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Jean Stothert, Mayor

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

December 20, 2021

Ms. Shelley Schneider
Nebraska Department of Environment and Energy
245 Fallbrook Blvd.
PO Box 98922
Lincoln, NE 68509-8922
RE: 2021 CSO Annual Report
City of Omaha Combined Sewer Overflows NPDES Permit No. NE0133680

Ms. Schneider:

Attached please find three (3) copies of the 2021 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, 2020 to September 30, 2021. 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, Wastewater Engineering Manager
City of Omaha Missouri River WRRF

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

2021 **Annual Report**

October 1, 2020 - September 30, 2021

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, 2020 through September 30, 2021

CSO!
Clean Solutions for Omaha

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	Date
Michael T. Arends, P.E.	Wastewater Engineering Manager
Print Name	Title

Executive Summary

The 2020-2021 CSO Annual Report summarizes information on activities, actions, and measures taken by the City of Omaha (City) and the Combined Sewer Overflows (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 a renewal of the CSO Permit during the reporting year. 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 on 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 Plan[2] 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):** As required, revisions or additions to the O&M procedures for the combined sewer treatment and collection systems are included in this section. The Sewer System O&M Manual (SSOMM) for the Sewer Maintenance Division (Brown and Caldwell 2006) is reviewed semiannually and has many parts. The updated procedures documents are included in Attachment 1 and include the following:

    - Updated parts of the Wastewater Overflow Emergency Response Plan (WOER Plan)
    - SSOMM Appendix D – *Standard Operating Procedure for Reporting and Public Notification of Wastewater Bypass, Unpermitted Combined Sewer Overflow and Sanitary Sewer Overflow*. Changes were implemented to the WOER Plan related to NDEE and City contact information and the WOER organization chart.

[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.

- SSOMM Appendix B – CSO Station and Monitoring Device Procedures and Locations. The updated CSO Station and Monitoring Device Procedures and Locations is attached. The OPW 51997b CSO 117 Missouri Avenue/Spring Lake Park Phase 2 project deactivated the CSO 117 Missouri Ave diversion on August 30, 2021. However, the City continued to monitor this outfall through September 30, 2021. This former CSO discharge point to the Missouri River has been converted to stormwater only. This location will be removed from the list of CSO Station and Monitoring Devices that are checked during the next reporting year.
- SSOMM Appendix F – CSO Station Procedure Manual: Changes include rehabilitation and new equipment at the CSO 108 Burt-Izard Lift Station, installation of a new bar screen at the CSO 109 Leavenworth diversion structure, and removing CSO 117 Missouri Avenue diversion structure inspection and maintenance items since it is now deactivated (plugged off), as detailed above.

The WOER Plan and procedure updates are appendices to the SSOMM. Sewer Maintenance Division continued to implement data collection and asset management procedural improvements that have gained a significant amount of condition assessment and debris removal.

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:

   - Preliminary modifications and plans for additional changes to controls at the 20th and Pierce stormwater facility were initiated during the reporting year. This existing facility can 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 can help reduce CSO overflow volumes at CSO 109 and 121. The City is continuing to gather field information and prepare for a design project to upgrade the facility's control systems.
   - Inspection of the collection system and removal of obstructions continued. The City inspected 217,823 linear feet (LF) of pipe, performed preventive maintenance (PM) cleaning on 1,531,266 LF, and corrective cleaning on 65,307 LF in the CSS.
   - Additional PM program improvement efforts continued this year. PM planning meetings were held with the objective of filling gaps where the PM basis data is missing. The feedback loop between operators and supervisors improved and observations are being used to refine the PM further, which will be leveraged into efforts to develop PM basis documents.
   - Completion of 756 pre-survey manholes in CSS, and simple inspections by jetting crews, were conducted.
   - Interceptor Sewer Lamping investigation of 579 manholes was performed for sewer condition assessment investigations of 128 miles of 18-inch- to 144-inch large -diameter collector and interceptor sewers in Douglas County.
   - Completed heavy cleaning on the 60-inch diameter reinforced concrete pipe (RCP) combined interceptor from Grace Street to Burt-Izard Lift Station (this is the South Interceptor Gravity Sewer between CSO 106/107 and 108) to remove 24 to 30 inches of compacted debris. This was a complex project that included issues with inaccessibility,

sewer depth, and debris content. Approximately 1,500 tons were removed from the 4,400-foot stretch of sewer in total and were taken to the Pheasant Point Landfill.

