projects

CSO Permit Requirement:

CSO Permit reflects Operationally Complete by December 31, 2023.

LTCP Schedule:

Construction Complete by June 30, 2023

Operationally Complete by December 31, 2023

Compliance Report

CSO Permit requires project to be Operationally Complete by December 31, 2023 to meet the Phase 2 Complete Construction milestone.

Activity	LTCP Schedule Date	Actual or *Anticipated* Date
Start Final Design	7/1/2018	12/7/2016 (Actual)
End Construction	12/31/2023	*June 30, 2023 (Anticipated)*

-ANNUAL PROJECT PROGRESS REPORT-
OCTOBER 1, 2017 THROUGH SEPTEMBER 30, 2018

Project Activities and Progress as of 9/30/2018

The following is a brief synopsis of project activities and progress that has taken place during this period:

- Contractor Followup/Engagement – Continued engagement with contractors towards bidding the project. An industry day event was held on April 26, 2018, to inform general contractors, suppliers, and disadvantaged businesses enterprise entities on the project.
- Pre-Qualification of Bidders – Instituted a process to prequalify general contractors for bidding. A prequalification orientation for interested general contractors was held on June 13, 2018. Nine prequalification submittals were received from general contractors on July 11, 2018. Eight contractors were identified as prequalified and approved to bid the project.
- Water Infrastructure Finance and Innovation Act (WIFIA) – Submitted a full application on January 29th, 2018. The U.S. Environmental Protection Agency (EPA) granted a categorical exclusion for the project on April 24, 2018. The City and EPA closed the WIFIA loan agreement on June 20, 2018.
- Omaha Bidding/Contracting Market – Continued tracking of metropolitan area construction contracts to determine trends in bid results, labor availability, and avoid projects bidding at the same time.
- Complete conceptual redesign of the project in the Q4 2017.
- 60% design documents were submitted to the City for review on February 2, 2018.
- 90% design documents were submitted for to the City review on May 14, 2018.
- 100% design documents were submitted for bidding on September 17, 2018.

City Project #	LTCP Name	Activity	Actual or *Anticipated*[a] Date
52049	Saddle Creek CSO 205 Retention Treatment Basin (RTB)	Begin Preliminary Design	April 7, 2011
		Final Design	December 7, 2016
		Revised Final Design	*October 18, 2018*
		Re -Advertise	*October 10, 2018*
		Re-Bid Opening	*December 5, 2018*
		Begin Construction	*April 26, 2019*
		Substantial Completion	*June 30, 2023*
		Operationally Complete	*December 31, 2023*

[a] Italics are anticipated dates.

Anticipated Project Activity for Next Period

- Bid advertisement on October 10, 2018, and the pre-bid meeting on October 24, 2018.
- Bid opening in December 2018.
- Issue Notice to Proceed for construction in April 2019.

Costs

LTCP Estimated Construction Cost (April 2009 dollars): $62,467,000

Current Estimated Construction Cost: *$91,833,000 (December 2018 dollars). The mid-point of construction estimate is $97,557,000 (December 2018 dollars).*

Changes from the LTCP

Following the high, single bid received in 2015, the City and Program Management Team (PMT) worked with the designer, Wade Trim, to review the project and develop an alternative that will provide compliance with the EPA CSO Control Policy at a more affordable cost. The chosen alternative to be implemented is a RTB with a 160-MGD capacity. The RTB will provide retention, equivalent to treatment, and disinfection of up to 160 MGD. This capacity will be part of a percent capture of 89 percent of flow in the Saddle Creek basin, meeting the requirements of the permit (85 percent minimum in the Papillion Creek Watershed). Flow between 160 MGD and 320 MGD will receive disinfection but not 30 minutes of detention time. Flows greater than 160 MGD will not achieve the detention time determined by NDEQ to be equivalent to primary treatment. Combined sewage flow greater than 320 MGD will bypass the RTB and discharge out CSO 205.

The City and PMT worked with NDEQ to modify the project's scheduled completion date to December 31, 2023, in the City's CSO NPDES permit and LTCP. In June 2017, the City contracted with Wade Trim to provide redesign services for the facility, and the project kicked off in July 2017.

Other Items

The City and PMT developed a WIFIA application that was submitted on January 29, 2018. EPA granted a Categorical Exclusion for the project on April 24, 2018. On June 20, 2018, EPA and the City closed on the WIFIA loan agreement, which allows the City to borrow up to $69.7 million for the Saddle Creek RTB project. With EPA's loan financing, the $69.7 million loan will help finance nearly half of the eligible project costs (which includes design, preconstruction, and construction costs). Because the WIFIA program offers loans with low, fixed interest rates, the EPA loan is expected to save the City of Omaha as much as $15 to $20 million (based upon EPA's estimate).

-ANNUAL PROJECT PROGRESS REPORT-
OCTOBER 1, 2017 THROUGH SEPTEMBER 30, 2018

Contractor Outreach/Prebid Meeting on October 24, 2018, Dave White from Wade Trim presenting.

-ANNUAL PROJECT PROGRESS REPORT-
OCTOBER 1, 2017 THROUGH SEPTEMBER 30, 2018

Gilmore Avenue Sewer Separation

CSOP.02.03.3G00 – OM 119-6; Gilmore Avenue Phases 1 & 2

LTCP Project Description:

This project is located along the southern boundary of the Ohern/Monroe Basin and provides stormwater conveyance along Gilmore Avenue from Harrison Street to Railroad Avenue. The project provides sewer separation to an approximately 226-acre area in the Ohern/Monroe Basin and consists of abandonment of some existing pipes, rehabilitation, and construction of new storm and sanitary sewers.

LTCP Phase: Phase 3 Sewer Separation Projects

CSO Permit Requirement:

All of the Sewer Separation Phase 3 Projects shall complete construction by December 31, 2018.

LTCP Schedule:

Bid Date: 1/1/2015

Construction Complete: 12/31/2017

Compliance Report

Construction of Gilmore Avenue Sewer Separation Phases 1 and 2 met the schedule for the original LTCP Construction Completion date of 12/31/2017. With the completion of this project, all Sewer Separation Phase 3 projects have been completed (except Martha to Riverview Phase 2, which was removed in the February 28, 2017 LTCP modification), therefore meeting the Sewer Separation Phase 3 milestone.

Activity	LTCP Schedule Date	Actual Date
Bidding	1/1/2015	3/11/2015
End Construction	12/31/2017	12/21/2017

-ANNUAL PROJECT PROGRESS REPORT-
OCTOBER 1, 2017 THROUGH SEPTEMBER 30, 2018

Project Activities and Progress as of 9/30/2018

The following is a brief synopsis of project activities and progress that have taken place prior to and during this reporting period:

City Project #	LTCP Project Name	Activity	Date
OPW 52184	Gilmore Avenue Sewer Separation Phase 1 and 2	Begin Preliminary Design	3/6/2012
		Begin Final Design	08/20/2013
		Advertise	3/11/2015
		Bid Opening	4/10/2015
		Begin Construction	7/20/2015
		Substantial Completion	12/21/2017

During this reporting period, construction was completed on both the sanitary and storm sewer systems as well as the construction of the green infrastructure features.

The newly constructed and rehabilitated sewers convey stormwater flow to the South Barrel and sanitary flows to the North Barrel. This separation directs the overland creek flow entering the system from Sarpy County to the South Barrel, which will convey stormwater to the Missouri River. The project incorporates green infrastructure (detention basin) that decreases the size of necessary downstream storm sewers and offers benefits to neighborhood residents.

Anticipated Project Activity for Next Period

Completed.

Costs

Budgeted Construction Cost: $18,238,776, using ENR News-Record Construction Cost Index 9412 (December 2012).

Current Final Construction Cost: $10,630,802.06.

Changes from the LTCP

There were no notable changes.

Other Items of Interest

OPW 52184A – Gilmore Avenue Landscaping Improvements was substantially completed on December 21, 2017.

New curb and gutter and ADA compliance ramps

-ANNUAL PROJECT PROGRESS REPORT-
OCTOBER 1, 2017 THROUGH SEPTEMBER 30, 2018

Nicholas Street Phase 3/18th & Seward Sewer Separation

CSOP.02.04.4B00 4B-BI Basin 108-3

CSOP.02.05.6F00 6F-BI 18th & Seward

LTCP Project Description:

Nicholas Phase 3 - The conceptual plan for this project includes an alignment extending north from 16th and Nicholas Street and west to 24th Street, and provides conveyance capacity for both sanitary and storm flows for other sewer separation projects within the northerly portion of the Burt-Izard Basin.

This project will reduce the combined sewer flows downstream of the project and thereby reduce CSOs to the Missouri River.

18th and Seward - This project is located in the easterly portion of the Burt-Izard Basin and provides separation to an area east of the east side of 20th Street from the north side of Locust Street south to Grace Street. South of Grace Street the area extends east to include 16th Street. The southerly limit is Nichols Street at 16th Street and Charles Street at 20th Street. The concept for this project includes construction of both sanitary and storm, re-utilizing the existing combined sewer for either storm flows or sanitary as appropriate. This area receives flows from 107-6 and discharge 108-3.

Both of these projects will result in reduced flows in the downstream combined sewer system, reducing flows to the diversion structures and ultimately the Missouri River. This project could potentially convert Sewer #2 to a storm sewer only in this project area.

LTCP Phase: Phase 4 Sewer Separation Projects – Nicholas Street Phase 3

LTCP Phase: Phase 6 Sewer Separation Projects – 18th & Seward

CSO Permit Requirement:

On or before December 31, 2016, the City of Omaha shall commence bidding on one of the Sewer Separation Projects in Phase 4.

On or before June 30, 2020, the City of Omaha shall commence bidding on one of the Sewer Separation Projects in Phase 6.

LTCP Schedule: Nicholas Phase 3

Bid Date: 1/1/2018
Construction Complete: 12/31/2019

LTCP Schedule: 18th & Seward

Bid Date: 07/1/2021
Construction Complete: 12/31/2023

Compliance Report

The LTCP Milestone for Phase 4 Sewer Separation Projects for one project to commence bidding was met by Lake James to Fontenelle Lagoon Improvements Project (OPW 52658) on October 5, 2016.

The Phase 4 Sewer Separation milestones in the LTCP is to complete all project by June 30, 2022. The Nicholas Phase 3 project will not meet the project dates in the LTCP Update, but may still meet the milestone.

Activity	LTCP Schedule Date	Actual or *Anticipated Date*
Bidding	1/1/2018	[a]
End Construction	12/31/2021	[a]

[a] This project schedule is being impacted by significant utility relocation in the project area. Anticipated dates for bidding and end of construction are dependent on utility relocation, and have not yet been developed. Project phasing is currently under evaluation.

Project Activities and Progress as of 9/30/2018

The following is a brief synopsis of project activities and progress that have taken place prior to and during this reporting period. During the study phase, the project team identified a number of alternatives to serve the project area and an expanded service area to maximize the flows in the system. Based on the estimated costs for the alternatives, the City decided on a reduced service area at a more economical cost. The 18th & Seward Separation project that is scheduled to be completed as one of the Sewer Separation Projects in Phase 6 has been combined with the Nicolas Phase 3 project and will be tracked concurrently.

Another complicating factor in the sequencing of construction is the utility relocation coordination required with the Metropolitan Utilities District (M.U.D.) gas and water utility schedule. Significant large-diameter gas main relocation is required and, due to other M.U.D. gas relocation project commitments for other City of Omaha projects, the gas main relocations for the Nicholas Phase 3/18th & Seward project have been delayed. Therefore, construction of the Nicholas Street Phase 3/18th & Seward project will likely also be delayed until after utility relocation is complete.

Because of the major utility relocation required for the project, and the associated schedule impacts, the City is evaluating breaking the Nicholas Street Phase 3 project into two projects (Phases 3A and 3B). The Nicholas Street Phase 3A project will be a small project designed to address an existing storm drainage issue at 16th & Clark by connecting to the existing Nicholas Street Phase 2 storm sewer at 17th and Charles. This Phase 3A project would likely be constructed in 2019 or 2020.

-ANNUAL PROJECT PROGRESS REPORT-
OCTOBER 1, 2017 THROUGH SEPTEMBER 30, 2018

City Project #	City Project Name	Activity	Actual Date
OPW 52721	Nicholas Phase 3 and 18th & Seward Sewer Separation	Begin Preliminary Design	7/1/2016
		Begin Final Design	2/13/2018
		Advertise	[a]
		Bid Opening	[a]
		Begin Construction	[a]
		Substantial Completion	[a]

[a] This project schedule is being impacted by significant utility relocation in the project area. Anticipated dates for advertising, bidding, and the beginning and end of construction are dependent on utility relocation, and have not yet been developed. Project phasing is currently under evaluation.

Anticipated Project Activity for Next Period

Continue final design of Nicholas Phase 3 and 18th & Seward Sewer Separation. Finish evaluation of project phasing, and continued utility coordination.

Costs

Budgeted Construction Cost (September 2016): $13,965,000 (Nicholas Phase 3 with 16th & Grant); $16,500,000 (18th & Seward)

Current Estimated Construction Cost: $16,050,500; costs are based on 30% project deliverable

Changes from the LTCP

A new target schedule was established for Nicholas Phase 3 in the last reporting period with a bid date of 7/6/2019 and substantial complete 12/31/2021. A rescheduling is underway and planned for submittal in the next LTCP Update. The revised project schedule did not impact the CSO Permit compliance requirement.

Other Items of Interest

No other items to report.

-ANNUAL PROJECT PROGRESS REPORT-
OCTOBER 1, 2017 THROUGH SEPTEMBER 30, 2018

Forest Lawn Sewer Separation

CSOP.02.04.4G00 4G - ML 105-15; Forest Lawn Separation

LTCP Project Description:

This project is located in the northerly portion of the Minne Lusa Basin and provides separation to an area bounded on the north by State Street, on the east by Pershing Drive and OPPD's Power Park, on the south by Ernst Street, and on the west by North 36th Street. The conceptual plan for this project includes construction of both sanitary and storm sewer to allow for conversion of the existing combined sewer to either storm or sanitary sewer, as appropriate. Existing creek flows are eliminated from the combined system.

This project will result in reduced flows in the downstream combined sewer system, which results in a reduction in size of downstream controls at CSO 105.

LTCP Phase: Phase 4 Sewer Separation Projects

CSO Permit Requirement:

On or before December 31, 2016, the City of Omaha shall commence bidding on one of the Sewer Separation Projects in Phase 4.

LTCP Schedule:

Bid Date: 3/31/2019

Construction Complete: 12/31/2021

Compliance Report

The original LTCP schedule for bidding was modified as a result of the extensive gas and water utility relocations and upgrades in this Forest Lawn sewershed required by Metropolitan Utilities District (M.U.D.). The project is on track to meet the revised LTCP bid date of March 31, 2019. Construction start is anticipated for June 2019. The revised project schedule meets the Phase 4 milestones.

A Change Notification Request has been developed to reflect this change.

Activity	LTCP Schedule Date	Actual or Anticipated Date
Bidding	3/31/2019	*10/31/2018 (Anticipated)*
End Construction	12/31/2021	*12/31/2021 (Anticipated)*

-ANNUAL PROJECT PROGRESS REPORT-
OCTOBER 1, 2017 THROUGH SEPTEMBER 30, 2018

Project Activities and Progress as of 9/30/2018

The following is a brief synopsis of project activities and progress that have taken place prior to and during this reporting period. The project team continued progress on the final design of the project. 60% documents were submitted to the City for review on December 21, 2016, followed by the 90% document submittal to the City for review on August 7, 2017. Meetings were held with the affected utilities representatives to coordinate relocation efforts prior to and during construction. Extensive M.U.D. utility relocations were identified to replace the low-pressure gas system in the project area. NDEQ construction permit was received on August 15, 2018.

City Project #	LTCP Project Name	Activity	Date
OPW 52470	Forest Lawn Sewer Separation	Begin Preliminary Design	6/12/2014
		Begin Final Design	02/16/2016
		Advertise	*10/31/2018 (anticipated)*
		Bid Opening	*12/19/2018 (anticipated)*
		Begin Construction	*6/1/2019 (anticipated)*
		Substantial Completion	*12/31/2021 (anticipated)*

Anticipated Project Activity for Next Period

The project is anticipated to be advertised for bid in late December 2018 and project construction awarded in January 2019. Construction start will be delayed until June 2019 to allow M.U.D. to complete their gas and water relocation work in the area.

Costs

Budgeted Construction Cost (September 2016): $17,500.000

Current Estimated Construction Cost: $16,931,206

Changes from the LTCP

Changes as documented in CNR dated 05/10/2018.

Other Items of Interest

Green Infrastructure was part of the evaluation during the reporting period. As proposed, the Green Infrastructure was not cost effective, had no hydraulic benefit and did not

contribute to CSO reduction, and was therefore removed from the project just before the project went to bid.

-ANNUAL PROJECT PROGRESS REPORT-
OCTOBER 1, 2017 THROUGH SEPTEMBER 30, 2018

Lake James to Fontenelle Park

CSOP.02.04.4M Lake James to Fontenelle Park

LTCP Project Description:

The Lake James to Fontenelle Park project includes expansion of an existing stormwater detention lagoon in Fontenelle Park and sewer separation in the surrounding neighborhoods that drain toward the park. This project includes three separation areas located in the westerly portion of the Minne Lusa Basin and provides separation to 1) area bounded on the north by Boyd Street, on the east by 45th Street, on the south by NW Radial Highway Street, and on the west by 52nd Street (formerly referred to as 50th & Sigwart); 2) the area bounded on the north by Fort Street, on the east by 48th Street, on the south by Sprague Street, and on the west by 50th Street (formerly referred to as 49th & Fowler); and 3) the area bounded on the north by Camden Avenue, on the east by 42nd Street, on the south by Fontenelle Park, and on the west by 49th Street (formerly referred to as 46th & Grand West).

The LTCP Update reduced the area of sewer separation and minimized stormwater piping to cost effectively and strategically reduce inflow to the combined sewer system while making full use of the downstream stormwater conveyance sewer. This was accomplished by incorporating improvements to the Fontenelle Park/Lagoon to attenuate stormwater flows prior to discharging into the existing downstream combined sewer system. This results in reduced flows in the downstream combined sewer system, which results in a reduction in size of downstream controls at CSO 105.

LTCP Phase: Phase 4 Sewer Separation Projects

CSO Permit Requirement:

On or before December 31, 2016, the City of Omaha shall commence bidding on one of the Sewer Separation Projects in Phase 4.

LTCP Schedule:

Bid Date: 1/1/2017

Construction Complete: 12/31/2019

Compliance Report

This Long Term Control Plan Milestone for Phase 4 Sewer Separation Projects was met by the bidding of the Lake James to Fontenelle Park - Fontenelle Park Lagoon Improvements project (OPW-52658) on October 5, 2016.

-ANNUAL PROJECT PROGRESS REPORT-
OCTOBER 1, 2017 THROUGH SEPTEMBER 30, 2018

Activity	LTCP Schedule Date	Actual or *Anticipated Date*
Bidding	1/1/2017	10/5/2016
End Construction	12/31/2019	*9/17/2019 (Anticipated)*

Project Activities and Progress as of 9/30/2018

This project was broken into two construction contracts. The Fontenelle Park Lagoon Improvements Contract provides for the construction of the expanded and deepened lagoon as well as all improvements within Fontenelle Park. The second construction package, the Paxton Basin Upstream Sewer Separation, includes the sewer separation in the three separate areas south, west, and north of the Park to direct separated stormwater to the improved lagoon.

The following is a brief synopsis of project activities and progress that have taken place prior to and during this reporting period. Construction of the Fontenelle Park Lagoon project was completed in July 2018. Construction for the Paxton Basin Upstream Sewer Separation was initiated in April 2018 and continued throughout this reporting period. Construction for the latter project is anticipated to be completed in the fall of 2019.

City Project #	LTCP Project Name	Activity	Date
OPW 52658	Lake James to Fontenelle Park – Fontenelle Park Lagoon Improvements	Begin Preliminary Design	8/29/2014
		Begin Final Design	12/21/2015
		Advertise	10/5/2016
		Bid Opening	11/30/2016
		Begin Construction	2/13/2017
		Substantial Completion	7/28/2018

City Project #	LTCP Project Name	Activity	Date
OPW 52659	Lake James to Fontenelle Park – Paxton Basin Upstream Sewer Separation	Begin Preliminary Design	8/29/2014
		Begin Final Design	12/21/2015
		Advertise	11/1/2017
		Bid Opening	12/13/2017
		Begin Construction	4/16/2018
		Substantial Completion	*9/17/2019 (Anticipated)*

Anticipated Project Activity for Next Period

OPW-52658 - The Fontenelle Park Lagoon Improvements construction package achieved substantial completion on July 28, 2018.

OPW-52659 – The Paxton Basin Upstream Sewer Separation package had bid opening on December 13, 2017; construction Notice to Proceed on April 16, 2018; and anticipated substantial completion in September 2019.

Costs

Budgeted Construction Cost (September 2016): $23,567,739 (50th & Sigwart - $5,789,009; 49th & Fowler - $4,084,522; 46th & Grand West - $1,627,882; Fontenelle Pond Improvements - $12,567,739)

Current CM Estimated Construction Cost: $13,458,490 (OPW-52658 current construction amount = $7,717,269; OPW-52659 actual construction bid = $5,741,221)

Changes from the LTCP

Following the approval of the 2014 LTCP Update on January 23, 2015, a request was made to NDEQ to modify the LTCP Update to reflect several changes including combining the "Minne Lusa-105-4, 49th & Fowler," "Minne Lusa-105-3, 50th & Sigwart" and "Minne Lusa-105-5, 46th & Grand West" projects into a single project called "Lake James to Fontenelle Park." The requested schedule was to start the bidding process on January 1, 2017, with the completion of construction on 12/31/2019 (corresponding to the last project, "Minne Lusa-105-3, 50th & Sigwart" in LTCP Update). This new project is included in Phase 4, which calls for all projects to be complete by June 30, 2022.

Other Items of Interest

No other items to report.

-ANNUAL PROJECT PROGRESS REPORT-
OCTOBER 1, 2017 THROUGH SEPTEMBER 30, 2018

Storm Sewer Junction Structure in Fontenelle Park

Manhole and Storm Sewer Construction in Fontenelle Park

-ANNUAL PROJECT PROGRESS REPORT-
OCTOBER 1, 2017 THROUGH SEPTEMBER 30, 2018

CSO 117 Missouri Avenue Sewer Separation Projects Phase 2 (Spring Lake Park)

CSOP.02.04.4N00 – 4N - Basin CSO 117; Missouri Avenue Ph 2

LTCP Project Description:

This project involves sewer separation in the neighborhood around Spring Lake Park, several stormwater management facilities in the park, and decommissioning of the CSO 117 diversion. The project area is in the South Interceptor Basin and is bounded on the north by Interstate 80, on the east by the Missouri River Levee, on the south by Missouri Avenue, and on the west by South 24th Street. The overall Phase 1 and Phase 2 projects will provide sewer separation to the entire 416-acre Missouri Avenue sub-basin through a combination of new storm and sanitary sewers. Sanitary flows will be directed to the existing Missouri Avenue Lift Station while storm flows will be conveyed to the Missouri River through the existing combined sewer, which will eventually be converted to a storm-only sewer following completion of the Missouri Avenue Phase 2 Sewer Separation project. The Phase 1 project included construction of a multi-use pond within Spring Lake Park to provide detention of stormwater runoff to reduce downstream flows and to allow the continued use of the combined sewer as a storm sewer following completion of the sewer separation. The Phase 2 project provides for additional sewer separation north and east of Spring Lake Golf Course and for sewer separation south of F Street and west of Spring Lake Park.

LTCP Phase:

Sewer Separation Phase 4

CSO Permit Requirement:

One of the Phase 4 Sewer Separation Projects shall commence bidding by December 31, 2016.

LTCP Schedule:

Bid Date Missouri Avenue Phase 2: 06/30/2017

Construction Complete Phase 2: 12/31/2019

Compliance Report

Phase 4 milestone met with another project.

Activity	LTCP Schedule Date	Actual or Anticipated Date
Bidding	06/30/2017	01/18/2017 (Actual)
End Construction	12/31/2019	*12/31/2019 (Anticipated)*

-ANNUAL PROJECT PROGRESS REPORT-
OCTOBER 1, 2017 THROUGH SEPTEMBER 30, 2018

Project Activities and Progress as of 9/30/2018

The following is a brief synopsis of project activities and progress that have taken place prior to and during this reporting period. Construction of the Missouri Avenue Sewer Separation Project, Phase 2 was initiated in November 2017 and construction continues throughout this period. Construction is anticipated to be completed by the end of 2019.

City Project #	LTCP Project Name	Activity	Date
OPW 51997b	Missouri Avenue Sewer Separation Phase 2	Begin Final Design	09/28/2015
		Advertise	01/18/2017
		Bid Opening	03/01/2017
		Begin Construction	11/01/2017
		Substantial Completion	*12/31/2019 (Anticipated)*

Anticipated Project Activity for Next Period

Notice to Proceed for construction of the Phase 2 project was November 1, 2017, with the initial focus within Spring Lake Golf Course areas as this work needs to be completed during the non-golfing portion of the year. Continue progress with Phase 2 construction throughout the next period.

Costs

LTCP Budgeted Phase 2 Construction Cost: $5,638,000 (April 2009 dollars)

Current Estimated Construction Cost: Phase 2: $6,608,046

Changes from the LTCP

There were no notable changes. Schedule is on target with LTCP Update.

Other Items of Interest

OPW 51997B – Missouri Avenue/Spring Lake Park Mitigation Plantings contract with Lanoha Nursery is ongoing. Replacement plants, where required, were planted during the 2018 season. Mitigation plantings costs are currently estimated at $320,210 with completion anticipated March 3, 2019. Golf course work will be finished during the next period.

-ANNUAL PROJECT PROGRESS REPORT-
OCTOBER 1, 2017 THROUGH SEPTEMBER 30, 2018

Spring Lake Park Multi-use Pond

Storm Sewer Construction in Spring Lake Park Golf Course

-ANNUAL PROJECT PROGRESS REPORT-
OCTOBER 1, 2017 THROUGH SEPTEMBER 30, 2018

42nd Street & Q Street Sewer Separation

CSOP.02.04.4P00 4P-PCS 42 & Q (CSO 207/208)

LTCP Project Description:

This project will provide sewer separation to the area bounded by Orchard Avenue on the north, 39th Street on the east, R Street on the south, and 44th Street on the west. The conceptual plan for this project includes construction of both new sanitary sewer and storm sewer. New storm sewers will be constructed along 42nd Street, Q Street, and R Street. Sanitary sewer will be constructed to convey newly separated sanitary sewer flow into an existing combined sewer that will be converted to a sanitary sewer. Green Infrastructure will be constructed in Hitchcock Park on the west side of 42nd Street as part of the overall sewer separation project. This sewer separation project has been coordinated with the design and construction of a City transportation project to replace a railroad bridge and provide intersection improvements at 42nd and Q Streets. Construction of a portion of the storm sewer as part of the roadway/bridge project was completed in 2017. The project will separate storm flows from sanitary flows and allow for the deactivation of CSO 207 and CSO 208.

LTCP Phase: Phase 4 Sewer Separation Projects

CSO Permit Requirement:

On or before December 31, 2016, the City of Omaha shall commence bidding on one of the Sewer Separation Projects in Phase 4.

LTCP Schedule:

Bid Date: 7/1/2018

Construction Complete: 6/30/2020

Compliance Report

This Long Term Control Plan Milestone for commencing bids on one project by December 31, 2016, was met by the bidding of Lake James to Fontanelle Park – Fontenelle Lagoon (FPLI [OPW 52658]) on October 5, 2016.

Activity	LTCP Schedule Date	Actual or Anticipated Date
Bidding	7/1/2018	11/2/2016 (Actual)
End Construction	6/30/2020	*6/1/2019 (Anticipated)*

-ANNUAL PROJECT PROGRESS REPORT-
OCTOBER 1, 2017 THROUGH SEPTEMBER 30, 2018

Project Activities and Progress as of 9/30/2018

The following is a brief synopsis of project activities and progress that have taken place prior to and during this reporting period.

The project was broken into two phases. The first phase, Hitchcock Park Green Infrastructure construction, was initiated in summer 2017 and substantially completed during this reporting period. The second phase, construction of 42nd and Q Street Area Sewer Separation, began in this reporting phase.

City Project #	City Project Name	Activity	Date
OPW 52881	Hitchcock Park Green Infrastructure	Begin Preliminary Design	9/11/2012
		Begin Final Design	10/27/2014
		Advertise	11/2/2016
		Bid Opening	12/7/2016
		Begin Construction	5/1/2017
		Substantial Completion	10/6/2017

City Project #	LTCP Project Name	Activity	Date
OPW 52257	42nd and Q Street Area Sewer Separation (CSO 207/208)	Begin Preliminary Design	9/11/2012
		Begin Final Design	10/27/2014
		Advertise	5/31/2017
		Bid Opening	6/28/2017
		Begin Construction	5/1/2018
		Substantial Completion	*6/1/2019 (Anticipated)*

Anticipated Project Activity for Next Period

Continued construction will occur during next period with substantial completion anticipated to be June 1, 2019.

Hitchcock Park Green Infrastructure Project is complete as of October 6, 2017. The 2-year warranty period ends October 6, 2019.

-ANNUAL PROJECT PROGRESS REPORT-
OCTOBER 1, 2017 THROUGH SEPTEMBER 30, 2018

Costs

Budgeted Construction Cost (September 2016): $3,118,500

Current Estimated Construction Cost: Total for both Projects $2,946,616 ($2,570,000 + $376,616).

Changes from the LTCP

There were no notable changes. Schedule is on target with LTCP Update. There may be construction delays resulting from conflicts with M.U.D. utilities, but these will not impact the ability to meet the LTCP date.

Other Items of Interest

OPW 52881 Hitchcock Park Green Infrastructure planting was completed in fall 2017. The 2-year warranty began upon approval of final planting.

Stormwater in Hitchcock Park green infrastructure

-ANNUAL PROJECT PROGRESS REPORT-
OCTOBER 1, 2017 THROUGH SEPTEMBER 30, 2018

Cole Creek CSO 202 Sewer Separation Phase 1 & 2

Cole Creek CSO 203 Sewer Separation

CSOP.02.05.5D00 5D – CC CSO 202 Ph 1 (Cole Creek)

CSOP.02.05.5E00 5E – CC CSO 202 Ph 2 (Cole Creek)

CSOP.02.05.5C00 5C – CC CSO 203 Sewer Separation (Cole Creek)

LTCP Project Description:

- Cole Creek CSO 202 Sewer Separation (Phases 1 and 2). This project is located in the Cole Creek Basin and provides separation to an area bounded on the north by Bedford Avenue, on the east by 67th Avenue, on the south by Binney Street, and on the west by Cole Creek. The conceptual plan for this project includes construction of both sanitary and storm sewer to allow for conversion of the existing combined sewer to either storm sewer or sanitary sewer, as appropriate, to provide sewer separation to this 101-acre sub-basin. This project will reduce the flows in the collection system and allow for the future deactivation of CSO 202. This project will be constructed in multiple phases.

- Cole Creek CSO 203 Sewer Separation – This project is located in the Cole Creek Basin and provides separation to an area bounded on the north by Pratt Street, on the east by Military Avenue, on the south by Maple Street, and on the west by Cole Creek. This project includes construction of both sanitary sewer and storm sewer to allow for conversion of the existing combined sewer to either storm sewer or sanitary sewer, as appropriate, to provide sewer separation to this 125-acre sub-basin. This project will reduce the flows in the collection system and allow for the future deactivation of CSO 203. This project will be constructed in multiple phases.

LTCP Phase: Phase 5 Sewer Separation Projects

CSO Permit Requirement:

On or before December 31, 2019, the City of Omaha shall commence bidding on one of the Sewer Separation Projects in Phase 5.

LTCP Schedule:

Bid Date: 7/1/2020 (for all three projects)

Construction Complete: 6/30/2022 (for all three projects)

-ANNUAL PROJECT PROGRESS REPORT-
OCTOBER 1, 2017 THROUGH SEPTEMBER 30, 2018

Compliance Report

The Long Term Control Plan Phase 5 Milestone is anticipated to be met with the CSO 202 Phase 1 sewer separation. The physical boundaries and schedules of CSO 202 Phase 1 and Phase 2 have been revised to allow for Phase 1 to be constructed prior to the start of a City Transportation Project. Following the bidding of CSO 202 Phase 1 , final design of CSO 203 will proceed. Following the bidding of CSO 203, final design for CSO 202 Phase 2 will proceed. A detailed schedule for final design and construction of CSO 203 and CSO 202 Phase 2 has not yet been developed, as these project schedules are dependent upon the City Transportation Project and extensive utility relocation within the project areas.

CSO 202 Phase 1

Activity	LTCP Schedule Date	Actual or Anticipated Date
Bidding	7/1/2020	*11/28/2018 (Anticipated)*
End Construction	7/1/2022	*12/31/2019 (Anticipated)*

CSO 203 Sewer Separation

Activity	LTCP Schedule Date	Actual or Anticipated Date
Bidding	7/1/2020	[a]
End Construction	7/1/2022	[a]

[a] A detailed schedule for bidding and construction of CSO 203 has not yet been developed and is dependent on a City Transportation Project at 72nd Street and Maple Street, as well as extensive utility relocation work within the project area.

CSO 202 Phase 2

Activity	LTCP Schedule Date	Actual or Anticipated Date
Bidding	7/1/2020	[a]
End Construction	7/1/2022	[a]

[a] A detailed schedule for bidding and construction of CSO 202 Phase 2 has not yet been developed and is dependent on a City Transportation Project at 72nd Street and Maple Street, as well as extensive utility relocation work within the project area.

Project Activities and Progress as of 9/30/2018

The following is a brief synopsis of project activities and progress that have taken place prior to and during this reporting period:

A preliminary design (30%) was developed for the three project areas.

-ANNUAL PROJECT PROGRESS REPORT-
OCTOBER 1, 2017 THROUGH SEPTEMBER 30, 2018

A portion of the CSO 202 project is being coordinated with a City/State transportation project at the intersection of 72nd Street and Maple Street and extending eastward in the CSO project area. This resulted in the City adjusting the schedules and limits of construction for the CSO 202 Phase 1 and Phase 2 Projects. Phase 1 construction is now limited to a 1-block area on Maple Street from approximately 70th Street to 70th Avenue. The CSO 202 Phase 2 project will incorporate remaining construction in the CSO 202 area.

City Project #	LTCP Project Name	Activity	Date
OPW 53417	Cole Creek CSO 202 Phase 1	Begin Preliminary Design	3/20/2017
		Begin Final Design	6/01/2018
		Advertise	*11/28/2018 (Anticipated)*
		Bid Opening	*12/19/2018 (Anticipated)*
		Begin Construction	*6/1/2019 (Anticipated)*
		Substantial Completion	*12/31/2019 (Anticipated)*

City Project #	LTCP Project Name	Activity	Date
OPW 53059	Cole Creek CSO 203	Begin Preliminary Design	3/20/2017
		Begin Final Design	*12/3/2018 (Anticipated)*
		Advertise	[a]
		Bid Opening	[a]
		Begin Construction	[a]
		Substantial Completion	[a]

[a] A detailed schedule for bidding and construction of CSO 203 has not yet been developed and is dependent on a City Transportation Project at 72nd Street and Maple Street, as well as extensive utility relocation work within the project area.

City Project #	LTCP Project Name	Activity	Date
OPW 53417a	Cole Creek CSO 202 Phase 2	Begin Preliminary Design	3/20/2017
		Begin Final Design	*12/1/2019 (Anticipated)*
		Advertise	[a]
		Bid Opening	[a]
		Begin Construction	[a]
		Substantial Completion	[a]

[a] A detailed schedule for bidding and construction of CSO 202 Phase 2 has not yet been developed and is dependent on a City Transportation Project at 72nd Street and Maple Street, as well as extensive utility relocation work within the project area.

Anticipated Project Activity for Next Period

Begin construction of CSO 202 Phase 1. Begin final design for CSO 203.

Costs

Budgeted Construction Cost (September 2016): CSO 202 Phase 1 - $5,000,000; CSO 202 Phase 2 - $4,762,000; CSO 203 - $4,178,000. TOTAL: $13,940,000.

Current Estimated Construction Cost: CSO 202 Phase 1 - $1,270,000 (Source: 95% Design); CSO 202 Phase 2- $7,500,000 (Source: 30% Design for full CSO 202 project, subtracting CSO 202 Phase 1 cost estimate); CSO 203 -$6,260,000 (Source: 30% Design). TOTAL: $15,030,000.

Changes from the LTCP

The scope and schedules of the CSO 202 Phase 1 and 2 projects were modified to address the coordination with the City 72nd & Maple Intersection Transportation project schedule. However, the full CSO 202 (both phases) project remains unchanged.

Other Items of Interest

The sequence of construction of the three projects was modified to coordinate with the design and construction of the City transportation project.

-ANNUAL PROJECT PROGRESS REPORT-
OCTOBER 1, 2017 THROUGH SEPTEMBER 30, 2018

Cole Creek CSO 204 Sewer Separation Projects

CSOP.02.04.4Q00 4Q – CC CSO 204 Ph 2

CSOP.02.05.5B00 5C – CC CSO 204 Ph 3

LTCP Project Description:

The Cole Creek CSO 204 Sewer Separation project is a multi-phase project located in the Cole Creek Basin. The project covers a 522-acre area bordered on the north by Brown Street, on the east by 52nd Street, on the south by Northwest Radial Highway, and on the west by Cole Creek.

LTCP Phase: Phase 4 Sewer Separation Projects – Cole Creek CSO 204 Phase 2

Phase 5 Sewer Separation Projects – Cole Creek CSO 204 Phase 3

CSO Permit Requirement:

CSO 204 – Phase 2 - On or before December 31, 2016, the City of Omaha shall commence bidding on one of the Sewer Separation Projects Phase 4. (This requirement was met by the Lake James to Fontenelle Park - Fontenelle Park Lagoon Improvements project [OPW-52658] on October 5, 2016)

CSO 204 – Phase 3 - On or before **December 31, 2019**, the City of Omaha shall commence bidding on one of the Sewer Separation Projects Phase 5.

LTCP Schedule: CSO 204 Phase 2

Bid Date: 6/30/2020

Construction Complete: 6/30/2022

LTCP Schedule: CSO 204 Phase 3

Bid Date: 7/1/2020

Construction Complete: 6/30/2022

Compliance Report

Current projects in progress include CSO 204 Phase 2 and CSO 204 Phase 3.

The CSO 204 Phase 2 design within the Cole Creek CSO 204 Basin is currently on hold. The current design includes new sanitary sewers along 63rd Street between Spaulding Street (end of Phase 1) and Binney Street. However, as a result of the higher-than-anticipated construction costs and the construction risks associated with the deep sewers included in the design, the City is evaluating alternative concepts for the CSO 204 Phase 2 service area that would reduce construction costs and risk associated with the construction of the project and have less of an impact to the neighborhood.

CSO 204 Phase 3 design Notice to Proceed was issued by the City on October 10, 2017, and is currently under design within the Cole Creek CSO 204 Basin. The Phase 3 project includes design and construction of new storm and sanitary sewers between the area bounded by Northwest Drive on the North, North 56th Street on the East, Sprague Street on the South, and North 60th Street on the West.

The Sewer Separation Phase 4 milestone was met by the bidding of Lake James to Fontenelle Park - Fontenelle Park Lagoon Improvements project (OPW-52658) on October 5, 2016.

The Sewer Separation Phase 5 milestone will be met by the bidding of Cole Creek CSO 202 Phase 1 Sewer Separation.

CSO 204 Phase 2

Activity	LTCP Schedule Date	Actual or Anticipated Date
Bidding	6/30/2020	[a]
End Construction	6/30/2022	[a]

[a] The project is currently on hold pending evaluation of feasible alternatives. A new schedule will be developed at the conclusion of the evaluation.

CSO 204 Phase 3

Activity	LTCP Schedule Date	Actual or Anticipated Date
Bidding	7/1/2020	*7/1/2020 (Anticipated)*
End Construction	6/30/2022	*6/30/2022 (Anticipated)*

Activities and Progress as of 9/30/2018

CSO 204 Phase 2

The following is a brief synopsis of project activities and progress prior to and during this reporting period. The project team for the Phase 2 project submitted a 60% design package to the City. The 60% design submittal included a substantial increase in the estimated cost of the project resulting from the extreme depth of the proposed sanitary sewers (up to 60 feet in depth) and concerns of the risks associated with the construction at such depths. The project would also have a substantial impact to the residences along the alignment. The project is currently on hold while the City considers feasible alternatives that would reduce construction costs and risk associated with the construction of the project and have less of an impact to the neighborhood. A new schedule will be developed at the conclusion of the evaluation.

-ANNUAL PROJECT PROGRESS REPORT-
OCTOBER 1, 2017 THROUGH SEPTEMBER 30, 2018

City Project #	City Project Name	Activity	Date
OPW 52814	Cole Creek CSO 204 Phase 2	Begin Preliminary Design	1/18/2012
		Begin Final Design	8/17/2015
		Advertise	[a]
		Bid Opening	[a]
		Begin Construction	[a]
		Substantial Completion	[a]

[a] The project is currently on hold pending evaluation of feasible alternatives. A new schedule will be developed at the conclusion of the evaluation.

CSO 204 Phase 3

The design and construction of the Phase 3 project is not dependent on the construction of the CSO 204 Phase 2 project, and the City wants to continue progress in the CSO 204 Basin. The following is a brief synopsis of project activities and progress prior to and during this reporting period. The Project Team has completed the 30% submittal and is currently preparing the 60% design submittal.

