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December 20, 2022

Ms. Shelley Schneider
Nebraska Department of Environment and Energy
245 Fallbrook Blvd.
PO Box 98922
Lincoln, NE 68509-8922

RE: 2022 CSO Annual Report
City of Omaha Combined Sewer Overflows NPDES Permit No. NE0133680

Ms. Schneider:

Attached please find one (1) copy of the 2022 City of Omaha CSO Annual Report as required in Part VIII of NPDES Permit No. NE0133680 and the Consent Order. The report documents activities related to the City of Omaha combined sewer system for the period of October 1, 2021 to September 30, 2022. Electronic copies of the document will be provided separately.

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, Manager, WRRF Engineering and Remote Facilities
City of Omaha

CC: Reuel Andersen, NDEE
Patrick Ducey, NDEE
Jim Theiler, City of Omaha,
Steve Andersen, City of Omaha
Jennifer Morales, City of Omaha
Tom Heinemann, CSO Program
Pat Nelson, CSO Program

2022 Annual Report

October 1, 2021 - September 30, 2022

CSO!
Clean Solutions for Omaha



City of Omaha, Nebraska
Jean Stothert, Mayor



City of Omaha
Combined Sewer Overflow
Annual Report
NPDES Permit No. NE0133680
October 1, 2021 through September 30, 2022



Report of Certification:

"I certify, under penalty of law, that this document and all attachment s 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 Officer

December 20, 2022

Date

Michael T. Arends, P.E.

Print Name

Manager, WRRF Engineering and
Remote Facilities

Title

Executive Summary

The 2021-2022 CSO Annual Report summarizes information on activities, actions, and measures taken by the City of Omaha (City) and the Combined Sewer Overflow (CSO) Program Management Team (PMT) through the CSO Program to comply with the National Pollutant Discharge Elimination System (NPDES) Permit for the City (No. NE0133680 [hereafter CSO Permit]) issued by the Nebraska Department of Environment and Energy (NDEE)¹ and the Long Term Control Plan (LTCP). In addition, the report meets the requirements of paragraph 29 of (NDEE Case No. 270) Complaint and Compliance Order by Consent (Consent Order) dated October 8, 2007. The City applied for renewal of the CSO Permit in March 2020. In addition, an updated LTCP was submitted to NDEE on March 31, 2021, and approved on August 11, 2021. The items the City is required to report are as follows:

- Nine Minimum Controls (NMC)
- LTCP Documentation
- Compliance Schedule
- CSO Outfall Monitoring
- Instream 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 system (CSS) area.

A. Nine Minimum Controls

The CSO Permit defines NMC as “...operations and procedures that will reduce CSO 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 Plan² with the goal of reducing CSOs and improving water quality. Following is a brief review of each NMC and advancements or modifications completed by the City during the reporting year:

1. **Proper Operation and Maintenance (O&M):** The Sewer System O&M Manual (SSOMM) for the Sewer Maintenance Division (Brown and Caldwell 2006) is reviewed semiannually and has many parts. The updated cover sheets to procedures are included in Attachment 1 and summarized here:

SSOMM Chapters 3, 4, and 5, 7, 8, Appendix B, (CSO Station and Monitoring Device Procedures and Location), Appendix D, (the City’s Wastewater Overflow Emergency Response Plan), Appendix F (Combined Sewer Overflow Station Procedure Manual) were updated with clarifying language regarding responsible groups, Water Main Break Response, Closed-circuit Television (CCTV) Inspection, Capital Program CCTV support, and specific CSO, Manhole, and lift station procedure steps.

¹ Formerly the Nebraska Department of Environmental Quality

² NMC Plan is defined in Section II, Nine Minimum Controls, and consists of a series of submittals to the NDEE.

Executive Summary

Sewer Maintenance Division continues to implement data collection and asset management procedural improvements targeted at reducing CSOs, sanitary sewer overflows, and impacts to public safety and the environment.

- 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 for storage. CSO Program element updates include the following:

- Inspection of the collection system and removal of obstructions – Continued programs. Values provided in Table ES-1 are for the City's 2021 fiscal (calendar) year, related to the total collection system.

Table ES-1. 2021 Fiscal Year Total Collection System Performance Measures

Complaints Handled (Corrective Inspections)	2,694 each (complaints backup, complaints other)
Corrective Repairs	780 each (Inlets, manholes, and pipe repairs)
Sewer Line Cleaning	3,265,347 linear feet (preventative and reactive)
Sewer Line Televised	750,045 linear feet (in-house and contracted CCTV)
Structures Evaluated	9,644 each (manholes, siphon structures, diversions, CSOs)
Pipelines Evaluated	1,634,172 feet (PACP reviewed in jurisdiction, SL-RAT tested)

PACP = Pipeline Assessment Certification Program

SL-RAT = Sewer Line Rapid Assessment Tool

- Maintenance, repair, and replacement of tide (river) and control gates – Continued program with documentation into the CMMS. No concerning issues reported.
 - Installation and adjustment of regulators – Continued commitment of reviewing on a case-by-case basis until a systemwide approach is implemented under LTCP.
 - Reduction and retardation of inflows and infiltration – Continued programs, including repairing pipes and manholes, enforcing city code for illicit connections, and service lateral defects.
 - Real-time monitoring – As new facilities are built, permanent meters are installed and connected to the SCADA system for real-time monitoring at the Water Resource Recovery Facilities. The City continues to work on upgrades to its radio network. The City also maintains a network of permanent flow meters throughout the collection system, which has telemetry equipment and data can be observed via a website, as needed.
- 3. Review and Modification of Pretreatment Programs:** There were no new significant industries that discharged into the combined sewer system during the year.
 - 4. Maximization of Flow to the Publicly Owned Treatment Works for Treatment:** This NMC has been addressed through the development of the LTCP and its updates. Section III.G of this report provides updates on this requirement.
 - 5. Prohibition of CSOs during Dry Weather:** As required, the City shall document overflows that occur during dry weather and respective corrective actions. These are listed as follows:

Executive Summary

- The City adhered to the immediate reporting policies for all discovered dry-weather overflows.
 - There was one dry-weather overflow basement backup because of construction debris and did not reach waters of the State.
 - There were 13 dry-weather overflows that reached waters of the State, 10 directly through a permitted CSO discharge point and 3 by a waterway or nearby separate storm sewer. Causes included construction debris, grease, mechanical malfunctions, rags, and water main breaks. A long-term corrective action is assigned appropriately, unless deemed unavoidable.
6. **Control of Solid and Floatable Materials in CSOs:** Based on previous evaluations, the CSO points are not conducive to the implementation of additional floatable controls without significant modification. As part of the LTCP projects, additional floatable controls may be incorporated.
7. **Pollution Prevention:** As required, the City shall document any new pollution prevention methods here. Methods are as follows:
- The management of this item is shared between several divisions in Public Works and other work groups within the City: Sewer Maintenance, EQCD, Capital Construction & Street Maintenance, Parking and Mobility, and Parks, Recreation, and Public Property Department.
 - The municipal separate storm sewer system (MS4) Annual Report (City of Omaha 2021) includes pollution prevention effort details, including inlet cleaning and grit removal.
 - Efforts continue with Papillion Creek Watershed Partnership and the nonprofit organization Keep Omaha Beautiful for stormwater pollution prevention and outreach.
8. **Public Notification:** As required, the City shall document any revisions or updates to public notification procedures and provide any public announcement in the Annual Report. This requirement is listed as follows:
- The Sewer Maintenance Division inspects signs at the CSO outfalls twice per year for visibility and condition and replaces them as needed. A few signs are not in place because of active construction sites and will be installed when complete, such as the retention treatment basin (RTB) and Levee construction near the Papio Water Resource Recovery Facility.
 - No public notifications in the form of media releases were issued during the reporting year.
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 during the reporting year. The following was found:
- There were no known beach closings or fish kills during the reporting year.
 - Routine inspection of CSO diversions and outfalls continued. No new CSO locations were discovered.
 - The June 5 to 6, 2022 rain event caused two isolated wet weather backups and is under engineering review for backflow valve or lateral repairs.

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 of 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, listed as follows:

- This year, modeling efforts were focused on updating the model with new project data and validating model results by comparing against recent flow monitoring data and calibrating, as needed.
- Other characterization efforts of the CSS include water-quality monitoring of select outfalls (CSO 102 currently, with future plans at CSO 205), gathering of field data in project areas, and overflow occurrence monitoring at CSO points through the visual inspection of movement of a tethered device (This is referred to as the CSO Block program and discussed in Section III.A, Characterization and Modeling of the CSO System).
- For the reporting year, there were 57 permanent flow monitoring sites, 15 temporary flow monitoring sites, and 13 CSO surveillance locations to support a variety of efforts. Additionally, the City gathered precipitation data using 12 permanent City-managed rain gauges and several U.S. Geological Survey (USGS) rain gauge sites.

2. Public Participation Plan. As required, the City continues to implement a public participation process and documents activities in the Annual Report. During the reporting year, the CSO! Program facilitated engagement with neighborhoods and the general public in-person and virtually. In addition to conveying timely and accurate project information, this resulted in continually building upon strong relationships and advancement toward community acceptance of the LTCP.

3. Consideration of Sensitive Areas. No new sensitive areas were found.

4. Evaluation of Alternatives. No additional evaluations of CSO Controls were performed during the Annual Report year and there are not currently any evaluations planned.

5. Cost and Performance Considerations. The City's current rate ordinance sets sewer use fees through 2023 and is based on a detailed rate model. Last year, the City retained the services of a rate consultant to conduct a Wastewater Cost of Services (COS) Study. The study began in early 2021 and was completed in 2022. Based on the outcome of the study, City staff determined the appropriate stakeholder engagement and information required for the development of the rate structure to be approved by City Council. The new rate ordinance is anticipated to be approved by City Council in December of 2022.

6. Operational Plan. As required, the City reports updates to the Wet Weather Operational Plan. The 2021 Wet Weather Operational Plan reflects the current operations of the Missouri River Water Resource Recovery Facility (MRWRRF) along with the modifications to the Burt-Izard Lift Station Improvements pumping capacity. The City will review the Wet Weather Operational Plan after the Saddle Creek RTB, Riverview Lift Station Replacement Project, and the Monroe Street Lift Station Improvements projects are complete and have begun operations. Any modifications will be included in future Annual Reports.

- 7. Maximizing Treatment at the Existing Publicly Owned Treatment Work Treatment Facilities.** No evaluations were performed and no new approaches have been identified since the last Annual Report because the City is still in the process of implementation of projects in the LTCP that will maximize treatment of wet weather at the MRWRRF.
- 8. Implementation Schedule.** As required, the City has included progress reports on implementation of the CSO projects included in Attachment 2.
- 9. Post-construction Monitoring Program.** As required by the CSO Permit, instream monitoring data are provided in Section VI, Instream Monitoring Data, and Attachment 4.

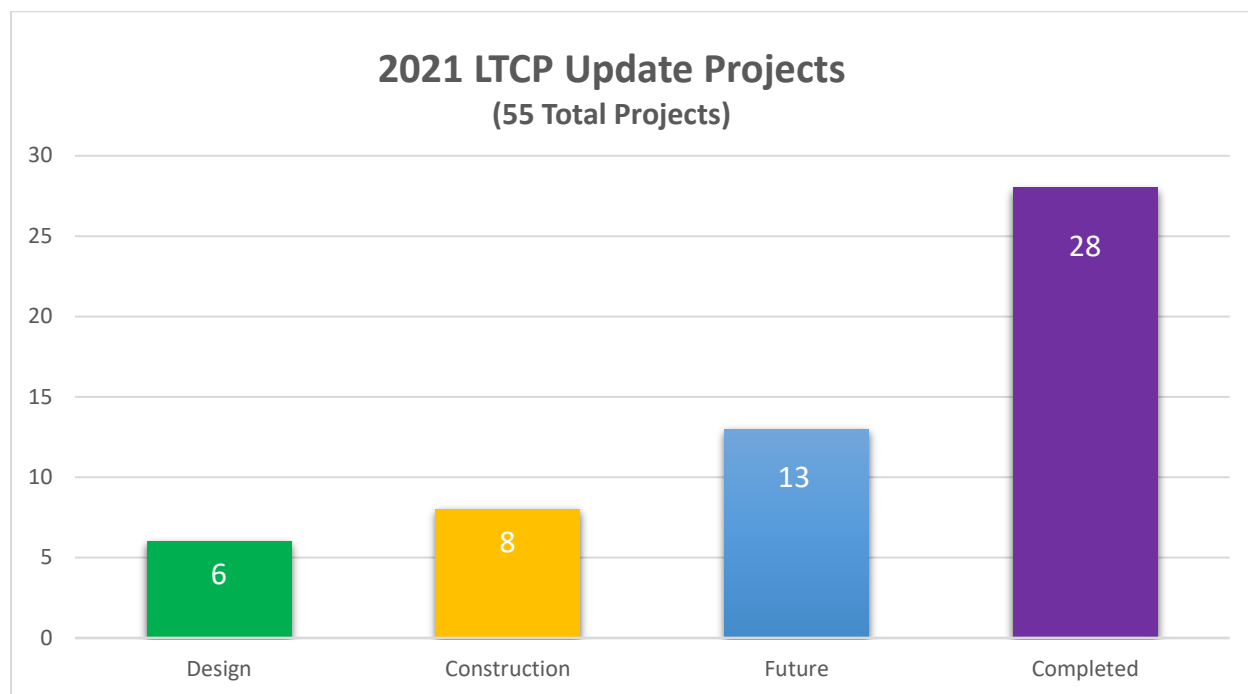
C. Compliance Schedule

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. The 2021 LTCP Update provided, as needed, revised schedules for projects. While a new CSO Permit has not yet been issued that reflects the latest 2021 LTCP Update and the revised schedules, this section has been drafted to reflect the compliance status with the new schedule as follows:

- Annual Project Progress Reports (APPRs) are provided in Attachment 2 for projects with reportable activity.

Figure ES-1 shows the overall status of projects in the 2021 LTCP Update

Figure ES-1. 2021 LTCP Update Projects



As noted in Figure ES-1, there are 14 projects that are active. Of these, seven are on schedule to meet the LTCP Milestone, three are likely to miss the LTCP Milestone, and four are system

Executive Summary

reliability projects that do not have an LTCP milestone. For the three projects that will not meet the milestone, (PCN 210 Sewer Separation, Forest Lawn Creek Inflow Removal and Outfall Storm Sewer, and CSO 119 South Barrel Conversion and Sewer Separation), the City has requested modifications to the milestone dates, and the new dates have been included in the draft permit.

D. CSO Outfall Monitoring

As required, a summary of monitoring data from CSO Outfall 102 is included in this Annual Report. The Interim Requirements for CSO Outfall 102, as defined in Table 3, Part II of the CSO Permit, are in effect for this permit year. During the Annual Report year, there were 32 total overflow events at CSO 102 from October 1, 2021, through September 30, 2022, with 19 of them occurring during the recreation season of May 1 to September 30. Results from these events are reported on quarterly discharge monitoring reports submitted to NDEE. Table 5-1 summarizes the data for CSO 102. *E. coli* values slightly increased from the previous reporting year. However, the amount of flow treated through CSO 102 has increased by over 4 times and the duration has increased by over 3 times of what it was in the Annual Report for 2020 to 2021. This means that significantly more combined flows are being treated before release to the river.

There was no discharge from the Saddle Creek RTB during the Annual Report Year.

E. Instream Monitoring

- As required, a summary of instream monitoring data consistent with the Implementation Monitoring Plan objectives is included. The City and USGS monitoring locations are listed in Section VI, Instream Monitoring Data, and shown on Figure 6-1. The City's data are summarized in Table 6-2, and USGS data are summarized in Table 6-3 in Section VI, Instream Monitoring Data.

F. Performance Report

As required, a performance report is included in this submittal 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, as follows:

- The City continued its program to install cameras and level sensors to monitor the occurrence of CSO overflows at 13 locations (Table 7-2). The purpose of the technology is to assist the City in verifying overflow events, verifying maintenance needs, and evaluating staffing efficiencies. The rainfall during the report year was 32.62 inches. When compared against the average annual rainfall of 31 inches, this was an average rainfall year. However, most of 2022 has been in a drought and trending toward a below-average rainfall year.

G. Other Information

The CSO Permit, Part 6F, requires an "Other Information" section of the Annual Report. Information in this section 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:

- Reduction in the Number of Overflow Events and CSO Outfalls: During this reporting year, CSOs 103 and 208 had no overflow events. CSO 211 occurrences are still

Executive Summary

significantly reduced, but final separation is awaiting several inlet connections to be removed with the CSO 212 sewer separation project.

- Receiving Water Quality: Previously, significant reduction in *E. coli* load to the Missouri River occurred with the completion of the MRWRRF Improvements project and the chlorine contact basin at CSO 102. Figure ES-2 indicates a prediction in the reduction of *E. coli* loading from CSOs over time as a result of LTCP implementation.
- Material Management: Several projects commenced or continued construction in 2022 associated with the CSO Program, no project generated excess soil that required deposition in an industrial fill site or landfill. No hazardous waste from CSO projects was disposed of in 2022. The City monitors and tracks contaminated soils and other waste material and uses this report to update the NDEE Waste Management Division.

Figure ES-2. Modeled *E. coli* Reduction over LTCP Implementation

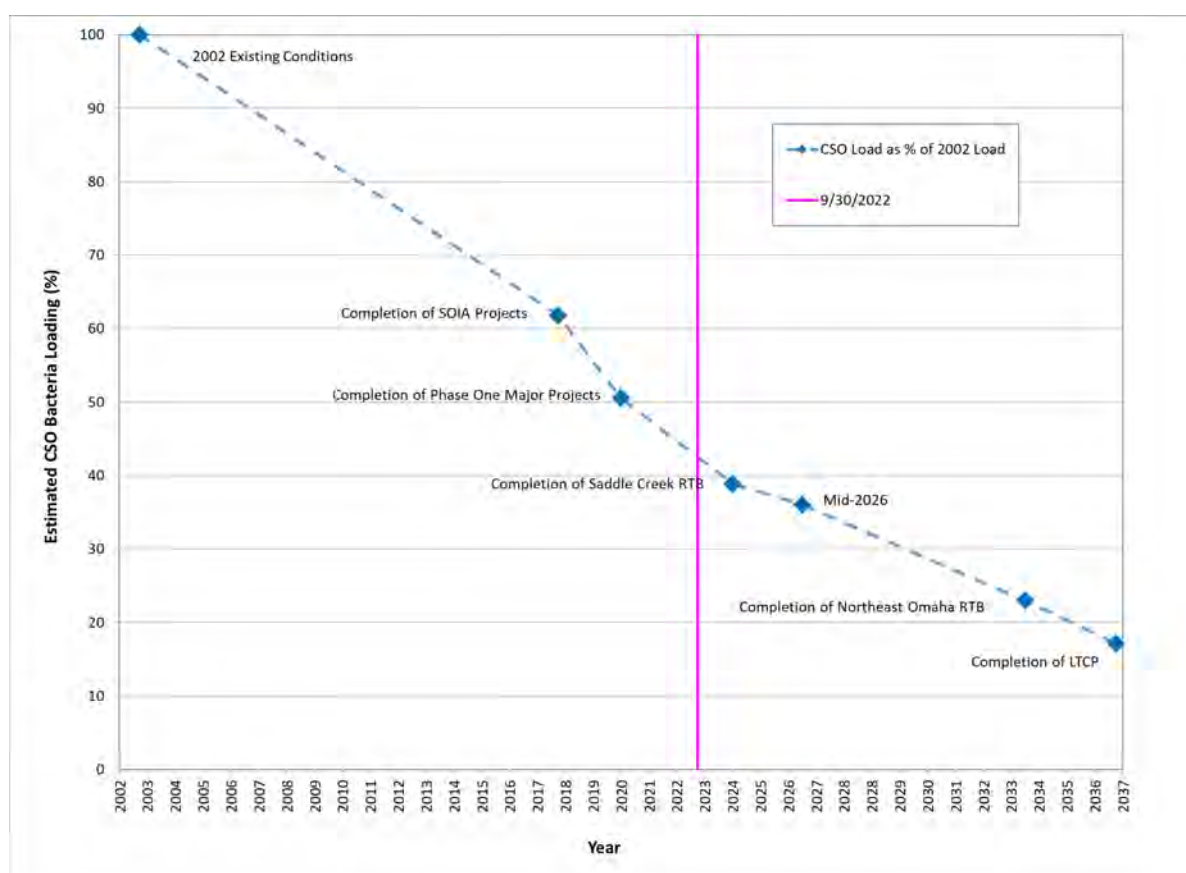


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Acronyms and Abbreviations

°C	degree(s) Celsius
<	less than
<=	less than or equal to
%	percent
ASCE	American Society of Civil Engineers
APPR	Annual Project Progress Report
BOD	biochemical oxygen demand
BOD ₅	5-day biochemical oxygen demand
BP	Big Papillion Creek
CC	Cole Creek
CCTV	closed-circuit television
cfs	cubic foot/feet per second
cfu	colony forming unit(s)
CIP	capital improvements plan
City	City of Omaha
CMMS	computerized maintenance management system
COS	cost of service
CSO	combined sewer overflow
CSO!	Clean Solutions for Omaha!
CSS	combined sewer system
DMR	discharge monitoring reports
DO	dissolved oxygen
E	east
EPA	U.S. Environmental Protection Agency
EQCD	City of Omaha Environmental Quality Control Division

Acronyms and Abbreviations

FOG	fats, oils, and grease
GIS	geographic information system
gpm	gallons per minute
ICM	InfoWorks Integrated Catchment Model software
ID	identification
I/I	inflow and infiltration
IMP	Implementation Monitoring Plan
LP	Little Papillion Creek
LTCP	Long Term Control Plan
LTCP Update	Long Term Control Plan Update
max	maximum
MG	million gallon(s)
mg/L	milligram(s) per liter
MGD	million gallon(s) per day
min	minimum
mL	milliliter(s)
mMHO/cm	millimho(s) per centimeter
MPN/100mL	most probable number per 100 milliliters
MRWRRF	Missouri River Water Resource Recovery Facility
MS4	municipal separate storm sewer system
N	north
N/A	not applicable
NDEE	Nebraska Department of Environment and Energy, formerly the Nebraska Department of Environmental Quality (NDEQ)
NLL	Next Level Learning
NMC	Nine Minimum Controls
NOAA	National Oceanic and Atmospheric Administration

Acronyms and Abbreviations

NPDES	National Pollutant Discharge Elimination System
NPP	Nebraska Pretreatment Program
NWEA	Nebraska Water Environment Association
O&M	operation and maintenance
OPW	Omaha Public Works
PACP	Pipeline Assessment Certification Program
PCWRRF	Papillion Creek Water Resource Recovery Facility
PMT	Program Management Team
RTB	retention treatment basin
S	south
SCADA	supervisory control and data acquisition
SCRTB	Saddle Creek Retention Treatment Basin
SIFM	South Interceptor Force Main
SL-RAT	Sewer Line Rapid Assessment Tool
SOIA	South Omaha Industrial Area
SP	South Papillion Creek
SSes	sanitary sewer evaluation survey
SSO	sanitary sewer overflow
SSOMM	Sewer System Operation and Maintenance Manual
TKN	total Kjeldahl nitrogen
TSS	total suspended solids
USGS	U.S. Geological Survey
WOER	Wastewater Overflow Emergency Response
WP	West Papillion Creek
WRRF	Water Resource Recovery Facility
WWOP	Wet Weather Operations Plan

I. Introduction

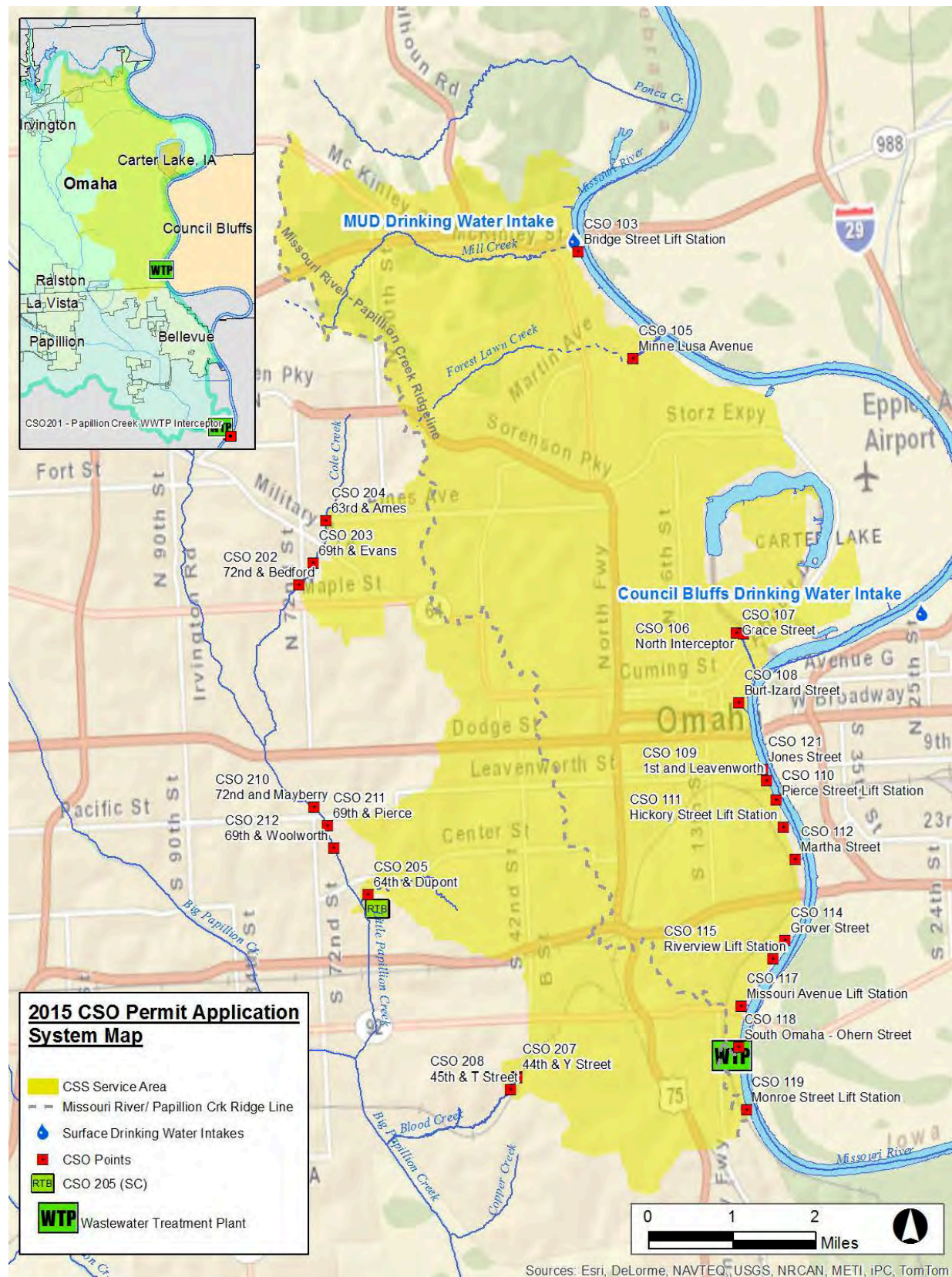
A National Pollutant Discharge Elimination System (NPDES) Permit for City of Omaha (City) Combined Sewer Overflows (CSO) (No. NE0133680) issued by the Nebraska Department of Environment and Energy (NDEE) was reissued in 2015 and was effective from October 1, 2015, thru September 30, 2020. The 2015 permit has been administratively extended as of October 1, 2020 until a new permit is issued. In addition, the City submitted a Long Term Control Plan Update (LTCP Update) on March 31, 2021, which was approved by NDEE on August 11, 2021.

This Annual Report is for the period of October 1, 2021, through September 30, 2022, referred to as the reporting year, and is submitted in accordance with the CSO Permit and Consent Decree. 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 and the requirements of paragraph 29 of (NDEE Case No. 270) Complaint and Compliance Order by Consent (Consent Order) dated October 8, 2007. Throughout the report, the permit will be referred to as the CSO Permit. The data reported in this Annual Report reflects the activities associated with the Combined Sewer System (CSS) service area in the 2015 permit application as shown on Figure 1-1. The service area shown in other figures is taken from the 2021 LTCP Update and the 2021 CSO Permit application.

Information provided in this Annual Report reflects the 2021 LTCP Update schedule rather than that included in the 2015 CSO Permit.

Introduction

Figure 1-1 Service Area for the Annual Report



Introduction

The CSO 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 Application, submitted in March 2020 and amended in March 2021, the City had 25 active permitted CSO outfalls; 16 of these were associated with the Missouri River Water Resource Recovery Facility (MRWRRF) collection system; the other 9 were associated with the Papillion Creek Water Resource Recovery Facility (PCWRRF) collection system. This application included the reduction of one CSO, formerly 207, which discharged at 44th and T Street. Figure 1-2 reflects the permitted CSOs remaining as provided in the March 2021 CSO Permit Application amendment. CSO 102 at the MRWRRF undergoes treatment prior to discharge.³ Since the submission of the CSO Permit Application in 2021, the City has closed an additional CSO point. On January 5, 2022, the City requested that CSO 117 be removed from the permit. This brings the number of CSOs to 24 and reduces the number of CSOs into the Missouri River to 15.

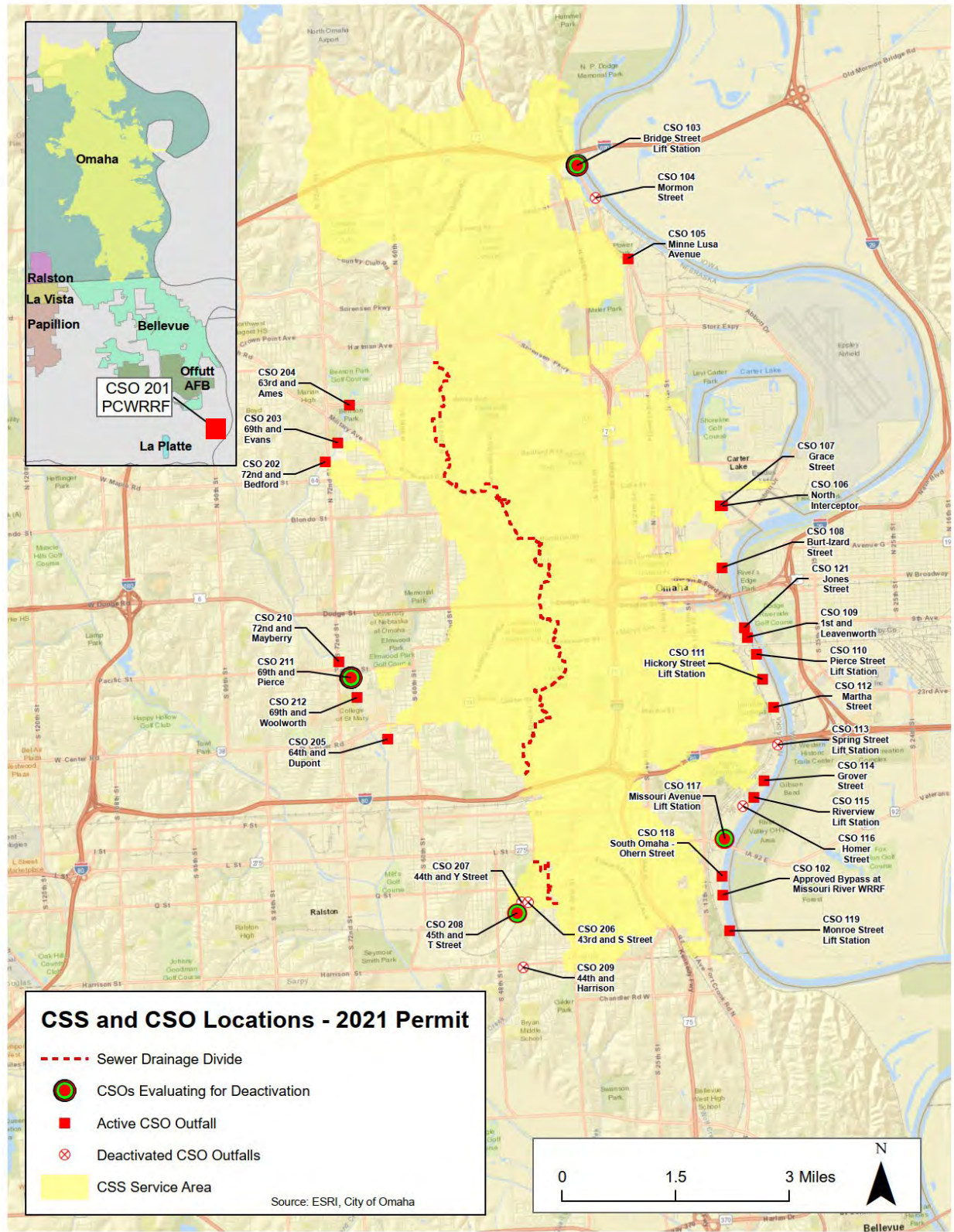
This Annual Report includes actions, activities, and measures taken by the City with regard to the Nine Minimum Controls (NMC), the LTCP implementation and its compliance schedule, CSO outfall monitoring, in-stream monitoring, and the Performance Report for CSO controls and if controls are achieving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

The City's Public Works Department, Environmental Services oversees the administration of the CSO Permit and ensures that the City complies 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 (EQCD), PCWRRF, MRWRRF, consultant engineers, and the Public Works Department and Program Management Team (PMT).

³ The MRWRRF manages a wet weather bypass that is referred to as "CSO Outfall 102," that, under approved conditions, discharges combined wastewater that has received primary but not secondary treatment, followed by disinfection and dechlorination. Disinfection is provided during the recreation season, May 1 to September 30.

Introduction

Figure 1-2. CSO Outfall Locations as of March 2021



II. Nine Minimum Controls

Permit Requirements

Part IV. Nine Minimum Controls (NMC) states: The City of Omaha shall submit documentation in the Annual Report (Part VIII) according to the conditions and requirements specified below. The NMCs are operations and procedures that will reduce combined sewer overflows and their effects on receiving water quality that do not require significant engineering studies or major construction and are consistent with the Long Term Control Plan. Reports, documentation, dry weather overflow events, and evaluations as required for each of the Nine Minimum Controls in Part IV of this permit.

In the 2002 to 2007 timeframe, the City and the state regulatory agency worked toward implementing NMCs per U.S. Environmental Protection Agency's (EPA) Guidance Document 832-B-95-003, *Combined Sewer Overflows - Guidance for Nine Minimum Controls* (1995), which states the following:

- "Minimum Controls are not temporary measures; they should be part of long-term efforts to control CSOs."

On October 1, 2002, the NDEE issued a CSO Permit to the City that contained the 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's 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 to in this report as the "NMC Plan."

On October 1, 2007, the NDEE issued a CSO Permit to the City. Subsequent CSO Program-related permits were issued in 2010 and 2015 (as amended November 1, 2019, to include the NMC Element descriptions), which include 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 what EPA refers to as the Phase I Permit,⁴ as documented in the 2007 CSO Annual Report; and modifications/updates to those initial submittals along with subsequent CSO Annual Reports
- EPA NMC Guidance
- EPA CSO Control Policy (April 19, 1994, at 59 Fed. Reg. 18688)

The City applied for a new CSO Permit during the 2020 reporting year, which is anticipated to be issued by NDEE after the current reporting year. The City has continued to implement the

⁴ According to EPA Combined Sewer Overflows Guidance for Permit Writers, the Phase I permit requires the permittee to immediately implement the NMC and to document implementation of the NMC and develop the LTCP. The Phase I permit should also require the permittee to gather data to establish the baseline conditions against which CSO controls will be measured.

Nine Minimum Controls

NMCs in accordance with the submittals on record with the NDEE and in accordance with EPA guidance and policy. Additional information for each of the NMC follows.

A. Proper Operation and Maintenance

<i>Permit Requirement</i>
Part IV. A: Proper operation and maintenance of the CSS and CSO outfalls consists of a program to ensure that O & M procedures are periodically reviewed, updated, and documented. A major emphasis of O & M activities shall be on the elimination of dry weather overflows. The City of Omaha shall include revisions and additions to the City of Omaha O & M procedures in the Annual Report submitted to the Department.

The City continues to periodically review and document operation and maintenance (O&M) procedures for the CSS. The Sewer System Operation and Maintenance Manual (SSOMM) (original publication by Brown and Caldwell 2006) is reviewed semi-annually or more frequently as needed and filed at the Sewer Maintenance Division. Revisions and additions to the O&M procedures that occurred during the October 1, 2021 to September 30, 2022 reporting year are itemized. Attachment 1 of this Annual Report contains the revision cover sheets of the SSOMM and respective procedures. The following is a summary of reviews and updates during this reporting year:

1. SSOMM Chapters 3, 4, and 5 were updated with clarifying language regarding responsible groups, Water Main Break Response, Closed-circuit Television (CCTV) Inspection and Capital Program CCTV support.
2. SSOMM Chapter 7, Engineering Services, clarified roles between Sewer Planning Unit, Design Division, and Water Resource Recovery Engineering.
3. SSOMM Chapter 8, Lift Stations, was updated to document transition to a computerized maintenance management system (CMMS).
4. SSOMM Appendix B, CSO Station and Monitoring Device Procedures and Locations, consists of a single-page list and outline of general instruction for monitoring of wet weather CSOs and prevention of dry-weather CSOs, and CSO Station and Monitoring Device Procedures and Locations (updated sheet included in Attachment 1).
5. SSOMM Appendix D, the City's Wastewater Overflow Emergency Response (WOER) Plan, is reviewed on a regular basis and updated as needed. New organization chart and contacts were updated this reporting year.
6. SSOMM Appendix F, Combined Sewer Overflow Station Procedure Manual, has been updated. Note that Appendix B is also the first page of this manual and is provided in Attachment 1.

The City will continue to adhere to the NMC Guidance Plan to properly operate and maintain the CSS and the CSO outfalls by using current procedures and implementing new procedures as necessary.

Nine Minimum Controls

B. Maximize Use of the Collection System for Storage

Permit Requirement

Part IV.B. The City shall continue to implement their program to maximize the use of the collection system for storage. The City of Omaha shall, as appropriate, review the CSS to identify any locations where minor modifications can be made to increase in-system storage. These modifications shall be implemented as soon as practicably possible and documented in the Annual Report submitted to NDEE.

The City continues to implement NMC efforts in alignment with the EPA's CSO Technology Fact Sheet (EPA 832-F-99-036), which identifies the typical control measures for in-line storage as follows:

- 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 following demonstrates continued implementation of this NMC:

Inspection of the collection system and removal of obstructions – The Sewer Maintenance Division is the primary organization charged with the inspection and maintenance of the collection system. According to the NMC plan, this organization performs corrective repairs, corrective maintenance, preventive maintenance, inlet cleaning, televising, and CSO inspection. The values provided in Table 2-1 are for the City's 2021 fiscal (calendar) year, related to the total collection system, and are performance measures accounted annually for the City's Finance Department. Inlet cleaning is not among this required metric, however, included here:

Table 2-1. 2021 Fiscal Year Total Collection System Performance Measures

Complaints Handled (Corrective Inspections)	2,694 each (complaints backup, complaints other)
Corrective Repairs	780 each (inlets, manholes, and pipe repairs)
Sewer Line Cleaning	3,265,347 linear feet (preventative and reactive)
Sewer Line Televised	750,045 linear feet (in-house and contracted CCTV)
<i>Inlets/Storm Structures cleaned</i>	<i>850 tasks performed (MS4 and CSS inlets, outlets, BMPs)</i>
Structures Evaluated (condition assessed)	9,644 each (manholes, siphon structures, diversions, CSOs)
Pipelines Evaluated (condition assessed)	1,634,172 feet (PACP reviewed in jurisdiction, SL-RAT tested)

BMP = best management practice

PACP = Pipeline Assessment Certification Program

SL-RAT = Sewer Line Rapid Assessment Tool

Maintenance, repair, and replacement of tide (river) and control gates – Gate inspections at key CSO facilities occur once every year, at a minimum, and are repaired or replaced as necessary. The City's Levee and Lift station O&M staff performed flap gate inspections March 14 through 16, 2022, and found no concerning issues. The City continued to use the computerized maintenance management system (CMMS) IBM Maximo v7.6.1 software for the flood protection system, the treatment plants, and the collection system lift stations.

Installation and adjustment of regulators – On the premise that NMCs are “*operations and procedures that will reduce combined sewer overflows and their effects on receiving water quality that do not require significant engineering studies or major construction,*” the City committed to evaluate regulators on a case-by-case basis until a systemwide approach is instituted with the LTCP.

During the current reporting year, an evaluation of a stormwater facility in the combined system was performed. This existing facility at 20th and Pierce was designed to store approximately 1 million gallons of stormwater, which is then released back into the CSS after a storm event has passed. Operational modifications to this facility to maximize stormwater storage are underway to help reduce CSO overflow volumes at CSO 109 and 121. The City upgraded the facility's control systems and continues to work on collecting data during rainfall events to adjust these systems as needed.

Reduction and retardation of inflows and infiltration – The City continues to implement practices to reduce and retard inflows and infiltration, including tracking of wet weather related system complaints, repairing pipes and manholes, enforcing city code for illicit connections, and service lateral defects.

Upgrade and adjustment of pumps – The Sewer Maintenance Division's Levee and Lift Station Group maintains the lift stations associated with the CSS area collection system. Personnel are responsible for maintaining facilities as necessary so that the lift stations perform as designed. Work continued on three lift station projects that are being designed and construction as part of the LTCP. These are discussed in more detail under ‘System Reliability’ and in the LTCP Documentation section of this report.

Real-time monitoring – The operators at the MRWRRF are responsible for monitoring the supervisory control and data acquisition (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 MRWRRF. As new facilities are built, permanent meters are installed and connected to the SCADA system for real-time monitoring at the water resource recovery facilities. The City continues to work on upgrades to their radio network.

The Papillion Creek Interceptor flow meter just upstream of the PCWRRF is connected to the PCWRRF's SCADA system and transmitted data to the Sewer Maintenance Division via telemetry. The City also maintains a network of permanent flow meters throughout the collection system, which has telemetry equipment and data can be observed via a website, as needed.

Nine Minimum Controls

D. Review and Modification of Pretreatment Programs

Permit Requirement

Part IV.C.: Minimize the impacts of discharges into the CSS from nondomestic sources. As new significant industrial users are added to the CSS system, the City of Omaha shall determine what impact their dischargers would have on the quality and quantity of CSO discharges during wet weather events. A summary of new significant industrial users and measures taken the City to address any discharges during wet weather shall be documented in the Annual Report

The Environmental Quality Control Division (EQCD) is charged with the tracking of significant industrial users. The categorical industries with Nebraska Pretreatment Program (NPP) permitted discharges, either through voluntary agreements or through the NPP permit, are requested by the City, whenever possible, to restrict or prohibit discharges during wet weather events. The categorical industries in this program are listed in Table 2-2. There were no new significant industrial users into the combined sewer system in the Annual Report year.

The information is documented in the City's semiannual reports to the state for the Pretreatment Program.

Table 2-2. Categorical Industries with NPP Permits Addressing Wet Weather Discharges

Name	Address	Facility Located in CSS?
ABS Corp.	7031 N 16th Street	Yes
Eaton Omaha Power Center	3900 Dahlman Avenue	Yes
G&G Mfg.	4432 McKinley Street	Yes
Highland Dairy Foods Company	2901 Cuming Street	Yes
Hormel Foods – Papillion Foods (new in 2021)	10808 S 132nd Street	No
Industrial Plating	1149 Florence Blvd.	Yes
JN-International Medical Corp.	2720 N 84th Street	No
Koleys	2951 Harney Street	Yes
LBT, Inc.	11502 "I" Street	No
Lozier Corp.	6316 John J Pershing Drive	Yes
Lozier Corp.	4224 N 22nd Street	Yes
Merck Animal Health	21401 West Center Road	No
Radio Engineering Industries, Inc.	6534 "L" Street	No
Silverstone Inc.	2815 Taylor Street	Yes
Skylark Meats LLC	4430 S 110th Street	No
Smithfield Packaged Meats	5015 S 33rd Street	Yes
Syngenta Crop Protection, Inc.	4111 Gibson Road	Yes

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

Permit Requirement

Part IV. D.: Maximization of flow to the POTWs involves simple modifications to the CSS and treatment plant to enable as much wet weather flow as possible to reach the treatment plant. The City of Omaha shall, as appropriate, evaluate and implement simple modifications to the CSS and procedures at the treatment plants to maximize flow to the POTWs. Any modifications shall be documented in the Annual Report.

This NMC has been addressed through the development of the LTCP and its updates. Section III.G of this report provides updates on this requirement.

F. Prohibition of CSOs during Dry Weather

Permit Requirement

Part IV.E.: Dry weather overflows from the City of Omaha combined sewer system are prohibited. The City of Omaha shall document all dry weather overflows and the measures taken to correct the cause of the overflow in the Annual Report. Substantial dry weather overflows shall be reported to the NDEE as soon as possible. (See Part IX)

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 2-3 includes summaries of the dry-weather overflows discovered during the reporting year that did not reach a water of the State. Table 2-4 lists the locations where discharges did reach waters of the State as defined in the following:

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, NDEE).

Additional information for each event was submitted to NDEE , in accordance with reporting requirements in the CSO Permit. The WOER Plan outlines the notification procedure, which includes in general an immediate phone call, an initial paper form/memo, and final letter with root causes and long-term corrective actions. The summary is as follows:

- There was one dry-weather overflow basement backup that was contained and did not reach waters of the State. This resulted from construction debris in the pipe (Table 2-3).

Nine Minimum Controls

- There were 13 dry-weather overflows that reached waters of the State, 10 directly through a permitted CSO discharge point and 3 by a waterway or nearby separate storm sewer. Causes included construction debris, grease, mechanical malfunctions, rags, and water main breaks (Table 2-4).

Water main breaks appear to be a leading cause. Protocol is to inspect sewer systems for mud and debris as part of goal of reducing maintenance issues and eliminating dry-weather CSOs.

Table 2-3. Basement Backups or Contained Dry-weather Overflows

Discovery Date (Date letter sent to NDEE)	Location of Overflow	Cause	Mitigation Steps	Long-term Corrective Action
8/22/2022	3113 R St	Debris	Jet Line Vacuumed	Preventive Maintenance

Table 2-4. Dry-weather Overflows that Reached Waters of the State

Discovery Date (Date letter sent to NDEE)	Location of Overflow	Duration	Estimated Quantity	Cause	Mitigation Steps	Long-term Corrective Action
10/7/2021	12-inch force main temporary flushing of South Interceptor Force main flowed into Missouri River (nearest address 225 S 8th St.)	Unknown	300 gallons	Debris, Construction Ops Failure	Repaired	Evaluation for Rehabilitation or permanently abandon
11/13/2021	CSO 204 N. 60th Ave. & Taylor St.	Unknown	<5 gpm	Water Main Break	Water Main Repaired	(None) Unavoidable
11/23/2021	CSO 118 (WMB location 5081 S 13th St.)	Unknown	<5 gpm	Water Main Break	Water Main Repaired	(None) Unavoidable
11/28/2021	Discharge flowed into a pond at the Henry Doorly Zoo, which discharges to the Riverview Lift Station and/or CSO 115 (nearest address 3710 S 10th St.)	Unknown	60 gpm	Grease Debris	Jet Line	Preventative Maintenance
12/3/2021	CSO 210 2014 N 66th St.	Unknown	<5 gpm	Water Main Break	Water Main Repaired	(None) Unavoidable

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Discovery Date (Date letter sent to NDEE)	Location of Overflow	Duration	Estimated Quantity	Cause	Mitigation Steps	Long-term Corrective Action
12/4/2021	CSO 110 367 Pierce St.	Unknown	< 5 gpm	Water Main Break	Water Main Repaired	(None) Unavoidable
12/26/2021	CSO 119 1705 Monroe St.	Unknown	<5 gpm	Water Main Break	Water Main Repaired	(None) Unavoidable
12/28/2021	1506 Abbot Dr.	Unknown	200 gpm	Debris	Remove Debris	Preventative Maintenance
1/3/2022	CSO 119 1705 Monroe St.	Unknown	< 5 gpm	Water Main Break	Water Main Repaired	(None) Unavoidable
1/6/2022	CSO 119 1705 Monroe St.	Unknown	<5 gpm	Water Main Break	Water Main Repaired	(None) Unavoidable
1/20/2022	CSO 103 (diversion at 2951 Dick Collins Rd.)	45 hours	~800,000 gallons	Mechanical Malfunction	Repaired	Repair / Replace
2/25/2022	CSO 119 1705 Monroe St.	Unknown	10 gpm	Debris	Jet Line	Preventative Maintenance
3/15/2022	Discharge flowed onto street and into a storm inlet that flows into a drainageway that drains to Mills Creek (nearest address 9271 N. 50th St.)	Unknown	< 5 gpm	Rags	Jet Line	Preventative Maintenance

gpm = gallon(s) per minute

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G. Control of Solid and Floatable Materials in CSOs

Permit Requirement

Part IV.F states: The control of solid and floatable materials in CSOs is intended to reduce visible floatables and solids using relatively simple measures. The City of Omaha shall, as appropriate, reassess and implement site-specific processes to control solids and floatables in CSOs using relatively simple measures. If reassessment is appropriate, the conclusions and implementation of control measures shall be documented in the Annual Report.

Based on previous evaluations, the CSO points are not conducive to the implementation of additional floatables controls without significant modification. As part of the LTCP projects additional floatables controls may be incorporated. The following are updates to existing controls:

- The floatables screen in the Grace Street ditch CSO channel, downstream of CSO 106 North Interceptor and CSO 107 Grace Street (near the access road off North 6th Street from Abbot Drive), was damaged by the March 2019 Missouri River flooding. The City opened and advertised for bid a project (OPW 53755) to repair the Grace Screen Facility in the Grace Street ditch CSO channel. The OPW 53755 project pre-construction meeting was held on July 21, 2022. Lead times for needed materials were estimated at 59 weeks at that time; therefore, the construction start is anticipated to be in the summer of 2023.
- The City also continued work designing improvements to the 6th and Leavenworth Grit Facility. The purpose of this project is to rehabilitate this existing grit facility as part of the Flood Mitigation Sewer system that conveys flow to the 4th and Leavenworth lift station. This is not a CSO Program project, however improved functionality of this facility allows more wet weather flow to reach the Leavenworth Lift Station through the dry weather flow pipe and with less solids content. Construction for the design improvements was originally bid in early October 2022.
- Grit removal facilities in the collection system continued to be maintained by Sewer Maintenance Division staff (either the Levee and Lift Station Group or O&M Group). As new stormwater facilities are built, grit and floatables controls are incorporated into these designs. These stormwater facilities are either part of the separate stormwater system (municipal separate storm sewer system [MS4]) or are part of the CSS as the stormwater recombines downstream.

H. Pollution Prevention

Permit Requirement

Part IV. G: Pollution prevention is intended to keep contaminants from entering the CSS and accordingly the receiving waters by way of the CSOs. The City of Omaha shall document any new pollution prevention measures enacted by the City in the Annual Report.

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Pollution prevention efforts are shared between several divisions and workgroups within the City. Sewer Maintenance Division performs inlet cleaning, stormwater structure maintenance, and system grit removal. EQCD manages solid waste collection, recycling, and the Stormwater Program, which includes inspection, contracted maintenance, education, and outreach. Capital Construction and Street Maintenance Division (CCSM) performs the street sweeping, open channel maintenance, and right-of-way litter removal. Parking and Mobility Division manages sweeping and litter control on city-owned surface parking and parking garages. Parks, Recreation, and Public Property Department cooperate to minimize impacts to the receiving streams and conveyance systems.

Records for pollution prevention and good housekeeping practices in the City are compiled in an annual report as required by the City's NPDES Permit NE0133698. This includes a summary of storm sewer maintenance, stormwater best management practice structure maintenance, and street sweeping efforts from January 1 to December 31, 2021. The 2021 MS4 Annual report was submitted by the City to NDEE on March 31, 2022. Additional proactive and reactive work orders for cleaning of storm inlets on the combined sewer system outside of MS4 areas are logged in the City's CMMS. These work records, along with grit pit and screen cleaning, are maintained by Sewer Maintenance Division. The EQCD 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 reporting year.

I. Public Notification

<i>Permit Requirement</i>
Part IV. H. states: Public notification is intended to inform the public of location of CSO outfalls, occurrences of CSOs, plus health and environmental effects of CSOs. The City of Omaha shall document any revision or updates to public notification procedures in the Annual Report plus any public announcements related to CSO discharges.

Locations of CSO outfalls have been identified for the public through specific signage posted near the outfalls, and along marina locations and public trails that parallel receiving streams. Per standard procedure, signs at the CSO outfalls are inspected twice per year for visibility and condition. General education on CSO environmental effects is shared through the ongoing public outreach on the CSO Program. An additional summary is provided in Section III.B, Public Participation. No significant concerns were released in the form of a public notification during the reporting year.

Procedure responsibilities continue to be carried out by Sewer Maintenance Division staff. CSO outfall sign inspections were completed in this reporting year in fall 2021 (between October 5, 2021, to November 18, 2021) and spring 2022 (March 25, 2022, to April 5, 2022). As of the last inspection date of April 5, 2022, 42 of the 46 active outfall signs were in place. The "117 Missouri Ave" and "117 Missouri Ave (River-S)" signs were removed in the fall of 2021 with the deactivation of the CSO 117 outfall. The "602 Papio Plant (Keystone)" sign is temporarily removed during adjacent levee re-construction. This sign will be replaced after levee construction is complete. The "503 64th & Dupont (Keystone Info)" and "205 64th & Dupont"

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signs are temporarily removed during the construction of the Saddle Creek Retention Treatment Basin (SCRTB). This sign will be replaced after retention treatment basin (RTB) construction is complete. The “504 Harrison (Keystone Info)” sign is in storage because of a mulch pile off 60th and Harrison Street. The trail access point where this sign was located was closed, and the sign was removed during the demolition and grading work. This sign will be re-installed once the work has been verified and completed.