- Sewer inspection, cleaning, and inspection efforts included the following:
  - Sewer Line Rapid Assessment Tool (SL-RAT; acoustic) inspection of 771,153 LF of 6-inch to 12-inch diameter gravity sewers was completed during the reporting year, none of which were in the CSS.
  - Levee Certification process requires that all pipes that penetrate the Missouri River levee system be inspected and cleaned; this includes private storm sewers, as well as City storm and CSO Outfall pipes. Work orders related to O&M of the Flood Control system are tracked and reported to the U.S. Army Corps of Engineers (USACE) annually.
  - Level sensors and camera devices were maintained at 2 interior CSS locations and 10 CSO diversion and CSO Outfall locations along the Papillion Creek and Missouri River levee system.
  - CSO 207 diversion structure was closed as part of the 42nd and Q Street Sewer Separation project (Omaha Public Works [OPW] 52257) completed in 2019. The City monitored the downstream CSO 208 diversion through the spring and summer seasons of 2019, 2020, and 2021 to determine if CSOs are still occurring. The City continued to monitor the CSO 208 outfall per routine CSO device checks with only one overflow recorded and reported, during the August 7, 2021 extreme storm event.

Gate inspections at key CSO facilities occur once every year, at a minimum, with repairs or replacement planned as necessary. Flap gates are inspected weekly by the Levee and Lift Station Staff when the gates are visible (when river levels do not submerge gates) to confirm the gates are sealing. USACE repaired bulkhead gates at CSOs 107, 121, 112, and 115 as part of the PL84-99 2019 flood repairs in spring and summer 2021. Work continued to upgrade pumping capacity and reliability at multiple lift stations. Improvements were made to the City's sewer system real-time monitoring capabilities.

3. **Review and Modification of Pretreatment Programs:** A Memorandum of Agreement (MOA) between the City and the State of Nebraska governs the Pretreatment Program in the City (administered through the City of Omaha Environmental Quality Control Division [EQCD]). The MOA provides for the direct cooperation between the City and state in the implementation of the Nebraska Pretreatment Program (NPP) and lists the responsibilities of each. As required, the City continues to minimize impacts of industrial facilities and report new significant industries within the CSS. A summary of new significant industrial users and measures taken by the City to address discharges during wet weather are documented in the City's semiannual reports to the state for the Pretreatment Program.

4. **Maximization of Flow to the Publicly Owned Treatment Works (POTW) for Treatment:** As required, the City evaluates and implements simple modifications to the CSS and procedures at water resource recovery facilities (WRRFs), as appropriate, to achieve the maximization of flow to the POTW. The City has previously evaluated various methods for maximizing flow to the WRRFs. Much of the evaluation supported the decisions that resulted in projects in the LTCP; however, some operational changes were made and are ongoing to allow for better wet weather management and improved water quality. As a goal for this NMC, the City continues to consider ways for maximizing treatment of wet weather flows,

which were incorporated into the 2021 LTCP Update. The MRWRRF's chlorine contact basin (CCB) was in operation during this reporting year. This facility provides primary treatment (disinfection) for flows in excess of those pumped through full secondary treatment, up to 101 million gallon(s) per day (MGD) of flow.

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:

   - The City adhered to the immediate reporting policies for all discovered dry-weather overflows.
   - There were four dry-weather overflows or basement backups that were contained and did not reach waters of the State.
   - There were five dry-weather overflows that reached waters of the State, four directly through a permitted CSO discharge point and one by a waterway or nearby separate storm sewer.
   - Each of these events were evaluated for true cause and appropriate long-term corrective action. The City continued to place an increased emphasis on sewer design and construction controls. Construction specifications regarding pipeline and manhole channel construction, and removing debris remaining in new pipe, are being enforced with the goal of minimizing maintenance issues and eliminating dry-weather CSOs.