City Project #	City Project Name	Activity	Date
OPW 53206	Cole Creek CSO 204 Phase 3	Begin Preliminary Design	1/18/2012
		Begin Final Design	10/10/2017
		Advertise	*07/01/2020 (Anticipated)*
		Bid Opening	*09/01/2020 (Anticipated)*
		Begin Construction	*03/01/2021 (Anticipated)*
		Substantial Completion	*06/30/2022 (Anticipated)*

Anticipated Project Activity for Next Period

Determine the scope of redesign and schedule for the Phase 2 project path forward. Continue the design for the CSO 204 Phase 3 project, progressing the project toward the bidding of the project for construction.

Costs

CSO 204 PHASE 2 PROJECT

Budgeted Construction Cost CSO 204 Phase 2 (September 2015 ENRCCI 9668): $12,000,000
Current Estimated Construction Cost: Total $16,780,000, as of 60% submittal

-ANNUAL PROJECT PROGRESS REPORT-
OCTOBER 1, 2017 THROUGH SEPTEMBER 30, 2018

CSO 204 PHASE 3 PROJECT

Budgeted Construction Cost CSO 204 Phase 3 (September 2016 ENRCCI 10386): $3,840,000
Current Estimated Construction Cost: Total $3,840,000, Conceptual Phase

Changes from the LTCP

The City determined early in the preliminary design that an increase in the peak discharge of stormwater to Cole Creek would not be allowed by the City. The design of the CSO 204 area was modified from the conceptual plan in the 2009 LTCP, which called for new storm sewers sized for the 10-year design storm, to a design that would address sewer backups and localized street flooding, without increasing the peak stormwater runoff flow rate from the CSO 204 service area. This new concept relies more on reuse of existing combined sewers converted to storm sewers. This change in concept, along with a determination that a portion of the area contributing to CSO 204 was already separated, allowed for the work schedule to be modified to be accomplished in six phases of work instead of the nine phases included in the 2009 LTCP. This was addressed in the LTCP Update. The projects will reduce flows in the sanitary collection and interceptor system and will reduce the size of the storage tank at CSO 204.

Anticipated CSO 204 Phase 2 dates will be modified as a result of alternatives evaluation. No changes in the scope of the projects.

-ANNUAL PROJECT PROGRESS REPORT-
OCTOBER 1, 2017 THROUGH SEPTEMBER 30, 2018

Papillion Creek North 210-1 Separation

CSOP.02.05B.5G.01.01 PCN 210 Papillion

LTCP Project Description:

This project is located in the Papillion Creek North Basin and provides separation to an area bounded on the north by Maple Street, on the east by North 60th Street, on the south by Blondo Street, and on the west by North 66th Street. The conceptual plan for this project includes construction of both sanitary and storm sewer to allow for conversion of the existing combined sewer to either storm or sanitary sewer, as appropriate. This project will reduce flows in the collection system and may allow for the abandonment of CSO 210. Deactivation of this CSO outfall is a goal pending monitoring results.

This project will result in reduced flows to the downstream Papillion Creek sanitary sewer conveyance system

LTCP Phase: Phase 5 Sewer Separation Projects

CSO Permit Requirement:

On or before December 31, 2019, the City of Omaha shall commence bidding on one of the Sewer Separation Projects in Phase 5.

LTCP Schedule:

Bid Date: 01/01/2022

Construction Complete: 06/30/2023

Compliance Report

The CSO Permit requirement for commence bidding of one project is anticipated to be met by CSO 202, Phase 1 Sewer Separation. The PCN 210 Sewer Separation in on target to meet the LTCP Schedule and the Long Term Control Plan Phase 5 Milestone for all projects to be complete by December 31, 2023.

Activity	LTCP Schedule Date	Actual or Anticipated Date
Bidding	01/01/2022	*03/01/2020 (Anticipated)*
End Construction	06/30/2023	*12/31/2022 (Anticipated)*

-ANNUAL PROJECT PROGRESS REPORT-
OCTOBER 1, 2017 THROUGH SEPTEMBER 30, 2018

Project Activities and Progress as of 9/30/2018

The following is a brief synopsis of project activities and progress that have taken place prior to and during this reporting period. The Project Team was contracted for the design of this project. Development of a conceptual (10%) design started in the summer and continued.

City Project #	LTCP Project Name	Activity	Date
OPW 53320	PCN 210 Sewer Separation	Begin Preliminary Design	7/5/2018
		Begin Final Design	*07/16/2019 (anticipated)*
		Advertise	*3/1/2020 (anticipated)*
		Bid Opening	*5/1/2020 (anticipated)*
		Begin Construction	*9/1/2020 (anticipated)*
		Substantial Completion	*12/31/2022 (anticipated)*

Anticipated Project Activity for Next Period

The project will continue with preliminary and final design.

Costs

Budgeted Construction Cost (September 2016): $1,932,000 with contingency.

Current Estimated Construction Cost: Currently being evaluated in the Conceptual Phase. Cost in the Project Developer Plan was $1,716,000.

Changes from the LTCP

None at this time. The LTCP lists CSO 210 inflow reduction and CSO 210 sewer separation both occurring in Sewer Separation Phase 5. The inflow reduction was schedule to happen before the sewer separation project, but it is the City's intent to switch these projects on the schedule and complete the sewer separation project before the inflow reduction project. A Change Notification Request was developed for the CSO 210 inflow project.

Other Items of Interest

An additional area of combined sewers was identified by the City in South 63rd Street between Blondo Street and Parker Street that flows into the CSO 210 service area. This area will be included in the design.

-ANNUAL PROJECT PROGRESS REPORT-
OCTOBER 1, 2017 THROUGH SEPTEMBER 30, 2018

OM CSO 119 South Barrel Conversion 5A/5B

CSOP.02.05.6C00 OM CSO 119 SOUTH BARREL CONVERSION 5A

CSOP.02.05.6D00 OM CSO 119 SOUTH BARREL CONVERSION 5B

LTCP Project Description:

This project is located in the Ohern/Monroe Basin and provides separation to a 180-acre area bounded on the north by Berry Avenue, on the east by 13th Street, on the south by Harrison Street, and on the west by Railroads.

South Barrel Diversion: Isolate the North and South Barrels to convert the South Barrel to a storm sewer while leaving the North Barrel in place. Abandon three existing diversion structures that currently allow overflows to the South Barrel. Abandon the two sets of "windows" that currently exist to allow flows to pass from one barrel to the other. Stormwater flows to the South Barrel will be maximized through other projects. The South Barrel will be converted to a storm sewer while leaving the North Barrel in place.

LTCP Phase: Phase 6 Sewer Separation Projects

CSO Permit Requirement:

On or before June 30, 2020, the City of Omaha shall commence bidding on one of the Sewer Separation Projects in Phase 6.

LTCP Schedule:

Bid Date: 07/01/2020

Construction Complete: 06/30/2023

Compliance Report

The Long Term Permit Milestones are anticipated to be met for the Ohern/Monroe CSO 119 South Barrel Conversions.

Activity	LTCP Schedule Date	Actual or Anticipated Date
Bidding	07/01/2020	*07/01/2020 (anticipated)*
End Construction	06/30/2023	*04/01/2023 (anticipated)*

-ANNUAL PROJECT PROGRESS REPORT-
OCTOBER 1, 2017 THROUGH SEPTEMBER 30, 2018

Project Activities and Progress as of 9/30/2018

The following is a brief synopsis of project activities and progress that have taken place prior to and during this reporting period:

- Notice to Proceed was issued to the design team dated 6/12/2018.
- The Project Team began the verification of the project area facilities and update to the hydraulic model to verify flow conditions in the North and South barrels.

City Project #	LTCP Project Name	Activity	Date
OPW 53149	CSO 119 South Barrel Conversion	Begin Preliminary Design	06/12/2018
		Begin Final Design	*09/01/2019 (anticipated)*
		Advertise	*07/01/2020 (anticipated)*
		Bid Opening	*09/01/2020 (anticipated)*
		Begin Construction	*04/01/2021 (anticipated)*
		Substantial Completion	*04/01/2023 (anticipated)*

Anticipated Project Activity for Next Period

The project will continue with final design following completion of the preliminary design.

Costs

Budgeted Construction Cost (September 2016): $13,668,000 with contingency.

Current Estimated Construction Cost: Currently being evaluated in the Conceptual Phase.

Changes from the LTCP

None at this time.

Other Items of Interest

This project includes the evaluation of closing of the two sets of three "windows" between the North Barrel and South Barrel and the impacts the closure may have on the hydraulics of each barrel. The evaluation also assesses the extent of sewer separation necessary or beneficial to the study area.

Attachment 3 – CSO Program: Change Notification and Request (CNR)

Change Documentation Tracking Form

REQUEST TITLE:	Cole Creek CSO 202 Sewer Separation Phase 1 and Phase 2 Projects	**DISCOVERY DATE:**	8/1/2018
INITIATED BY:	PMT	**REQUEST DATE:**	10/23/2018
PREPARED BY:	Ben Fisher and Vince Genco	**DECISION DATE DUE:**	
WBS NUMBER:	202 Phase 1: CSOP.02.05B.5D 202 Phase 2: CSOP.02.05B.5E		

Change Effects: (Check all that apply)

Scope ☒ Schedule ☒ Cost ☒

Change Description and Justification TM

SCOPE CHANGE:

The boundaries of Cole Creek CSO 202 Phase 1 and Phase 2 projects have been adjusted to coordinate with construction of an adjacent City Transportation project at the 72nd Street and Maple Street intersection. The extent of sewer separation for Phase 1 has been reduced, and Phase 2 has been increased. However; the overall area of sewer separation for CSO 202 basin remains the same.

SCHEDULE CHANGE:

As provided in the LTCP, CSO 202 Phase 1 was to be bid by 7/1/2020; however, with the need to construct the project before the transportation project at 72nd Street and Maple Street, the final design of CSO 202 Phase 1 will be completed by the end of 2018 and construction will be completed by 2020.

The LTCP also lists CSO 202 Phase 2 to be bid by 7/1/2020 and construction to be completed by 6/30/2022. Because of extensive utility relocation in the project area, and in order to effectively coordinate with the City Transportation project at 72nd Street and Maple Street, the CSO 202 Phase 2 schedule will likely be moved later. This is currently being reviewed.

The LTCP schedule identified for the Final Design, Bidding and Construction of the Cole Creek CSO 202 Sewer Separation Phase 1 and Phase 2 Projects are shown in the table below. The anticipated revised schedules are shown for comparison.

	202 Phase 1 LTCP Schedule	202 Phase 1 Anticipated Schedule	202 Phase 2 LTCP Schedule	202 Phase 2 Anticipated Schedule
Completion of Final Design	7/1/2020	*Anticipated 11/27/2018*	7/1/2020	*Under Review*
Advertisement for Bid	7/1/2020	*Anticipated 11/28/2018*	7/1/2020	*Under Review*
Start of Construction	12/29/2020	*Anticipated 6/3/2019*	12/29/2020	*Under Review*
Substantial Completion	6/30/2022	*Anticipated 11/6/2019*	6/30/2022	*Under Review*

COST CHANGE:

The current Opinion of Probable Construction Cost (OPCC) for CSO 202 Phase 1 of the project is much less than the Program Budget for Phase 1. The approximate $4.6 million decrease in cost is a result of a reduced project area for Phase 1 due to the need to complete sewer construction in a one block area of the Maple Street corridor before construction of the 72nd and Maple Street Transportation Project is set to begin. The construction costs for Phase 2 will be greater since the separation area for Phase 2 has increased to include the remainder of the Phase 1 area. The OPCC for CSO 202 Phase 2 will be determined once the design deliverable (60% design) is prepared by the Project Team in 2020.

PMT Review/Recommendation:

Team	Name	Recommended	Comments /Attachments	Date and Initial
COMPLIANCE	Pat Nelson	Yes	Revisions of the document that may conflict with comments below are the result of a review by Adam Wilmes on 11/27/2018.	pan
PROJECT DELIVERY	Scott Aurit	Yes	See comments/tracked changes for editorial clarifications.	**10/25/18 saa**
SEWER SEPARATION	Roger Coffey		Per comments and Re-baselined schedule	10/26/2018 rlc
PROGRAM CONTROLS	Jack Woo	Yes	See comments.	10/29/2018 JYW
CONSTRUCTION	Ron Sova	Yes		11/12/2018 RJS

ASSURANCE	Kent Bienlien	Yes		10/25/18 kdb

Program Managers Approval/Disapproval:

Title	Name	Approved	Comments	Date and Initial
CSO PROGRAM MANAGER	Tom Heinemann	Yes		12-13-18 TJH
CITY PROGRAM COORDINATOR	Jim Theiler	yes		12-13-18 JET

The Approval Date is the date of the last signature by the Program Managers.

Change Description and Justification TM

OPW 53417 – Cole Creek CSO 202 Phase 1 Sewer Separation
OPW 53417a – Cole Creek CSO 202 Phase 2 Sewer Separation

Introduction:

The purpose of this Technical Memorandum (TM) is to summarize a request for change to the scope, schedule, and cost for the Cole Creek CSO 202 Phase 1 and Phase 2 Projects. The change description and justification was prepared by the Program Management Team (PMT) to document changes to the scope, schedule, and cost.

Description of Changes

Scope Changes

The proposed OPW 53417 Cole Creek CSO 202 Phase 1 Sewer Separation Project is within the Cole Creek CSO 202 project area,but does not align with the original boundaries of Phase 1 or 2 depicted in the LTCP. The CSO 202 Phase 1 Project will include both sanitary and storm sewer improvements predominately along Maple Street, between 70th Avenue and 70th Street, in the Cole Creek CSO 202 drainage area. A federally funded transportation project is planned for the intersection of 72nd and Maple Street extending into the project area and construction is anticipated to begin in early 2020. To avoid removing street improvements (constructed as part of the transportation project), the City decided to expedite the design and construction of sewer separation work within the Cole Creek CSO 202 Phase 1 area specifically along the Maple Street corridor between 70th Avenue and 70th Street and denote the project as Cole Creek CSO 202 Phase 1 Sewer Separation Project.

Sanitary and storm sewer improvements will be constructed along Maple Street ahead of the transportation project. In the Phase I area, the existing combined sewer will remain as combined service due to the inlets remaining on the system upstream. The future Cole Creek CSO 202 Phase 2 Sewer Separation Project will address the remaining combined sewage flows in the Cole Creek CSO 202 drainage area. The separation improvements will include installation of both sanitary and storm sewers. Sanitary sewer stub-outs are included in the Phase 1 project to accommodate future Phase 2 separation improvements.

Schedule Changes

Due to the need for construction of CSO 202 Phase 1 prior to the adjacent roadway project, CSO 202 Phase 1 construction is anticipated to begin in June 2019 with Final Completion by November 2019. The expedited schedule of CSO 202 Phase 1 will comply with the LTCP schedule. CSO 202 Phase 2 is planned for construction after sewer separation of the adjacent drainage area (CSO 203). The LTCP schedule for CSO 202 Phase 2 lists construction completion by 6/30/2022.; CSO 202 Phase 2 schedule will likely be moved later. The impact to the LTCP schedule for CSO 202 Phase 2 as a result of the change in the size and schedule for CSO 202 Phase 1 is currently being reviewed. it is anticipated that the CSO 202 Phase 2

project schedule will comply with the LTCP schedule date for final completion of construction.

Cost Changes

The total Program budget for all both CSO 202 Phase 1 and 2 projects is approximately $11.3 million of which $5.8 million was for Phase 1. The current Opinion of Probable Construction Cost (OPCC) for at 95% Design of CSO 202 Phase 1 is approximately $1.2 million because of the reduced size. This is the result of the need to complete sewer work in the Maple Street corridor before the 72nd and Maple Street Transportation Project is set to occur. Currently, there is no OPCC for the CSO 202 Phase 2 project, but it is currently anticipated that the cost of both Phase 1 and 2 will be within the Program Budget of $11.3 million. The OPCC for CSO 202 Phase 2 will be determined once the next CSO 202 Phase 2 design deliverable is prepared by the Project Team.

PCN 210 Inflow Reduction Project – Change Documentation Tracking Form

REQUEST TITLE:	Papillion Creek North 210 Inflow Reduction	DISCOVERY DATE:	4/16/2018
INITIATED BY:	PMT	REQUEST DATE:	4/16/2018
PREPARED BY:	Ben Fisher	DECISION DATE DUE:	
WBS NUMBER:	Phase 5: CSOP.02.05.5A00		

Change Effects: (Check all that apply)

Scope ☐ Schedule ☒ Cost ☐

Change Description and Justification TM

SCHEDULE CHANGE:

The PCN 210 Inflow Reduction project is contingent on the results of PCN 210 Sewer Separation project. Given the interrelationship of these two projects, the LTCP schedule for PCN 210 Inflow Reduction is proposed to begin after the PCN 210 Sewer Separation project.

The Long Term Control Plan (LTCP) has identified Papillion Creek North 210 Inflow Reduction (PCN 210 Inflow Reduction) Preliminary Design to start on 5/4/2018 and Construction to be completed by 12/30/2021. The purpose of this change notification request is to revise the LTCP schedule. The schedule is proposed to better align with the schedule of the PCN 210 Sewer Separation Project (CSOP.02.05.5G00). The LTCP schedule for PCN 210 Sewer Separation identifies design to start 5/4/2020 and construction to be completed by 6/30/2023; however, design is anticipated to start in June 2018 with construction complete by 2022.

Provided below is a table with the PCN 210 Inflow Reduction project existing LTCP Task Dates and the *Anticipated* Task Dates.

	Begin Task		Complete Task	
	LTCP Date	*Anticipated Date*	LTCP Date	*Anticipated Date*
Preliminary Design	5/4/2018	*1/2/2025*	1/1/2019	*7/3/2025*
Final Design	1/1/2019	*7/3/2025*	1/1/2020	*7/3/2026*
Bidding	1/1/2020	*7/3/2026*	7/2/2020	*1/1/2026*
Construction	7/2/2020	*1/1/2026*	12/30/2021	*7/2/2027*
Start-Up & Closeout	12/30/2021	*7/2/2027*	12/31/2021	*7/5/2027*

PMT Review/Recommendation:

Team	Name	Recommended	Comments /Attachments	Date and Initial
COMPLIANCE	Pat Nelson	pan		05/10/2018
PROJECT DELIVERY	Scott Aurit	SAA		**05/01/2018**
SEWER SEPARATION	Roger Coffey	Yes		rlc 05/10/2018
PROGRAM CONTROLS	Jack Woo	Yes		jyw 05/08/2018
CONSTRUCTION	Ron Sova	RJS		05/10/2018
ASSURANCE	Kent Bienlien	Yes		kdb 05/01/18

Program Managers Approval/Disapproval:

Title	Name	Approved	Comments	Date and Initial
CSO PROGRAM MANAGER	Tom Heinemann	Y		TJH 5/11/18
CITY PROGRAM COORDINATOR	Jim Theiler	YES		JET 5/11/2018

The Approval Date is the date of the last signature by the Program Managers.

Change Description and Justification TM
PCN 210 Inflow Reduction Project

Introduction

The purpose of this Technical Memorandum (TM) is to summarize a request for change to the schedule for the Papillion Creek North (PCN) 210 Inflow Reduction Project. The change description and justification was prepared by the Program Management Team (PMT) to document the delay.

Description of the Change

According to the LTCP schedule, the preliminary design for this project was scheduled to start on May 4, 2018. However, given the purpose of the inflow reduction project, this project must be evaluated following completion of the PCN 210 Sewer Separation Project. The sewer separation project is anticipated to be constructed by mid-2023, with an approximate year and a half of post-construction evaluation and monitoring. This will provide the necessary data to evaluate the need for inflow reduction. If the data suggests that inflow reduction is not necessary, then this project may not be constructed; but if inflow reduction is recommended then design of the project would begin in January 2025. Construction would be scheduled to begin in January 2026 with construction complete by July 2027.

It should be noted that this project is grouped in Phase 5 of the LTCP sewer separation projects, which has a critical milestone of December 31, 2023 for the construction of all projects in Phase 5. With the proposed schedule changes, modifications to the LTCP dates of Phase 5, or the projects listed in Phase 5, would need to be modified.

OPW 52470 Forest Lawn Creek Inflow Removal and Outfall Storm Sewer Project (CSO) - Change Documentation Tracking Form

REQUEST TITLE:	OPW 52470 Forest Lawn Creek Inflow Removal and Outfall Storm Sewer Project (CSO)	**DISCOVERY DATE:**	4/1/2018
INITIATED BY:	PMT	**REQUEST DATE:**	4/13/2018
PREPARED BY:	Pat Nelson	**DECISION DATE DUE:**	
WBS NUMBER:	CSOP.02.04.4G00		

Change Effects: (Check all that apply)

Scope ☐ Schedule ☒ Cost ☐

Change Description and Justification TM

SCHEDULE CHANGE:

Final design for this project was originally to be complete on June 28, 2016 according to the LTCP schedule. A Change Notification Request was approved on October 28, 2016 which modified the final design date to September 11, 2017 and subsequent dates with a construction completion date of December 31, 2020.

In October of 2017, modifications were made to the schedule to show a revised date for completion of final design on March 31, 2018. However, this date was not met. On March 19, 2018, the City decided to not include two green infrastructure practices as part of the project. The result is a need to review the design and revised some elements of the plans. The revised date for completion of final design is August 1, 2018. This change should not affect the other schedule dates, including the completion of construction.

	New LTCP Schedule	Actual Completion *(Scheduled completion)*
Additional Study and Analysis	4/30/2015	7/21/2015
Preliminary Design	9/1/2015	7/21/2015
Completion of Final Design	8/1/2018	*7/1/2018*
Advertisement for Bid	3/31/2019	*9/31/2018*
Start of Construction	09/01/2019	*03/31/2019*

Substantial Completion	12/31/2021	*5/31/2021*

Red notes the changed dates.

PMT Review /Recommendation:

Team	Recommended	Comments/Attachments	Date and Initial
COMPLIANCE	yes		05/10/2018 pan
SEWER SEPARATION	YES		05/10/2018 RLC

Approval Date is date of the last signature by the Compliance Team Lead.

Change Description and Justification TM

OPW 52470 Forest Lawn Creek Inflow Removal and Outfall Storm Sewer Project (CSO)

Introduction

The purpose of this Technical Memorandum (TM) is to summarize a request for change to the schedule for the Forest Lawn Creek Inflow Removal and Outfall Storm Sewer Project. The change description and justification was prepared by the Program Management Team (PMT) to document the delay.

Description of the Change

Final design for this project was originally to be complete on June 28, 2016 according to the LTCP schedule. A Change Notification Request was approved on October 28, 2016 which modified the final design date to September 11, 2017 and subsequent dates which a construction completion date of December 31, 2020.

On March 15, 2018 the Project Team Proposed to modify the design to remove green infrastructure elements. Attachment 1 includes the memo and City approval. As a result of this modification as well as obtaining additional geotechnical information the date of March 31, 2018 was not met. A revised date of July 1, 2018 has been proposed by the design team. A date of August 1, 2018 date is being included in the change to allow for some flexibility. This change should not impact the project delivery plan date for bid of September 30, 2018 with issuance of a notice to proceed to the contractor for start of construction by March 31, 2019, nor the completion date of May 30, 2021. This is well in advance of the milestone date for Sewer Separation Phase 4 of June 30, 2022.

Attachment 1 – March 15, 2018 Memo and City Approval

MEMORANDUM

OPW 52470 – Forest Lawn Green Infrastructure Summary Memorandum

TO: Adam Wilmes, PE

FROM: PMT / Burns & McDonnell Design Team

DATE: March 15, 2018

Background

The objective of the 52470 Forest Lawn Sewer Separation project is to remove the perennial creek flow from the combined sewer system. This will be accomplished by sewer separation in the project area that includes utilizing existing trunk sewers and construction of a stormwater conveyance sewer to the CSO 105 channel.

Conceptual Design

As part of the conceptual design process, the Design Team evaluated Green Infrastructure options and identified two green infrastructure sites that provided a financial benefit to the project by reducing the size of the proposed downstream conveyance sewer system pipe. These sites included the 36th Street Detention Basin at an estimated construction cost of $300,000 and the 50th Street Detention Basin at an estimated construction cost of $250,000. The downsizing of the downstream stormwater conveyance sewer resulted in a reduction in conveyance sewer cost of approximately $2,700,000 (a net project savings of $2,150,000). The construction cost estimate at the 60% design stage was $18,509,000 which included the two detention basins. The City/PMT instructed the Design Team to include these two detention basins in the design based on the estimated cost savings.

Final Design

As the final design progressed toward the 90% final design deliverable, coordination continued with M.U.D. on utility relocations and with City Planning and the U.S. Army Corps of Engineers on permitting requirements for the two detention basins. These discussions resulted in impacts to the construction of the proposed conveyance sewer and the detention basins.

At the intersection of Minne Lusa Boulevard and Florence Boulevard, M.U.D has an 18-inch diameter high pressure gas main serving the OPPD's North Omaha Station. The proposed 108-inch diameter Reinforced Concrete Pipe (RCP) conveyance sewer alignment would have required the relocation of this high pressure gas line under the proposed conveyance sewer at considerable depth and expense. M.U.D. asked if the alignment of the conveyance sewer could be lowered to allow the 18-inch gas main to cross over the conveyance sewer. After evaluation by the Design Team, the 108-inch pipe was changed to a 10-foot by 7-foot precast

reinforced concrete box (RCB) culvert section to accommodate this request. The increase in cross-sectional area of the RCB compared to the RCP resulted in an approximate 5% increase in capacity for this segment of the outfall storm sewer. Cost estimates from local precast manufacturer's showed that the cost for the RCB was comparable if not less than the 108-inch RCP. The change from RCP to RCB also allowed greater clearance at the outfall to the Minne Lusa Channel between the Magellan Midstream Partners' Sioux City petroleum pipeline and the RCB outfall storm sewer, resulting in reduced risk during construction for this crossing. Because of these utility considerations, a total of approximately 1300 lineal feet of 108-inch RCP was changed to 10-foot by 7-foot RCB.

A design change was also made on Weber Street to the proposed section of 96-inch storm sewer tunnel based on an updated survey. The proposed storm sewer tunnel conflicted with the existing 36-inch RCP Florence sanitary sewer, which would have required relocation of the existing sanitary sewer. The grade of the proposed 96-inch tunnel section was evaluated, and as a result, approximately 1400 lineal feet of proposed 96-inch pipe was steepened to allow the proposed 96-inch storm sewer to go under the existing sanitary sewer to avoid relocation of the sanitary sewer. This change eliminated the need to relocate the sanitary sewer and increased the slope of the storm sewer from 0.5% to 1.06%, resulting in an increase in capacity of approximately 68%.

As a result of the modifications to the grades and change from an RCP to RCB section, the conveyance sewer now has the capacity to provide a 10-year level of service.

The Corps of Engineers permitting review for the 50th & Forest Lawn Avenue basin imposed a 2:1 wetland mitigation requirement for the site. As a result the proposed detention basin more than doubled in size and, due to the topography at the site, the excavation increased substantially from 15,000 CY at 60% design to 78,000 CY at 90% design. Based on modeled flow rates for the basin, the increase in basin size provided only a marginal impact to peak flow reduction while the cost estimate for this basin increased from $250,000 to over $700,000 for the additional excavation.

During conceptual and preliminary design, the Design Team had discussions with the City Planning Department regarding the proposed detention basin at 50th and Forest Lawn Avenue. During final design on the Project, the new Planning Director was unaware of the proposed modifications to the land and reviewed the plans for the 50th Street Detention Basin. The Planning Department then determined that the proposed green infrastructure had to remain outside of the dedicated street right-of-way (ROW) in this area for the potential future construction of Forest Lawn Avenue. This decision required a further shift in the basin layout to stay clear of the ROW. Due to the topography of the area, this required another substantial increase in excavation as the basin had to be shifted farther into the side of the hill. The total excavation went from 78,000 CY to the current 130,000 CY.

The design of the 50th Street and Forest Lawn Avenue Detention Basin has changed significantly since the preliminary and 60% design stages due to the required modifications. These modifications have resulted in a cost increase from $250,000 in preliminary design to over $1,300,000 based on the 90% design. This increase is predominately due to the USACE and Planning Department modifications.

Summary

The original Forest Lawn Sewer Separation project design included green infrastructure improvements located at 36th and Forest Lawn Avenue and 50th Street and Forest Lawn Avenue. The evaluation and intent were to provide stormwater detention, which allowed for reduction in infrastructure size downstream for new infrastructure and provide for a 10-year service level. Infrastructure savings of the original green infrastructure sites were estimated at $2,700,000.

Due to requirements by the City of Omaha Planning Department and the U.S. Army Corps of Engineers, the cost of the 50th Street Detention Basin increased significantly. In addition, through ongoing coordination with M.U.D. and the modifications to the conveyance sewer the hydraulic performance of the box sections results in the conveyance of the 10-year storm event in the proposed sewer system without the influence of the upstream Green Infrastructure sites. Therefore, the green infrastructure features provide no hydraulic benefits to the project.

The updated project 90% construction cost estimate is $18,781,000. This includes $1,862,000 for the 50th Street Basin and $352,000 for the 36th Street Basin. Without the Green Infrastructure basins the 90% project estimate is $16,567,000 for a savings of $2,214,000.

33rd and Hanover Street

The existing combined system (slated for reuse as storm sewer) currently surcharges at 33rd and Hanover Street during the 10-year event. If both green infrastructure sites are eliminated from the project, the level of inundation experienced will not be greater than the existing levels of inundation experienced during the 10-year and 100-year storm events.

It should be noted that if both green infrastructure sites are constructed, modeling shows that the surcharging at the surface in a 10-year event would be eliminated at 33rd and Hanover. However, under all scenarios (both green infrastructure sites built, or neither built), the site at 33rd and Hanover has significant surcharging at the surface in a 100-year event.

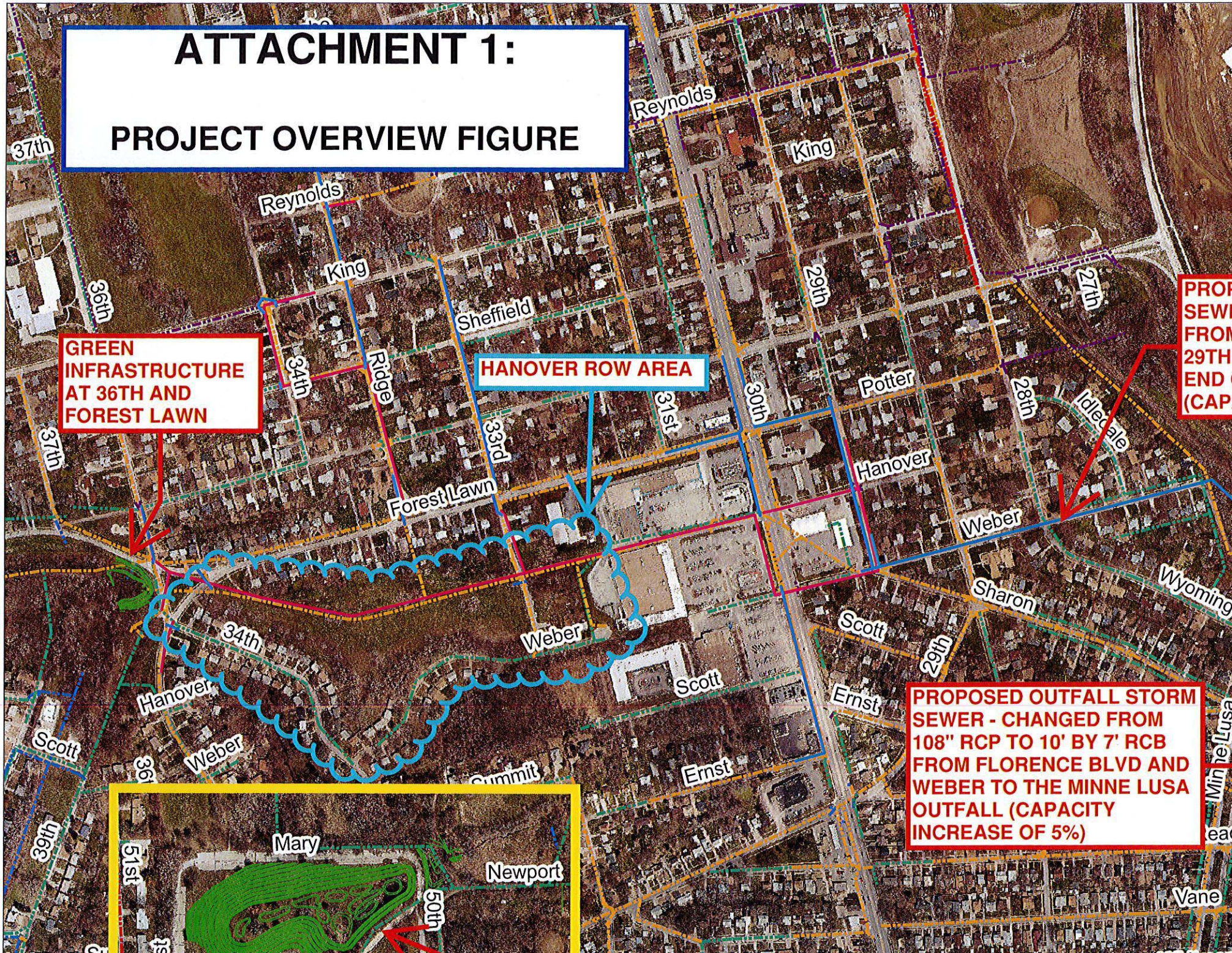
The current design of the 36th Street Detention does help in keeping woody debris out of the existing 114-inch sewer due to the new outlet control structure that would be constructed as part of the 36th Street detention.

Recommendation

Based on the anticipated construction costs and limited benefits the green infrastructure would currently provide, it is Burns & McDonnell's recommendation to eliminate the green infrastructure at 50th Street and 36th Street. As the design progresses, Burns & McDonnell will coordinate with Sewer Maintenance to add a screening structure at 36th Street for capture of woody debris which will provide a maintenance benefit.

ATTACHMENT 1:

PROJECT OVERVIEW FIGURE



From:	Adam Wilmes (PWks)
To:	Nelson, Pat/OMA
Cc:	Coffey, Roger; Mike Paukert (PWks); Ned A. Tramp (PWks); James Theiler (PWks); Tim Papstein (Pwks); Aurit, Scott A.
Subject:	Fwd: Forest Lawn Memorandum [EXTERNAL]
Date:	Wednesday, March 28, 2018 3:31:19 PM
Attachments:	52470_Forest_Lawn_SS_Green_Infrastructure_Summary_Memo_2018.03.19.docx 52470_Forest.Lawn_Attachment-01.pdf

---

Pat,

I apologize I didn't pass this on earlier. Please distribute/post as you see necessary to document the decision.

Thanks,
Adam

Adam Wilmes, PE
Omaha/Douglas Civic Center
Public Works, Design Division, Suite 604
1819 Farnam Street
Omaha, NE 68183-0604
Adam.Wilmes@CityofOmaha.org
(402) 444-3819

---------- Forwarded message ----------
From: **Jim Theiler (PWks)** <james.theiler@cityofomaha.org>
Date: Mon, Mar 19, 2018 at 8:27 AM
Subject: Re: Forest Lawn Memorandum
To: "Adam Wilmes (PWks)" <adam.wilmes@cityofomaha.org>

Combined sewers converted to storm do not need to meet the 10 year design criteria. Only the construction of a new storm sewer system requires meeting the 10 year criteria.

Please proceed as you have recommended.

Jim Theiler, P.E.
City of Omaha Public Works - Assistant Director
Environmental Services
1819 Farnam Street
Omaha, NE 68183
James.Theiler@CityofOmaha.org
NOTE: NEW PHONE CONTACT INFO
office: (402) 444-5225
cell: (531) 222-7901`

On Mon, Mar 19, 2018 at 8:20 AM, Adam Wilmes (PWks) <adam.wilmes@cityofomaha.org> wrote:

Jim,

The Forest Lawn design team is proposing to eliminate two areas of green infrastructure. More details in attached memo, but essentially the two areas were originally included because of a favorable cost/benefit ratio. After the costs rose significantly, and other design changes reduced the benefits significantly, they are recommending to proceed to final without the GI. A part of the combined system (that will be converted to storm sewer) currently surcharges in a 10-year event. Without building the 2 GI sites, this 10-year surcharging will remain, and the storm system will therefore not meet City Standards. The 10-year event surcharging could have been eliminated if both GI sites were constructed, but at an estimated cost of $2.7M, I did not view the elimination of surcharging as a primary function of this CSO project. If the project proceeds without the two GI sites as recommended, the surcharging will be slightly better than current conditions, but will remain.

I believe that any waivers to City Standards need PW Director approval. Please let me know how you would like to proceed with this. Would you like to meet with me or design team first to better understand? Set up a meeting with Bob to go over?

Thanks,
Adam

Adam Wilmes, PE
Omaha/Douglas Civic Center
Public Works, Design Division, Suite 604
1819 Farnam Street
Omaha, NE 68183-0604
Adam.Wilmes@CityofOmaha.org
(402) 444-3819

---------- Forwarded message ----------
From: **Coffey, Roger** <Roger.Coffey@hdrinc.com>
Date: Mon, Mar 19, 2018 at 7:36 AM
Subject: Forest Lawn Memorandum
To: "Adam Wilmes (Adam.Wilmes@cityofomaha.org)" <Adam.Wilmes@cityofomaha.org>

Adam,

Here is the final version incorporating your comments and the lengths of pipe adjustments from Burns & McDonnell.

I think you have a copy of the exhibit that was prepared.

> Let me know if you need anything else or want me to attend the meeting with Stubbe, if that would help.
>
> Roger

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Change Documentation Tracking Form

REQUEST TITLE:	CSOP.02.04.4R00 4R – BI Nicholas & Webster Separation Ph 2 (CSO 108)	**DISCOVERY DATE:**	7/11/18
INITIATED BY:	PMT	**REQUEST DATE:**	7/11/18
PREPARED BY:	Robert Magallon/PMT Tiffany McEachen/PMT	**DECISION DATE DUE:**	
WBS NUMBER:	CSOP .02.04.4G00		

Change Effects: (Check all that apply)

Scope ☐ Schedule ☒ Cost ☐

Rehabilitation project ☐ Other ☐

Brief Summary from Change Description and Justification TM

SCOPE: No scope changes proposed at this time.

SCHEDULE: As noted in the attached memorandum, the LTCP Schedule dates for the referenced project are being modified as follows, as evaluations are ongoing to determine whether this project will be necessary as part of implementing the LTCP.

	New LTCP Schedule
Start Preliminary Design	1/1/2028
Completion of Final Design	6/30/2029
Advertisement for Bid	10/1/2029
Start of Construction	3/1/2031
Complete Construction	12/31/2032

COST: No cost changes proposed at this time, though delaying project could result in higher construction costs due to inflation.

OTHER: No other changes proposed.

PMT Review/Recommendation:

Team	Name	Recommended	Comments /Attachments	Date and Initial
COMPLIANCE	Pat Nelson	Yes	This was reviewed by Adam Wilmes on 11/27/2018	PAN 11/28/2018
PROJECT DELIVERY	Scott Aurit	Yes		SAA 11/01/2018
SEWER SEPARATION	Roger Coffey	YES	See attached	RLC 10/22/2018
PROGRAM CONTROLS	Jack Woo	Yes		JYW 10/29/2018
CONSTRUCTION	Ron Sova	Yes		RJS 11/12/2018
ASSURANCE	Kent Bienlien	Yes		10/25/2018 kdb

Program Managers Approval/Disapproval:

Title	Name	Approved	Comments	Date and Initial
PROGRAM MANAGER	Tom Heinemann	YES / NO		12-13-18 TJH
CITY PROGRAM COORDINATOR	Jim Theiler	YES / NO		12-13-18 JEI

The Approval Date is the date of the last signature by the Program Manager.

Change Description and Justification TM

CSOP.02.04.4R00 4R – BI Nicholas & Webster Separation Ph. 2

Introduction:

The purpose of Nicholas & Webster Ph. 2 is to continue the sewer separation that was previously completed as a part of Nicholas & Webster Ph. 1, and extend it into the area described and shown below. The project was to include evaluation of whether to separate areas to the north and south and connect them into the newly separated system. As part of continual adaptive management practices of the CSO Program, an update to the Long Term Control Plan (LTCP) was prepared in 2014. The schedules for many LTCP projects were adjusted based on this update. In addition, in 2016-2017, the CSO Program performed various Technical Assessments for Cost Savings (TACS), including reviewing alternatives to reach 85% wet weather volume capture in the representative year within the Missouri River Watershed while minimizing costs. Also, for several reasons including to allow time for further evaluation and optimization analyses, in working with the NDEQ, the City of Omaha was granted a 10-year extension of the Consent Order. Primarily as a result of the TACS analysis, it has been suggested that the Nicholas & Webster Ph. 2 project may no longer be needed to meet CSO goals, as it may not be a cost effective component of a plan to achieve the 85% wet weather volume capture requirement.

Description of Changes

Additional analyses and modeling of the City's combined sewer system were performed as part of the CSO LTCP Update (2014), and as part of the TACS. The goal of these additional analyses was to determine the water quality benefits already achieved through implementation of CSO LTCP projects to date, and to reassess and confirm the need, priority, and phasing for remaining LTCP projects.

As a result of these analyses, at this time, the Webster Nicholas Phase II project has been deferred, until approximately 2028 with completion of construction by the end of 2032. It may later as part of the next LTCP Update be determined through ongoing analyses and evaluation of projects' performance that the project is not necessary to achieve the goals of the LTCP.

Scope Changes

Scope changes have not been identified for this project at this time.