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 *Standard Operating Procedure for Reporting and Public Notification of Wastewater Bypass, Unpermitted Combined Sewer Overflow & Sanitary Sewer Overflow*. This standard operating procedure is reviewed semiannually. Public Works Assistant Director, Environmental Services, or delegee determines “significant” qualification in conjunction with NDEE, on a case-by-case basis under any of these guidelines: duration greater than 24 hours, quantity greater than 100,000 gallons, and nature of pollutants and location. No other policies or procedures for public notification have been revised or updated.

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

<i>Permit Requirement</i>
Part IV. I. states: Monitoring to Characterize CSO impacts involves inspections and other simple methods to determine the occurrence and apparent impact of CSOs. The City of Omaha shall document any additional CSOs discovered by the City during routine inspections in the Annual Report. Characterization of the CSS system and the impact of the CSO discharges shall be regulated according to the requirements in the LTCP.

Information on efforts made during the implementation of the LTCP to characterize the CSS system can be found in Section III.A of the report, Characterization and Modeling of the CSO System. No additional CSO outfalls were identified during this reporting year. Monitoring of all CSO outfalls performed during the reporting year is reported in the Efficacy of CSO Controls section in Section VII, Performance Report.

Monitoring of CSO Impacts

During the implementation of this NMC, under requirements of a preceding 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, 2021, to September 30, 2022, there were no known beach closings or fish kills. The City recorded three system backups during wet weather. One was found to be the result of blockage. The June 5, 2022, rain event caused two isolated wet weather backups near 31st and S St. The 12-inch combined sewer pipe has a history of inflow and infiltrations and pavement cave-ins because of lateral defects and is under engineering review for backflow valve or lateral repairs.

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The City monitors and tracks any occurrence of basement backup or manhole overflows in the CSS. Dry-weather occurrences are reported in Section II.E, Prohibition of CSOs during Dry Weather.

The significant storm events during the reporting year are listed in Table 2-5.

Table 2-5. Storm Events

Date	Duration (Hours)	Total Rainfall (Inches)	Recurrence Interval (NOAA)
10/13/2021	1	1.60	5 year
Peak Hour Intensity 0.90 inch per hour			
10/24/2021	14	2.34	1 year
Peak Hour Intensity of 0.51 inch per hour			
10/27/2021	27	1.23	1 year
Peak Hour Intensity of 0.17 inch per hour			
5/2/2022	17	1.23	1 year
Peak Hour Intensity of 0.22 inch per hour			
5/18/2022	12	0.93	1 year
Peak hour intensity of 0.54 inch per hour			
5/25/2022	13	2.03	1 year
Peak Hour Intensity of 0.18 inches per hour			
5/30/2022	4	0.91	1 year
Peak Hour Intensity of 0.75 inches per hour			
6/5/2022	2	1.97	5 year
Peak Hour Intensity of 1.79 inches per hour			
6/7/2022	4	1.16	2 year
Peak Hour Intensity of 0.78 inches per hour			
6/15/2022	4	1.72	5 year
Peak Hour Intensity of 1.24 inches per hour			
7/4/2022	6	1.06	1 year
Peak Hour Intensity of 0.92 inches per hour			

NOAA = National Oceanic and Atmospheric Administration

All wet-weather basement backups and manhole overflows are evaluated for actual causes or conditions that lead to the backup or overflow. OPW Environmental Services engineering group staff recommend 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 inflow and infiltration (I/I) sources are completed near-term. The City uses all assessment information to determine if a capital project may be required or if modifications to O&M procedures are needed.

III. Long Term Control Plan Documentation

The City submitted a LTCP Update (2021 LTCP Update) to the NDEE on March 31, 2021. This update was approved by the NDEE on August 11, 2021, with no modifications required. The City submitted a permit renewal application in 2020 with an update in 2021 for a new CSO Permit. A new permit is yet to be issued. In meetings with NDEE, the City and EPA, the City noted that for the purposes of this Annual Report, it would be assumed that the new permit with the revised LTCP dates were effective for the whole report year.

Through the Permit and Consent Order, the City is required to submit documentation and reports applicable to the LTCP in its Annual Report according to the conditions and requirements specified in each document. The following nine sub-sections in this Annual Report address those requirements in the 2021 LTCP Update and are presented in the same order that is outlined in Part VIII of the 2015 Permit.

A. Characterization and Modeling of the CSO System

<i>Permit Requirements</i>
Part V. A states: "The City of Omaha shall continue to characterize, monitor, and model the CSS as set forth in the LTCP. A narrative summary of changes to the characterization, monitoring, and modeling of the CSS as construction projects are implemented shall be included in the Annual Report.

As stated in the CSO 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 2021 LTCP Update provided new information on these items.

While the CSS is almost completely mapped in geographic information system (GIS), data trends show that the City is continuously updating the attributes of the assets. An average rate of 10 percent (%), or approximately 3,500 line segments, are updated per year with diameter, material, slope, and elevations. Creation of new assets and additions related to the discovery of differences in assets equals an annual increase of about 3.5% to the total assets mapped. These are primarily due to regular updates occurring as field differences are discovered or per as-built record drawings for projects. Where new storm or sanitary sewers were constructed as part of the CSO Program, updates are performed both to the existing system as well as mapping the new assets. The CSO system characterization continues to be updated as LTCP projects are designed and implemented. Design consultants are asked to review existing system data and to gather additional information to form the bases of their designs. The data and designs are then included in the City's hydraulic computer model to ensure 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.

Long Term Control Plan Documentation

Characterization Efforts

Characterization efforts of the CSS for this reporting year can be broken down into three areas as follows:

1. **Documentation and recording of additional collection system information:** As part of the study phase for sewer separation projects, field data are obtained on the condition of the CSS, such as smoke testing, CCTV of sewer lines, dye testing, and condition and manhole evaluation and lamping. In addition, the City conducts its own sanitary sewer evaluation surveys (SSES), either with City staff or through managed field services contracts. Survey findings are incorporated back into the City GIS, which results 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.
2. **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 on a weir or overflow pipe, tethered, and visually inspected for movement to indicate if there is an overflow. Section VII, Performance Report, discusses the results of this program. As LTCP projects are completed, CSO points that remain open will have permanent metering installed, and eventually the CSO block program will be phased out.
3. **Flow monitoring:** Temporary and permanent flow monitoring continue 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 are discussed in the following sections.

Monitoring Efforts

The City has been performing flow and level monitoring of its CSS, specifically related to the characterization of the system, since 2004. The City continued to expand its fleet of metering equipment, continued City-wide flow monitoring of the Papillion Creek Interceptors, and conducted temporary flow monitoring in multiple locations. For the reporting year, 57 permanent flow monitoring sites, 15 temporary flow monitoring sites, and 13 CSO surveillance locations (with camera and level sensor) supported a variety of studies. Flow monitoring for excessive inflow and capacity for lift station upgrades were a focus this year.

Additionally, the City gathered precipitation data using 12 permanent City-managed rain gauges and several gauges owned by other entities. The Sewer Maintenance Division coordinates with the CSO PMT and other City divisions to plan the flow and rain monitoring program.

City rain gauges are listed in Table 3-1. Permanent and temporary flow monitoring locations are listed in Tables 3-2 and 3-3, respectively. Temporary monitoring locations mean that a meter was put in for a short period of time (3 to 5 months) and sometimes longer. Table 3-4 lists the locations where CSO surveillance cameras and level sensors were installed during the reporting year. These cameras are further described in Section VIII. Figure 3-1 provides a location map for the flow monitors and rain gauges used in 2022, including locations of gauges within the Papio-Missouri River Natural Resources District alert rain gauge system (managed by U.S. Geological Survey [USGS]), which is used to supplement the City's rain gauge network.

Long Term Control Plan Documentation

Table 3-1. City Rain Gauges

Rain Gauge Name and Location	Longevity	Sewer System
RG 1 – 6111 S. 99th St. (Johnny Goodman Golf Course)	Permanent	Sanitary
RG 2 – 3220 Ed Creighton Ave. (Hanscom Park)	Permanent	Combined
RG 3 – 5105 Bedford Ave. (Monroe Middle School)	Permanent	Combined
RG 4 – 4845 Curtis Ave. (Wakonda Elementary School)	Permanent	Combined
RG 5 – 1313 N. 156th St. (Grace Abbott Elementary School)	Permanent	Sanitary
RG 6 – 5304 S. 172nd St. (Russell Middle School)	Permanent	Sanitary
RG 7 – 7198 JJ Pershing Dr. (Minne Lusa Grit Station)	Permanent	Combined
RG 8 – 5411 S. 43rd and T St. (Roth)	Permanent	Combined
RG 9 – 20th and Pierce St.	Permanent	Combined
RG 10 – 19615 Old Lincoln Highway (Elkhorn WRRF)	Permanent	Sanitary
RG 11 – 120 S. 24th St. (Lutheran Family Services Building)	Permanent	Combined
RG 12 – 1110 S 67th St. (PKI Maintenance Building)	Permanent	Combined

Table 3-2. Permanent Flow Monitoring Sites

Permanent Location	Pipe Size	Longevity	Monitored Location and/or Monitoring Purpose
0225352 – 6900 Ames Ave.	30 inches	Permanent	CC Interceptor-E/CSS
0225354 – 6900 Ames Ave., north pipe	12 inches	Permanent	CC Interceptor-E/CSS
0225354 – 6900 Ames Ave., southwest pipe	24 inches	Permanent	CC Interceptor-E/CSS
0240007 – 7610 Dodge St.	30 inches	Permanent	CC Interceptor-E/CSS
0246042 – 7601 Corby Cir.	24 inches	Permanent	CC Interceptor-W
0246069 – 2808 N. 75th St.	18 inches	Permanent	CC Interceptor-E
0265099 – 8019 Cass St.	42 inches	Permanent	LP Interceptor
0265114 – 7777 Cass St.	24 inches	Permanent	CC Interceptor-W
0293022 – 1501 N. 85th St.	36 inches	Permanent	LP Interceptor
0297005 – 3020 Keystone Dr.	24 inches	Permanent	LP Interceptor
0302016 – 8754 Browne St.	30 inches	Permanent	LP Interceptor
0304022 – 6060 Wenninghoff Rd.	30 inches	Permanent	LP Interceptor
0305016 – 6254 N. 89th Cir.	24 inches	Permanent	LP Interceptor
0390004 – 10875 W. Dodge Rd.	21 inches	Permanent	BP Interceptor
0420002 – 2222 Papillion Pkwy	24 inches	Permanent	BP Interceptor-E
0426046 – 4712 N. 120th St.	24 inches	Permanent	BP Interceptor-E

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Permanent Location	Pipe Size	Longevity	Monitored Location and/or Monitoring Purpose
0452002 – 12440 W. Maple Rd.	36 inches	Permanent	BP Interceptor
0479011 – 12655 126th Ave.	30 inches	Permanent	Standing Bear tributary to BP Interceptor
0515351G – MRWRRF – SIFM	48-inch force main	Permanent	Lift station
0517512 – Leavenworth Diversion	144 inches x 100 inches	Permanent	Lift station (level only)
0517514 – Leavenworth Interceptor	54 inches	Permanent	Lift station (level only)
0556124 – 20th/Pierce Stormwater Detention Facility	n/a	Permanent	GI Assessment; level in infiltration gallery
0556152 – 20th/Pierce Stormwater Detention Facility	n/a	Permanent	GI Assessment; level in outlet structure
0556156 – 20th/Pierce Stormwater Detention Facility	72 inches	Permanent	GI Assessment; level in nearby combined sewer
0556160 – 20th/Pierce Stormwater Detention Facility	n/a	Permanent	GI Assessment; level upstream of weir in screening structure
0556160 – 20th/Pierce Stormwater Detention Facility	n/a	Permanent	GI Assessment; level downstream of weir in screening structure
0556165 – 20th/Pierce Stormwater Detention Facility	54 inches	Permanent	GI Assessment; level in screening structure bypass pipe
0692078 – CSO 205 – 64th and Dupont	10-foot by 12-foot box	Permanent (removed 9/21/2022)	Saddle Creek CSO Outfall; will be replaced by new SCRTB metering approach
0699028 – 6303 L St.	66 inches	Permanent	LP Interceptor/CSS
0720004 – 6669 Q St.	90 inches	Permanent	Downstream of LP Interceptor confluence with BP Interceptor
0726052 – 828 Rose Blumkin Dr.	60 inches	Permanent	LP Interceptor/CSS
0737008 – 7310 N Plaza	72 inches	Permanent	BP Interceptor
0786041 – 9503 Walnut St.	36 inches	Permanent	BP Interceptor
0786049 – 9503 Walnut St.	54 inches	Permanent	BP Interceptor
0839020 – 10800 Leavenworth St.	54 inches	Permanent	BP Interceptor
0941005 – 4131 S. 143rd Cir.	48 inches	Permanent	WP Interceptor-W
0942004 – 4526 S. 140th St.	30 inches	Permanent	WP Interceptor-E
0975053 – 2727 S. 156th St.	24 inches	Permanent	WP Interceptor-E

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Permanent Location	Pipe Size	Longevity	Monitored Location and/or Monitoring Purpose
0978002 – 3992 S. 153rd Cir.	30 inches	Permanent	Zorinsky Interceptor to WP Interceptor-W
0993095 – 2637 S. 158th Plz.	36 inches	Permanent	WP Interceptor-W
1141001 – 16229 Harney St.	18 inches	Permanent	WP Interceptor-E
1141017 – 323 S. 166th St.	30 inches	Permanent	WP Interceptor-W
1144001 – 656 N. 168th St.	27 inches	Permanent	N branch tributary to WP Interceptor
1188007 – 17007 Burt St.	36 inches	Permanent	WP Interceptor-W
1190015 – 17241 Seward St.	24 inches	Permanent	Upper WP Interceptor
1311004 – 19111 W. Center Rd.	30 inches	Permanent	Boxelder tributary branch to WP Interceptor
4001001 – 15705 Harlan Lewis Rd.	108-inch x 112-inch box	Permanent	Papio Interceptor/CSS
4016001 – 13th St. and Capehart Rd.	120 inches	Permanent	Papio Interceptor/CSS
4026001 – S. 25th St. – Bellevue	96-inch x 112-inch box	Permanent	Papio Interceptor/CSS
4051002 – 11820 Harry Andersen Ave.	60 inches	Permanent	WP Interceptor
4052005 – 10808 Olive St.	18 inches	Permanent	Hell Creek Interceptor to WP Interceptor
4052015 – 10900 Harry Andersen Ave.	72 inches	Permanent	WP Interceptor
4052029 – 1107 E. 1st St. – Papillion	78 inches	Permanent	WP Interceptor
4052051 – 11435 S. 36th St.	78 inches	Permanent	WP Interceptor
4052060 – 10808 Olive St.	30 inches	Permanent	Hell Creek Interceptor to WP Interceptor
4062002 – 8970 S. 48th St.	90 inches	Permanent	BP Interceptor
4079029 – 12001 Cary Cir.	30 inches	Permanent	SP Interceptor-N

Notes: BP = Big Papillion Creek, CC = Cole Creek, CSS = combined sewer system, E = east, GI = green infrastructure, LP = Little Papillion Creek, N = north, S = south, SCRTB = Saddle Creek Retention Treatment Basin, SIFM = South Interceptor Force Main, SP = South Papillion Creek, W = west, WP = West Papillion Creek.

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Table 3-3. Temporary Monitoring Sites

Temporary Location	Pipe Size	Longevity	Monitored Location and/or Monitoring Purpose
0015022 – 5899 N. 9th St.	15 inches	Temporary	SSES lift stn replacement
0063067 – 9308 N. 28th Ave.	48 inches	Temporary	CSO
0299007 – N. 88th Ave./Spaulding Cir.	24 inches	Temporary (removed 12/28/2021)	LP Interceptor validation
0546541 – 1000 Missouri Ave.	18 inches	Temporary (removed 10/26/2021)	CSO/Post Separation
0556013 – 1054 S. 20th St.	38 inches	Temporary (removed 2/11/2022)	CSS surcharge area (20 th and Pierce)
0645024 – 5813 S. 46th St.	12 inches	Temporary (removed 2/14/2022)	BP-04 CSO 208 Study
0960080 – 4320 S. 150th St.	12 inches	Temporary	SSES for I/I, local collector
1038004 – 9111 N 138th St.	18 inches	Temporary	BP Interceptor -project support
1131010 – 16725 H Cir.	8 inches	Temporary	SSES lift stn replacement
1167001 – 168th/Military Rd.	24 inches	Temporary (removed 12/6/2021)	Bennington Interceptor-West Branch (Stratford Park)
1175003 – 4220 S. 168th St.	18 inches	Temporary	SSES lift stn replacement
3027002 – 5535 Lindbergh Dr.	15 inches	Temporary	SSES lift stn replacement
4088131 – 17215 S. Creek Cir. (east) (Sarp County)	24 inches	Temporary	South Papio Basin Bulk I/I
4088200 – 8001 S. 120th St.	42 inches	Temporary	South Papio Basin Bulk I/I
4088252 – 17215 S. Creek Cir. (west) (Sarp County)	30 inches	Temporary	South Papio Basin Bulk I/I

Notes: BP = Big Papillion Creek, CSO = combined sewer overflow, CSS = combined sewer system, I/I = inflow and infiltration, LP = Little Papillion Creek, S = south, SSES = sewer system evaluation survey, stn = station.

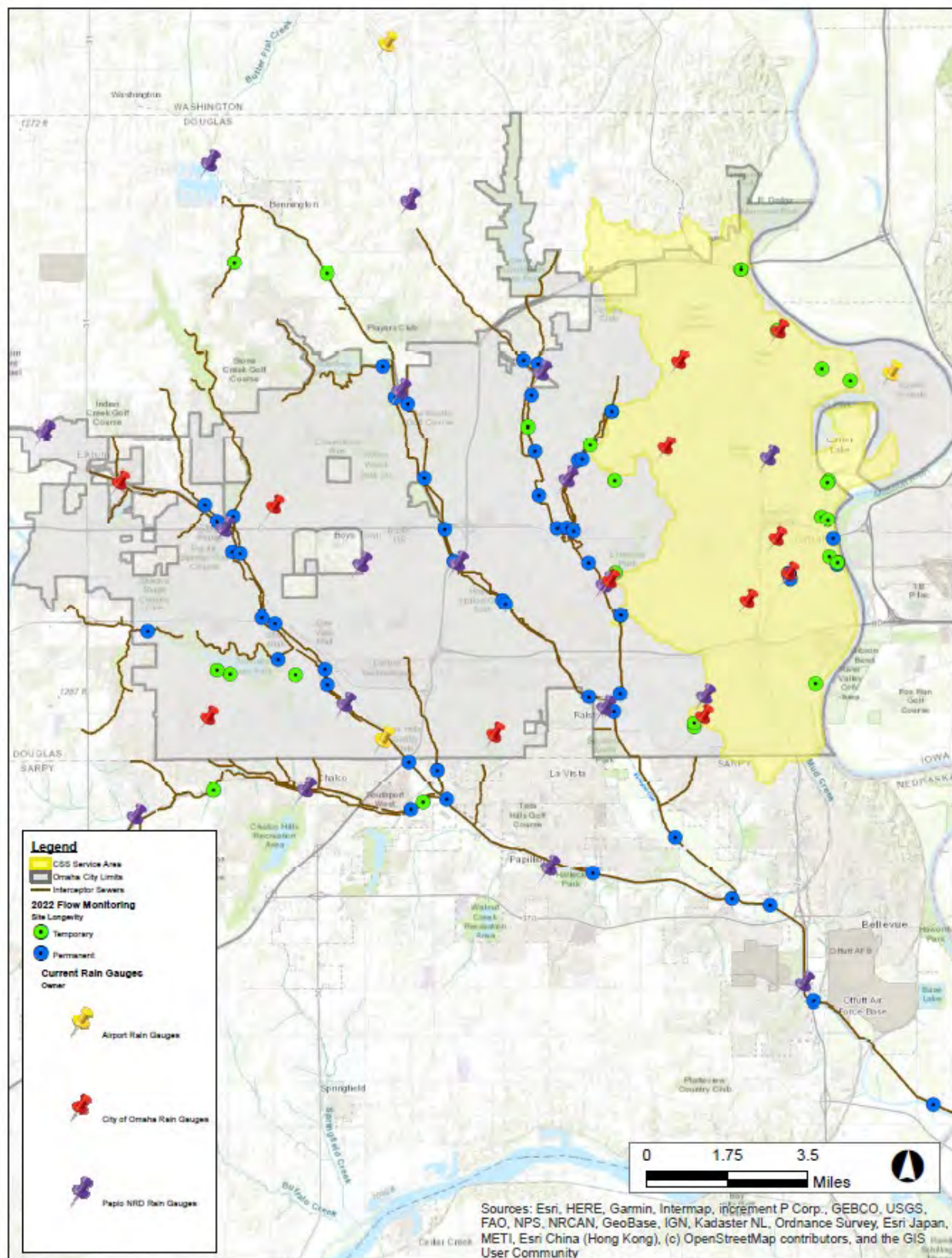
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Table 3-4. CSO Surveillance Locations

CSO ID	Approximate Location	Manhole ID	Notes
CSO 103	Bridge St. and Dick Collins (removed 1/2022)	0063085	Monitor weir wall
CSO 105	North of John J. Pershing and Read St.	0037032F	Monitor weir and flap gates
CSO 106	North of Riverfront and Abbott	3004003	Monitor screen and weir
CSO 107	Grace St (installed 1/2022)	3004039	Monitor overflow
CSO 108	North of Riverfront and Cass	3001001	Monitor southwest screen; camera only, no level sensor
CSO 108	10th and Mike Fahey	0002276	Monitor weir at diversion
CSO 109	5th and Marcy	0517512	Monitor northeast side at weir
CSO 121	7th and Jones St.	0516033	Monitor weir
CSO 202	72nd and Bedford (installed 1/2022)	0247075	Monitor overflow
CSO 205	64th and Dupont	0692079F	Monitor weir
CSO 208	45th and T St.	0645025	Monitor overflow pipe
CSO 210	66th and Blondo	0195023	Monitor weir wall, dry-weather overflows
CSO 211	66th and Pacific (removed 1/2022)	0708026	Monitor overflow pipe

ID = identification

Figure 3-1. Flow and Rain Monitoring Locations



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Modeling Efforts

The City uses and upgrades the InfoWorks Integrated Catchment Model (ICM) computer model (InfoWorks model) of the combined, sanitary, and storm sewer systems during the ongoing implementation phase of the CSO Program. Updates occur as additional information in the system is identified and as the system is modified as CSO controls are implemented. This reporting year, modeling efforts were focused on updating the model with new project data and validating model results by comparing against recent flow monitoring data and calibrating, as needed.

In addition to the program-level work, models of smaller areas are created as part of many 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 master model.

B. Public Participation

<i>Permit Requirements</i>
Part V.B. of the permit states, "The City of Omaha shall continue to employ a public participation process throughout implementation of the LTCP and document public participation activities in the Annual Report.

During the reporting year, the CSO Program facilitated engagement with neighborhoods and the general public both in person and virtually. In addition to conveying timely and accurate project information, these efforts further strengthened relationships and supported community acceptance of the LTCP. The following subsections provide a summary of this effort.

Informing Stakeholders

The CSO Program used email, phone calls, video conferencing, and in-person meetings to inform neighbors about upcoming projects in their area and attended neighborhood alliance meetings both in person and virtually. The CSO Program also created on-demand, narrated presentations and short videos to keep neighbors and businesses informed about projects as they proceed through design and construction. The following is a list of public meetings held this reporting year:

- February 24, 2022, 202 Phase 2 – 70th Avenue and Spencer Street: 90% Design Virtual Public Meeting
- March 11, 2022, CSO 212 – 64th Avenue and William Street: 60% Design Virtual Public Meeting
- August 24, 2022, CSO 212 – 64th Avenue and William Street: 90% Design In-person Public Meeting

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- September 12 to 16, 2022, Nicholas Street Sewer Extension – Phase 3B: Construction in-person one-on-ones with key stakeholders (Interstate Printing, Omaha Housing Authority, Seldin)

Reaching Youth

In-person youth outreach resumed this year as pandemic protocols were relaxed.

Youth outreach events included:

a) World O' Water

On September 10, 2022, the CSO Program again participated in Omaha Stormwater Solutions' outreach event, World O! Water. The all-ages event, with a focus on youth, highlights the important role water plays in our lives and community.

This year's event returned to in-person after 2 years of virtual-only participation. For the protection of the guests and exhibitors, it was planned to be only outdoors instead of the typical indoor/outdoor setting. With this in mind, CSO was challenged to develop an outdoor-friendly exercise that was interactive, fun, and engaging. The team came up with the idea for a CSO corn hole game. Participants took their chance of tossing a rubber frog into CSO-branded boards labeled "Spring Lake Park" and "Fontenelle Lagoon"—two of the Program's signature green infrastructure projects (Figure 3-2). When the participants successfully landed their frog into the lake/lagoon, they earned a 5-minute CSO shower timer.

The event, which is heavily attended by the scouting community, was also a great opportunity to distribute the Clean Water Action worksheet and patches. The worksheet contains varying levels of age-based CSO activities, and once it's completed, scouts earn an embroidered CSO patch for their vest.

Despite a rainy start, the event was a success. Approximately 65 shower timers and 125 patches were distributed.

Figure 3-2. Youth volunteers testing out the CSO Corn Hole/Frog Toss Activity



b) Summer School Programming

On the afternoon of June 22, 2022, approximately 90 fourth and fifth graders from Fontenelle Elementary School's Next Level Learning (NLL) summer program attended a CSO youth outreach event at the recently renovated Fontenelle Lagoon. Students rotated between an education center and an adventure center.

At the education center, members from the PMT and City presented a youth-oriented CSO overview presentation, complete with animations on sewer separation and green infrastructure. Guest speakers from Omaha Stormwater also attended and presented two activities that demonstrated what happens to trash when it rains and how storm drains can be kept clean.

The adventure center consisted of a guided walking tour around the lagoon, showcasing both its natural and engineered elements. Students completed an activity sheet that tasked them to find ducks, fishing overlooks, retaining walls, the wetland bay, and more. Upon completion of the tour, students were given the CSO youth outreach activity guide, a 5-minute shower timer, and a reusable water bottle.

The guest speakers brought energy and enthusiasm, keeping students engaged throughout the event. NLL Principal Elijah Simmons commented, "I appreciate all the hard work you all put into this event. The students really enjoyed themselves. I hope to continue to work with your organization in the future."

Figure 3-3. City staff along with the Program Management Team present to students Fontenelle Lagoon's indoor pavilion.



Figure 3-4. Students take home the CSO activity guide with information about the Program and age-appropriate activities.



c) Saddle Creek Retention Basin Youth Outreach

On November 12, 2021, the PMT, along with the Saddle Creek Retention Treatment Basin (SCRTB) project team, conducted a two-part youth outreach event for University of Nebraska College of Engineering students. In the morning, the team presented to Dr. George Hunt's Introduction to Civil Engineering class, giving overview of the project, exploring the types of engineering careers associated with a project of this magnitude and answering questions from the students. In the afternoon, the class, along with the Nebraska Water Environment Association (NWEA) and American Society of Civil Engineers (ASCE) student chapter groups, was invited to tour the periphery of the job site. The team discussed how the operation of the facility will work, the stages of construction, key basin facts, and the different engineering roles

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needed to create such a monumental project. The outreach engaged more than 30 students during this two-part session.

Information Line Update

During this past program year, the CSO information line (402-341-0245) received 68 phone calls (Figure 3-5). Topics ranged from questions on bills and sewer maintenance to specific CSO project schedules. The phone is answered live during business hours, and the goal is to return all messages within one business day.

Figure 3-5. Phone infographic.



LTCP E-Newsletter Updates

A few times each year, an LTCP e-newsletter is sent via email notifying a stakeholder list of 700+ users about program updates (Figure 3-6). Each email includes a link to the CSO Program Quarterly Report, which provides Program highlights, project spotlights, Program goals and budget details, project overviews and details, and a Program overview. Last year, three emails were sent that averaged a 33.2% open rate and a 9.65% click-through rate.

The links below are web versions of the LTCP E-Newsletters that were emailed to stakeholders throughout the reporting period:

December 2021: Q3 2021 Update:

<https://cso.createsend1.com/t/ViewEmail/r/05337349F82C7A652540EF23F30FEDED?alternativeLink=True>

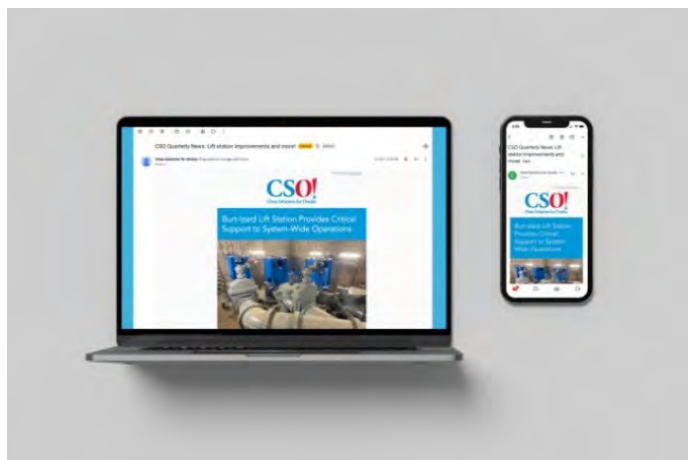
June 2022: Q1 2022 Update:

<https://cso.createsend1.com/t/ViewEmail/r/7E815380670E609C2540EF23F30FEDED?alternativeLink=True>

October 2022: Q2 2022 Update:

<https://cso.createsend1.com/t/ViewEmail/r/E8EABB5522A52BA12540EF23F30FEDED?alternativeLink=True>

Figure 3-6. E-news preview



C. Consideration of Sensitive Areas

Permit Requirements

Part V. C. states: “The City of Omaha shall include any changes to the status of previously identified sensitive areas in the Annual Report.”

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. No new sensitive areas were identified in the reporting year.

D. Evaluation of Alternatives

Permit Requirements

Part V. D. states: “Any changes or revisions to the controls set forth in the LTCP and a final projects list in the LTCP shall be submitted by March 31, 2021, to the NDEE for review and approval according to the Part IX (F) revisions to the Long Term Control Plan.

No additional evaluations of CSO Controls were performed during the Annual Report year and there are not currently any evaluations planned.

E. Cost and Performance Considerations

Permit Requirements

Part V.E. states: 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 Update to LTCP 2014). The City of Omaha shall submit a financial report to the NDEE by March 31, 2021; that sets forth a strategy to obtain sufficient revenue to fund the CSO program through at least the year 2024 that includes funding for the specific projects in the Implementation Schedule, Section 7 of the LTCP (see also Update to LTCP 2014).

Included in Section 4 is information on the following:

- The current status of the CSO Program's overall expenditures to date, and estimates for the future, and cost saving measures that have been implemented to keep the overall costs as low as possible
- Program financing, including information on the use of loans and grants
- Program affordability and ratepayer assistance

The City adopted a new rate ordinance on August 21, 2018. The new ordinance sets sewer use fees for 2019 through 2023, which are based on a rate study performed by the City's rate consultant and considers the Financial Capabilities Assessment that evaluated the burden of the sewer rate increases on the Omaha community and various sectors of the community. The next rate ordinance, to be finalized in 2022, will reflect changes made in the 2021 LTCP Update. It will also be developed to address the other significant City infrastructure needs at the MRWRRF, PCWRRF, and in the collection system. The new rate ordinance is anticipated to be approved by City Council in December of 2022.

In addition, the City retained the services of their rate consultant to conduct a Wastewater Cost of Services (COS) Study. The purpose of the study was as follows:

- To evaluate and compile the costs to operate, maintain, and upgrade the City's regional wastewater collection and treatment system, as needed
- To understand the distribution of those costs across the components that make up the City's collection and treatment system
- To develop the appropriate cost recovery model across the customer base served by developing a fee structure that includes fixed (customer) charges and flow-based charges, which are then distributed across the customer base in a fair and equitable manner to ensure that adequate revenues are provided to fund the system

The study began in early 2021 and was completed in 2022. Based on the outcome of the study, City staff determined the appropriate stakeholder engagement and information required for the development of the rate structure to be approved by City Council. Stakeholder engagement will include meetings with elected officials, large commercial and industrial customers, and outside communities that are served by the system.

F. Operational Plan

Permit Requirements

Part V.F states, “The City of Omaha submitted a preliminary wet weather operational strategy plan that provides an overview of the collective operation of the combined sewer overflow controls to be implemented by the City in Section 8 Monitoring Program and CSO Wet Weather Operations Plan of the LTCP. The City of Omaha shall update the wet weather operational strategy plan as major CSO projects are constructed and are operationally complete. Significant updates to the wet weather operational strategy plan shall be included in the Annual Report.

The 2021 LTCP Update included an update to the Wet Weather Operations Plan (WWOP) that was originally provided to NDEE on November 13, 2015. The 2021 WWOP reflects the current operation of the MRWRRF along with the modifications to the Burt-Izard Lift Station pumping capacity. The City will review the WWOP after the Saddle Creek RTB is complete and when the Riverview Lift Station Replacement Project and the Monroe Street Lift Station Improvements Project are complete and have been operational. Any modifications will be included in future Annual Reports.

Operational data from the MRWRRF CSO 102 discharge is included in Section 5, CSO Outfall 102 and 205 Monitoring Data.

G. Maximizing Treatment at the Existing Publicly Owned Treatment Works Treatment Facilities

Permit Requirements

Part V. G states: “The City of Omaha shall continue to evaluate opportunities to maximize treatment at the WRRFs as part of the adaptive management strategy for implementation of the LTCP. A summary of any new approaches identified to maximize treatment of combined wastewater to the WRRFs shall be included in the Annual Report.”

No specific evaluations were performed and no new approaches have been identified since the last Annual Report because the City is still in the process of implementation of projects in the LTCP that will maximize treatment of wet weather at the MRWRRF.

There are several projects included in the 2021 LTCP Update that are necessary to ensure delivery of up to 150 million gallons per day (MGD) wet weather flows to the MRWRRF for treatment, including the following projects, which are discussed in more detail in Section H. Implementation Schedule of this report under the “System Reliability Projects.” These projects are as follows:

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- **Burt-Izard Lift Station Improvement Project:** This project enabled the City to pump an additional 25 MGD flow (for a total of 50 MGD) to the MRWRRF. The improvements to the Lift Station are complete and the facility is currently able to pump up to 50 MGD.
- **The Riverview Lift Station Replacement Project and the Blake Street Lift Station Project:** Once construction is complete, it will enable the City to pump increased wet weather flows of up to 7 MGD from 3.5 MGD and take some older lift stations out of service.
- **Monroe Street Lift Station Improvements Project:** Modifications will enable the City to increase pumping of wet weather flows from 40 MGD to 65 MGD to the MRWRRF. This project is currently under construction.

H. Implementation Schedule

Permit Requirements

Part. V. H. states: The construction and sewer separation projects that will be designed, construed, or operationally complete during the current permit term are included in Part VI Compliance schedule for Implementation of CSO Control Projects of this permit which is the enforceable mechanism for the implementation of these controls. The City of Omaha shall include progress reports on implementation of the CSO construction and sewer separation projects set forth in the compliance in the annual Report.

As noted in last year's Annual Report, a new schedule was provided in the 2021 LTCP Update in Section 6. The schedule changes have received a preliminary approval from NDEE. The 2021 LTCP Update includes LTCP Milestone dates for each individual project that are the completion date of construction. Section IV, Compliance Schedule, provides a status update on LTCP implementation. As has been communicated and agreed to by NDEE, this Annual Report will list LTCP-scheduled projects in order of completion date. Attachment 2 contains an Annual Project Progress Report (APPR) for each of the active projects that includes their project delivery schedule and describes major activities accomplished over the past year.

System Reliability Projects

The 2021 LTCP Update identifies four projects which include Burt-Izard Lift Station Improvements, Riverview Lift Station Replacement Project, Blake St Lift Station Improvements, and Monroe Street Lift Station Improvements as "system reliability projects" to address current and future system support. The implementation schedule is "as necessary and when funding is available." The status of the active projects is listed in the following text. The Transfer Lift Pump Replacement Project, which is not a LTCP project, is also included. The status of these projects are as follows:

Burt-Izard Lift Station Improvements Project: This project was operationally complete on April 4, 2022. The project included lift station improvements, consisting of replacing the inlet isolation gates and actuators, two bar screens, three wastewater pumps, piping, and valves; providing a new electrical room; and removing concrete in the existing grit basins to maximize the available capacity. The result of the modifications has been a significant increase in the flows being conveyed to the MRWRRF during wet weather events. This has also allowed for the new SIFM to be fully operational and the old one to be taken out of service.

Riverview Lift Station Replacement Project: This project includes the Grover Diversion Structure, a 42-inch sewer along Gibson Road that will convey flows from the Grover Sewer to the Riverview Sewer, the Riverview Diversion Structure, and a 7-MGD lift station. A force main will extend south from the new lift station to Grover Street, where the flows will be discharged into the existing Grover Street sewer for subsequent conveyance to the new Riverview Lift Station.

The Riverview Lift Station Replacement Project construction contract was awarded to the contractor on November 19, 2019. Construction Notice to Proceed was issued on March 2, 2020. The project was originally anticipated to be complete in September 2022. However, because of supplier delays, the project will not be complete until the first quarter of 2023. Figure 5 shows the Riverview Lift Station in August 2022.

Figure 3-7. Riverview Lift Station August 2022 (Courtesy of Multivista)



Blake Street Lift Station Project: The Blake Street Lift Station improvements consist of a gravity sewer extending south from the Spring Street Lift Station to a new 1-MGD lift station near Blake Street and Hascall Street. Construction of the project has been delayed as the result of property issues. Recently these issues have been resolved and construction is due to start October 2022. The construction duration is approximately 12 months.

Monroe Street Lift Station Improvements: The project includes improvements to the existing lift station to replace/rehabilitate pumps, screens, valves, electrical systems, and

instrumentation and controls to provide operational flexibility to maximize the conveyance of wet weather flows of up to 65 MGD to the MRWRRF. The construction of the project started on January 3, 2022, with construction extending for a duration of 26 months, resulting in expected project completion in April 2024.

MRWRRF Transfer Lift Station: This project is not a LTCP project. It includes replacement of the pumps installed under MRWRRF Schedule A. Although the current pumps can deliver the 64 MGD as designed, replacement is needed for long-term reliability due to problems that have been encountered with them. Notice to Proceed was issued on March 16, 2020, and construction completion was anticipated for March 2022. However, the schedule was impacted by various delays. The project should be finalized within the next several months.

I. Post-Construction Compliance Monitoring Program

Permit Requirements

Part V. I. states: “An outline of a post-construction compliance monitoring program is included in Section 8 of the LTCP Monitoring Program and CSO Wet Weather Operations Plan plus a draft document *Water Quality Monitoring for the Implementation Monitoring Plan (IMP)* was included with CSO NPDES permit application received March 29, 2010.

1. In-stream monitoring data shall be conducted that is consistent with the Implementation Monitoring Plan. The data for this monitoring shall be included in the Annual Report.
2. Verification of sewer separation projects will be used to confirm that the desired level of separation was achieved. The City of Omaha may use various approaches to verify sewer separation including visual verification, water quality monitoring, or flow monitoring. The results of studies performed that support the deactivation of a CSO outfall shall be included in the Annual Report.”

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 the CSO Permit application submitted to NDEE on March 29, 2010.

As required by the CSO Permit, instream monitoring data are provided in Section VI, Instream Monitoring Data, and Attachment 4 of this report. The 2021 LTCP Update included an updated Post-Construction Monitoring Plan.

For this Annual Report period, CSOs 103 and 208 were monitored for post-construction deactivation. The City continues to monitor these outfalls for the occurrence of overflows and during this reporting year, surveillance cameras and level sensors were also used. Pipeline investigation and limited manhole investigation was performed in the drainage area for CSO 208. Manhole investigation and pipe lamping was performed on a small subsystem draining to CSO 103. Evidence of I/I was observed in both areas. These data will integrate with the City’s sewer risk model for potential rehabilitation projects. The City will evaluate if remaining I/I is at an excessive rate and warrants rehabilitation to meet the goal of CSO closure.

IV. Compliance Schedule

Permit Requirements

Part VI. States: Upon issuance of this permit, the City of Omaha shall implement the compliance schedule below for construction projects set forth in the Long Term Control Plan (LTCP). This schedule may be modified in accordance with NDEE Title 119 and written notice from the NDEE. 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 (Part VII).

The City, through quarterly progress meetings and correspondence, has communicated potential issues or changes to the project or overall schedules to NDEE. In addition, the 2021 LTCP Update provided, as needed, revised schedules for projects. While a new CSO Permit has not yet been issued that reflects the latest 2021 LTCP Update and the revised schedules, this section has been drafted to reflect the compliance status with the new schedule.

A. Implementation Requirements

The requirements for implementation are set forth in the CSO Permit and the Consent Order. Details about each are presented in this section and the requirements are achieved through the summary tables and figures in this section and through the APPRs in Attachment 2. As stated in the CSO Permit, the following definitions apply to compliance schedule dates. The italicized wording has been added to provide additional clarification to what is stated in the Permit:

- **Bid Year** – The year when the bidding process for a specific project is started. This will be noted in the tables as the “bidding” date and corresponds to the day the project was advertised for bid.
- **Begin Final Design** – The date when a Notice to Proceed is issued to a design consultant, or in the case of a design completed by City staff, the date when work is started. *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** – The date when a sewer separation project is substantially complete or when substantial completion is issued to the construction contractor.
- **Operationally Complete** – The date when a Facility project is substantially complete, is ready for its intended use, and has been made ready to operate by the City.

Consent Order Directives

In addition to the CSO Permit requirements, the Consent Order has a specific requirement to submit an Annual Report that contains an overall status of LTCP implementation and project specific information. The Consent Order, in Paragraph 29, states that the Annual Report shall contain the following:

Compliance Schedule

- “a. A statement identifying each component project timeframe 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 timeframe.*
- b. A general description of the work performed pursuant to the LTCP and component project timeframe schedule for the period covered by the report and whether it conformed to the LTCP and timeframe schedule.*
- c. A statement of any future planned or expected deviations from the LTCP and component project timeframe schedule and the reasons for such deviations.”*

Requirements for showing the LTCP compliance status are also met through the summary tables and figures in this section. The Consent Order requirement for component projects is achieved through the submittal of the APPRs in Attachment 2.

B. Projects Completed during the 2022 Reporting Year

Table 4-1 provides a summary of projects completed during this reporting year and lists the OPW Number, Project Name, project status during the reporting year, 2021 LTCP Milestone Compliance (date project achieved the milestone), and, where appropriate, notes that include the project details.

Table 4-1. Projects Completed during the 2022 Reporting Year

OPW Number	Project Name	Status	2021 LTCP Milestone Compliance	Notes
52472	Burt-Izard Lift Station Improvements	Complete	N/A	System Reliability Project – Operationally Complete April 2, 2022
53206	Cole Creek CSO 204 Area - Phase 3 Combined Sewer Separation (Taylor to Ruggles Between 56th and 61st)	Complete	6/30/2022 ACHIEVED	Met the 2021 LTCP Milestone date on 6/24/2022

C. Current Projects

Tables 4-2 provides an implementation summary of current projects during the 2022 reporting year. The table lists the OPW Number, Project Name, project status during the reporting year (Preliminary Design, Final Design, Under Construction, or Complete), LTCP Milestone date, Compliance Status (if it is on schedule or will not meet the LTCP Milestone date) and, where appropriate, notes brief project details. A more detailed progress report is included in Attachment 2 APPRs.

Compliance Schedule

Table 4-2. Active Projects

OPW Number	Project Name	Status	2021 LTCP Milestone	Compliance Status	Notes
51685	CSO 212 – 64th Avenue and William Street	Final Design	06/30/2025	On Schedule	
52049	Saddle Creek Retention Treatment Basin	Under Construction	12/31/2023	On Schedule	
52402	Riverview Lift Station Replacement	Under Construction	N/A	NA	System Reliability Project Anticipated completion date is February 2023
52470	Forest Lawn Creek Inflow Removal and Outfall Storm Sewer	Under Construction	12/31/2024	Will not meet milestone.	Requested modification of milestone date to 12/31/2026
53753	Nicholas Street Sewer Extension – Phase 3B	Under Construction	06/30/2025	On Schedule	
53059	Cole Creek CSO 203 Sewer Separation Project (CSO)	Under Construction	12/31/2023	On Schedule	
53082	Monroe Street Lift Station Improvements	Under Construction	N/A	NA	System Reliability Project Anticipated completion date is April 2024
53149	CSO 119 South Barrel Conversion and Sewer Separation	Preliminary Design	6/30/2026	Will not meet Milestone	Requested modification of milestone date to 12/31/2027
53270	Blake St Lift Station	Under Construction	NA	NA	System Reliability Project Anticipated completion date is November 2023
53320	Papillion Creek North (PCN) 210 Sewer Separation	Under Construction	12/31/2022	Will not meet Milestone	Requested modification of milestone date to 12/31/2023
53820	CSO 204 Phase 4a – 57th Street and Pratt Street	Preliminary Design	06/30/2030	On Schedule	
TBD	CSO 204 Phase 4b – 56th Street and Bedford Avenue	Preliminary Design	06/30/2032	On Schedule	This is combined with 4a at this time

Compliance Schedule

OPW Number	Project Name	Status	2021 LTCP Milestone	Compliance Status	Notes
53869	CSO 202, Phase 2 – 70th Avenue and Spencer Street	Final Design	12/31/2026	On Schedule	
54293	East Cole Creek Interceptor Rehabilitation	Preliminary Design	06/30/2026	On Schedule	

OPW = Omaha Public Works

D. Future Projects

Tables 4-3 provides a summary of future projects. The table lists the Project Name, LTCP milestone dates from the 2021 LTCP Update and the year when preliminary design is anticipated to start and where appropriate, notes that include the project details.

Table 4-3. Future Projects

Project Name	Start Preliminary Design	2021 LTCP Milestone	Notes
Minne Lusa Relief Sewer Diversion Modifications	2023	6/30/2028	
61st and Radial Storm Sewer	2023	12/31/2028	
Grace St and North Interceptor DWF Diversion Rehabilitation	2024	12/31/2028	Part of the RTB System
CSO 105 Outfall Active Control	2024	6/30/2029	Part of the RTB System
North Downtown Conveyance Sewer - 11th and Izard to 6th and Abbott	2024	6/30/2030	Part of the RTB System
11th and Izard Grit and Screening Facility	2024	6/30/2033	Part of the RTB System
11th and Izard Active Control	2024	6/30/2033	Part of the RTB System
Northeast Omaha RTB - 6th Street and Abbott Drive	2024	6/30/2034	Part of the RTB System
Jones Street to Leavenworth Diversion	2029	12/31/2035	
21st and Cuming Active Control	2029	6/30/2037	
Hickory Street Sewer Separation	2030	6/30/2037	
Pierce Street Sewer Separation	2030	6/30/2037	
Leavenworth Basin Storage Tank (CSO 109)	2030	6/30/2037	

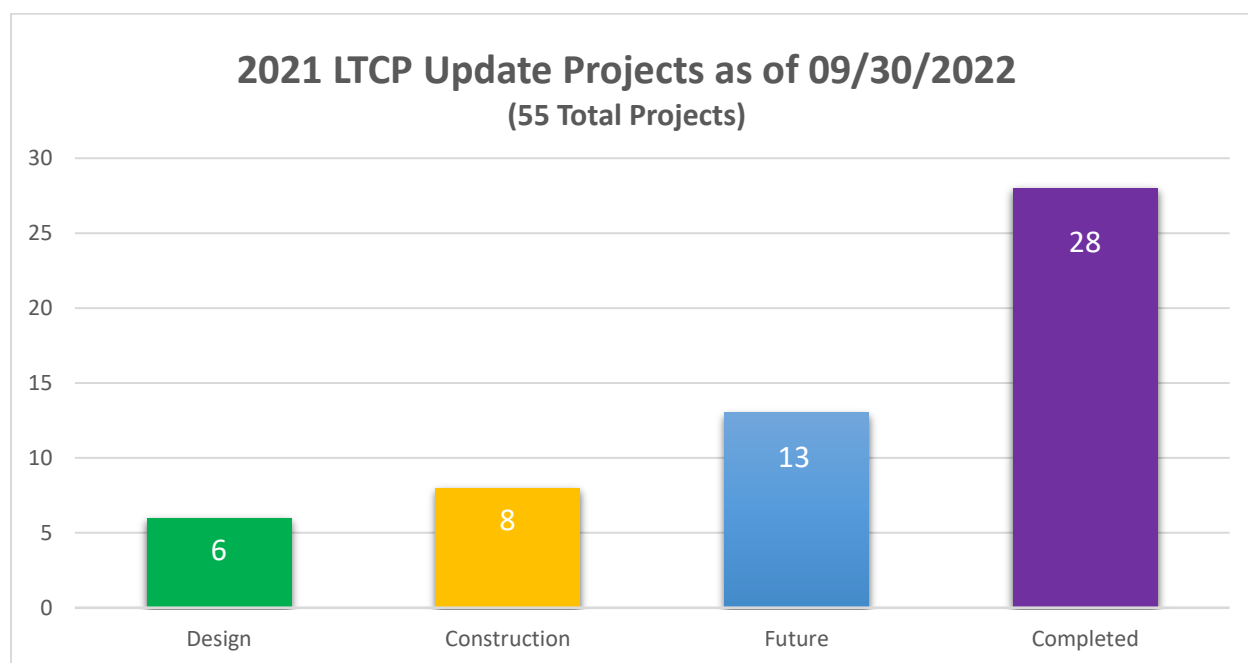
Compliance Schedule

E. CSO Program Schedule

The Consent Order in Paragraph 29, item b, requires 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” as part of the Annual Report. The APPRs provide a summary of the information regarding this objective in Attachment 2. This section, CSO Program Schedule, and the following section, CSO Program Costs, address the overall status of the LTCP implementation and compliance with the CSO permit.

Figure 4-1 shows the overall status of projects in the 2021 LTCP Update.

Figure 4-1. Project Status for 2021 LTCP Update



As noted on Figure 4-1, there are 14 projects that are active in design or construction. Of these, seven are on schedule to meet the LTCP Milestone, three are likely to miss the LTCP Milestone and four are system reliability projects that do not have a LTCP milestone. For the three projects that will not meet the milestone, (PCN 210 Sewer Separation, Forest Lawn Creek Inflow Removal and Outfall Storm Sewer, and CSO 119 South Barrel Conversion and Sewer Separation), the City has requested modifications to the milestone dates and the new dates have been included in the draft permit.

F. CSO Program Costs

The City uses various tools to track the costs of the LTCP projects because controlling costs ensures the program is 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 Improvements Plan (CIP) tool developed by the CSO Program. The cost of the Program was not escalated to a single future year but rather each project was escalated to the year(s) they are expected to be delivered in. The current estimated cost of the Program with

Compliance Schedule

contingencies is \$2.0 billion through 2037, which is the same as the cost of the Program reported in the 2021 Annual Report. Rates are in place for 2019 to 2023, as noted previously, and the new rate ordinance will cover the years 2024 through 2028.

Through September 2022, the City has paid \$865 million to implement the LTCP and has encumbered another \$136 million for a total of \$1.001 billion, or approximately one-half of the total estimated cost of the Program. Approximately \$561 million out of \$865 million has been for construction. The City has awarded or is currently bidding more than \$662 million in construction contracts. Another \$86 million in construction value is currently under design.

Adjustments in schedules and costs of the individual projects within the program are included as part of the APPRs in Attachment 2.

V. CSO Outfall 102 and 205 Monitoring Data

<i>Permit Requirements</i>
Part VIII. D. states, "A summary of monitoring data from Outfall CSO 102 and Outfall CSO 205."

A. Missouri River Resource Recovery Facility – Outfall 102

The disinfection/dechlorination system was put into operation starting with the recreation season in 2020. The Interim Requirements for CSO Outfall 102, as defined in Table 3, Part II of the current Permit, were in effect for this permit year. The current permit states that requirements are in effect until January 1, 2023, after which effluent limits for *E. coli* and total residual chlorine limits will be in effect. On January 10, 2022, the City requested the date be changed to 2025. The conditions for approved bypass of combined sewer complied with these requirements.

There were 32 total overflow events at CSO 102 from October 1, 2021, through September 30, 2022, with 19 of them occurring during the recreation season of May 1 to September 30. An event at CSO 102 is considered the total time between the start and stop of flows on consecutive days. Therefore, event parameters are reported as averages or totals over the days that event took place. Results from these events are reported on quarterly discharge monitoring reports (DMRs) submitted to NDEE. Table 5-1 summarizes the data for CSO 102. *E. coli* values slightly increased from the previous reporting year. However, the amount of flow treated through CSO 102 has increased by over 4 times and the duration has increased by over 3 times of what it was in the Annual Report for 2020 to 2021. This means that significantly more combined flows are being treated before release to the Missouri River.