6. **Control of Solid and Floatable Materials in CSOs:** As required, the City shall implement site-specific controls, in relatively simple measures and as appropriate. Any reassessment or implementation of new controls is reported here as follows:

   - Work to repair existing screening facilities impacted by the 2019 flooding continued. The City advertised for bidding a project to repair the floatables screen in the Grace Street ditch CSO channel downstream of CSO 106 North Interceptor and CSO 107 Grace Street.
   - Construction at the Burt-Izard Lift Station continued during this reporting year and is scheduled to be completed by the end of 2021. When all the improvements are complete, including increased grit removal capabilities, the City will allow flow from the Burt-Izard Lift Station to be conveyed through the new South Interceptor Force Main (SIFM) and improve floatables controls to protect pump operations.
   - The City continued work designing improvements to the 6th and Leavenworth Grit Facility (not a CSO Program project) to address grit issues.
   - The Saddle Creek Retention Treatment Basin (SCRTB) construction continued, which includes a new grit pit for the retention treatment basin (RTB) and another grit pit for the dry-weather flow. The RTB is designed to capture floatables at design flows.
   - 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.

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 and work groups within the City: Sewer Maintenance, EQCD, and Street Maintenance.
    - The municipal separate storm sewer system (MS4) Annual Report (City of Omaha 2020) 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.

The EQCD also continues its outreach through the Papillion Creek Watershed Partnership and through a contract with Keep Omaha Beautiful to implement a stormwater pollution prevention and public education program that also provides benefits to the CSO Program.

8. **Public Notification:** As required, the City shall document any revisions or updates to public notification procedures and provide any public announcement in Annual Report. 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. CSO Outfall sign inspections were completed in this reporting year in fall 2020 (between October 15 and November 19) and spring 2021 (between March 20 and May 25). The CSO 207 44th & Y outfall was deactivated during the previous reporting year, and the CSO sign was removed after separation was verified. As of the last inspection date of April 25, 2021, 46 of the 48 signs were in place. The “602 Papio Plant (Keystone)” sign has been temporarily removed during adjacent levee re-construction and will be replaced after levee construction is complete. The “503 64th & Dupont (Keystone Info)” sign has been temporarily removed during the construction of the Saddle Creek RTB and will be replaced after RTB construction is complete.
    - One public notification was issued during the reporting year due to loss of power at the MRWRRF during the July 10, 2021, windstorm. Public Works Assistant Director-Environmental Services determines “Significant” qualification in conjunction with NDEE on a case-by-case basis under these guidelines: duration of overflow greater than 24 hours; and overflow quantity greater than 100,000 gallons, considering nature of pollutants and location.

9. **Monitoring to Characterize CSO Impacts and the Efficacy of CSO Controls:** As required, the City shall document any new CSOs discovered during routine inspections, and reports on other impacts of CSOs 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 significant rain event on August 7, 2021, resulted in 58 basement backups and 27 manhole covers blown off. Other notable rain events occurred on March 13–14, August 25, and August 31, 2021, with one backflow valve issue and no other basement backups due to sewer overload in the CSS.

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 development of an updated LTCP model to incorporate decisions resulting from the optimization task and provide data and statistics for the 2021 LTCP Update.
    - 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 43 permanent flow monitoring sites, 34 temporary flow monitoring sites, and 11 CSO surveillance locations to support a variety of efforts. Additionally, the City gathered precipitation data using 12 permanent City-managed rain gauges, several U.S. Geological Survey (USGS) rain gauge sites, and 2 temporary consultant-managed rain gauges. The City obtained radar processing of rainfall data for increased spatial accuracy and to assist with accurate calibration of the hydraulic model.

2. **Public Participation Plan.** As required, the City shall continue a public participation process and document 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.** An update to Sensitive Areas was included in the 2021 LTCP Update. No new sensitive areas were found.