Schedule Changes

As a result of the LTCP Update and TACS analyses, the following New LTCP Schedule dates will be included in the tracking schedule. Utility relocations associated with the projects may affect the proposed schedule.

	Previous LTCP Schedule	New LTCP Schedule
Start Preliminary Design	8/2/2018	1/1/2028
Complete Preliminary Design	4/2/2019	6/28/2028
Start Final Design	4/2/2019	6/29/2028
Completion of Final Design	1/1/2020	6/30/2029
Advertisement for Bid	1/1/2020	10/1/2029
Start of Construction	7/29/2020	3/1/2031
Complete Construction	6/30/2022	12/31/2032

Cost Changes

Cost changes have not been determined at this time, though due to inflation, if the project is constructed at the later date, costs would be higher than originally anticipated in the LTCP.

Future Development-Project Study Area

The following aerial photo illustrates the project study area, in the Burt Izard Basin. In general, the study area extends from Hamilton/Paul St. on the north to Burt St. on the south, and between Highway 75 on the west to N. 20th St. on the east. Possible development in the North Downtown Area may prompt an earlier decision as to whether the Nicholas Webster Phase 2 project will move forward or not. While possible development would not necessarily provide a reason for this project to move forward, development may cause a decision about the project to be made sooner.

Sewer Condition Assessment and Existing Issues

During construction of the Nicholas & Webster Ph. 1 Sewer Separation project, the combined 66-inch brick sewer along Nicholas St. between N. 20th St. and N. 18th St. collapsed. This required installation of new 72-inch Reinforced Concrete Pipe to replace the collapsed sewer. Due to poor conditions of the remaining section of the 66-inch brick sewer through the proposed project area, future development or construction in the area could result in additional pipe failure. These existing sewer conditions and results of potential future condition assessments could alter the proposed scope and schedule for this project, if the City decides to build the project.

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Pierce St Sewer Separation - Change Documentation Tracking Form

REQUEST TITLE:	Pierce St Sewer Separation	DISCOVERY DATE:	4/1/2018
INITIATED BY:	PMT	REQUEST DATE:	4/9/2018
PREPARED BY:	Pat Nelson	DECISION DATE DUE:	
WBS NUMBER:	CSOP.02.06.6B00		

Change Effects: (Check all that apply)

Scope ☐ Schedule ☒ Cost ☐

Rehabilitation project ☐ Other ☐

Brief Summary from Change Description and Justification TM

SCOPE: No scope changes proposed at this time.

SCHEDULE: As noted in the attached memorandum, the LTCP Schedule dates for the referenced project are being modified as follows, as evaluations are ongoing to determine whether this project will be necessary as part of implementing the LTCP. The Complete Construction Date will not meet the Phase 6 milestone date of December 31, 2023, which is outside of the term of the current CSO permit. Therefore, the following schedule should be viewed as a placeholder until the LTCP is revised to take into account the additional 10 years provided in the Amended Consent Order.

	New LTCP Schedule
Start Preliminary Design	1/1/2020
Completion of Final Design	6/30/2022
Advertisement for Bid	7/1/2022
Start of Construction	1/1/2023
Complete Construction	12/31/2024

COST: No cost changes proposed at this time, though delaying project could result in higher construction costs due to inflation.

OTHER: No other changes proposed.

PMT Review/Recommendation:

Team	Name	Recommended	Comments /Attachments	Date and Initial
COMPLIANCE	Pat Nelson	Yes		Pan 05/10/2018
PROJECT DELIVERY	Scott Aurit	Yes		SAA 05/10/2018
SEWER SEPARATION	Roger Coffey	Yes		rlc 05/04/2018
PROGRAM CONTROLS	Jack Woo	Yes		jyw 05/08/18
CONSTRUCTION	Ron Sova	Yes		RJS 05/10/18
ASSURANCE	Kent D Bienlien	Yes		kdb 05/01/18

Program Managers Approval/Disapproval:

Title	Name	Approved	Comments	Date and Initial
PROGRAM MANAGER	Tom Heinemann	(YES) / NO		5/11/18
CITY PROGRAM COORDINATOR	Jim Theiler	(YES) / NO		JET 5/11/18

The Approval Date is the date of the last signature by the Program Manager.

CSOP.02.05.6B00 6B - SI Pierce Street Sewer Separation (CSO 110) Change Description and Justification TM

Introduction:

As part of continual adaptive management practices of the CSO Program, an update to the Long Term Control Plan (LTCP) was prepared in 2014. The schedules for many LTCP projects were adjusted based on this update. In addition, in 2016-2017, the CSO Program performed various Technical Assessments for Cost Savings (TACS), including, reviewing alternatives to reach 85% wet weather volume capture in the representative year within the Missouri River Watershed while minimizing costs.

Description of Changes

Additional analyses and modeling of the City's combined sewer system were performed as part of updating the CSO LTCP, and as part of the TACS. The goal of these additional analyses was to determine the water quality benefits already achieved through implementation of CSO LTCP projects to date, and to reassess and confirm the need, priority, and phasing for remaining LTCP projects.

As a result of these analyses, at this time, the Pierce Street Sewer Separation project has been deferred, until approximately 2020 with completion of construction by the end of 2023. It may later be determined through ongoing analyses that the project is not necessary to achieve the goals of the LTCP.

Scope Changes

Scope changes have not been identified for this project at this time.

Schedule Changes

As a result of the LTCP Update and TACS analyses, the following dates will be included in the LTCP deadline & milestone tracking schedule as a placeholder, until the LTCP is modified in March 2020.

	New LTCP Schedule
Start Preliminary Design	1/1/2020
Completion of Final Design	6/30/2022
Advertisement for Bid	7/1/2022
Start of Construction	1/1/2023

Complete Construction	12/31/2024

The above schedule will not meet the Phase 6 due date for all projects to be substantively complete by December 31, 2023. This will be addressed as part of an amendment to the permit and LTCP.

Cost Changes

Cost changes have not been determined at this time, though due to inflation, if the project is constructed at the later date, costs would be higher than originally anticipated in the LTCP

Attachment 4 – Wet Weather CSO Occurrences Report

CSO Inspection Report

CSO Number 103 **Total Wet Weather Overflows:** 1

CSO Name Bridge Street Lift Station

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
9/5/2018	7:04	Birdsall, Jeremiah	Rain	Yes	No	9/4/2018	Engineering analysis of WW event and US flow meters determined an overflow occurred.	1.77

CSO Inspection Report

CSO Number 105 **Total Wet Weather Overflows:** 26

CSO Name Minne Lusa Avenue

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/2/2017	12:33	Sitzman, Steve	Rain	Yes	No	10/2/2017	For By-Pass on 10-1-2017 and 10-2-2017	0.73
10/10/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/9/2017		0.14
10/14/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/14/2017		0.28
1/22/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	1/22/2018		0.4
1/26/2018	7:46	Sitzman, Steve	Snow Melt	Yes	No	1/25/2018		0
1/27/2018	8:13	Sitzman, Steve	Snow Melt	Yes	No	1/26/2018		0
2/15/2018	15:20	Wickham, Evan	Snow Melt	Yes	No	2/14/2018		0
3/17/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/16/2018		0.87
3/24/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/24/2018		0.41
3/27/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/26/2018		0.67
4/25/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	4/25/2018		0.13
5/2/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/1/2018		0.1
5/11/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/11/2018		0.29
5/14/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/14/2018		0.18
5/20/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/20/2018		0.18
5/22/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/22/2018		0.71
6/2/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/2/2018		1.04
6/7/2018	7:46	Birdsall, Jeremiah	Rain	Yes	No	6/6/2018		0.32
6/11/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/11/2018	Check for early morning WW event	0.88
6/12/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/11/2018	Check for afternoon WW event	0.88
6/19/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/19/2018		1.6
6/20/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/20/2018		0.47
6/21/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/21/2018		0.1

CSO Inspection Report

CSO Number 105 **Total Wet Weather Overflows:** 26

CSO Name Minne Lusa Avenue

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
8/15/2018	12:34	Frolio, Brandon	Rain	Yes	No	8/15/2018		0.33
8/16/2018	12:34	Frolio, Brandon	Rain	Yes	No	8/16/2018		0.35
9/5/2018	7:04	Birdsall, Jeremiah	Rain	Yes	No	9/4/2018		1.77

CSO Inspection Report

CSO Number 106 **Total Wet Weather Overflows:** 35

CSO Name North Interceptor

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/2/2017	12:33	Sitzman, Steve	Rain	Yes	No	10/2/2017	For By-Pass on 10-1-2017 and 10-2-2017	0.73
10/6/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/5/2017		0.68
10/7/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/7/2017	For By-Pass on 10/6 and 10/7	0.29
10/10/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/9/2017		0.14
10/14/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/14/2017		0.28
1/22/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	1/22/2018		0.4
1/26/2018	7:47	Sitzman, Steve	Snow Melt	Yes	No	1/25/2018		0
2/15/2018	15:20	Wickham, Evan	Snow Melt	Yes	No	2/14/2018		0
2/25/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	2/24/2018		0.16
2/26/2018	12:34	Fagerquist, Dylan	Snow Melt	Yes	No	2/25/2018		0
2/27/2018	12:34	Fagerquist, Dylan	Snow Melt	Yes	No	2/26/2018		0
3/17/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/16/2018		0.87
3/19/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/19/2018		0.18
3/24/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/24/2018		0.41
3/27/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/26/2018		0.67
5/2/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/1/2018		0.1
5/3/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/2/2018		0.28
5/11/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/11/2018		0.29
5/14/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/14/2018		0.18
5/20/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/20/2018		0.18
5/22/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/22/2018		0.71
6/2/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/2/2018		1.04
6/7/2018	7:46	Birdsall, Jeremiah	Rain	Yes	No	6/6/2018		0.32

CSO Inspection Report

CSO Number 106 **Total Wet Weather Overflows:** 35

CSO Name North Interceptor

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
6/9/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/9/2018		0.11
6/11/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/11/2018	Check for early morning WW event	0.88
6/12/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/11/2018	Check for afternoon WW event	0.88
6/18/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/17/2018		0.13
6/19/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/19/2018		1.6
6/20/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/20/2018		0.47
6/21/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/21/2018		0.1
8/15/2018	12:34	Frolio, Brandon	Rain	Yes	No	8/15/2018		0.33
8/16/2018	12:34	Frolio, Brandon	Rain	Yes	No	8/16/2018		0.35
9/1/2018	14:57	Birdsall, Jeremiah	Rain	Yes	No	9/1/2018		0.24
9/19/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	9/18/2018		0.15
9/21/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	9/20/2018		0.91

CSO Inspection Report

CSO Number 107 **Total Wet Weather Overflows:** 32

CSO Name Grace Street

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/2/2017	12:34	Sitzman, Steve	Rain	Yes	No	10/2/2017	For By-Pass on 10-1-2017 and 10-2-2017	0.73
10/6/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/5/2017		0.68
10/7/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/7/2017	For By-Pass on 10/6 and 10/7	0.29
10/10/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/9/2017		0.14
10/14/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/14/2017		0.28
1/22/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	1/22/2018		0.4
1/26/2018	7:48	Sitzman, Steve	Snow Melt	Yes	No	1/25/2018		0
2/25/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	2/24/2018		0.16
2/26/2018	12:34	Fagerquist, Dylan	Snow Melt	Yes	No	2/25/2018		0
2/27/2018	12:34	Fagerquist, Dylan	Snow Melt	Yes	No	2/26/2018		0
3/17/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/16/2018		0.87
3/19/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/19/2018		0.18
3/24/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/24/2018		0.41
3/27/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/26/2018		0.67
5/2/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/1/2018		0.1
5/3/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/2/2018		0.28
5/11/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/11/2018		0.29
5/14/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/14/2018		0.18
5/20/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/20/2018		0.18
5/22/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/22/2018		0.71
6/2/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/2/2018		1.04
6/9/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/9/2018		0.11
6/11/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/11/2018	Check for early morning WW event	0.88

CSO Inspection Report

CSO Number 107 **Total Wet Weather Overflows:** 32

CSO Name Grace Street

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
6/12/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/11/2018	Check for afternoon WW event	0.88
6/18/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/17/2018		0.13
6/19/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/19/2018		1.6
6/20/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/20/2018		0.47
6/21/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/21/2018		0.1
8/15/2018	12:34	Frolio, Brandon	Rain	Yes	No	8/15/2018		0.33
8/16/2018	12:34	Frolio, Brandon	Rain	Yes	No	8/16/2018		0.35
9/19/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	9/18/2018		0.15
9/21/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	9/20/2018		0.91

CSO Inspection Report

CSO Number 108 **Total Wet Weather Overflows:** 37

CSO Name Burt Izard Street Lift Station

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/2/2017	12:34	Sitzman, Steve	Rain	Yes	No	10/2/2017	For By-Pass on 10-1-2017 and 10-2-2017	0.73
10/6/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/5/2017		0.68
10/7/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/7/2017	For By-Pass on 10/6 and 10/7	0.29
10/10/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/9/2017		0.14
10/14/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/14/2017		0.28
10/21/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/21/2017		0.07
11/18/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	11/18/2017		0.22
1/22/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	1/22/2018		0.4
2/15/2018	15:21	Wickham, Evan	Snow Melt	Yes	No	2/14/2018		0
2/25/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	2/24/2018		0.16
2/26/2018	12:34	Fagerquist, Dylan	Snow Melt	Yes	No	2/25/2018		0
2/27/2018	12:34	Fagerquist, Dylan	Snow Melt	Yes	No	2/26/2018		0
3/17/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/16/2018		0.87
3/19/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/19/2018		0.18
3/24/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/24/2018		0.41
3/27/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/26/2018		0.67
4/25/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	4/25/2018		0.13
5/2/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/1/2018		0.1
5/3/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/2/2018		0.28
5/11/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/11/2018		0.29
5/14/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/14/2018		0.18
5/20/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/20/2018		0.18
5/22/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/22/2018		0.71

CSO Inspection Report

CSO Number 108 **Total Wet Weather Overflows:** 37

CSO Name Burt Izard Street Lift Station

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
5/30/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/29/2018		0.06
6/2/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/2/2018		1.04
6/9/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/9/2018		0.11
6/10/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/10/2018		0.38
6/11/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/11/2018	Check for early morning WW event	0.88
6/12/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/11/2018	Check for afternoon WW event	0.88
6/18/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/17/2018		0.13
6/19/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/19/2018		1.6
6/20/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/20/2018		0.47
6/21/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/21/2018		0.1
8/15/2018	12:34	Frolio, Brandon	Rain	Yes	No	8/15/2018		0.33
8/16/2018	12:34	Frolio, Brandon	Rain	Yes	No	8/16/2018		0.35
9/19/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	9/18/2018		0.15
9/21/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	9/20/2018		0.91

CSO Inspection Report

CSO Number 109 **Total Wet Weather Overflows:** 44

CSO Name 1st and Leavenworth Lift Station

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/2/2017	12:35	Sitzman, Steve	Rain	Yes	No	10/2/2017	Yes per SCADA email	0.73
10/3/2017	14:54	Sitzman, Steve	Rain	Yes	No	10/3/2017	Confirmed by level analysis by Curtis W.	0.07
10/6/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/5/2017	Yes per SCADA email	0.68
10/7/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/7/2017	Yes per SCADA email; For By-Pass on 10/6 and 10/7	0.29
10/10/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/9/2017	Yes per SCADA email	0.14
10/14/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/14/2017	Yes per SCADA email	0.28
10/21/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/21/2017	Yes per SCADA email	0.07
1/22/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	1/22/2018	Confirmed by level analysis by Curtis W.	0.4
3/19/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/19/2018	Yes per SCADA email	0.18
3/24/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/24/2018	Yes per SCADA email	0.41
3/27/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/26/2018	Yes per SCADA email	0.67
4/25/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	4/25/2018	Yes per SCADA email	0.13
5/2/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/1/2018	Yes per SCADA email	0.1
5/3/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/2/2018	Yes per SCADA email	0.28
5/11/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/11/2018	Yes per SCADA email	0.29
5/20/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/20/2018	Confirmed by level analysis by Curtis W.	0.18
5/22/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/22/2018	Yes per SCADA email	0.71
5/30/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/29/2018	Yes per SCADA email	0.06
6/2/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/2/2018	Yes per SCADA email	1.04
6/7/2018	6:45	Birdsall, Jeremiah	Rain	Yes	No	6/6/2018	Yes per SCADA email	0.32
6/9/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/9/2018	Yes per SCADA email	0.11
6/11/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/11/2018	Confirmed by level analysis by Curtis W.; Check for early morning WW event	0.88
6/12/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/11/2018	Yes per SCADA email; Check for afternoon WW event	0.88

CSO Inspection Report

CSO Number 109 **Total Wet Weather Overflows:** 44

CSO Name 1st and Leavenworth Lift Station

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
6/18/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/17/2018	Yes per SCADA email	0.13
6/19/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/19/2018	Yes per SCADA email	1.6
6/20/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/20/2018	Confirmed by level analysis by Curtis W.	0.47
6/21/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/21/2018	Yes per SCADA email	0.1
6/26/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/25/2018	Yes per SCADA email	0.69
7/1/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/30/2018	Yes per SCADA email	0.34
7/5/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	7/4/2018	Yes per SCADA email	0.86
7/18/2018	12:34	Frolio, Brandon	Rain	Yes	No	7/17/2018	Yes per SCADA email	1.06
7/29/2018	12:34	Frolio, Brandon	Rain	Yes	No	7/28/2018	Yes per SCADA email	0.43
8/4/2018	12:34	Frolio, Brandon	Rain	Yes	No	8/4/2018	Yes per SCADA email	0.2
8/7/2018	16:09	Birdsall, Jeremiah	Rain	Yes	No	8/6/2018	Yes per SCADA email	0.14
8/15/2018	12:34	Frolio, Brandon	Rain	Yes	No	8/15/2018	Yes per SCADA email	0.33
8/16/2018	12:34	Frolio, Brandon	Rain	Yes	No	8/16/2018	Yes per SCADA email	0.35
8/21/2018	12:34	Birdsall, Jeremiah	Rain	Yes	No	8/20/2018	Confirmed by level analysis by Curtis W.	6.17
9/1/2018	15:01	Birdsall, Jeremiah	Rain	Yes	No	9/1/2018	Yes per SCADA email	0.24
9/2/2018	15:22	Birdsall, Jeremiah	Rain	Yes	No	9/2/2018	Yes per SCADA email	0.35
9/3/2018	15:35	Birdsall, Jeremiah	Rain	Yes	No	9/3/2018	Yes per SCADA email	0.25
9/5/2018	7:06	Birdsall, Jeremiah	Rain	Yes	No	9/4/2018	Yes per SCADA email	1.77
9/7/2018	6:19	Birdsall, Jeremiah	Rain	Yes	No	9/7/2018	Confirmed by level analysis by Curtis W.	0.14
9/21/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	9/20/2018	Yes per SCADA email	0.91
9/25/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	9/25/2018	Confirmed by level analysis by Curtis W.	0.64

CSO Inspection Report

CSO Number 110 **Total Wet Weather Overflows:** 12

CSO Name Pierce Street Lift Station

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/2/2017	12:35	Sitzman, Steve	Rain	Yes	No	10/2/2017	For By-Pass on 10-1-2017 and 10-2-2017	0.73
10/3/2017	14:54	Sitzman, Steve	Rain	Yes	No	10/3/2017		0.07
10/7/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/7/2017	For By-Pass on 10/6 and 10/7	0.29
10/10/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/9/2017		0.14
10/14/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/14/2017		0.28
1/22/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	1/22/2018		0.4
2/15/2018	15:23	Wickham, Evan	Snow Melt	Yes	No	2/14/2018		0
2/25/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	2/24/2018		0.16
3/17/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/16/2018		0.87
3/19/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/19/2018		0.18
3/24/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/24/2018		0.41
3/27/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/26/2018		0.67

CSO Inspection Report

CSO Number 111 **Total Wet Weather Overflows:** 11

CSO Name Hickory Street Lift Station

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/2/2017	12:36	Sitzman, Steve	Rain	Yes	No	10/2/2017	For By-Pass on 10-1-2017 and 10-2-2017	0.73
10/7/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/7/2017	For By-Pass on 10/6 and 10/7	0.29
10/10/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/9/2017		0.14
10/14/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/14/2017		0.28
1/22/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	1/22/2018		0.4
1/26/2018	7:53	Sitzman, Steve	Snow Melt	Yes	No	1/25/2018		0
2/25/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	2/24/2018		0.16
2/26/2018	12:34	Fagerquist, Dylan	Snow Melt	Yes	No	2/25/2018		0
3/17/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/16/2018		0.87
3/24/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/24/2018		0.41
3/27/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/26/2018		0.67

CSO Inspection Report

CSO Number 112 **Total Wet Weather Overflows:** 38

CSO Name Martha Street

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/2/2017	12:35	Sitzman, Steve	Rain	Yes	No	10/2/2017	For By-Pass on 10-1-2017 and 10-2-2017	0.73
10/3/2017	14:54	Sitzman, Steve	Rain	Yes	No	10/3/2017		0.07
10/7/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/7/2017	For By-Pass on 10/6 and 10/7	0.29
10/10/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/9/2017		0.14
10/14/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/14/2017		0.28
10/21/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/21/2017		0.07
1/22/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	1/22/2018		0.4
1/26/2018	7:50	Sitzman, Steve	Snow Melt	Yes	No	1/25/2018		0
2/25/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	2/24/2018		0.16
2/26/2018	12:34	Fagerquist, Dylan	Snow Melt	Yes	No	2/25/2018		0
2/27/2018	12:34	Fagerquist, Dylan	Snow Melt	Yes	No	2/26/2018		0
3/17/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/16/2018		0.87
3/19/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/19/2018		0.18
3/24/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/24/2018		0.41
3/27/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/26/2018		0.67
5/2/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/1/2018		0.1
5/3/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/2/2018		0.28
5/11/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/11/2018		0.29
5/14/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/14/2018		0.18
5/20/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/20/2018		0.18
5/22/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/22/2018		0.71
6/2/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/2/2018		1.04
6/9/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/9/2018		0.11

CSO Inspection Report

CSO Number 112 **Total Wet Weather Overflows:** 38

CSO Name Martha Street

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
6/11/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/11/2018	Check for early morning WW event	0.88
6/12/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/11/2018	Check for afternoon WW event	0.88
6/19/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/19/2018		1.6
6/20/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/20/2018		0.47
7/18/2018	12:34	Frolio, Brandon	Rain	Yes	No	7/17/2018		1.06
7/29/2018	12:34	Frolio, Brandon	Rain	Yes	No	7/28/2018		0.43
8/15/2018	12:34	Frolio, Brandon	Rain	Yes	No	8/15/2018		0.33
8/16/2018	12:34	Frolio, Brandon	Rain	Yes	No	8/16/2018		0.35
8/21/2018	12:34	Birdsall, Jeremiah	Rain	Yes	No	8/20/2018		6.17
8/25/2018	12:34	Frolio, Brandon	Rain	Yes	No	8/24/2018		0.1
8/27/2018	12:34	Frolio, Brandon	Rain	Yes	No	8/26/2018		0.11
9/1/2018	15:02	Birdsall, Jeremiah	Rain	Yes	No	9/1/2018		0.24
9/3/2018	15:36	Birdsall, Jeremiah	Rain	Yes	No	9/3/2018		0.25
9/19/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	9/18/2018		0.15
9/21/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	9/20/2018		0.91

CSO Inspection Report

CSO Number 114 **Total Wet Weather Overflows:** 11

CSO Name Grover Street

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/2/2017	12:36	Sitzman, Steve	Rain	Yes	No	10/2/2017	For By-Pass on 10-1-2017 and 10-2-2017	0.73
10/6/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/5/2017		0.68
10/7/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/7/2017	For By-Pass on 10/6 and 10/7	0.29
1/22/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	1/22/2018		0.4
2/25/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	2/24/2018		0.16
2/26/2018	12:34	Fagerquist, Dylan	Snow Melt	Yes	No	2/25/2018		0
2/27/2018	12:34	Fagerquist, Dylan	Snow Melt	Yes	No	2/26/2018		0
3/17/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/16/2018		0.87
3/19/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/19/2018		0.18
3/24/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/24/2018		0.41
3/27/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/26/2018		0.67

CSO Inspection Report

CSO Number 115 **Total Wet Weather Overflows:** 13

CSO Name Riverview Lift Station

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/2/2017	12:36	Sitzman, Steve	Rain	Yes	No	10/2/2017	For By-Pass on 10-1-2017 and 10-2-2017	0.73
10/7/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/7/2017	For By-Pass on 10/6 and 10/7	0.29
10/14/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/14/2017		0.28
11/18/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	11/18/2017		0.22
1/22/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	1/22/2018		0.4
2/25/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	2/24/2018		0.16
2/26/2018	12:34	Fagerquist, Dylan	Snow Melt	Yes	No	2/25/2018		0
2/27/2018	12:34	Fagerquist, Dylan	Snow Melt	Yes	No	2/26/2018		0
3/5/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/6/2018		0.9
3/17/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/16/2018		0.87
3/19/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/19/2018		0.18
3/24/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/24/2018		0.41
3/27/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/26/2018		0.67

CSO Inspection Report

CSO Number 117 **Total Wet Weather Overflows:** 17

CSO Name Missouri Avenue Lift Station

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/2/2017	12:37	Sitzman, Steve	Rain	Yes	No	10/2/2017	For By-Pass on 10-1-2017 and 10-2-2017	0.73
10/6/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/5/2017		0.68
10/7/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/7/2017	For By-Pass on 10/6 and 10/7	0.29
10/10/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/9/2017		0.14
10/14/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/14/2017		0.28
10/21/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/21/2017		0.07
11/18/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	11/18/2017		0.22
1/22/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	1/22/2018		0.4
1/26/2018	7:55	Sitzman, Steve	Snow Melt	Yes	No	1/25/2018		0
2/25/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	2/24/2018		0.16
2/26/2018	12:34	Fagerquist, Dylan	Snow Melt	Yes	No	2/25/2018		0
2/27/2018	12:34	Fagerquist, Dylan	Snow Melt	Yes	No	2/26/2018		0
3/5/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/6/2018		0.9
3/17/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/16/2018		0.87
3/19/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/19/2018		0.18
3/24/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/24/2018		0.41
3/27/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/26/2018		0.67

CSO Inspection Report

CSO Number 118 **Total Wet Weather Overflows:** 44

CSO Name South Omaha (Ohern Street)

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/2/2017	12:37	Sitzman, Steve	Rain	Yes	No	10/2/2017	For By-Pass on 10-1-2017 and 10-2-2017	0.73
10/6/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/5/2017		0.68
10/7/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/7/2017	For By-Pass on 10/6 and 10/7	0.29
10/10/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/9/2017		0.14
10/14/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/14/2017		0.28
10/21/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/21/2017		0.07
11/18/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	11/18/2017		0.22
1/22/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	1/22/2018		0.4
2/25/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	2/24/2018		0.16
2/26/2018	12:34	Fagerquist, Dylan	Snow Melt	Yes	No	2/25/2018		0
2/27/2018	12:34	Fagerquist, Dylan	Snow Melt	Yes	No	2/26/2018		0
3/17/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/16/2018		0.87
3/19/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/19/2018		0.18
3/24/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/24/2018		0.41
3/27/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/26/2018		0.67
5/2/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/1/2018		0.1
5/3/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/2/2018		0.28
5/11/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/11/2018		0.29
5/14/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/14/2018		0.18
5/20/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/20/2018		0.18
5/22/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/22/2018		0.71
5/30/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/29/2018		0.06
6/2/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/2/2018		1.04

CSO Inspection Report

CSO Number 118 **Total Wet Weather Overflows:** 44

CSO Name South Omaha (Ohern Street)

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
6/7/2018	7:53	Birdsall, Jeremiah	Rain	Yes	No	6/6/2018		0.32
6/9/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/9/2018		0.11
6/10/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/10/2018		0.38
6/11/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/11/2018	Check for early morning WW event	0.88
6/12/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/11/2018	Check for afternoon WW event	0.88
6/18/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/17/2018		0.13
6/19/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/19/2018		1.6
6/20/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/20/2018		0.47
6/21/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/21/2018		0.1
7/29/2018	12:34	Frolio, Brandon	Rain	Yes	No	7/28/2018		0.43
8/7/2018	16:13	Birdsall, Jeremiah	Rain	Yes	No	8/6/2018		0.14
8/15/2018	12:34	Frolio, Brandon	Rain	Yes	No	8/15/2018		0.33
8/16/2018	12:34	Frolio, Brandon	Rain	Yes	No	8/16/2018		0.35
8/27/2018	12:34	Frolio, Brandon	Rain	Yes	No	8/26/2018		0.11
9/1/2018	15:05	Birdsall, Jeremiah	Rain	Yes	No	9/1/2018		0.24
9/2/2018	15:26	Birdsall, Jeremiah	Rain	Yes	No	9/2/2018		0.35
9/3/2018	15:39	Birdsall, Jeremiah	Rain	Yes	No	9/3/2018		0.25
9/5/2018	7:11	Birdsall, Jeremiah	Rain	Yes	No	9/4/2018		1.77
9/7/2018	6:31	Birdsall, Jeremiah	Rain	Yes	No	9/7/2018		0.14
9/19/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	9/18/2018		0.15
9/21/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	9/20/2018		0.91

CSO Inspection Report

CSO Number 121 **Total Wet Weather Overflows:** 33

CSO Name Jones Street

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/2/2017	12:34	Sitzman, Steve	Rain	Yes	No	10/2/2017	For By-Pass on 10-1-2017 and 10-2-2017	0.73
10/7/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/7/2017	For By-Pass on 10/6 and 10/7	0.29
10/10/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/9/2017		0.14
1/22/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	1/22/2018		0.4
2/15/2018	15:22	Wickham, Evan	Snow Melt	Yes	No	2/14/2018		0
2/25/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	2/24/2018		0.16
3/17/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/16/2018		0.87
3/24/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/24/2018		0.41
3/27/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/26/2018		0.67
5/2/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/1/2018		0.1
5/3/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/2/2018		0.28
5/11/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/11/2018		0.29
5/14/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/14/2018		0.18
5/20/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/20/2018		0.18
5/22/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/22/2018		0.71
6/2/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/2/2018		1.04
6/7/2018	7:48	Birdsall, Jeremiah	Rain	Yes	No	6/6/2018		0.32
6/9/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/9/2018		0.11
6/11/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/11/2018	Check for early morning WW event	0.88
6/12/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/11/2018	Check for afternoon WW event	0.88
6/19/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/19/2018		1.6
6/20/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/20/2018		0.47
7/1/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/30/2018		0.34

CSO Inspection Report

CSO Number 121 **Total Wet Weather Overflows:** 33

CSO Name Jones Street

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
7/5/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	7/4/2018		0.86
7/18/2018	12:34	Frolio, Brandon	Rain	Yes	No	7/17/2018		1.06
7/29/2018	12:34	Frolio, Brandon	Rain	Yes	No	7/28/2018		0.43
8/16/2018	12:34	Frolio, Brandon	Rain	Yes	No	8/16/2018		0.35
8/21/2018	12:34	Birdsall, Jeremiah	Rain	Yes	No	8/20/2018		6.17
8/25/2018	12:34	Frolio, Brandon	Rain	Yes	No	8/24/2018		0.1
9/1/2018	14:59	Birdsall, Jeremiah	Rain	Yes	No	9/1/2018		0.24
9/2/2018	15:21	Birdsall, Jeremiah	Rain	Yes	No	9/2/2018		0.35
9/19/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	9/18/2018		0.15
9/21/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	9/20/2018		0.91

CSO Inspection Report

CSO Number 202 **Total Wet Weather Overflows:** 42

CSO Name 72nd & Bedford

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/2/2017	12:32	Sitzman, Steve	Rain	Yes	No	10/2/2017	For By-Pass on 10-1-2017 and 10-2-2017	0.73
10/6/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/5/2017		0.68
10/7/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/7/2017	For By-Pass on 10/6 and 10/7	0.29
10/10/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/9/2017		0.14
10/21/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/21/2017		0.07
1/22/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	1/22/2018		0.4
2/15/2018	15:18	Wickham, Evan	Snow Melt	Yes	No	2/14/2018		0
2/25/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	2/24/2018		0.16
2/26/2018	12:34	Fagerquist, Dylan	Snow Melt	Yes	No	2/25/2018		0
2/27/2018	12:34	Fagerquist, Dylan	Snow Melt	Yes	No	2/26/2018		0
3/17/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/16/2018		0.87
3/19/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/19/2018		0.18
3/24/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/24/2018		0.41
3/27/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/26/2018		0.67
4/25/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	4/25/2018		0.13
5/2/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/1/2018		0.1
5/3/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/2/2018		0.28
5/11/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/11/2018		0.29
5/22/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/22/2018		0.71
5/30/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/29/2018		0.06
6/2/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/2/2018		1.04
6/10/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/10/2018		0.38
6/11/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/11/2018	Check for early morning WW event	0.88

CSO Inspection Report

CSO Number 202 **Total Wet Weather Overflows:** 42

CSO Name 72nd & Bedford

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
6/12/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/11/2018	Check for afternoon WW event	0.88
6/18/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/17/2018		0.13
6/19/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/19/2018		1.6
6/20/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/20/2018		0.47
6/26/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/25/2018		0.69
7/1/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/30/2018		0.34
7/5/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	7/4/2018		0.86
7/14/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	7/13/2018		0.4
7/18/2018	12:34	Frolio, Brandon	Rain	Yes	No	7/17/2018		1.06
7/29/2018	12:34	Frolio, Brandon	Rain	Yes	No	7/28/2018		0.43
8/15/2018	12:34	Frolio, Brandon	Rain	Yes	No	8/15/2018		0.33
8/16/2018	12:34	Frolio, Brandon	Rain	Yes	No	8/16/2018		0.35
8/21/2018	12:34	Birdsall, Jeremiah	Rain	Yes	No	8/20/2018		6.17
9/1/2018	14:53	Birdsall, Jeremiah	Rain	Yes	No	9/1/2018		0.24
9/2/2018	15:11	Birdsall, Jeremiah	Rain	Yes	No	9/2/2018		0.35
9/5/2018	7:03	Birdsall, Jeremiah	Rain	Yes	No	9/4/2018		1.77
9/19/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	9/18/2018		0.15
9/21/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	9/20/2018		0.91
9/25/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	9/25/2018		0.64

CSO Inspection Report

CSO Number 203 **Total Wet Weather Overflows:** 51

CSO Name 69th & Evans

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/2/2017	12:32	Sitzman, Steve	Rain	Yes	No	10/2/2017	For By-Pass on 10-1-2017 and 10-2-2017	0.73
10/6/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/5/2017		0.68
10/7/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/7/2017	For By-Pass on 10/6 and 10/7	0.29
10/10/2017	12:34	Fagerquist, Dylan	Rain	Yes	Yes	10/9/2017	Debris and grit buildup. Cleared by JetVac.	0.14
10/14/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/14/2017		0.28
10/21/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/21/2017		0.07
1/22/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	1/22/2018		0.4
2/15/2018	15:19	Wickham, Evan	Snow Melt	Yes	No	2/14/2018		0
2/25/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	2/24/2018		0.16
2/26/2018	12:34	Fagerquist, Dylan	Snow Melt	Yes	No	2/25/2018		0
2/27/2018	12:34	Fagerquist, Dylan	Snow Melt	Yes	No	2/26/2018		0
3/5/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/6/2018		0.9
3/17/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/16/2018		0.87
3/19/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/19/2018		0.18
3/24/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/24/2018		0.41
3/27/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/26/2018		0.67
5/2/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/1/2018		0.1
5/3/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/2/2018		0.28
5/11/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/11/2018		0.29
5/14/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/14/2018		0.18
5/20/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/20/2018		0.18
5/22/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/22/2018		0.71
5/30/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/29/2018		0.06

CSO Inspection Report

CSO Number 203 **Total Wet Weather Overflows:** 51

CSO Name 69th & Evans

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
6/2/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/2/2018		1.04
6/7/2018	7:44	Birdsall, Jeremiah	Rain	Yes	No	6/6/2018		0.32
6/9/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/9/2018		0.11
6/10/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/10/2018		0.38
6/11/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/11/2018	Check for early morning WW event	0.88
6/12/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/11/2018	Check for afternoon WW event	0.88
6/18/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/17/2018		0.13
6/19/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/19/2018		1.6
6/20/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/20/2018		0.47
6/21/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/21/2018		0.1
6/26/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/25/2018		0.69
7/1/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/30/2018		0.34
7/5/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	7/4/2018		0.86
7/14/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	7/13/2018		0.4
7/18/2018	12:34	Frolio, Brandon	Rain	Yes	No	7/17/2018		1.06
7/23/2018	12:34	Frolio, Brandon	Rain	Yes	No	7/23/2018		0.02
7/29/2018	12:34	Frolio, Brandon	Rain	Yes	No	7/28/2018		0.43
8/15/2018	12:34	Frolio, Brandon	Rain	Yes	No	8/15/2018		0.33
8/16/2018	12:34	Frolio, Brandon	Rain	Yes	No	8/16/2018		0.35
8/21/2018	12:34	Birdsall, Jeremiah	Rain	Yes	No	8/20/2018		6.17
9/1/2018	14:53	Birdsall, Jeremiah	Rain	Yes	No	9/1/2018		0.24
9/2/2018	15:12	Birdsall, Jeremiah	Rain	Yes	No	9/2/2018		0.35
9/3/2018	15:31	Birdsall, Jeremiah	Rain	Yes	No	9/3/2018		0.25

CSO Inspection Report

CSO Number 203 **Total Wet Weather Overflows:** 51

CSO Name 69th & Evans

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
9/5/2018	7:03	Birdsall, Jeremiah	Rain	Yes	No	9/4/2018		1.77
9/7/2018	6:11	Birdsall, Jeremiah	Rain	Yes	No	9/7/2018		0.14
9/19/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	9/18/2018		0.15
9/21/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	9/20/2018		0.91
9/25/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	9/25/2018		0.64

CSO Inspection Report

CSO Number 204 **Total Wet Weather Overflows:** 51

CSO Name 63rd & Ames

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/2/2017	12:32	Sitzman, Steve	Rain	Yes	No	10/2/2017	For By-Pass on 10-1-2017 and 10-2-2017	0.73
10/6/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/5/2017		0.68
10/7/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/7/2017	For By-Pass on 10/6 and 10/7	0.29
10/10/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/9/2017		0.14
10/14/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/14/2017		0.28
11/18/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	11/18/2017		0.22
1/22/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	1/22/2018		0.4
1/26/2018	7:45	Sitzman, Steve	Snow Melt	Yes	No	1/25/2018		0
2/15/2018	15:19	Wickham, Evan	Snow Melt	Yes	No	2/14/2018		0
2/25/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	2/24/2018		0.16
2/26/2018	12:34	Fagerquist, Dylan	Snow Melt	Yes	No	2/25/2018		0
2/27/2018	12:34	Fagerquist, Dylan	Snow Melt	Yes	No	2/26/2018		0
3/17/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/16/2018		0.87
3/19/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/19/2018		0.18
3/24/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/24/2018		0.41
3/27/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/26/2018		0.67
4/25/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	4/25/2018		0.13
5/2/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/1/2018		0.1
5/3/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/2/2018		0.28
5/11/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/11/2018		0.29
5/14/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/14/2018		0.18
5/20/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/20/2018		0.18
5/22/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/22/2018		0.71

CSO Inspection Report

CSO Number 204 **Total Wet Weather Overflows:** 51

CSO Name 63rd & Ames

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
5/30/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/29/2018		0.06
6/2/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/2/2018		1.04
6/7/2018	7:45	Birdsall, Jeremiah	Rain	Yes	No	6/6/2018		0.32
6/9/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/9/2018		0.11
6/10/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/10/2018		0.38
6/11/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/11/2018	Check for early morning WW event	0.88
6/12/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/11/2018	Check for afternoon WW event	0.88
6/18/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/17/2018		0.13
6/19/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/19/2018		1.6
6/20/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/20/2018		0.47
6/21/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/21/2018		0.1
6/26/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/25/2018		0.69
7/1/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/30/2018		0.34
7/5/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	7/4/2018		0.86
7/14/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	7/13/2018		0.4
7/18/2018	12:34	Frolio, Brandon	Rain	Yes	No	7/17/2018		1.06
7/23/2018	12:34	Frolio, Brandon	Rain	Yes	No	7/23/2018		0.02
7/29/2018	12:34	Frolio, Brandon	Rain	Yes	No	7/28/2018		0.43
8/4/2018	12:34	Frolio, Brandon	Rain	Yes	No	8/4/2018		0.2
8/15/2018	12:34	Frolio, Brandon	Rain	Yes	No	8/15/2018		0.33
8/16/2018	12:34	Frolio, Brandon	Rain	Yes	No	8/16/2018		0.35
8/21/2018	12:34	Birdsall, Jeremiah	Rain	Yes	No	8/20/2018		6.17
9/1/2018	14:54	Birdsall, Jeremiah	Rain	Yes	No	9/1/2018		0.24

CSO Inspection Report

CSO Number 204 **Total Wet Weather Overflows:** 51

CSO Name 63rd & Ames

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
9/2/2018	15:12	Birdsall, Jeremiah	Rain	Yes	No	9/2/2018		0.35
9/5/2018	7:04	Birdsall, Jeremiah	Rain	Yes	No	9/4/2018		1.77
9/19/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	9/18/2018		0.15
9/21/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	9/20/2018		0.91
9/25/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	9/25/2018		0.64