The values reported in Table 5-1 are defined as follows:

- Flow rate: average flow rate of each event at the CSO 102 outfall in the reporting year
- Total flow: total volume of all events in the reporting year
- Duration of discharge: total of all events in the reporting year
- Total suspended solids (TSS) and biochemical oxygen demand: average concentration of each event in the reporting year
- Total Residual Chlorine (TRC): Allowable values calculated for each event based on Missouri River flow, MRWRRF effluent flow, and MRWRRF effluent TRC
- Dieldrin and polychlorinated biphenyls: all reported event values were less than 0.001 milligram per liter (mg/L), which is the analysis detection limit
- *E. coli*: geometric mean of all the events in the reporting year where *E. coli* monitoring is required
- pH: maximum and minimum values of all of the events in the reporting year

CSO Outfall 102 and 205 Monitoring Data

Table 5-1. CSO 102 Monitoring^a

Parameter	Value		Units
Flow Rate	7.95		MGD
Total Flow	254.26		MG
Duration of Discharge	191		hours
TSS	174		mg/L
Biochemical Oxygen Demand	112		mg/L
TRC	0.003		mg/L
<i>E. coli</i>	10		Colonies/100 mL
pH 00400	Min = 6.61	Max = 7.85	Standard Units

^a Effluent limits do not apply to CSO 102 at this time.

Notes:

max = maximum

MG = million gallons

mg/L = milligram(s) per liter

min = minimum

mL = milliliter(s)

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

The current 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. A permit modification effective June 2016 changed this date to January 1, 2024. Section IV, as part of this report, lists all flow monitoring sites. Section IV also details the status of the SCRTB Project, which is still under construction and not yet in operation) and LTCP Program compliance schedule, and Section VII, as part of this report, details CSO occurrences during wet weather.

VI. Instream Monitoring Data

Permit Requirements

Part VIII. F. states: A summary of in-stream monitoring data consistent with the Implementation Monitoring Plan objectives to include monitoring station identification, stream identification, the list of parameters along with the monitoring results.

The Draft Implementation Monitoring Plan (IMP) was originally submitted with the 2009 LTCP and was resubmitted in 2010 with the CSO Permit Application. It is important to note that although instream monitoring was included as part of the March 2010 Draft IMP, it also states the following 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.

Sections VI.A and VI.B of this report contain a summary of in-stream monitoring data. Figure 6-1 is a map showing the locations of the City and USGS instream monitoring sites.

The IMP was replaced in the 2021 LTCP Update by a new Post-Construction Monitoring Plan. The new Plan includes the same water quality monitoring as the IMP.

A. City Instream Monitoring

The City's instream monitoring for this reporting year was performed by the City's Sewer Maintenance Division.

The City collected samples from instream monitoring sites CC-1, CC-2, LPC-3, BPC-3, PC-1, LPC-1, and BPC-4, which were analyzed through Midwest Laboratories, Inc. in accordance with the IMP. The City has contracted with USGS for sampling at sites MR-1, MR-CB, MR-4, and MR-5, which is covered later in Section 6.B. Table 6-1 contains descriptions of each monitoring site the City administers. 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.

Table 6-2 summarizes the results for the wet weather and dry-weather sampling for the fall season of 2021 and the first two seasons (spring and summer) of the 2022 reporting year. The fall season of 2021 is included in this year's report because these data were primarily collected during the 2022 reporting year. The Missouri River sites were also sampled by USGS during this report period as described in more detail in the next sub-section 6.B. The 2022 fall (September 1 to November 30) sampling results are not included in this year's report because these samples were collected after the end of the reporting year. 2022 fall sampling results will

Instream Monitoring Data

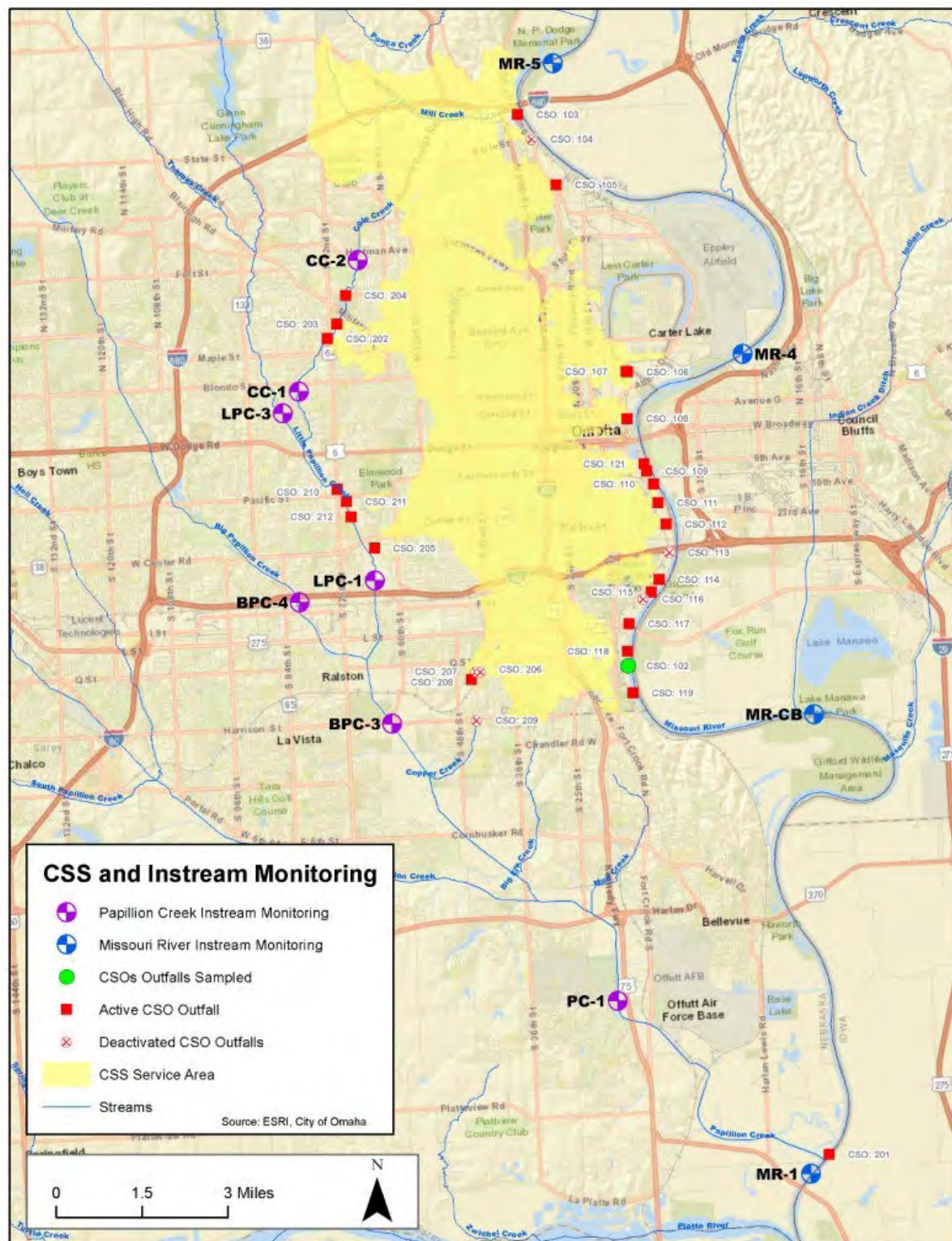
be included in next year's report. In general, water quality parameters worsen during wet weather compared to the dry-weather samples. For example, values for dissolved oxygen, total coliform, *E. coli*, biochemical oxygen demand (BOD), and total suspended solids (TSS) are all worse during wet weather. However, the source of the increased levels could be the result of stormwater runoff and not solely CSOs. A year-over-year review would provide a better understanding of the impacts on the streams.

Table 6-1. 2022 City Instream Monitoring Site Descriptions

Monitoring Station Identification	Stream	Location Description
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

Instream Monitoring Data

Figure 6-1. Instream Water-quality Monitoring Locations



Instream Monitoring Data

Table 6-2. 2022 City Instream Monitoring Results

2021 Fall – DRY – SEPTEMBER 1 TO NOVEMBER 30							
Parameter/Site ^a	CC-2	LPC-3	CC-1	BPC-3	LPC-1	BPC-4	PC-1
Date	11/08/2021	11/08/2021	11/08/2021	11/08/2021	11/08/2021	11/08/2021	11/08/2021
Time	11:00	11:45	11:30	13:00	12:40	12:20	13:35
Field Temp (°C)	12.5	11.0	10.7	12.5	13.1	11.2	12.3
Field Conductivity (mMHO/cm)	1,348	806	1,180	894	968	793	839
Field pH	7.84	8.58	8.31	8.63	8.54	8.56	8.80
Field DO (%)	70%	112%	79%	107%	122%	100%	100%
Field DO (mg/L)	7.50	12.38	8.90	11.40	12.80	11.00	10.70
BOD (mg/L)	3	<	3	3	<	<	<
TSS (mg/L)	7	9	<	27	10	33	22
Total Coliforms (MPN/100 mL)	3,873	3,255	2,909	4,884	4,884	4,884	5,172
<i>E. coli</i> (cfu/100 mL)	213	241	199	275	836	323	160
Solids or Foam Present?	Yes	No	Yes	No	No	No	No

2021 Fall – WET – SEPTEMBER 1 TO NOVEMBER 30							
Parameter/Site	CC-2	LPC-3	CC-1	BPC-3	LPC-1	BPC-4	PC-1
Date	10/27/2021	10/27/2021	10/27/2021	10/27/2021	10/27/2021	10/27/2021	10/27/2021
Time	10:00	11:00	10:40	12:40	12:15	11:40	13:25
Field Temp (°C)	13.5	12.8	13.0	12.9	12.7	12.8	12.5
Field Conductivity (mMHO/cm)	380	412	396	428	497	386	482
Field pH	8.00	8.32	8.18	8.28	8.10	8.25	8.32
Field DO (%)	75%	76%	72%	78%	75%	76%	79%
Field DO (mg/L)	7.85	8.05	7.60	8.22	7.92	8.05	8.41
BOD (mg/L)	11	7	9	6	6	6	5

Instream Monitoring Data

2021 Fall – WET – SEPTEMBER 1 TO NOVEMBER 30							
Parameter/Site	CC-2	LPC-3	CC-1	BPC-3	LPC-1	BPC-4	PC-1
TSS (mg/L)	30	50	68	318	60	146	134
Total Coliforms (MPN/100 mL)	33,600	61,300	613,100	195,600	125,900	201,400	> 2,420 ^b
<i>E. coli</i> (cfu/100 mL)	2,000	9,700	72,300	27,900	54,600	60,500	51,720
Solids or Foam Present?	Yes	Yes	Yes	Yes	Yes	Yes	Yes

2022 Spring – DRY – MARCH 1 TO MAY 31							
Parameter/Site	CC – 2	LPC – 3	CC – 1	BPC – 3	LPC-1	BPC-4	PC-1
Date	4/26/2022	4/26/2022	4/26/2022	4/26/2022	4/26/2022	4/26/2022	4/26/2022
Time	10:15	11:10	10:50	12:35	12:10	11:45	13:15
Field Temp (°C)	13.0	12.5	12.8	15.2	14.4	13.2	14.4
Field Conductivity (mMHO/cm)	1090	696	920	750	807	715	772
Field pH	8.25	9.16	7.90	8.33	8.49	8.42	8.68
Field DO (%)	86%	90%	83%	112%	91%	95%	102%
Field DO (mg/L)	9.02	9.61	8.81	11.22	9.34	10.00	10.46
BOD (mg/L)	3	<	<	2	2	3	2
TSS (mg/L)	16	<	12	17	10	33	14
Total Coliforms (MPN/100 mL)	1,670	3,076	1,670	2,247	7,701	2,247	1,6700
<i>E. coli</i> (cfu/100 mL)	122	404	243	97	153	228	31
Solids or Foam Present?	Yes	No	No	No	No	No	No

2022 Spring – WET – MARCH 1 TO MAY 31							
Parameter/Site	CC-2	LPC-3	CC-1	BPC-3	LPC-1	BPC-4	PC-1
Date	3/22/2022	3/22/2022	3/22/2022	3/22/2022	3/22/2022	3/22/2022	3/22/2022
Time	8:55	9:55	9:35	11:30	11:00	10:25	12:10
Field Temp (°C)	8.7	7.7	7.9	7.5	7.2	7.6	7.9

Instream Monitoring Data

2022 Spring – WET – MARCH 1 TO MAY 31							
Parameter/Site	CC-2	LPC-3	CC-1	BPC-3	LPC-1	BPC-4	PC-1
Field Conductivity (mMHO/cm)	308	435	303	530	459	535	541
Field pH	8.50	8.30	8.50	8.32	8.61	8.41	7.95
Field DO (%)	97%	90%	92%	82%	89%	88%	86%
Field DO (mg/L)	11.25	10.70	10.90	9.80	10.72	10.48	10.18
BOD (mg/L)	4	4	7	5	5	5	4
TSS (mg/L)	114	334	306	332	174	352	688
Total Coliforms (MPN/100 mL)	19,700	11,000	261,300	6,300	50,400	35,900	92,080
<i>E. coli</i> (cfu/100 mL)	1,000	4,611	59,800	2,000	14,500	1,259	14,140
Solids or Foam Present?	No	No	No	No	No	No	Yes

2022 Summer – DRY – JUNE 1 TO AUGUST 31							
Parameter/Site	CC-2	LPC-3	CC-1	BPC-3	LPC-1	BPC-4	PC-1
Date	8/2/2022	8/2/2022	8/2/2022	8/2/2022	8/2/2022	8/2/2022	8/2/2022
Time	8:55	9:50	9:30	11:20	10:55	10:30	11:55
Field Temp (°C)	25.2	27.6	25.7	28.9	27.8	26.7	29.5
Field Conductivity (mMHO/cm)	1075	849	904	843	952	790	724
Field pH	7.93	8.45	8.53	8.48	8.10	8.40	8.81
Field DO (%)	82%	106%	108%	129%	106%	109%	129%
Field DO (mg/L)	6.79	8.74	8.94	10.69	8.79	8.97	10.64
BOD (mg/L)	3	<	<	2	2	<	7
TSS (mg/L)	7	14	5	13	11	36	66
Total Coliforms (MPN/100 mL)	58,800	24,200	>24,196	17330	24,200	20,100	14,140
<i>E. coli</i> (cfu/100 mL)	1,000	1,106	581	171	269	1,000	175
Solids or Foam Present?	No	No	No	No	No	No	No

Instream Monitoring Data

2022 Summer – WET – JUNE 1 TO AUGUST 31							
Parameter/Site	CC-2	LPC-3	CC-1	BPC-3	LPC-1	BPC-4	PC-1
Date	8/15/2022	8/15/2022	8/15/2022	8/15/2022	8/15/2022	8/15/2022	8/15/2022
Time	8:35	9:20	9:00	11:20	10:30	10:00	12:10
Field Temp (°C)	21.6	20.7	20.7	20.5	20.6	20.0	20.6
Field Conductivity (mMHO/cm)	201	454	597	568	608	744	380
Field pH	10.33	10.37	10.35	10.80	10.76	10.57	11.12
Field DO (%)	90%	77%	76%	75%	75%	74%	75%
Field DO (mg/L)	7.95	6.87	6.81	6.78	6.76	6.75	6.72
BOD (mg/L)	14	14	18	11	12	8	8
TSS (mg/L)	113	49	86	77	77	78	260
Total Coliforms (MPN/100 mL)	344,800	325,500	>2,419,600	>2,419,600	>2,419,600	307,600	> 241,960
<i>E. coli</i> (cfu/100 mL)	9,800	25,900	88,200	191,800	57,800	24,300	3,8730
Solids or Foam Present?	No	Yes	Yes	Yes	Yes	No	Yes

^a Monitoring sites defined in Table 6-1.

^b Lab dilution mix not high enough to accurately report parameter value.

Notes:

< = parameter value is less than the detection limit.

°C = degree(s) Celsius

BOD = biochemical oxygen demand

cfu = colony forming units

DO = dissolved oxygen

mMHO/cm = millimho per centimeter

MPN/100 mL = most probable number per 100 milliliters

B. U.S. Geological Survey 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 near the Omaha metropolitan area. The agreement with USGS has been extended through 2022. The City will make a determination on the need for future and will amend the Post Construction Monitoring Plan as necessary. This program is consistent with the Draft IMP. 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 the following link:
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 of water quality in the river. The four discrete sampling locations are as follows:
 - 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)

These locations can be seen on Figure 6-1.

Field parameters monitored at these locations include stream discharge, pH, temperature, DO, specific conductance, turbidity, *E. coli* and total coliforms, TSS, total phosphorous, 5-day biochemical oxygen demand (BOD₅), total Kjeldahl nitrogen (TKN), nitrogen, nitrate, ammonia nitrogen, and floating debris.

The USGS indicates when they report whether there were wet weather conditions in Omaha or upstream during the sampling event. Apart from *E. coli* and total coliforms, samples are a composite of the cross section of the stream. *E. coli* samples are a single grab sample taken from the weighted center of the river. Discrete sampling data were collected during the reporting year 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.

Except for site MR-4, USGS provides 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,

Instream Monitoring Data

DO, specific conductance, and turbidity. These data are provided to the City directly and published on the USGS website for the sampling site as follows:

Data for MR-5 can be found at:

http://waterdata.usgs.gov/ne/nwis/uv/?site_no=412126095565201

Data for MR-4 can be found at:

https://nwis.waterdata.usgs.gov/ne/nwis/inventory/?site_no=411636095535401&agency_cd=USGS

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. The data from this study will be used in the future 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. A new monitoring gauge at Highway 275 was installed in 2020 and provisional data have been obtained for the gauge beginning in May 2020; this gauge is currently only collecting gauge height data, which can be seen in Attachment 5.

Table 6-3 provides a range of results for the parameters listed at each of the monitoring sites for the 2022 reporting year. 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 *E. coli* levels can have a wide range of values, specifically as the sites move downstream. Attachment 5 provides a summary of past monitoring and recent provisional results through September 30, 2022.

Table 6-3. 2022 USGS Monitoring Parameter Results

Parameter	Monitoring Site (Upstream to Downstream)							
	MR-5 NP Dodge		MR-4 Freedom Park		MR-CB Council Bluffs		MR-1 LaPlatte	
	Max	Min	Max	Min	Max	Min	Max	Min
Discharge (cfs)	35,600	14,900	36,400	15,100	37,900	15,000	36,900	15,000
Temperature (°C)	27.4	0.1	27.4	0.0	27.5	0.1	27.7	0.2
Dissolved Oxygen (mg/L)	14	6.9	14	6.8	14	6.9	14	6.4
BOD ₅ (mg/L)	4	2	7	2	3	2	4	2
pH	9	8.1	9	8.2	9	8.2	9	8.1
TSS (mg/L)	132	15.	180	16	170	15	514	15
<i>E. coli</i> (MPN/100 mL)	2,400	13	2,400	10	2,400	14	4,400	6
Total Coliform (MPN/100 mL)	2,400	610	3,900	730	24,000	390	200,000	2,000

Notes:

Data presented are provisional unless otherwise noted.

cfs = cubic feet per second

N/A = Data not available for reporting year

The data in the tables shows that *E. coli* can vary significantly. However, the stream is periodically below the 126 org/100 mL stream standard.

VII. Performance Report

Permit Requirements

Part VIII, Section E. states:

Report the number of times each CSO outfall has an overflow and an evaluation as to whether the controls are achieving their design intent.

Provide documentation in the Annual Report that demonstrates that each CSO overflow occurrence was the result of a wet weather event.

Once in the term of the permit, provide the percent by volume of the combined sewage collected in the CSS during precipitation events on a system-wide annual average basis that is eliminated or captured for treatment.

These items are discussed in the following sections.

A. CSO Occurrence Inspection

The City monitored all 24 permitted CSO points in the system in the reporting year. Sewer Maintenance Division performs CSO occurrence inspection at 20 CSO points and maintains records for 23 of the points. The 24th point, which is CSO 102, is monitored separately by the MRWRRF staff, as these flows receive primary treatment and disinfection. PCWRRF staff are responsible for recording the number of occurrences for overflows at CSO 201 and provide the information to Sewer Maintenance Division for filing. CSO 109 and CSO 205 are monitored by level sensors and under a quality assurance protocol and are also reported to Sewer Maintenance for filing. For the 20 CSO points for which inspections are conducted, the City's standard procedure continued this year to visually inspect the designated CSO structures and tracking devices after rain or snow-melt events and record the inspection in the bypass tracking database. 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 maintenance checks at the lift stations and control gates also allow for a check of potential dry-weather CSO occurrences. Table 7-1 shows the counts of wet weather overflows for 23 CSO points. A more detailed tabular report on the wet weather confirmed CSOs can be found in the CSO Inspection Report in Attachment 3. For information on CSO 102, which receives primary treatment and disinfection, refer to Section V.

Performance Report

Table 7-1. Wet Weather CSO Occurrences for Reporting Year

CSO Outfall	Receiving Water	CSO Frequency (count)
103	Missouri River	0
105	Missouri River	38
106	Missouri River	38
107	Missouri River	33
108	Missouri River	38
109	Missouri River	39
110	Missouri River	35
111	Missouri River	27
112	Missouri River	36
114	Missouri River	31
115	Missouri River	39
118	Missouri River	37
119	Missouri River	35
121	Missouri River	29
201	Papillion Creek/Missouri River Confluence	0
202	Cole Creek	38
203	Cole Creek	29
204	Cole Creek	42
205	Little Papillion Creek	41
208	Blood Creek to Little Papillion Creek	0
210	Little Papillion Creek	35
211	Little Papillion Creek	11
212	Little Papillion Creek	24

The following is additional context for the accounting in Table 7-1:

- CSO 201 did not have any overflows during the reporting period.
- No overflows occurred at CSO 208 or CSO 103 during the reporting year. Sewer separation is complete for these basins, and they are in a post-construction monitoring phase. It is anticipated that future upgrades to the Bridge Street Lift Station (outside of the CSO Program) will facilitate the closure of CSO 103.
- CSO 119 has five diversion structures to monitor for overflow: MHs 0551001, 0551020, 0551021, 0571049, and 0551030. The City is continuing to check these manholes to verify overflows at CSO 119. The City will be installing a new flow meter in a new manhole that

Performance Report

was constructed within the last year on the North Barrel just upstream of the North Barrel diversion structure as part of the Monroe Street Lift Station upgrade project.

- Dry-weather overflows are reported in Nine Minimum Controls (Section II) of this Annual Report.

The City continued its program with cameras and level sensors to monitor the occurrence of CSO overflows at 13 locations (Table 7-2). The purpose of the technology is to assist the City in verifying overflow events, verifying maintenance needs, providing alerts to staff of flow depths and potential overflow events, and evaluating staffing efficiencies.

Table 7-2. CSO Surveillance Locations

CSO ID	Approximate Location	Manhole ID	Notes
CSO 103	Bridge St. and Dick Collins (removed 1/2022)	0063067	Monitor weir wall
CSO 105	N. of John J. Pershing and Read St.	0037363	Monitor weir and flap gates
CSO 106	N. of Riverfront and Abbott	3004003	Monitor screen and weir
CSO 107	Grace St. (installed 1/2022)	3004039	Monitor overflow
CSO 108	N. of Riverfront and Cass	3001001	Monitor southwest screen; camera only, no level sensor
CSO 108	10th and Mike Fahey	0002276	Monitor weir at diversion
CSO 109	5th and Marcy	0517512	Monitor northeast side at weir
CSO 121	7th and Jones St.	0516013	Monitor weir
CSO 202	72nd and Bedford (installed 1/2022)	0247075	Monitor overflow
CSO 205	64th and Dupont	0692079F	Monitor weir
CSO 208	45th and T St.	0645025	Monitor overflow pipe
CSO 210	66th and Blondo	0195023	Monitor weir wall, dry-weather overflows
CSO 211	66th and Pacific (removed 1/2022)	0708026	Monitor overflow pipe

City staff continue to physically check the CSO tracking devices at these locations along with using the level sensors and cameras from the surveillance effort. Throughout the year, comparisons were made in the findings between the City's device check program and the technology.

B. Evaluation of Completed Controls

The CSO Permit requires annual reporting as to whether the controls are achieving their design intent. The City monitors the effectiveness of completed CSO controls as identified in the LTCP.

CSO 208 – As reported last year, the sewer separation for the drainage basin to CSO 207 and CSO 208 was officially completed on April 30, 2019. CSO 207 was reconfigured in the project and is no longer a combined sewer overflow. CSO 208 remains open as a standpipe in a manhole, approximately 3.3 feet above the flow line of a 12-inch sanitary system. There were no overflows in the reporting period between October 1, 2021, and September 30, 2022.

Performance Report

Mapping and field review confirmed an existing storm sewer connection to the sanitary sewer downstream of this CSO diversion that has existed since 1934, according to record drawings. The CSO model and past flow monitoring show that this one storm connection can cause a wet weather CSO. The risk of the single connection is being considered and might result in a future separation project separate from the LTCP.

An area-velocity flow monitor in 2020 and 2021 shows slight effects of backwater and peak levels of 9 inches in a 12-inch-diameter system. The monitoring periods had very few and insignificant storm events recorded. Most of the storm events measured were less than a 1-year recurrence interval. The data shows that the system is affected by I/I with an observed wet weather peak to average flow of 5 to 1. CCTV was completed in this basin that showed several sanitary sewer pipes with infiltration runners, gushers, and encrustations. The City will continue to evaluate the risk of the I/I in the system, mitigate if necessary, and determine when closure of the CSO diversion can occur.

CSO 103 Bridge Street Lift Station – The 36th Street and McKinley sewer separation project was completed in November 2014. Post-construction flow monitoring found that the basin is high for infiltration. Through the standard maintenance protocols, there is no record of wet weather backups since 2014. The City began a manhole lamping project in one of the sub-basins to study the extent of degraded conditions in small diameter concrete sewers that contribute grit and debris to the system. The full study of this area will be prioritized based on risk. The lift station is due for replacement, which will address some of the debris issues and dry weather CSO risk, as well as facilitate deactivating and closing the CSO outfall.

CSO 117 Missouri Avenue Lift Station – The diversion to the outfall was closed on August 30, 2021, following sewer separation of the basin. The former combined sewer outfall is now a storm sewer only, and there is no connection between the storm sewer outfall and the sanitary sewers/sanitary lift station. Therefore, CSOs cannot occur at this location any longer. Further evaluation of whether the sewer separation met the City's goals for the project was also undertaken, with the following results:

- Flow monitoring of the new sanitary sewer was performed after sewer separation. An inflow analysis found an average inflow coefficient of 0.012 based on the full data set and 0.008 if storms for which the metered behavior appeared to be inconsistent with similar storms were omitted. The CSO Program's target inflow coefficient for sewer separation projects is 0.010, so the values found in the analysis are consistent with the City's goals.
- A significant storm event occurred on August 7, 2021, after the completion of sewer separation but before the CSO diversion was plugged. Of the City's three closest rain gauges, one indicated the storm had between a 5-year and a 10-year return frequency, while the other two gauges indicated the storm was greater than a 100-year event. There were no wet weather incidents recorded in the City's database in this basin during this large storm. Some flooding occurred at the lift station, but that can no longer occur after the removal of the CSO diversion on August 30, 2021.

On the basis of these findings, the conclusion is that the sewer separation was successful in meeting the City's goals for this project in the LTCP.

C. Wet Weather CSO Occurrences

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

Attachment 3 demonstrates that each CSO occurrence was the result of a wet weather event. The report identifies the CSO outfall inspected, the inspection date and time, the person who completed the inspection, the reason for the overflow, whether an overflow occurred, and whether it was still occurring during the inspection. Comments and the rainfall amount and date of precipitation are noted. The standard procedure states the following:

The City reviews available rain data during the year and compares data to inspection results of the inspections, including checking against Eppley Airport rain data as a starting reference point. On dates when only trace amounts are recorded by Eppley Airport, the available rain gauges in the CSS area are compared and corrections are made to the tracking database to more accurately represent rainfall totals.

The rainfall during the report year at the Eppley Airport rain gauge was 32.62 inches. When compared with the long-term average annual rainfall of 31 inches at Eppley Airport, this would appear to be an average year. However, most of 2022 has been in a drought and trending toward a below-average rainfall year. The CSO locations in the Papillion Creek Watershed reflect a wet weather CSO frequency as high as 42 overflows, while the CSO locations along the Missouri River show a high frequency of 39 overflows. In the report period there were 59 rain events recorded at 0.1 inches or greater. The comparison of data meets the quality assurance standards set by the City in this program.

D. Percent by Volume Captured

The CSO Permit requires that once during each permit term, 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 has been eliminated or captured for treatment. This requirement was met and reported in the 2019 Annual Report. The analysis used the representative year rainfall (to evaluate average conditions) with an InfoWorks model simulation of the sewer system as of the end of 2019.

VIII. Other Information

Permit Requirements

Part VII.F states: Other information that may be included in the Annual Report to include “measures of success” 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 about the reduction in overflows and CSO outfalls, receiving water quality, and the City’s new Inflow and Infiltration Reduction Program. At the NDEE Waste Management Division’s request, a section regarding project specific materials management has also been included. This section of the report will also highlight other effective measures enacted by the City and the CSO Program to ensure success.

A. Reduction in the Number of Overflow Events

As LTCP projects are implemented, the number of overflow events will be reduced. The rate of reduction in the number of overflow events will vary based on the following factors:

- The type of control being established for a given CSO point through the implementation of the LTCP
- The 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 impacts the magnitude, volume, and duration of the overflows at a given CSO point. CSOs 103, 208, and 211 have shown a clear reduction in overflow events because of the completed sewer separation projects. CSO 211 still has a few inlets to remove from the system, and this will be completed with CSO 212 Sewer Separation Project. CSOs 103 and 208 recorded zero overflows this year. The rain for this reporting period is normal trending toward below average annual rainfall, and there were very few high intensity storms. The CSOs and basins will continue to be monitored. Monitoring the overflow occurrences as discussed in Section VII, Performance Report, will help the City evaluate the progress of, and understand the success of, the LTCP projects as they are being implemented. As more projects come online, a system will be developed in cooperation with NDEE to report the compliance monitoring associated with the CSO Program.

B. Reduction in the Number of CSO Outfalls

Prior to the LTCP, the City worked to eliminate CSOs 116 and 206. During LTCP implementation, the City has worked to further eliminate the occurrence of CSOs at several permitted outfalls. Five additional CSOs have been eliminated: CSO 104, CSO 113, CSO 117, CSO 207, and CSO 209. The City still maintains 24 active permitted CSO points, although one of these—CSO 102—receives primary treatment and disinfection.

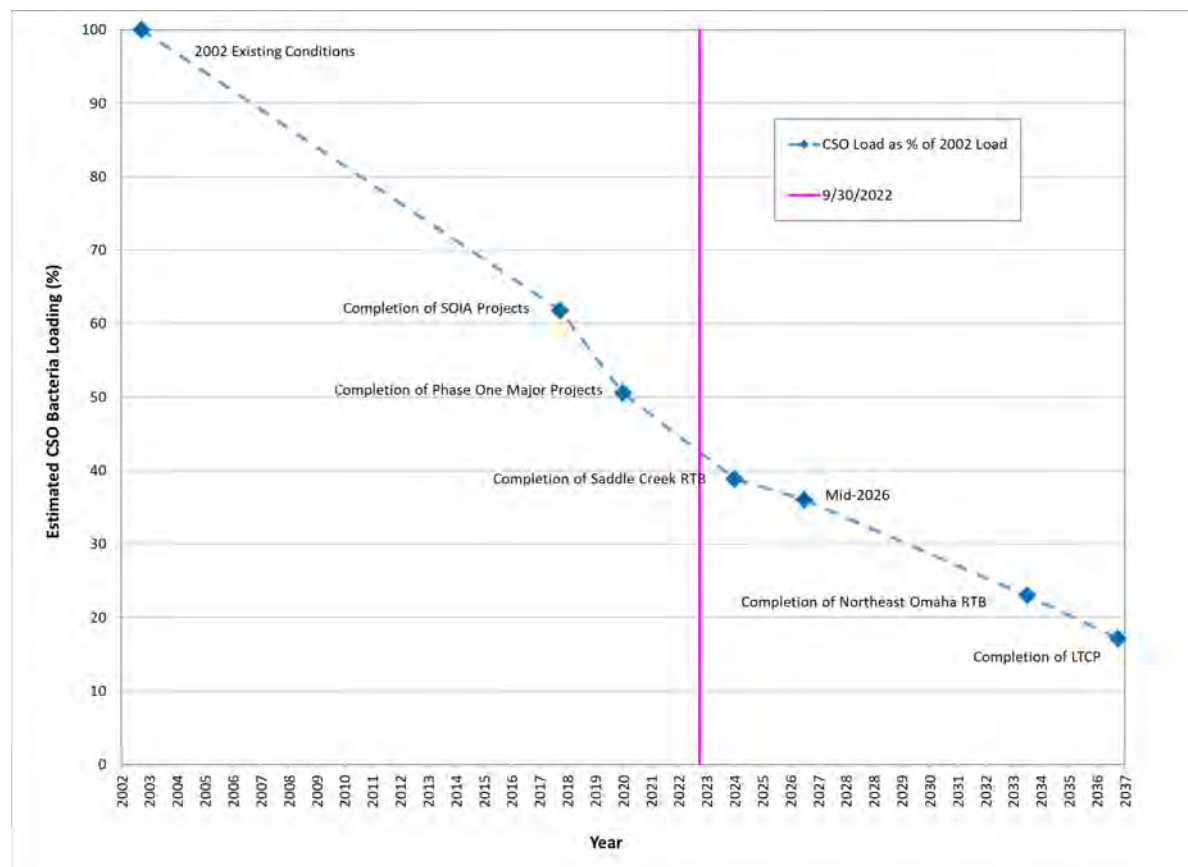
Sewer separation projects in the basins of CSOs 202, 203, 210, 211, and 212 are currently underway, with the goal of deactivating the outfalls after a period of post-construction monitoring.

Other Information

C. Receiving Water Quality

Figure 8-1 shows the expected reduction in *E. coli* from CSOs resulting from the implementation of the LTCP, which was revised to reflect the 2021 LTCP Update. The *E. coli* load to the Missouri River was reduced significantly with the implementation of the South Omaha Industrial Area (SOIA) Lift Station, Force Main, and Gravity Sewer, as well as the MRWRRF improvements. Another major reduction will occur with the completion of the Saddle Creek RTB project that is currently under construction.

Figure 8-1. Modeled *E. coli* Reduction over LTCP Implementation



D. Material Management

During the 2021 to 2022 reporting year, no waste material associated with CSO Program project construction was transported to an industrial fill site or landfill in the area. The City monitors and tracks contaminated waste materials and soils and uses this report to update the NDEE Waste Management Division. No hazardous waste was disposed of in 2021.

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

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, the City collaborated in

Other Information

the 2012 to 2013 timeframe with NDEE to develop an NDEE-approved Program related Materials Management Plan for Soil and Groundwater referenced in the Project Manual of the Construction Documents. This document was revised and approved by NDEE on November 25, 2021.

E. Inflow and Infiltration Reduction Program

The 2021 LTCP Update proposed that the City would develop a program targeted at I/I reduction. This program is intended to provide a framework for reducing I/I if such wet weather influence prevents the closure and deactivation of a CSO. City staff have also been assessing wet weather influence within the sanitary sewer system, and the I/I Reduction Program will aim to prioritize the entire combined and sanitary sewer system.

The City developed its *Task 6.12 – Inflow Reduction Standard Practices Guidance Document* (2020), which identifies technologies for rehabilitation of pipes, manholes, and laterals; lists types of sewer system investigations and the City's established procedures for conducting them; describes considerations for technology selection; and provides a framework for developing an Inflow Reduction Plan. The guidance was applied to a pilot area with separate sanitary sewers upstream of a combined sewer area currently under design for sewer separation. Field investigations and flow monitoring were conducted. While some defects were identified and some wet weather influence was observed, it was determined that the pilot area did not warrant rehabilitation to reduce I/I. The pilot area evaluation is described in *Evaluation of Inflow/Infiltration Reduction for SMA LP-12.9* (2022).

The City is currently reviewing its priorities and level of service goals, along with risks in the system related to capacity, condition, location, and other factors. An Inflow and Infiltration Reduction strategy is anticipated to fold into a system-wide asset management plan. The guidance document prepared as part of the CSO Program will be used as a foundational element for the I/I reduction Program. The City's strategy includes an initial desktop assessment and sewershed ranking based on existing condition information and wet weather issues. Once a high risk is identified as a potential priority, the standard practices assessment will be performed, including the collection of additional field investigation and flow monitoring data. Assessment findings will then be compared with similar information for other areas of the sewer system being considered for I/I reduction, and the City will determine whether to proceed with a project for the area based on its priority. Any work performed under the Inflow and Infiltration Reduction Program in the combined sewer area will be described in the City's CSO Annual Report.

IX. Works Cited

Brown and Caldwell. 2006. *Sewer System Operation and Maintenance Manual for Sewer Maintenance Division*. Updated January 2018.

Burns and McDonnell. 2020. *Wastewater Overflow Emergency Response Plan*. Rev 0.5. October 15.

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City of Omaha (City). 2019. *City of Omaha NPDES Permit for the Municipal Separate Storm Sewer System (MS4) NE0133698 2021 Annual Report*. Environmental Quality Control Division. March 29.

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Attachment 1 – O & M Procedure Updates and Revisions Summary

SEWER SYSTEM OPERATION AND MAINTENANCE MANUAL

FOR

SEWER MAINTENANCE DIVISION

CITY OF OMAHA, NEBRASKA



**PREPARED BY
OLSSON ASSOCIATES**

AND

BROWN AND CALDWELL

AUGUST 2006
Rev 1 12-22-2020
Rev 2 11-04-2022

OA PROJECT NO. 2006-0044

COMBINED SEWER OVERFLOW STATION PROCEDURE MANUAL

FOR

SEWER MAINTENANCE DIVISION

CITY OF OMAHA, NEBRASKA



October 2021

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
MORMON ST (DEACTIVATED)	CSO 104	na	na
MINNE LUSA	CSO 105	Levee Crew	Sewer Tech
NORTH INT DIV	CSO 106	Levee Crew	Sewer Tech
GRACE DIVERSION	CSO 107	Levee Crew	Sewer Tech
BURT IZARD	CSO 108	Levee Crew	Sewer Tech
6TH LEAVENWORTH	CSO 109	Converting to grit structure only, not currently online	
NEW LEAVENWORTH	CSO 109 (1)	Levee Crew	Sewer Tech-ND
PIERCE	CSO 110 (8)	LS Decommissioned	Sewer Tech
HICKORY	CSO 111	Levee Crew	Sewer Tech
MARTHA ST	CSO 112	Levee Crew	Sewer Tech
SPRING ST (DEACTIVATED)	CSO 113	na	na
GROVER	CSO 114	Levee Crew	Sewer Tech
RIVERVIEW	CSO 115	Levee Crew	Sewer Tech
MO AVE (DEACTIVATED)	CSO 117	na	na
SO OMAHA/OHERN	CSO 118	Levee Crew	Sewer Tech
MONROE ST LS (N)	CSO 119 (7)	Levee Crew	Sewer Tech
MONROE ST (S)	CSO 119 (2)	na	Sewer Tech
JONES ST	CSO 121	Levee Crew	Sewer Tech
72ND BEDFORD	CSO 202 (3)	Levee Crew	Sewer Tech
69TH EVANS	CSO 203 (3)	Levee Crew	Sewer Tech
61ST TAYLOR	CSO 204 (3)	Levee Crew	Sewer Tech
63RD PRATT	CSO 204 (3)	Levee Crew	Sewer Tech
66TH AMES (NEW)	CSO 204 (4)	na	Sewer Tech
64TH DUPONT	CSO 205 (6)	Levee Crew	Sewer Tech-ND
43RD & R ST (DEACTIVATED)	CSO 207	na	na
45TH & V ST	CSO 208 (5)	na	Sewer Tech
44TH & HARRISON ST	CSO 209 (DEACTIVATED)	na	na
66TH & BLONDO	CSO 210	na	Sewer Tech
66TH & PACIFIC	CSO 211	na	Sewer Tech
64TH & WOOLWORTH	CSO 212	na	Sewer Tech

(1) ND=no device. Level sensor in Diversion Structure #1 reported to Sewer Tech by MRWRRF Operations

(2) Devices installed on 12/20/2018 at MH 0551001, 0551020, 0551021, 0571049, 0551030 and incorporated into CSO routine checks

(3) CSO SITES LOCATED IN THE BENSON AREA. Notify Levee crew if gates are still down and flow level below bubbler indicator.

(4) CSO block device was installed as a redundant QC measure due to questionable flow metering readings.

(5) Check of device in ditch (end of corrugated metal pipe sewer node #0645036F and MH 0645025)

(6) ND Level data from Mission flow meter using telemetry indicates "Peak Depth" reading and indicates if overflow occurred. Access to site to check device is limited due to construction.

(7) MRWRRF operations will notify SM staff when LS wet well level reaches 12.5'. If no overflows occurred at Monroe diversions and LS wet well reaches 12.5', the CSO 119 outfall will be inspected.

(8) Device check location moved to MH 0518355

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 INITIATE 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 10/21

Attachment 2 – LTCP Annual Project Progress Reports (APPRs)

ANNUAL PROJECT PROGRESS REPORT-
OCTOBER 1, 2021, THROUGH SEPTEMBER 30, 2022

Cole Creek CSO 204 Area – Phase 3 Combined Sewer Separation (Taylor to Ruggles Between 56th and 61st) OPW 53206

Project Description, as stated in the 2021 LTCP Update:

Cole Creek CSO 204 Phase 3 Combined Sewer Separation (Taylor to Ruggles Between 56th and 61st) (OPW 53206) includes a new sanitary sewer in Sprague Street to connect to a separate downstream sanitary sewer. Phase 3 is currently under construction and anticipated to be complete in 2022.

2021 LTCP Milestone: Complete Construction of this project by June 30, 2022.

Compliance Report

Table 1 shows the project delivery schedule (Target Dates) developed for the 2021 LTCP Update, as noted in the plan. It also shows the 2021 LTCP Milestone Date as the anticipated project compliance schedule date, which is included in the permit.

Table 1. Project Delivery Schedule and 2021 LTCP Milestone Date

Activity	Target Date or 2021 LTCP Milestone Date^a	Actual or Anticipated Date^b
Began Preliminary Design	03/04/2019	10/03/2017
Began Final Design	05/01/2018	05/01/2018
Advertise	04/15/2020	05/27/2020
Bid Opening	07/08/2020	08/11/2020
Begin Construction	03/01/2021	03/01/2021
Substantial Completion	06/30/2022	06/24/2022

^a 2021 LTCP Milestone Date is in bold.

^b Anticipated dates are italicized.

The project met the 2021 LTCP Milestone date with the actual substantial completion date of 06/24/2022.

Project Activities for the Current Period

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

- Construction of the project was completed on June 24, 2022.

Anticipated Project Activity for Next Period

There are no anticipated activities for the next Annual Report period (2022–2023) as this project is complete.

ANNUAL PROJECT PROGRESS REPORT-
OCTOBER 1, 2021, THROUGH SEPTEMBER 30, 2022

Costs

2021 LTCP Budgeted Construction Costs (February 2021)¹: \$5,201,528 with contingency (under construction).

Current Estimated Construction Cost: \$3,921,558 based on construction contract value and the CM's estimate at complete.

Changes from the LTCP

Based on the 2021 LTCP Update, there are no changes.

Other Items of Interest

There are no other items to report.



Figure 1. Sprague St between Sahler and 56th.

¹ Escalated cost to the anticipated year(s) of construction at a rate of 3.1%/year starting in 2021.

ANNUAL PROJECT PROGRESS REPORT-
OCTOBER 1, 2021, THROUGH SEPTEMBER 30, 2022

CSO 212 – 64th Avenue and William Street

OPW 51685

Project Description as stated in the 2021 LTCP:

As described in the 2014 LTCP, the CSO 212 Sewer Separation Project includes construction of a storm sewer to provide sewer separation to the 41-acre area. The goal of the project is to provide adequate separation for the deactivation of the CSO 211 and 212 outfalls. This project is under design with construction anticipated to start in 2023 and be completed in 2025.

2021 LTCP Milestone: Complete construction of this project by June 30, 2025.

Compliance Report

Table 1 shows the project delivery schedule (Target Dates) developed for the 2021 LTCP Update, as noted in the plan. It also shows the 2021 LTCP Milestone Date as the anticipated project compliance schedule date, which is included in the permit.

Table 1. Project Delivery Schedule and 2021 LTCP Milestone Date

Activity	Target Date or 2021 LTCP Milestone Date^a	Actual or <i>Anticipated</i> Date^b
Began Preliminary Design	03/01/2021	04/23/2021
Began Final Design	08/15/2021	11/30/2021
Advertise	09/15/2022	<i>09/15/2022</i>
Bid Opening	10/15/2022	<i>10/15/2022</i>
Begin Construction	06/01/2023	<i>06/01/2023</i>
Substantial Completion	06/30/2025	<i>10/31/2024</i>

^a 2021 Milestone Date is in bold.

^b Anticipated dates are italicized.

Based on the information presented, the project will meet the 2021 LTCP Milestone date. While the Project Team has not met the advertise and Bid Opening dates, it is believed that this will not impact the Begin Construction or the LTCP Milestone date.

Project Activities for the Current Period

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 worked on finalizing the project design. The 95% final plans and specifications will be submitted in October 2022, with bidding commencing in fall 2022/winter 2023.
- A 90% design public meeting was held on August 24, 2022.

ANNUAL PROJECT PROGRESS REPORT-
OCTOBER 1, 2021, THROUGH SEPTEMBER 30, 2022

Anticipated Project Activity for Next Period

The following is a brief synopsis of project activities anticipated for the next Annual Report period (2022–2023).

- The project will be advertised and bid with construction starting in late spring or early summer of 2023.

Costs

2021 LTCP Update Budgeted Construction Costs (February 2021²): \$6,930,000 with contingency (anticipated construction years: 2023–2024).

Current Estimated Construction Cost: \$6,896,166 with contingency based on 90% opinion of probable construction cost (OPCC) (anticipated construction years: 2023-2024). This includes the cost of sewer rehabilitation.

Changes from the LTCP

Based on the 2021 LTCP, there are no changes.

Other Items of Interest

There are no other items to report.

² Escalated cost to the anticipated year(s) of construction at a rate of 3.1%/year starting in 2021.

ANNUAL PROJECT PROGRESS REPORT-
OCTOBER 1, 2021, THROUGH SEPTEMBER 30, 2022

Saddle Creek Retention Treatment Basin

OPW 52049

Project Description as stated in the 2021 LTCP:

The Saddle Creek RTB is the final project in the Saddle Creek Basin. The current project is a 160-MGD RTB with modifications so that it can disinfect flows up to 320 MGD. This involved designing the headworks and disinfection system to handle 320 MGD, with a 3.3-MG basin. In this hybrid concept, the maximum treatment rate that is assumed to provide treatment equivalent to primary treatment is 160 MGD. Flow rates greater than 160 MGD, up to 320 MGD, may be allowed to enter the facility for short periods of time for disinfection to benefit water quality. However, wet weather volume capture is calculated based on the 160-MGD treatment rate.

2021 LTCP Milestone: Complete Construction (Operational Complete) of this project by December 31, 2023.

Compliance Report

Table 1 shows the project delivery schedule developed for the 2021 LTCP Update, as noted in the plan. It also shows the 2021 LTCP Milestone Date as the anticipated project compliance schedule date, which will be included in the permit.

Table 1. Project Delivery Schedule and 2021 LTCP Milestone Date

Activity	Target Date or 2021 LTCP Milestone Date ^a	Actual or <i>Anticipated</i> Date ^b
Began Preliminary Design	04/07/2011	04/07/2011
Began Final Design	08/03/2013	08/03/2013
Restarted Final Design	06/29/2017	06/29/2017
Bidding	08/05/2015	08/05/2015
Re-Bidding	01/10/2018	10/10/2018
Began Construction	04/30/2019	04/30/2019
Operationally Complete	12/31/2023	<i>05/09/2023</i>

^a 2021 LTCP Milestone Date is in bold.

^b Anticipated dates are italicized.

Based on the information presented, the project will meet the 2021 LTCP Milestone date.

Project Activities for the Current Period

The following is a brief synopsis of project activities and progress that have taken place during the current Annual Report period:

The project construction is approximately 90% complete. Significant items completed include:

- Completed concrete work and restoration in the CSO 205 channel.
- Completed the construction of the RTB basin and backfilled to grade around the structure.

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- Started construction of the Operations Building, Chemical Feed Systems, Odor Control and Headworks.

Anticipated Project Activity for Next Period

The following is a brief synopsis of project activities anticipated for the next Annual Report period (2022–2023):

Barring any unforeseen circumstances, it is anticipated that the Saddle Creek RTB will be substantially complete by September 30, 2023, and also achieve Operational Completion by this time. Work over the next several months includes:

- Complete construction and testing of the Chemical Feed Systems, Odor Control, and Headworks.
- Complete construction of the Operation Building including office space.
- Complete the bioretention basin, final grading, site fencing, and other minor site improvements.
- Startup of the new grit facilities and demolition of the old grit building north of the CSO 205 channel.
- Start up and testing and starting the operation of the RTB.

Costs

2021 LTCP Update Budgeted Construction Cost (February 2021³): \$100,718,227 with contingency.

Current Estimated Construction Cost: \$92,935,278 (current contract value as of September 30, 2022).

Changes from the LTCP

Based on the 2021 LTCP Update, there are no changes.

Other Items of Interest

Below are pictures of the status of Construction of the Saddle Creek RTB.

³ Escalated cost to the anticipated year(s) of construction at a rate of 3.1%/year starting in 2021.

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*Figure 1 - North Side of the Saddle Creek RTB Facility Looking to the South on October 26, 2022
(Courtesy of Multivista)*



*Figure 2 - South Side of the Saddle Creek RTB Facility looking to the North on October 26, 2022
(Courtesy of Multivista)*

Figure 3 - Inside the Saddle Creek RTB 3.3-MG Basin



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Forest Lawn Creek Inflow Removal and Outfall Storm Sewer

OPW 52470

Project Description as stated in the 2021 LTCP:

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 Omaha Public Power District'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 sewers 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 reduces the size of downstream controls at CSO 105.

2021 LTCP Milestone: Complete Construction of this project by December 31, 2024.⁴

Compliance Report

Table 1 shows the project delivery schedule (Target Dates) developed for the 2021 LTCP Update, as noted in the plan. It also shows the 2021 LTCP Milestone Date as the anticipated project compliance schedule date, which are included in the permit.

Table 1. Project Delivery Schedule and 2021 LTCP Milestone Date

Activity	Target Date or 2021 LTCP Milestone Date ^a	Actual or Anticipated Date ^b
Began Preliminary Design	09/01/2015	6/12/2014
Began Final Design	01/11/2021	12/22/2020
Re-Advertise	10/27/2021	02/02/2022
Bid Opening	12/10/2021	04/20/2022
Begin Construction	06/01/2022	02/20/2023
Substantial Completion	12/31/2024	06/28/2025

^a 2021 LTCP Milestone Date is in bold.

^b Anticipated dates are italicized.

Based on the information presented, the project will not meet the 2021 LTCP Milestone date. See discussion in the changes from the LTCP section below.

Project Activities for the Current Period

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

- This project completed its redesign and bid.

⁴ A letter was set on March 31, 2022 requesting a date change for this project to December 31, 2026.

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Anticipated Project Activity for Next Period

The following is a brief synopsis of project activities anticipated for the next Annual Report period (2022–2023):

- It is anticipated that construction will begin in February of 2023.

Costs

2021 LTCP Update Budgeted Construction Costs (February 2021)⁵: \$27,500,000 with contingency (anticipated construction years: 2022–2024).

Current Estimated Construction Cost: \$35,414,164 is the construction contracted cost.

Changes from the LTCP

As part of the design, the City met with several potential construction bidders to review the plans and generate interest in bidding the project. Feedback received from the contractors was the construction would need another construction season, as well as some flexibility when the Notice to Proceed was issued. The Project Team had assumed the work could be done in two seasons and would start September 2022. Changes were made to the specifications for the project that would allow for the contractor to be issued a Notice to Proceed as late as May 2023, and the calendar days for the construction of the project were increased to 860. As a result, the project could be completed between January and September 2026. The City has requested a modification to the milestone date to December 31, 2026, in a letter to NDEE dated March 31, 2022, and the new date has been included in the draft permit.

Other Items of Interest

There are no other items to report.

⁵ Escalated Cost to the anticipated year(s) of construction at a rate of 3.1%/year starting in 2021.

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Nicholas Street Sewer Extension – Phase 3B

OPW 53753

Project Description as stated in the 2021 LTCP Update

Nicholas Street Sewer Extension – Phase 3 is being completed in two construction phases: Phase 3A (OPW 52721) and Phase 3B (OPW 53753). The Nicholas Street Sewer Extension – Phase 3A project provides sewer separation for the area bounded on the north by Clark Street, on the south by Charles Street, on the east by 16th Street, and on the west by 18th Street. The sewer separation conveys stormwater to the large-diameter storm sewers constructed downstream as part of the Nicholas Street Phase 1 and Phase 2 projects. The project began construction on March 30, 2020, and was completed on September 4, 2020.

The Nicholas Street Sewer Extension – Phase 3B project is bounded on the north by Pinkney Street, on the south by Charles Street, on the east by 16th Street, and on the west by Florence Boulevard. This project will remove stormwater from the combined sewer system and convey the stormwater to the downstream storm sewers located at 16th and Charles Street. As part of an evaluation for the Nicholas Street Sewer Extension – Phase 3 project, a more efficient sewer separation design was developed that accomplished the goals of the Nicholas Street Sewer Extension – Phase 3 project and the 18th & Seward project at a reduced overall cost. The separate 18th & Seward project is being removed from the list of projects in this 2021 LTCP Update because it is now redundant. The Nicholas Street Sewer Extension – Phase 3B project was bid in spring 2021; construction is expected to begin in fall 2021 and be complete in 2025.