4. **Evaluation of Alternatives.** The CSO Permit requires any significant changes or revisions to the controls set forth in the LTCP be submitted to the NDEE by March 31, 2021. The following is provided as an update:

    - As part of the development of the 2021 LTCP Update, an Optimization Evaluation was performed along with other relevant evaluations. The result of these evaluations is described in detail in the 2021 LTCP Update in Sections 3.3 and 3.4 and Appendices E, F, and G.
    - The 2021 LTCP Update resulted in removal of 13 projects, and 11 new projects. The current design, construction, or future projects consist of 2 RTBs, 2 rehabilitation projects, 1 storage tank, 4 CSO Active Controls, a Grit and Screening Facility, 3 Conveyance Sewer/Storm Sewer/Diversion Sewer Projects, and 12 Sewer Separation Projects.

5. **Cost and Performance Considerations.** As required, the City submitted a financial report with the LTCP Update on March 31, 2021. The City's current rate ordinance sets sewer use fees through 2023 and is based on a detailed rate model. Based on the 2021 LTCP Update, the current total escalated CSO Program cost is approximately $2 billion. The City has retained the services of their rate consultant to conduct a Wastewater Cost of Services (COS) Study, which should be complete in late 2021.

6. **Operational Plan.** As required, the City reports updates to the Wet Weather Operational Strategy Plan. This plan will be updated as Major CSO projects are constructed and are operationally complete. The City began operation of the MRWRRF disinfection basin in September 2019 and have treated the wastewater for two recreation seasons. As part of the City's ongoing commitment to improve operations, a plan for additional improvement will be made and adjustment completed prior to the start of the 2022 disinfection season.

7. **Maximizing Treatment at the Existing POTW Treatment Facilities.** As required, the City must continue to evaluate opportunities to maximize treatment, and a summary of any new processes shall be included in the Annual Report. No new approaches were identified in this reporting year; however, construction of upgrades to the Burt-Izard, Riverview and Monroe Street Lift Stations is underway and will result in additional wet weather flows to the MRWRRF. Completion of these projects will further maximize the ability of the City to capture, treat, and manage the CSO events.

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, the Annual Report includes instream monitoring data and the results of studies performed to verify eliminating CSO points following completion of sewer separation, which are listed as follows:

    - The City's Post-construction Monitoring Program includes outfall monitoring at designated CSO points, instream monitoring, and verification of Sewer Separation Projects. Sections VI, Instream Monitoring Data, and VII, Performance Report, contain monitoring results.
    - The Post-construction Monitoring Plan was updated as part of the 2021 LTCP Update.

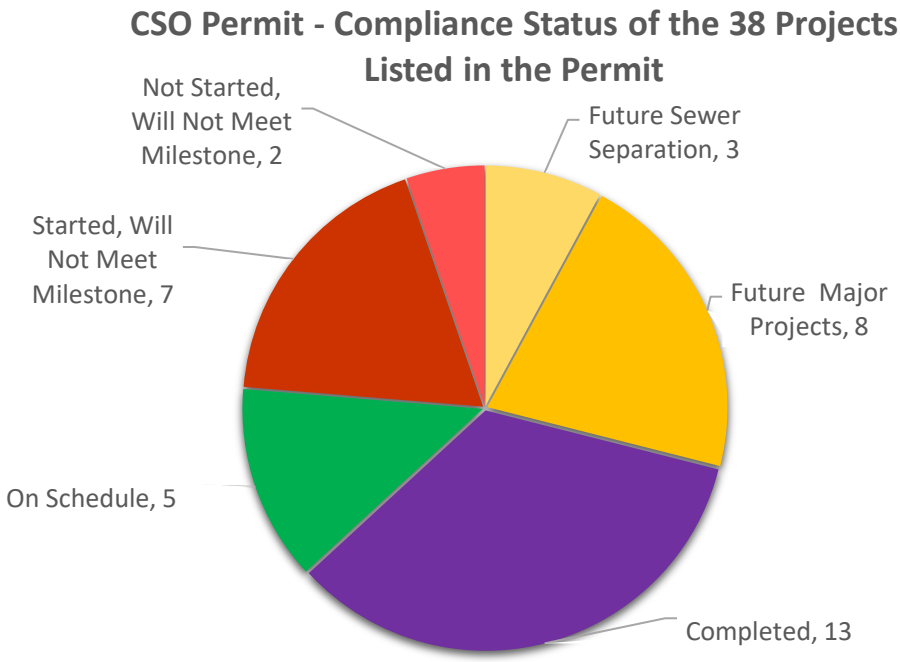
C. Compliance Schedule

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 as follows:

- Annual Project Progress Reports (APPRs) are provided in Attachment 2 for projects with reportable activity.
- An updated schedule was included in the 2021 LTCP Update, which modifies the dates that were not in compliance with the 2014 LTCP Milestone dates.
- The 2021 LTCP Update has resulted in a reduction of the CSO Program from $2.387 billion escalated to approximately $2 billion escalated through 2037.
- Figure ES-1 provides the Compliance Status of the 38 projects in the CSO Permit. There are seven projects that will not meet the 2014 LTCP Milestone dates, and two of these

have been removed from the 2021 LTCP Update. The other five have new LTCP Milestones in the 2021 LTCP Update that they are currently meeting.

Figure ES-1. Compliance Status of the 38 Listed Projects in the CSO 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. The following is a summary of the data:

- CSO 102 had 12 days with overflow events. Results from the monitoring are included in quarterly discharge monitoring reports.
- A permit modification changed the date for the discharge from CSO 102 to meet effluent limits from January 1, 2022, to January 1, 2023. The permit modification was issued on November 1, 2019.
- Interim requirements for the monitoring of CSO Outfall 205 were not in effect this year. As the result of an approved permit modification, these requirements are not set to begin until the next CSO Permit cycle, with anticipated monitoring to begin in 2024.

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:

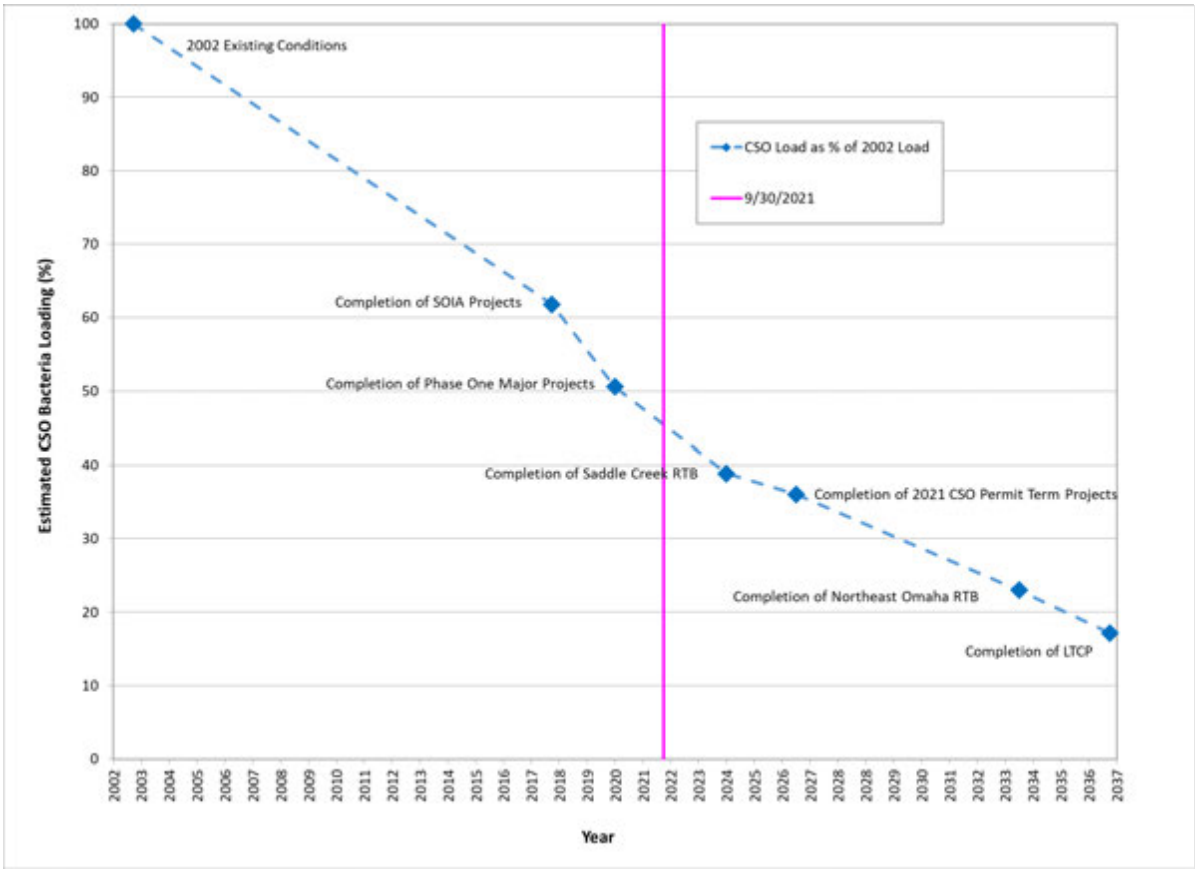
- A 1-year pilot project was conducted from July 2020 to August 2021 to install cameras and level sensors to monitor the occurrence of CSO overflows at 11 locations. The purpose of the project was to assist the City in verifying overflow events, verifying maintenance needs, providing alerts to staff of flow depths and potential overflow events, and evaluating technology for CSO surveillance to potentially reduce time spent conducting field visits after storm events. Because this was a pilot project to test the equipment, City staff continued to physically check all CSO devices along with using the level sensors and cameras. The cameras resulted in two important findings: (1) that CSO devices may occasionally be moved by animals, potentially leading to a false positive in the City's CSO device check database, and (2) that in some instances a CSO could lift the CSO device and set it back down in the same location (for example, on top of a weir), potentially leading to a false negative. Throughout the year, comparisons were made in the findings between the City's device check program and the pilot project. Table 7-1 in Section VII, Performance Report, provides a summary of the CSO frequency for each outfall. The frequencies range from 0 at CSO 103 to 44 at CSO 202. Some CSO visual checks will count as a single occurrence even though the wet weather spans several days. This is because there can be storm events lasting for more than 1 day with short dry periods between periods of rainfall, and also there is often not enough time between daily events to manually reset the CSO devices. Discharges at CSO 102 are reported by each day of occurrence, with 12 days with wet weather overflows this year (CSO 102 is monitored for each day on which CSOs occurred; other CSOs may count a multiple-day rain event as a single occurrence).
- The rainfall during the report year was just over 35 inches. When compared against the average annual rainfall of 31 inches, this was an above-average rainfall year.
- Attachment 3 is the CSO Inspection Report, which demonstrates that each CSO occurrence was the result of a wet weather event.