CSO Inspection Report

CSO Number 205 **Total Wet Weather Overflows:** 57

CSO Name 64th & Dupont

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/2/2017	12:29	Sitzman, Steve	Rain	Yes	No	10/2/2017	For By-Pass on 10-1-2017 and 10-2-2017	0.73
10/3/2017	14:50	Sitzman, Steve	Rain	Yes	No	10/3/2017		0.07
10/6/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/5/2017		0.68
10/7/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/7/2017	For By-Pass on 10/6 and 10/7	0.29
10/10/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/9/2017		0.14
10/14/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/14/2017		0.28
10/21/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/21/2017		0.07
11/18/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	11/18/2017		0.22
1/22/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	1/22/2018		0.4
1/26/2018	7:34	Sitzman, Steve	Snow Melt	Yes	No	1/25/2018		0
2/15/2018	15:11	Wickham, Evan	Snow Melt	Yes	No	2/14/2018		0
2/25/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	2/24/2018		0.16
2/26/2018	12:34	Fagerquist, Dylan	Snow Melt	Yes	No	2/25/2018		0
2/27/2018	12:34	Fagerquist, Dylan	Snow Melt	Yes	No	2/26/2018		0
3/5/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/6/2018		0.9
3/17/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/16/2018		0.87
3/19/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/19/2018		0.18
3/24/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/24/2018		0.41
3/27/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/26/2018		0.67
4/25/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	4/25/2018		0.13
5/2/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/1/2018		0.1
5/3/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/2/2018		0.28
5/11/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/11/2018		0.29

CSO Inspection Report

CSO Number 205 **Total Wet Weather Overflows:** 57

CSO Name 64th & Dupont

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
5/14/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/14/2018		0.18
5/20/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/20/2018		0.18
5/22/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/22/2018		0.71
5/30/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/29/2018		0.06
6/2/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/2/2018		1.04
6/7/2018	11:00	Birdsall, Jeremiah	Rain	Yes	No	6/6/2018		0.32
6/9/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/9/2018		0.11
6/10/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/10/2018		0.38
6/11/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/11/2018	Check for early morning WW event	0.88
6/12/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/11/2018	Check for afternoon WW event	0.88
6/18/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/17/2018		0.13
6/19/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/19/2018		1.6
6/20/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/20/2018		0.47
6/21/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/21/2018		0.1
6/26/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/25/2018		0.69
7/1/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/30/2018		0.34
7/5/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	7/4/2018		0.86
7/14/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	7/13/2018		0.4
7/18/2018	12:34	Frolio, Brandon	Rain	Yes	No	7/17/2018		1.06
7/19/2018	12:34	Frolio, Brandon	Rain	Yes	No	7/19/2018		0.02
7/29/2018	12:34	Frolio, Brandon	Rain	Yes	No	7/28/2018		0.43
8/4/2018	12:34	Frolio, Brandon	Rain	Yes	No	8/4/2018		0.2
8/7/2018	16:02	Birdsall, Jeremiah	Rain	Yes	No	8/6/2018		0.14

CSO Inspection Report

CSO Number 205 **Total Wet Weather Overflows:** 57

CSO Name 64th & Dupont

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
8/15/2018	12:34	Frolio, Brandon	Rain	Yes	No	8/15/2018		0.33
8/16/2018	12:34	Frolio, Brandon	Rain	Yes	No	8/16/2018		0.35
8/21/2018	12:34	Birdsall, Jeremiah	Rain	Yes	No	8/20/2018		6.17
9/1/2018	14:47	Birdsall, Jeremiah	Rain	Yes	No	9/1/2018	Mission sensor read 7 inches	0.24
9/2/2018	15:08	Birdsall, Jeremiah	Rain	Yes	No	9/2/2018	Mission sensor measured 27 inches	0.35
9/3/2018	15:27	Birdsall, Jeremiah	Rain	Yes	No	9/3/2018	Mission sensor measured 7 inches	0.25
9/5/2018	6:33	Birdsall, Jeremiah	Rain	Yes	No	9/4/2018	Mission site says 13 inches	1.77
9/7/2018	6:04	Birdsall, Jeremiah	Rain	Yes	No	9/7/2018		0.14
9/19/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	9/18/2018		0.15
9/21/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	9/20/2018		0.91
9/25/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	9/25/2018		0.64

CSO Inspection Report

CSO Number 207 **Total Wet Weather Overflows:** 42

CSO Name 44th & Y Street

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/3/2017	14:55	Sitzman, Steve	Rain	Yes	No	10/3/2017		0.07
10/6/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/5/2017		0.68
10/7/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/7/2017	For By-Pass on 10/6 and 10/7	0.29
10/10/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/9/2017		0.14
10/14/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/14/2017		0.28
10/21/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/21/2017		0.07
1/22/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	1/22/2018		0.4
3/17/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/16/2018		0.87
3/19/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/19/2018		0.18
3/24/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/24/2018		0.41
3/27/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/26/2018		0.67
5/2/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/1/2018		0.1
5/3/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/2/2018		0.28
5/11/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/11/2018		0.29
5/14/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/14/2018		0.18
5/20/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/20/2018		0.18
5/22/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/22/2018		0.71
5/30/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/29/2018		0.06
6/2/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/2/2018		1.04
6/9/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/9/2018		0.11
6/10/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/10/2018		0.38
6/11/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/11/2018	Check for early morning WW event	0.88
6/12/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/11/2018	Check for afternoon WW event	0.88

CSO Inspection Report

CSO Number 207 **Total Wet Weather Overflows:** 42

CSO Name 44th & Y Street

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
6/18/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/17/2018		0.13
6/19/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/19/2018		1.6
6/20/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/20/2018		0.47
7/1/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/30/2018		0.34
7/5/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	7/4/2018		0.86
7/14/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	7/13/2018		0.4
7/18/2018	12:34	Frolio, Brandon	Rain	Yes	No	7/17/2018		1.06
7/29/2018	12:34	Frolio, Brandon	Rain	Yes	No	7/28/2018		0.43
8/4/2018	12:34	Frolio, Brandon	Rain	Yes	No	8/4/2018		0.2
8/7/2018	16:13	Birdsall, Jeremiah	Rain	Yes	No	8/6/2018		0.14
8/15/2018	12:34	Frolio, Brandon	Rain	Yes	No	8/15/2018		0.33
8/16/2018	12:34	Frolio, Brandon	Rain	Yes	No	8/16/2018		0.35
8/21/2018	12:34	Birdsall, Jeremiah	Rain	Yes	No	8/20/2018		6.17
8/25/2018	12:34	Frolio, Brandon	Rain	Yes	No	8/24/2018		0.1
8/27/2018	12:34	Frolio, Brandon	Rain	Yes	No	8/26/2018		0.11
9/2/2018	15:26	Birdsall, Jeremiah	Rain	Yes	No	9/2/2018		0.35
9/19/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	9/18/2018		0.15
9/21/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	9/20/2018		0.91
9/25/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	9/25/2018		0.64

CSO Inspection Report

CSO Number 208 **Total Wet Weather Overflows:** 16

CSO Name 45th & T Street

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/7/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/7/2017	For By-Pass on 10/6 and 10/7	0.29
1/22/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	1/22/2018		0.4
1/26/2018	7:57	Sitzman, Steve	Snow Melt	Yes	No	1/25/2018		0
3/17/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/16/2018		0.87
3/24/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/24/2018		0.41
3/27/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/26/2018		0.67
5/2/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/1/2018		0.1
5/22/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/22/2018		0.71
6/2/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/2/2018		1.04
6/11/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/11/2018	Check for early morning WW event	0.88
6/19/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/19/2018		1.6
7/1/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/30/2018		0.34
7/5/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	7/4/2018		0.86
7/29/2018	12:34	Frolio, Brandon	Rain	Yes	No	7/28/2018		0.43
8/16/2018	12:34	Frolio, Brandon	Rain	Yes	No	8/16/2018		0.35
8/21/2018	12:34	Birdsall, Jeremiah	Rain	Yes	No	8/20/2018		6.17

CSO Inspection Report

CSO Number 210 **Total Wet Weather Overflows:** 37

CSO Name 72nd and Mayberry

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/2/2017	12:31	Sitzman, Steve	Rain	Yes	No	10/2/2017	For By-Pass on 10-1-2017 and 10-2-2017	0.73
10/6/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/5/2017		0.68
10/7/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/7/2017	For By-Pass on 10/6 and 10/7	0.29
10/21/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/21/2017		0.07
1/22/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	1/22/2018		0.4
2/25/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	2/24/2018		0.16
3/17/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/16/2018		0.87
3/24/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/24/2018		0.41
3/27/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/26/2018		0.67
5/2/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/1/2018		0.1
5/3/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/2/2018		0.28
5/11/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/11/2018		0.29
5/14/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/14/2018		0.18
5/20/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/20/2018		0.18
5/22/2018	12:34	Fagerquist, Dylan	Rain	Yes	Yes	5/22/2018	Jet Crew called. Discovered at 4:45pm, alleviated at 6:13pm.	0.71
5/30/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/29/2018		0.06
6/2/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/2/2018		1.04
6/11/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/11/2018	Check for early morning WW event	0.88
6/12/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/11/2018	Check for afternoon WW event	0.88
6/19/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/19/2018		1.6
6/20/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/20/2018		0.47
6/26/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/25/2018		0.69
7/1/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/30/2018		0.34

CSO Inspection Report

CSO Number 210 **Total Wet Weather Overflows:** 37

CSO Name 72nd and Mayberry

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
7/5/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	7/4/2018		0.86
7/14/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	7/13/2018		0.4
7/18/2018	12:34	Frolio, Brandon	Rain	Yes	No	7/17/2018		1.06
7/29/2018	12:34	Frolio, Brandon	Rain	Yes	No	7/28/2018		0.43
8/4/2018	12:34	Frolio, Brandon	Rain	Yes	No	8/4/2018		0.2
8/15/2018	12:34	Frolio, Brandon	Rain	Yes	No	8/15/2018		0.33
8/16/2018	12:34	Frolio, Brandon	Rain	Yes	No	8/16/2018		0.35
8/21/2018	12:34	Birdsall, Jeremiah	Rain	Yes	No	8/20/2018		6.17
9/1/2018	14:52	Birdsall, Jeremiah	Rain	Yes	No	9/1/2018		0.24
9/2/2018	15:11	Birdsall, Jeremiah	Rain	Yes	No	9/2/2018		0.35
9/5/2018	7:03	Birdsall, Jeremiah	Rain	Yes	No	9/4/2018		1.77
9/19/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	9/18/2018		0.15
9/21/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	9/20/2018		0.91
9/25/2018	12:34	Fagerquist, Dylan	Rain	Yes	Yes	9/25/2018	Prolonged wet weather CSO.	0.64

CSO Inspection Report

CSO Number 211 **Total Wet Weather Overflows:** 14

CSO Name 69th & Pierce

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
2/15/2018	15:17	Wickham, Evan	Snow Melt	Yes	No	2/14/2018		0
5/22/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/22/2018		0.71
6/10/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/10/2018		0.38
6/11/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/11/2018	Check for early morning WW event	0.88
6/19/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/19/2018		1.6
6/20/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/20/2018		0.47
7/1/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/30/2018		0.34
7/29/2018	12:34	Frolio, Brandon	Rain	Yes	No	7/28/2018		0.43
8/21/2018	12:34	Birdsall, Jeremiah	Rain	Yes	No	8/20/2018		6.17
9/5/2018	7:02	Birdsall, Jeremiah	Rain	Yes	No	9/4/2018		1.77
9/7/2018	6:10	Birdsall, Jeremiah	Rain	Yes	No	9/7/2018		0.14
9/19/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	9/18/2018		0.15
9/21/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	9/20/2018		0.91
9/25/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	9/25/2018		0.64

CSO Inspection Report

CSO Number 212 **Total Wet Weather Overflows:** 31

CSO Name 69th & Woolworth

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/2/2017	12:31	Sitzman, Steve	Rain	Yes	No	10/2/2017	For By-Pass on 10-1-2017 and 10-2-2017	0.73
10/7/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/7/2017	For By-Pass on 10/6 and 10/7	0.29
10/14/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	10/14/2017		0.28
11/18/2017	12:34	Fagerquist, Dylan	Rain	Yes	No	11/18/2017		0.22
1/22/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	1/22/2018		0.4
3/17/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/16/2018		0.87
3/24/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/24/2018		0.41
3/27/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	3/26/2018		0.67
5/2/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/1/2018		0.1
5/11/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/11/2018		0.29
5/22/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/22/2018		0.71
5/30/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	5/29/2018		0.06
6/2/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/2/2018		1.04
6/10/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/10/2018		0.38
6/11/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/11/2018	Check for early morning WW event	0.88
6/12/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/11/2018	Check for afternoon WW event	0.88
6/19/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/19/2018		1.6
6/20/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/20/2018		0.47
6/26/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/25/2018		0.69
7/1/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	6/30/2018		0.34
7/5/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	7/4/2018		0.86
7/14/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	7/13/2018		0.4
7/29/2018	12:34	Frolio, Brandon	Rain	Yes	No	7/28/2018		0.43

CSO Inspection Report

CSO Number 212 **Total Wet Weather Overflows:** 31

CSO Name 69th & Woolworth

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
8/15/2018	12:34	Frolio, Brandon	Rain	Yes	No	8/15/2018		0.33
8/16/2018	12:34	Frolio, Brandon	Rain	Yes	No	8/16/2018		0.35
8/21/2018	12:34	Birdsall, Jeremiah	Rain	Yes	No	8/20/2018		6.17
9/2/2018	15:10	Birdsall, Jeremiah	Rain	Yes	No	9/2/2018		0.35
9/5/2018	7:02	Birdsall, Jeremiah	Rain	Yes	No	9/4/2018		1.77
9/19/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	9/18/2018		0.15
9/21/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	9/20/2018		0.91
9/25/2018	12:34	Fagerquist, Dylan	Rain	Yes	No	9/25/2018		0.64

CSO Inspection Report

CSO Number 105 **Total Wet Weather CSOs Unknown:** 19

CSO Name Minne Lusa Avenue

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
6/26/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/25/2018	River Intrusion	0.69
7/1/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/30/2018	River Intrusion	0.34
7/5/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	7/4/2018	River Intrusion	0.86
7/14/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	7/13/2018	River Intrusion	0.4
7/18/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	7/17/2018	River Intrusion	1.06
7/19/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	7/19/2018	River Intrusion	0.02
7/23/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	7/23/2018	River Intrusion	0.02
7/29/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	7/28/2018	River Intrusion	0.43
8/4/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	8/4/2018	River Intrusion	0.2
8/21/2018	12:34	Birdsall, Jeremiah	Rain	Other/Unknown	No	8/20/2018	River Intrusion	6.17
8/25/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	8/24/2018	River Intrusion	0.1
8/27/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	8/26/2018	River Intrusion	0.11
9/1/2018	14:55	Birdsall, Jeremiah	Rain	Other/Unknown	No	9/1/2018	River Intrusion	0.24
9/2/2018	15:13	Birdsall, Jeremiah	Rain	Other/Unknown	No	9/2/2018	River Intrusion	0.35
9/3/2018	15:33	Birdsall, Jeremiah	Rain	Other/Unknown	No	9/3/2018	River Intrusion	0.25
9/7/2018	6:15	Birdsall, Jeremiah	Rain	Other/Unknown	No	9/7/2018	River Intrusion	0.14
9/19/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	9/18/2018	River Intrusion	0.15
9/21/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	9/20/2018	River Intrusion	0.91
9/25/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	9/25/2018	River Intrusion	0.64

CSO Inspection Report

CSO Number 106 **Total Wet Weather CSOs Unknown:** 15

CSO Name North Interceptor

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
6/26/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/25/2018	River Intrusion	0.69
7/1/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/30/2018	River Intrusion	0.34
7/5/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	7/4/2018	River Intrusion	0.86
7/14/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	7/13/2018	River Intrusion	0.4
7/18/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	7/17/2018	River Intrusion	1.06
7/19/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	7/19/2018	River Intrusion	0.02
7/23/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	7/23/2018	River Intrusion	0.02
7/29/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	7/28/2018	River Intrusion	0.43
8/4/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	8/4/2018	River Intrusion	0.2
8/21/2018	12:34	Birdsall, Jeremiah	Rain	Other/Unknown	No	8/20/2018	River Intrusion	6.17
9/2/2018	15:14	Birdsall, Jeremiah	Rain	Other/Unknown	No	9/2/2018	River Intrusion	0.35
9/3/2018	15:33	Birdsall, Jeremiah	Rain	Other/Unknown	No	9/3/2018	River Intrusion	0.25
9/5/2018	7:05	Birdsall, Jeremiah	Rain	Other/Unknown	No	9/4/2018	River Intrusion	1.77
9/7/2018	6:16	Birdsall, Jeremiah	Rain	Other/Unknown	No	9/7/2018	River Intrusion	0.14
9/25/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	9/25/2018	River Intrusion	0.64

CSO Inspection Report

CSO Number 107 **Total Wet Weather CSOs Unknown:** 17

CSO Name Grace Street

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
6/7/2018	7:47	Birdsall, Jeremiah	Rain	Other/Unknown	No	6/6/2018	River Intrusion	0.32
6/26/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/25/2018	River Intrusion	0.69
7/1/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/30/2018	River Intrusion	0.34
7/5/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	7/4/2018	River Intrusion	0.86
7/14/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	7/13/2018	River Intrusion	0.4
7/18/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	7/17/2018	River Intrusion	1.06
7/19/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	7/19/2018	River Intrusion	0.02
7/23/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	7/23/2018	River Intrusion	0.02
7/29/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	7/28/2018	River Intrusion	0.43
8/4/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	8/4/2018	River Intrusion	0.2
8/21/2018	12:34	Birdsall, Jeremiah	Rain	Other/Unknown	No	8/20/2018	River Intrusion	6.17
9/1/2018	14:58	Birdsall, Jeremiah	Rain	Other/Unknown	No	9/1/2018	River Intrusion	0.24
9/2/2018	15:14	Birdsall, Jeremiah	Rain	Other/Unknown	No	9/2/2018	River Intrusion	0.35
9/3/2018	15:34	Birdsall, Jeremiah	Rain	Other/Unknown	No	9/3/2018	River Intrusion	0.25
9/5/2018	7:05	Birdsall, Jeremiah	Rain	Other/Unknown	No	9/4/2018	River Intrusion	1.77
9/7/2018	6:16	Birdsall, Jeremiah	Rain	Other/Unknown	No	9/7/2018	River Intrusion	0.14
9/25/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	9/25/2018	River Intrusion	0.64

CSO Inspection Report

CSO Number 108 **Total Wet Weather CSOs Unknown:** 17

CSO Name Burt Izard Street Lift Station

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
6/7/2018	7:48	Birdsall, Jeremiah	Rain	Other/Unknown	No	6/6/2018	River Intrusion	0.32
6/26/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/25/2018	River Intrusion	0.69
7/1/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/30/2018	River Intrusion	0.34
7/5/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	7/4/2018	River Intrusion	0.86
7/14/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	7/13/2018	River Intrusion	0.4
7/18/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	7/17/2018	River Intrusion	1.06
7/19/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	7/19/2018	River Intrusion	0.02
7/23/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	7/23/2018	River Intrusion	0.02
7/29/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	7/28/2018	River Intrusion	0.43
8/4/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	8/4/2018	River Intrusion	0.2
8/21/2018	12:34	Birdsall, Jeremiah	Rain	Other/Unknown	No	8/20/2018	River Intrusion	6.17
9/1/2018	14:58	Birdsall, Jeremiah	Rain	Other/Unknown	No	9/1/2018	River Intrusion	0.24
9/2/2018	15:15	Birdsall, Jeremiah	Rain	Other/Unknown	No	9/2/2018	River Intrusion	0.35
9/3/2018	15:34	Birdsall, Jeremiah	Rain	Other/Unknown	No	9/3/2018	River Intrusion	0.25
9/5/2018	7:06	Birdsall, Jeremiah	Rain	Other/Unknown	No	9/4/2018	River Intrusion	1.77
9/7/2018	6:17	Birdsall, Jeremiah	Rain	Other/Unknown	No	9/7/2018	River Intrusion	0.14
9/25/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	9/25/2018	River Intrusion	0.64

CSO Inspection Report

CSO Number 110 **Total Wet Weather CSOs Unknown:** 40

CSO Name Pierce Street Lift Station

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
4/25/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	4/25/2018	River Intrusion	0.13
5/2/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	5/1/2018	River Intrusion	0.1
5/3/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	5/2/2018	River Intrusion	0.28
5/11/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	5/11/2018	River Intrusion	0.29
5/14/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	5/14/2018	River Intrusion	0.18
5/20/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	5/20/2018	River Intrusion	0.18
5/22/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	5/22/2018	River Intrusion	0.71
5/30/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	5/29/2018	River Intrusion	0.06
6/2/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/2/2018	River Intrusion	1.04
6/7/2018	7:51	Birdsall, Jeremiah	Rain	Other/Unknown	No	6/6/2018	River Intrusion	0.32
6/9/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/9/2018	River Intrusion	0.11
6/10/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/10/2018	River Intrusion	0.38
6/11/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/11/2018	River Intrusion; Check for early morning WW event	0.88
6/12/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/11/2018	River Intrusion; Check for afternoon WW event	0.88
6/18/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/17/2018	River Intrusion	0.13
6/19/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/19/2018	River Intrusion	1.6
6/20/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/20/2018	River Intrusion	0.47
6/21/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/21/2018	River Intrusion	0.1
6/26/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/25/2018	River Intrusion	0.69
7/1/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/30/2018	River Intrusion	0.34
7/5/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	7/4/2018	River Intrusion	0.86
7/14/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	7/13/2018	River Intrusion	0.4
7/18/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	7/17/2018	River Intrusion	1.06

CSO Inspection Report

CSO Number 110 **Total Wet Weather CSOs Unknown:** 40

CSO Name Pierce Street Lift Station

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
7/19/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	7/19/2018	River Intrusion	0.02
7/23/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	7/23/2018	River Intrusion	0.02
7/29/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	7/28/2018	River Intrusion	0.43
8/4/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	8/4/2018	River Intrusion	0.2
8/15/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	8/15/2018	River Intrusion	0.33
8/16/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	8/16/2018	River Intrusion	0.35
8/21/2018	12:34	Birdsall, Jeremiah	Rain	Other/Unknown	No	8/20/2018	River Intrusion	6.17
8/25/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	8/24/2018	River Intrusion	0.1
8/27/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	8/26/2018	River Intrusion	0.11
9/1/2018	15:03	Birdsall, Jeremiah	Rain	Other/Unknown	No	9/1/2018	River Intrusion	0.24
9/2/2018	15:23	Birdsall, Jeremiah	Rain	Other/Unknown	No	9/2/2018	River Intrusion	0.35
9/3/2018	15:37	Birdsall, Jeremiah	Rain	Other/Unknown	No	9/3/2018	River Intrusion	0.25
9/5/2018	7:10	Birdsall, Jeremiah	Rain	Other/Unknown	No	9/4/2018	River Intrusion	1.77
9/7/2018	6:24	Birdsall, Jeremiah	Rain	Other/Unknown	No	9/7/2018	River Intrusion	0.14
9/19/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	9/18/2018	River Intrusion	0.15
9/21/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	9/20/2018	River Intrusion	0.91
9/25/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	9/25/2018	River Intrusion	0.64

CSO Inspection Report

CSO Number 111 **Total Wet Weather CSOs Unknown:** 39

CSO Name Hickory Street Lift Station

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
5/2/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	5/1/2018	River Intrusion	0.1
5/3/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	5/2/2018	River Intrusion	0.28
5/11/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	5/11/2018	River Intrusion	0.29
5/14/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	5/14/2018	River Intrusion	0.18
5/20/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	5/20/2018	River Intrusion	0.18
5/22/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	5/22/2018	River Intrusion	0.71
5/30/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	5/29/2018	River Intrusion	0.06
6/2/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/2/2018	River Intrusion	1.04
6/7/2018	7:50	Birdsall, Jeremiah	Rain	Other/Unknown	No	6/6/2018	River Intrusion	0.32
6/9/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/9/2018	River Intrusion	0.11
6/10/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/10/2018	River Intrusion	0.38
6/11/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/11/2018	River Intrusion; Check for early morning WW event	0.88
6/12/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/11/2018	River Intrusion; Check for afternoon WW event	0.88
6/18/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/17/2018	River Intrusion	0.13
6/19/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/19/2018	River Intrusion	1.6
6/20/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/20/2018	River Intrusion	0.47
6/21/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/21/2018	River Intrusion	0.1
6/26/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/25/2018	River Intrusion	0.69
7/1/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/30/2018	River Intrusion	0.34
7/5/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	7/4/2018	River Intrusion	0.86
7/14/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	7/13/2018	River Intrusion	0.4
7/18/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	7/17/2018	River Intrusion	1.06
7/19/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	7/19/2018	River Intrusion	0.02

CSO Inspection Report

CSO Number 111 **Total Wet Weather CSOs Unknown:** 39

CSO Name Hickory Street Lift Station

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
7/23/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	7/23/2018	River Intrusion	0.02
7/29/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	7/28/2018	River Intrusion	0.43
8/4/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	8/4/2018	River Intrusion	0.2
8/15/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	8/15/2018	River Intrusion	0.33
8/16/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	8/16/2018	River Intrusion	0.35
8/21/2018	12:34	Birdsall, Jeremiah	Rain	Other/Unknown	No	8/20/2018	River Intrusion	6.17
8/25/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	8/24/2018	River Intrusion	0.1
8/27/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	8/26/2018	River Intrusion	0.11
9/1/2018	15:02	Birdsall, Jeremiah	Rain	Other/Unknown	No	9/1/2018	River Intrusion	0.24
9/2/2018	15:23	Birdsall, Jeremiah	Rain	Other/Unknown	No	9/2/2018	River Intrusion	0.35
9/3/2018	15:36	Birdsall, Jeremiah	Rain	Other/Unknown	No	9/3/2018	River Intrusion	0.25
9/5/2018	7:09	Birdsall, Jeremiah	Rain	Other/Unknown	No	9/4/2018	River Intrusion	1.77
9/7/2018	6:23	Birdsall, Jeremiah	Rain	Other/Unknown	No	9/7/2018	River Intrusion	0.14
9/19/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	9/18/2018	River Intrusion	0.15
9/21/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	9/20/2018	River Intrusion	0.91
9/25/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	9/25/2018	River Intrusion	0.64

CSO Inspection Report

CSO Number 112 **Total Wet Weather CSOs Unknown:** 4

CSO Name Martha Street

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
6/7/2018	7:49	Birdsall, Jeremiah	Rain	Other/Unknown	No	6/6/2018	River Intrusion	0.32
7/1/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/30/2018	River Intrusion	0.34
7/5/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	7/4/2018	River Intrusion	0.86
9/2/2018	15:23	Birdsall, Jeremiah	Rain	Other/Unknown	No	9/2/2018	River Intrusion	0.35

CSO Inspection Report

CSO Number 114 **Total Wet Weather CSOs Unknown:** 40

CSO Name Grover Street

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
4/25/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	4/25/2018	River Intrusion	0.13
5/2/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	5/1/2018	River Intrusion	0.1
5/3/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	5/2/2018	River Intrusion	0.28
5/11/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	5/11/2018	River Intrusion	0.29
5/14/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	5/14/2018	River Intrusion	0.18
5/20/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	5/20/2018	River Intrusion	0.18
5/22/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	5/22/2018	River Intrusion	0.71
5/30/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	5/29/2018	River Intrusion	0.06
6/2/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/2/2018	River Intrusion	1.04
6/7/2018	7:51	Birdsall, Jeremiah	Rain	Other/Unknown	No	6/6/2018	River Intrusion	0.32
6/9/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/9/2018	River Intrusion	0.11
6/10/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/10/2018	River Intrusion	0.38
6/11/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/11/2018	River Intrusion; Check for early morning WW event	0.88
6/12/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/11/2018	River Intrusion; Check for afternoon WW event	0.88
6/18/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/17/2018	River Intrusion	0.13
6/19/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/19/2018	River Intrusion	1.6
6/20/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/20/2018	River Intrusion	0.47
6/21/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/21/2018	River Intrusion	0.1
6/26/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/25/2018	River Intrusion	0.69
7/1/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/30/2018	River Intrusion	0.34
7/5/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	7/4/2018	River Intrusion	0.86
7/14/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	7/13/2018	River Intrusion	0.4
7/18/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	7/17/2018	River Intrusion	1.06

CSO Inspection Report

CSO Number 114 **Total Wet Weather CSOs Unknown:** 40

CSO Name Grover Street

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
7/19/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	7/19/2018	River Intrusion	0.02
7/23/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	7/23/2018	River Intrusion	0.02
7/29/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	7/28/2018	River Intrusion	0.43
8/4/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	8/4/2018	River Intrusion	0.2
8/15/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	8/15/2018	River Intrusion	0.33
8/16/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	8/16/2018	River Intrusion	0.35
8/21/2018	12:34	Birdsall, Jeremiah	Rain	Other/Unknown	No	8/20/2018	River Intrusion	6.17
8/25/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	8/24/2018	River Intrusion	0.1
8/27/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	8/26/2018	River Intrusion	0.11
9/1/2018	15:03	Birdsall, Jeremiah	Rain	Other/Unknown	No	9/1/2018	River Intrusion	0.24
9/2/2018	15:24	Birdsall, Jeremiah	Rain	Other/Unknown	No	9/2/2018	River Intrusion	0.35
9/3/2018	15:37	Birdsall, Jeremiah	Rain	Other/Unknown	No	9/3/2018	River Intrusion	0.25
9/5/2018	7:10	Birdsall, Jeremiah	Rain	Other/Unknown	No	9/4/2018	River Intrusion	1.77
9/7/2018	6:27	Birdsall, Jeremiah	Rain	Other/Unknown	No	9/7/2018	River Intrusion	0.14
9/19/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	9/18/2018	River Intrusion	0.15
9/21/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	9/20/2018	River Intrusion	0.91
9/25/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	9/25/2018	River Intrusion	0.64

CSO Inspection Report

CSO Number 115 **Total Wet Weather CSOs Unknown:** 40

CSO Name Riverview Lift Station

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
4/25/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	4/25/2018	River Intrusion	0.13
5/2/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	5/1/2018	River Intrusion	0.1
5/3/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	5/2/2018	River Intrusion	0.28
5/11/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	5/11/2018	River Intrusion	0.29
5/14/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	5/14/2018	River Intrusion	0.18
5/20/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	5/20/2018	River Intrusion	0.18
5/22/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	5/22/2018	River Intrusion	0.71
5/30/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	5/29/2018	River Intrusion	0.06
6/2/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/2/2018	River Intrusion	1.04
6/7/2018	7:52	Birdsall, Jeremiah	Rain	Other/Unknown	No	6/6/2018	River Intrusion	0.32
6/9/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/9/2018	River Intrusion	0.11
6/10/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/10/2018	River Intrusion	0.38
6/11/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/11/2018	River Intrusion; Check for early morning WW event	0.88
6/12/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/11/2018	River Intrusion; Check for afternoon WW event	0.88
6/18/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/17/2018	River Intrusion	0.13
6/19/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/19/2018	River Intrusion	1.6
6/20/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/20/2018	River Intrusion	0.47
6/21/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/21/2018	River Intrusion	0.1
6/26/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/25/2018	River Intrusion	0.69
7/1/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/30/2018	River Intrusion	0.34
7/5/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	7/4/2018	River Intrusion	0.86
7/14/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	7/13/2018	River Intrusion	0.4
7/18/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	7/17/2018	River Intrusion	1.06

CSO Inspection Report

CSO Number 115 **Total Wet Weather CSOs Unknown:** 40

CSO Name Riverview Lift Station

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
7/19/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	7/19/2018	River Intrusion	0.02
7/23/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	7/23/2018	River Intrusion	0.02
7/29/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	7/28/2018	River Intrusion	0.43
8/4/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	8/4/2018	River Intrusion	0.2
8/15/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	8/15/2018	River Intrusion	0.33
8/16/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	8/16/2018	River Intrusion	0.35
8/21/2018	12:34	Birdsall, Jeremiah	Rain	Other/Unknown	No	8/20/2018	River Intrusion	6.17
8/25/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	8/24/2018	River Intrusion	0.1
8/27/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	8/26/2018	River Intrusion	0.11
9/1/2018	15:04	Birdsall, Jeremiah	Rain	Other/Unknown	No	9/1/2018	River Intrusion	0.24
9/2/2018	15:24	Birdsall, Jeremiah	Rain	Other/Unknown	No	9/2/2018	River Intrusion	0.35
9/3/2018	15:38	Birdsall, Jeremiah	Rain	Other/Unknown	No	9/3/2018	River Intrusion	0.25
9/5/2018	7:11	Birdsall, Jeremiah	Rain	Other/Unknown	No	9/4/2018	River Intrusion	1.77
9/7/2018	6:28	Birdsall, Jeremiah	Rain	Other/Unknown	No	9/7/2018	River Intrusion	0.14
9/19/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	9/18/2018	River Intrusion	0.15
9/21/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	9/20/2018	River Intrusion	0.91
9/25/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	9/25/2018	River Intrusion	0.64

CSO Inspection Report

CSO Number 117 **Total Wet Weather CSOs Unknown:** 40

CSO Name Missouri Avenue Lift Station

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
4/25/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	4/25/2018	River Intrusion	0.13
5/2/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	5/1/2018	River Intrusion	0.1
5/3/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	5/2/2018	River Intrusion	0.28
5/11/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	5/11/2018	River Intrusion	0.29
5/14/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	5/14/2018	River Intrusion	0.18
5/20/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	5/20/2018	River Intrusion	0.18
5/22/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	5/22/2018	River Intrusion	0.71
5/30/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	5/29/2018	River Intrusion	0.06
6/2/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/2/2018	River Intrusion	1.04
6/7/2018	7:53	Birdsall, Jeremiah	Rain	Other/Unknown	No	6/6/2018	River Intrusion	0.32
6/9/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/9/2018	River Intrusion	0.11
6/10/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/10/2018	River Intrusion	0.38
6/11/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/11/2018	River Intrusion; Check for early morning WW event	0.88
6/12/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/11/2018	River Intrusion; Check for afternoon WW event	0.88
6/18/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/17/2018	River Intrusion	0.13
6/19/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/19/2018	River Intrusion	1.6
6/20/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/20/2018	River Intrusion	0.47
6/21/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/21/2018	River Intrusion	0.1
6/26/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/25/2018	River Intrusion	0.69
7/1/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/30/2018	River Intrusion	0.34
7/5/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	7/4/2018	River Intrusion	0.86
7/14/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	7/13/2018	River Intrusion	0.4
7/18/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	7/17/2018	River Intrusion	1.06

CSO Inspection Report

CSO Number 117 **Total Wet Weather CSOs Unknown:** 40

CSO Name Missouri Avenue Lift Station

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
7/19/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	7/19/2018	River Intrusion	0.02
7/23/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	7/23/2018	River Intrusion	0.02
7/29/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	7/28/2018	River Intrusion	0.43
8/4/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	8/4/2018	River Intrusion	0.2
8/15/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	8/15/2018	River Intrusion	0.33
8/16/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	8/16/2018	River Intrusion	0.35
8/21/2018	12:34	Birdsall, Jeremiah	Rain	Other/Unknown	No	8/20/2018	River Intrusion	6.17
8/25/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	8/24/2018	River Intrusion	0.1
8/27/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	8/26/2018	River Intrusion	0.11
9/1/2018	15:05	Birdsall, Jeremiah	Rain	Other/Unknown	No	9/1/2018	River Intrusion	0.24
9/2/2018	15:25	Birdsall, Jeremiah	Rain	Other/Unknown	No	9/2/2018	River Intrusion	0.35
9/3/2018	15:38	Birdsall, Jeremiah	Rain	Other/Unknown	No	9/3/2018	River Intrusion	0.25
9/5/2018	7:11	Birdsall, Jeremiah	Rain	Other/Unknown	No	9/4/2018	River Intrusion	1.77
9/7/2018	6:30	Birdsall, Jeremiah	Rain	Other/Unknown	No	9/7/2018	River Intrusion	0.14
9/19/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	9/18/2018	River Intrusion	0.15
9/21/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	9/20/2018	River Intrusion	0.91
9/25/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	9/25/2018	River Intrusion	0.64

CSO Inspection Report

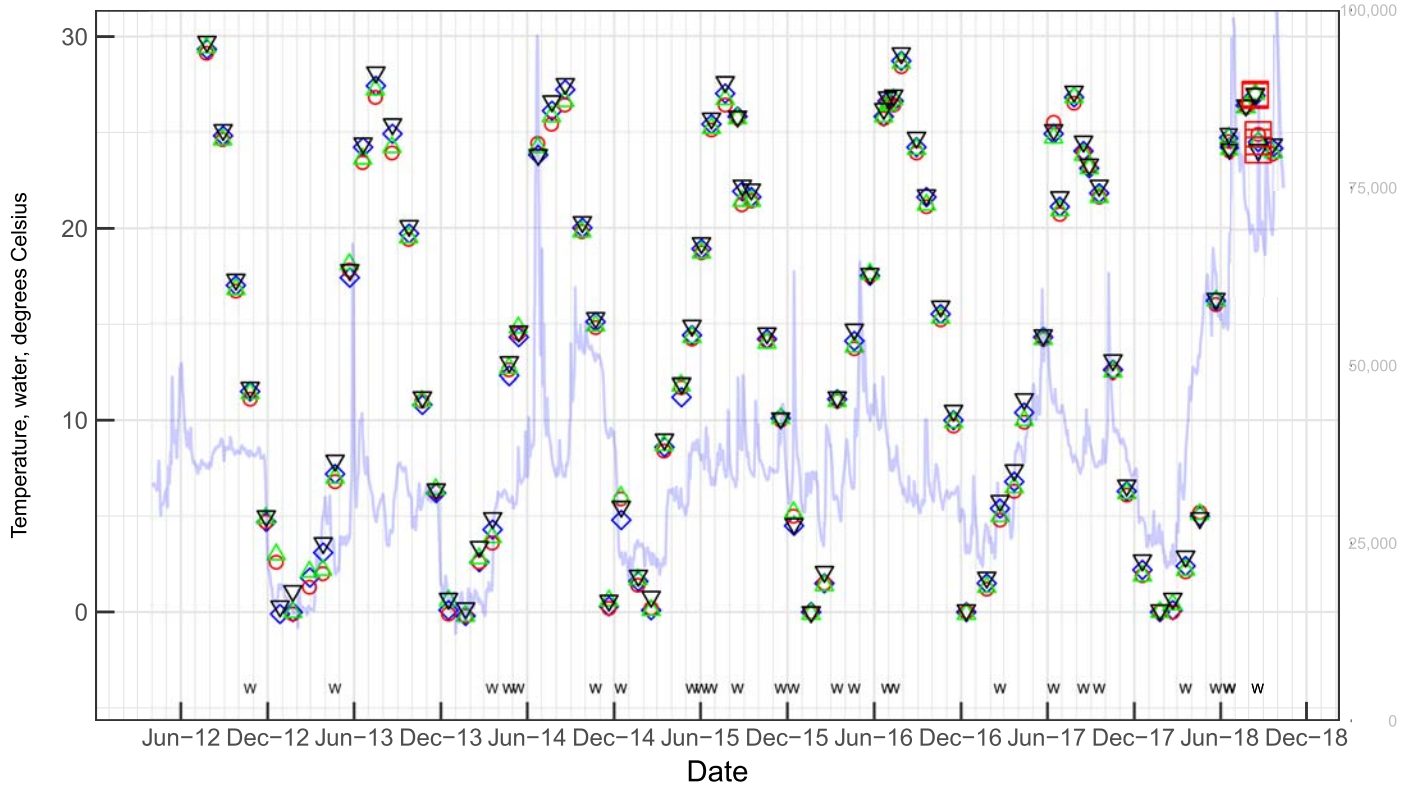
CSO Number 118 **Total Wet Weather CSOs Unknown:** 7

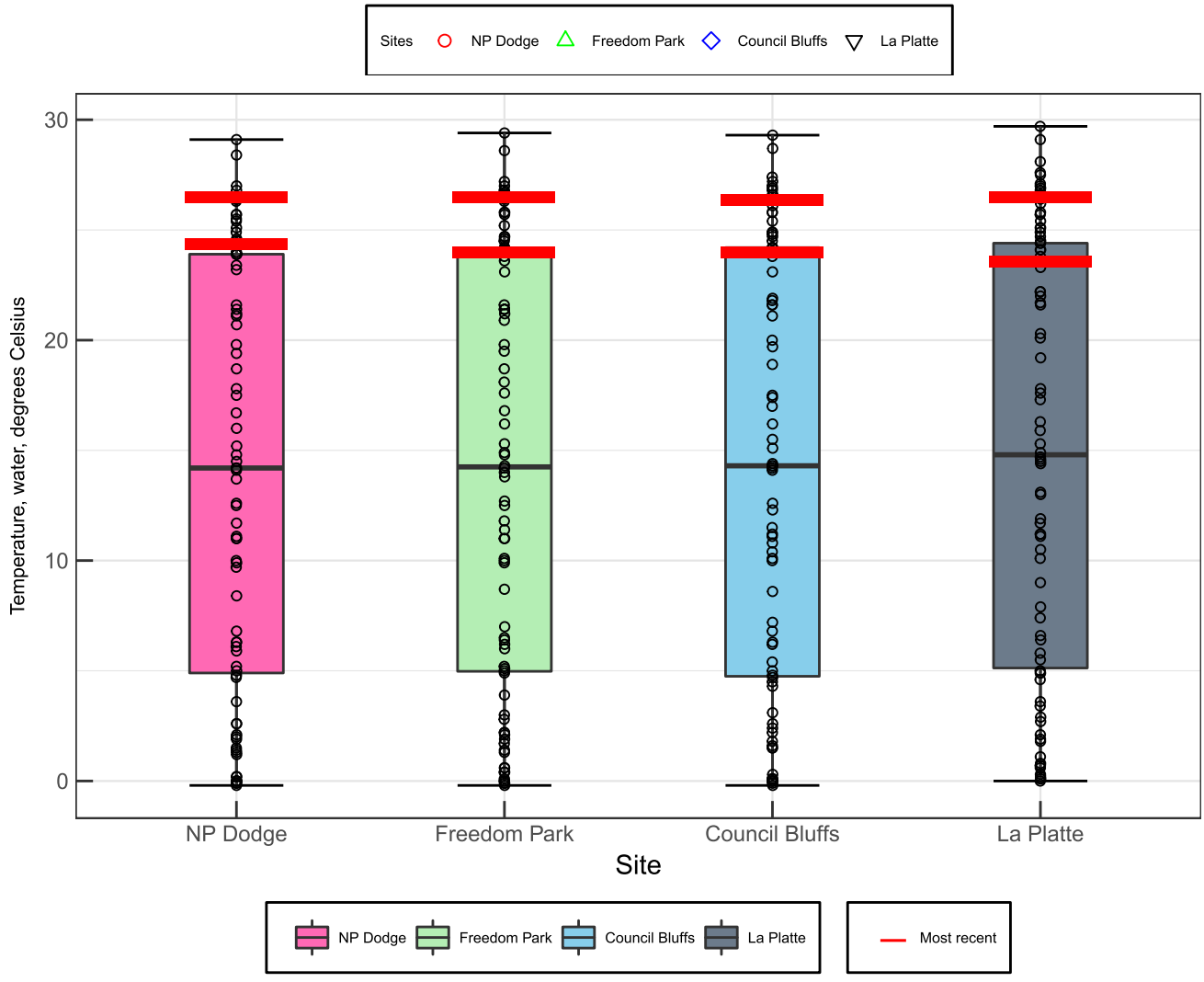
CSO Name South Omaha (Ohern Street)