2021 LTCP Milestone: Complete Construction of Nicholas Street Sewer Extension – Phase 3B project by June 30, 2025

Compliance Report

Table 1 shows the project delivery schedule developed for the 2021 LTCP Update, as noted in the plan. It also shows the 2021 LTCP Milestone Date as the anticipated project compliance schedule date, which is included in the permit.

Table 1. Project Delivery Schedule and 2021 LTCP Milestone Date

Activity	Target Date or 2021 LTCP Milestone Date ^a	Actual or <i>Anticipated</i> Date ^b
Began Preliminary Design	04/04/2016	07/01/2016
Began Final Design	11/18/2019	02/13/2018
Advertise	02/17/2021	02/10/2021
Bid Opening	03/17/2021	03/17/2021
Begin Construction	09/01/2021	07/06/2021
Substantial Completion	06/30/2025	<i>11/05/2024</i>

^a 2021 LTCP Milestone Date is in bold.

^b Anticipated dates are italicized.

Based on the information presented, the project will meet the 2021 LTCP Milestone date.

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Project Activities for Current Period

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

- Construction of the Nicholas Street Sewer Extension – Phase 3B continued throughout the current reporting period. The project is approximately 25% complete based on the September Monthly Report.
- Storm Sewer and Sanitary Sewer were completed up to Grace Street.
- 16th street paving is constructed up to the north side of Clark Street. 12" Sanitary and 84" Storm construction are ongoing north of Grace Street.

Anticipated Project Activity for Next Period

The following is a brief synopsis of project activities anticipated for the next Annual Report period (2022–2023):

- Construction of the Nicholas Street Sewer Extension – Phase 3B will continue throughout the next reporting period.

Costs

2021 LTCP Update Budgeted Construction Costs (February 2021⁶): Nicholas Phase 3B \$23,341,340 with contingency. Anticipated years of construction: 2021–2024.

Current Estimated Construction Cost: Project 3B original construction contract cost of \$21,806,256. A deductive change order was issued for \$41,438 which reduced the contract amount to \$21,764,818.

Changes from the LTCP

Based on the 2021 LTCP there are no changes.

Other Items of Interest

During construction an underground tank was discovered and has been removed in compliance with regulatory requirements.

Figure 1 Material Storage for Nicholas St Phase 3B in April 2022



⁶ Escalated cost to the anticipated year(s) of construction at a rate of 3.1%/year starting in 2021.

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Cole Creek CSO 203 Sewer Separation Project (CSO)

OPW 53059

Project Description, as stated in the 2021 LTCP:

The CSO 203 project (OPW 53059) is a sewer separation project located in the Cole Creek Basin that will provide sewer separation through the construction of both sanitary and storm sewers. The project is anticipated to start construction in 2021, with completion anticipated in 2023. Monitoring will occur after the completion of the project to determine when the outfall can be deactivated.

2021 LTCP Schedule: Complete Construction of this project by December 31, 2023

Compliance Report

Table 1 shows the project delivery schedule (Target Dates) developed for the 2021 LTCP Update, as noted in the plan. It also shows the 2021 LTCP Milestone Date as the anticipated project compliance schedule date, which will be included in the next permit.

Table 1. Project Delivery Schedule and 2021 LTCP Milestone Date

Activity	Target Date or 2021 LTCP Milestone Date^a	Actual or <i>Anticipated</i> Date^b
Began Preliminary Design	07/04/2018	03/20/2017
Began Final Design	02/12/2019	02/12/2019
Advertise	09/09/2020	09/09/2020
Bid Opening	10/21/2020	10/21/2020
Begin Construction	06/01/2021	06/14/2021
Substantial Completion	12/31/2023	<i>05/02/2023</i>

^a 2021 LTCP Milestone Date is in bold.

^b Anticipated dates are italicized.

Based on the information presented, the project will meet the 2021 LTCP Milestone date.

Project Activities for the Current Period

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

- Construction continued through the 2022 Annual Report year.

Anticipated Project Activity for Next Period

The following is a brief synopsis of project activities anticipated for the next Annual Report period (2022–2023).

- The project is anticipated to be complete early in the 2023 construction season.

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Costs

2021 LTCP Budgeted Construction Costs (February 2021)⁷: \$7,801,666 with contingency (under construction).

Current Estimated Construction Cost: \$7,415,623 is the construction contracted cost.

Changes from the LTCP

Based on the 2021 LTCP, there are no changes.

Other Items of Interest

There are no other items to report.



Figure 12 - Construction in the CSO 203 area in April 2022

⁷ Escalated cost to the anticipated year(s) of construction at a rate of 3.1%/year starting in 2021.

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CSO 119 South Barrel Conversion and Sewer Separation

OPW 53149

Project Description as stated in the 2021 LTCP Update:

The South Barrel 5A & 5B (OPW 53149) are two sewer separation projects that will eliminate combined flow to the South Barrel of the CSO 119 outfall sewer during the representative year. The focus area of the projects includes two large-diameter combined sewers known as the Monroe North and South Barrels. The North Barrel conveys combined flow to the CSO 119 diversion structure, where it is conveyed to the Monroe Lift Station or to the Missouri River during a combined sewer overflow event. The North Barrel previously conveyed industrial flows from the South Omaha Industrial Area (SOIA), but the flows were separated from the combined sewer system as a part of the SOIA improvements for storms up to the 10-year design event; for larger storms, overflows from SOIA to the North Barrel can occur. The South Barrel conveys combined flow to the North Barrel during low flows through two diversion structures located near South 15th and South 17th Street along Monroe Street. During high flows, combined flow can enter the South Barrel at these diversions and discharge to the Missouri River at CSO 119. The goal of this project is to convert the South Barrel to a storm sewer, except during large storm events beyond the representative year storm sizes. In this case, combined flows would be able to enter the South Barrel via a potential connection that will be monitored as combined sewer overflow between the North and South Barrels near Railroad Avenue and Madison Street and is currently under design. Two sets of hydraulic windows that currently connect the North and South Barrels will be closed. The new, more accessible, maintainable, and monitorable connection planned to be constructed between the barrels will activate only for large storms and not the representative year. All other sources of sanitary or combined flow to the South Barrel will be closed. Two existing diversion structures near South 15th Street and South 17th Street along Monroe Street will be closed, and additional neighborhood sewer separation will be conducted.

The project is currently under design and is expected to be completed in 2026.

2021 LTCP Schedule: Complete construction of this project by June 30, 2026⁸

Compliance Report

Table 1 shows the project delivery schedule developed for the 2021 LTCP Update, as noted in the plan. It also shows the 2021 LTCP Milestone Date as the anticipated project compliance schedule date, which will be included in the next permit.

⁸ On March 31, 2022, the City requested that this date be changed to December 31, 2027. The draft CSO Permit includes the revised date.

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Table 1. Project Delivery Schedule and 2021 LTCP Milestone Date

Activity	Target Date or 2021 LTCP Milestone Date^a	Actual or <i>Anticipated</i> Date^b
Began Preliminary Design	02/15/2021	06/12/2018
Began Final Design	10/26/2021	<i>06/21/2022</i>
Advertise	01/11/2023	<i>07/07/2023</i>
Bid Opening	02/15/2023	<i>08/06/2023</i>
Begin Construction	08/01/2023	<i>04/14/2024</i>
Substantial Completion	06/30/2026	<i>06/18/2026</i>

^a 2021 LTCP Milestone Date is in bold.

^b Anticipated dates are italicized.

Based on the Table 1 it would appear that the project could meet the 2021 LTCP Milestone date. However, according to the information presented below, the project will not meet the 2021 LTCP Milestone Date. A change to the permit has been requested to modify the date to December 31, 2027. At this point in time, it is believed that this revised date will be met.

Project Activities for the Current Period

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

The Project Team completed the preliminary (30%) design of the project.

The City made a determination to seek another Project Team for completion of the design.

Anticipated Project Activity for Next Period

The following is a brief synopsis of project activities anticipated for the next Annual Report period (2021–2022).

- The City will go out with Request for Proposals to complete this project design in late 2022 to early 2023.
- A revised schedule will be developed for finishing the design.

Costs

2021 LTCP Budgeted Construction Costs: (February 2021⁹): \$13,049,740 with contingency (anticipated construction 2023–2025).

Current Estimated Construction Cost: \$11,189,348 with contingency based on 10% design opinion of probable construction costs (OPCC) (anticipated construction 2023–2025).

Changes from the LTCP

The conceptual and preliminary design of this project has been delayed for several reasons. These include the following:

- Unanticipated technical complexity, specifically related to the hydraulics of the system

⁹ Escalated cost to the anticipated year(s) of construction at a rate of 3.1%/year starting in 2021.

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- Changes in Project Team personnel, which has caused the project to make slow progress while team members came up to speed
- The recent finding that a major infrastructure element, the North Barrel Sewer, is lined and has a diameter 1 foot smaller than previously thought
- A decision by the City to request proposals for the completion of this the project

As a result, the City has determined the project will not meet the proposed construction completion date in the 2021 LTCP. The City has requested modifications to the milestone date to December 31, 2027, in a letter to NDEE dated March 31, 2022, and the new date has been included in the draft permit.

Once a new Project Team is on board and a decision made on how best to proceed, a revised project delivery schedule will be developed.

Other Items of Interest

There are no items to report at this time.

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Papillion Creek North (PCN) 210 Sewer Separation

OPW 53320

Project Description as stated in the 2021 LTCP Update:

The purpose of the Papillion Creek North (PCN) 210 Sewer Separation Project (OPW 53320) is to allow the City to eliminate the CSO 210 diversion located at the intersection of 66th Street and Blondo Street. The project is to begin construction in 2021 with completion in 2022. Currently, the sewers upstream to the north and east of CSO 210 are combined sewers. A separate sanitary sewer extends downstream to the south of Blondo Street on North 66th Street. However, during the project study, a couple of inlets were found to be still draining to this system—a remnant of the earlier sewer separation program—and will be removed during the separation of this area.

The intent of the project is to separate the sanitary sewer flow and convey it to the existing sanitary sewer at North 66th Street and Blondo Street, using the existing small pipe network and new pipes. The existing larger pipe network, along with new pipes, will be used to convey the stormwater flow to 66th and Blondo Street, allowing the stormwater flow to continue downstream to Little Papillion Creek at 72nd and Mayberry, in what is now the combined sewer outfall.

Following completion of the project, the City will develop and implement a flow monitoring program to determine the hydraulic performance of the separate sanitary sewer near and downstream of North 66th Street and Blondo Street. If through additional flow monitoring the City can confirm that the risk of surcharging that could cause basement flooding does not exist, the new 12-inch interconnecting, or diversion, pipe can be filled and abandoned. The abandonment of the overflow diversion will be performed under the CSO Diversion Program, which has been added to the LTCP and is described in Sections 3 and 5 of the LTCP.

2021 LTCP Schedule: Complete construction of the project by December 31, 2022.¹⁰

Compliance Report

Table 1 shows the project delivery schedule (Target Dates) developed for the 2021 LTCP Update, as noted in the plan. It also shows the 2021 LTCP Milestone Date as the anticipated project compliance schedule date, which is included in the permit.

¹⁰ On March 31, 2022, the City requested that this date be changed to December 31, 2023. The draft CSO Permit includes the revised date.

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Table 1. Project Delivery Schedule and 2021 LTCP Milestone Date

Activity	Target Date or 2021 LTCP Milestone Date^a	Actual or Anticipated Date^b
Began Preliminary Design	06/27/2018	06/27/2018
Began Final Design	08/28/2019	09/06/2019
Advertise	10/13/2020	10/14/2020
Bid Opening	11/17/2020	11/18/2021
Begin Construction	06/28/2021	06/28/2021
Substantial Completion	12/31/2022	5/24/2023

^a 2021 LTCP Milestone Date is in bold.^b Anticipated dates are italicized.

Based on the information presented, the project will not be able to meet the 2021 LTCP Milestone date of December 31, 2022. A change to the permit has been requested to modify the date to December 31, 2023. It is believed that this date will be met.

Project Activities for the Current Period

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

- During 2022, the project has continued construction.
- There have been some significant delays on the project. The reasons for the delay include the following:
 - Access to the required quality of cement has been difficult slowing project construction.
 - Need to construct new sanitary sewer on 65th Ave from Grant to Miami and on 63rd from Grant to mid-block towards Lake. These sanitary sewer lines are needed to collect house services lines that were missed in the original design.

Anticipated Project Activity for Next Period

Anticipated activities for the next Annual Report period (2022–2023) include the following:

- Installation of sanitary sewer on 65th Ave from Grant to Miami.
- Manhole at 64th and Miami will be replaced for the Sewer Maintenance Division. Also will need to make diversion structure modifications, to be completed after all upstream sewers have been separated.

Costs

2021 LTCP Budgeted Construction Cost (February 2021¹¹): \$7,658,376, with contingency (under construction).

Current Estimated Construction Cost: \$9,954,436 is the current estimate for completion of the project by the CM. This includes the original construction contract cost, plus change orders, including work done for the Sewer Maintenance Division at 64th and Miami at a cost of \$226,369.

¹¹ Escalated cost to the anticipated year(s) of construction at a rate of 3.1%/year starting in 2021.

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Changes from the LTCP

The project has experienced delays as a result of the need to do sewer redesign because of the number of conflicts or connections found in the field that were not identified in the drawings. In addition, the City is also evaluating the condition of the existing combined sewer line and the potential need to add work based on the condition assessment. For these reasons, the City requested another season to complete the project. It is estimated that by November 2022 the project will be 80% to 90% complete. The City has requested a modification to the milestone date to December 31, 2023, in a letter to NDEE dated March 31, 2022, and the new date has been included in the draft permit.

Other Items of Interest

No other items.



Figure 13 - PCN 210 Construction April 2022

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CSO 202 Phase 2 – 70th Avenue and Spencer Street

OPW 53869

Project Description as stated in the 2021 LTCP:

The CSO 202 Phase 2 (OPW 53869) project includes separation of the majority of the CSO 202 area. This project is currently under design with construction anticipated to start in 2023 and be completed in 2027. Monitoring will occur after the completion of the project to determine when the outfall can be deactivated.

2021 LTCP Schedule: Complete Construction of this project by December 31, 2026

Compliance Report

Table 1 shows the project delivery schedule (Target Dates) developed for the 2021 LTCP Update, as noted in the plan. It also shows the 2021 LTCP Milestone Date as the anticipated project compliance schedule date, which is included in the permit.

Table 1. Project Delivery Schedule and 2021 LTCP Milestone Date

Activity	Target Date or 2021 LTCP Milestone Date^a	Actual or <i>Anticipated</i> Date^b
Began Preliminary Design	01/08/2019	03/20/2017
Began Final Design	08/24/2020	08/24/2020
Advertise	07/03/2023	<i>07/03/2023</i>
Bid Opening	08/14/2023	<i>08/14/2023</i>
Begin Construction	03/01/2024	<i>03/01/2024</i>
Substantial Completion	12/31/2026	<i>11/01/2026</i>

^a 2021 LTCP Milestone Date is in bold.

^b Anticipated dates are italicized.

Based on the information presented, the project will meet the 2021 LTCP Milestone date.

Project Activities for the Current Period

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

- This project was put on “on hold” in early 2022 pending the completion of the work by Metropolitan Utility District in the project area.
- Work on the project included finalization of the design of the CSO diversion, and miscellaneous items such as review of the approach for addressing roadways.
- The 90% design was delivered in December 2021.
- A virtual public meeting was held in February 2022 to address any public questions or concerns with regards to the construction project.

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Anticipated Project Activity for Next Period

The following is a brief synopsis of project activities anticipated for the next Annual Report period (2022–2023).

- Finalize design in early 2023 and submit to NDEE. This will also involve the finalization and submittal of permits.
- Project will be advertised/bid in summer 2023, with construction likely starting in early 2024.

Costs

2021 LTCP Budgeted Construction Costs (February 2021)¹²: \$16,645,631 with contingency (anticipated construction years 2024–2026).

Current Estimated Construction Cost : \$17,570,000 in 2024–2026 dollars
(source: 90% design opinion of probable construction costs [OPCC])

Changes from the LTCP

Based on the 2021 LTCP there are no changes.

Other Items of Interest

There are no other items to report.

¹² Escalated cost to the anticipated year(s) of construction at a rate of 3.1%/year starting in 2021.

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CSO 204 Phase 4a – 57th Street and Pratt Street

OPW 53820

CSO 204 Phase 4b – 56th Street and Bedford Avenue

OPW 53820¹³

Project Description as stated in the 2021 LTCP:

CSO 204 Phase 4 Sewer Separation includes the extension of a separate sanitary and storm sewer to complete the separation in the system and other sanitary and storm sewer improvements. This project is expected to include removal of the Taylor CSO Diversion located west of the intersection of North 60th Street and Taylor Street, which is one of two combined sewer overflow diversions in the CSO 204 area. This project will be constructed as two projects because of the amount of sewer separation needed (CSO 204 Phase 4a – 57th Street and Pratt Street and CSO 204 Phase 4b – 56th Street and Bedford Avenue). Field data are currently being collected prior to commencing preliminary design. It is anticipated that the first construction project will be completed in 2030 and the second in 2032.

2021 LTCP Milestone:

CSO 204 Phase 4a – 57th Street and Pratt Street: Complete construction of this project by June 30, 2030

CSO 204 Phase 4b – 56th Street and Bedford Avenue: Complete construction of this project by December 31, 2032

Compliance Report

Table 1 and Table 2 show the project delivery schedule (Target Dates) developed for the two CSO 204 Phase 4 projects in the 2021 LTCP Update, as noted in the plan. They also show the 2021 LTCP Milestone Dates as the anticipated project compliance schedule dates, which are included in the permit.

¹³ At this point in time, the projects are being designed under the same OPW number. A unique OPW number will be developed for CSO 204 Phase 4b at about 90% design.

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Table 1. Project Delivery Schedule and 2021 LTCP Milestone Date for CSO 204 Phase 4a – 57th Street and Pratt Street

Activity	Target Date or 2021 LTCP Milestone Date^a	Actual or Anticipated Date^b
Began Preliminary Design	06/01/2021	04/20/2021
Began Final Design	03/01/2023	<i>04/21/2023</i>
Advertise	10/15/2025	<i>10/15/2025</i>
Bid Opening	11/19/2025	<i>11/19/2025</i>
Begin Construction	9/01/2026	<i>09/01/2026</i>
Substantial Completion	6/30/2030	<i>6/30/2030</i>

^a 2021 LTCP Milestone Date is in bold.

^b Anticipated dates are italicized.

Table 2. Project Delivery Schedule and 2021 LTCP Milestone Date for CSO 204 Phase 4b – 56th Street and Bedford Avenue

Activity	Target Date or 2021 LTCP Milestone Date^a	Actual or Anticipated Date^b
Began Preliminary Design	06/01/2021	04/20/2021
Began Final Design	03/01/2023	<i>04/21/2023</i>
Advertise	10/18/2028	<i>10/15/2028</i>
Bid Opening	11/18/2028	<i>11/22/2028</i>
Begin Construction	6/01/2029	<i>06/06/2029</i>
Substantial Completion	12/31/2032	<i>12/31/2032</i>

^a 2021 LTCP Milestone Date is in bold.

^b Anticipated dates are italicized.

Based on the information presented, the project will meet the 2021 LTCP Milestone date.

Project Activities for the Current Period

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

- The following field work was conducted for both projects: manhole and inlet inspections, smoke testing, and closed-circuit television inspection.
- The 10% design for both projects was submitted in March 2022.
- The Project Team is currently working on the 30% design submittal for both projects.

Anticipated Project Activity for Next Period

The following is a brief synopsis of project activities anticipated for the next Annual Report period (2022–2023).

- Begin Final Design in April 2023.
- The two phases, 204 Phase 4a and 204 Phase 4b, are anticipated to become separate projects at the 90% design stage.

ANNUAL PROJECT PROGRESS REPORT-
OCTOBER 1, 2021, THROUGH SEPTEMBER 30, 2022

Costs

2021 LTCP Update Budgeted Construction Costs (February 2021¹⁴): CSO 204 Phase 4a – \$24,284,377 with contingency (anticipated construction years: 2026–2029); CSO 204 Phase 4b – \$26,203,656 with contingency (anticipated construction years: 2029–2031).

Current Estimated Construction Cost: \$45,900,000 with contingency; CSO 204 Phase 4a (anticipated construction years: 2026–2029), \$22,100,000 with contingency; CSO 204 Phase 4b (anticipated construction years: 2029–2031), \$23,800,000 with contingency. Based on the 10% opinion of probable construction cost.

Changes from the LTCP

Based on the 2021 LTCP there are no changes.

Other Items of Interest

There are no other items to report.

¹⁴ Escalated cost to the anticipated year(s) of construction at a rate of 3.1%/year starting in 2021.

ANNUAL PROJECT PROGRESS REPORT-
OCTOBER 1, 2021, THROUGH SEPTEMBER 30, 2022

East Cole Creek Interceptor Rehabilitation

OPW 54293

Project Description as stated in the 2021 LTCP:

The City has been actively working on improving conditions in the Cole Creek Interceptors downstream of the Cole Creek CSO basin. The east and west interceptors are on opposite sides of Cole Creek and are connected at a few locations via siphons under the creek. The interceptors have deteriorating conditions due to root intrusion and other defects. Based on modeling, rehabilitation is needed to allow for CSO 202 and CSO 203 to be deactivated. The CSO 204 Phase 1 project constructed a new portion of the east interceptor just south of Ames, and in recent years the City completed a rehabilitation project for about 6,500 feet of the east interceptor downstream of the new pipe, from Military Avenue to just south of Maple Street. The City intends to continue rehabilitation of both interceptors to improve operations and reliability. Rehabilitation of the east interceptor from just south of Maple Street to about Cass Street is planned as a new project in the 2021 LTCP Update. Rehabilitation of the west interceptor will be performed outside of the CSO Program. The East Cole Creek Rehabilitation Project involves CIPP lining of 18 and 24-inch VCP and a length 11,000 LF.

2021 LTCP Milestone:

Complete construction of this project by June 30, 2026

Compliance Report

Table 1 shows the project delivery schedule (Target Dates) developed for the project in the 2021 LTCP Update, as noted in the plan. They also show the 2021 LTCP Milestone Date as the anticipated project compliance schedule date, which is included in the permit.

Table 1. Project Delivery Schedule and 2021 LTCP Milestone Date for East Cole Creek Interceptor Rehabilitation

Activity	Target Date or 2021 LTCP Milestone Date ^a	Actual or Anticipated Date ^b
Began Preliminary Design	1/3/2022	9/26/2022
Began Final Design	01/2/2023	05/31/2023
Advertise	09/27/2023	09/27/2023
Bid Opening	11/8/2023	11/08/2023
Begin Construction	04/01/2024	04/01/2024
Substantial Completion	6/30/2026	6/30/2026

^a 2021 LTCP Milestone Date is in bold.

^b Anticipated dates are italicized.

Based on the information presented, the project will meet the 2021 LTCP Milestone date.

Project Activities for the Current Period

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

- The Notice to Proceed for preliminary design was issued September 26, 2022.

ANNUAL PROJECT PROGRESS REPORT-
OCTOBER 1, 2021, THROUGH SEPTEMBER 30, 2022

Anticipated Project Activity for Next Period

The following is a brief synopsis of project activities anticipated for the next Annual Report period (2022–2023).

- Virtual Public Meeting in November 2022.
- Perform field work including CCTV studies of the interceptor and the siphon, along with cleaning.
- Develop conceptual design with submission anticipated in April 2023.
- Begin preparing the 50% design rehabilitation plans and with submission in May 2023.
- Perform Stream Improvements evaluation.

Costs

2021 LTCP Update Budgeted Construction Costs (February 2021¹⁵):

\$5,736,997 with contingency (anticipated construction years: 2024–2025)

Current Estimated Construction Cost: The Project Team has not yet developed an OPCC.

Changes from the LTCP

Based on the 2021 LTCP there are no changes.

Other Items of Interest

There are no other items to report.

¹⁵ Escalated cost to the anticipated year(s) of construction at a rate of 3.1%/year starting in 2021.

Attachment 3 – CSO Inspection Report

CSO Inspection Report

CSO Number 105

Total Wet Weather Overflows: 38

CSO Name Minne Lusa Avenue

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/1/2021	9:15	Wickham, Grant	Rain	Yes	No	9/30/2021		1.38
10/13/2021	10:25	Wickham, Grant	Rain	Yes	No	10/13/2021		1.2
10/25/2021	12:50	Wickham, Grant	Rain	Yes	No	10/24/2021		3.6
10/29/2021	10:05	Adams, Robert	Rain	Yes	No	10/27/2021	2 day rain event	1.62
12/16/2021	10:00	Birdsall, Christopher	Rain	Yes	No	12/15/2021		0.5
2/11/2022	14:20	Birdsall, Christopher	Rain	Yes	No	2/11/2022		0.3
3/6/2022	8:10	Adams, Robert	Rain	Yes	No	3/4/2022	2 day rain event	0.8
3/19/2022	9:50	Adams, Robert	Rain	Yes	No	3/18/2022	2-Day rain event.	0.51
3/23/2022	10:30	Birdsall, Christopher	Rain	Yes	No	3/22/2022		0.74
4/8/2022	10:30	Birdsall, Christopher	Rain	Yes	No	4/7/2022		0.12
4/13/2022	9:50	Wickham, Grant	Rain	Yes	No	4/12/2022		0.47
4/22/2022	7:20	Birdsall, Christopher	Rain	Yes	No	4/21/2022		0.32
4/28/2022	10:30	Mata, Terence	Rain	Yes	No	4/27/2022		0.32
4/29/2022	11:15	Wickham, Grant	Rain	Yes	No	4/29/2022		0.72
4/30/2022	9:35	Adams, Robert	Rain	Yes	No	4/30/2022	2 day rain event	0.16
5/3/2022	7:10	Adams, Robert	Rain	Yes	No	5/2/2022		1.1
5/5/2022	9:30	Adams, Robert	Rain	Yes	No	5/5/2022	2 day rain event.	0.09
5/13/2022	9:55	Adams, Robert	Rain	Yes	No	5/12/2022		0.24
5/18/2022	7:00	Birdsall, Christopher	Rain	Yes	No	5/17/2022		0.3
5/25/2022	9:30	Birdsall, Christopher	Rain	Yes	No	5/24/2022		0.77
5/26/2022	9:30	Birdsall, Christopher	Rain	Yes	No	5/25/2022		1.11
5/31/2022	11:00	Wickham, Grant	Rain	Yes	No	5/30/2022		0.66
6/6/2022	10:35	Birdsall, Christopher	Rain	Yes	No	6/5/2022		0.59

CSO Inspection Report

CSO Number 105

Total Wet Weather Overflows: 38

CSO Name Minne Lusa Avenue

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
6/8/2022	7:50	Birdsall, Christopher	Rain	Yes	No	6/7/2022		0.36
6/12/2022	6:00	Adams, Robert	Rain	Yes	No	6/11/2022		0.1
6/15/2022	14:00	Birdsall, Christopher	Rain	Yes	No	6/14/2022		0.69
7/1/2022	13:25	Adams, Robert	Rain	Yes	No	7/1/2022		0.29
7/5/2022	9:10	Mata, Terence	Rain	Yes	No	7/4/2022		0.91
7/7/2022	12:10	Birdsall, Christopher	Rain	Yes	No	7/7/2022		0.35
7/22/2022	10:35	Wickham, Grant	Rain	Yes	No	7/21/2022		0.38
7/27/2022	9:15	Birdsall, Christopher	Rain	Yes	No	7/26/2022		0.1
8/8/2022	10:05	Mata, Terence	Rain	Yes	No	8/7/2022		0.85
8/16/2022	10:20	Birdsall, Christopher	Rain	Yes	No	8/15/2022		0.18
8/20/2022	7:25	Mata, Terence	Rain	Yes	No	8/19/2022		0.1
8/25/2022	11:50	Mata, Terence	Rain	Yes	No	8/25/2022		0.46
9/11/2022	7:55	Birdsall, Christopher	Rain	Yes	No	9/10/2022		0.65
9/18/2022	8:45	Adams, Robert	Rain	Yes	No	9/17/2022		0.63
9/23/2022	9:40	Birdsall, Christopher	Rain	Yes	No	9/23/2022		0.18

CSO Inspection Report

CSO Number 106

Total Wet Weather Overflows: 38

CSO Name North Interceptor

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/1/2021	8:30	Wickham, Grant	Rain	Yes	No	9/30/2021		1.38
10/13/2021	11:00	Wickham, Grant	Rain	Yes	No	10/13/2021		1.2
10/25/2021	13:05	Wickham, Grant	Rain	Yes	No	10/24/2021		3.6
10/29/2021	10:25	Adams, Robert	Rain	Yes	No	10/27/2021	2 day rain event	1.62
11/11/2021	10:20	Adams, Robert	Rain	Yes	No	11/10/2021		0.4
12/16/2021	10:20	Birdsall, Christopher	Rain	Yes	No	12/15/2021		0.5
1/18/2022	9:10	Birdsall, Christopher	Rain	Yes	No	1/14/2022	ReCheck from 1/15/2022	0.24
2/11/2022	14:25	Birdsall, Christopher	Rain	Yes	No	2/11/2022		0.3
3/6/2022	8:35	Adams, Robert	Rain	Yes	No	3/4/2022	2 day rain event	0.8
3/19/2022	8:00	Adams, Robert	Rain	Yes	No	3/18/2022	Checked online. 2-Day rain event.	0.51
3/23/2022	9:55	Birdsall, Christopher	Rain	Yes	No	3/22/2022		0.74
4/13/2022	10:05	Wickham, Grant	Rain	Yes	No	4/12/2022		0.47
4/22/2022	7:40	Birdsall, Christopher	Rain	Yes	No	4/21/2022		0.32
4/28/2022	10:55	Mata, Terence	Rain	Yes	No	4/27/2022		0.32
4/29/2022	11:30	Wickham, Grant	Rain	Yes	No	4/29/2022		0.72
4/30/2022	9:55	Adams, Robert	Rain	Yes	No	4/30/2022	2 day rain event	0.16
5/3/2022	10:35	Adams, Robert	Rain	Yes	No	5/2/2022		1.1
5/5/2022	9:55	Adams, Robert	Rain	Yes	No	5/5/2022	2 day rain event.	0.09
5/18/2022	7:00	Birdsall, Christopher	Rain	Yes	No	5/17/2022		0.3
5/25/2022	9:50	Birdsall, Christopher	Rain	Yes	No	5/24/2022		0.77
5/26/2022	9:45	Birdsall, Christopher	Rain	Yes	No	5/25/2022		1.11
5/31/2022	11:30	Wickham, Grant	Rain	Yes	No	5/30/2022		0.66
6/6/2022	11:05	Birdsall, Christopher	Rain	Yes	No	6/5/2022		0.59

CSO Inspection Report

CSO Number 106

Total Wet Weather Overflows: 38

CSO Name North Interceptor

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
6/8/2022	10:25	Birdsall, Christopher	Rain	Yes	No	6/7/2022		0.36
6/12/2022	6:00	Adams, Robert	Rain	Yes	No	6/11/2022		0.1
6/15/2022	13:25	Birdsall, Christopher	Rain	Yes	No	6/14/2022		0.69
7/1/2022	13:10	Adams, Robert	Rain	Yes	No	7/1/2022		0.29
7/5/2022	9:30	Mata, Terence	Rain	Yes	No	7/4/2022		0.91
7/6/2022	10:20	Birdsall, Christopher	Rain	Yes	No	7/5/2022		0.59
7/7/2022	12:05	Birdsall, Christopher	Rain	Yes	No	7/7/2022		0.35
7/22/2022	10:25	Wickham, Grant	Rain	Yes	No	7/21/2022		0.38
8/8/2022	10:25	Mata, Terence	Rain	Yes	No	8/7/2022		0.85
8/16/2022	10:40	Birdsall, Christopher	Rain	Yes	No	8/15/2022		0.18
8/25/2022	12:15	Mata, Terence	Rain	Yes	No	8/25/2022		0.46
8/28/2022	9:05	Mata, Terence	Rain	Yes	No	8/27/2022		0.38
9/11/2022	8:20	Birdsall, Christopher	Rain	Yes	No	9/10/2022		0.65
9/18/2022	9:05	Adams, Robert	Rain	Yes	No	9/17/2022		0.63
9/23/2022	9:55	Birdsall, Christopher	Rain	Yes	No	9/23/2022		0.18

CSO Inspection Report

CSO Number 107

Total Wet Weather Overflows: 33

CSO Name Grace Street

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/1/2021	8:25	Wickham, Grant	Rain	Yes	No	9/30/2021		1.38
10/13/2021	10:55	Wickham, Grant	Rain	Yes	No	10/13/2021		1.2
10/25/2021	13:00	Wickham, Grant	Rain	Yes	No	10/24/2021		3.6
10/29/2021	10:20	Adams, Robert	Rain	Yes	No	10/27/2021	2 day rain event	1.62
11/11/2021	10:15	Adams, Robert	Rain	Yes	No	11/10/2021		0.4
2/11/2022	14:20	Birdsall, Christopher	Rain	Yes	No	2/11/2022		0.3
3/6/2022	8:30	Adams, Robert	Rain	Yes	No	3/4/2022	2 day rain event	0.8
3/19/2022	10:05	Adams, Robert	Rain	Yes	No	3/18/2022	2-Day rain event.	0.51
3/23/2022	10:00	Birdsall, Christopher	Rain	Yes	No	3/22/2022		0.74
4/13/2022	10:00	Wickham, Grant	Rain	Yes	No	4/12/2022		0.47
4/30/2022	9:50	Adams, Robert	Rain	Yes	No	4/30/2022	2 day rain event	0.16
5/3/2022	10:30	Adams, Robert	Rain	Yes	No	5/2/2022		1.1
5/5/2022	9:50	Adams, Robert	Rain	Yes	No	5/5/2022	2 day rain event.	0.09
5/18/2022	7:00	Birdsall, Christopher	Rain	Yes	No	5/17/2022		0.3
5/25/2022	9:45	Birdsall, Christopher	Rain	Yes	No	5/24/2022		0.77
5/26/2022	9:40	Birdsall, Christopher	Rain	Yes	No	5/25/2022		1.11
5/31/2022	11:25	Wickham, Grant	Rain	Yes	No	5/30/2022		0.66
6/6/2022	11:00	Birdsall, Christopher	Rain	Yes	No	6/5/2022		0.59
6/8/2022	7:35	Birdsall, Christopher	Rain	Yes	No	6/7/2022		0.36
6/12/2022	6:00	Adams, Robert	Rain	Yes	No	6/11/2022		0.1
6/15/2022	13:30	Birdsall, Christopher	Rain	Yes	No	6/14/2022		0.69
7/1/2022	13:15	Adams, Robert	Rain	Yes	No	7/1/2022		0.29
7/5/2022	9:25	Mata, Terence	Rain	Yes	No	7/4/2022		0.91

CSO Inspection Report

CSO Number 107

Total Wet Weather Overflows: 33

CSO Name Grace Street

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
7/6/2022	10:15	Birdsall, Christopher	Rain	Yes	No	7/5/2022		0.59
7/7/2022	12:00	Birdsall, Christopher	Rain	Yes	No	7/7/2022		0.35
7/22/2022	10:20	Wickham, Grant	Rain	Yes	No	7/21/2022		0.38
8/8/2022	10:20	Mata, Terence	Rain	Yes	No	8/7/2022		0.85
8/16/2022	10:35	Birdsall, Christopher	Rain	Yes	No	8/15/2022		0.18
8/25/2022	12:10	Mata, Terence	Rain	Yes	No	8/25/2022		0.46
8/28/2022	9:00	Mata, Terence	Rain	Yes	No	8/27/2022		0.38
9/11/2022	8:15	Birdsall, Christopher	Rain	Yes	No	9/10/2022		0.65
9/18/2022	9:00	Adams, Robert	Rain	Yes	No	9/17/2022		0.63
9/23/2022	9:50	Birdsall, Christopher	Rain	Yes	No	9/23/2022		0.18

CSO Inspection Report

CSO Number 108

Total Wet Weather Overflows: 38

CSO Name Burt Iazard Street Lift Station

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/1/2021	8:40	Wickham, Grant	Rain	Yes	No	9/30/2021		1.38
10/13/2021	11:15	Wickham, Grant	Rain	Yes	No	10/13/2021		1.2
10/25/2021	13:10	Wickham, Grant	Rain	Yes	No	10/24/2021		3.6
10/29/2021	10:35	Adams, Robert	Rain	Yes	No	10/27/2021	2 day rain event	1.62
11/11/2021	10:30	Adams, Robert	Rain	Yes	No	11/10/2021		0.4
12/16/2021	10:30	Birdsall, Christopher	Rain	Yes	No	12/15/2021		0.5
1/19/2022	10:55	Birdsall, Christopher	Snow Melt	Yes	No	1/18/2022		0
3/6/2022	8:50	Adams, Robert	Rain	Yes	No	3/4/2022	2 day rain event, cable short on 10th street, cable tangled on ladder on Riverfront Dr.	0.8
3/19/2022	8:00	Adams, Robert	Rain	Yes	No	3/18/2022	Checked online. 2-Day rain event.	0.51
3/23/2022	9:50	Birdsall, Christopher	Rain	Yes	No	3/22/2022		0.74
4/13/2022	10:15	Wickham, Grant	Rain	Yes	No	4/12/2022		0.47
4/22/2022	7:30	Birdsall, Christopher	Rain	Yes	No	4/21/2022		0.32
4/29/2022	11:40	Wickham, Grant	Rain	Yes	No	4/29/2022		0.72
4/30/2022	10:00	Adams, Robert	Rain	Yes	No	4/30/2022	2 day rain event	0.16
5/3/2022	10:45	Adams, Robert	Rain	Yes	No	5/2/2022		1.1
5/5/2022	10:05	Adams, Robert	Rain	Yes	No	5/5/2022	2 day rain event.	0.09
5/9/2022	9:45	Birdsall, Christopher	Rain	Yes	No	5/8/2022		0.12
5/13/2022	10:20	Adams, Robert	Rain	Yes	No	5/12/2022		0.24
5/18/2022	7:00	Birdsall, Christopher	Rain	Yes	No	5/17/2022		0.3
5/25/2022	10:05	Birdsall, Christopher	Rain	Yes	No	5/24/2022		0.77
5/26/2022	10:00	Birdsall, Christopher	Rain	Yes	No	5/25/2022		1.11
5/31/2022	12:25	Wickham, Grant	Rain	Yes	No	5/30/2022		0.66
6/6/2022	11:10	Birdsall, Christopher	Rain	Yes	No	6/5/2022		0.59

CSO Inspection Report

CSO Number 108

Total Wet Weather Overflows: 38

CSO Name Burt Izard Street Lift Station

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
6/8/2022	7:40	Birdsall, Christopher	Rain	Yes	No	6/7/2022		0.36
6/12/2022	6:00	Adams, Robert	Rain	Yes	No	6/11/2022		0.1
6/15/2022	13:20	Birdsall, Christopher	Rain	Yes	No	6/14/2022		0.69
7/1/2022	13:05	Adams, Robert	Rain	Yes	No	7/1/2022		0.29
7/5/2022	9:45	Mata, Terence	Rain	Yes	No	7/4/2022		0.91
7/6/2022	10:10	Birdsall, Christopher	Rain	Yes	No	7/5/2022		0.59
7/7/2022	11:55	Birdsall, Christopher	Rain	Yes	No	7/7/2022		0.35
7/22/2022	10:05	Wickham, Grant	Rain	Yes	No	7/21/2022		0.38
8/8/2022	10:10	Mata, Terence	Rain	Yes	No	8/7/2022		0.85
8/16/2022	10:50	Birdsall, Christopher	Rain	Yes	No	8/15/2022		0.18
8/25/2022	12:25	Mata, Terence	Rain	Yes	No	8/25/2022		0.46
8/28/2022	9:15	Mata, Terence	Rain	Yes	No	8/27/2022		0.38
8/29/2022	11:10	Mata, Terence	Rain	Yes	No	8/29/2022		0.21
9/11/2022	8:35	Birdsall, Christopher	Rain	Yes	No	9/10/2022		0.65
9/18/2022	9:15	Adams, Robert	Rain	Yes	No	9/17/2022		0.63

CSO Inspection Report

CSO Number 109

Total Wet Weather Overflows: 39

CSO Name 1st and Leavenworth Lift Station

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/1/2021	11:25	Wickham, Grant	Rain	Yes	No	9/30/2021		1.38
10/13/2021	8:55	Wickham, Grant	Rain	Yes	No	10/13/2021		1.2
10/25/2021	9:45	Wickham, Grant	Rain	Yes	No	10/24/2021		3.6
10/29/2021	7:20	Adams, Robert	Rain	Yes	No	10/27/2021	2 day rain event	1.62
11/11/2021	8:10	Adams, Robert	Rain	Yes	No	11/10/2021		0.4
12/16/2021	13:15	Birdsall, Christopher	Rain	Yes	No	12/15/2021		0.5
2/11/2022	11:00	Birdsall, Christopher	Rain	Yes	No	2/11/2022	Scada Email received	0.3
3/6/2022	6:00	Adams, Robert	Rain	Yes	No	3/4/2022	2 day rain event, notified via SCADA email.	0.8
3/19/2022	8:00	Adams, Robert	Rain	Yes	No	3/18/2022	Notified via SCATA email. 2-Day rain event.	0.51
3/23/2022	7:20	Birdsall, Christopher	Rain	Yes	No	3/22/2022	Scada Email received	0.74
4/13/2022	7:35	Wickham, Grant	Rain	Yes	No	4/12/2022	Scada Email Received	0.47
4/22/2022	7:35	Birdsall, Christopher	Rain	Yes	No	4/21/2022	Scada email received	0.32
4/29/2022	8:45	Wickham, Grant	Rain	Yes	No	4/29/2022		0.72
4/30/2022	7:45	Adams, Robert	Rain	Yes	No	4/30/2022	2 day rain event	0.16
5/3/2022	7:00	Adams, Robert	Rain	Yes	No	5/2/2022		1.1
5/5/2022	7:30	Adams, Robert	Rain	Yes	No	5/5/2022	2 day rain event.	0.09
5/9/2022	7:00	Birdsall, Christopher	Rain	Yes	No	5/8/2022		0.12
5/13/2022	8:00	Adams, Robert	Rain	Yes	No	5/12/2022	e-mail	0.24
5/18/2022	7:00	Birdsall, Christopher	Rain	Yes	No	5/17/2022	Received scada email	0.3
5/25/2022	7:30	Birdsall, Christopher	Rain	Yes	No	5/24/2022		0.77
5/26/2022	7:30	Birdsall, Christopher	Rain	Yes	No	5/25/2022	Scada email received	1.11
5/31/2022	7:30	Wickham, Grant	Rain	Yes	No	5/30/2022		0.66
6/6/2022	8:30	Birdsall, Christopher	Rain	Yes	No	6/5/2022	Scada email received	0.59

CSO Inspection Report

CSO Number 109

Total Wet Weather Overflows: 39

CSO Name 1st and Leavenworth Lift Station

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
6/8/2022	7:50	Birdsall, Christopher	Rain	Yes	No	6/7/2022		0.36
6/12/2022	6:00	Adams, Robert	Rain	Yes	No	6/11/2022		0.1
6/15/2022	12:00	Birdsall, Christopher	Rain	Yes	No	6/14/2022		0.69
7/1/2022	7:00	Adams, Robert	Rain	Yes	No	7/1/2022	online	0.29
7/5/2022	7:25	Mata, Terence	Rain	Yes	No	7/4/2022	SCADA email received and confirmed through Waterspout.	0.91
7/6/2022	8:40	Birdsall, Christopher	Rain	Yes	No	7/5/2022	scada email received	0.59
7/22/2022	7:45	Wickham, Grant	Rain	Yes	No	7/21/2022		0.38
7/27/2022	8:05	Birdsall, Christopher	Rain	Yes	No	7/26/2022	scada email received	0.1
8/8/2022	8:00	Mata, Terence	Rain	Yes	No	8/7/2022	SCADA email received	0.85
8/16/2022	11:10	Birdsall, Christopher	Rain	Yes	No	8/15/2022	Scada Email received.	0.18
8/25/2022	8:00	Mata, Terence	Rain	Yes	No	8/25/2022	SCADA email received.	0.46
8/27/2022	7:00	Mata, Terence	Rain	Yes	No	8/26/2022	SCADA email received.	0.76
8/28/2022	7:00	Mata, Terence	Rain	Yes	No	8/27/2022	SCADA email received.	0.38
8/29/2022	7:00	Mata, Terence	Rain	Yes	No	8/29/2022	SCADA email received.	0.21
9/11/2022	6:00	Birdsall, Christopher	Rain	Yes	No	9/10/2022	Scada email received.	0.65
9/18/2022	7:00	Adams, Robert	Rain	Yes	No	9/17/2022	online	0.63

CSO Inspection Report

CSO Number 110

Total Wet Weather Overflows: 35

CSO Name Pierce Street Lift Station

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/1/2021	11:20	Wickham, Grant	Rain	Yes	No	9/30/2021		1.38
10/13/2021	11:50	Wickham, Grant	Rain	Yes	No	10/13/2021		1.2
10/25/2021	13:45	Wickham, Grant	Rain	Yes	No	10/24/2021		3.6
10/29/2021	10:45	Adams, Robert	Rain	Yes	No	10/27/2021	2 day rain event	1.62
11/11/2021	11:10	Adams, Robert	Rain	Yes	No	11/10/2021		0.4
3/6/2022	9:00	Adams, Robert	Rain	Yes	No	3/4/2022	2 day rain event	0.8
3/19/2022	10:40	Adams, Robert	Rain	Yes	No	3/18/2022	2-Day rain event.	0.51
4/13/2022	10:35	Wickham, Grant	Rain	Yes	No	4/12/2022		0.47
4/22/2022	11:05	Birdsall, Christopher	Rain	Yes	No	4/21/2022		0.32
4/29/2022	12:00	Wickham, Grant	Rain	Yes	No	4/29/2022		0.72
4/30/2022	10:20	Adams, Robert	Rain	Yes	No	4/30/2022	2 day rain event	0.16
5/3/2022	11:05	Adams, Robert	Rain	Yes	No	5/2/2022		1.1
5/9/2022	10:10	Birdsall, Christopher	Rain	Yes	No	5/8/2022		0.12
5/13/2022	10:25	Adams, Robert	Rain	Yes	No	5/12/2022		0.24
5/18/2022	9:45	Birdsall, Christopher	Rain	Yes	No	5/17/2022		0.3
5/25/2022	10:15	Birdsall, Christopher	Rain	Yes	No	5/24/2022		0.77
5/26/2022	10:10	Birdsall, Christopher	Rain	Yes	No	5/25/2022		1.11
5/31/2022	12:45	Wickham, Grant	Rain	Yes	No	5/30/2022		0.66
6/6/2022	11:35	Birdsall, Christopher	Rain	Yes	No	6/5/2022		0.59
6/8/2022	10:50	Birdsall, Christopher	Rain	Yes	No	6/7/2022		0.36
6/12/2022	8:30	Adams, Robert	Rain	Yes	No	6/11/2022		0.1
6/15/2022	13:10	Birdsall, Christopher	Rain	Yes	No	6/14/2022		0.69
7/1/2022	12:50	Adams, Robert	Rain	Yes	No	7/1/2022		0.29

CSO Inspection Report

CSO Number 110

Total Wet Weather Overflows: 35

CSO Name Pierce Street Lift Station

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
7/5/2022	9:55	Mata, Terence	Rain	Yes	No	7/4/2022		0.91
7/6/2022	9:50	Birdsall, Christopher	Rain	Yes	No	7/5/2022		0.59
7/22/2022	9:55	Wickham, Grant	Rain	Yes	No	7/21/2022		0.38
7/27/2022	9:55	Birdsall, Christopher	Rain	Yes	No	7/26/2022		0.1
8/8/2022	11:15	Mata, Terence	Rain	Yes	No	8/7/2022		0.85
8/16/2022	11:05	Birdsall, Christopher	Rain	Yes	No	8/15/2022		0.18
8/25/2022	12:35	Mata, Terence	Rain	Yes	No	8/25/2022		0.46
8/27/2022	9:15	Mata, Terence	Rain	Yes	No	8/26/2022		0.76
8/28/2022	9:25	Mata, Terence	Rain	Yes	No	8/27/2022		0.38
8/29/2022	11:25	Mata, Terence	Rain	Yes	No	8/29/2022		0.21
9/11/2022	8:50	Birdsall, Christopher	Rain	Yes	No	9/10/2022		0.65
9/18/2022	9:30	Adams, Robert	Rain	Yes	No	9/17/2022		0.63

CSO Inspection Report

CSO Number 111

Total Wet Weather Overflows: 27

CSO Name Hickory Street Lift Station

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/1/2021	11:55	Wickham, Grant	Rain	Yes	No	9/30/2021		1.38
10/13/2021	12:00	Wickham, Grant	Rain	Yes	No	10/13/2021		1.2
10/25/2021	13:55	Wickham, Grant	Rain	Yes	No	10/24/2021		3.6
10/29/2021	10:55	Adams, Robert	Rain	Yes	No	10/27/2021	2 day rain event	1.62
1/18/2022	9:35	Birdsall, Christopher	Rain	Yes	No	1/14/2022	Recheck from 1/15/2022	0.24
3/6/2022	9:15	Adams, Robert	Rain	Yes	No	3/4/2022	2 day rain event	0.8
3/19/2022	10:50	Adams, Robert	Rain	Yes	No	3/18/2022	2-Day rain event.	0.51
4/13/2022	10:45	Wickham, Grant	Rain	Yes	No	4/12/2022		0.47
4/30/2022	10:35	Adams, Robert	Rain	Yes	No	4/30/2022	2 day rain event	0.16
5/3/2022	11:15	Adams, Robert	Rain	Yes	No	5/2/2022		1.1
5/18/2022	9:55	Birdsall, Christopher	Rain	Yes	No	5/17/2022		0.3
5/31/2022	13:05	Wickham, Grant	Rain	Yes	No	5/30/2022		0.66
6/6/2022	11:45	Birdsall, Christopher	Rain	Yes	No	6/5/2022		0.59
6/8/2022	11:00	Birdsall, Christopher	Rain	Yes	No	6/7/2022		0.36
6/12/2022	8:45	Adams, Robert	Rain	Yes	No	6/11/2022		0.1
6/15/2022	13:00	Birdsall, Christopher	Rain	Yes	No	6/14/2022		0.69
7/1/2022	12:40	Adams, Robert	Rain	Yes	No	7/1/2022		0.29
7/5/2022	10:10	Mata, Terence	Rain	Yes	No	7/4/2022		0.91
7/6/2022	9:40	Birdsall, Christopher	Rain	Yes	No	7/5/2022		0.59
7/22/2022	9:45	Wickham, Grant	Rain	Yes	No	7/21/2022		0.38
8/8/2022	11:30	Mata, Terence	Rain	Yes	No	8/7/2022		0.85
8/16/2022	11:20	Birdsall, Christopher	Rain	Yes	No	8/15/2022		0.18
8/25/2022	12:45	Mata, Terence	Rain	Yes	No	8/25/2022		0.46

CSO Inspection Report

CSO Number 111

Total Wet Weather Overflows: 27

CSO Name Hickory Street Lift Station

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
8/28/2022	9:40	Mata, Terence	Rain	Yes	No	8/27/2022		0.38
8/29/2022	11:40	Mata, Terence	Rain	Yes	No	8/29/2022		0.21
9/11/2022	9:05	Birdsall, Christopher	Rain	Yes	No	9/10/2022		0.65
9/18/2022	9:40	Adams, Robert	Rain	Yes	No	9/17/2022		0.63

CSO Inspection Report

CSO Number 112

Total Wet Weather Overflows: 36

CSO Name Martha Street

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/1/2021	11:15	Wickham, Grant	Rain	Yes	No	9/30/2021		1.38
10/13/2021	12:05	Wickham, Grant	Rain	Yes	No	10/13/2021		1.2
10/25/2021	13:50	Wickham, Grant	Rain	Yes	No	10/24/2021		3.6
11/11/2021	11:15	Adams, Robert	Rain	Yes	No	11/10/2021		0.4
12/16/2021	11:00	Birdsall, Christopher	Rain	Yes	No	12/15/2021		0.5
2/11/2022	11:40	Birdsall, Christopher	Rain	Yes	No	2/11/2022		0.3
3/6/2022	9:10	Adams, Robert	Rain	Yes	No	3/4/2022	2 day rain event	0.8
3/19/2022	10:45	Adams, Robert	Rain	Yes	No	3/18/2022	2-Day rain event.	0.51
3/23/2022	9:35	Birdsall, Christopher	Rain	Yes	No	3/22/2022		0.74
4/13/2022	10:40	Wickham, Grant	Rain	Yes	No	4/12/2022		0.47
4/22/2022	11:10	Birdsall, Christopher	Rain	Yes	No	4/21/2022		0.32
4/29/2022	12:05	Wickham, Grant	Rain	Yes	No	4/29/2022		0.72
4/30/2022	10:30	Adams, Robert	Rain	Yes	No	4/30/2022	2 day rain event	0.16
5/3/2022	11:10	Adams, Robert	Rain	Yes	No	5/2/2022		1.1
5/9/2022	10:15	Birdsall, Christopher	Rain	Yes	No	5/8/2022		0.12
5/13/2022	10:35	Adams, Robert	Rain	Yes	No	5/12/2022		0.24
5/18/2022	9:50	Birdsall, Christopher	Rain	Yes	No	5/17/2022		0.3
5/25/2022	10:20	Birdsall, Christopher	Rain	Yes	No	5/24/2022		0.77
5/26/2022	10:15	Birdsall, Christopher	Rain	Yes	No	5/25/2022		1.11
5/31/2022	12:55	Wickham, Grant	Rain	Yes	No	5/30/2022		0.66
6/6/2022	11:40	Birdsall, Christopher	Rain	Yes	No	6/5/2022		0.59
6/8/2022	10:55	Birdsall, Christopher	Rain	Yes	No	6/7/2022		0.36
6/12/2022	8:35	Adams, Robert	Rain	Yes	No	6/11/2022		0.1