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, CSO 117 was closed. CSO 103 had no overflow events in the reporting year, and CSO 208 had only one CSO, which occurred during a significant storm event.
- 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 CCB 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.

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



- Material Management: Several projects commenced or continued construction in 2021 associated with the CSO Program, but only one generated excess soil that required deposition in an industrial fill site. Approximately 192 tons of soil was deposited in an industrial fill site. No hazardous waste was disposed of in 2021. The City monitors and tracks contaminated soils and other waste material and uses this report to update the NDEE Waste Management Division.

- WRRF Master Plan: The City has completed the development of a Master Plan for the City's MRWRRF and the Papillion Creek Water Resource Recovery Facility (PCWRRF). The impacts of the Master Plan on the CSO Program are summarized in Section 2, Current Status of the Program, in the 2021 LTCP Update. In addition, a schematic and description of the preferred wet weather management alternative for the PCWRRF is provided in Section 3, Evaluation of Alternatives.

- Large-Diameter Sewer Inspection: Because of the reliance on large-diameter sewers as part of the CSO controls, the City completed an assessment of the condition of 12.7 miles of large-diameter combined sewers within the Missouri River Watershed. The sewers were selected for inspection based on the criticality to achieve LTCP compliance and to operate the collection system. The City has contracted with ACE Pipe Cleaning to perform the MSIs, collecting CCTV and two-dimensional LiDAR data with post-processing of the LiDAR data prior to submission and upload to the City's GraniteNET database following Quality Control Review. In a few instances, collection of MSI data was not possible due to excessive debris and/or deteriorated pipe conditions limiting the

ability for navigation of the crawler through these segments. In these instances a video of the pipe was obtained via a manned sewer walk. The post-processed data have been reviewed and preliminary rehabilitation/replacement strategies identified for the Priority 1 – Significant Issues: Structural Repair Needed, Priority 2 – Minor Issues, Priority 3 – Good Condition sewers. Next steps include prioritizing sewer rehabilitation needs, identifying specific projects and extents, and developing budget-level project costs. The sewer risk scores will also be updated using the total pipe scores and the City's risk methodology. Final results and recommendations are likely to be completed by the end of December 2021.