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
7/1/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	6/30/2018	River Intrusion	0.34
7/5/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	7/4/2018	River Intrusion	0.86
7/14/2018	12:34	Fagerquist, Dylan	Rain	Other/Unknown	No	7/13/2018	River Intrusion	0.4
7/18/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	7/17/2018	River Intrusion	1.06
7/19/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	7/19/2018	River Intrusion	0.02
7/23/2018	12:34	Frolio, Brandon	Rain	Other/Unknown	No	7/23/2018	River Intrusion	0.02
8/21/2018	12:34	Birdsall, Jeremiah	Rain	Other/Unknown	No	8/20/2018	River Intrusion	6.17

Attachment 5 – USGS Missouri River Monitoring Provisional Data

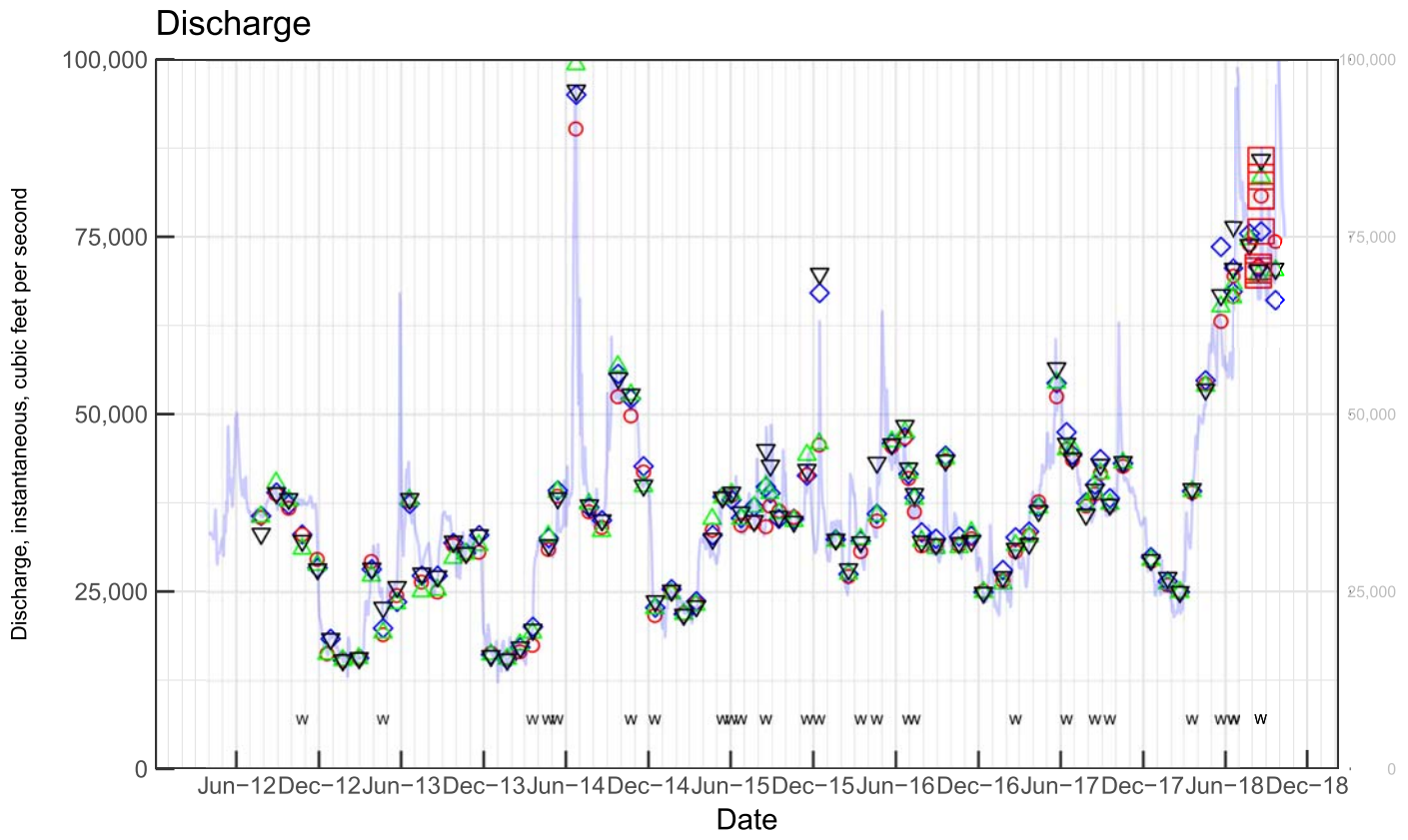
Temperature

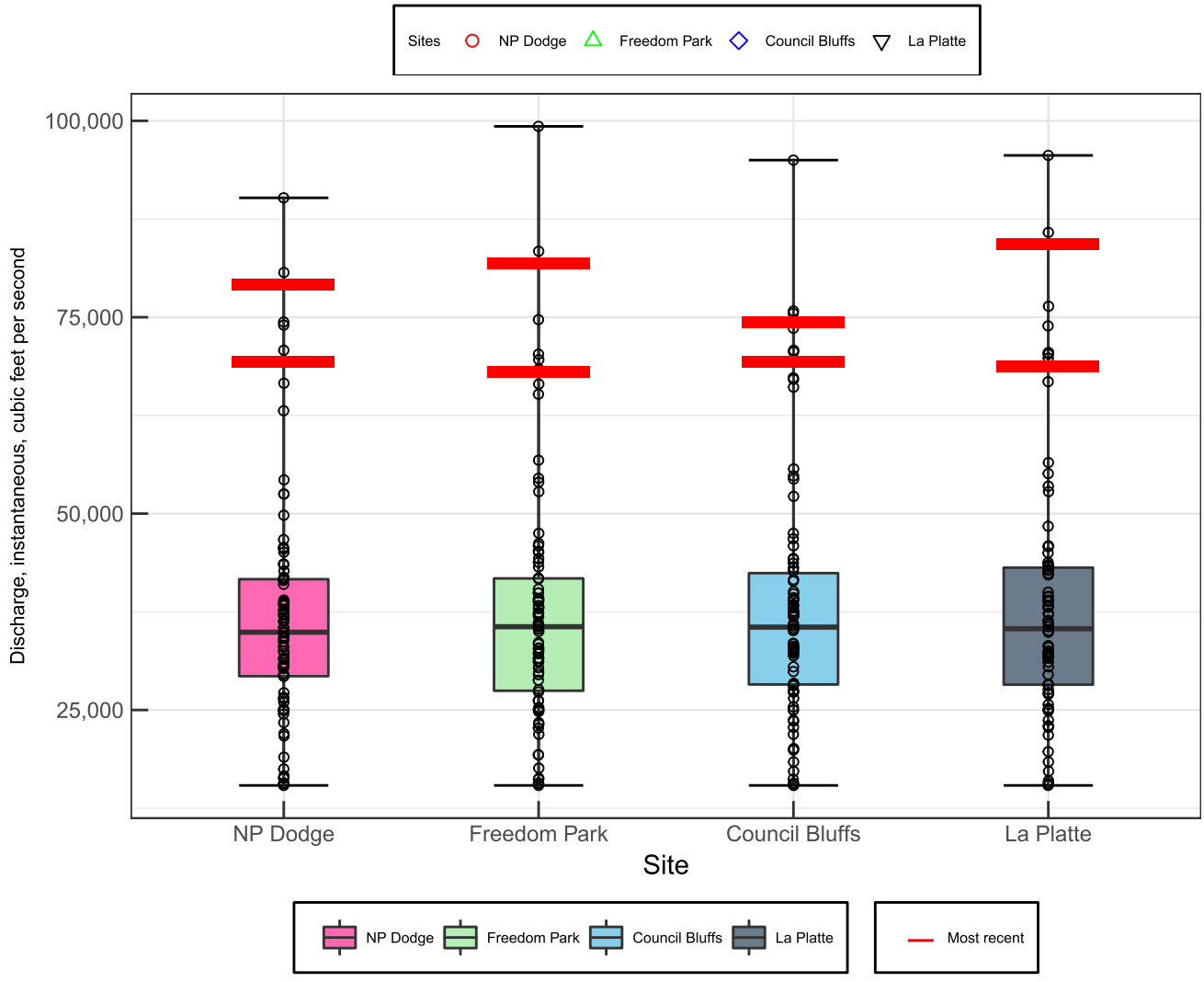




−−PRELIMINARY DATA SUBJECT TO REVISION−−

data retrieved 10/12/2018

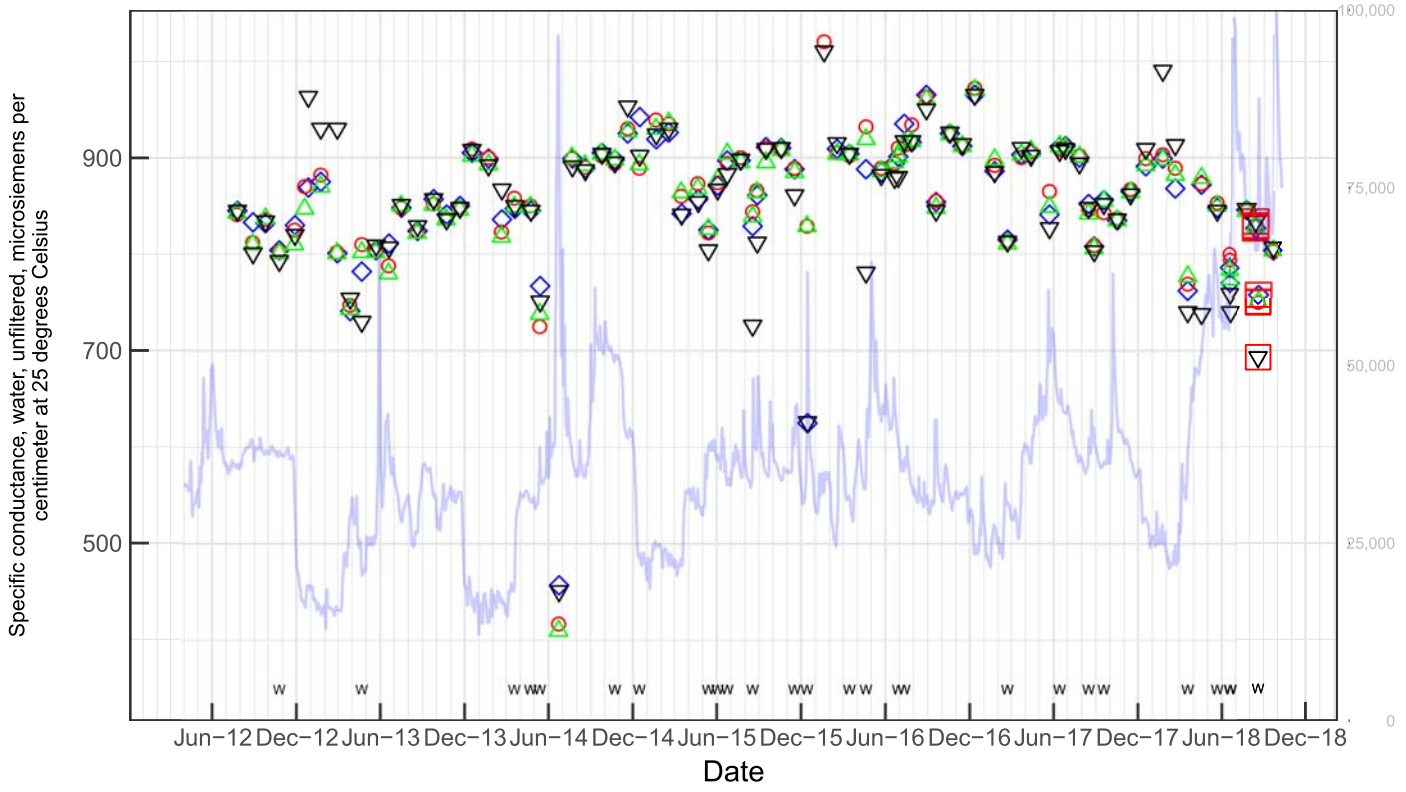


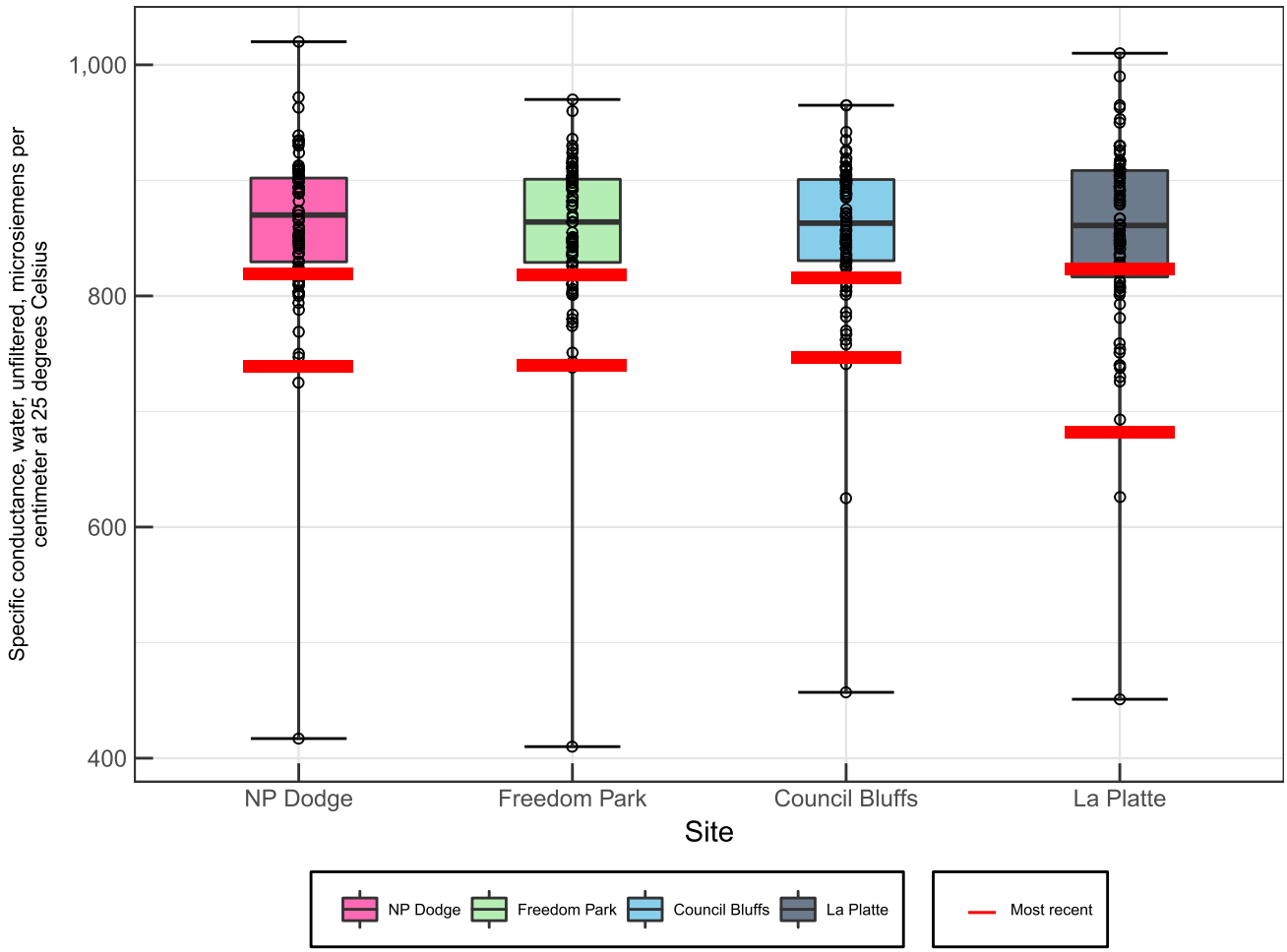


−−PRELIMINARY DATA SUBJECT TO REVISION−−

data retrieved 10/12/2018

Specific conductance

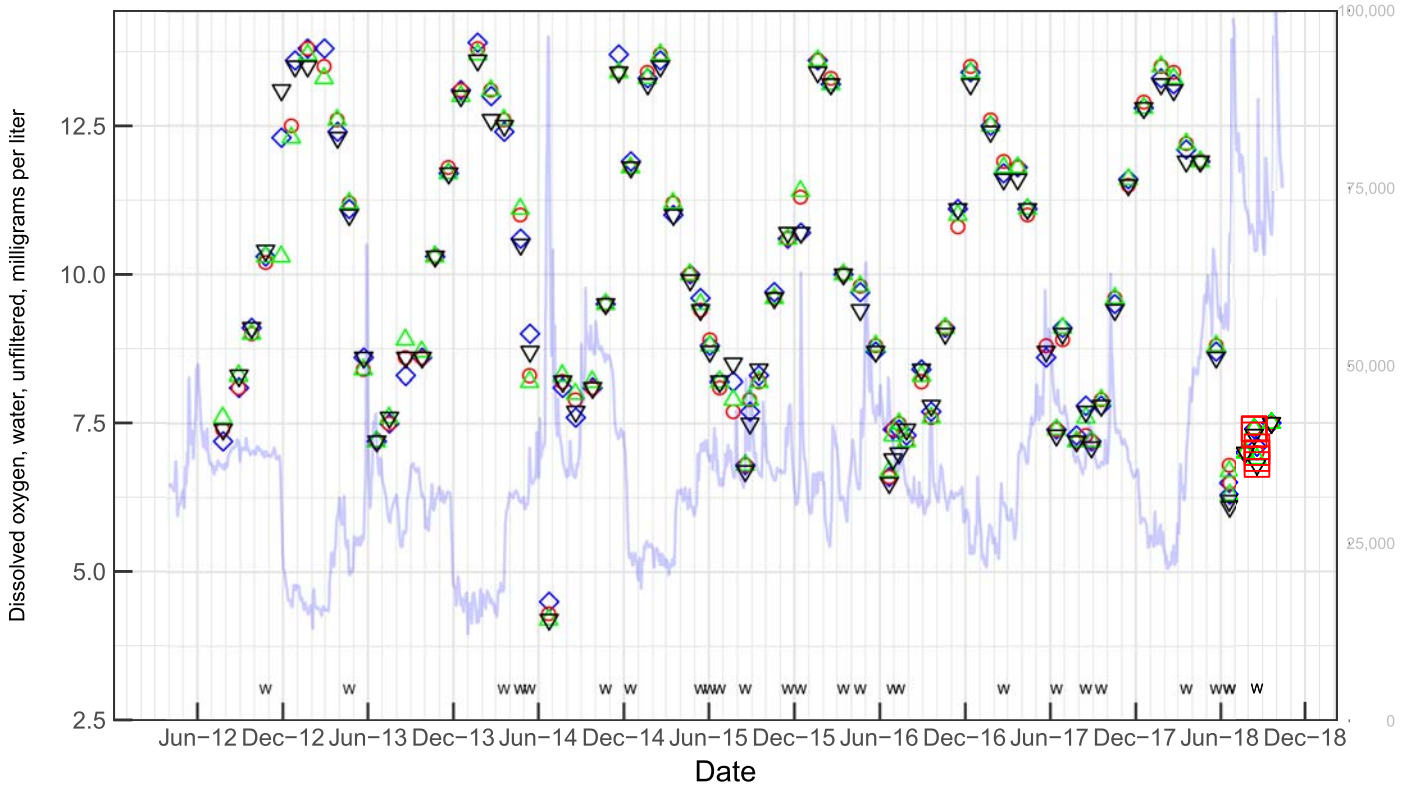


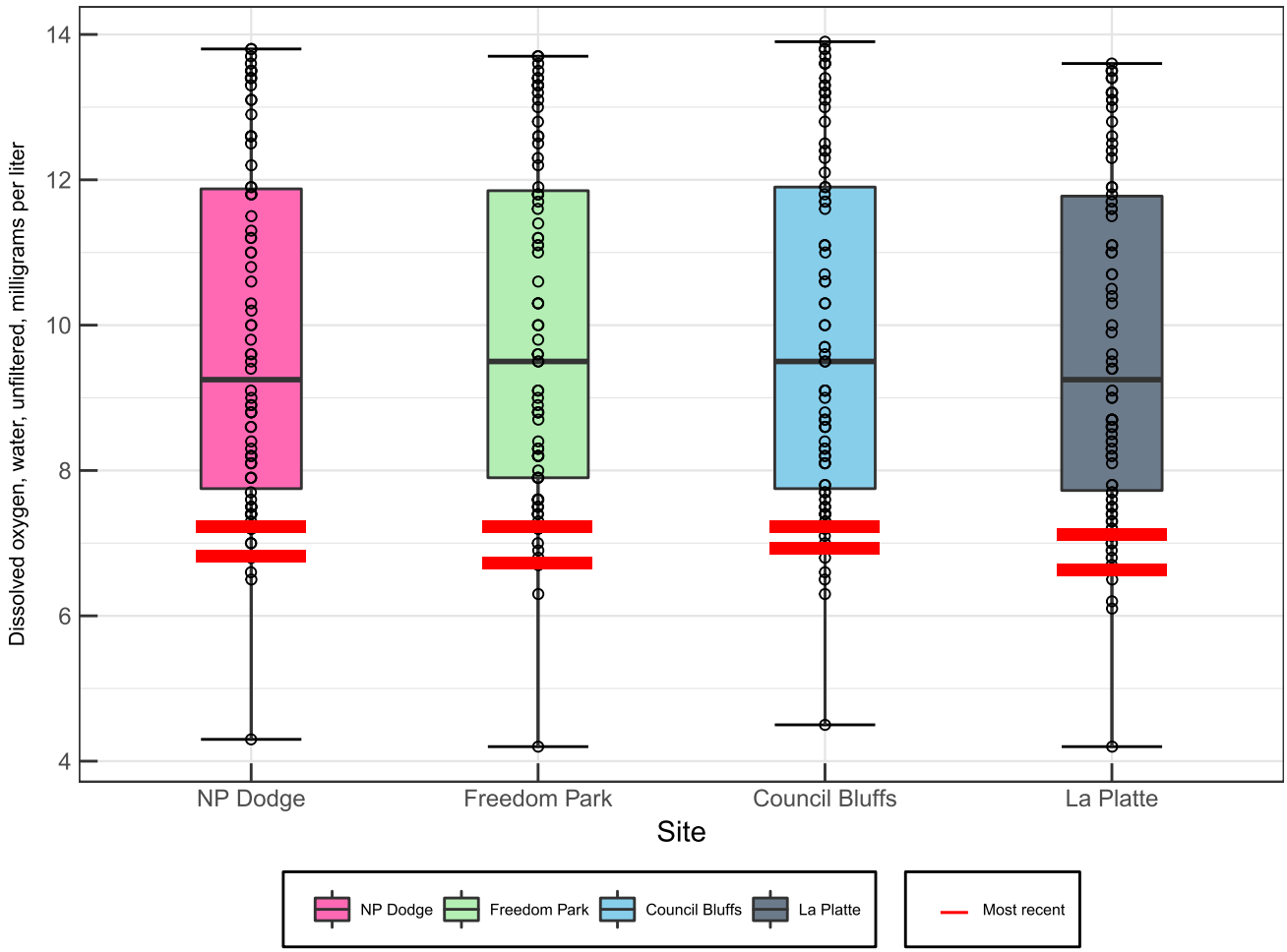


−−PRELIMINARY DATA SUBJECT TO REVISION−−

data retrieved 10/12/2018

Dissolved oxygen

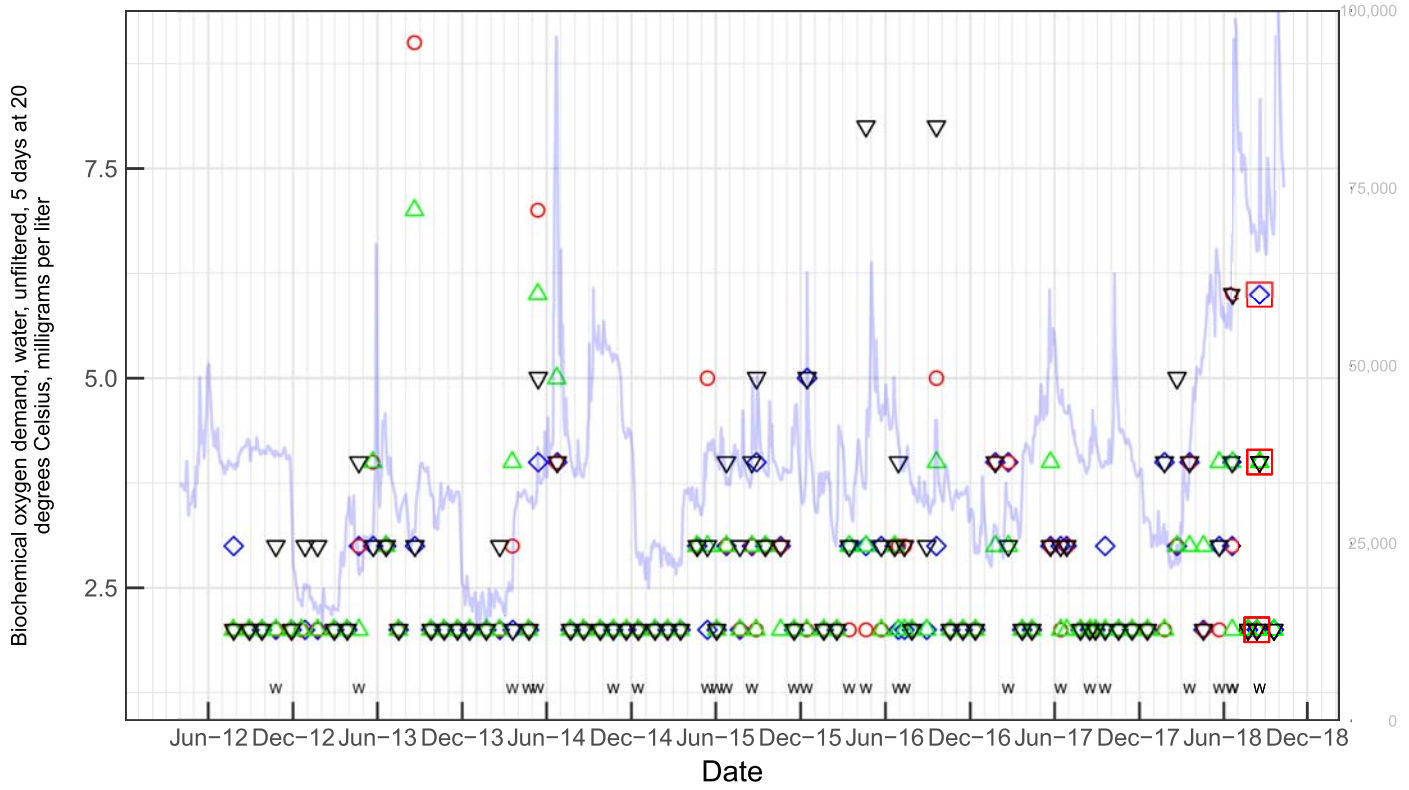


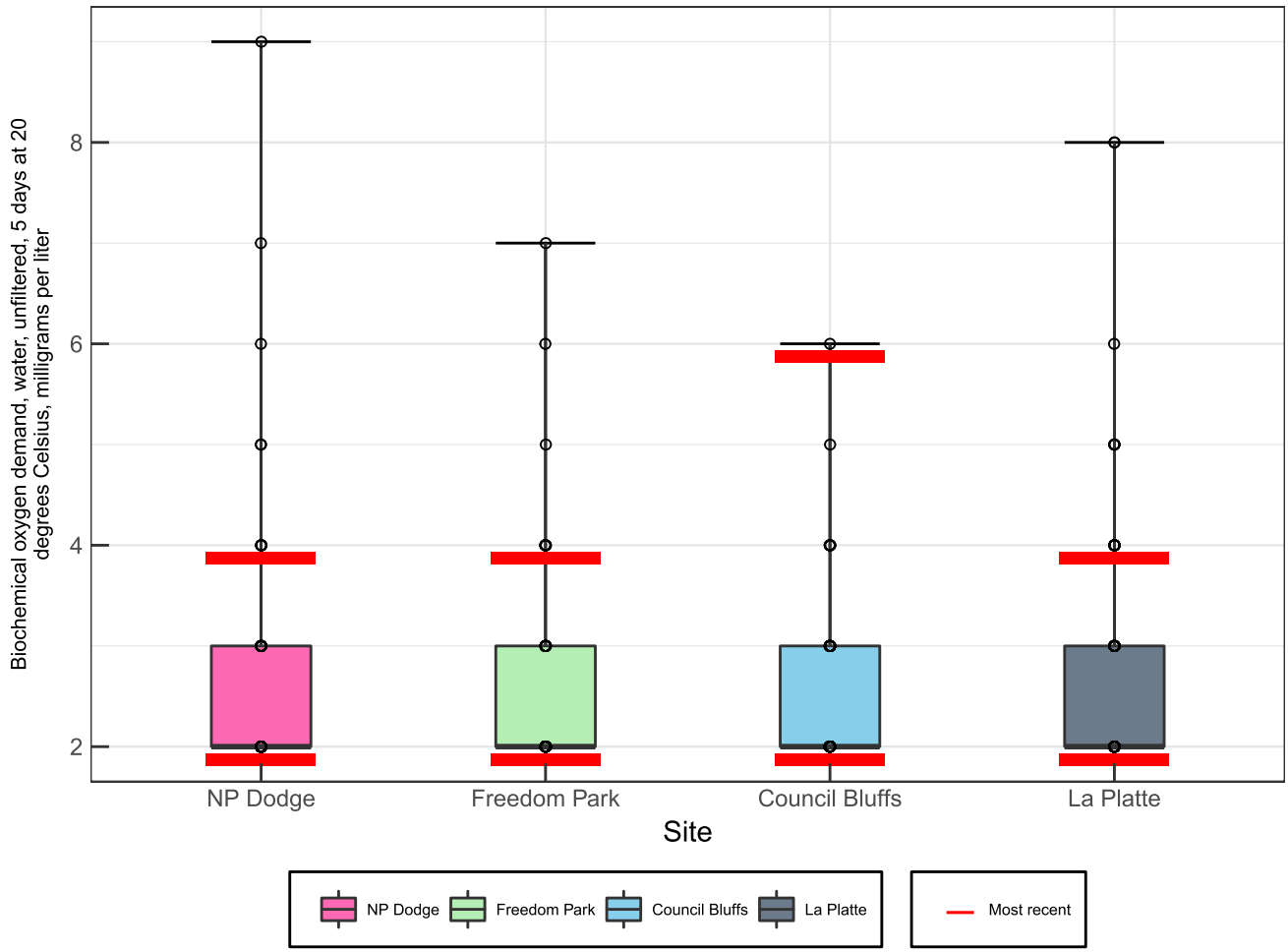