CSO Inspection Report

CSO Number 112

Total Wet Weather Overflows: 36

CSO Name Martha Street

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
6/15/2022	13:05	Birdsall, Christopher	Rain	Yes	No	6/14/2022		0.69
7/1/2022	12:45	Adams, Robert	Rain	Yes	No	7/1/2022		0.29
7/5/2022	10:00	Mata, Terence	Rain	Yes	No	7/4/2022		0.91
7/6/2022	9:45	Birdsall, Christopher	Rain	Yes	No	7/5/2022		0.59
7/22/2022	9:50	Wickham, Grant	Rain	Yes	No	7/21/2022		0.38
7/27/2022	10:05	Birdsall, Christopher	Rain	Yes	No	7/26/2022		0.1
8/8/2022	11:25	Mata, Terence	Rain	Yes	No	8/7/2022		0.85
8/16/2022	11:15	Birdsall, Christopher	Rain	Yes	No	8/15/2022		0.18
8/25/2022	12:40	Mata, Terence	Rain	Yes	No	8/25/2022		0.46
8/28/2022	9:30	Mata, Terence	Rain	Yes	No	8/27/2022		0.38
8/29/2022	11:35	Mata, Terence	Rain	Yes	No	8/29/2022		0.21
9/11/2022	9:00	Birdsall, Christopher	Rain	Yes	No	9/10/2022		0.65
9/18/2022	9:45	Adams, Robert	Rain	Yes	No	9/17/2022		0.63

CSO Inspection Report

CSO Number 114

Total Wet Weather Overflows: 31

CSO Name Grover Street

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/1/2021	11:10	Wickham, Grant	Rain	Yes	No	9/30/2021		1.38
10/13/2021	12:10	Wickham, Grant	Rain	Yes	No	10/13/2021		1.2
10/25/2021	14:00	Wickham, Grant	Rain	Yes	No	10/24/2021		3.6
10/29/2021	11:00	Adams, Robert	Rain	Yes	No	10/27/2021	2 day rain event	1.62
11/11/2021	11:25	Adams, Robert	Rain	Yes	No	11/10/2021		0.4
12/16/2021	11:05	Birdsall, Christopher	Rain	Yes	Yes	12/15/2021		0.5
1/18/2022	9:45	Birdsall, Christopher	Rain	Yes	Yes	1/14/2022	Recheck from 1/15/2022, Don Smith notified	0.24
2/11/2022	13:55	Birdsall, Christopher	Rain	Yes	No	2/11/2022		0.3
3/6/2022	9:20	Adams, Robert	Rain	Yes	No	3/4/2022	2 day rain event	0.8
3/19/2022	10:55	Adams, Robert	Rain	Yes	No	3/18/2022	2-Day rain event.	0.51
4/13/2022	10:55	Wickham, Grant	Rain	Yes	No	4/12/2022		0.47
4/22/2022	11:25	Birdsall, Christopher	Rain	Yes	No	4/21/2022		0.32
4/29/2022	12:20	Wickham, Grant	Rain	Yes	No	4/29/2022		0.72
4/30/2022	10:45	Adams, Robert	Rain	Yes	No	4/30/2022	2 day rain event	0.16
5/3/2022	11:25	Adams, Robert	Rain	Yes	No	5/2/2022		1.1
5/13/2022	10:50	Adams, Robert	Rain	Yes	No	5/12/2022		0.24
5/18/2022	10:00	Birdsall, Christopher	Rain	Yes	No	5/17/2022		0.3
5/26/2022	10:25	Birdsall, Christopher	Rain	Yes	No	5/25/2022		1.11
6/6/2022	11:50	Birdsall, Christopher	Rain	Yes	No	6/5/2022		0.59
6/8/2022	11:05	Birdsall, Christopher	Rain	Yes	No	6/7/2022		0.36
6/12/2022	8:55	Adams, Robert	Rain	Yes	No	6/11/2022		0.1
6/15/2022	12:50	Birdsall, Christopher	Rain	Yes	No	6/14/2022		0.69
7/1/2022	12:35	Adams, Robert	Rain	Yes	No	7/1/2022		0.29

CSO Inspection Report

CSO Number 114

Total Wet Weather Overflows: 31

CSO Name Grover Street

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
7/5/2022	10:15	Mata, Terence	Rain	Yes	No	7/4/2022		0.91
7/6/2022	9:35	Birdsall, Christopher	Rain	Yes	No	7/5/2022		0.59
7/7/2022	11:25	Birdsall, Christopher	Rain	Yes	No	7/7/2022	grates need cleaned	0.35
7/22/2022	9:40	Wickham, Grant	Rain	Yes	No	7/21/2022		0.38
8/8/2022	11:35	Mata, Terence	Rain	Yes	No	8/7/2022		0.85
8/29/2022	11:45	Mata, Terence	Rain	Yes	No	8/29/2022		0.21
9/11/2022	9:15	Birdsall, Christopher	Rain	Yes	No	9/10/2022		0.65
9/18/2022	9:50	Adams, Robert	Rain	Yes	No	9/17/2022		0.63

CSO Inspection Report

CSO Number 115

Total Wet Weather Overflows: 39

CSO Name Riverview Lift Station

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/1/2021	11:05	Wickham, Grant	Rain	Yes	No	9/30/2021		1.38
10/13/2021	12:15	Wickham, Grant	Rain	Yes	No	10/13/2021		1.2
10/25/2021	14:10	Wickham, Grant	Rain	Yes	No	10/24/2021		3.6
10/29/2021	11:05	Adams, Robert	Rain	Yes	No	10/27/2021	2 day rain event	1.62
11/11/2021	11:30	Adams, Robert	Rain	Yes	Yes	11/10/2021	Crew returned at 1245 overflow was almost complete. Continuing to recede.	0.4
12/16/2021	11:15	Birdsall, Christopher	Rain	Yes	No	12/15/2021	Pumping from construction company has pipes going into cso site	0.5
2/11/2022	12:00	Birdsall, Christopher	Rain	Yes	No	2/11/2022		0.3
3/6/2022	9:25	Adams, Robert	Rain	Yes	No	3/4/2022	2 day rain event	0.8
3/19/2022	11:00	Adams, Robert	Rain	Yes	No	3/18/2022	2-Day rain event.	0.51
3/23/2022	9:20	Birdsall, Christopher	Rain	Yes	No	3/22/2022		0.74
4/13/2022	11:00	Wickham, Grant	Rain	Yes	No	4/12/2022		0.47
4/22/2022	11:30	Birdsall, Christopher	Rain	Yes	No	4/21/2022		0.32
4/29/2022	12:25	Wickham, Grant	Rain	Yes	No	4/29/2022		0.72
4/30/2022	10:50	Adams, Robert	Rain	Yes	No	4/30/2022	2 day rain event	0.16
5/3/2022	11:30	Adams, Robert	Rain	Yes	No	5/2/2022		1.1
5/9/2022	10:35	Birdsall, Christopher	Rain	Yes	No	5/8/2022		0.12
5/13/2022	10:55	Adams, Robert	Rain	Yes	No	5/12/2022		0.24
5/18/2022	10:05	Birdsall, Christopher	Rain	Yes	No	5/17/2022		0.3
5/25/2022	10:40	Birdsall, Christopher	Rain	Yes	No	5/24/2022		0.77
5/26/2022	10:30	Birdsall, Christopher	Rain	Yes	No	5/25/2022		1.11
5/31/2022	13:20	Wickham, Grant	Rain	Yes	No	5/30/2022		0.66
6/6/2022	11:55	Birdsall, Christopher	Rain	Yes	No	6/5/2022		0.59

CSO Inspection Report

CSO Number 115

Total Wet Weather Overflows: 39

CSO Name Riverview Lift Station

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
6/8/2022	11:10	Birdsall, Christopher	Rain	Yes	No	6/7/2022		0.36
6/12/2022	9:00	Adams, Robert	Rain	Yes	No	6/11/2022		0.1
6/15/2022	12:40	Birdsall, Christopher	Rain	Yes	No	6/14/2022		0.69
7/5/2022	10:20	Mata, Terence	Rain	Yes	No	7/4/2022		0.91
7/6/2022	9:30	Birdsall, Christopher	Rain	Yes	No	7/5/2022		0.59
7/22/2022	9:35	Wickham, Grant	Rain	Yes	No	7/21/2022		0.38
7/27/2022	10:20	Birdsall, Christopher	Rain	Yes	No	7/26/2022		0.1
8/8/2022	11:40	Mata, Terence	Rain	Yes	No	8/7/2022		0.85
8/16/2022	11:30	Birdsall, Christopher	Rain	Yes	No	8/15/2022	Both were set off.	0.18
8/25/2022	13:00	Mata, Terence	Rain	Yes	No	8/25/2022		0.46
8/27/2022	9:40	Mata, Terence	Rain	Yes	No	8/26/2022		0.76
8/28/2022	9:55	Mata, Terence	Rain	Yes	No	8/27/2022		0.38
8/29/2022	11:50	Mata, Terence	Rain	Yes	No	8/29/2022		0.21
9/2/2022	11:00	Wickham, Grant	Rain	Yes	No	9/1/2022	Isolated Rain Event caught by radar in an isolated area. No rain gauges reported precip.	0.1
9/11/2022	9:20	Birdsall, Christopher	Rain	Yes	No	9/10/2022		0.65
9/18/2022	9:55	Adams, Robert	Rain	Yes	No	9/17/2022		0.63
9/23/2022	10:40	Birdsall, Christopher	Rain	Yes	No	9/23/2022		0.18

CSO Inspection Report

CSO Number 118

Total Wet Weather Overflows: 37

CSO Name South Omaha (Ohern Street)

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/13/2021	12:20	Wickham, Grant	Rain	Yes	No	10/13/2021		1.2
10/25/2021	14:20	Wickham, Grant	Rain	Yes	No	10/24/2021		3.6
10/29/2021	11:15	Adams, Robert	Rain	Yes	No	10/27/2021	2 day rain event	1.62
11/11/2021	11:50	Adams, Robert	Rain	Yes	No	11/10/2021		0.4
12/16/2021	11:25	Birdsall, Christopher	Rain	Yes	No	12/15/2021		0.5
2/11/2022	12:10	Birdsall, Christopher	Rain	Yes	No	2/11/2022		0.3
3/6/2022	9:55	Adams, Robert	Rain	Yes	No	3/4/2022	2 day rain event	0.8
3/19/2022	11:15	Adams, Robert	Rain	Yes	No	3/18/2022	2-Day rain event.	0.51
3/23/2022	9:15	Birdsall, Christopher	Rain	Yes	No	3/22/2022		0.74
4/13/2022	11:05	Wickham, Grant	Rain	Yes	No	4/12/2022		0.47
4/22/2022	11:35	Birdsall, Christopher	Rain	Yes	No	4/21/2022		0.32
4/28/2022	11:50	Mata, Terence	Rain	Yes	No	4/27/2022		0.32
4/29/2022	12:30	Wickham, Grant	Rain	Yes	No	4/29/2022		0.72
4/30/2022	11:00	Adams, Robert	Rain	Yes	No	4/30/2022	2 day rain event	0.16
5/3/2022	11:35	Adams, Robert	Rain	Yes	No	5/2/2022		1.1
5/9/2022	10:50	Birdsall, Christopher	Rain	Yes	No	5/8/2022		0.12
5/13/2022	11:00	Adams, Robert	Rain	Yes	No	5/12/2022		0.24
5/18/2022	10:25	Birdsall, Christopher	Rain	Yes	No	5/17/2022		0.3
5/25/2022	12:15	Birdsall, Christopher	Rain	Yes	No	5/24/2022		0.77
5/26/2022	10:40	Birdsall, Christopher	Rain	Yes	No	5/25/2022		1.11
5/31/2022	13:30	Wickham, Grant	Rain	Yes	No	5/30/2022		0.66
6/6/2022	12:05	Birdsall, Christopher	Rain	Yes	No	6/5/2022		0.59
6/8/2022	11:15	Birdsall, Christopher	Rain	Yes	No	6/7/2022		0.36

CSO Inspection Report

CSO Number 118

Total Wet Weather Overflows: 37

CSO Name South Omaha (Ohern Street)

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
6/12/2022	9:15	Adams, Robert	Rain	Yes	No	6/11/2022		0.1
6/15/2022	12:30	Birdsall, Christopher	Rain	Yes	No	6/14/2022	Device missing. Replaced	0.69
7/5/2022	10:25	Mata, Terence	Rain	Yes	No	7/4/2022		0.91
7/6/2022	9:20	Birdsall, Christopher	Rain	Yes	No	7/5/2022		0.59
7/22/2022	9:20	Wickham, Grant	Rain	Yes	No	7/21/2022		0.38
7/27/2022	10:30	Birdsall, Christopher	Rain	Yes	No	7/26/2022	north manhole device needed replaced cable had rusted through and device was gone replaced both.	0.1
8/8/2022	14:05	Mata, Terence	Rain	Yes	No	8/7/2022		0.85
8/16/2022	11:50	Birdsall, Christopher	Rain	Yes	No	8/15/2022		0.18
8/25/2022	13:05	Mata, Terence	Rain	Yes	No	8/25/2022		0.46
8/27/2022	10:20	Mata, Terence	Rain	Yes	No	8/26/2022		0.76
8/28/2022	10:15	Mata, Terence	Rain	Yes	No	8/27/2022		0.38
9/11/2022	9:40	Birdsall, Christopher	Rain	Yes	No	9/10/2022		0.65
9/18/2022	10:05	Adams, Robert	Rain	Yes	No	9/17/2022		0.63
9/23/2022	11:00	Birdsall, Christopher	Rain	Yes	No	9/23/2022		0.18

CSO Inspection Report

CSO Number 119

Total Wet Weather Overflows: 35

CSO Name Monroe Street Lift Station

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/13/2021	12:35	Wickham, Grant	Rain	Yes	No	10/13/2021		1.2
10/25/2021	14:35	Wickham, Grant	Rain	Yes	No	10/24/2021		3.6
10/29/2021	11:30	Adams, Robert	Rain	Yes	No	10/27/2021	2 day rain event	1.62
11/11/2021	12:00	Adams, Robert	Rain	Yes	No	11/10/2021		0.4
12/16/2021	11:35	Birdsall, Christopher	Rain	Yes	No	12/15/2021		0.5
1/19/2022	12:35	Birdsall, Christopher	Snow Melt	Yes	No	1/15/2022		0.14
3/6/2022	10:10	Adams, Robert	Rain	Yes	No	3/4/2022	2 day rain event	0.8
3/19/2022	11:45	Adams, Robert	Rain	Yes	Yes	3/18/2022	2-Day rain event. M/H 0551921 overflowing at inspection. L/S 0551020 was restricted w/debris. Jet crew called and L/S was relieved, overflow stopped approx. 13:00.	0.51
3/23/2022	9:05	Birdsall, Christopher	Rain	Yes	No	3/22/2022		0.74
4/8/2022	11:40	Birdsall, Christopher	Rain	Yes	No	4/7/2022	South part of omaha got .08 inches eppley did not record that much that day.	0.12
4/13/2022	11:15	Wickham, Grant	Rain	Yes	Yes	4/12/2022		0.47
4/22/2022	11:45	Birdsall, Christopher	Rain	Yes	No	4/21/2022		0.32
4/30/2022	11:15	Adams, Robert	Rain	Yes	Yes	4/30/2022	2 day rain event. Line restricted , called jet truck in, line relieved at approx 12:00. Overflow stopped.	0.16
5/3/2022	8:15	Adams, Robert	Rain	Yes	No	5/2/2022		1.1
5/9/2022	11:05	Birdsall, Christopher	Rain	Yes	No	5/8/2022		0.12
5/18/2022	8:30	Birdsall, Christopher	Rain	Yes	No	5/17/2022		0.3
5/25/2022	8:30	Birdsall, Christopher	Rain	Yes	No	5/24/2022		0.77
5/26/2022	9:05	Birdsall, Christopher	Rain	Yes	No	5/25/2022		1.11
5/31/2022	13:40	Wickham, Grant	Rain	Yes	No	5/30/2022		0.66
6/6/2022	9:10	Birdsall, Christopher	Rain	Yes	No	6/5/2022		0.59
6/8/2022	9:20	Birdsall, Christopher	Rain	Yes	No	6/7/2022		0.36

CSO Inspection Report

CSO Number 119

Total Wet Weather Overflows: 35

CSO Name Monroe Street Lift Station

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
6/12/2022	9:30	Adams, Robert	Rain	Yes	No	6/11/2022		0.1
6/15/2022	12:20	Birdsall, Christopher	Rain	Yes	No	6/14/2022		0.69
7/5/2022	10:40	Mata, Terence	Rain	Yes	No	7/4/2022		0.91
7/6/2022	9:10	Birdsall, Christopher	Rain	Yes	No	7/5/2022		0.59
7/22/2022	9:10	Wickham, Grant	Rain	Yes	No	7/21/2022		0.38
8/8/2022	12:00	Mata, Terence	Rain	Yes	No	8/7/2022		0.85
8/16/2022	12:00	Birdsall, Christopher	Rain	Yes	No	8/15/2022		0.18
8/25/2022	14:00	Mata, Terence	Rain	Yes	No	8/25/2022		0.46
8/27/2022	10:30	Mata, Terence	Rain	Yes	No	8/26/2022		0.76
8/28/2022	10:30	Mata, Terence	Rain	Yes	No	8/27/2022		0.38
8/29/2022	12:15	Mata, Terence	Rain	Yes	No	8/29/2022		0.21
9/11/2022	9:55	Birdsall, Christopher	Rain	Yes	No	9/10/2022		0.65
9/18/2022	10:20	Adams, Robert	Rain	Yes	No	9/17/2022		0.63
9/23/2022	11:20	Birdsall, Christopher	Rain	Yes	No	9/23/2022		0.18

CSO Inspection Report

CSO Number 121

Total Wet Weather Overflows: 29

CSO Name Jones Street

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/1/2021	11:30	Wickham, Grant	Rain	Yes	No	9/30/2021		1.38
10/13/2021	11:35	Wickham, Grant	Rain	Yes	No	10/13/2021		1.2
10/25/2021	13:20	Wickham, Grant	Rain	Yes	No	10/24/2021		3.6
11/11/2021	11:02	Adams, Robert	Rain	Yes	No	11/10/2021		0.4
12/16/2021	9:45	Birdsall, Christopher	Rain	Yes	No	12/15/2021		0.5
3/6/2022	8:55	Adams, Robert	Rain	Yes	No	3/4/2022	2 day rain event	0.8
4/13/2022	10:20	Wickham, Grant	Rain	Yes	No	4/12/2022		0.47
4/22/2022	11:00	Birdsall, Christopher	Rain	Yes	No	4/21/2022		0.32
4/30/2022	10:15	Adams, Robert	Rain	Yes	No	4/30/2022	2 day rain event	0.16
5/3/2022	10:55	Adams, Robert	Rain	Yes	No	5/2/2022		1.1
5/18/2022	7:00	Birdsall, Christopher	Rain	Yes	No	5/17/2022		0.3
5/25/2022	10:10	Birdsall, Christopher	Rain	Yes	No	5/24/2022		0.77
5/26/2022	10:05	Birdsall, Christopher	Rain	Yes	No	5/25/2022		1.11
5/31/2022	12:40	Wickham, Grant	Rain	Yes	No	5/30/2022		0.66
6/6/2022	11:30	Birdsall, Christopher	Rain	Yes	No	6/5/2022		0.59
6/8/2022	10:45	Birdsall, Christopher	Rain	Yes	No	6/7/2022		0.36
6/12/2022	8:25	Adams, Robert	Rain	Yes	No	6/11/2022		0.1
6/15/2022	13:15	Birdsall, Christopher	Rain	Yes	No	6/14/2022		0.69
7/1/2022	12:55	Adams, Robert	Rain	Yes	No	7/1/2022		0.29
7/5/2022	8:50	Mata, Terence	Rain	Yes	No	7/4/2022		0.91
7/6/2022	9:55	Birdsall, Christopher	Rain	Yes	No	7/5/2022		0.59
7/22/2022	10:00	Wickham, Grant	Rain	Yes	No	7/21/2022		0.38
8/8/2022	11:10	Mata, Terence	Rain	Yes	No	8/7/2022		0.85

CSO Inspection Report

CSO Number 121

Total Wet Weather Overflows: 29

CSO Name Jones Street

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
8/16/2022	11:00	Birdsall, Christopher	Rain	Yes	No	8/15/2022		0.18
8/25/2022	12:30	Mata, Terence	Rain	Yes	No	8/25/2022		0.46
8/28/2022	9:20	Mata, Terence	Rain	Yes	No	8/27/2022		0.38
8/29/2022	11:20	Mata, Terence	Rain	Yes	No	8/29/2022		0.21
9/11/2022	8:45	Birdsall, Christopher	Rain	Yes	No	9/10/2022		0.65
9/18/2022	9:25	Adams, Robert	Rain	Yes	No	9/17/2022		0.63

CSO Inspection Report

CSO Number 202

Total Wet Weather Overflows: 38

CSO Name 72nd & Bedford

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/1/2021	9:55	Wickham, Grant	Rain	Yes	No	9/30/2021		1.38
10/13/2021	9:40	Wickham, Grant	Rain	Yes	No	10/13/2021		1.2
10/25/2021	10:30	Wickham, Grant	Rain	Yes	No	10/24/2021		3.6
10/29/2021	9:35	Adams, Robert	Rain	Yes	No	10/27/2021	2 day rain event	1.62
11/11/2021	9:10	Adams, Robert	Rain	Yes	No	11/10/2021		0.4
12/13/2021	9:05	Mata, Terence	Snow Melt	Yes	Yes	12/11/2021	WW event+snowmelt	1
12/16/2021	9:15	Birdsall, Christopher	Rain	Yes	No	12/15/2021		0.5
2/11/2022	13:30	Birdsall, Christopher	Rain	Yes	No	2/11/2022		0.3
3/6/2022	7:30	Adams, Robert	Rain	Yes	No	3/4/2022	2 day rain event	0.8
3/19/2022	9:15	Adams, Robert	Rain	Yes	No	3/18/2022	2-Day rain event.	0.51
3/23/2022	10:55	Birdsall, Christopher	Rain	Yes	No	3/22/2022		0.74
4/13/2022	9:15	Wickham, Grant	Rain	Yes	No	4/12/2022		0.47
4/22/2022	9:20	Birdsall, Christopher	Rain	Yes	No	4/21/2022		0.32
4/28/2022	10:00	Mata, Terence	Rain	Yes	No	4/27/2022		0.32
4/29/2022	10:30	Wickham, Grant	Rain	Yes	No	4/29/2022		0.72
4/30/2022	8:50	Adams, Robert	Rain	Yes	No	4/30/2022	2 day rain event	0.16
5/3/2022	9:30	Adams, Robert	Rain	Yes	No	5/2/2022		1.1
5/5/2022	9:00	Adams, Robert	Rain	Yes	No	5/5/2022	2 day rain event.	0.09
5/9/2022	8:45	Birdsall, Christopher	Rain	Yes	No	5/8/2022		0.12
5/18/2022	7:00	Birdsall, Christopher	Rain	Yes	No	5/17/2022		0.3
5/25/2022	8:40	Birdsall, Christopher	Rain	Yes	No	5/24/2022		0.77
5/26/2022	8:35	Birdsall, Christopher	Rain	Yes	No	5/25/2022		1.11
5/31/2022	9:55	Wickham, Grant	Rain	Yes	No	5/30/2022		0.66

CSO Inspection Report

CSO Number 202

Total Wet Weather Overflows: 38

CSO Name 72nd & Bedford

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
6/6/2022	9:25	Birdsall, Christopher	Rain	Yes	No	6/5/2022		0.59
6/8/2022	8:45	Birdsall, Christopher	Rain	Yes	No	6/7/2022		0.36
6/12/2022	7:15	Adams, Robert	Rain	Yes	No	6/11/2022		0.1
6/15/2022	14:30	Birdsall, Christopher	Rain	Yes	No	6/14/2022		0.69
7/1/2022	14:00	Adams, Robert	Rain	Yes	No	7/1/2022		0.29
7/5/2022	8:40	Mata, Terence	Rain	Yes	No	7/4/2022		0.91
7/7/2022	12:35	Birdsall, Christopher	Rain	Yes	No	7/7/2022		0.35
7/22/2022	11:20	Wickham, Grant	Rain	Yes	No	7/21/2022		0.38
8/8/2022	9:35	Mata, Terence	Rain	Yes	No	8/7/2022		0.85
8/16/2022	9:45	Birdsall, Christopher	Rain	Yes	No	8/15/2022	Grit <1"	0.18
8/25/2022	11:15	Mata, Terence	Rain	Yes	No	8/25/2022		0.46
8/27/2022	8:00	Mata, Terence	Rain	Yes	No	8/26/2022		0.76
8/28/2022	8:10	Mata, Terence	Rain	Yes	No	8/27/2022		0.38
9/11/2022	7:00	Birdsall, Christopher	Rain	Yes	No	9/10/2022		0.65
9/18/2022	8:15	Adams, Robert	Rain	Yes	No	9/17/2022		0.63

CSO Inspection Report

CSO Number 203

Total Wet Weather Overflows: 29

CSO Name 69th & Evans

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/13/2021	9:45	Wickham, Grant	Rain	Yes	No	10/13/2021		1.2
10/25/2021	10:40	Wickham, Grant	Rain	Yes	No	10/24/2021		3.6
12/13/2021	9:10	Mata, Terence	Snow Melt	Yes	Yes	12/11/2021	WW event+snowmelt	1
12/16/2021	9:20	Birdsall, Christopher	Rain	Yes	No	12/15/2021		0.5
2/11/2022	13:35	Birdsall, Christopher	Rain	Yes	No	2/11/2022		0.3
3/6/2022	7:35	Adams, Robert	Rain	Yes	No	3/4/2022	2 day rain event	0.8
3/19/2022	9:25	Adams, Robert	Rain	Yes	No	3/18/2022	2-Day rain event.	0.51
3/23/2022	10:50	Birdsall, Christopher	Rain	Yes	No	3/22/2022		0.74
4/13/2022	9:20	Wickham, Grant	Rain	Yes	No	4/12/2022		0.47
4/22/2022	9:30	Birdsall, Christopher	Rain	Yes	No	4/21/2022		0.32
4/29/2022	10:35	Wickham, Grant	Rain	Yes	No	4/29/2022		0.72
4/30/2022	8:55	Adams, Robert	Rain	Yes	No	4/30/2022	2 day rain event	0.16
5/3/2022	9:35	Adams, Robert	Rain	Yes	No	5/2/2022		1.1
5/18/2022	8:25	Birdsall, Christopher	Rain	Yes	No	5/17/2022		0.3
5/26/2022	8:40	Birdsall, Christopher	Rain	Yes	No	5/25/2022		1.11
5/31/2022	10:00	Wickham, Grant	Rain	Yes	No	5/30/2022		0.66
6/6/2022	9:30	Birdsall, Christopher	Rain	Yes	No	6/5/2022		0.59
6/8/2022	9:05	Birdsall, Christopher	Rain	Yes	No	6/7/2022		0.36
6/12/2022	7:20	Adams, Robert	Rain	Yes	No	6/11/2022		0.1
6/15/2022	14:20	Birdsall, Christopher	Rain	Yes	No	6/14/2022		0.69
7/1/2022	13:55	Adams, Robert	Rain	Yes	No	7/1/2022		0.29
7/5/2022	8:45	Mata, Terence	Rain	Yes	No	7/4/2022		0.91
7/7/2022	12:30	Birdsall, Christopher	Rain	Yes	No	7/7/2022		0.35

CSO Inspection Report

CSO Number 203

Total Wet Weather Overflows: 29

CSO Name 69th & Evans

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
7/22/2022	11:15	Wickham, Grant	Rain	Yes	No	7/21/2022		0.38
7/27/2022	8:50	Birdsall, Christopher	Rain	Yes	No	7/26/2022		0.1
8/8/2022	9:40	Mata, Terence	Rain	Yes	No	8/7/2022		0.85
8/16/2022	9:50	Birdsall, Christopher	Rain	Yes	No	8/15/2022	Grit <1 "	0.18
8/25/2022	11:20	Mata, Terence	Rain	Yes	No	8/25/2022		0.46
9/11/2022	7:10	Birdsall, Christopher	Rain	Yes	No	9/10/2022		0.65

CSO Inspection Report

CSO Number 204

Total Wet Weather Overflows: 42

CSO Name 63rd & Ames

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/1/2021	9:40	Wickham, Grant	Rain	Yes	No	9/30/2021		1.38
10/13/2021	9:50	Wickham, Grant	Rain	Yes	No	10/13/2021		1.2
10/25/2021	12:30	Wickham, Grant	Rain	Yes	No	10/24/2021		3.6
10/29/2021	9:45	Adams, Robert	Rain	Yes	No	10/27/2021	2 day rain event	1.62
11/11/2021	9:25	Adams, Robert	Rain	Yes	No	11/10/2021		0.4
12/13/2021	9:20	Mata, Terence	Snow Melt	Yes	Yes	12/11/2021	WW event+snowmelt	1
12/16/2021	9:25	Birdsall, Christopher	Rain	Yes	No	12/15/2021		0.5
2/11/2022	11:50	Birdsall, Christopher	Rain	Yes	No	2/11/2022		0.3
3/6/2022	7:40	Adams, Robert	Rain	Yes	No	3/4/2022	2 day rain event	0.8
3/19/2022	9:30	Adams, Robert	Rain	Yes	No	3/18/2022	2-Day rain event.	0.51
3/23/2022	10:45	Birdsall, Christopher	Rain	Yes	No	3/22/2022		0.74
4/13/2022	9:30	Wickham, Grant	Rain	Yes	No	4/12/2022		0.47
4/22/2022	9:35	Birdsall, Christopher	Rain	Yes	No	4/21/2022		0.32
4/28/2022	10:15	Mata, Terence	Rain	Yes	No	4/27/2022		0.32
4/29/2022	10:40	Wickham, Grant	Rain	Yes	No	4/29/2022		0.72
4/30/2022	9:05	Adams, Robert	Rain	Yes	No	4/30/2022	2 day rain event	0.16
5/3/2022	9:50	Adams, Robert	Rain	Yes	No	5/2/2022		1.1
5/5/2022	9:10	Adams, Robert	Rain	Yes	No	5/5/2022	2 day rain event.	0.09
5/18/2022	8:30	Birdsall, Christopher	Rain	Yes	No	5/17/2022		0.3
5/25/2022	9:00	Birdsall, Christopher	Rain	Yes	No	5/24/2022		0.77
5/26/2022	8:45	Birdsall, Christopher	Rain	Yes	No	5/25/2022		1.11
5/31/2022	10:10	Wickham, Grant	Rain	Yes	No	5/30/2022		0.66
6/6/2022	9:50	Birdsall, Christopher	Rain	Yes	No	6/5/2022		0.59

CSO Inspection Report

CSO Number 204

Total Wet Weather Overflows: 42

CSO Name 63rd & Ames

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
6/8/2022	9:20	Birdsall, Christopher	Rain	Yes	No	6/7/2022		0.36
6/12/2022	7:25	Adams, Robert	Rain	Yes	No	6/11/2022		0.1
6/15/2022	14:15	Birdsall, Christopher	Rain	Yes	No	6/14/2022		0.69
7/1/2022	13:50	Adams, Robert	Rain	Yes	No	7/1/2022		0.29
7/5/2022	8:55	Mata, Terence	Rain	Yes	No	7/4/2022		0.91
7/6/2022	11:00	Wickham, Grant	Rain	Yes	No	7/5/2022		0.59
7/7/2022	12:25	Birdsall, Christopher	Rain	Yes	No	7/7/2022		0.35
7/22/2022	11:00	Wickham, Grant	Rain	Yes	No	7/21/2022		0.38
7/27/2022	9:00	Birdsall, Christopher	Rain	Yes	No	7/26/2022		0.1
8/8/2022	9:50	Mata, Terence	Rain	Yes	No	8/7/2022		0.85
8/16/2022	10:00	Birdsall, Christopher	Rain	Yes	No	8/15/2022	Taylor and Prat <1" grit	0.18
8/20/2022	7:10	Mata, Terence	Rain	Yes	No	8/19/2022		0.1
8/25/2022	11:35	Mata, Terence	Rain	Yes	No	8/25/2022		0.46
8/27/2022	8:15	Mata, Terence	Rain	Yes	No	8/26/2022		0.76
8/28/2022	8:25	Mata, Terence	Rain	Yes	No	8/27/2022		0.38
8/29/2022	10:15	Mata, Terence	Rain	Yes	No	8/29/2022		0.21
9/11/2022	7:30	Birdsall, Christopher	Rain	Yes	No	9/10/2022		0.65
9/18/2022	8:30	Adams, Robert	Rain	Yes	No	9/17/2022		0.63
9/23/2022	9:25	Birdsall, Christopher	Rain	Yes	No	9/23/2022		0.18

CSO Inspection Report

CSO Number 205

Total Wet Weather Overflows: 41

CSO Name 64th & Dupont

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/1/2021	11:50	Wickham, Grant	Rain	Yes	No	9/30/2021		1.38
10/13/2021	8:50	Wickham, Grant	Rain	Yes	No	10/13/2021		1.2
10/25/2021	9:40	Wickham, Grant	Rain	Yes	No	10/24/2021		3.6
10/29/2021	7:15	Adams, Robert	Rain	Yes	No	10/27/2021	2 day rain event	1.62
11/11/2021	8:05	Adams, Robert	Rain	Yes	No	11/10/2021		0.4
12/16/2021	8:40	Birdsall, Christopher	Rain	Yes	No	12/15/2021		0.5
1/18/2022	8:00	Birdsall, Christopher	Rain	Yes	No	1/14/2022	Recheck from 1/15/2022	0.24
2/11/2022	14:40	Birdsall, Christopher	Rain	Yes	No	2/11/2022	Emailed received from Hawkins.	0.3
3/6/2022	6:00	Adams, Robert	Rain	Yes	No	3/4/2022	2 day rain event	0.8
3/19/2022	8:00	Adams, Robert	Rain	Yes	No	3/18/2022	2-day rain event. Notified via e-mail.	0.51
3/23/2022	7:15	Birdsall, Christopher	Rain	Yes	No	3/22/2022	Email sent from Hawkins	0.74
4/8/2022	7:15	Birdsall, Christopher	Rain	Yes	No	4/7/2022		0.12
4/13/2022	7:30	Wickham, Grant	Rain	Yes	No	4/12/2022		0.47
4/22/2022	7:15	Birdsall, Christopher	Rain	Yes	No	4/21/2022		0.32
4/28/2022	9:20	Mata, Terence	Rain	Yes	No	4/27/2022		0.32
4/29/2022	9:50	Wickham, Grant	Rain	Yes	No	4/29/2022		0.72
4/30/2022	8:15	Adams, Robert	Rain	Yes	No	4/30/2022	2 day rain event	0.16
5/3/2022	7:05	Adams, Robert	Rain	Yes	No	5/2/2022		1.1
5/5/2022	8:15	Adams, Robert	Rain	Yes	No	5/5/2022	2 day rain event.	0.09
5/18/2022	7:00	Birdsall, Christopher	Rain	Yes	No	5/17/2022		0.3
5/25/2022	8:05	Birdsall, Christopher	Rain	Yes	No	5/24/2022		0.77
5/26/2022	8:00	Birdsall, Christopher	Rain	Yes	No	5/25/2022		1.11
5/31/2022	9:15	Wickham, Grant	Rain	Yes	No	5/30/2022		0.66

CSO Inspection Report

CSO Number 205

Total Wet Weather Overflows: 41

CSO Name 64th & Dupont

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
6/6/2022	8:45	Birdsall, Christopher	Rain	Yes	No	6/5/2022		0.59
6/8/2022	7:55	Birdsall, Christopher	Rain	Yes	No	6/7/2022		0.36
6/12/2022	6:00	Adams, Robert	Rain	Yes	No	6/11/2022		0.1
6/15/2022	11:55	Birdsall, Christopher	Rain	Yes	No	6/14/2022		0.69
7/1/2022	14:30	Adams, Robert	Rain	Yes	No	7/1/2022		0.29
7/5/2022	7:55	Mata, Terence	Rain	Yes	No	7/4/2022		0.91
7/6/2022	11:55	Wickham, Grant	Rain	Yes	No	7/5/2022		0.59
7/7/2022	13:10	Birdsall, Christopher	Rain	Yes	No	7/7/2022		0.35
7/22/2022	12:00	Wickham, Grant	Rain	Yes	No	7/21/2022		0.38
7/27/2022	8:15	Birdsall, Christopher	Rain	Yes	No	7/26/2022		0.1
8/8/2022	9:00	Mata, Terence	Rain	Yes	No	8/7/2022		0.85
8/16/2022	9:10	Birdsall, Christopher	Rain	Yes	No	8/15/2022		0.18
8/25/2022	10:40	Mata, Terence	Rain	Yes	No	8/25/2022		0.46
8/27/2022	7:30	Mata, Terence	Rain	Yes	No	8/26/2022		0.76
8/28/2022	7:35	Mata, Terence	Rain	Yes	No	8/27/2022		0.38
8/29/2022	9:10	Mata, Terence	Rain	Yes	No	8/29/2022		0.21
9/11/2022	6:15	Birdsall, Christopher	Rain	Yes	No	9/10/2022		0.65
9/18/2022	7:40	Adams, Robert	Rain	Yes	No	9/17/2022		0.63

CSO Inspection Report

CSO Number 210

Total Wet Weather Overflows: 35

CSO Name 72nd and Mayberry

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/13/2021	9:35	Wickham, Grant	Rain	Yes	No	10/13/2021		1.2
10/25/2021	10:20	Wickham, Grant	Rain	Yes	No	10/24/2021	6 Inches of grit observed	3.6
10/29/2021	9:30	Adams, Robert	Rain	Yes	No	10/27/2021	2 day rain event approx. 5' of grit	1.62
12/16/2021	9:05	Birdsall, Christopher	Rain	Yes	No	12/15/2021		0.5
2/11/2022	13:20	Birdsall, Christopher	Rain	Yes	No	2/11/2022	3" grit	0.3
3/6/2022	7:20	Adams, Robert	Rain	Yes	No	3/4/2022	2 day rain event, 6 inches grit	0.8
3/19/2022	9:10	Adams, Robert	Rain	Yes	No	3/18/2022	3" Grit. 2-Day rain event.	0.51
4/13/2022	9:05	Wickham, Grant	Rain	Yes	No	4/12/2022	5 inches of grit	0.47
4/22/2022	7:25	Birdsall, Christopher	Rain	Yes	No	4/21/2022	4" grit level	0.32
4/28/2022	9:45	Mata, Terence	Rain	Yes	No	4/27/2022	4" of grit observed.	0.32
4/29/2022	10:20	Wickham, Grant	Rain	Yes	No	4/29/2022		0.72
4/30/2022	8:45	Adams, Robert	Rain	Yes	No	4/30/2022	2 day rain event. 5" grit	0.16
5/3/2022	9:20	Adams, Robert	Rain	Yes	No	5/2/2022	8" grit	1.1
5/5/2022	8:45	Adams, Robert	Rain	Yes	No	5/5/2022	2 day rain event. 7" grit	0.09
5/18/2022	7:00	Birdsall, Christopher	Rain	Yes	No	5/17/2022	7" grit	0.3
5/25/2022	8:30	Birdsall, Christopher	Rain	Yes	No	5/24/2022	3" grit	0.77
5/26/2022	8:25	Birdsall, Christopher	Rain	Yes	No	5/25/2022	4" grit	1.11
5/31/2022	9:40	Wickham, Grant	Rain	Yes	No	5/30/2022	4" grit	0.66
6/6/2022	9:20	Birdsall, Christopher	Rain	Yes	No	6/5/2022	10" grit	0.59
6/8/2022	7:45	Birdsall, Christopher	Rain	Yes	No	6/7/2022	5" grit	0.36
6/12/2022	6:00	Adams, Robert	Rain	Yes	No	6/11/2022	7 inches grit	0.1
6/15/2022	14:40	Birdsall, Christopher	Rain	Yes	No	6/14/2022	5" grit	0.69
7/1/2022	14:10	Adams, Robert	Rain	Yes	No	7/1/2022	9 inches grit	0.29

CSO Inspection Report

CSO Number 210

Total Wet Weather Overflows: 35

CSO Name 72nd and Mayberry

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
7/5/2022	8:30	Mata, Terence	Rain	Yes	No	7/4/2022	5" of harden grit felt	0.91
7/6/2022	11:35	Wickham, Grant	Rain	Yes	No	7/5/2022		0.59
7/7/2022	12:45	Birdsall, Christopher	Rain	Yes	No	7/7/2022		0.35
7/22/2022	11:30	Wickham, Grant	Rain	Yes	No	7/21/2022		0.38
8/8/2022	9:30	Mata, Terence	Rain	Yes	No	8/7/2022	4" of grit observed	0.85
8/16/2022	9:30	Birdsall, Christopher	Rain	Yes	No	8/15/2022	Grit 7"	0.18
8/25/2022	11:10	Mata, Terence	Rain	Yes	No	8/25/2022	6" of grit observed.	0.46
8/27/2022	7:55	Mata, Terence	Rain	Yes	No	8/26/2022	4" of grit observed.	0.76
8/28/2022	8:00	Mata, Terence	Rain	Yes	No	8/27/2022	5" of grit observed.	0.38
9/11/2022	6:50	Birdsall, Christopher	Rain	Yes	No	9/10/2022	7" grit	0.65
9/18/2022	8:10	Adams, Robert	Rain	Yes	No	9/17/2022	6" grit	0.63
9/23/2022	9:05	Birdsall, Christopher	Rain	Yes	No	9/23/2022	10' grit	0.18

CSO Inspection Report

CSO Number 211

Total Wet Weather Overflows: 11

CSO Name 69th & Pierce

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/13/2021	9:20	Wickham, Grant	Rain	Yes	No	10/13/2021		1.2
10/25/2021	10:00	Wickham, Grant	Rain	Yes	No	10/24/2021		3.6
12/16/2021	8:55	Birdsall, Christopher	Rain	Yes	No	12/15/2021		0.5
2/11/2022	13:00	Birdsall, Christopher	Rain	Yes	No	2/11/2022		0.3
3/19/2022	8:50	Adams, Robert	Rain	Yes	No	3/18/2022	2-Day rain event.	0.51
5/18/2022	7:50	Birdsall, Christopher	Rain	Yes	No	5/17/2022		0.3
6/6/2022	8:55	Birdsall, Christopher	Rain	Yes	No	6/5/2022		0.59
6/8/2022	8:25	Birdsall, Christopher	Rain	Yes	No	6/7/2022		0.36
6/15/2022	12:45	Birdsall, Christopher	Rain	Yes	No	6/14/2022		0.69
7/5/2022	8:10	Mata, Terence	Rain	Yes	No	7/4/2022		0.91
8/8/2022	9:15	Mata, Terence	Rain	Yes	No	8/7/2022		0.85

CSO Inspection Report

CSO Number 212

Total Wet Weather Overflows: 24

CSO Name 69th & Woolworth

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/13/2021	9:10	Wickham, Grant	Rain	Yes	No	10/13/2021		1.2
10/25/2021	10:05	Wickham, Grant	Rain	Yes	No	10/24/2021		3.6
12/16/2021	8:50	Birdsall, Christopher	Rain	Yes	No	12/15/2021		0.5
4/13/2022	8:50	Wickham, Grant	Rain	Yes	No	4/12/2022		0.47
4/22/2022	8:50	Birdsall, Christopher	Rain	Yes	No	4/21/2022		0.32
4/29/2022	10:05	Wickham, Grant	Rain	Yes	No	4/29/2022		0.72
4/30/2022	8:20	Adams, Robert	Rain	Yes	No	4/30/2022	2 day rain event	0.16
5/3/2022	9:00	Adams, Robert	Rain	Yes	No	5/2/2022		1.1
5/18/2022	7:45	Birdsall, Christopher	Rain	Yes	No	5/17/2022		0.3
5/31/2022	9:20	Wickham, Grant	Rain	Yes	No	5/30/2022		0.66
6/6/2022	8:50	Birdsall, Christopher	Rain	Yes	No	6/5/2022		0.59
6/8/2022	8:20	Birdsall, Christopher	Rain	Yes	No	6/7/2022		0.36
6/12/2022	6:45	Adams, Robert	Rain	Yes	No	6/11/2022		0.1
6/15/2022	14:50	Birdsall, Christopher	Rain	Yes	No	6/14/2022		0.69
7/1/2022	14:25	Adams, Robert	Rain	Yes	No	7/1/2022		0.29
7/5/2022	8:05	Mata, Terence	Rain	Yes	No	7/4/2022		0.91
7/6/2022	11:50	Wickham, Grant	Rain	Yes	No	7/5/2022		0.59
7/22/2022	11:50	Wickham, Grant	Rain	Yes	No	7/21/2019		0.43
8/8/2022	9:10	Mata, Terence	Rain	Yes	No	8/7/2022		0.85
8/16/2022	9:15	Birdsall, Christopher	Rain	Yes	No	8/15/2022		0.18
8/25/2022	10:45	Mata, Terence	Rain	Yes	No	8/25/2022		0.46
8/28/2022	7:40	Mata, Terence	Rain	Yes	No	8/27/2022		0.38
9/11/2022	6:25	Birdsall, Christopher	Rain	Yes	No	9/10/2022		0.65

CSO Inspection Report

CSO Number 212

Total Wet Weather Overflows: 24

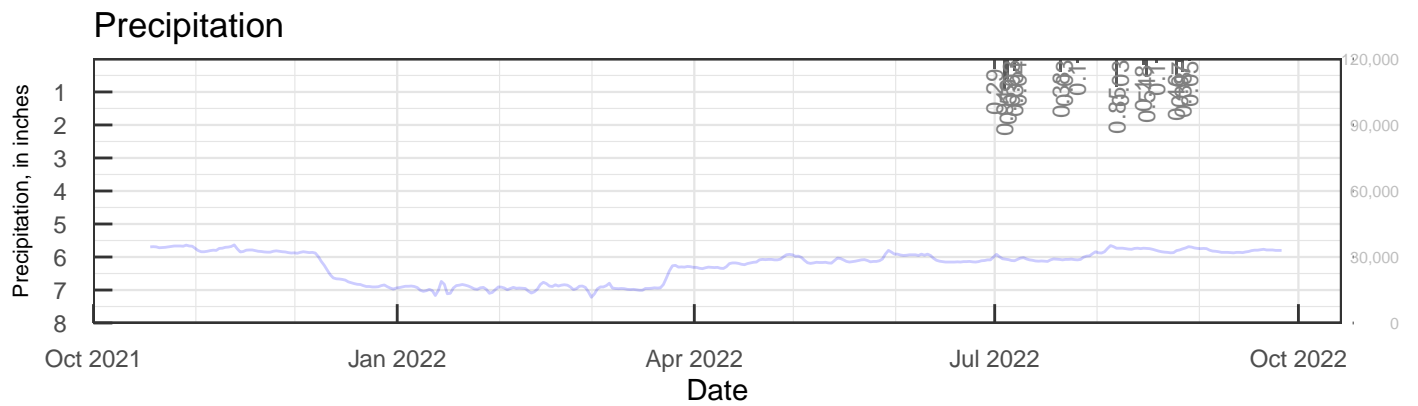
CSO Name 69th & Woolworth

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
9/18/2022	7:50	Adams, Robert	Rain	Yes	No	9/17/2022		0.63

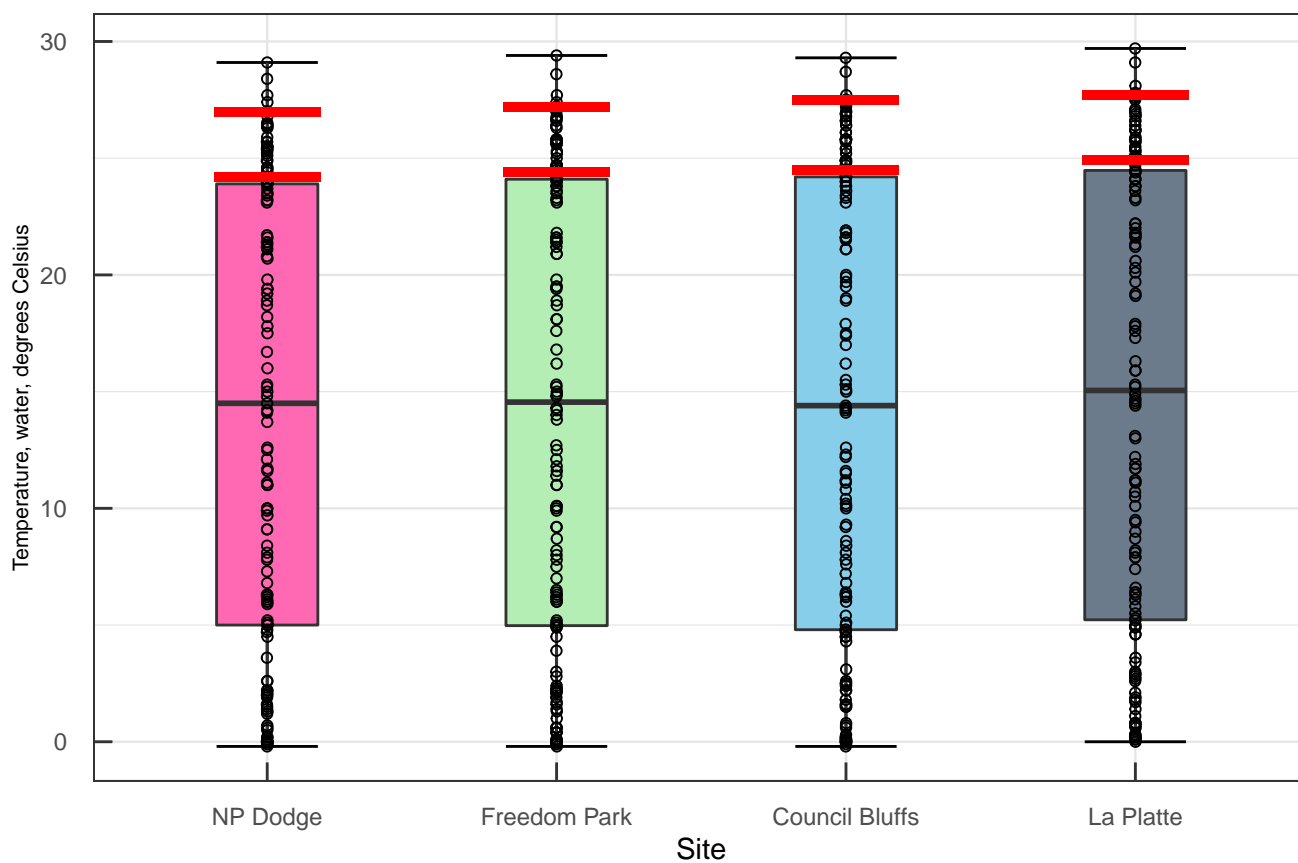
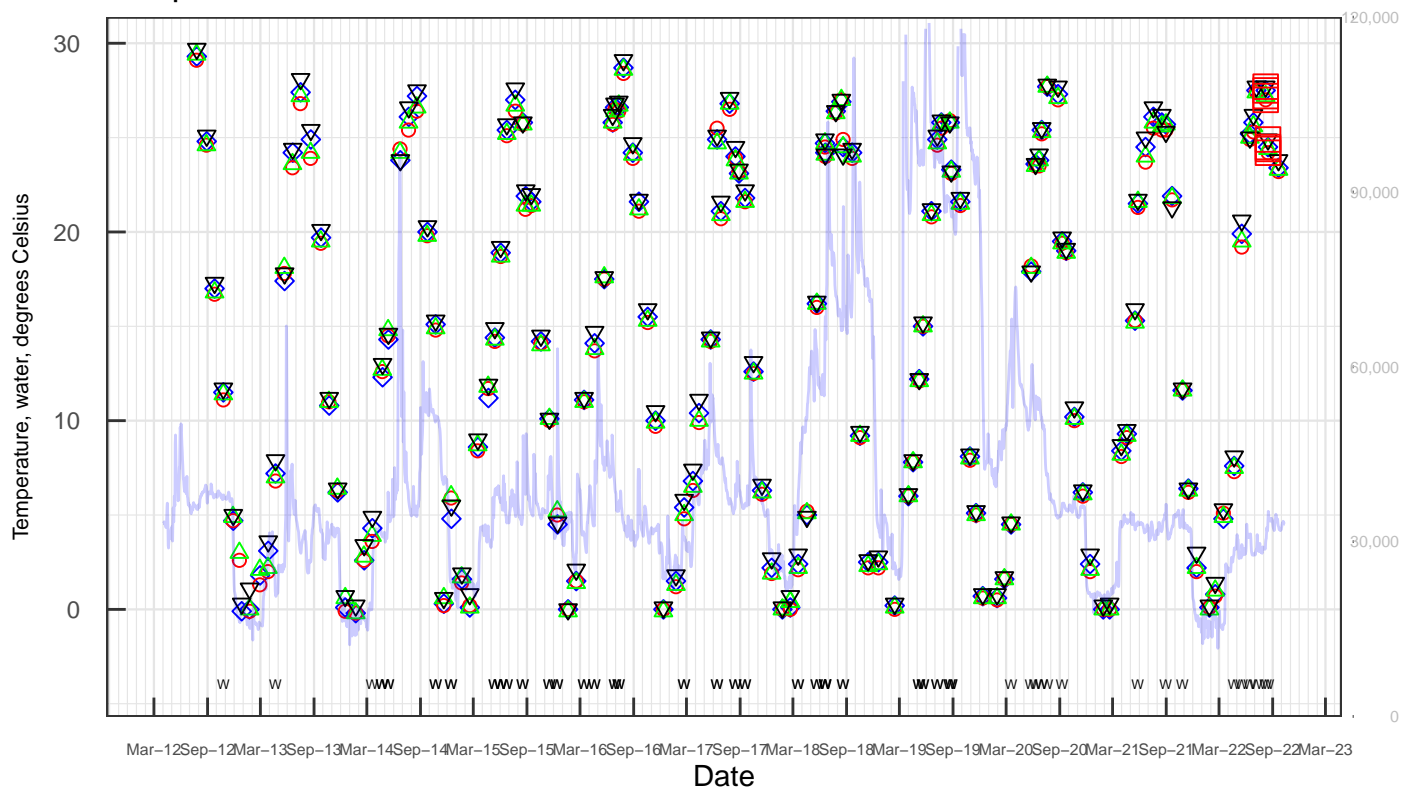
Attachment 4 – USGS Missouri River Monitoring Provisional Data