- COVID-19 Impacts: The City continues to deal with the effects of the coronavirus (COVID-19) worldwide pandemic. Over the last year, as people became vaccinated, meetings have moved back to being held in person. Some projects are currently experiencing supply chain problems that are the result of the pandemic.

Table of Contents

Attachments

Figures

Tables

Acronyms and Abbreviations

°C	degree(s) Celsius
<	less than
<=	less than or equal to
%	percent
1D	one-dimensional
ACE	Architecture, Construction, Engineering
APPR	Annual Project Progress Report
BOD_5	5-day biochemical oxygen demand
CCB	chlorine contact basin
CCTV	closed-circuit television
CDC	Centers for Disease Control and Prevention
cfs	cubic foot/feet per second
cfu	colony forming unit(s)
CIP	capital improvements plan
City	City of Omaha
CMOM	capacity, management, operations, and maintenance
COF	consequence of failure
COS	cost of service
CSO	combined sewer overflow
CSO!	Clean Solutions for Omaha!
CSS	combined sewer system
CTS	collector tunnel system
CTS-JDS	collector tunnel system - joint drop shaft
DMR	discharge monitoring reports
DO	dissolved oxygen

EEIP	Economic Equity and Inclusion Program
EIT	Economic and Inclusion Team
EPA	U.S. Environmental Protection Agency
EQCD	City of Omaha Environmental Quality Control Division
FOG	fats, oils, and grease
GIS	geographic information system
gpd	gallons per day
gpd/idm	gallons per day per inch of diameter per mile
gpm	gallons per minute
HEC-RAS	Hydrologic Engineering Center-River Analysis System
ICM	integrated catchment model
ID	identification
I/I	inflow and infiltration
IMP	Implementation Monitoring Plan
LF	linear foot/feet
LOF	likelihood of failure
LTCP	Long Term Control Plan
MG	million gallon(s)
mg/L	milligram(s) per liter
MGD	million gallon(s) per day
MH	manhole
min	minute(s)
mL	milliliter(s)
mMHO/cm	millimho(s) per centimeter
MOA	Memorandum of Agreement
MPN	most probable number

MPN/100mL	most probable number per 100 milliliters
MRWRRF	Missouri River Water Resource Recovery Facility
MS4	municipal separate storm sewer system
MSI	multi-sensor investigation
M.U.D.	Metropolitan Utilities District
N/A	not applicable
NDEE	Nebraska Department of Environment and Energy formerly the Nebraska Department of Environmental Quality (NDEQ)
NMC	Nine Minimum Controls
NOAA	National Oceanic and Atmospheric Administration
NOV	Notice of Violation
NPDES	National Pollutant Discharge Elimination System
NPP	Nebraska Pretreatment Program
NRD	Natural Resources District
O&M	operation and maintenance
OERP	Overflow Emergency Response Plan
OPW	Omaha Public Works
PACP	Pipeline Assessment Certification Program
PCWRRF	Papillion Creek Water Resource Recovery Facility
PM	preventive maintenance
PMR NRD	Papio-Missouri River Natural Resources District
PMT	Program Management Team
POTW	Publicly Owned Treatment Works
QA/QC	quality assurance/quality control
RCP	reinforced concrete pipe
RTB	retention treatment basin
SCADA	supervisory control and data acquisition