−−PRELIMINARY DATA SUBJECT TO REVISION−−

data retrieved 10/12/2018

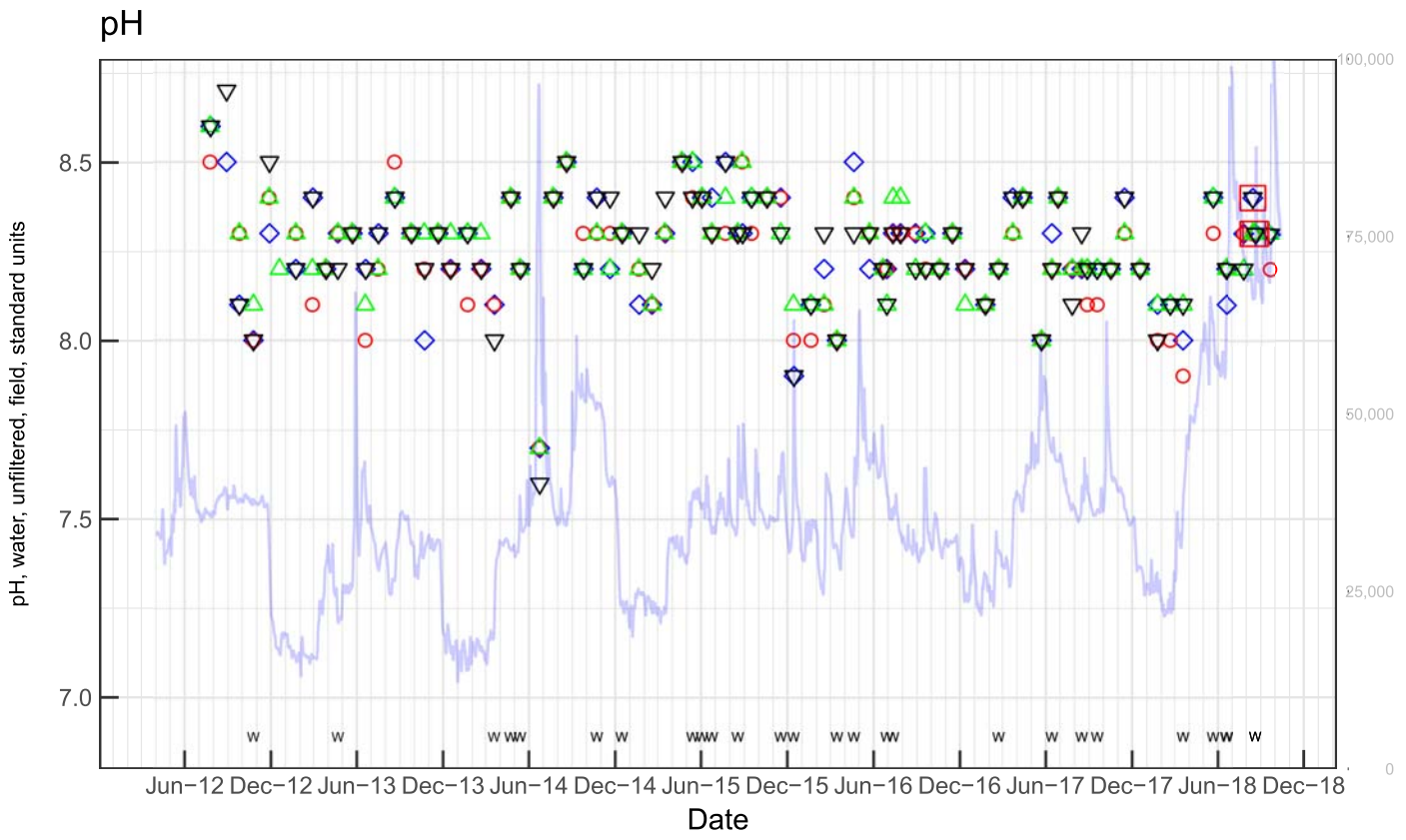
Biochemical oxygen demand

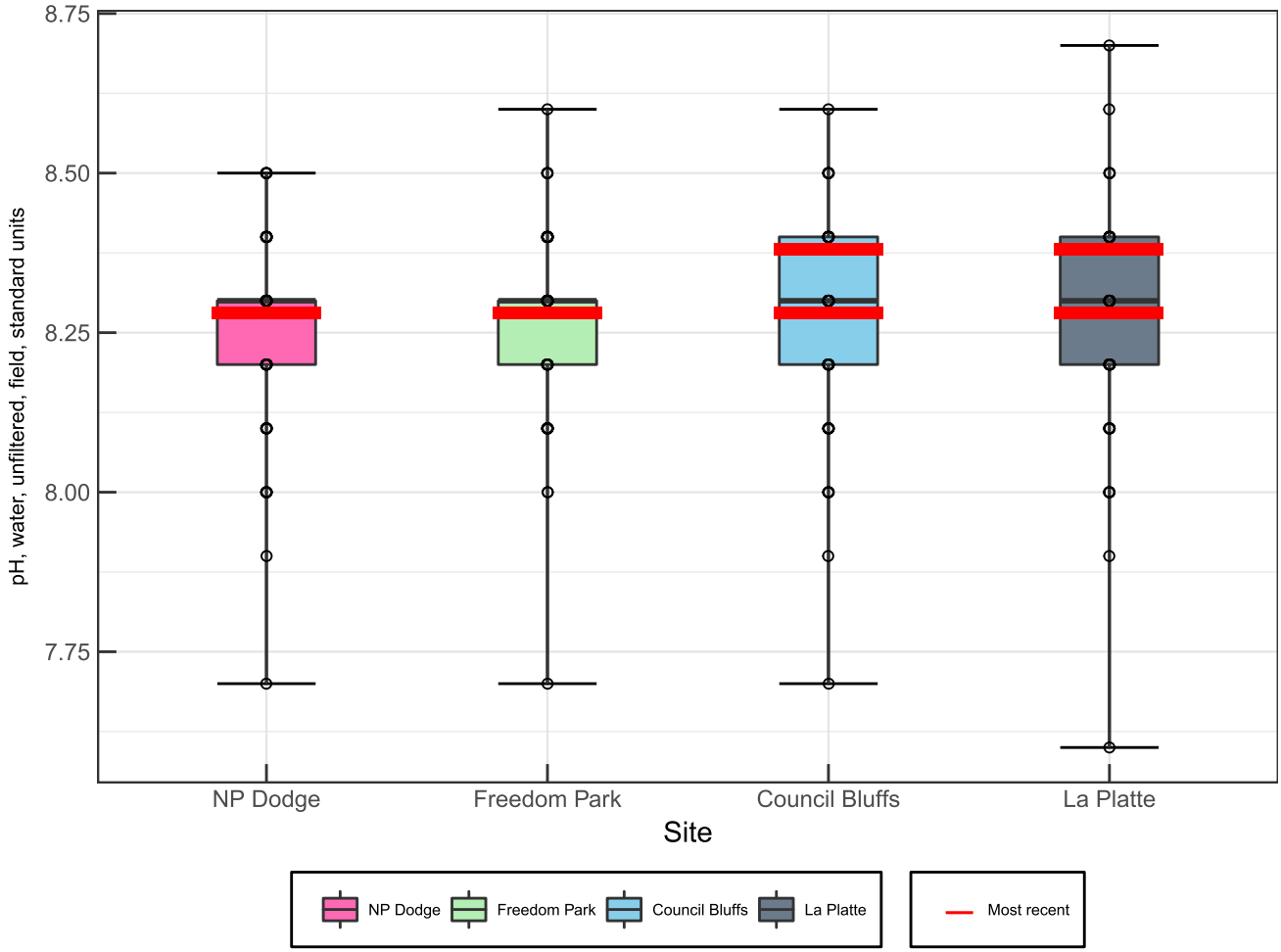




−−PRELIMINARY DATA SUBJECT TO REVISION−−

data retrieved 10/12/2018

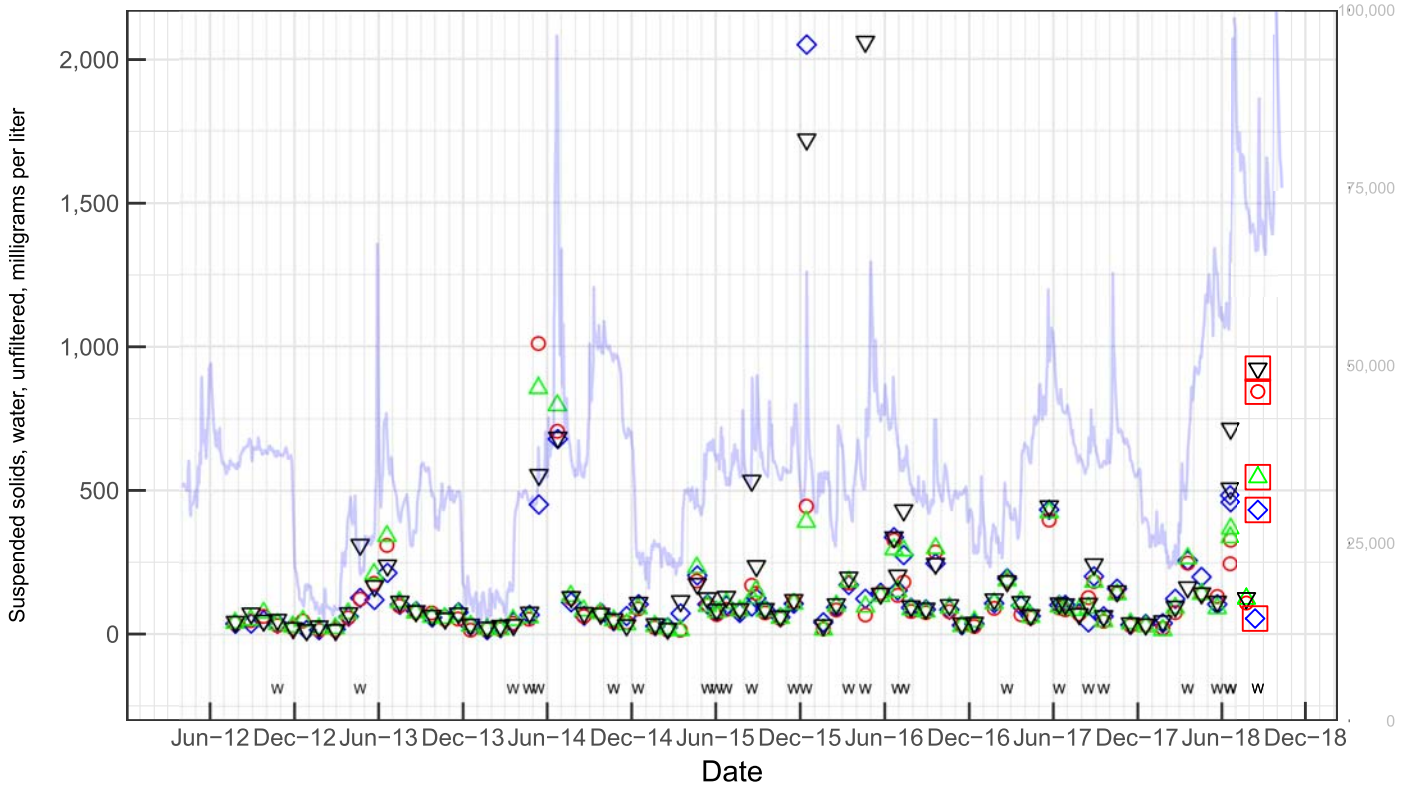


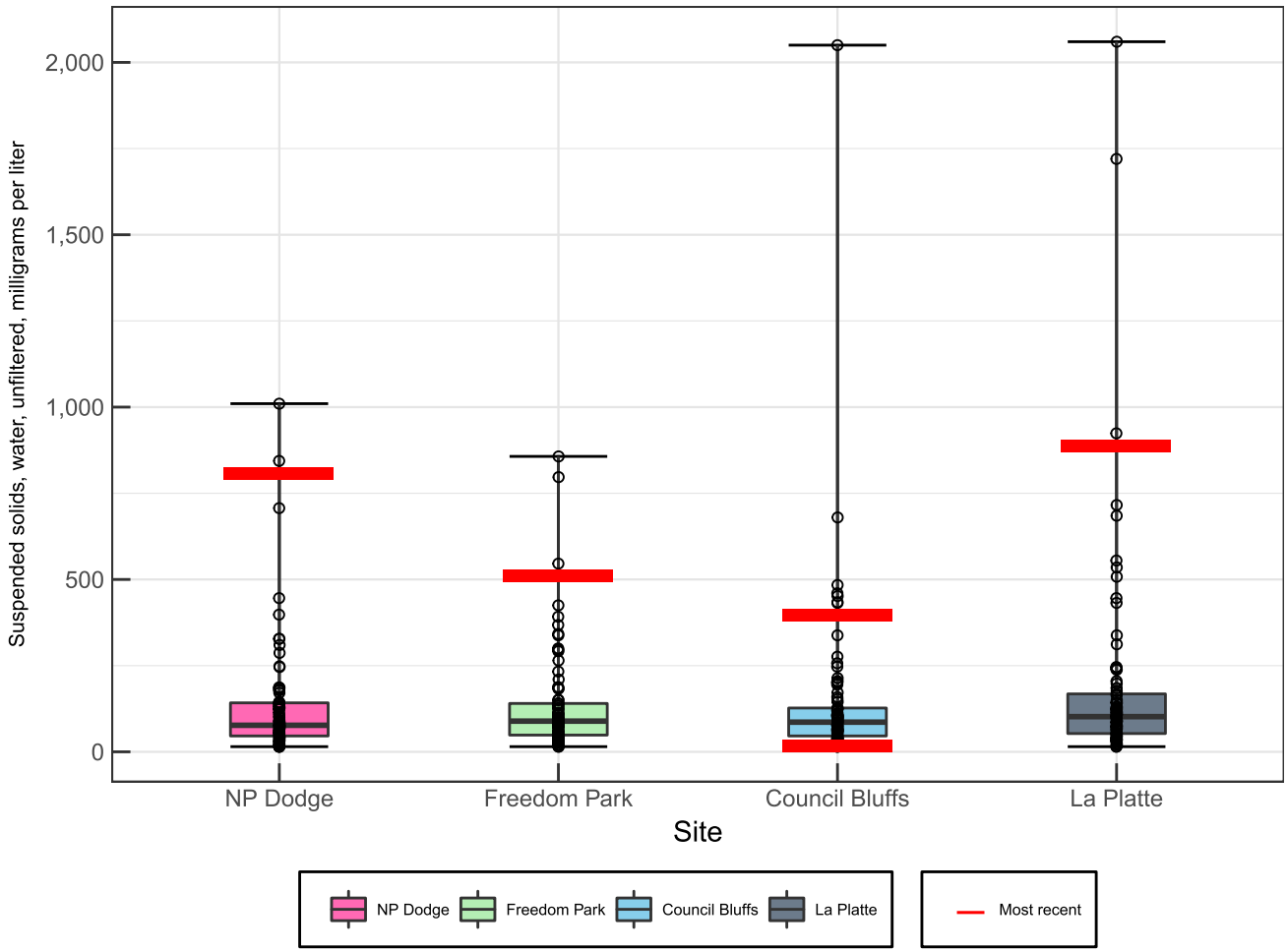


−−PRELIMINARY DATA SUBJECT TO REVISION−−

data retrieved 10/12/2018

Suspended solids

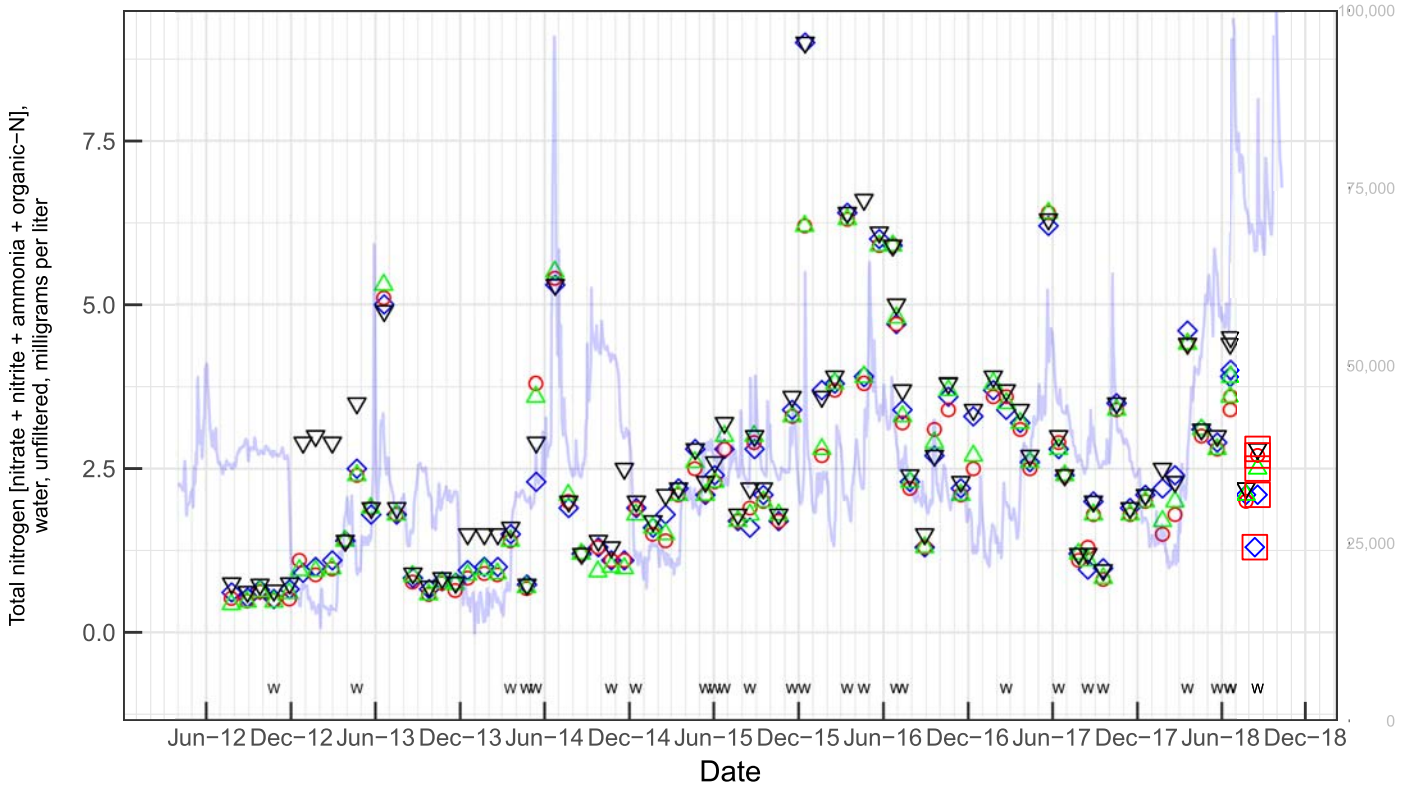


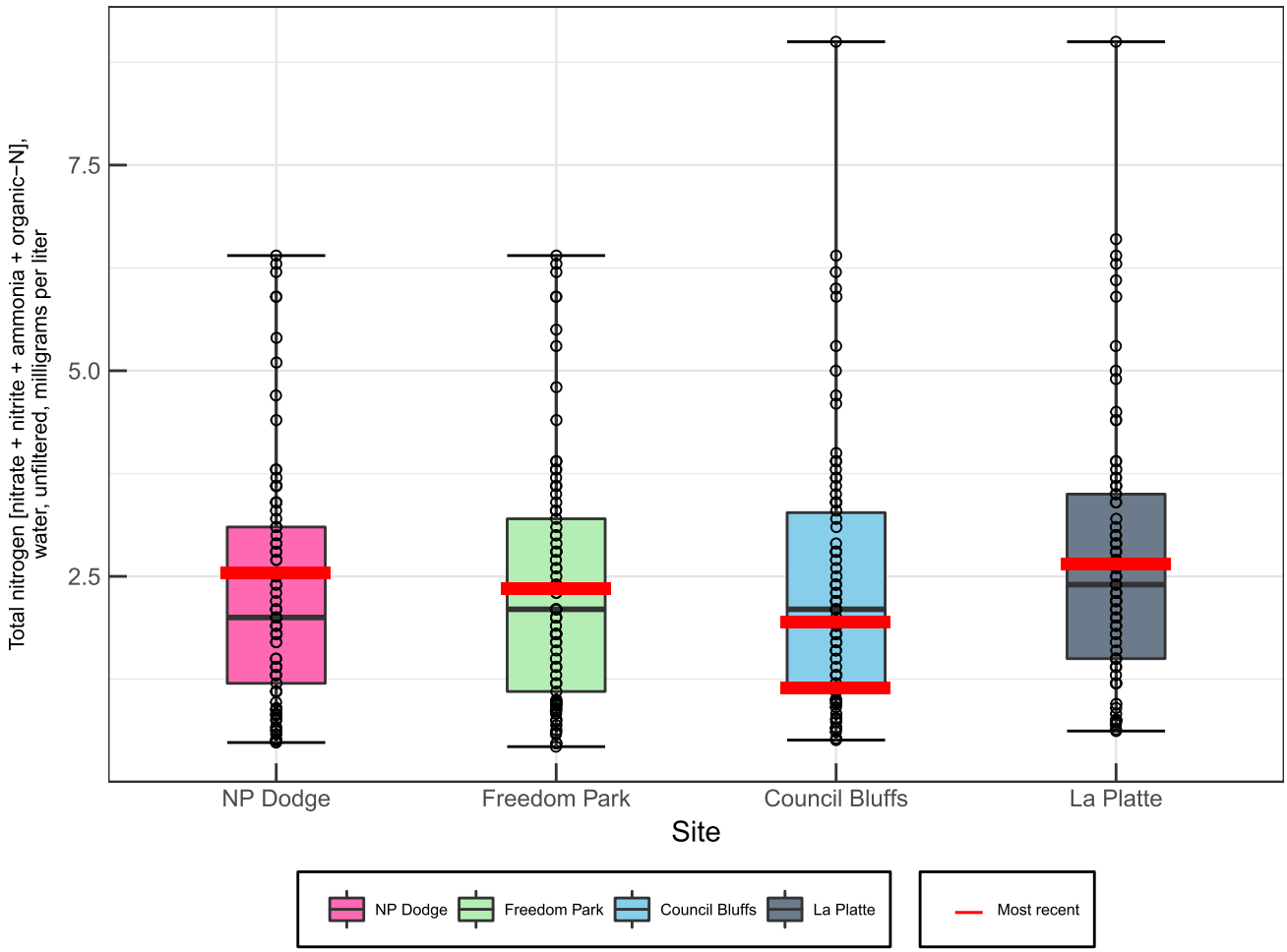


−−PRELIMINARY DATA SUBJECT TO REVISION−−

data retrieved 10/12/2018

Total nitrogen [nitrate + nitrite + ammonia + organic−N]

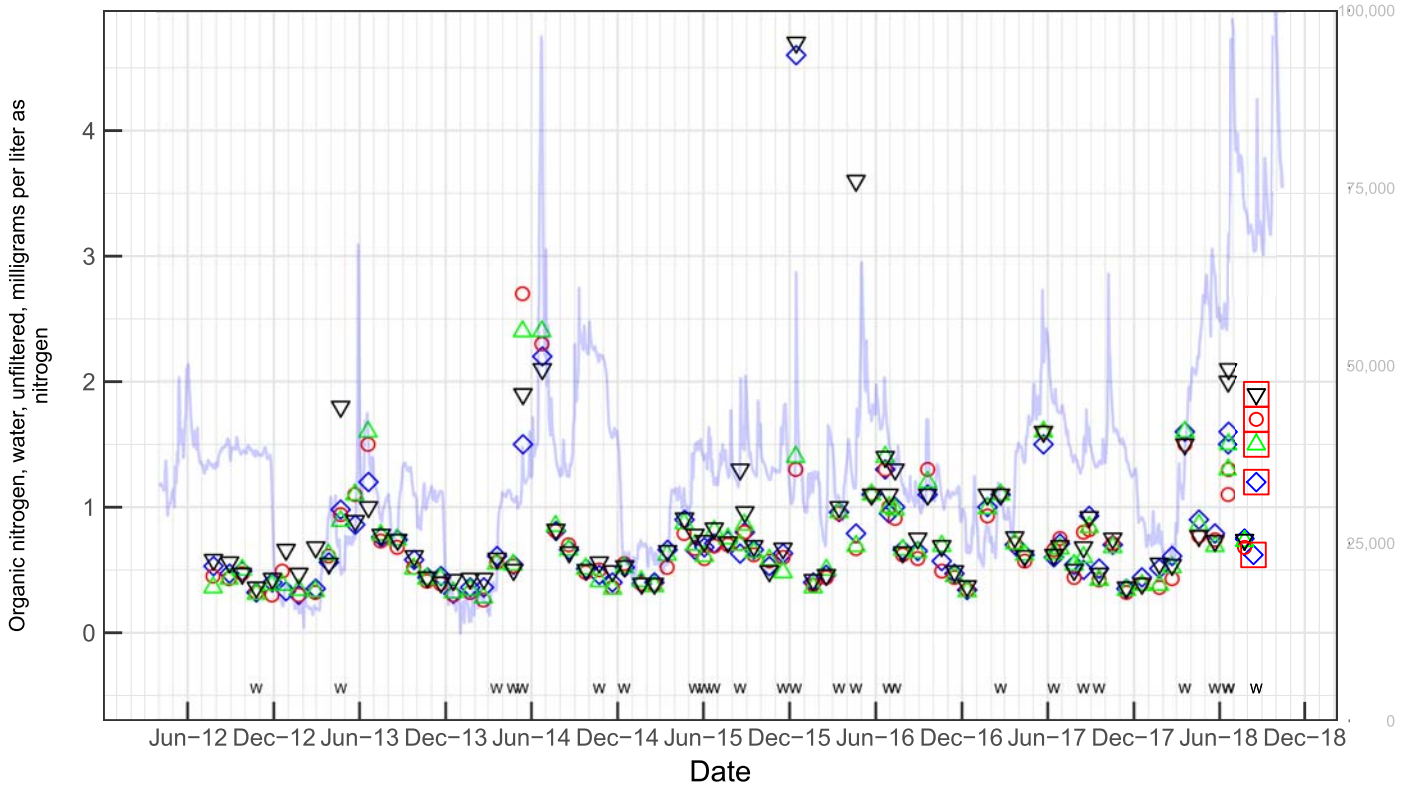


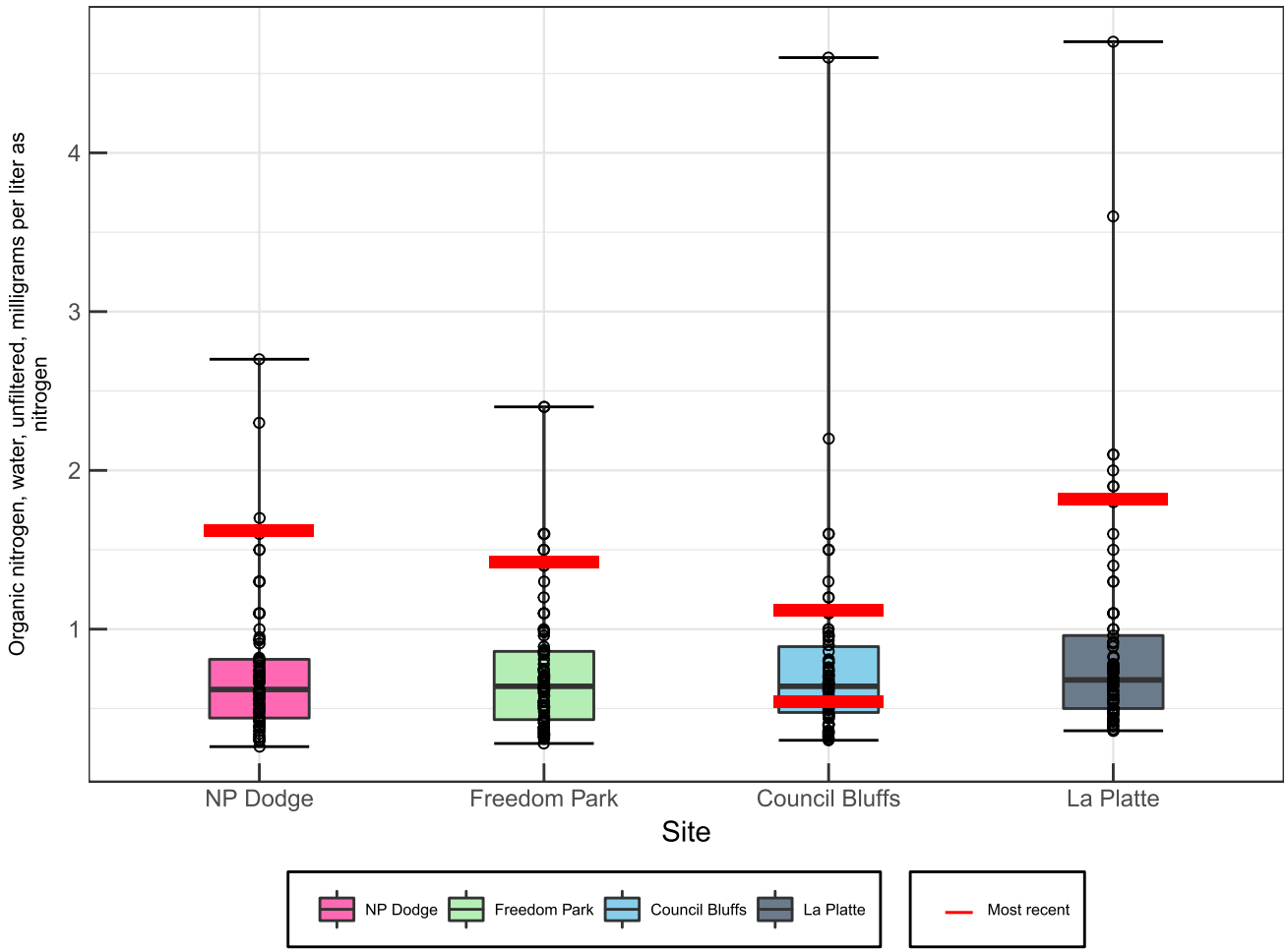


−−PRELIMINARY DATA SUBJECT TO REVISION−−

data retrieved 10/12/2018

Organic nitrogen

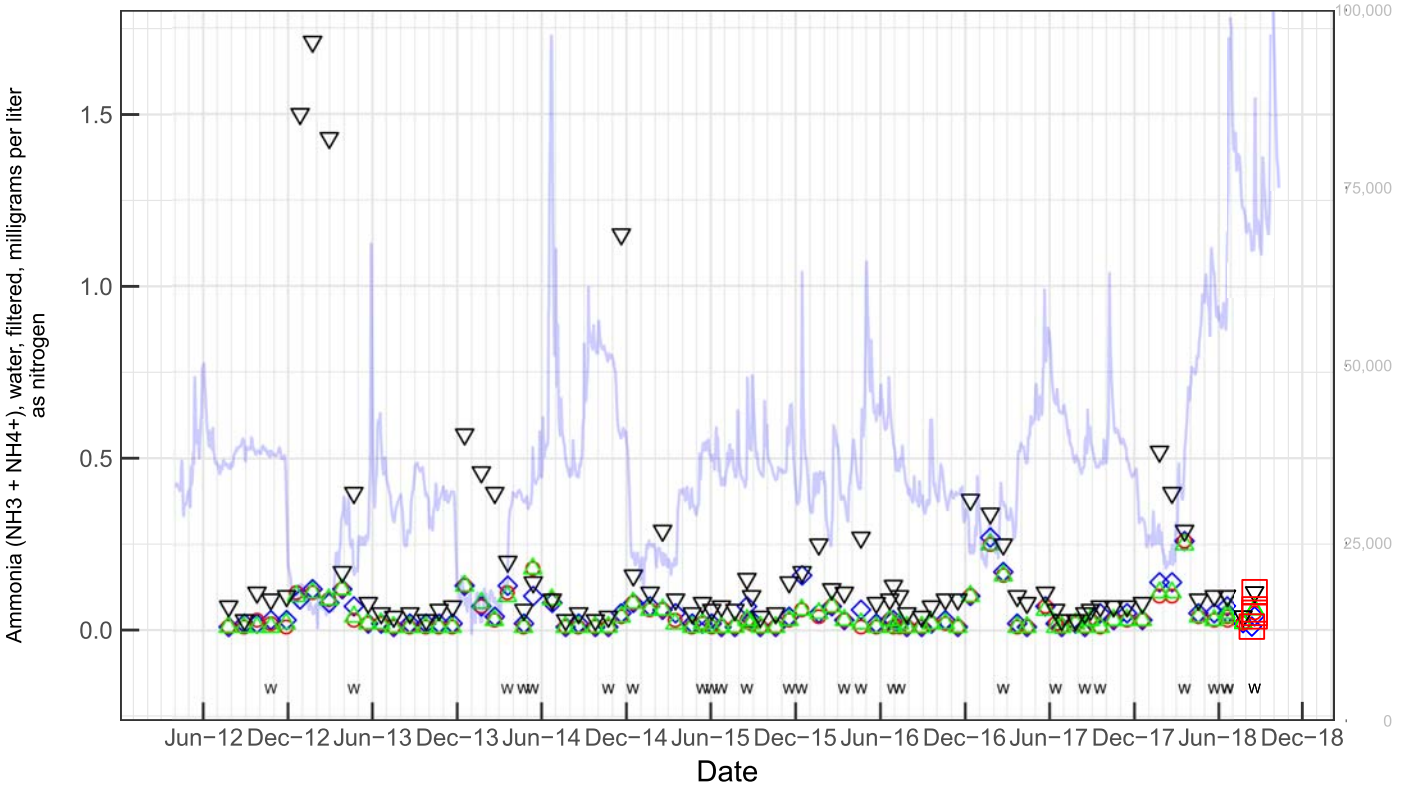


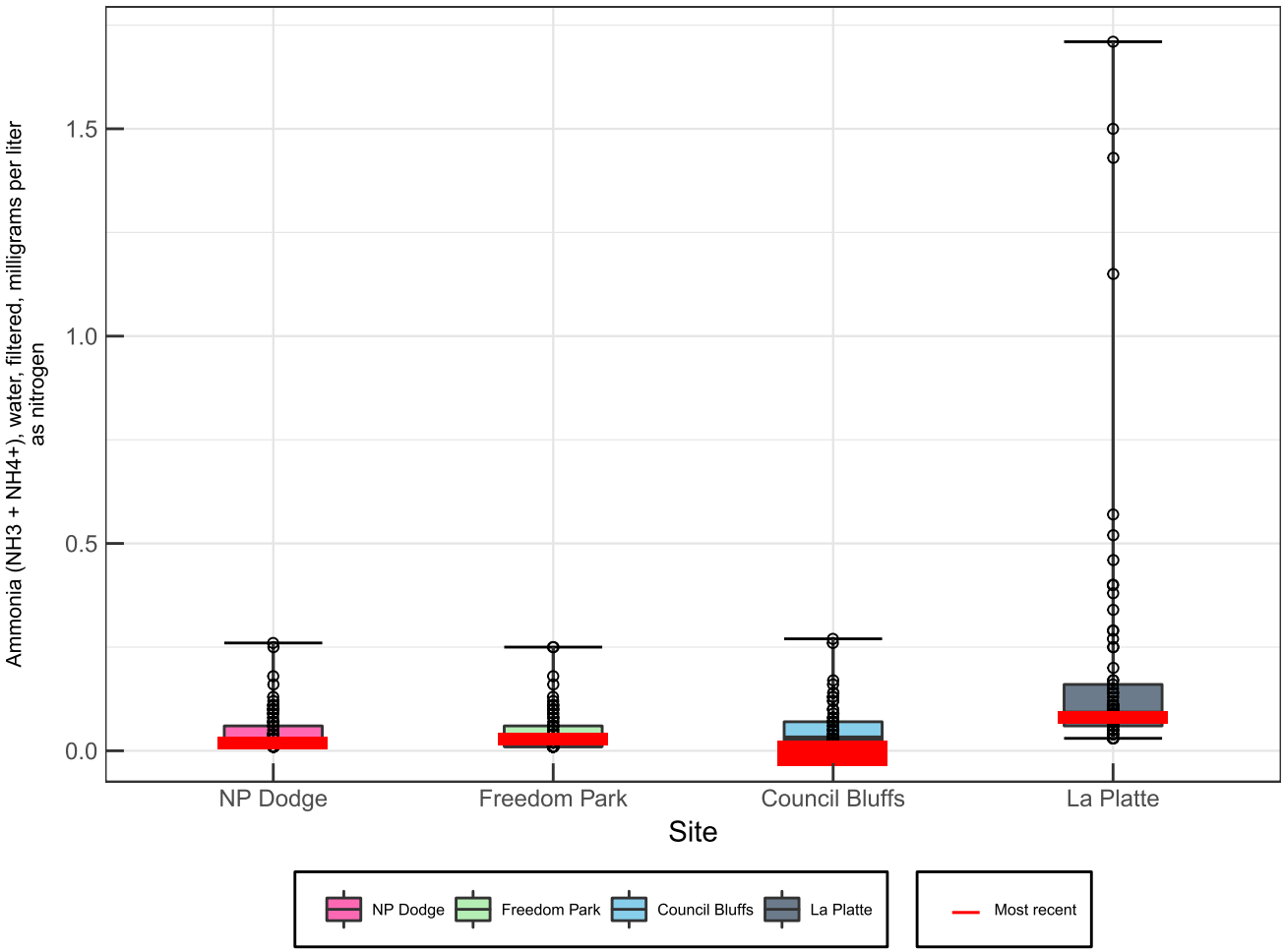


−−PRELIMINARY DATA SUBJECT TO REVISION−−

data retrieved 10/12/2018

Ammonia (NH3 + NH4+)





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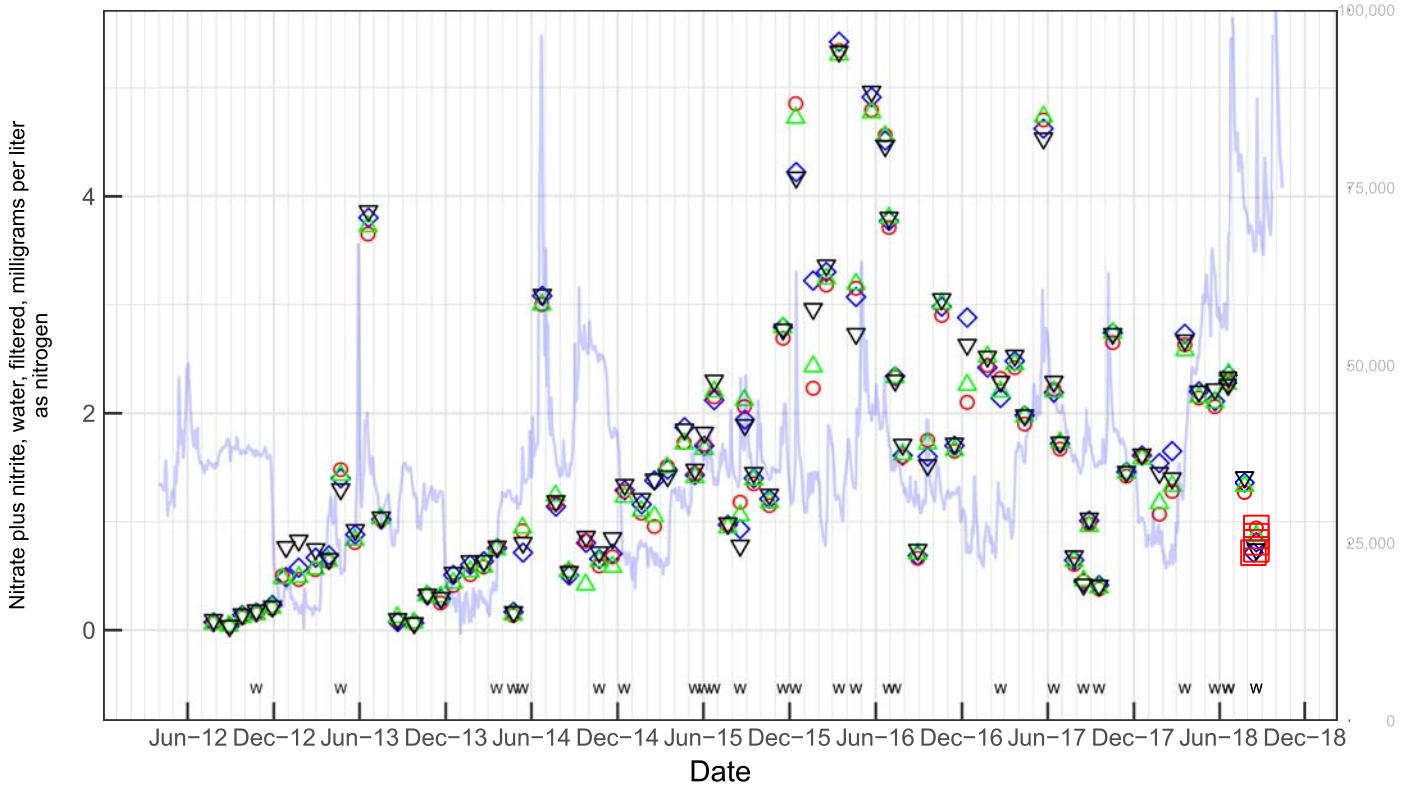
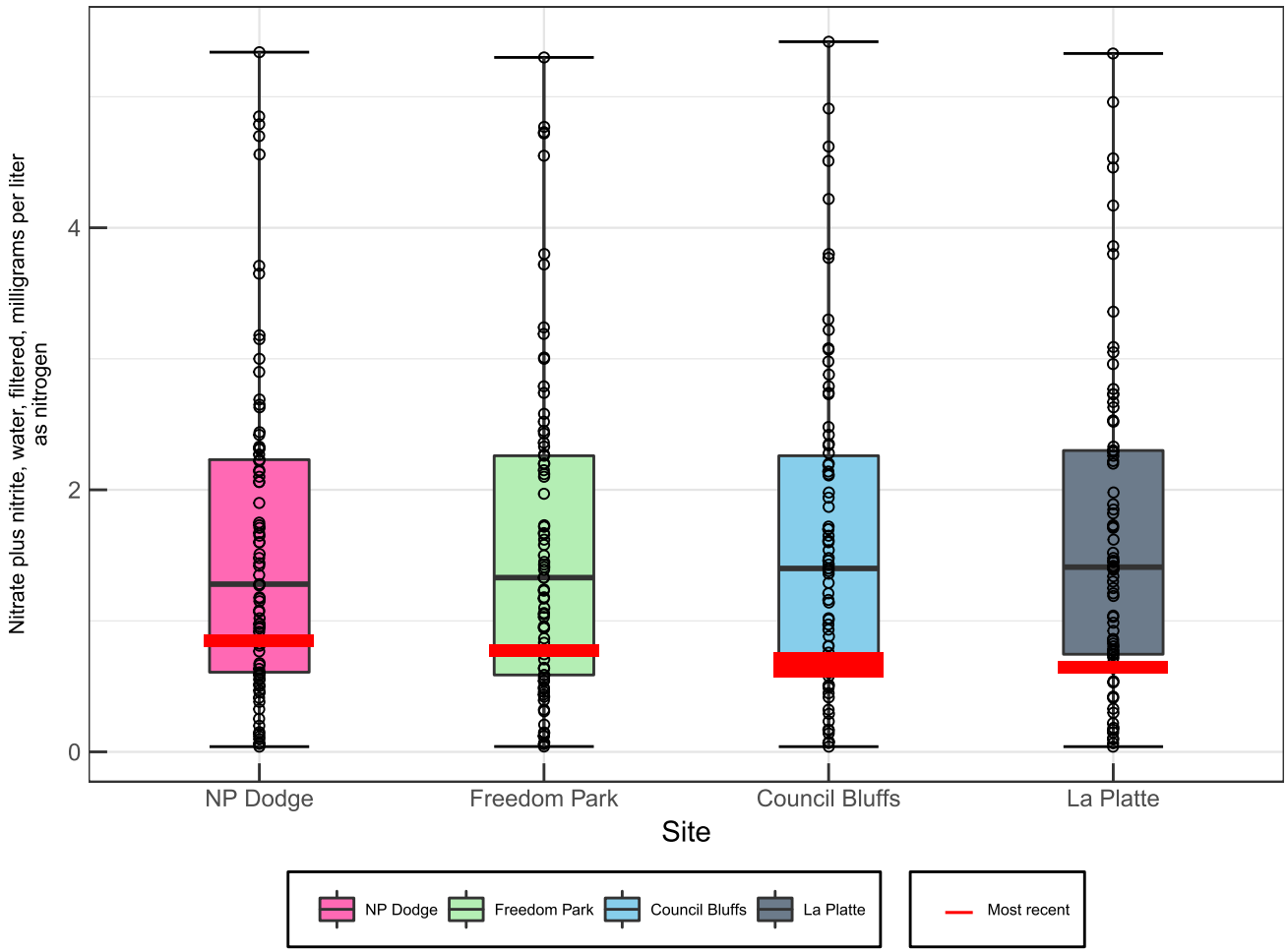
data retrieved 10/12/2018

Nitrate plus nitrite





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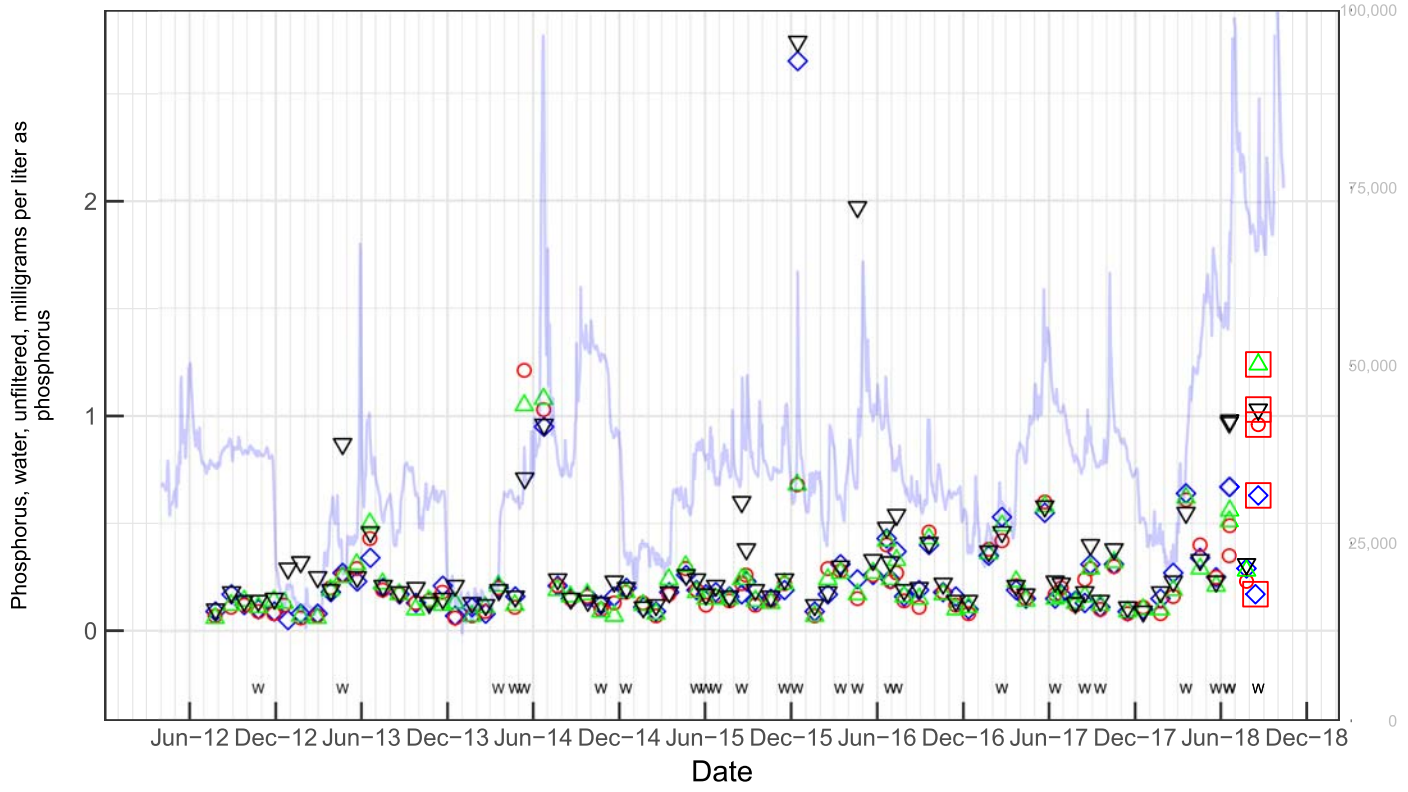
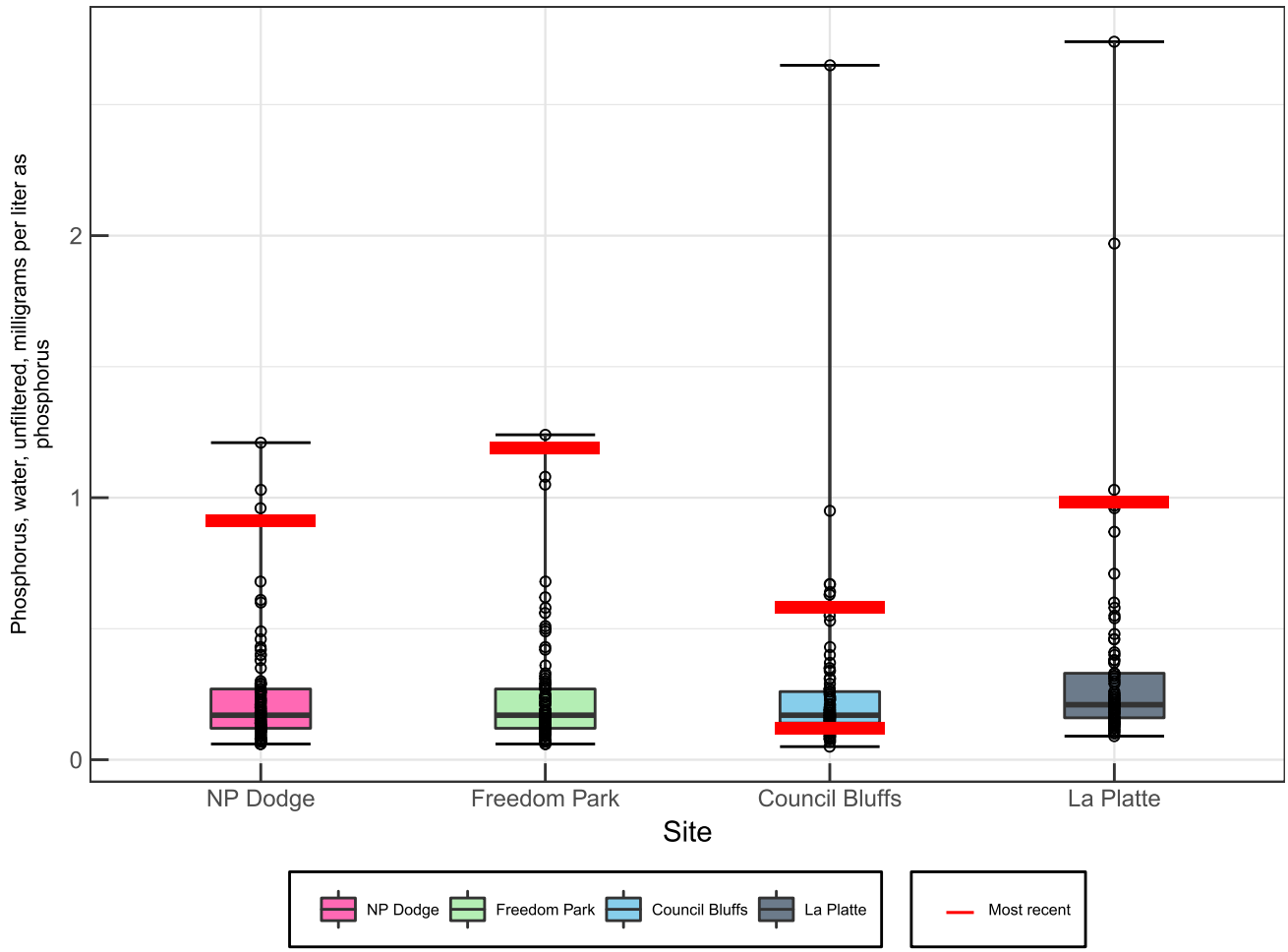
Phosphorus