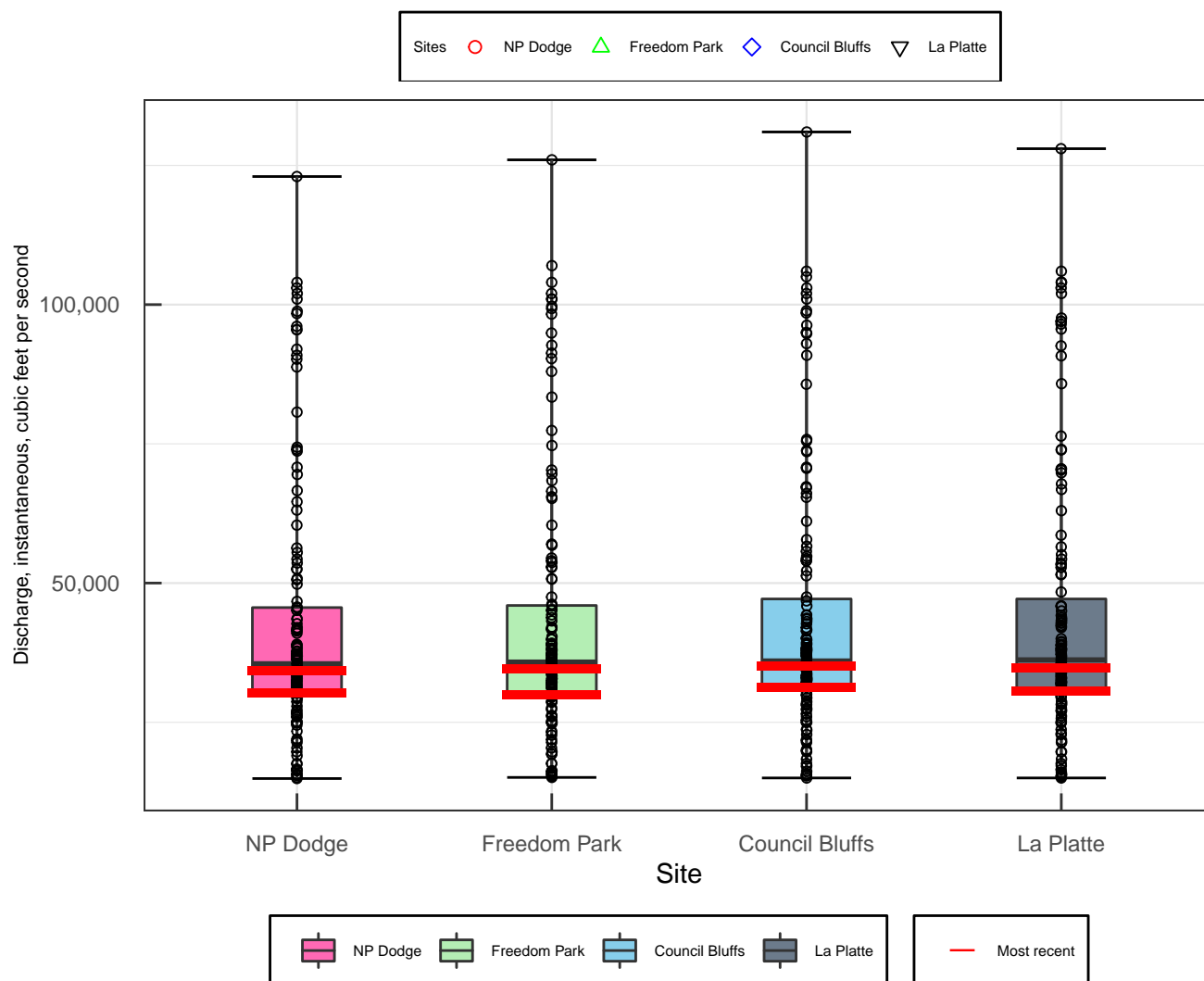
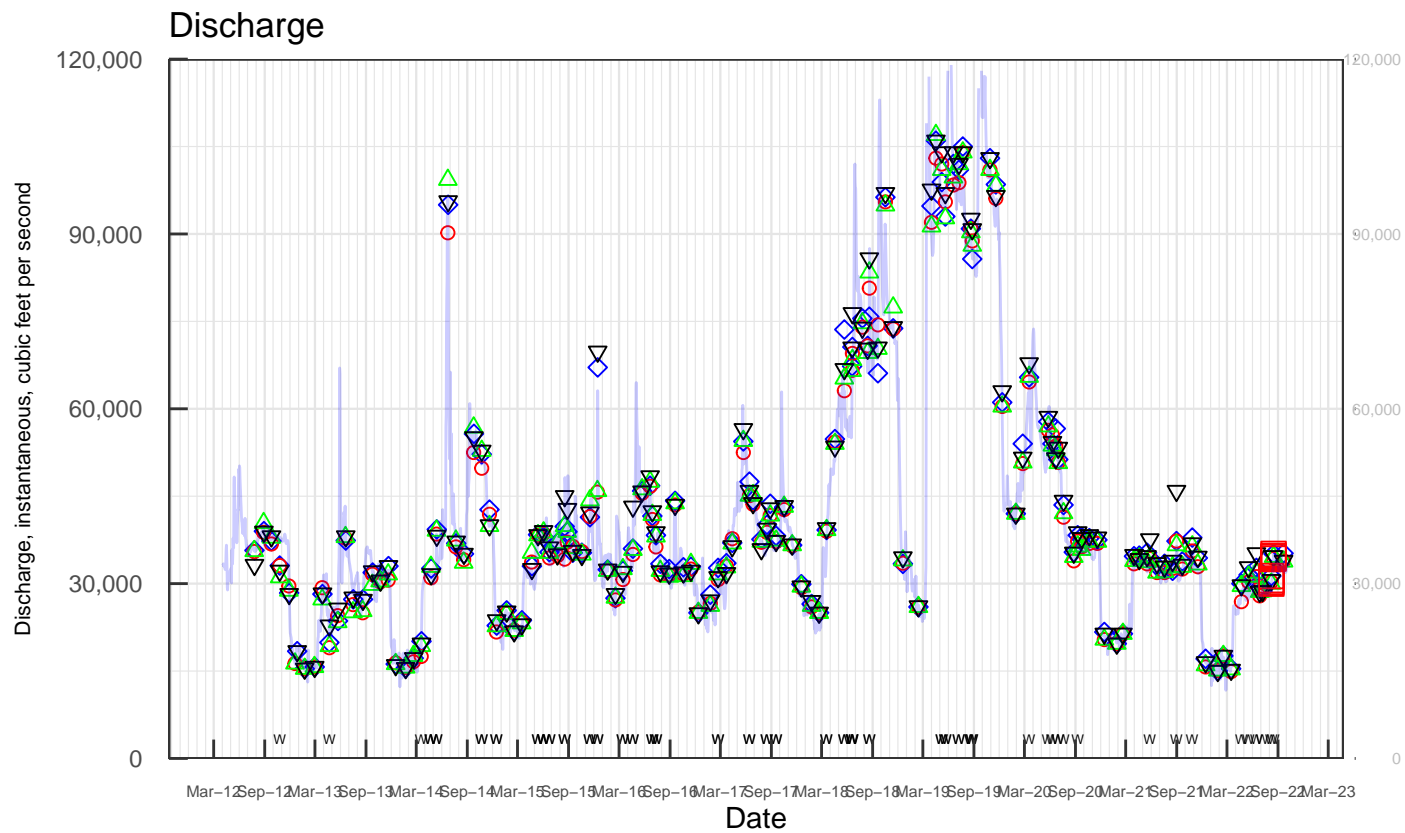
Table 1. Recent precipitation in Omaha exceeding 0.1 inch

Date	Precipitation, inches
07/01/2022	0.29
07/04/2022	0.91
07/05/2022	0.59
07/07/2022	0.35
07/21/2022	0.38
08/07/2022	0.85
08/15/2022	0.18
08/16/2022	0.54
08/25/2022	0.46
08/27/2022	0.38

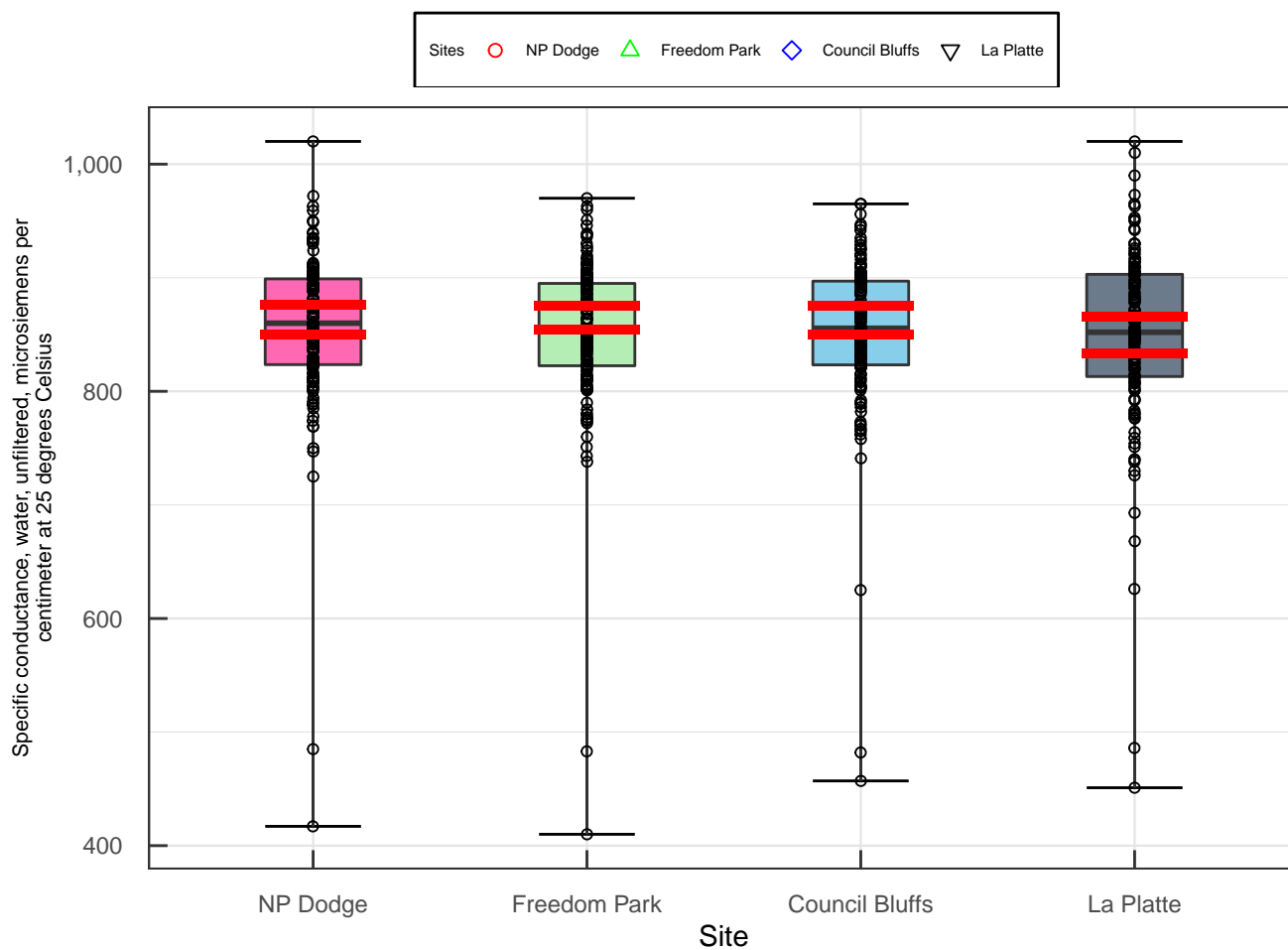
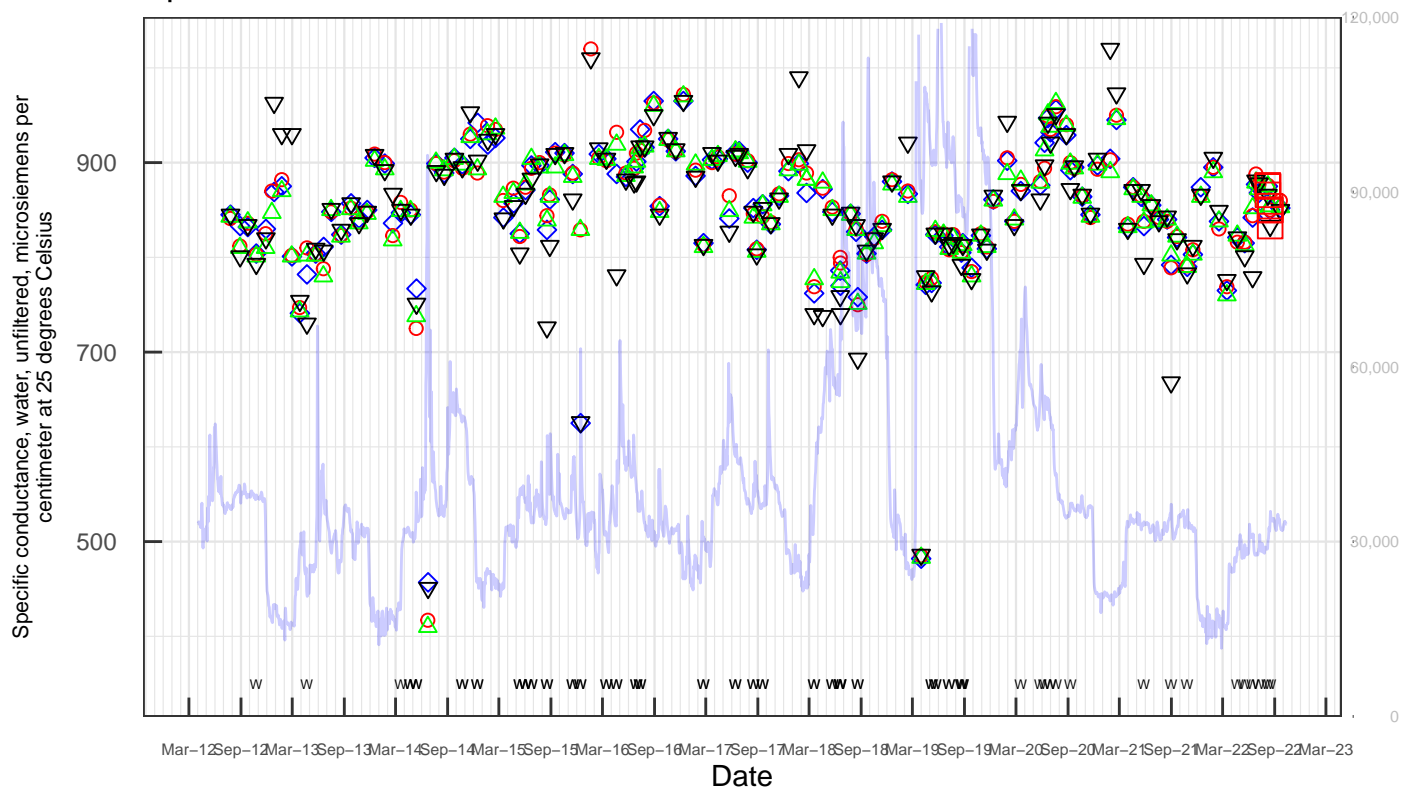


Temperature

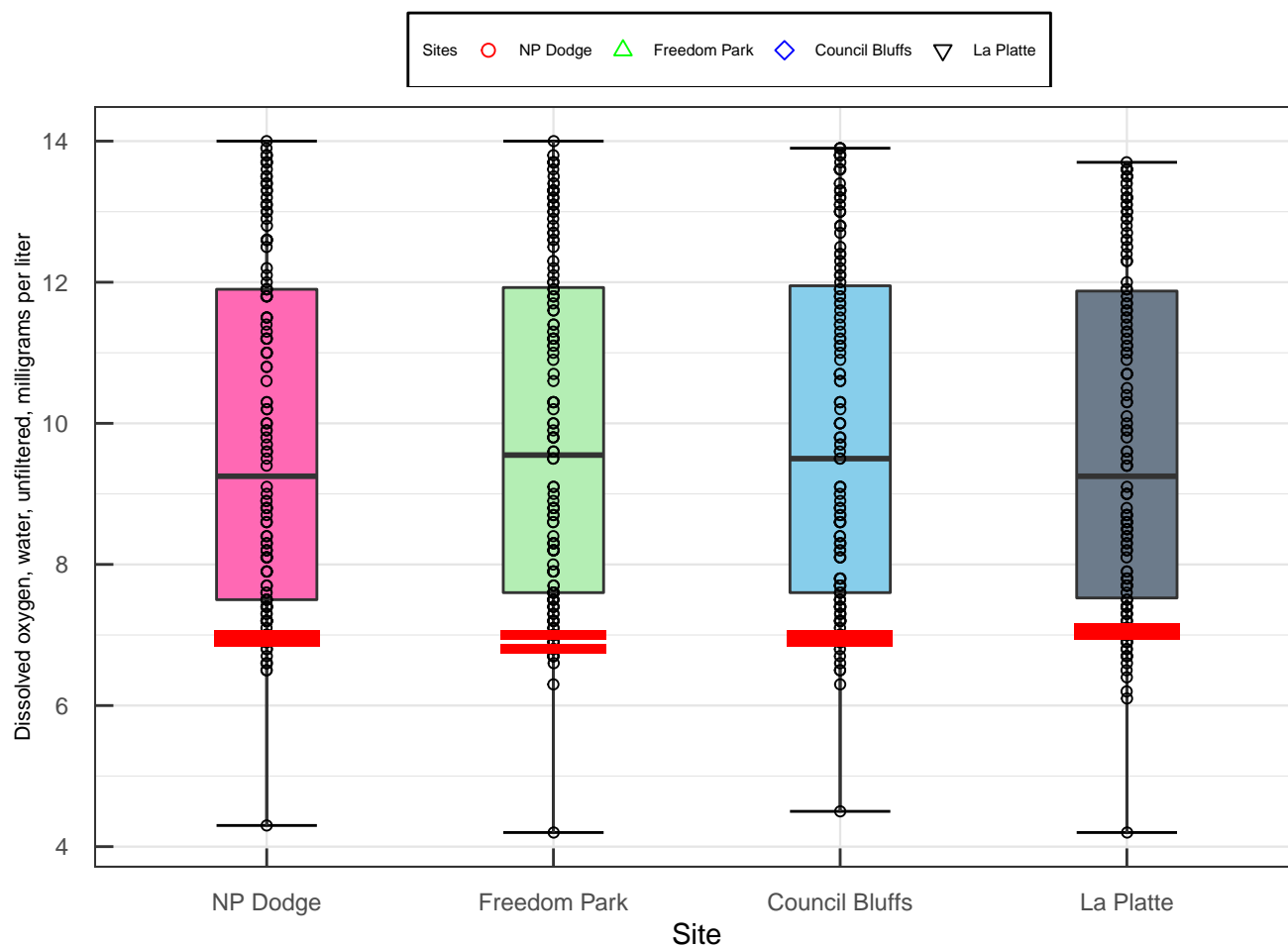
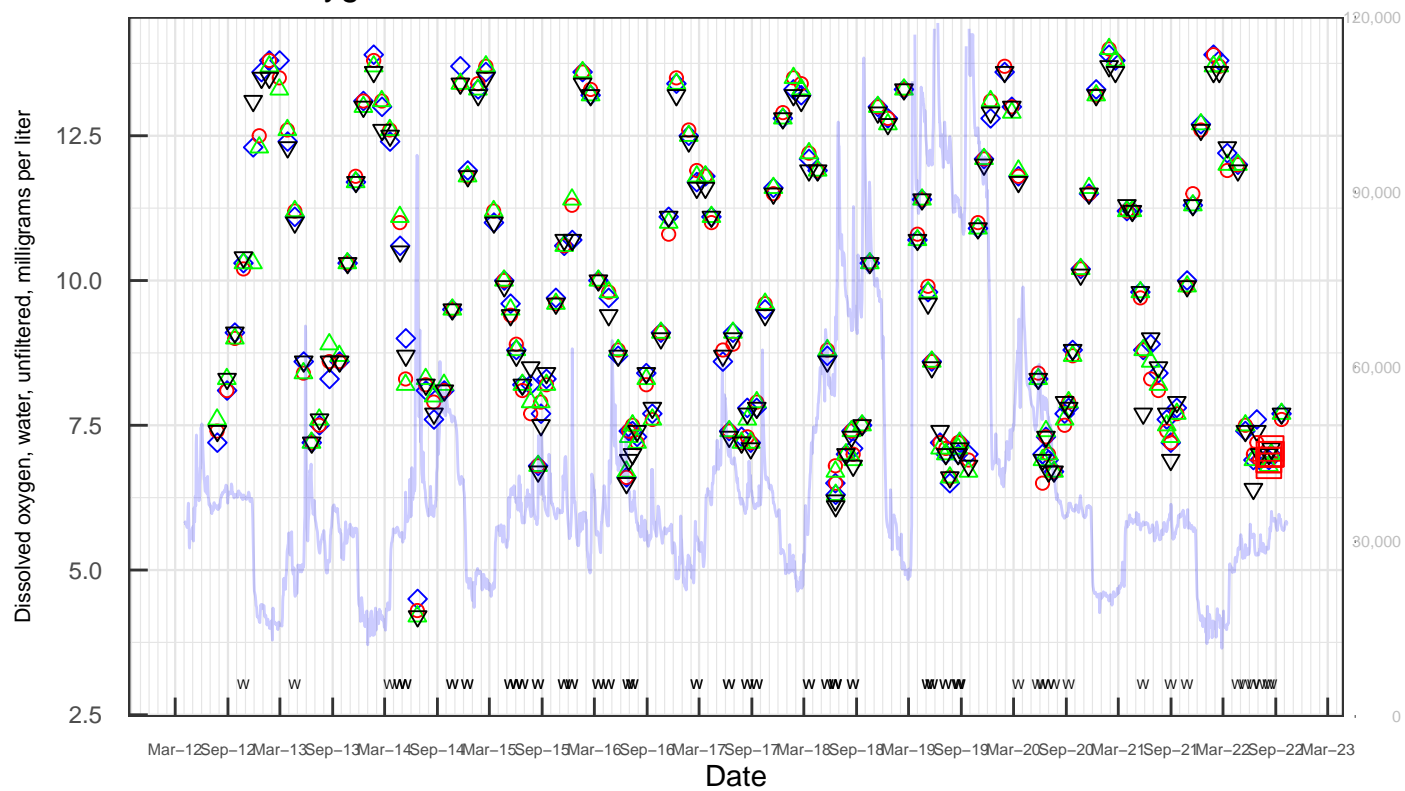




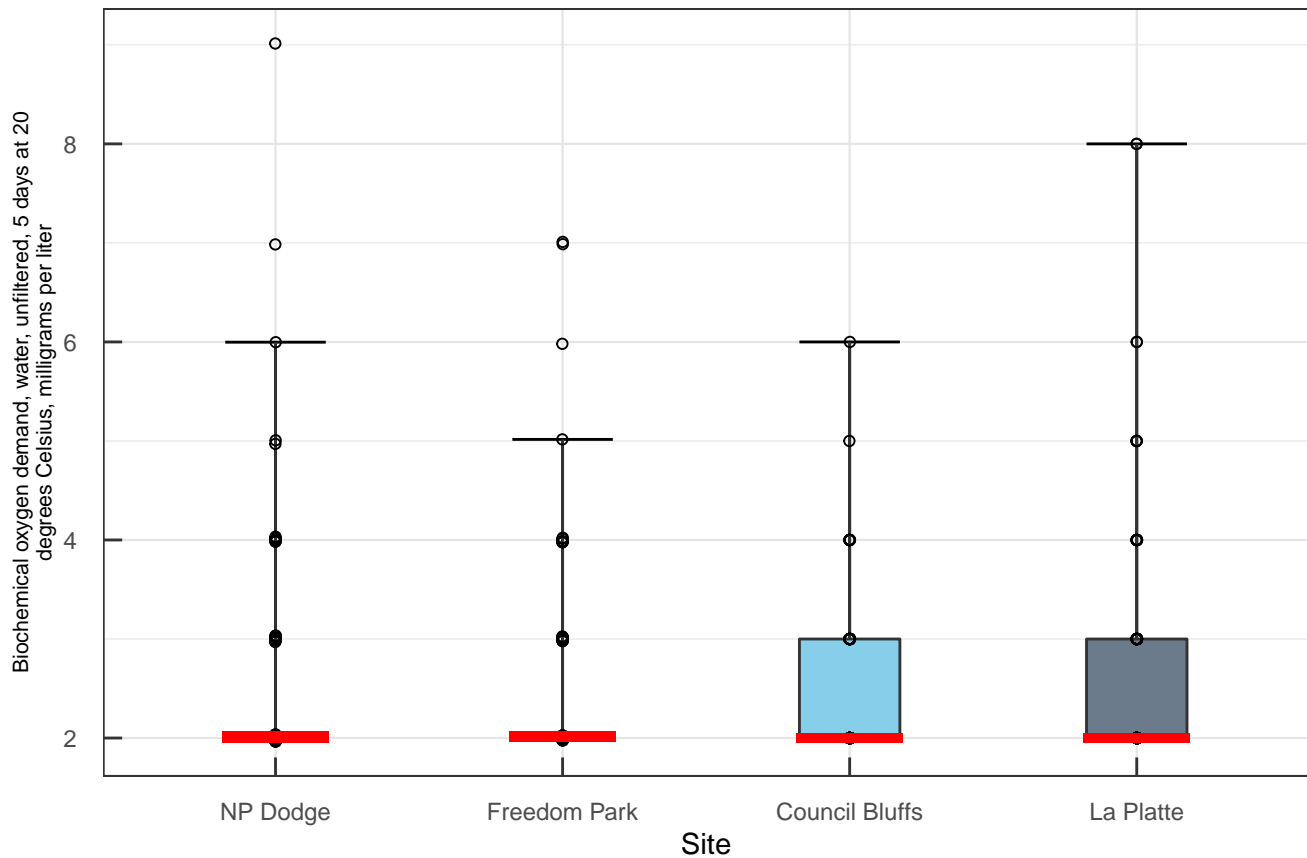
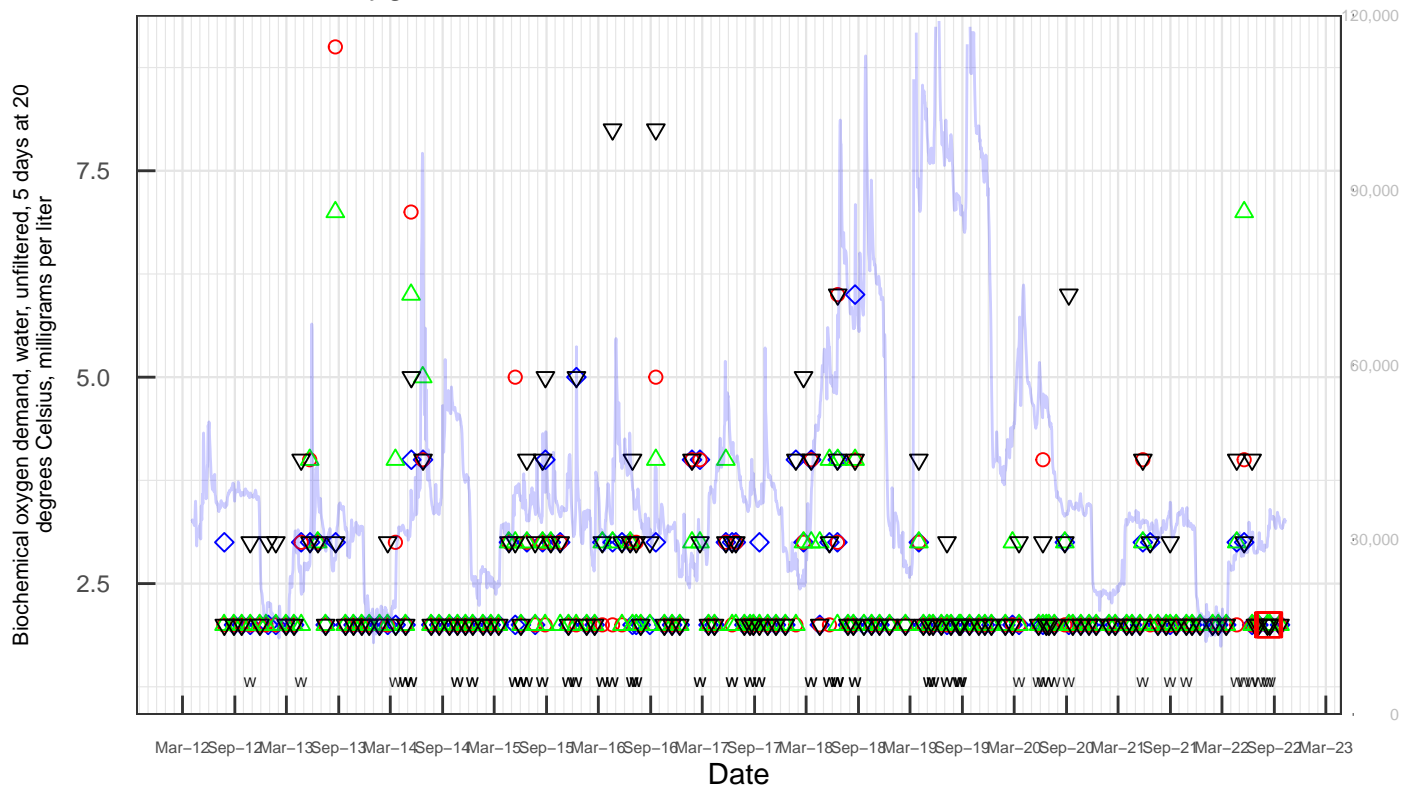
Specific conductance



Dissolved oxygen

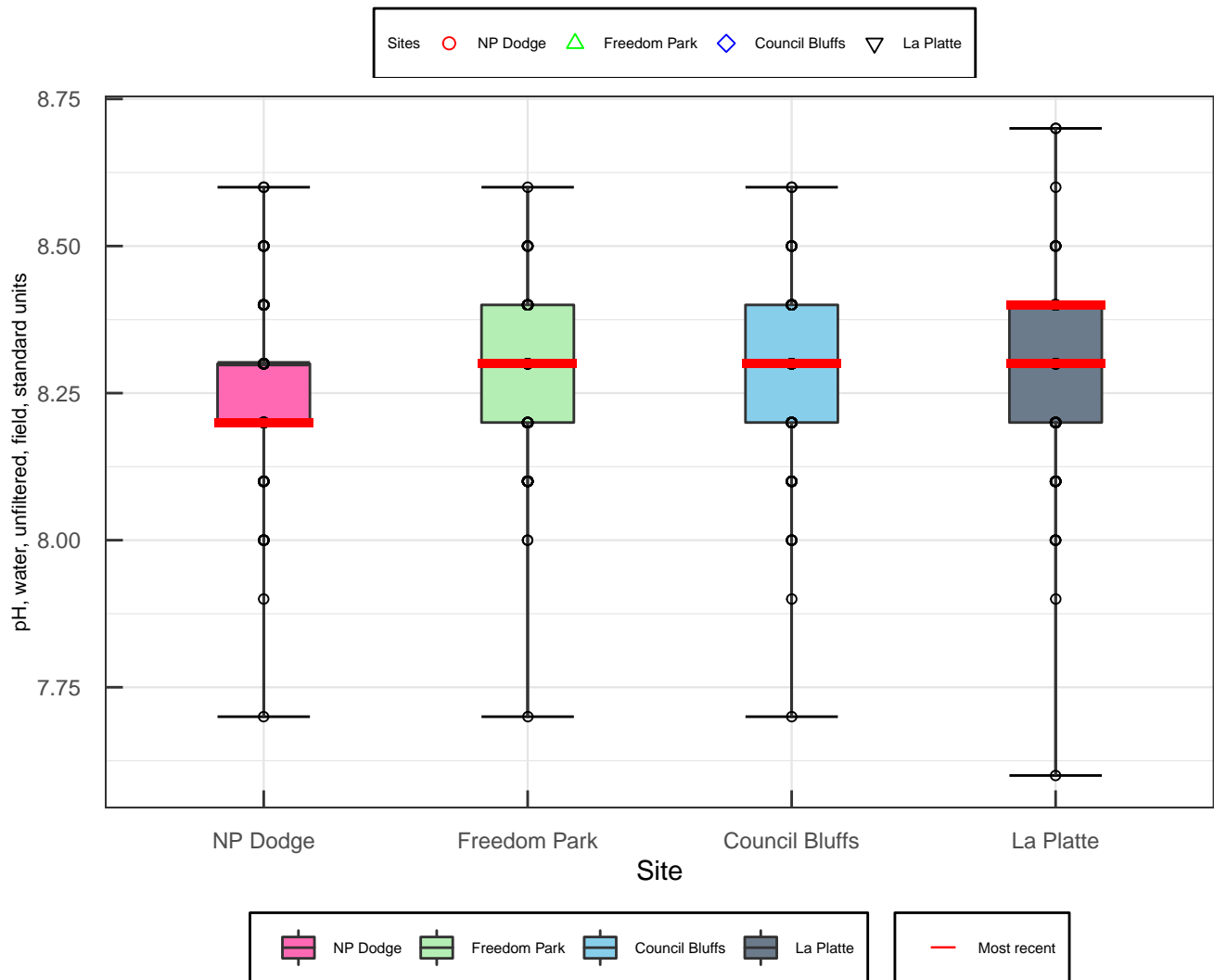
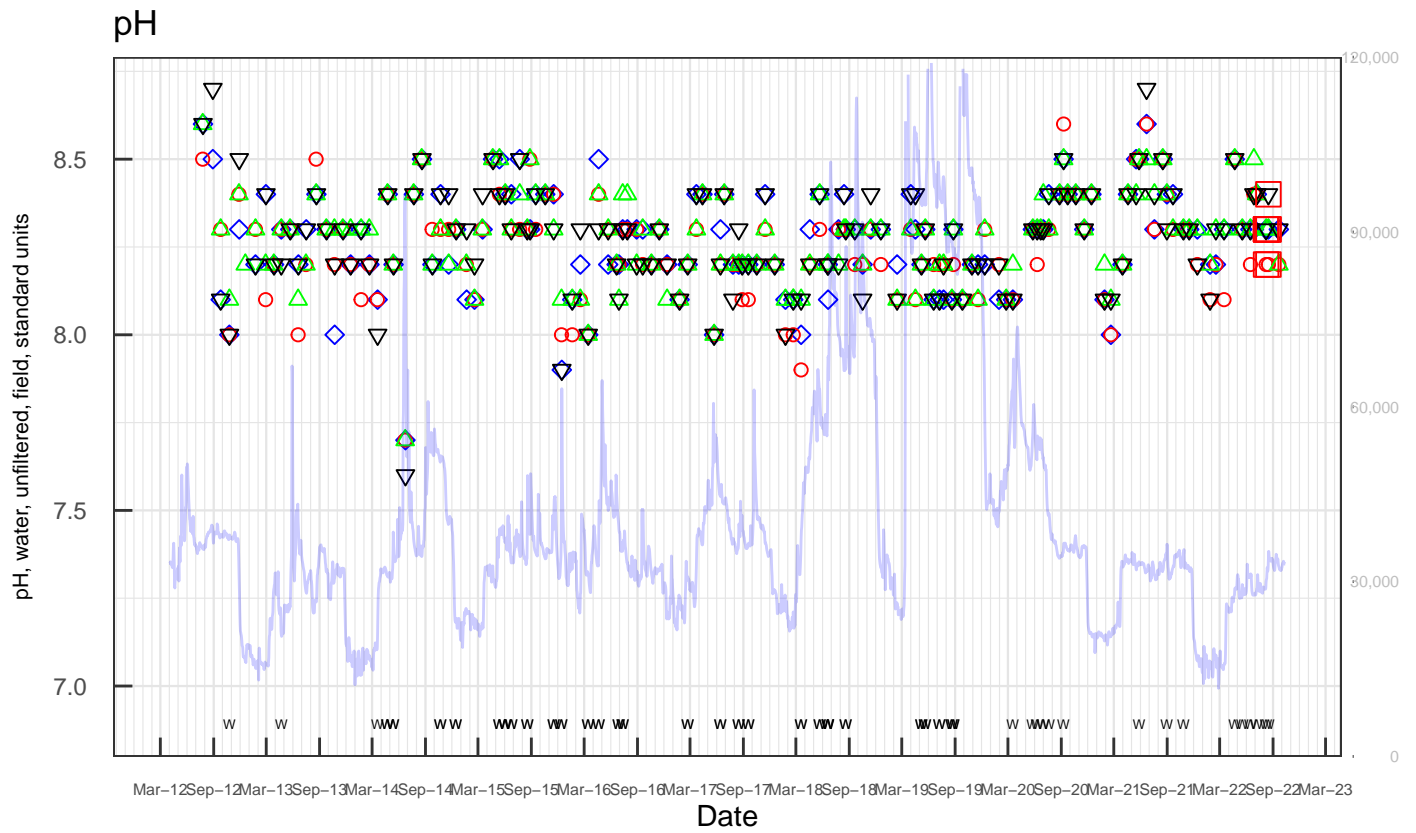


Biochemical oxygen demand

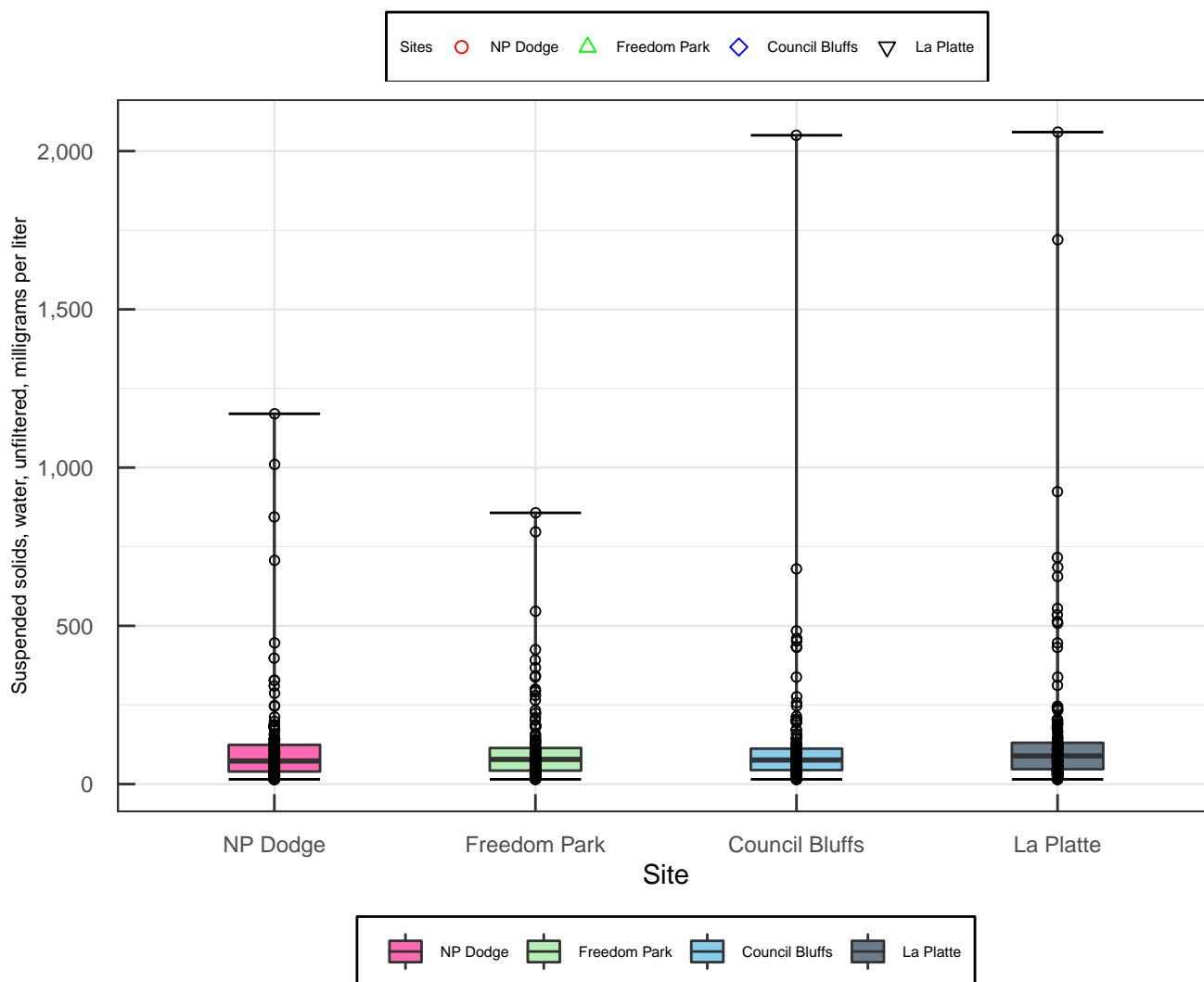
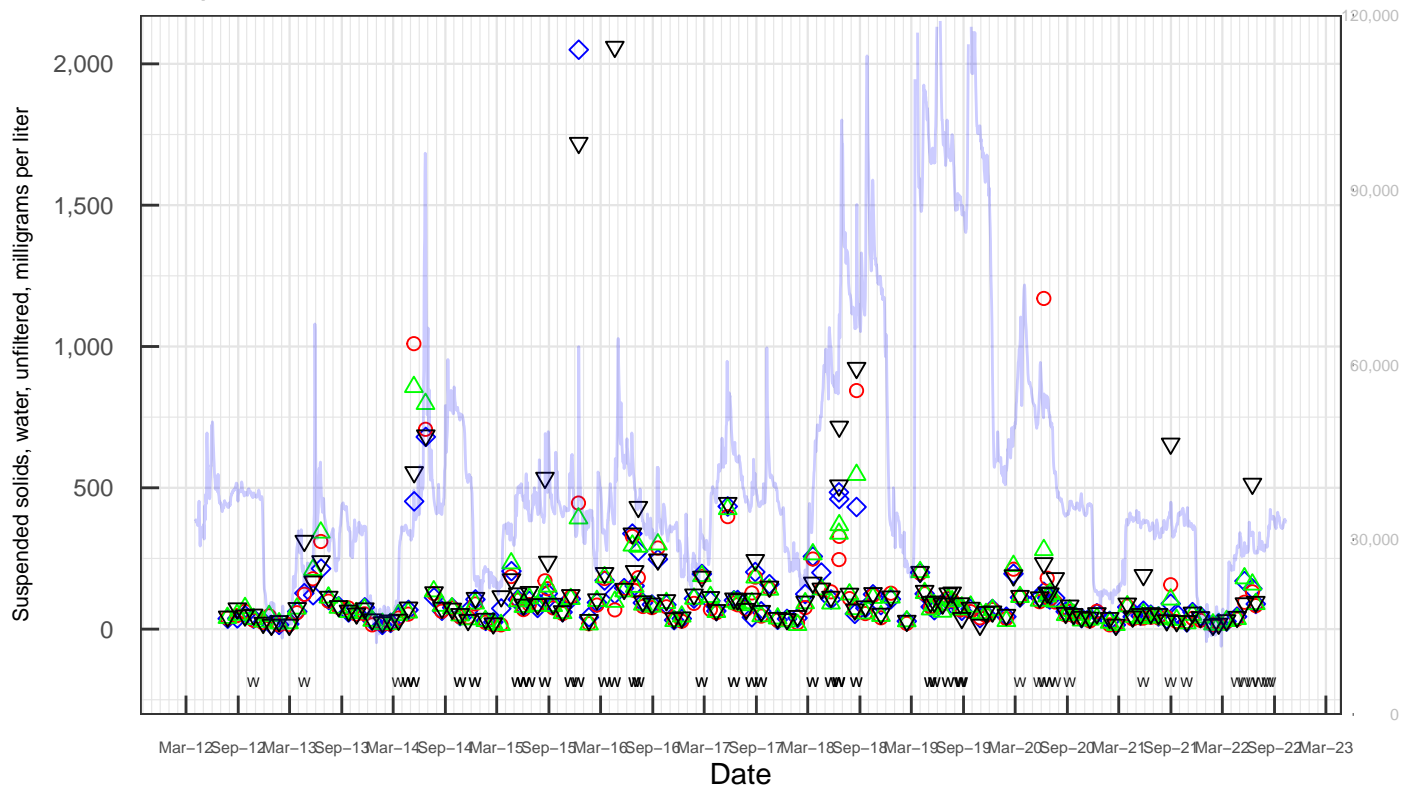


--PRELIMINARY DATA SUBJECT TO REVISION--

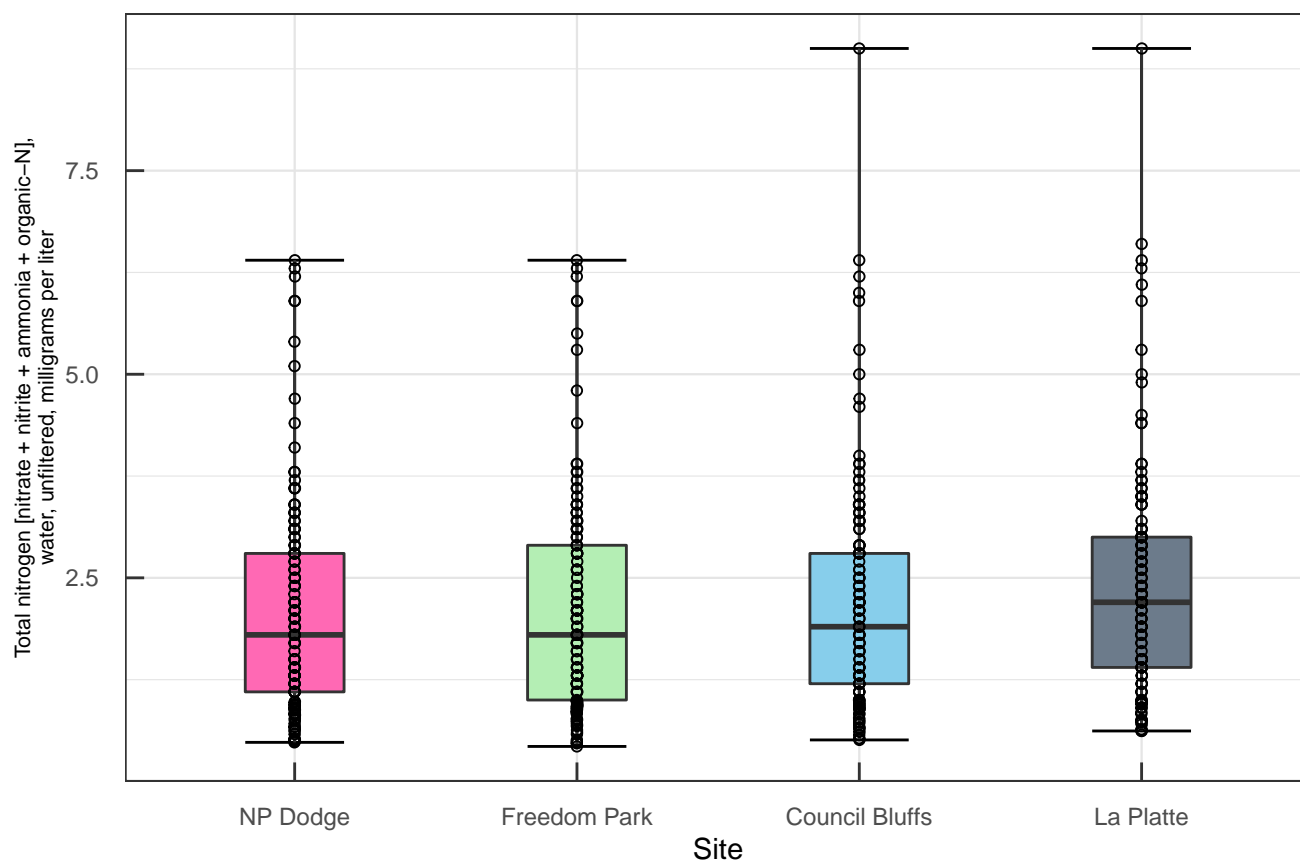
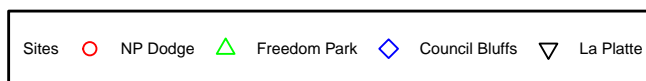
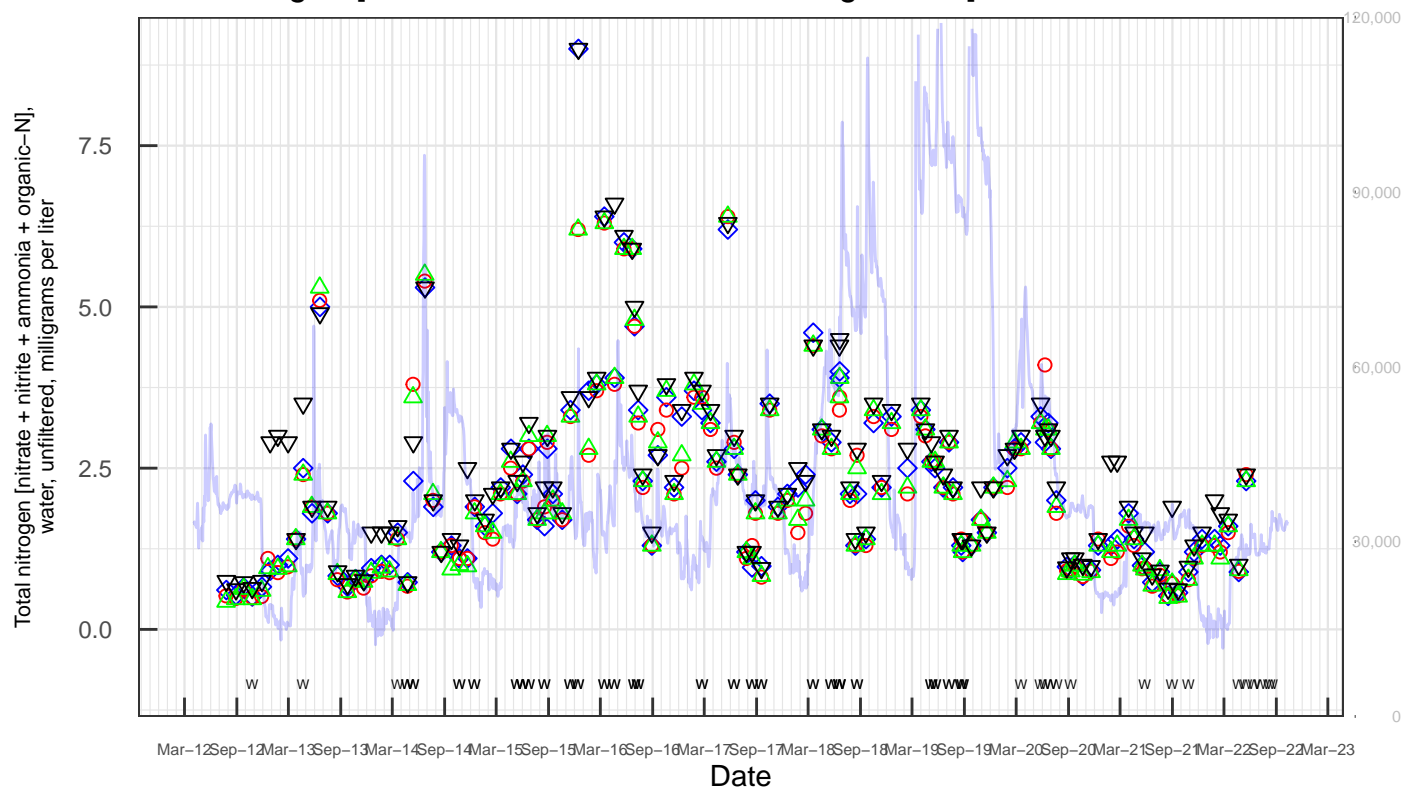
data retrieved 10/14/2022