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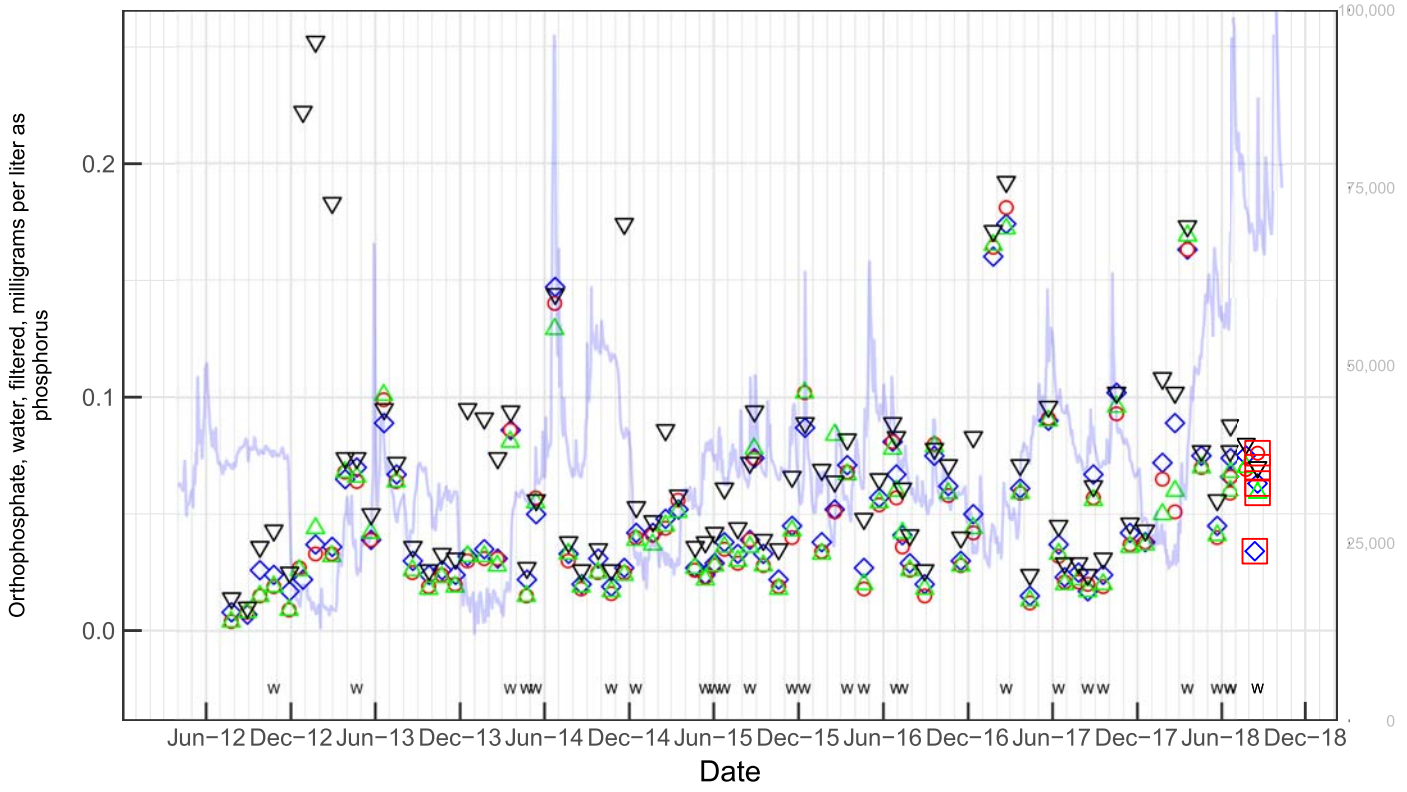
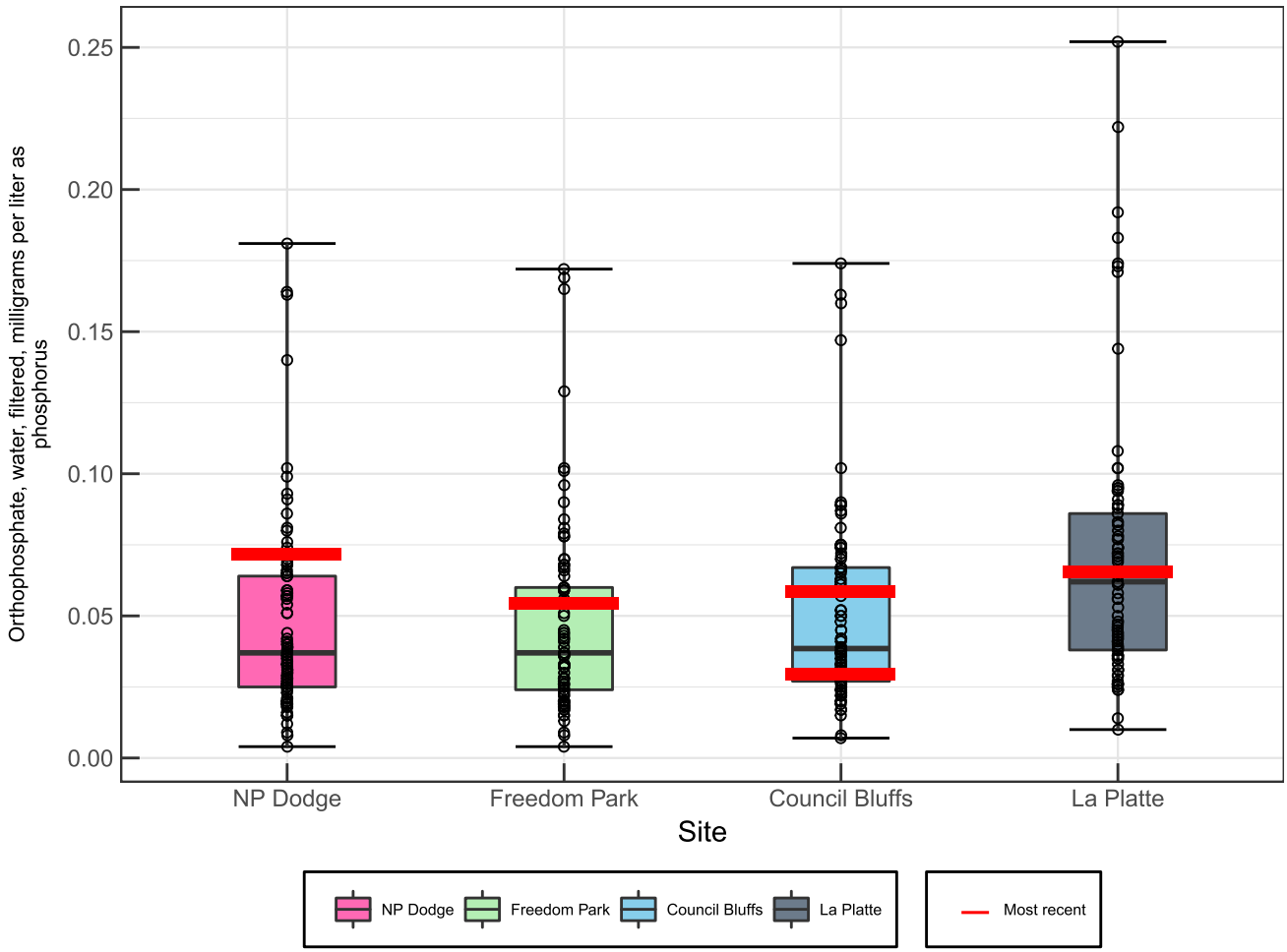
Orthophosphate





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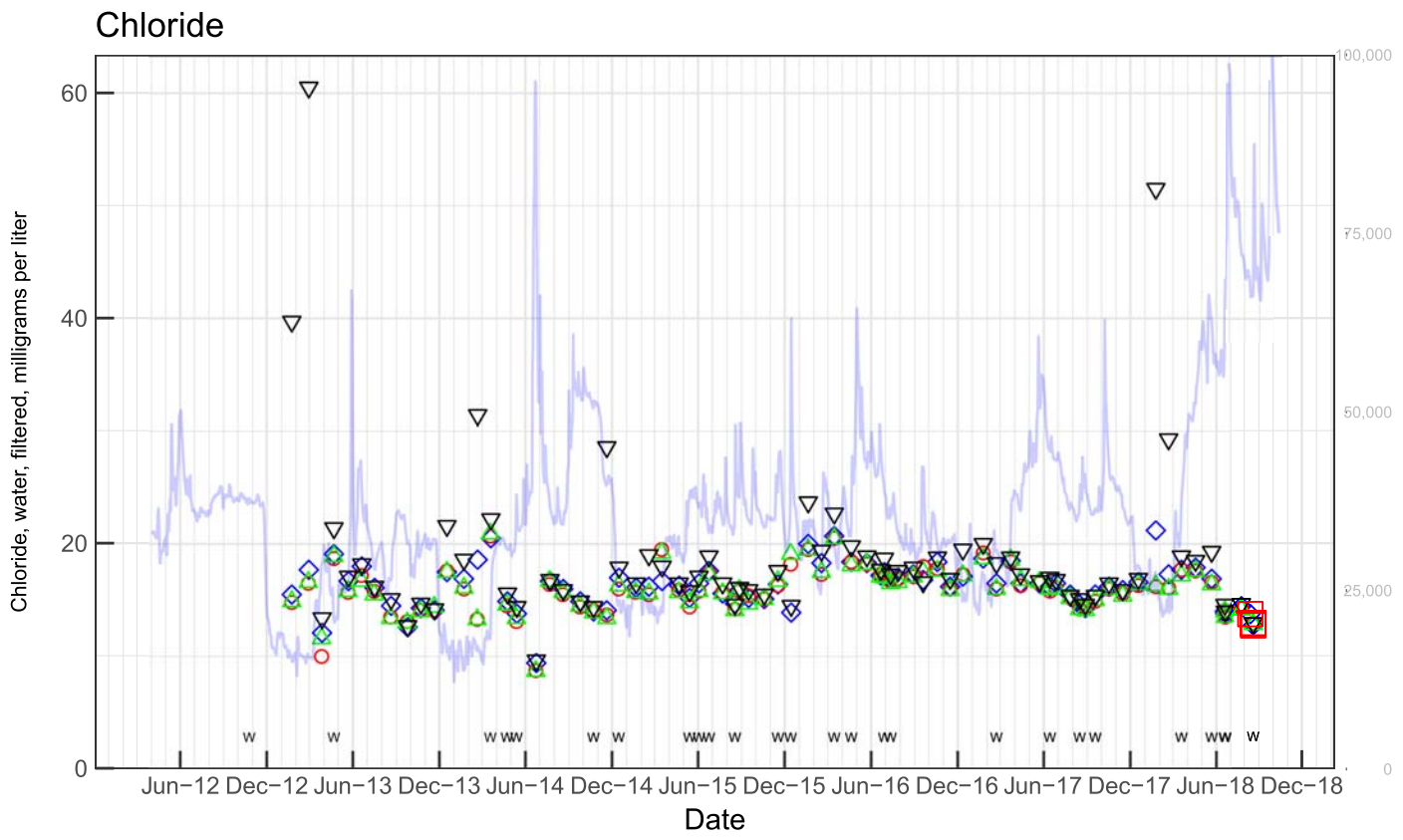

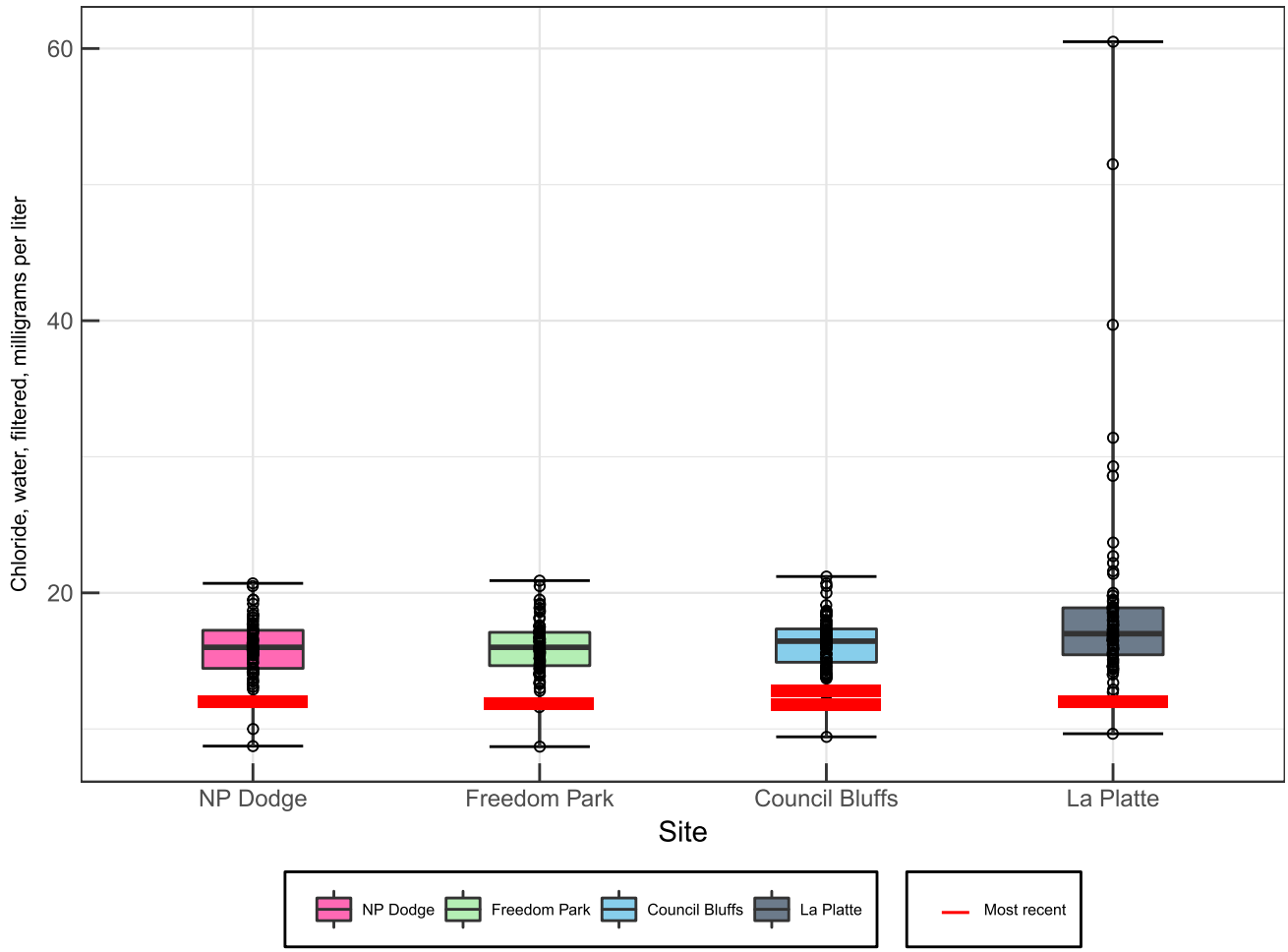

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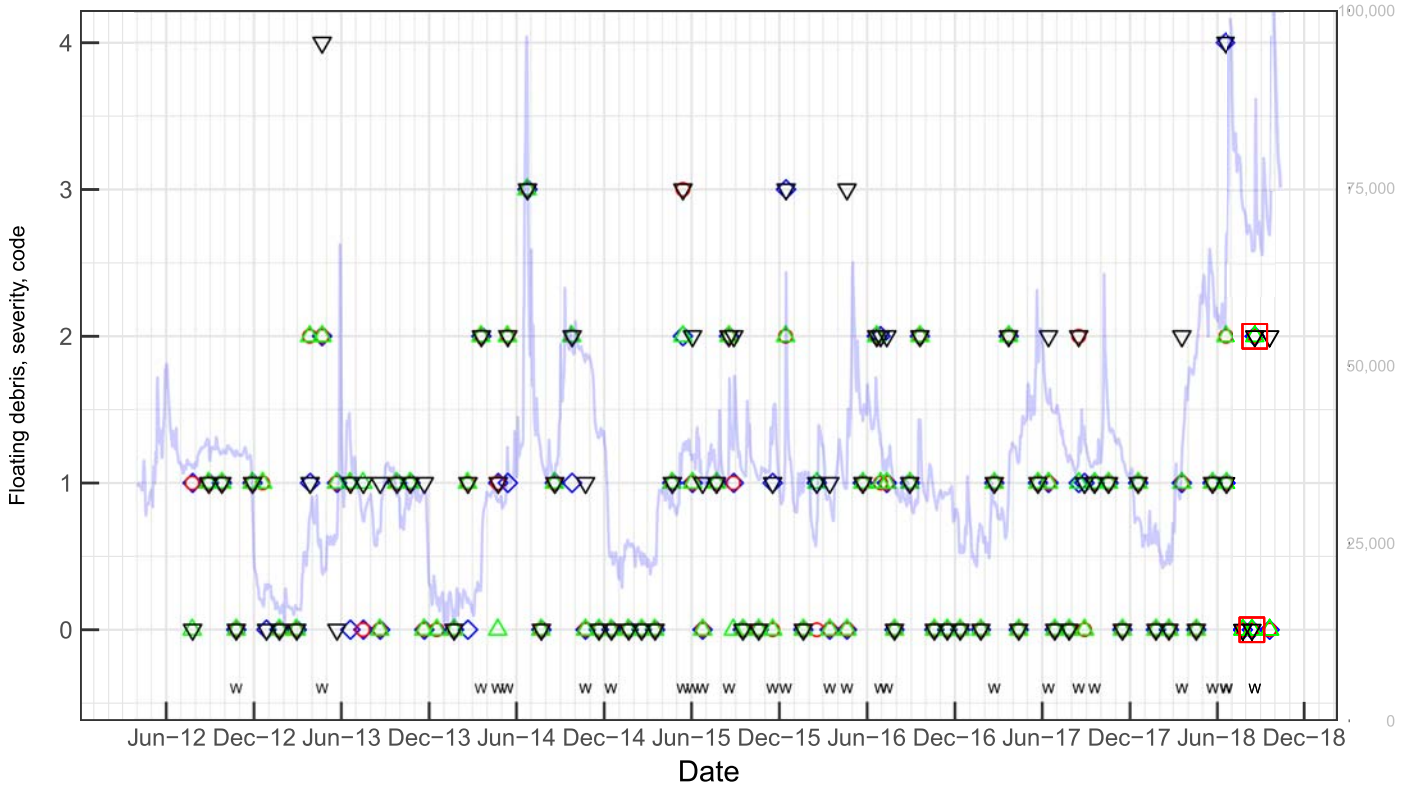
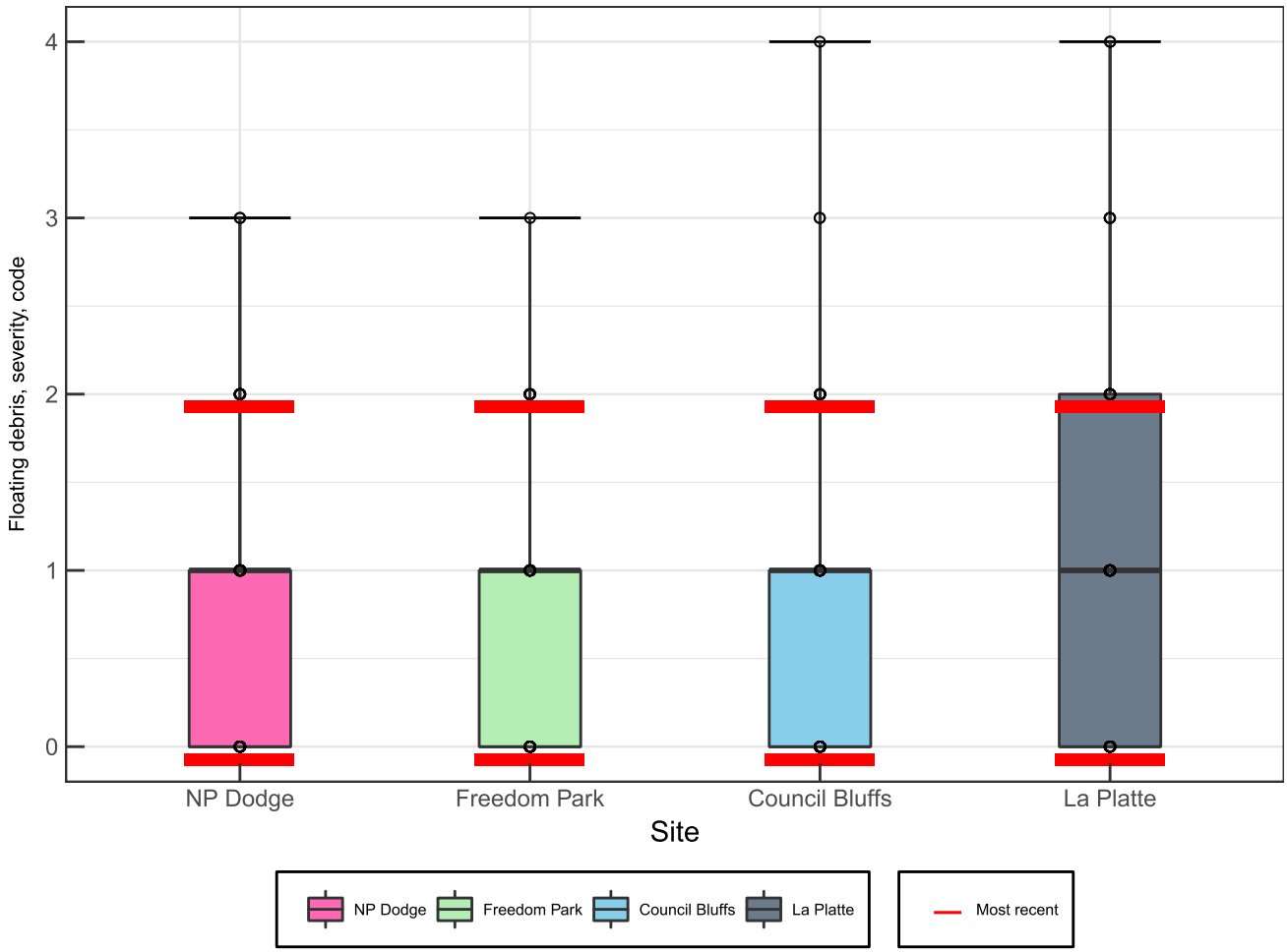
Floating debris





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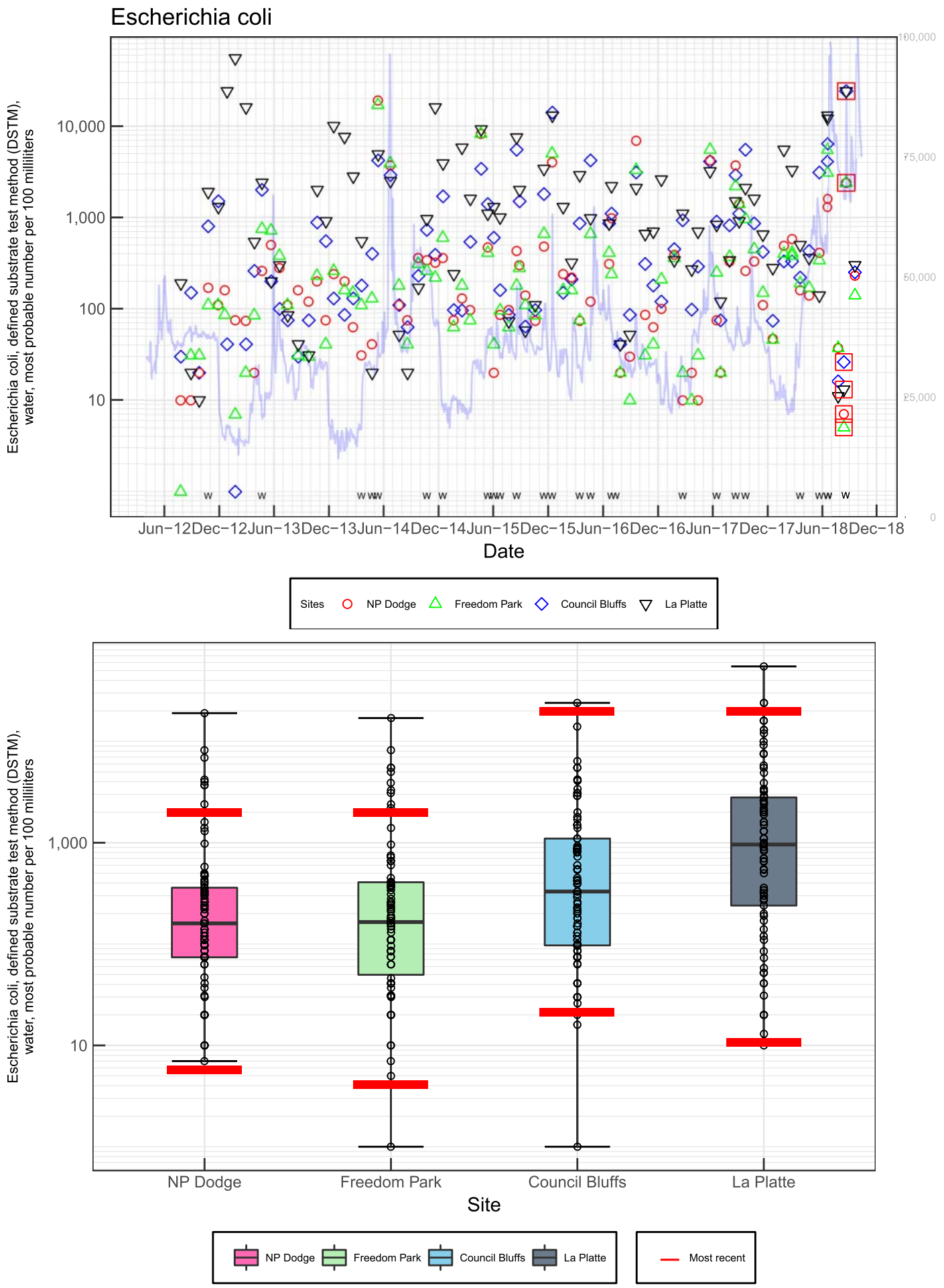

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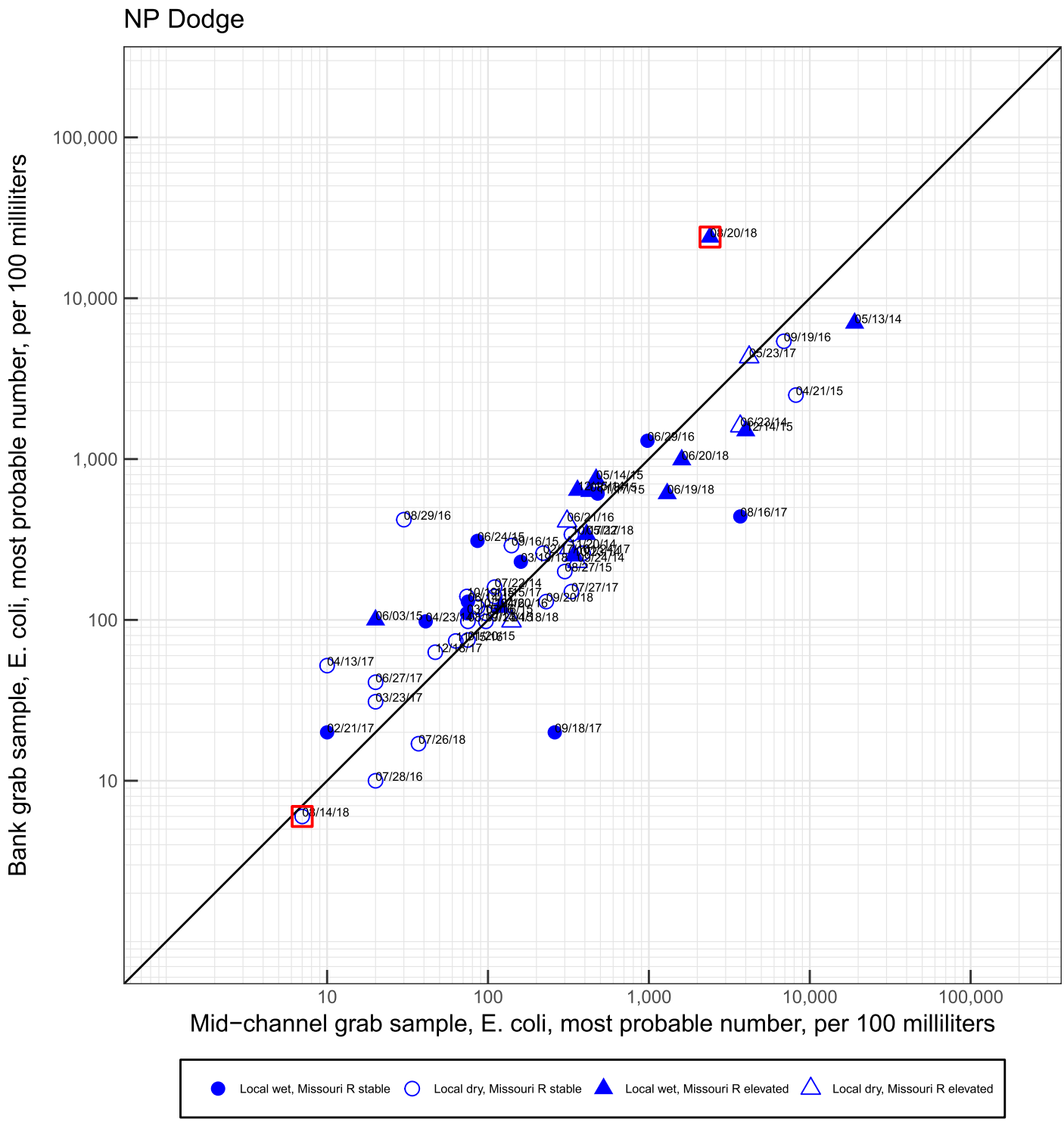

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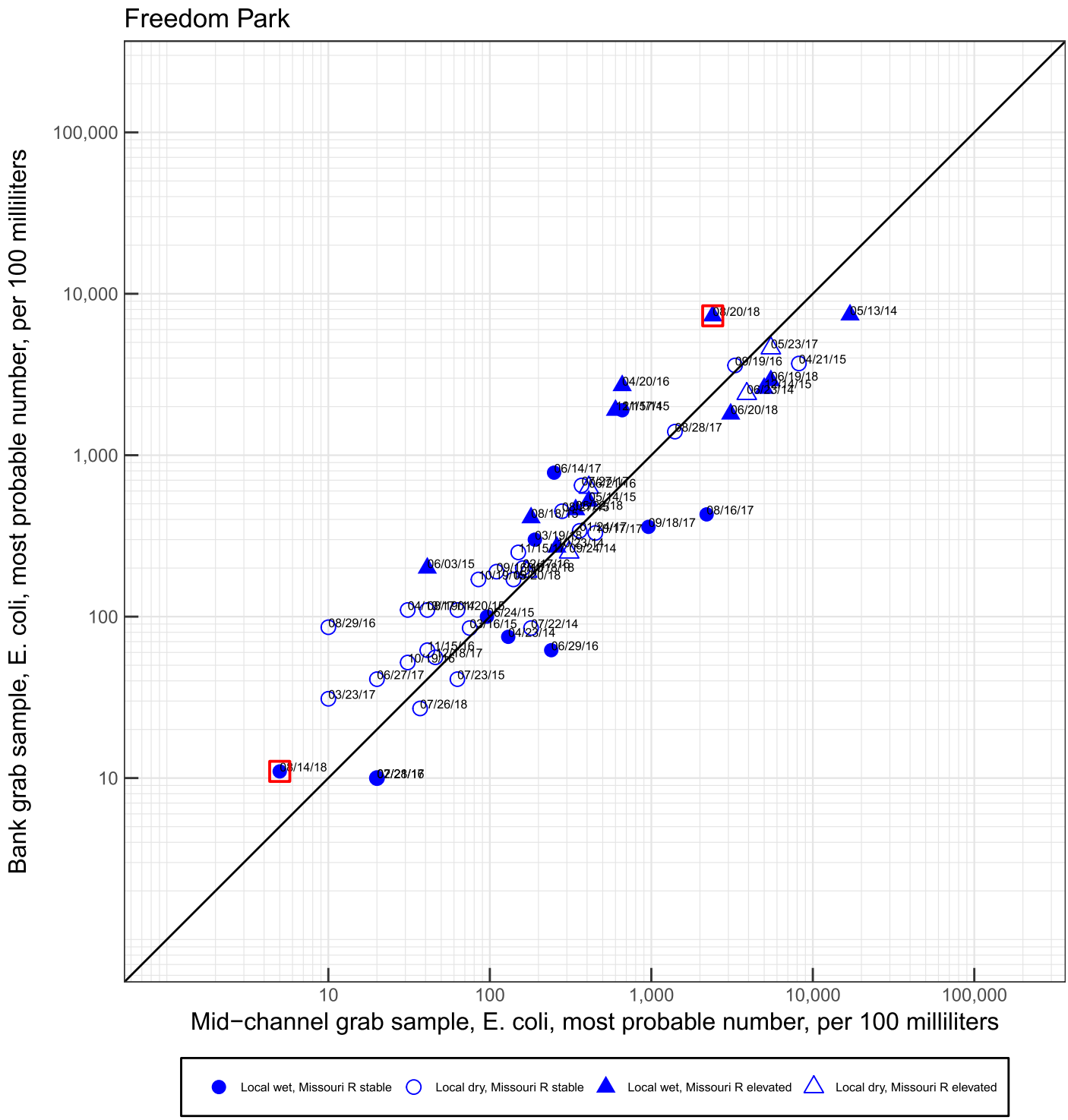

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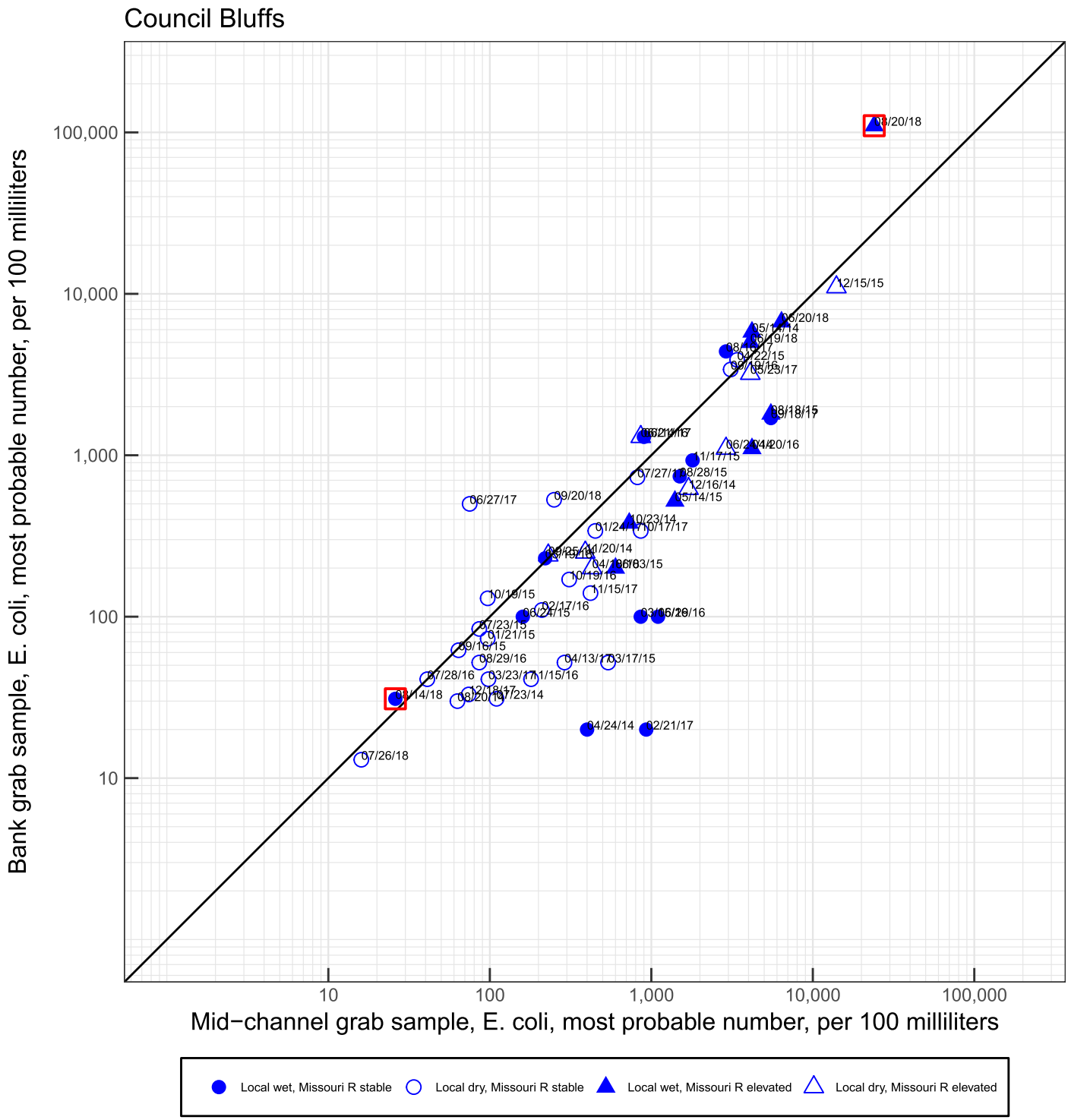

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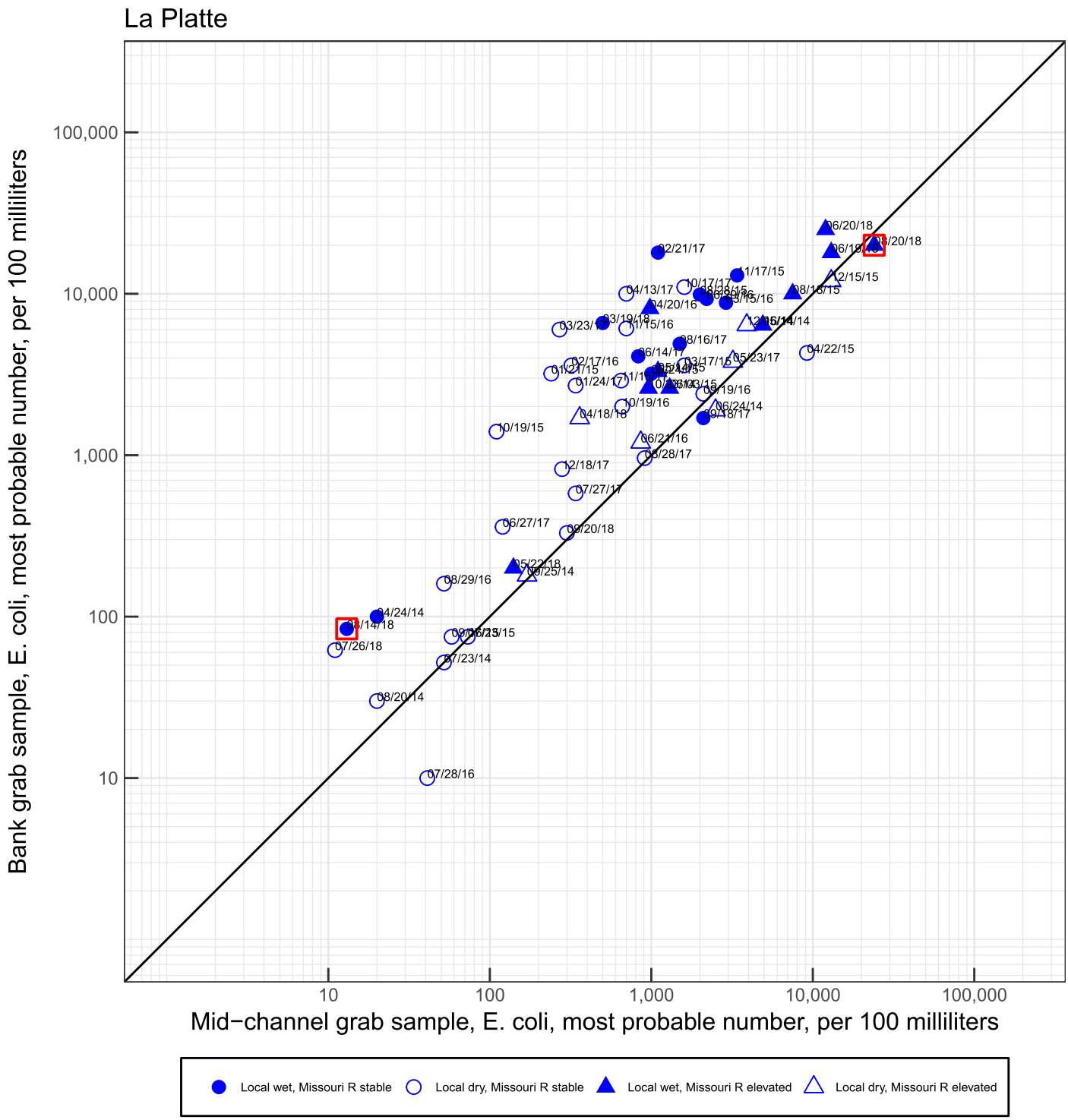