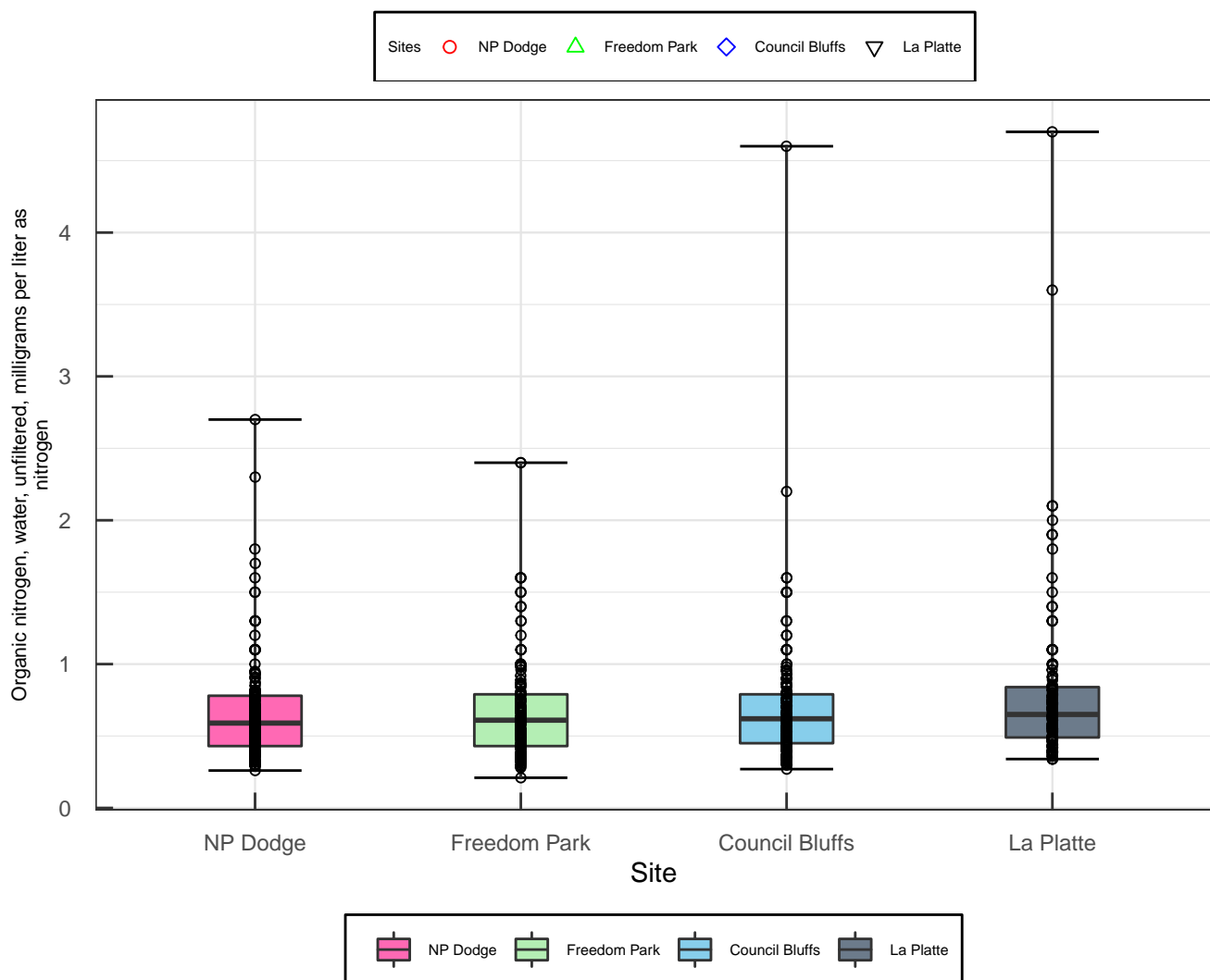
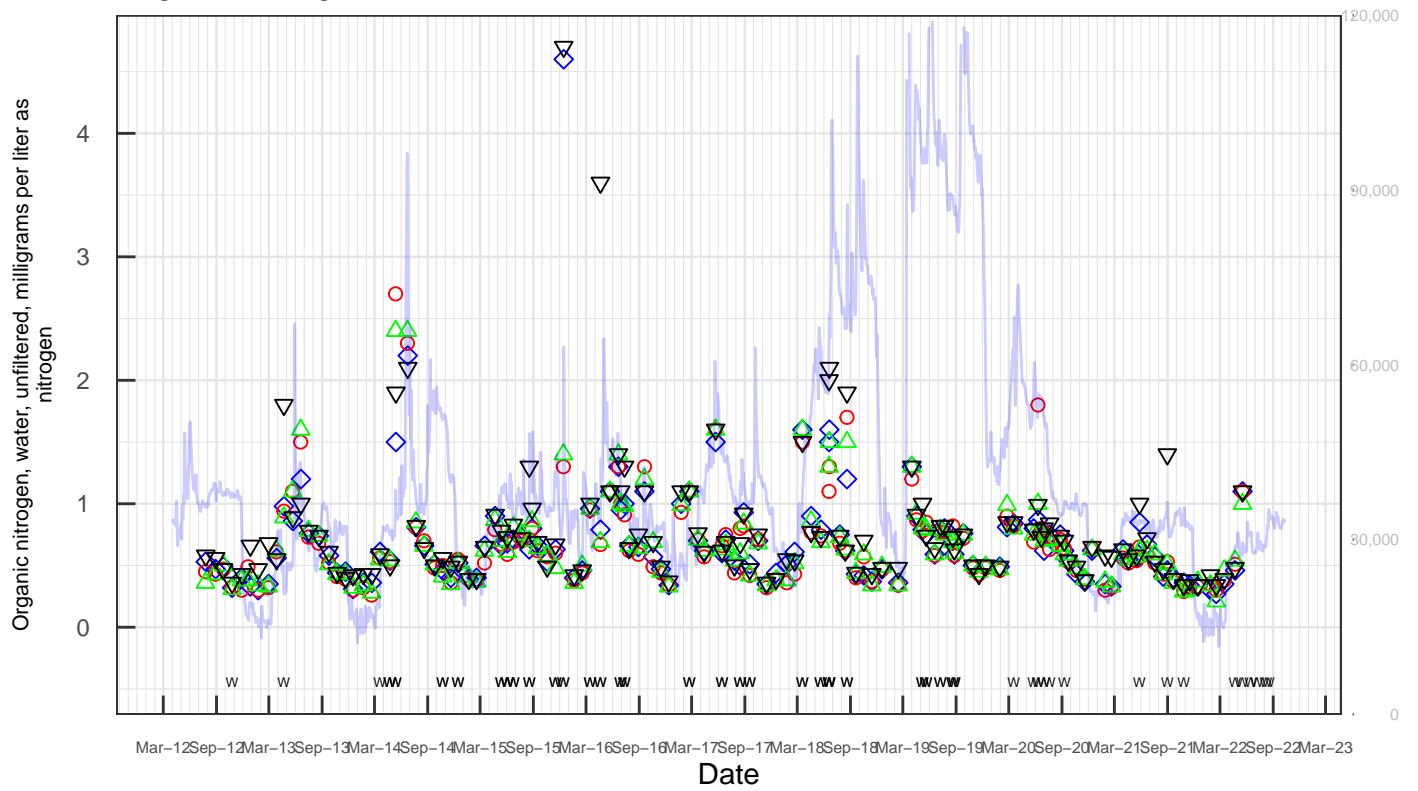
Suspended solids



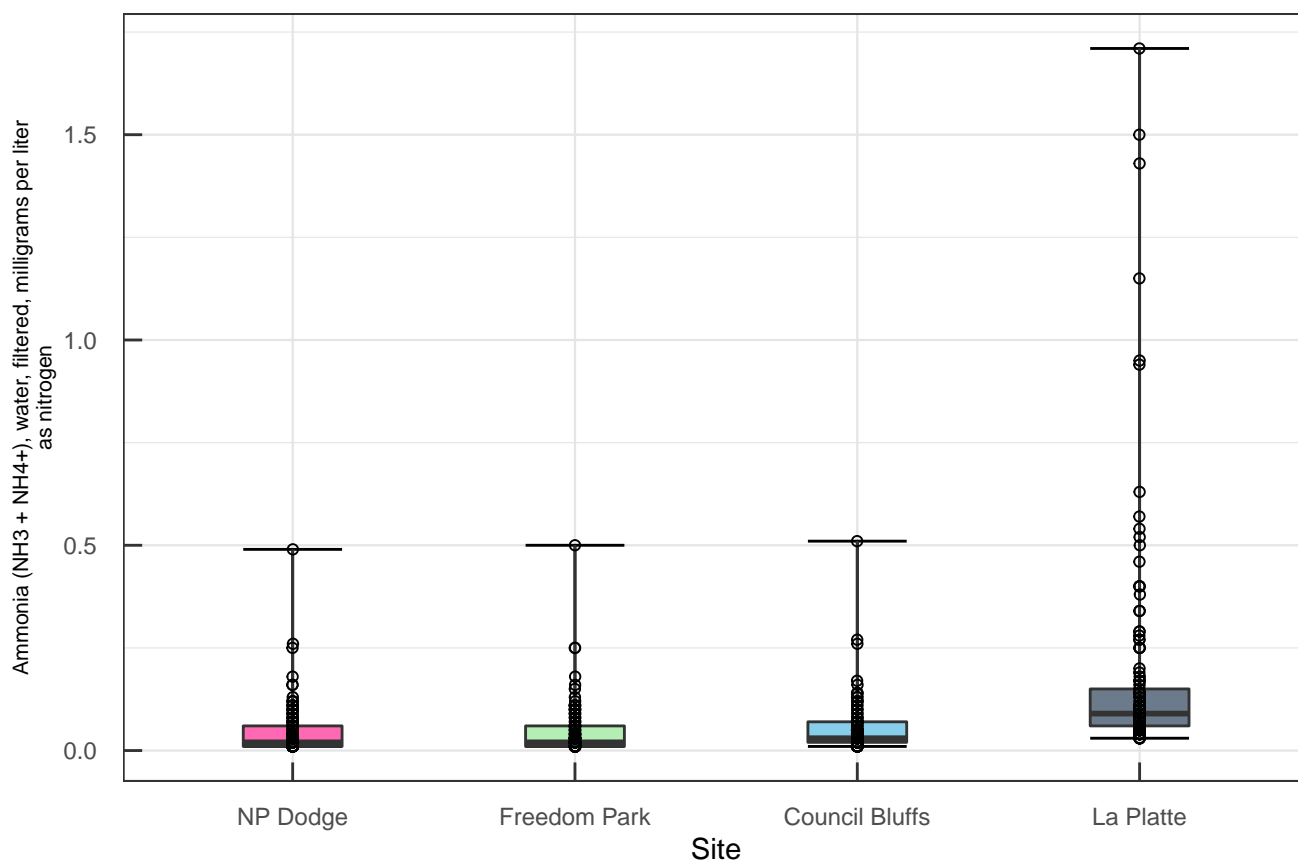
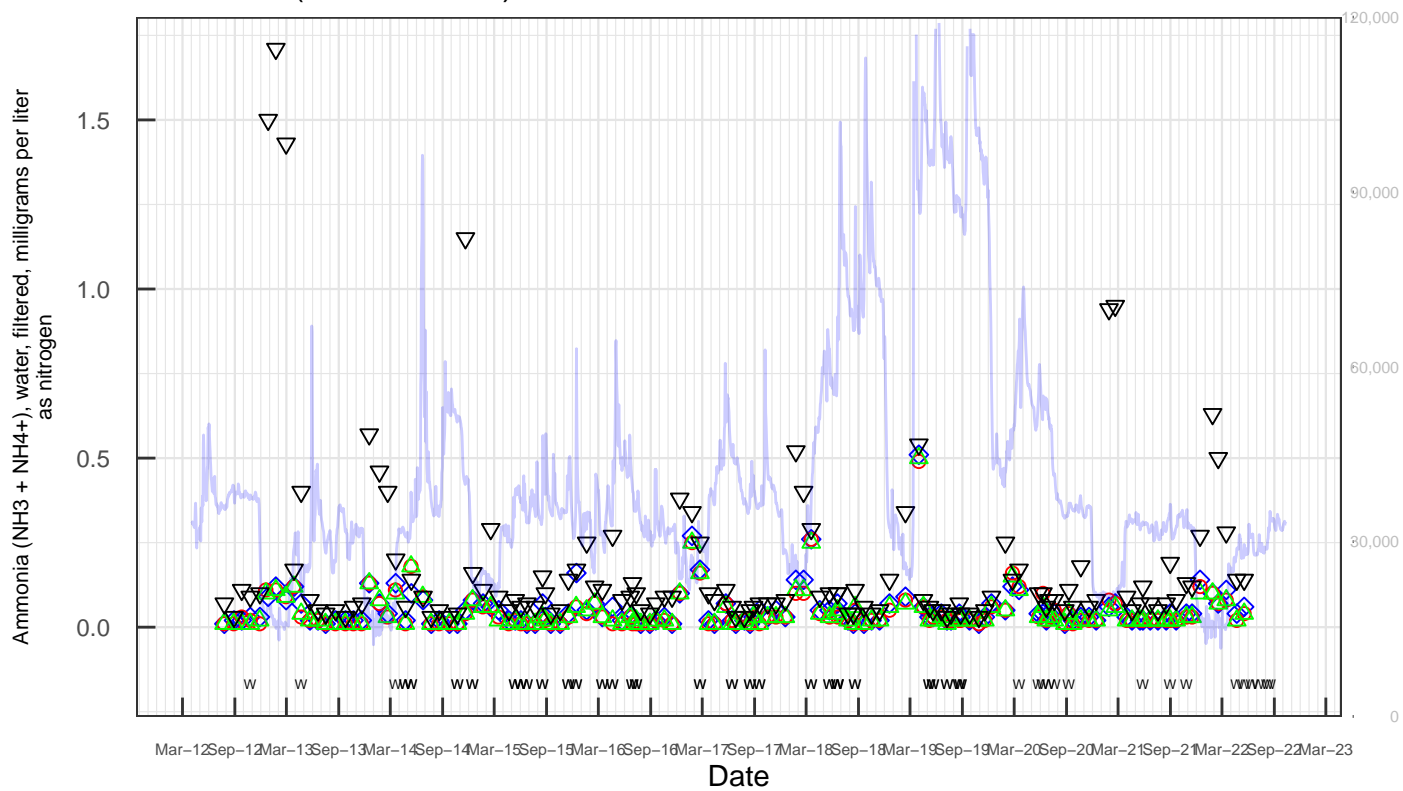
Total nitrogen [nitrate + nitrite + ammonia + organic-N]



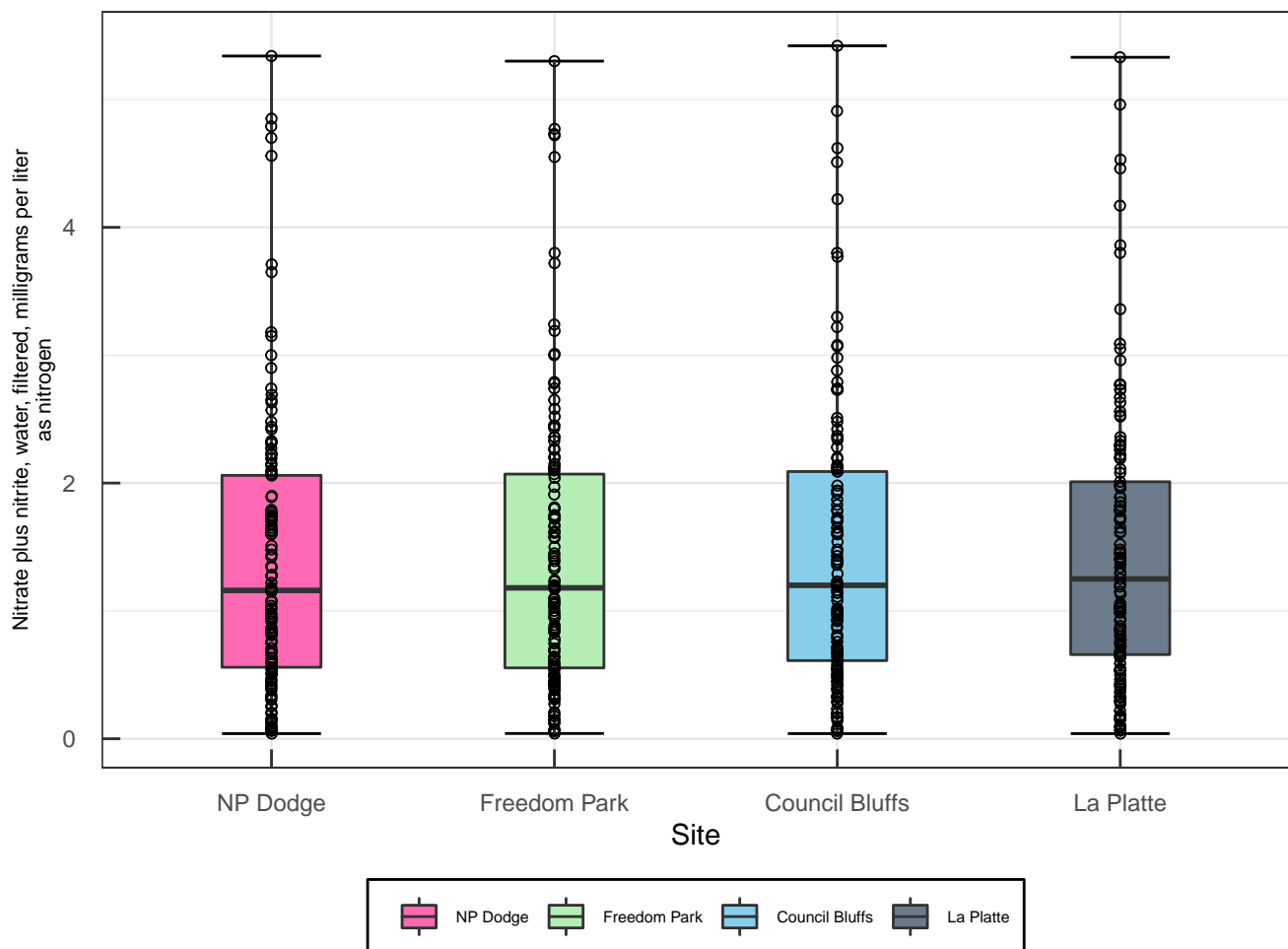
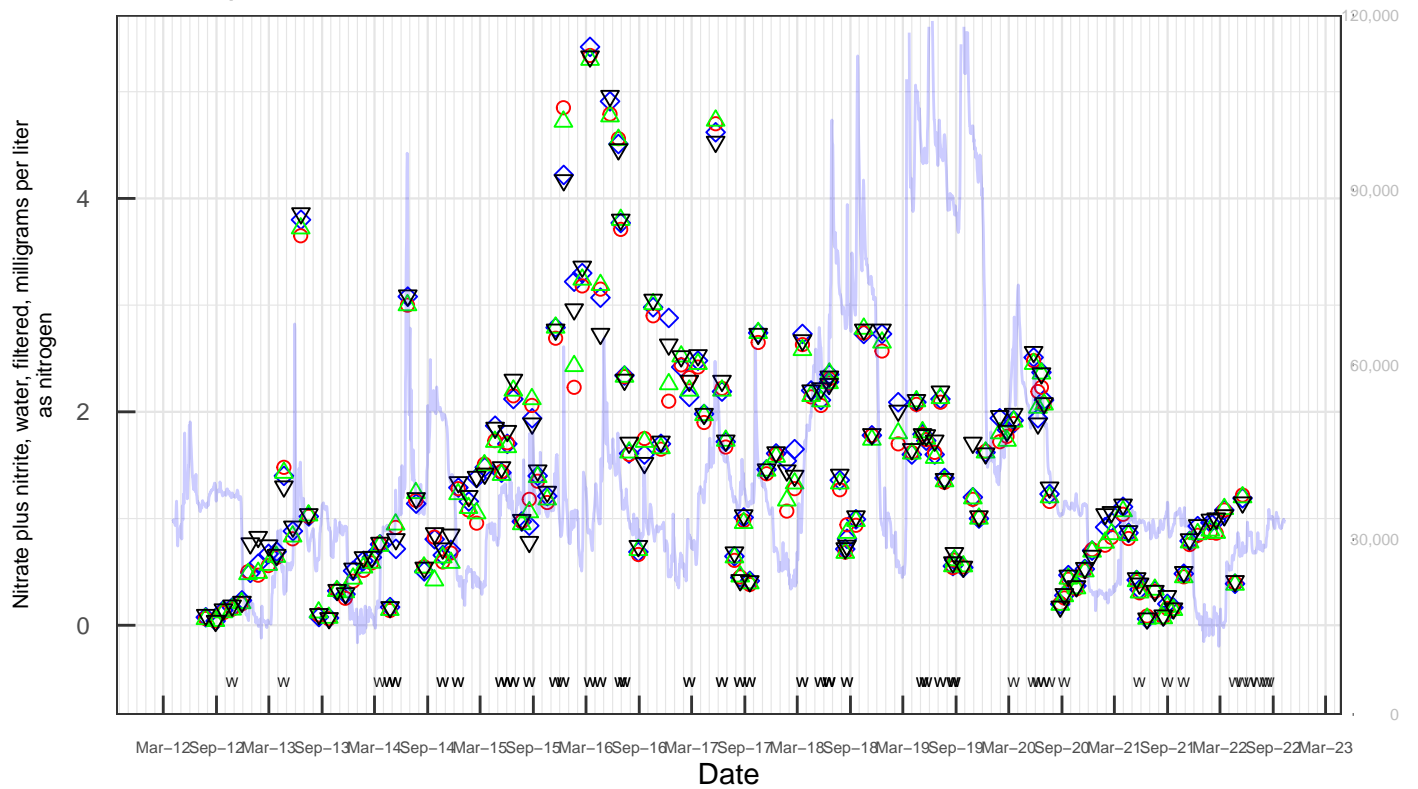
Organic nitrogen



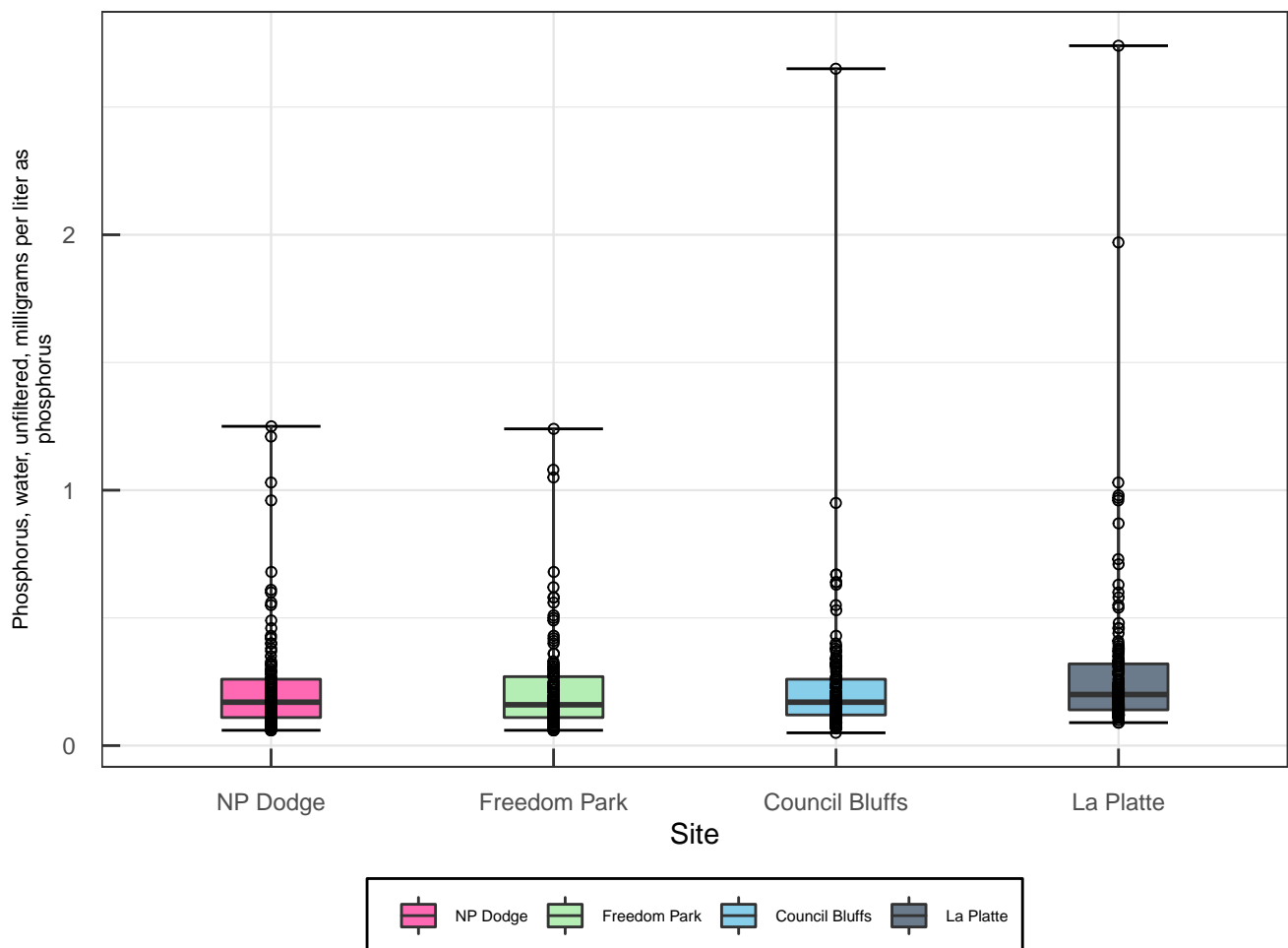
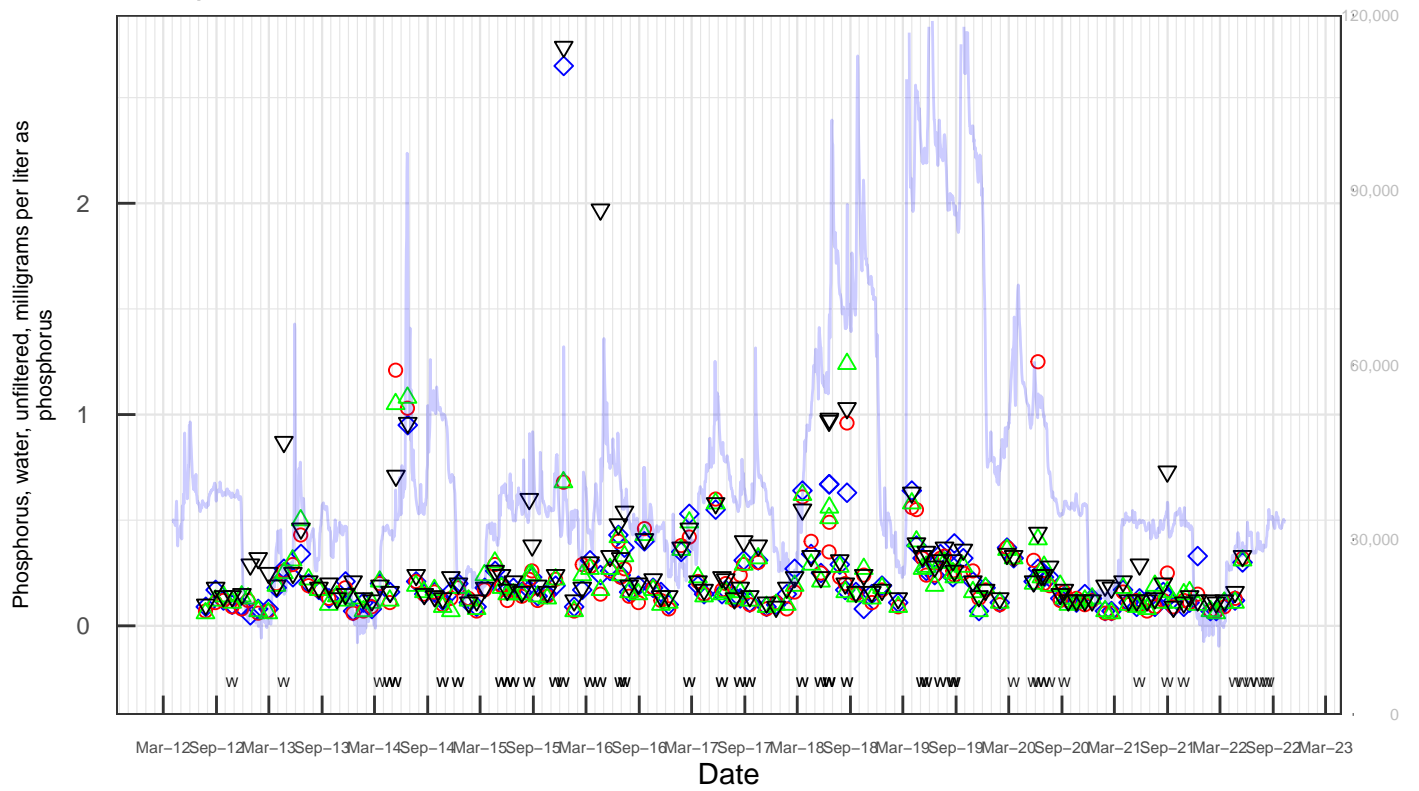
Ammonia (NH₃ + NH₄⁺)



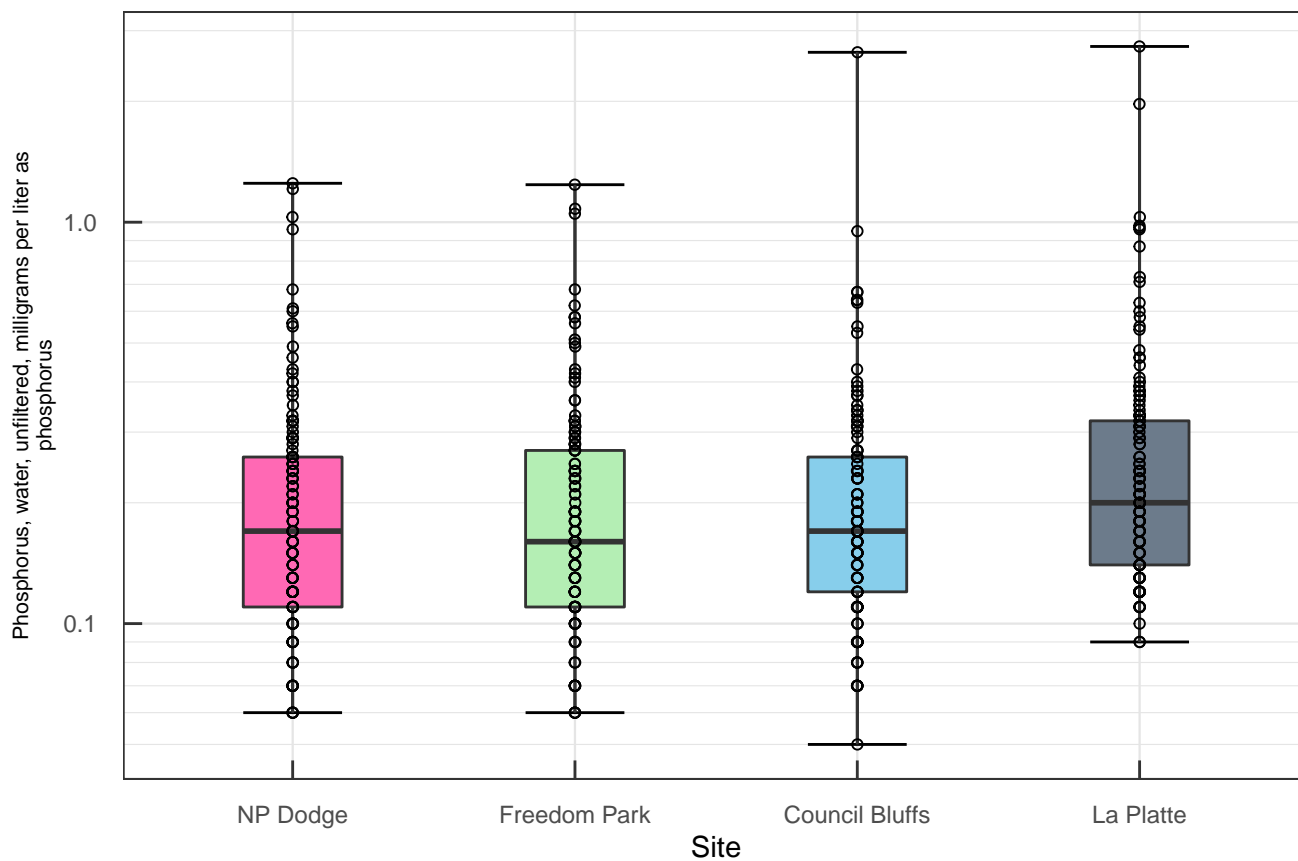
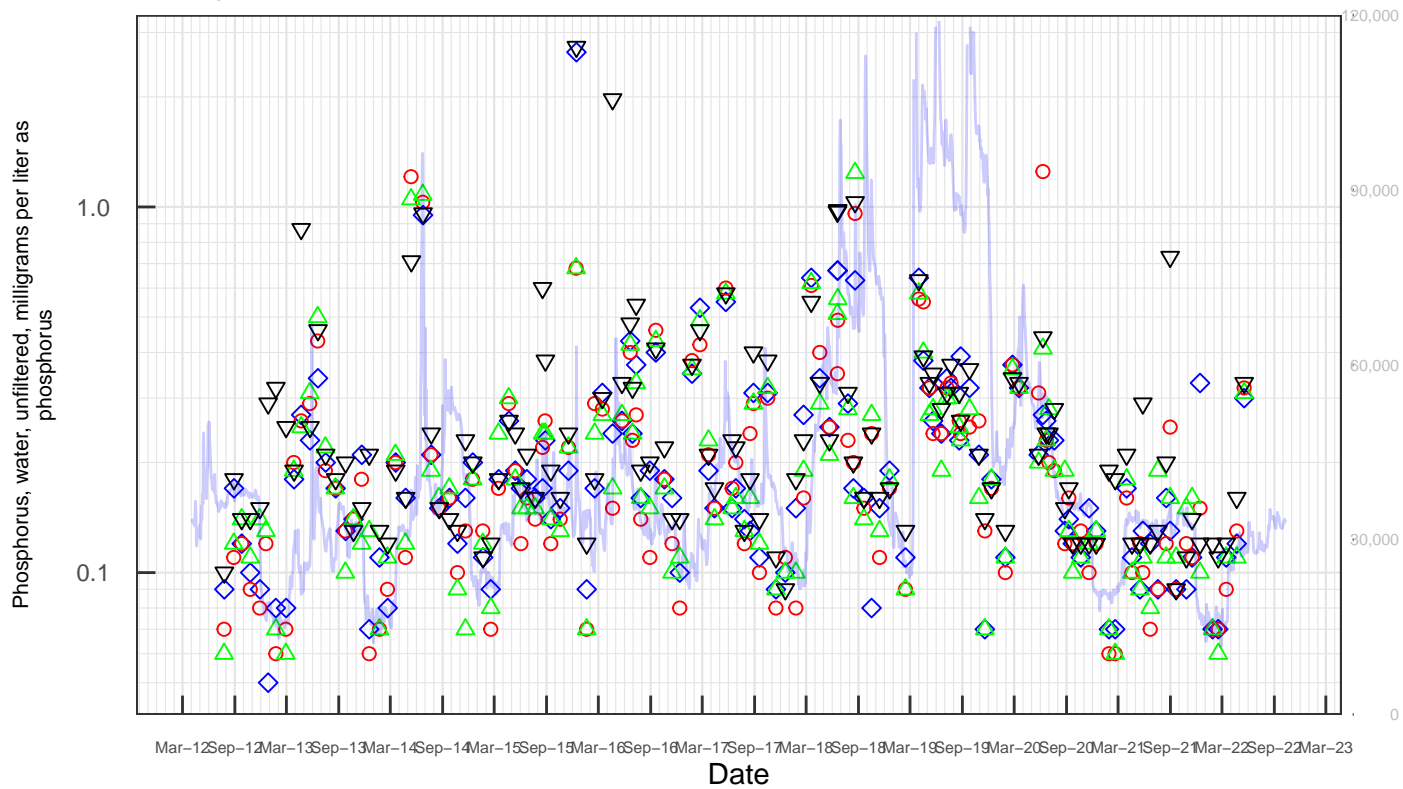
Nitrate plus nitrite



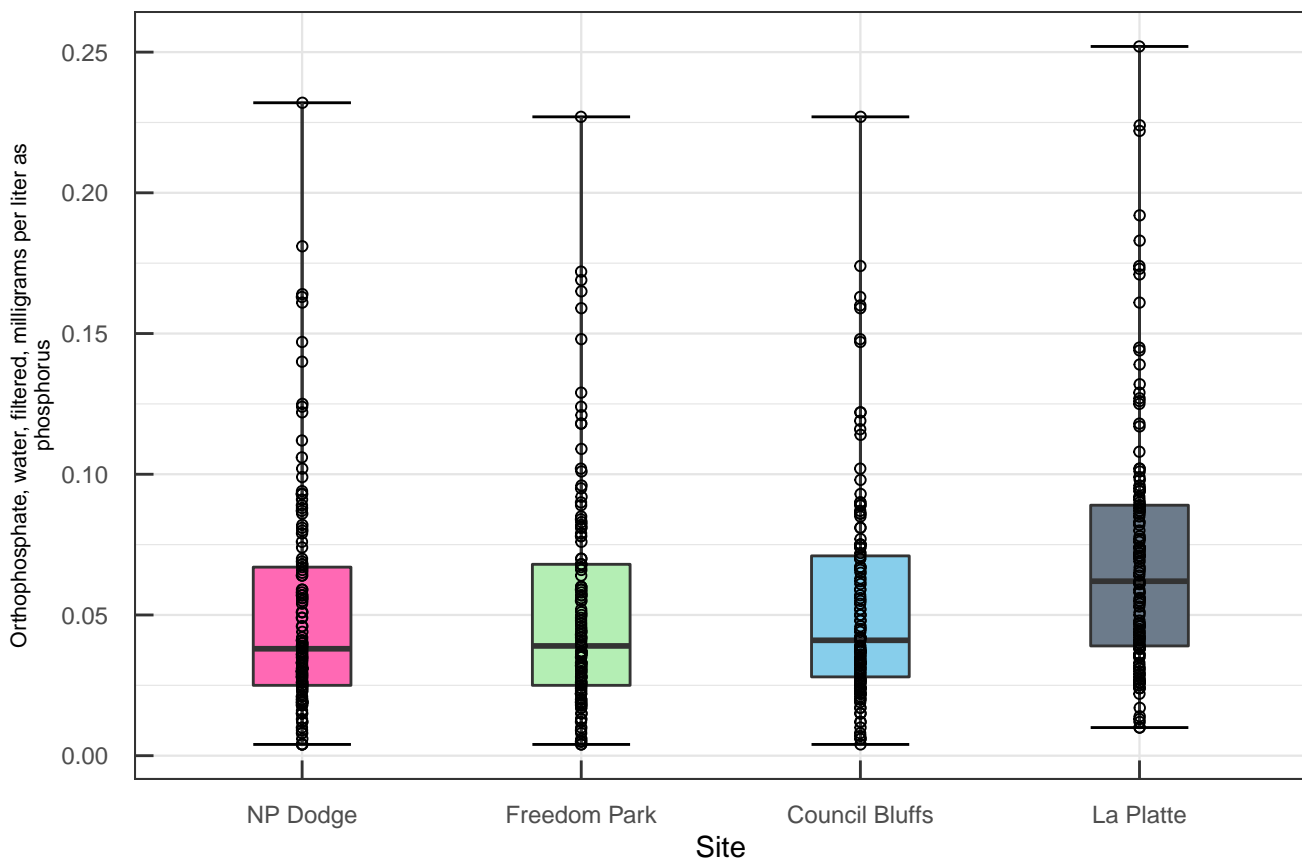
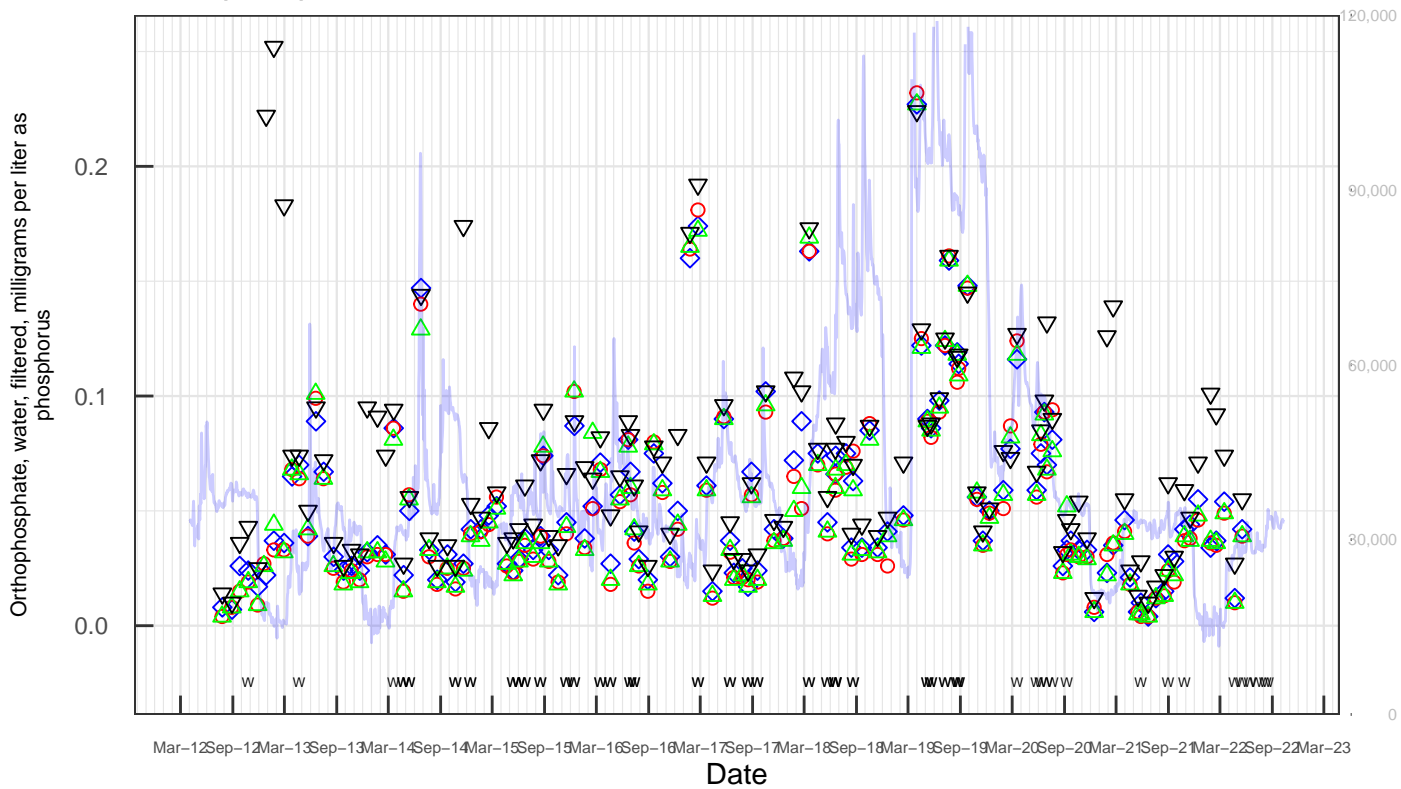
Phosphorus

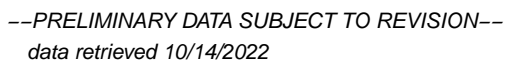


Phosphorus

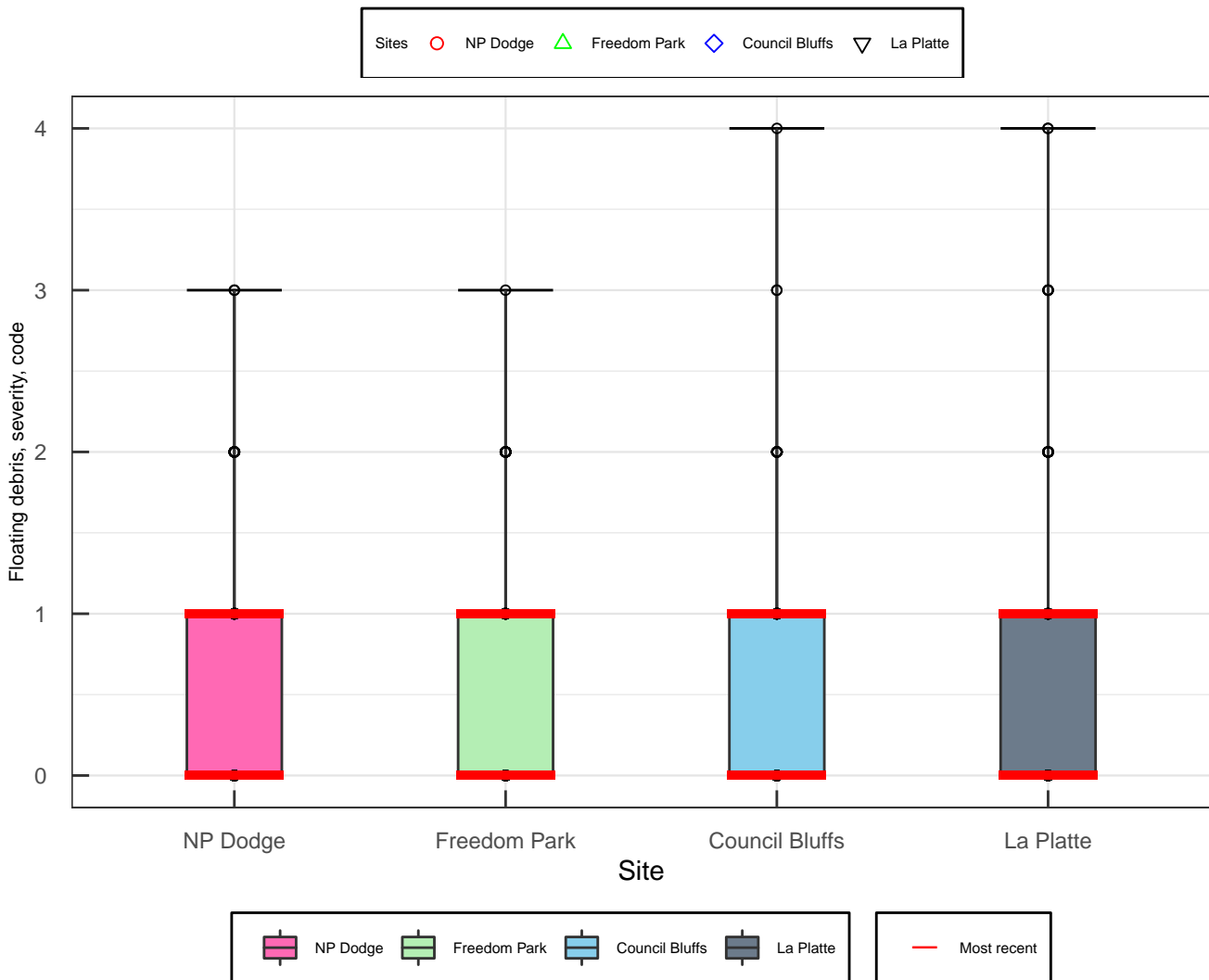
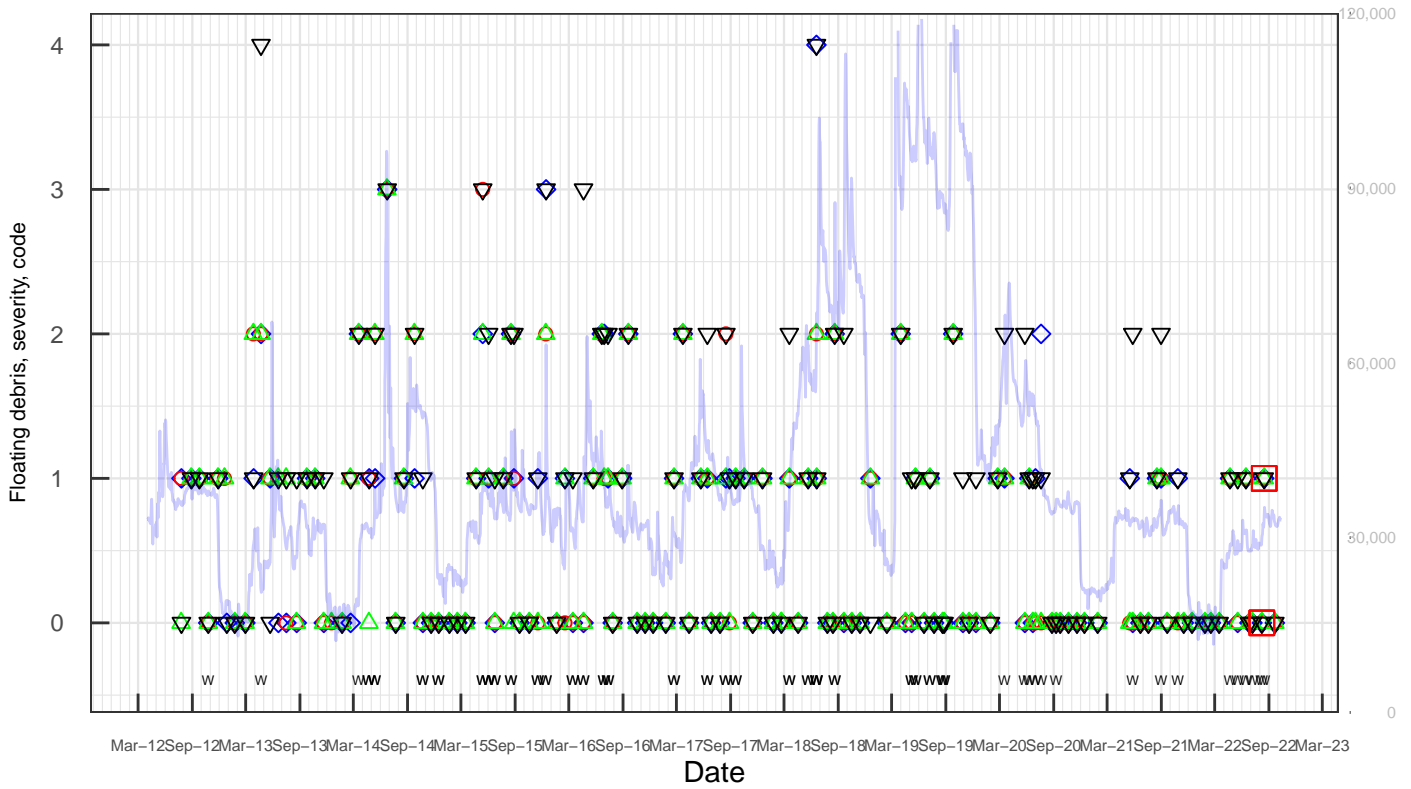


Orthophosphate



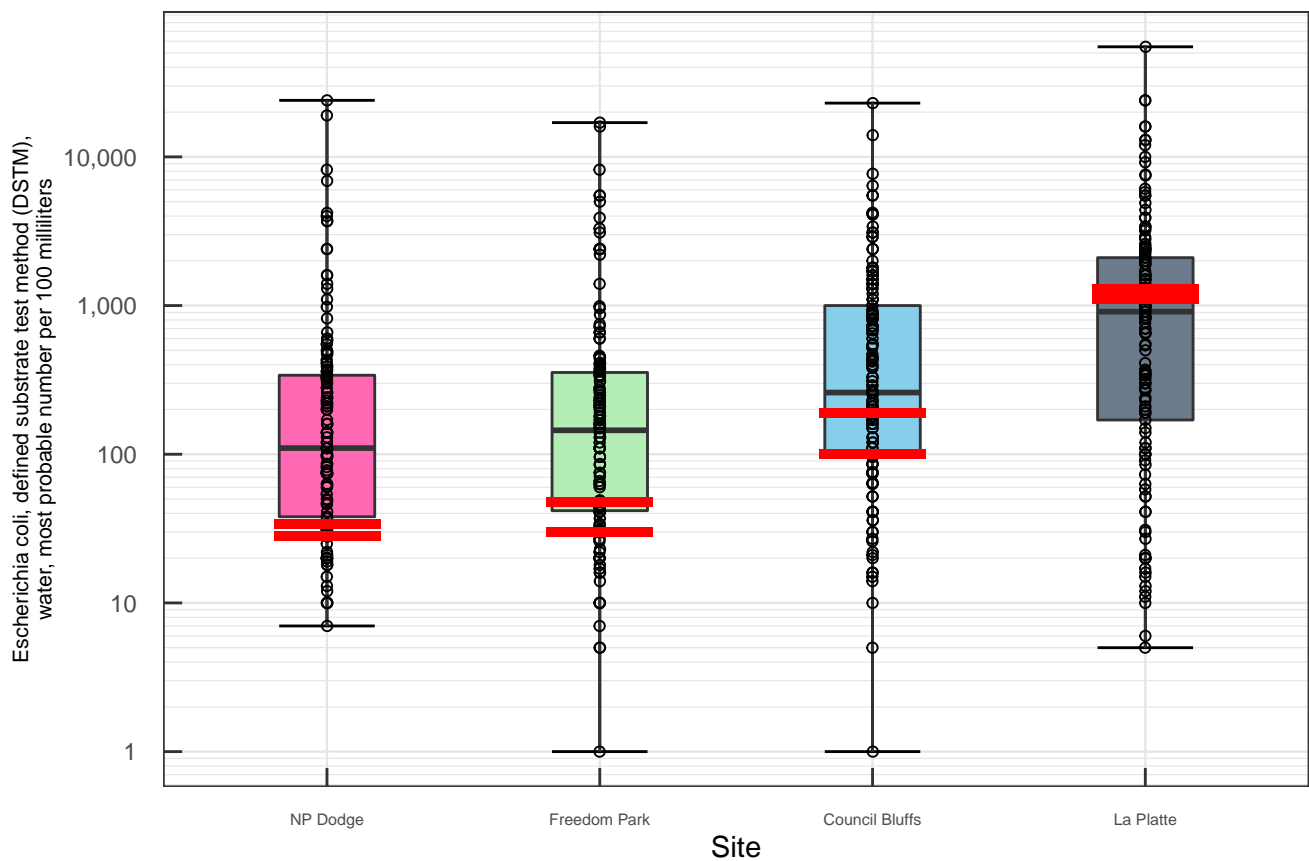
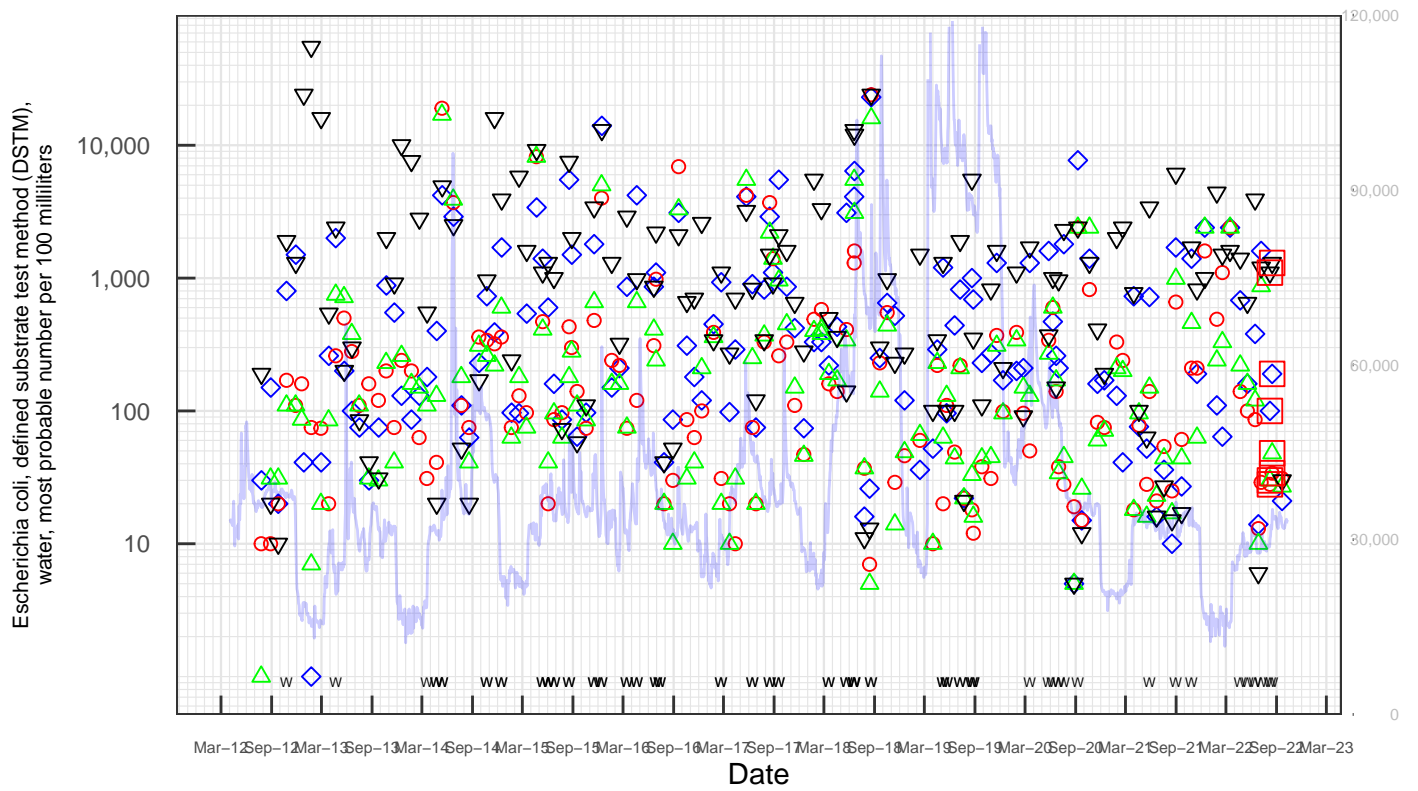


Floating debris

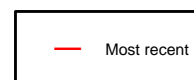
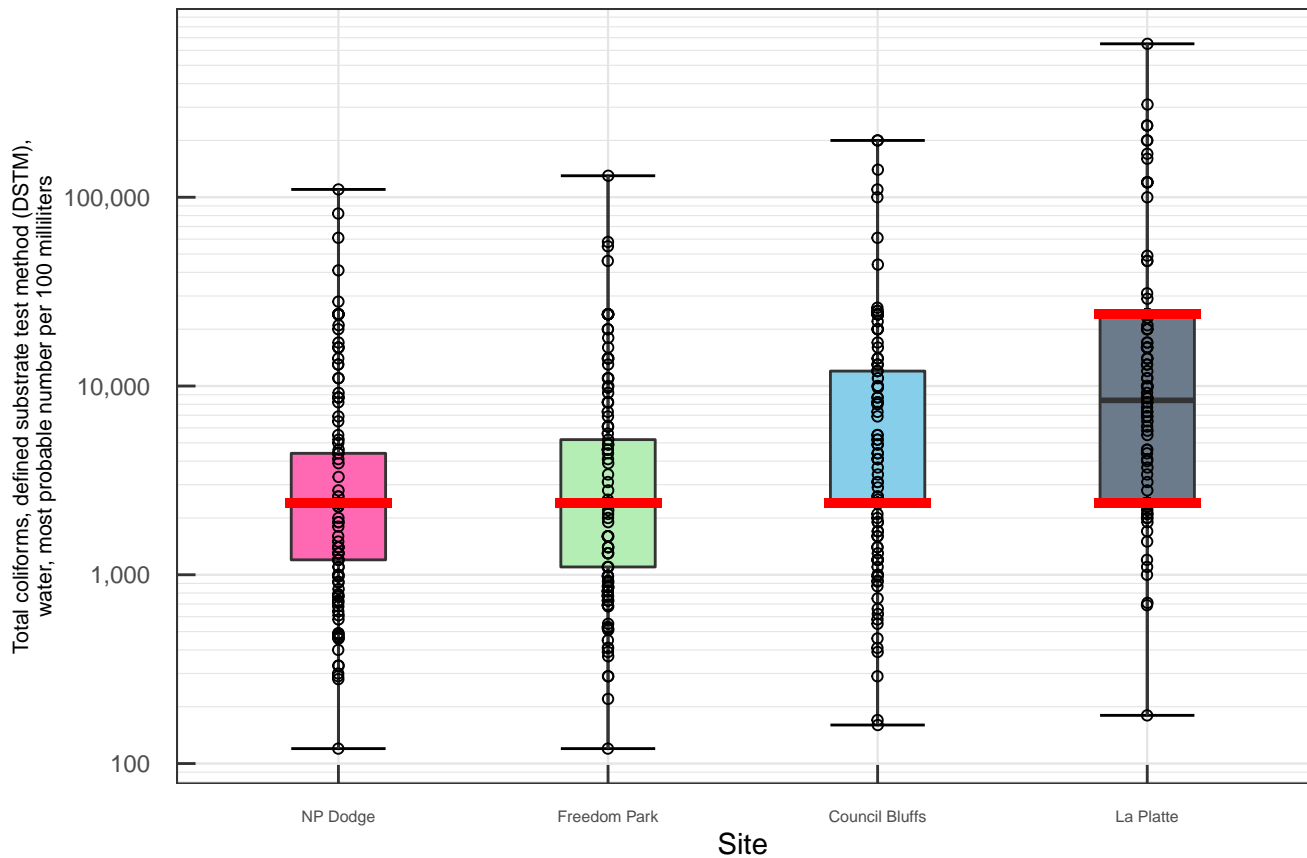
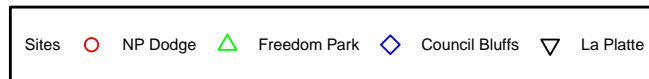
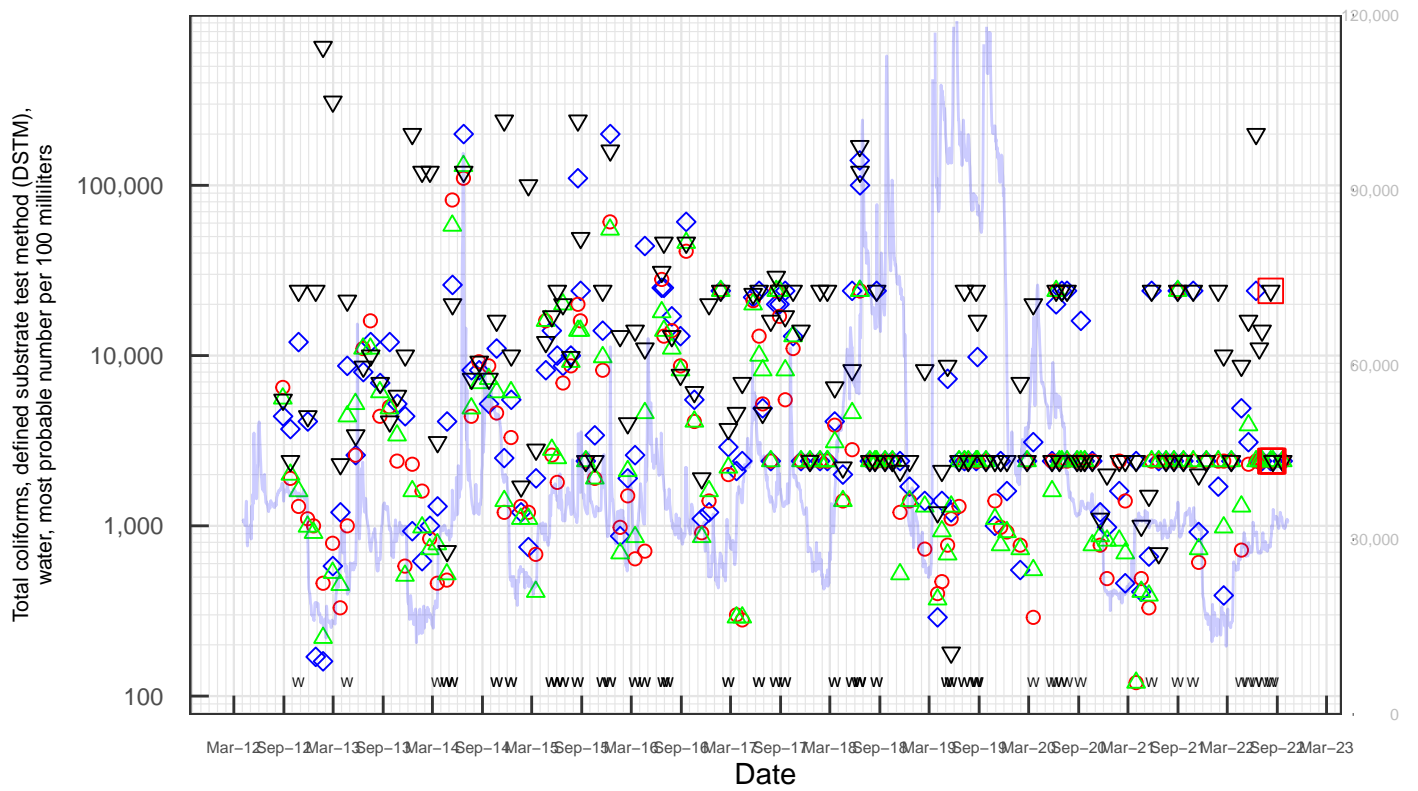


--PRELIMINARY DATA SUBJECT TO REVISION--
data retrieved 10/14/2022

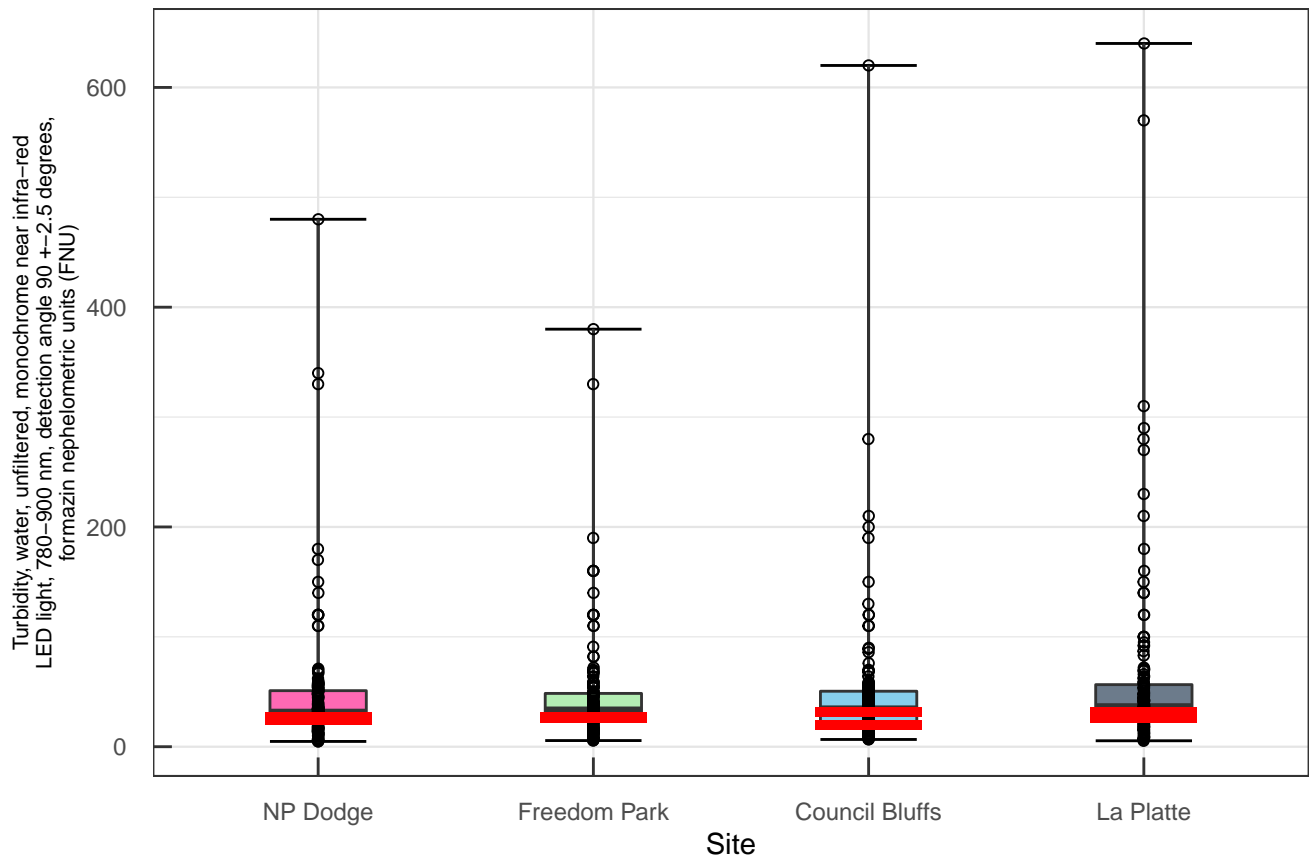
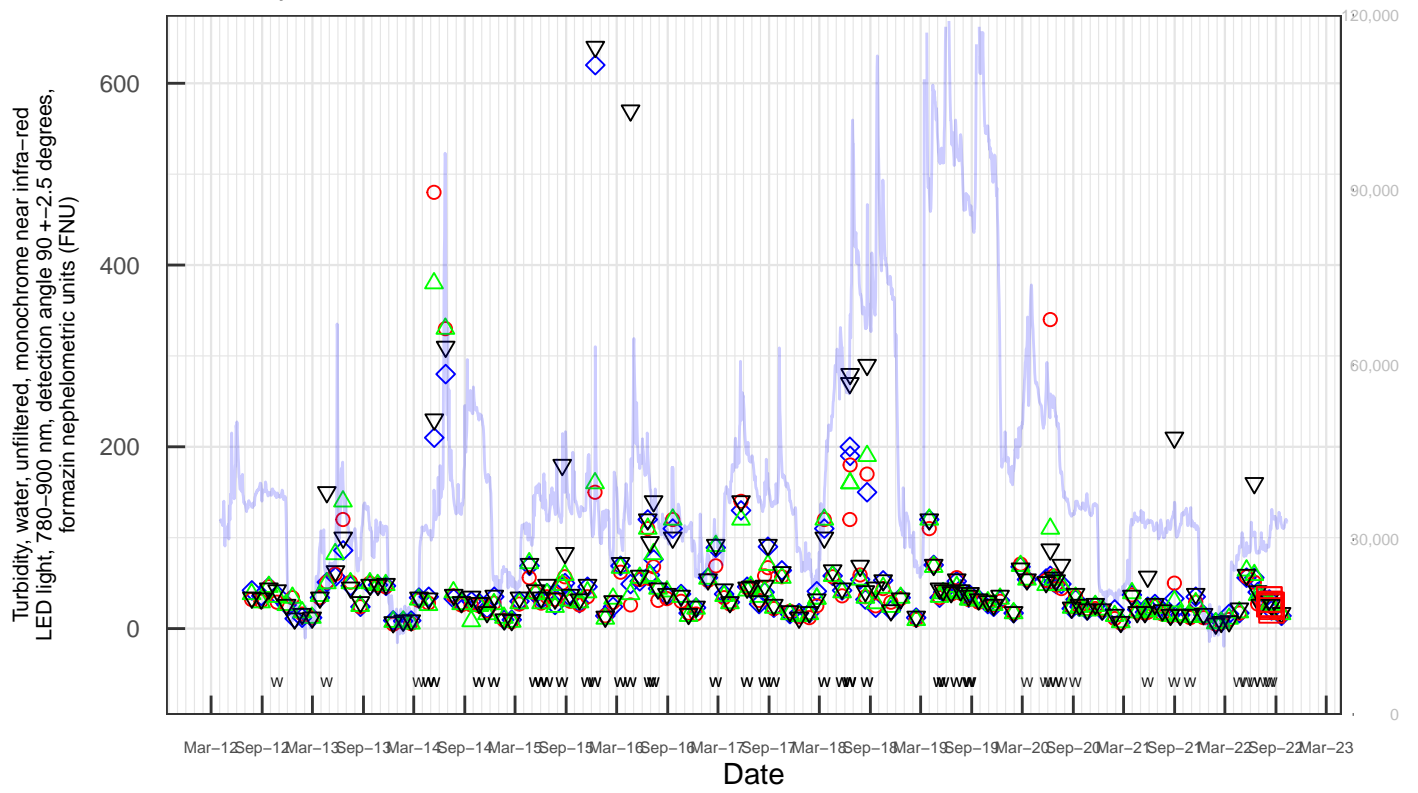
Escherichia coli



Total coliforms



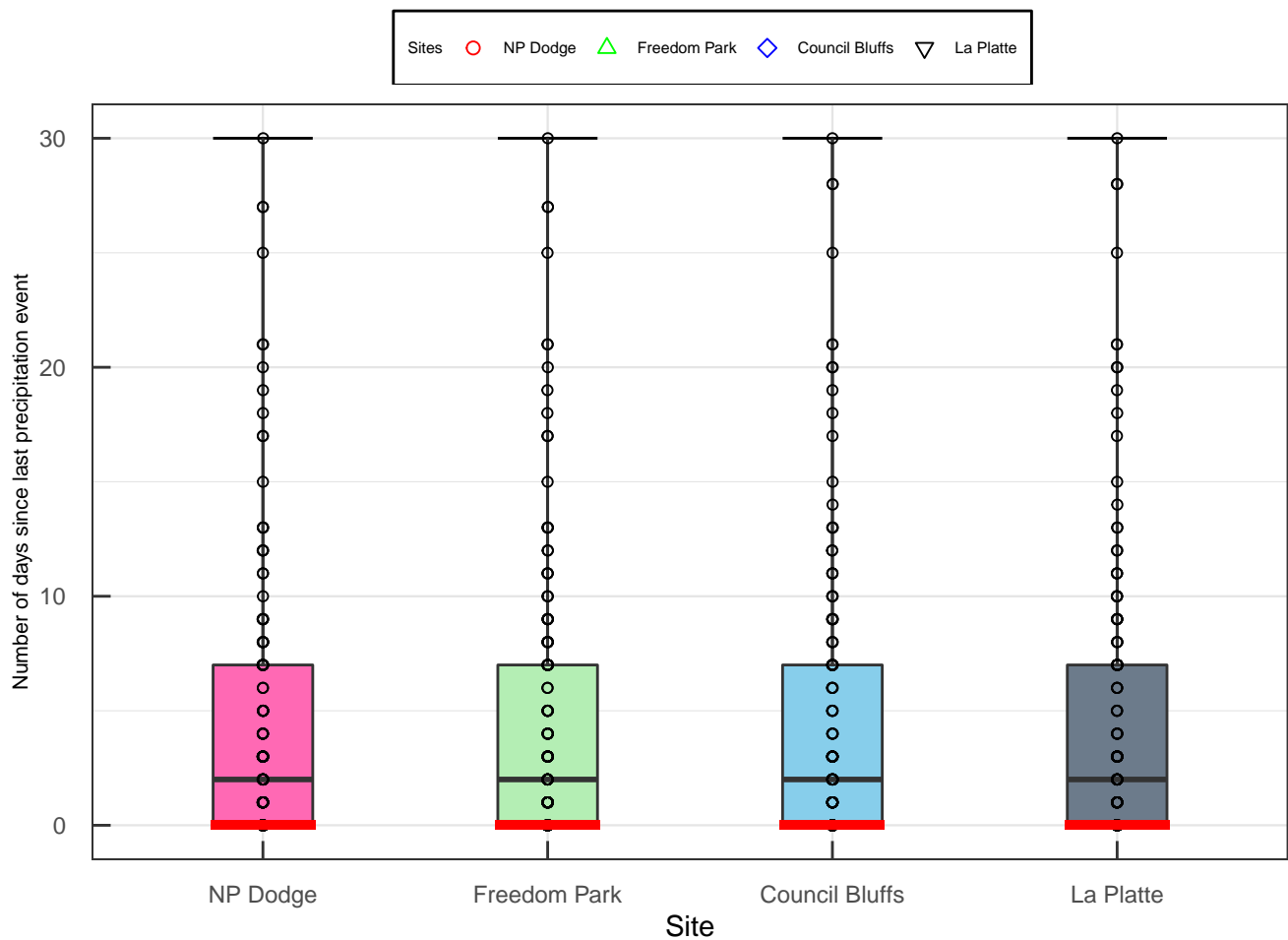
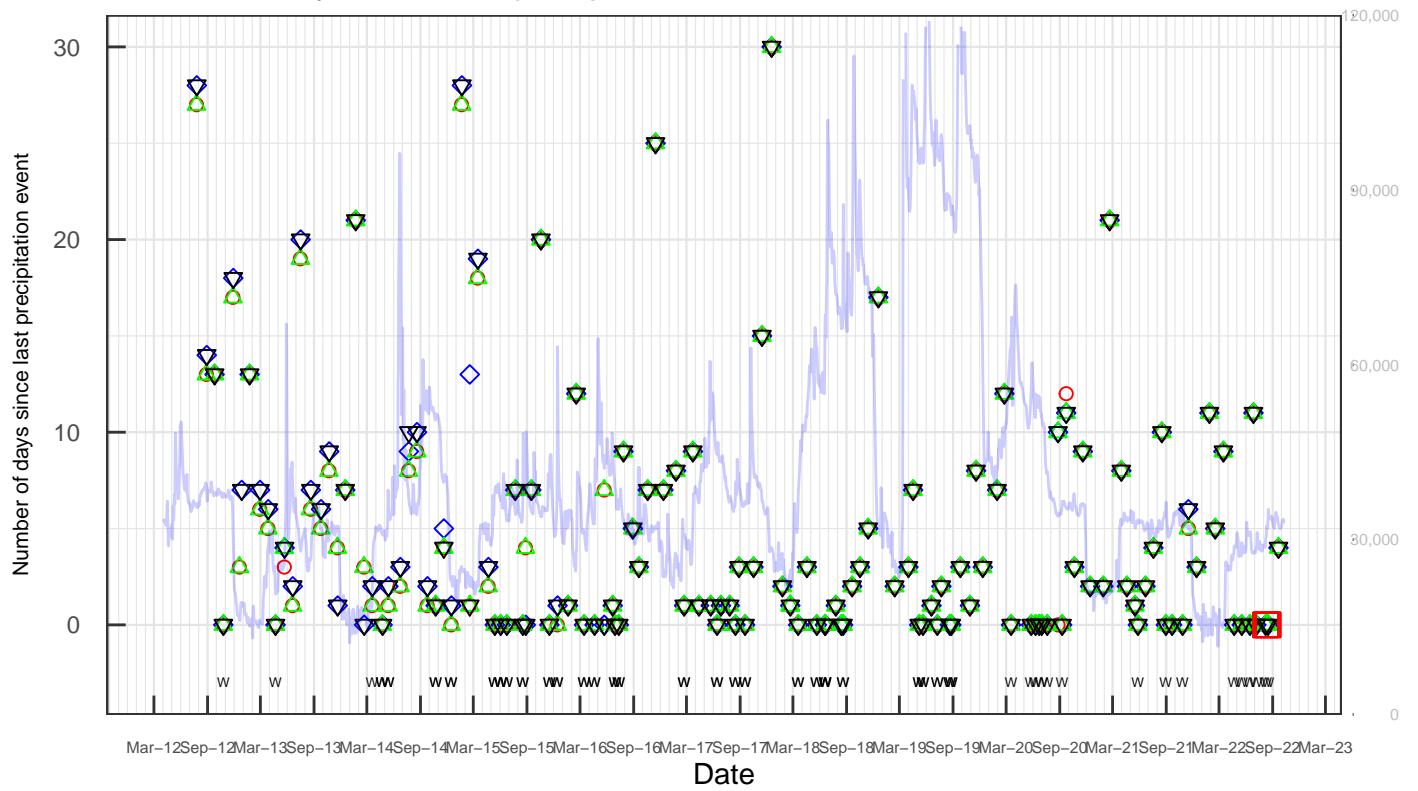
Turbidity



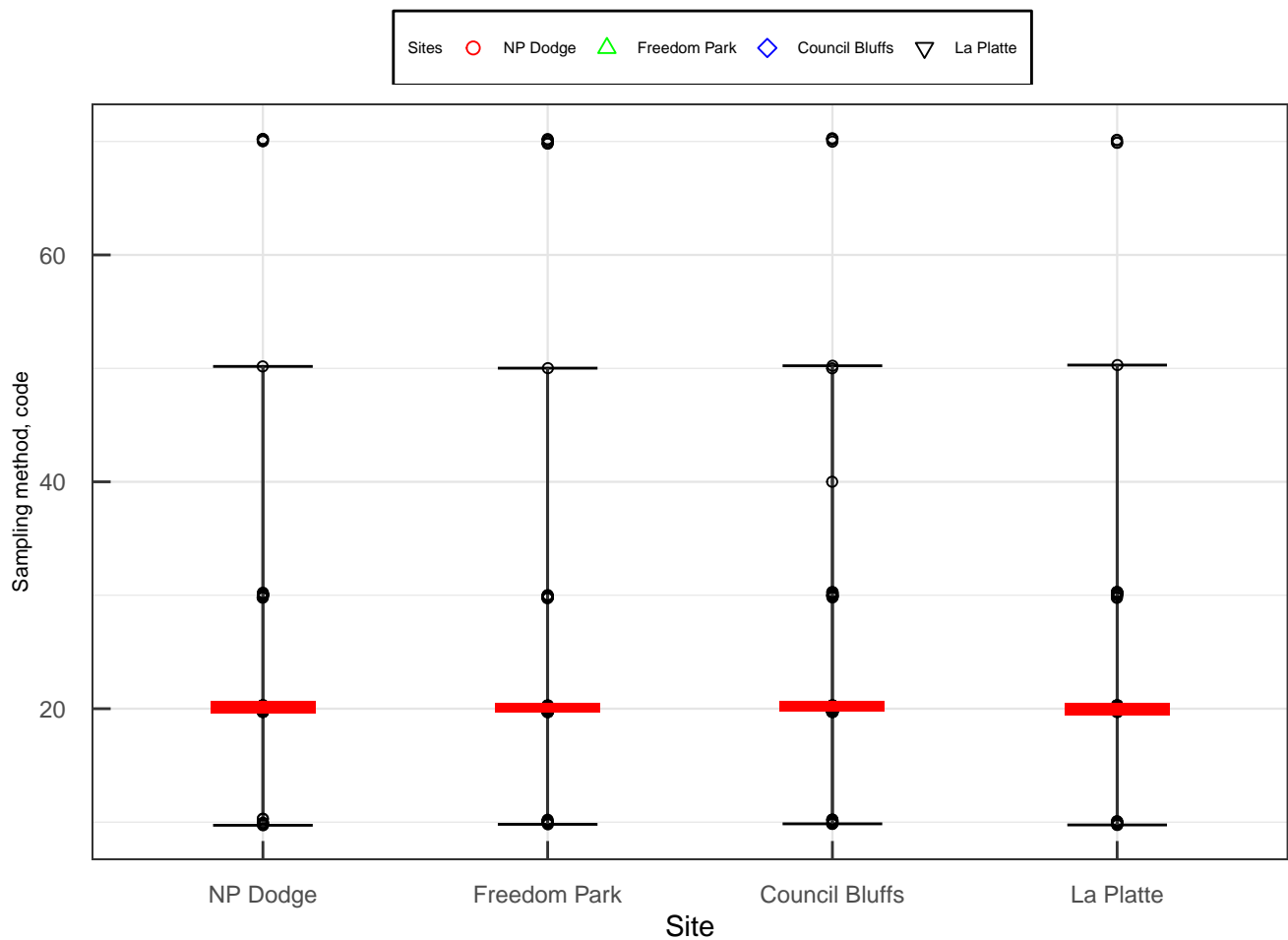
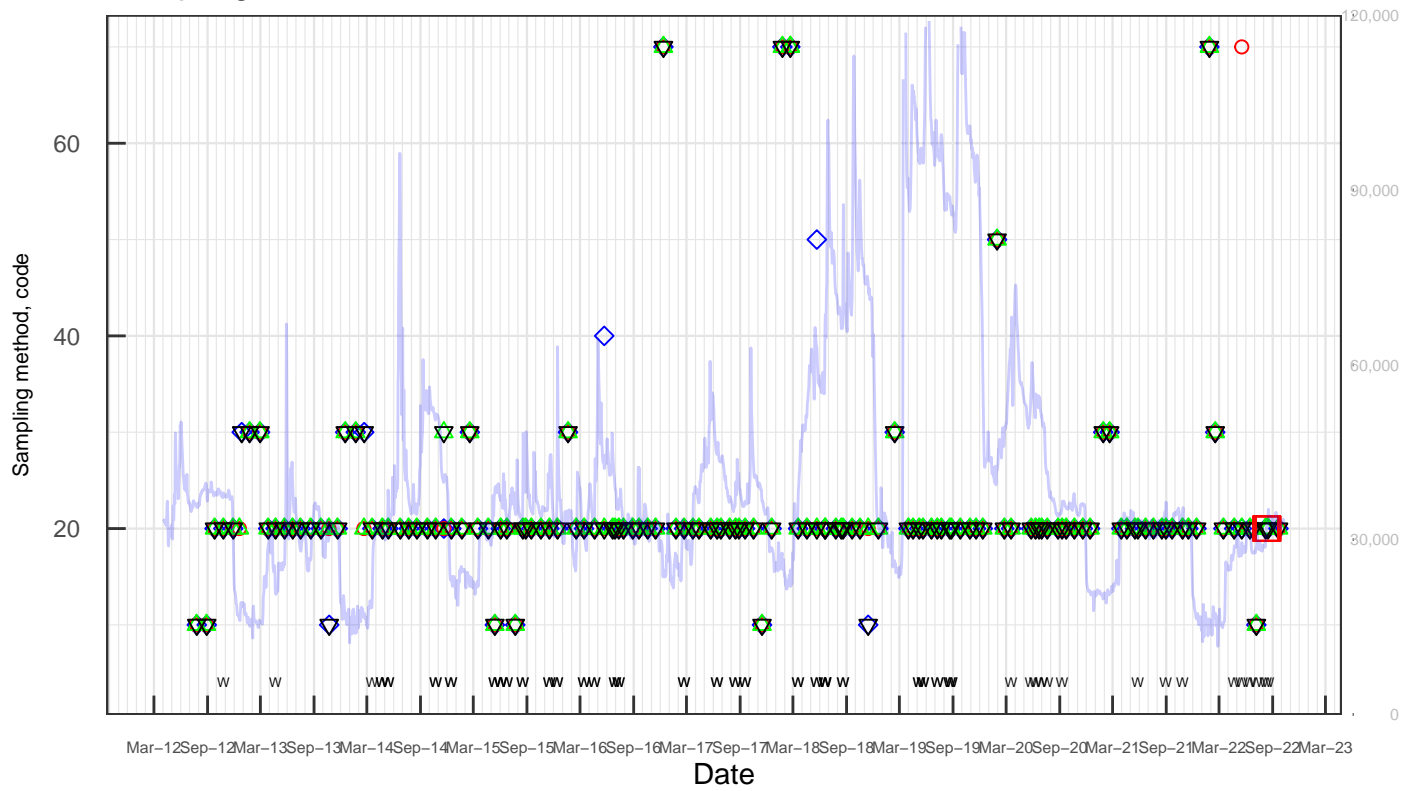
--PRELIMINARY DATA SUBJECT TO REVISION--

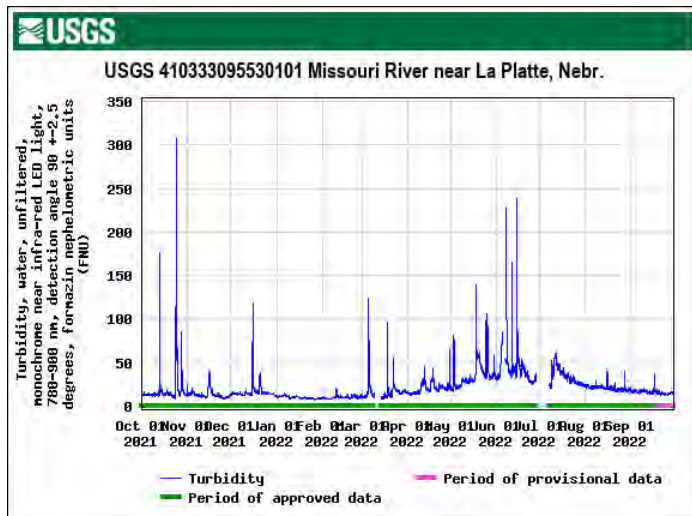
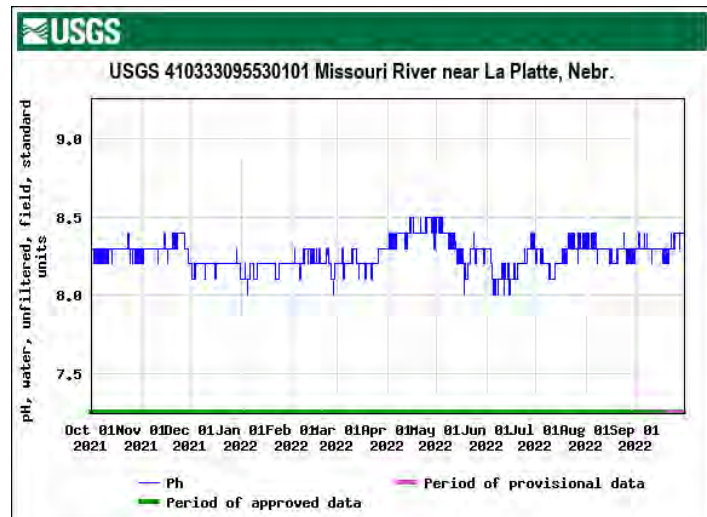
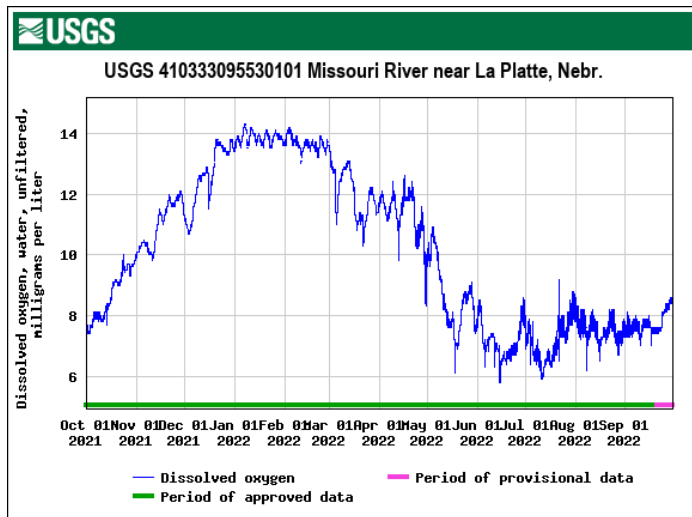
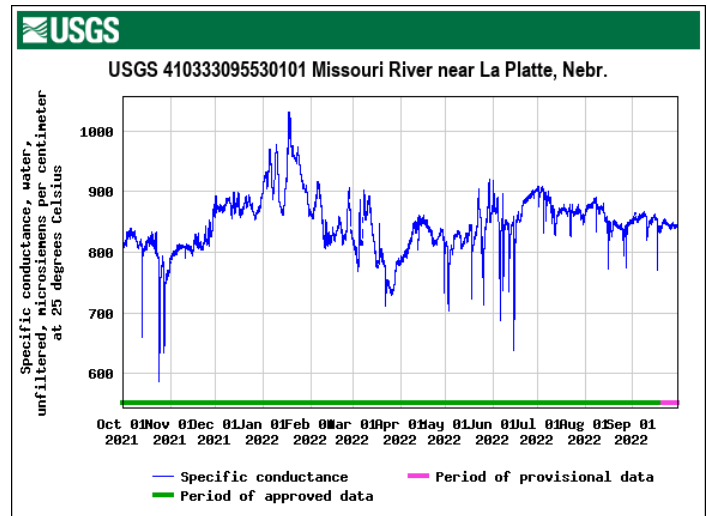
data retrieved 10/14/2022

Number of days since last precipitation event



Sampling method



[illegible]

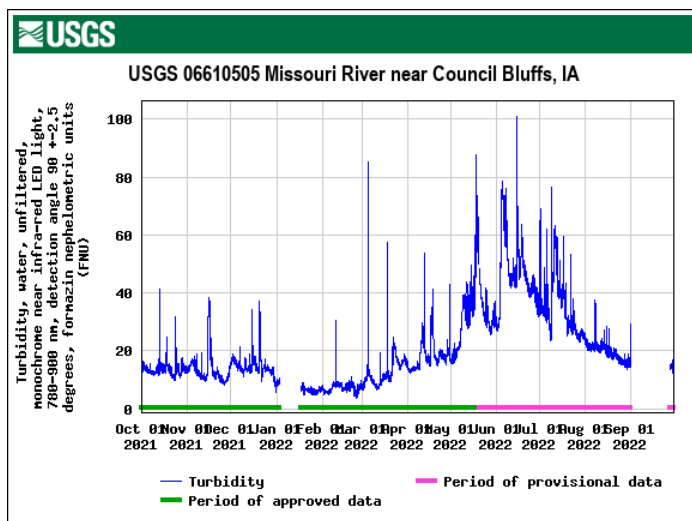
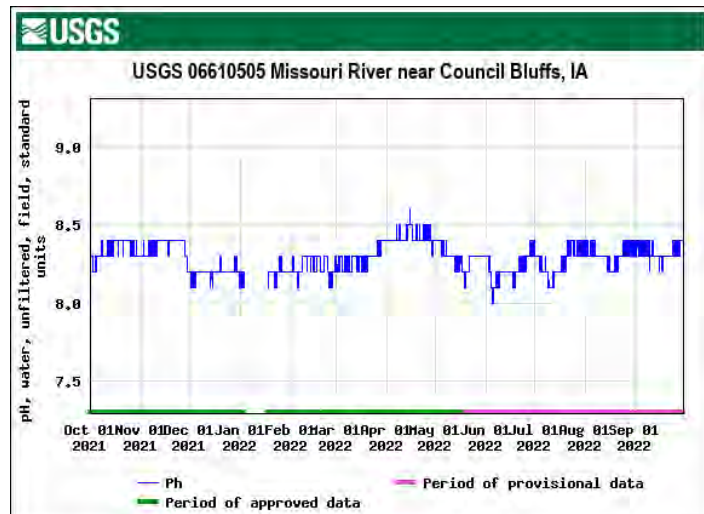
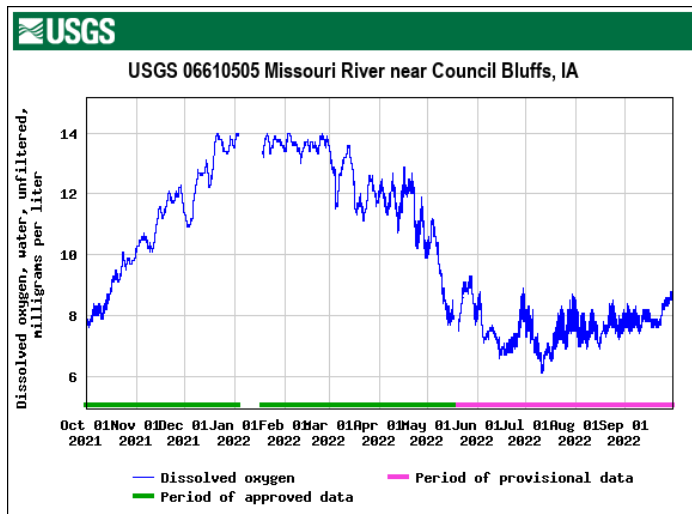
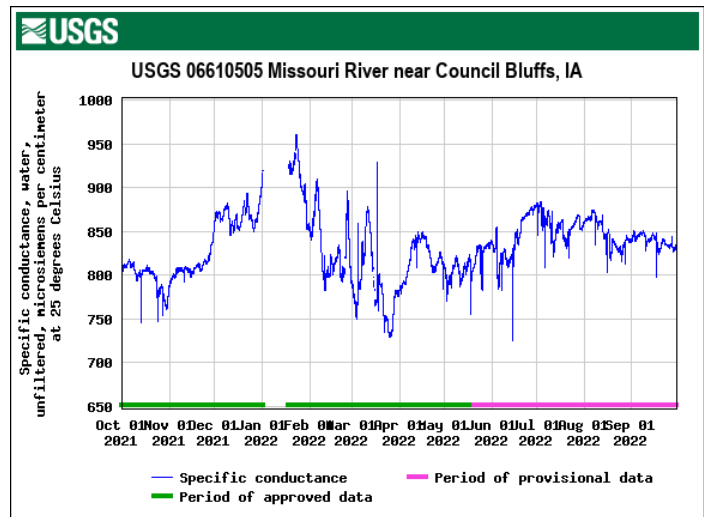
USGS 06610505 Missouri River near Council Bluffs, IA

Temperature, water, degrees Celsius

Temperature, water, degrees Fahrenheit, YSI

Oct 2021 Nov 2021 Dec 2021 Jan 2022 Feb 2022 Mar 2022 Apr 2022 May 2022 Jun 2022 Jul 2022 Aug 2022 Sep 2022

— Temperature
 — Period of approved data
 — Period of provisional data



USGS 412126095565201 Missouri River at NP Dodge Park at Omaha, Nebr.

Temperature, water, degrees Celsius

Temperature, water, degrees Fahrenheit

Oct 01 Nov 01 Dec 01 Jan 01 Feb 01 Mar 01 Apr 01 May 01 Jun 01 Jul 01 Aug 01 Sep 01

2021 2021 2021 2022 2022 2022 2022 2022 2022 2022 2022 2022 2022 2022 2022

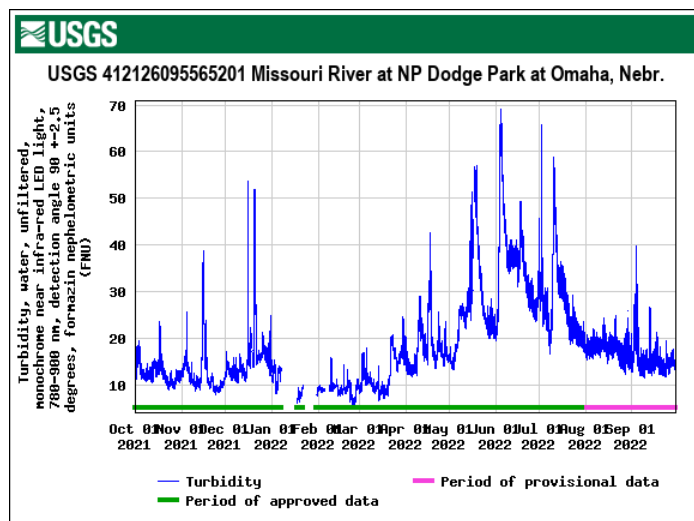
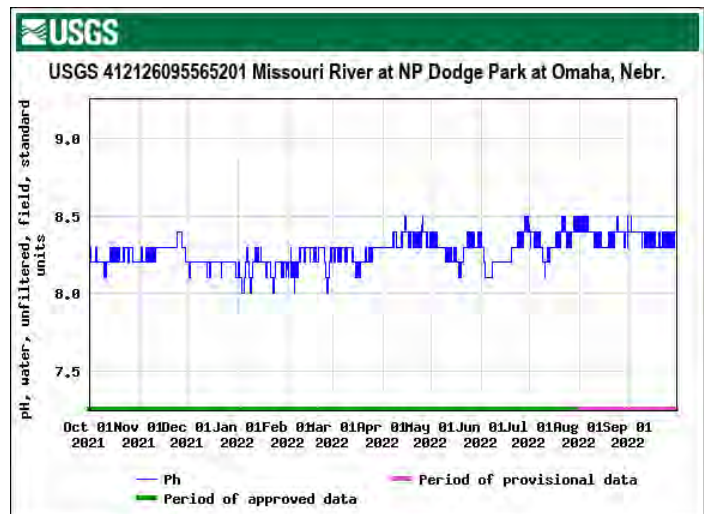
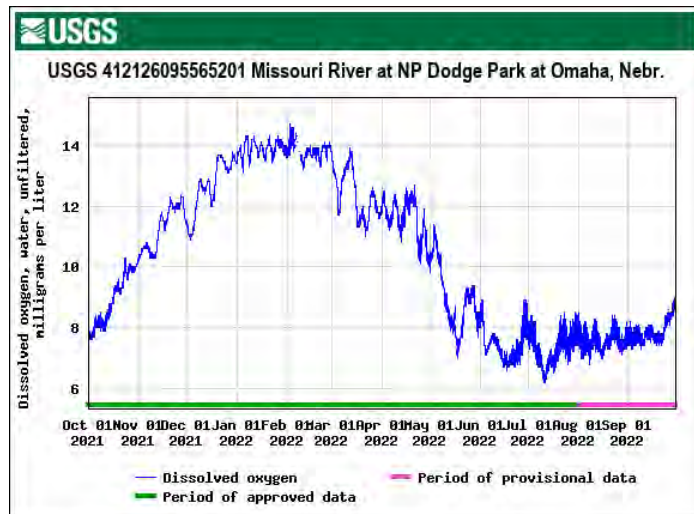
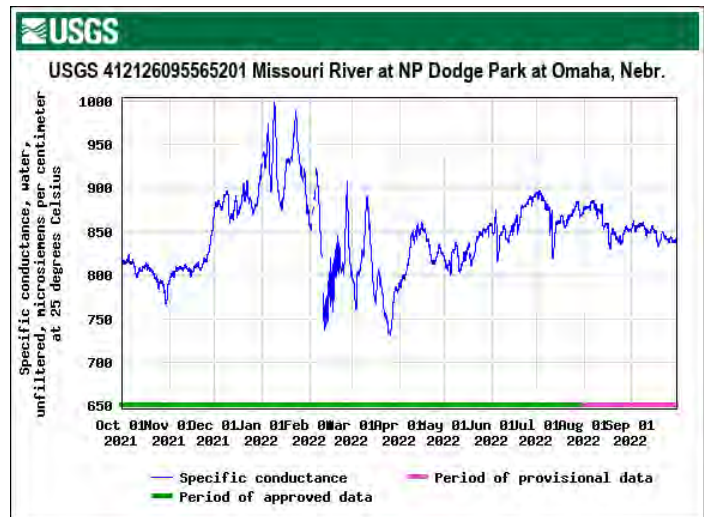
— Temperature

— Period of approved data

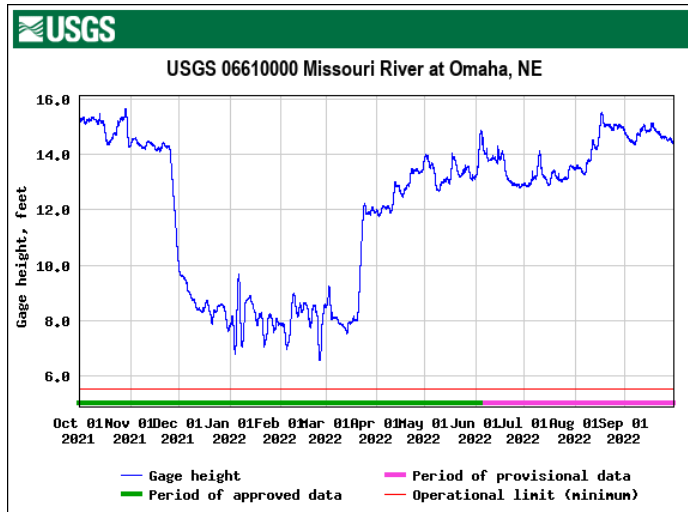
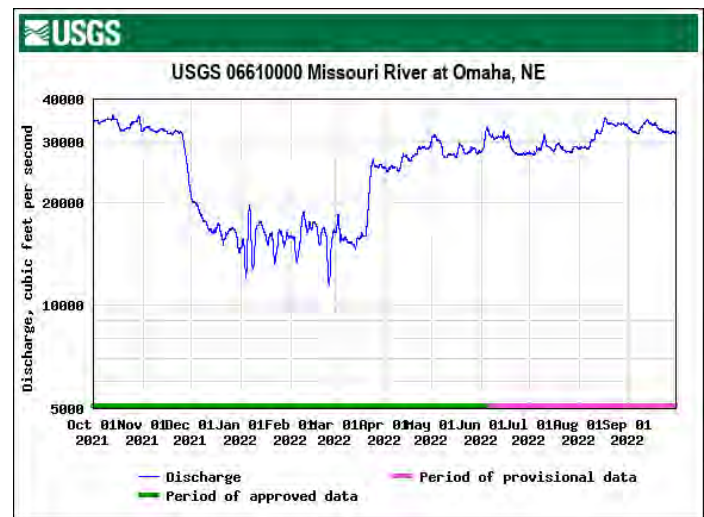
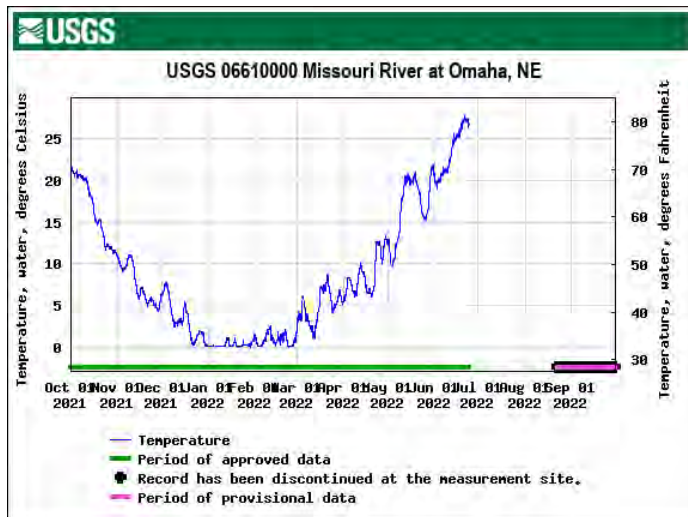
— Period of provisional data

Detailed description: This is a line graph showing water temperature at the USGS station 412126095565201 on the Missouri River at NP Dodge Park, Omaha, Nebraska. The x-axis represents time from October 2020 to September 2022. The left y-axis shows temperature in degrees Celsius (0 to 25), and the right y-axis shows temperature in degrees Fahrenheit (30 to 80). A blue line represents the temperature data, which shows a seasonal cycle: it starts around 21°C in Oct 2020, drops to near 0°C by Jan 2021, remains low through spring, then rises sharply to a peak of about 28°C in late July 2022, before declining. A green bar at the bottom indicates the 'Period of approved data' from Oct 2020 to May 2022. A pink bar indicates the 'Period of provisional data' from May 2022 to Sep 2022.

Date	Temperature (°C)	Temperature (°F)	Data Status
Oct 01 2020	21	70	Approved
Nov 01 2020	15	59	Approved
Dec 01 2020	10	50	Approved
Jan 01 2021	0	32	Approved
Feb 01 2021	0	32	Approved
Mar 01 2021	0	32	Approved
Apr 01 2021	5	41	Approved
May 01 2021	10	50	Approved
Jun 01 2021	15	59	Approved
Jul 01 2021	20	68	Approved
Aug 01 2021	25	77	Approved
Sep 01 2021	26	79	Approved
Oct 01 2021	27	81	Approved
Nov 01 2021	27	81	Approved
Dec 01 2021	26	79	Approved
Jan 01 2022	25	77	Approved
Feb 01 2022	24	75	Approved
Mar 01 2022	23	73	Approved
Apr 01 2022	22	72	Approved
May 01 2022	21	70	Provisional
Jun 01 2022	20	68	Provisional
Jul 01 2022	19	66	Provisional
Aug 01 2022	18	64	Provisional
Sep 01 2022	17	63	Provisional



Continuous Water Quality Monitoring Graphs - Site I-480



Continuous Water Quality Monitoring Graphs - Site Highway 275