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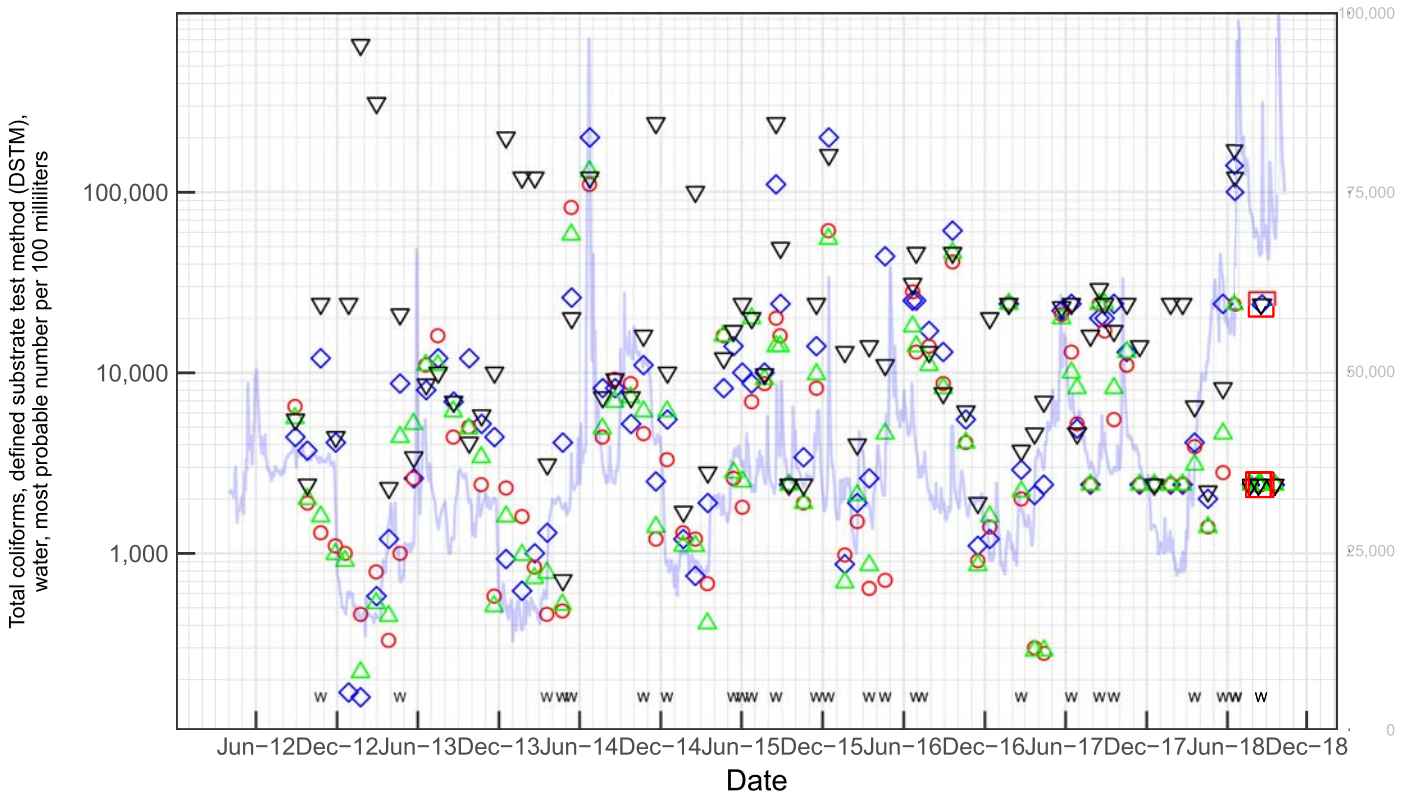
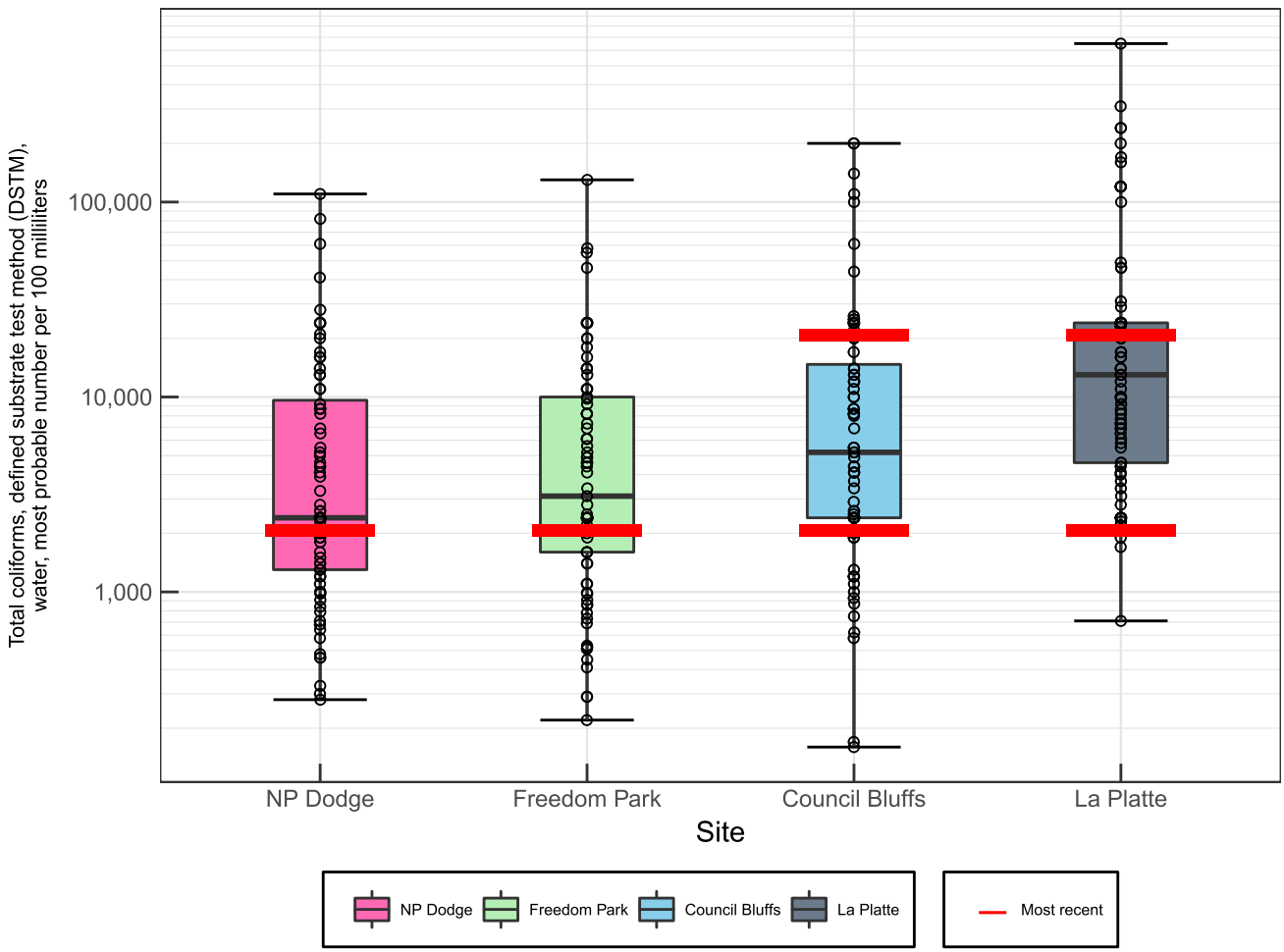
Total coliforms





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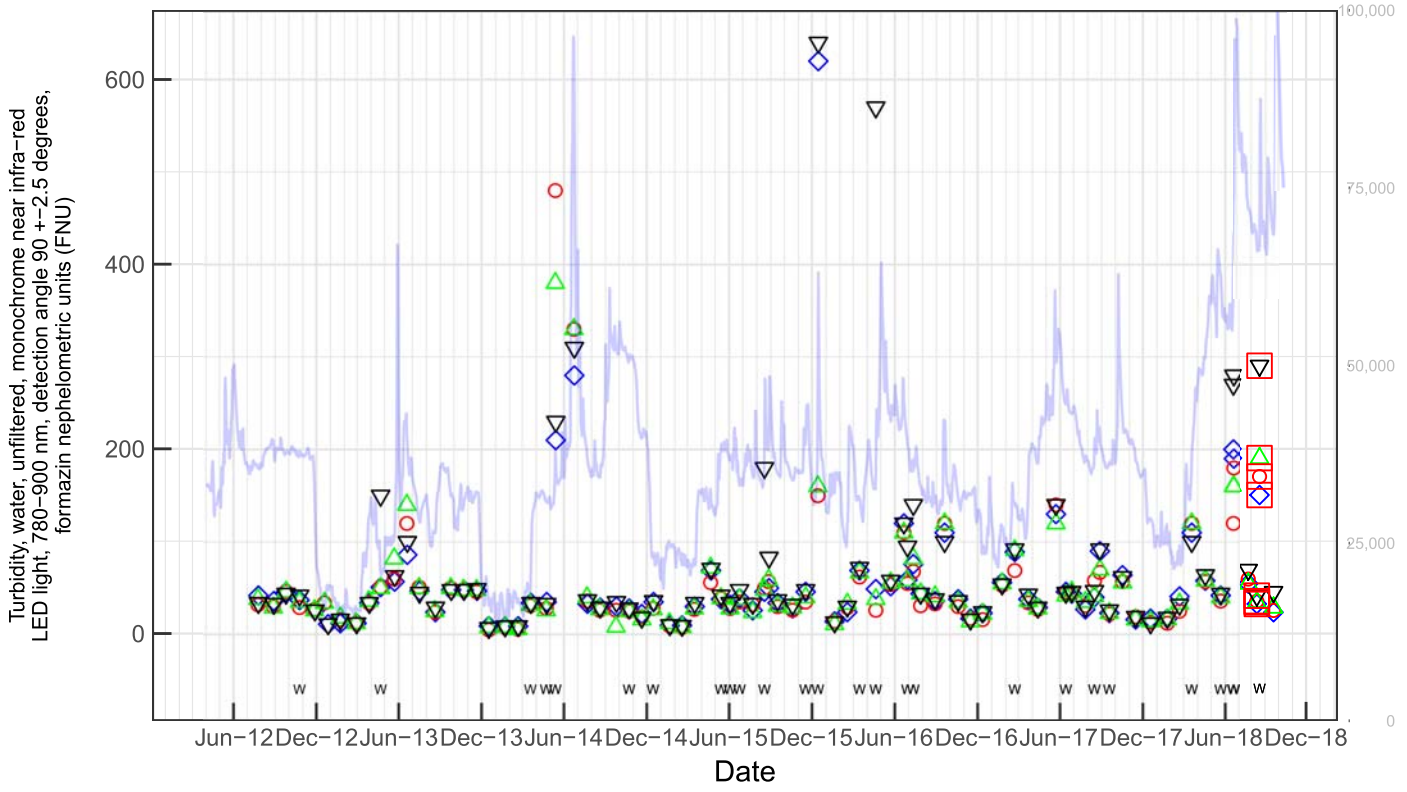
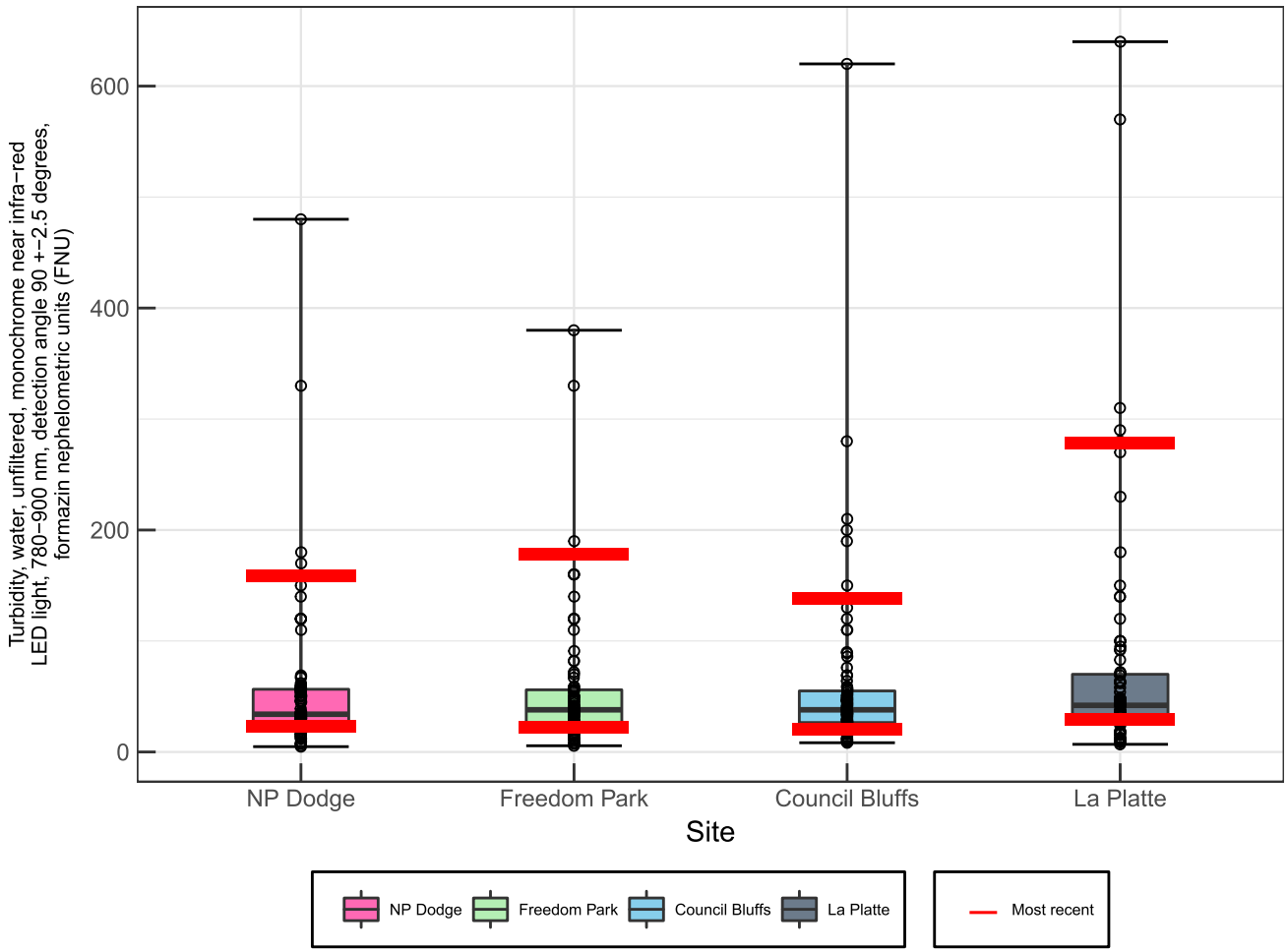
Turbidity





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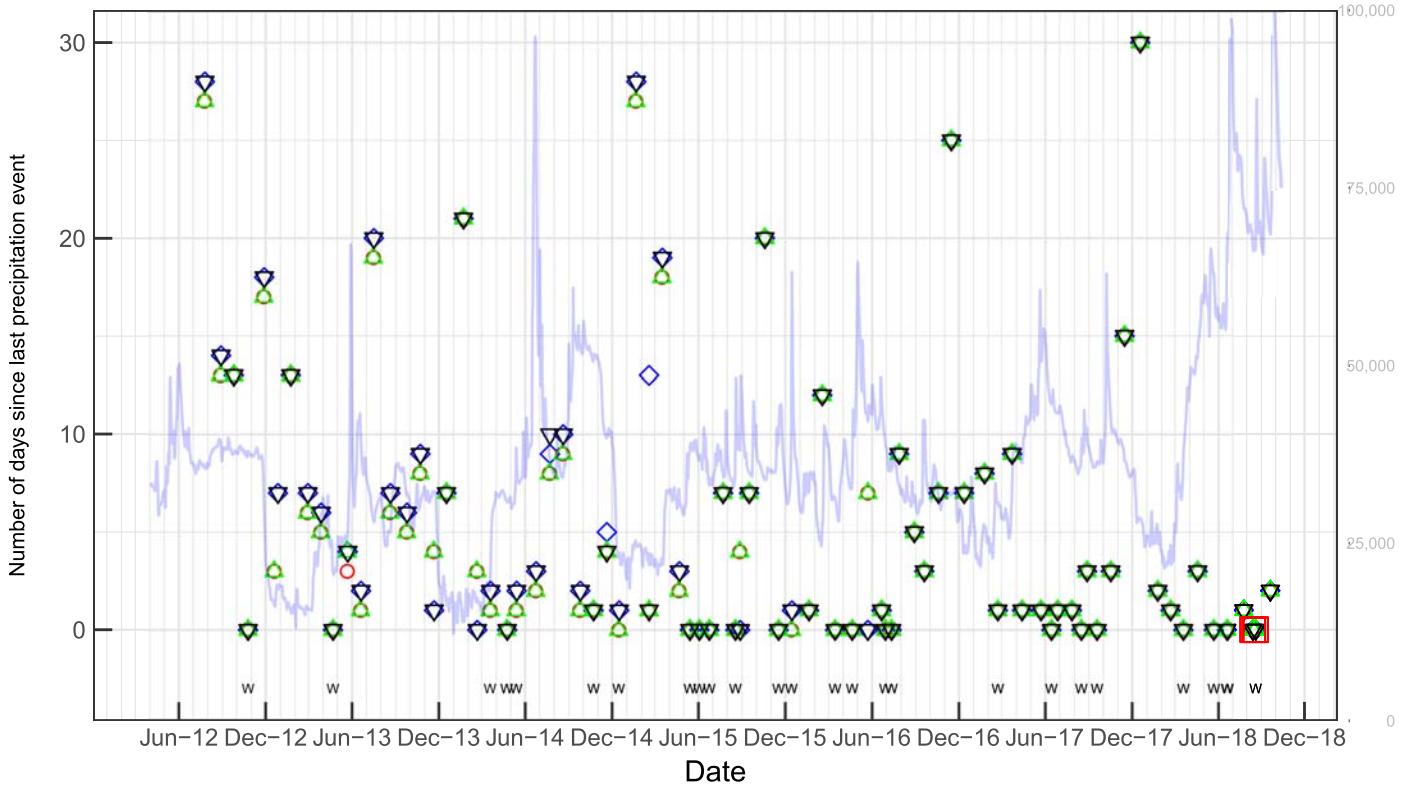
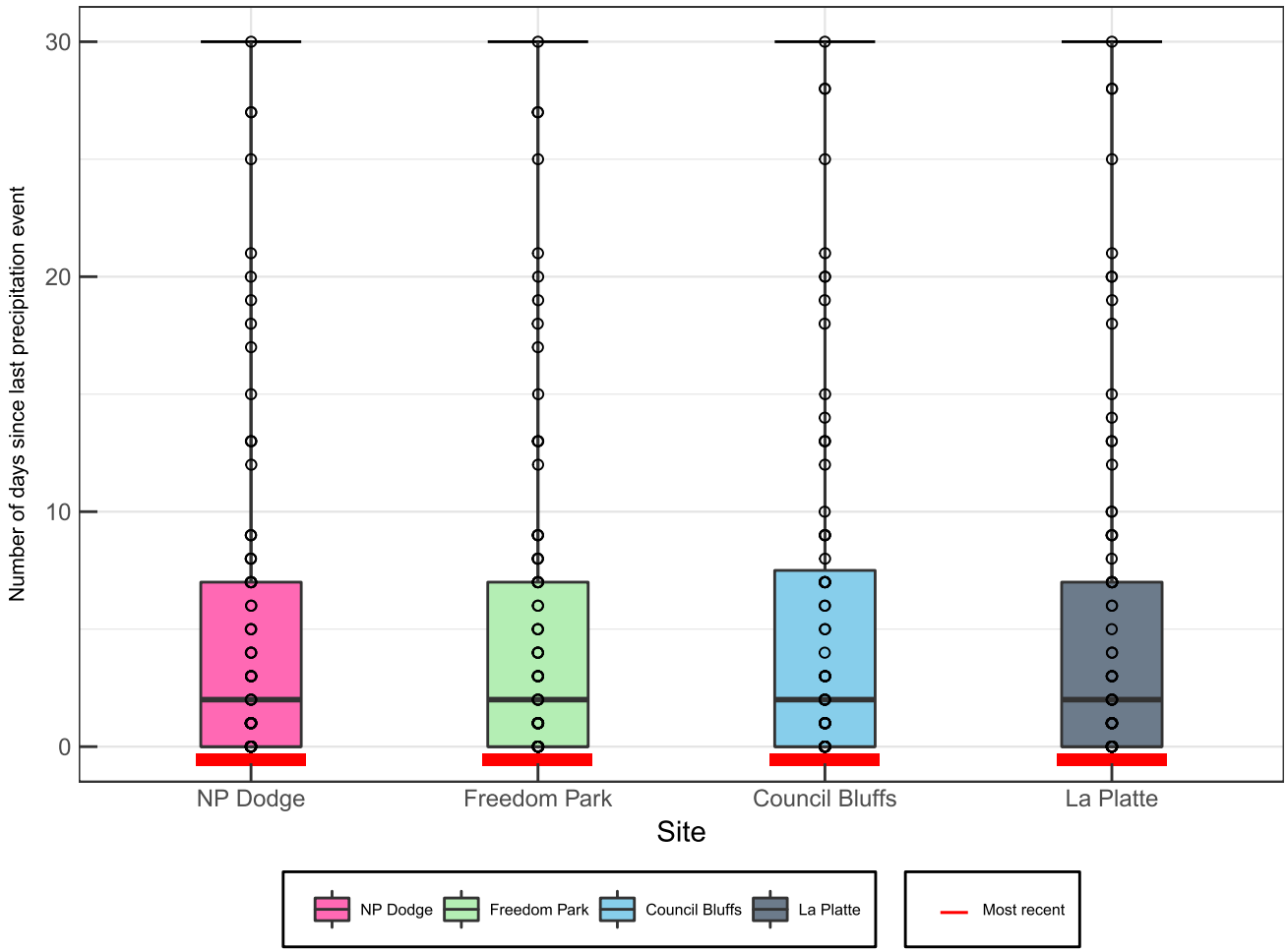
Number of days since last precipitation event

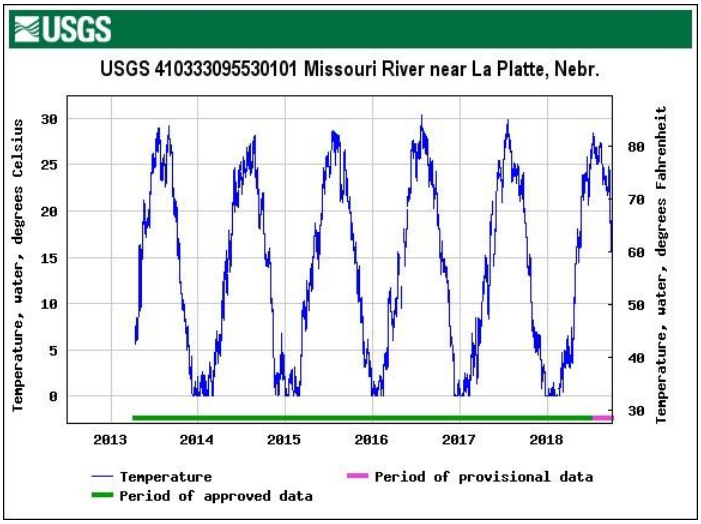


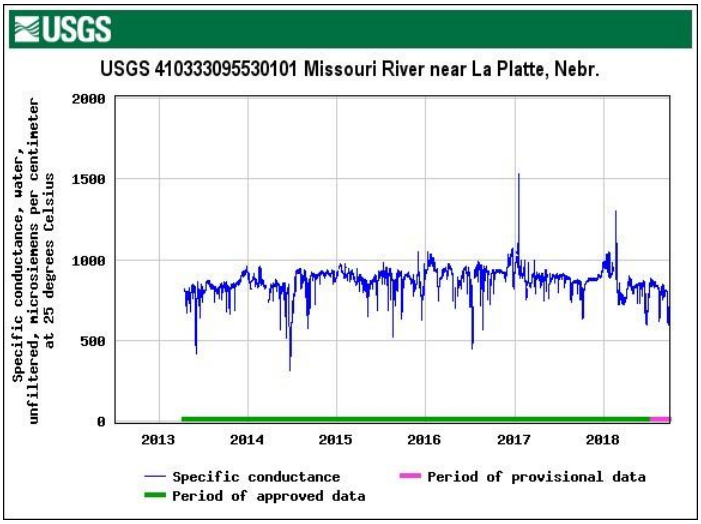


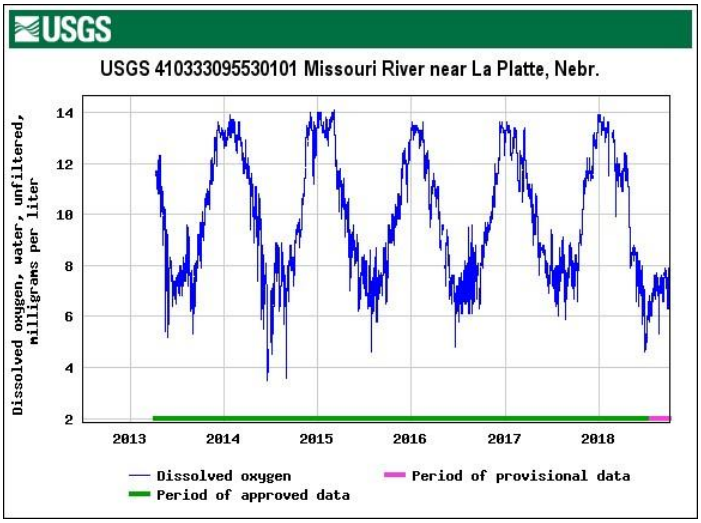
−−PRELIMINARY DATA SUBJECT TO REVISION−−

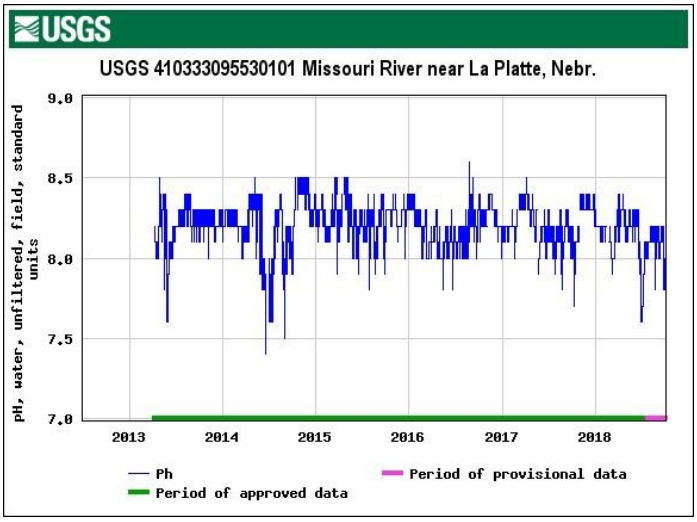
data retrieved 10/12/2018

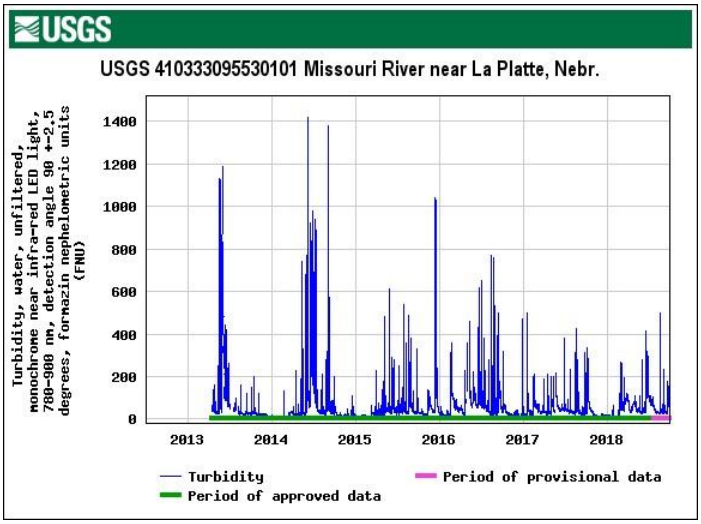
Continuous Water Quality Monitoring Graphs - Site MR-1



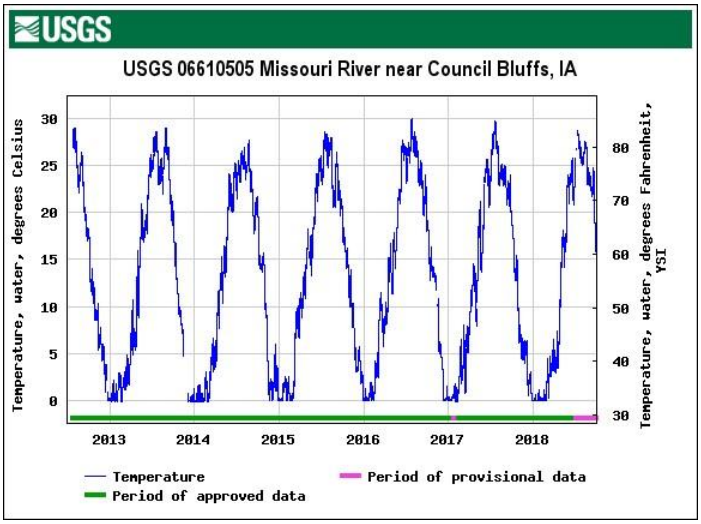


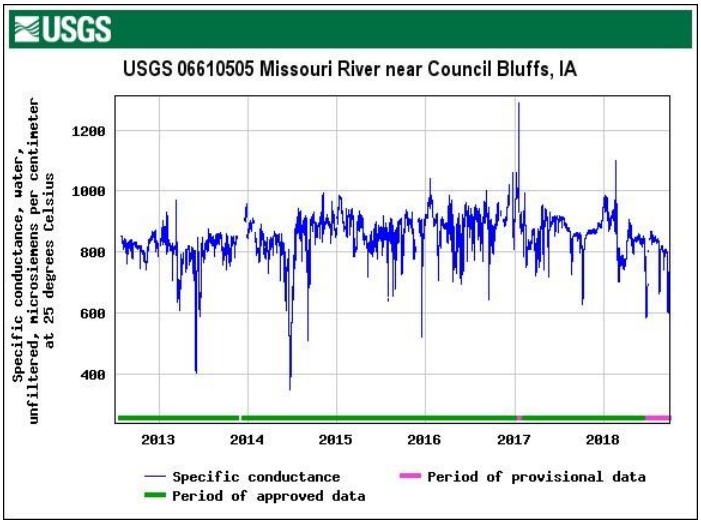


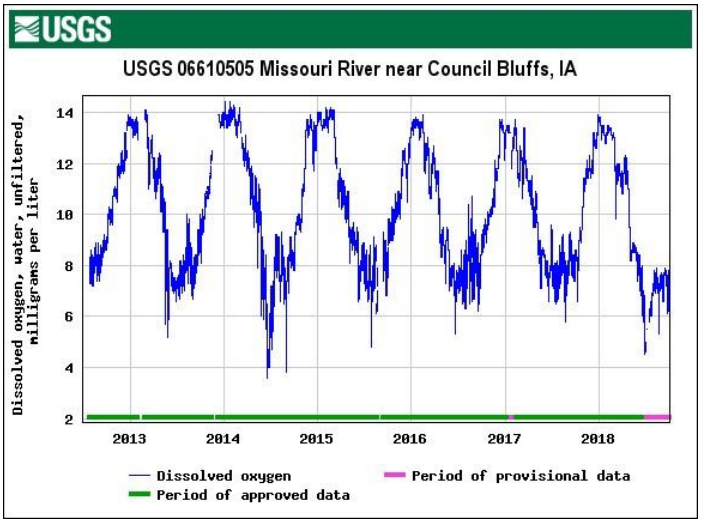


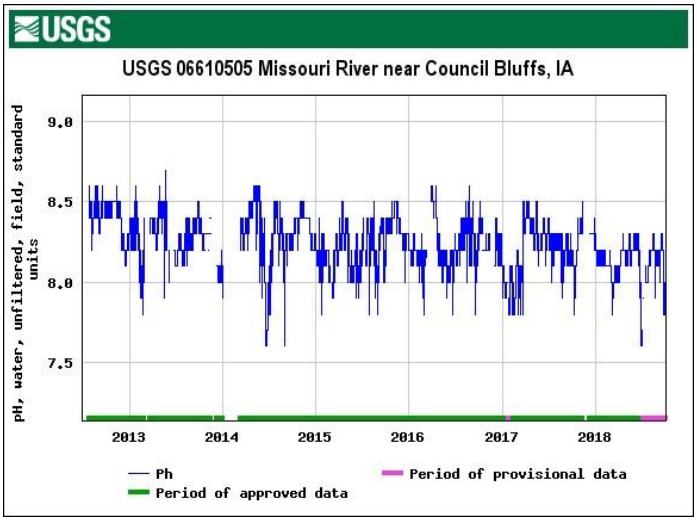


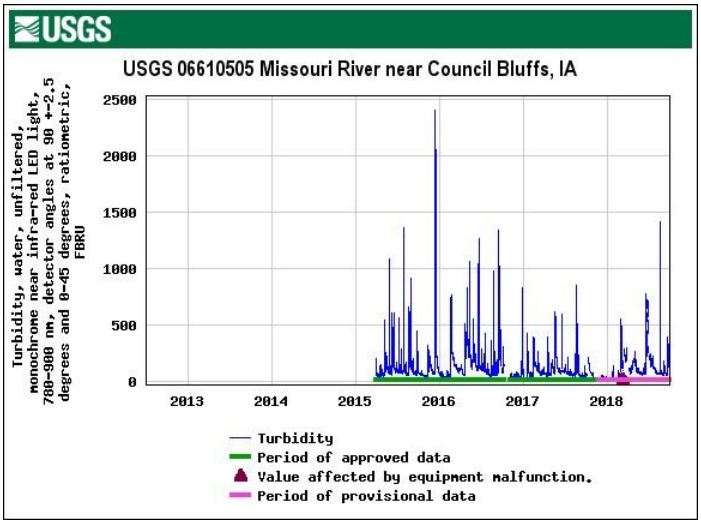
Continuous Water Quality Monitoring Graphs - Site MR-CB



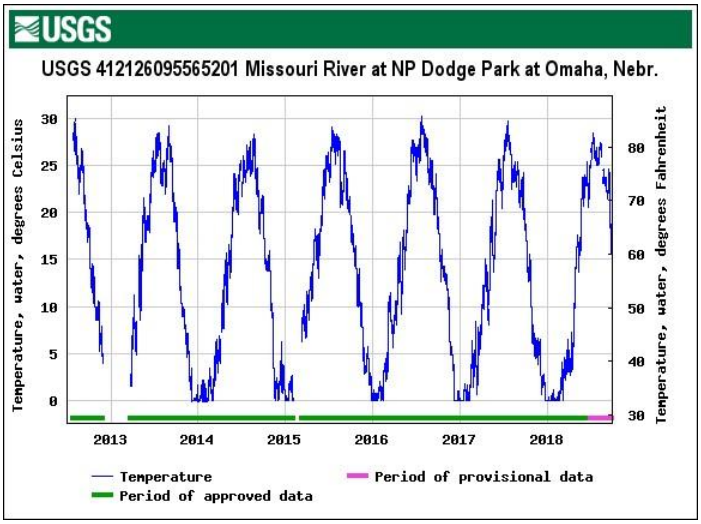


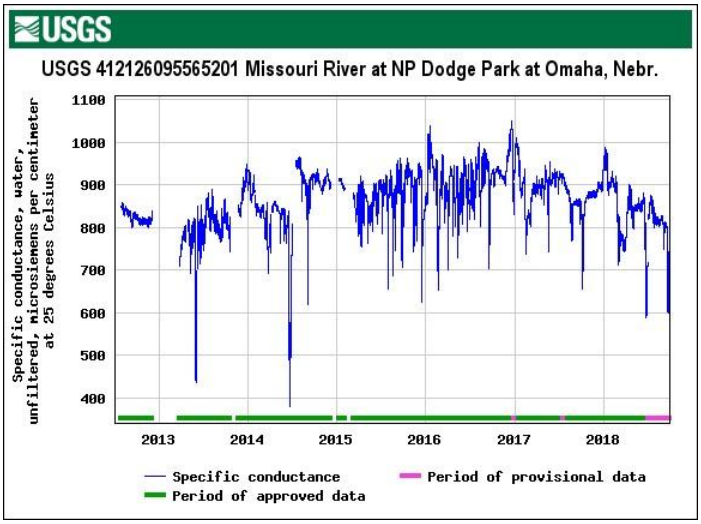


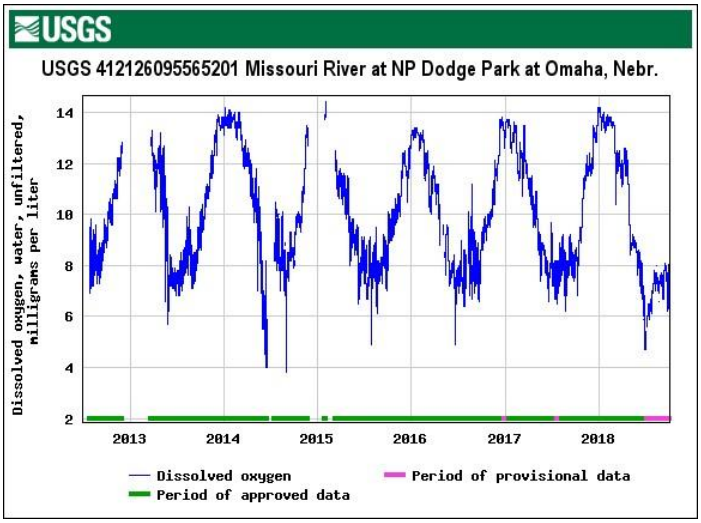


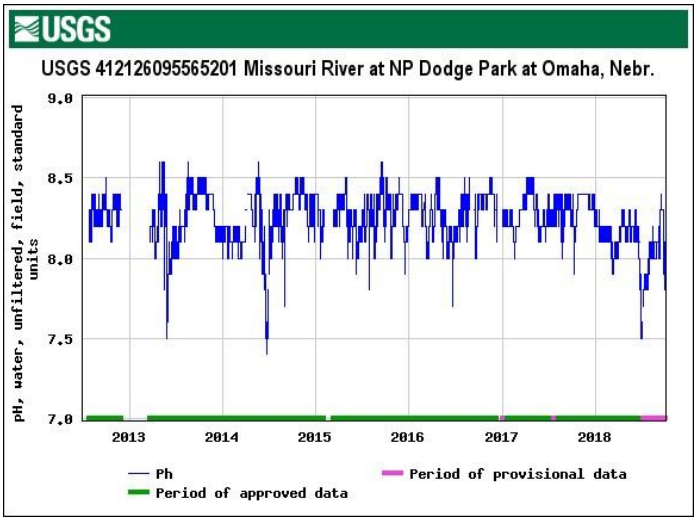


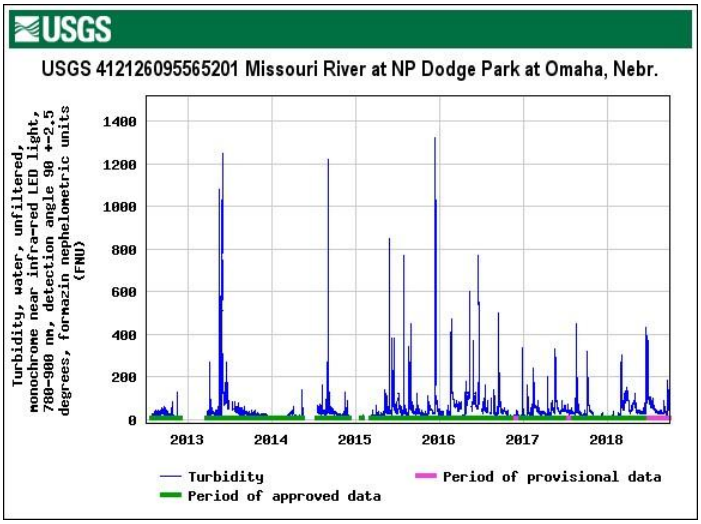
Continuous Water Quality Monitoring Graphs - Site MR-5











Continuous Water Quality Monitoring Graphs - Site I-480