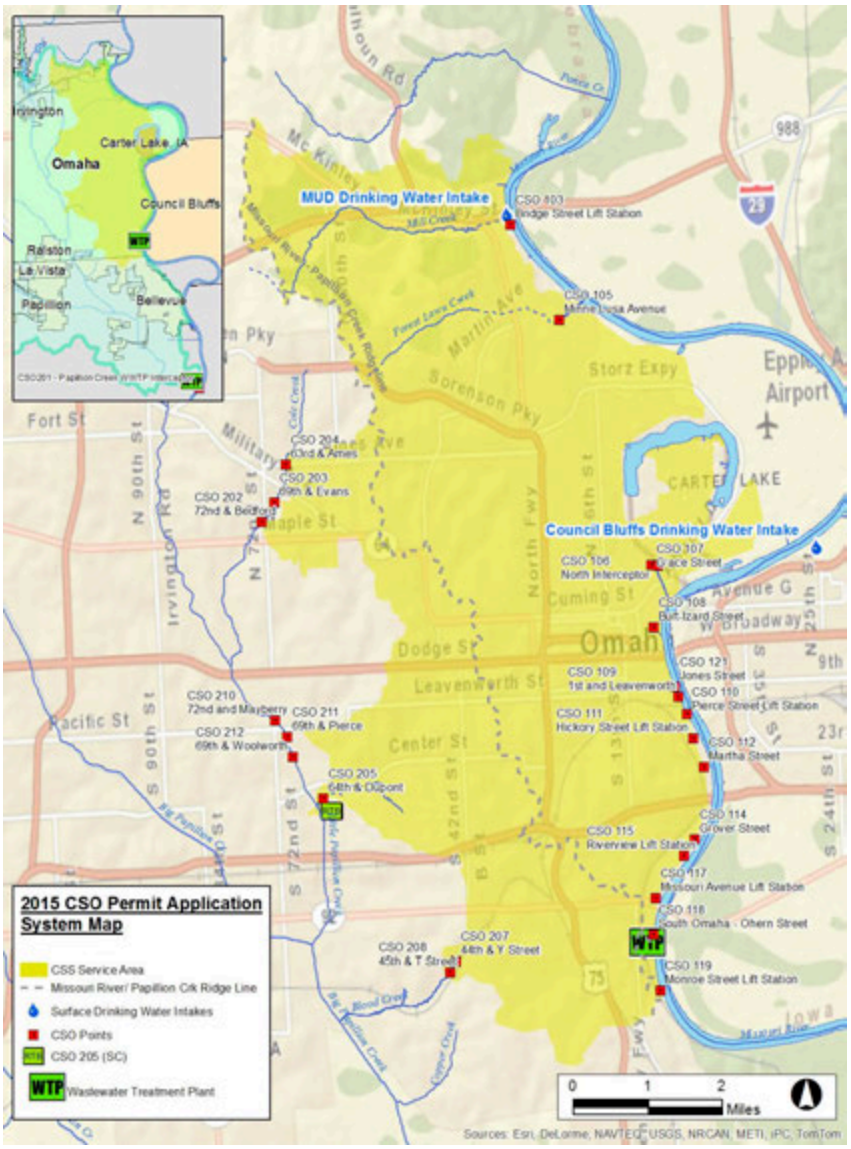
SCRTB	Saddle Creek Retention Treatment Basin
SEB	Small and/or Emerging Business
SGS	South Gravity Sewer
SIFM	South Interceptor Force Main
SL-RAT	Sewer Line Rapid Assessment Tool
SOIA	South Omaha Industrial Area
SRF	State Revolving Fund
SSES	sanitary sewer evaluation survey
SSO	sanitary sewer overflow
SSOMM	Sewer System Operation and Maintenance Manual
SWO	stormwater outfall
TKN	total Kjeldahl nitrogen
TSS	total suspended solids
USACE	U.S. Army Core of Engineers
USGS	U.S. Geological Survey
WOER	Wastewater Overflow Emergency Response
WRRF	Water Resource Recovery Facility

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 is 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 (LTCP) 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, 2020, through September 30, 2021, referred to as the reporting year, and is submitted in accordance with the CSO Permit. 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. 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. Throughout the report, the permit will be referred to as the CSO Permit, which is in effect from October 1, 2015, to until the renewal permit is issued, as modified. 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.

Figure 1-1 Service Area for the Annual Report



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.

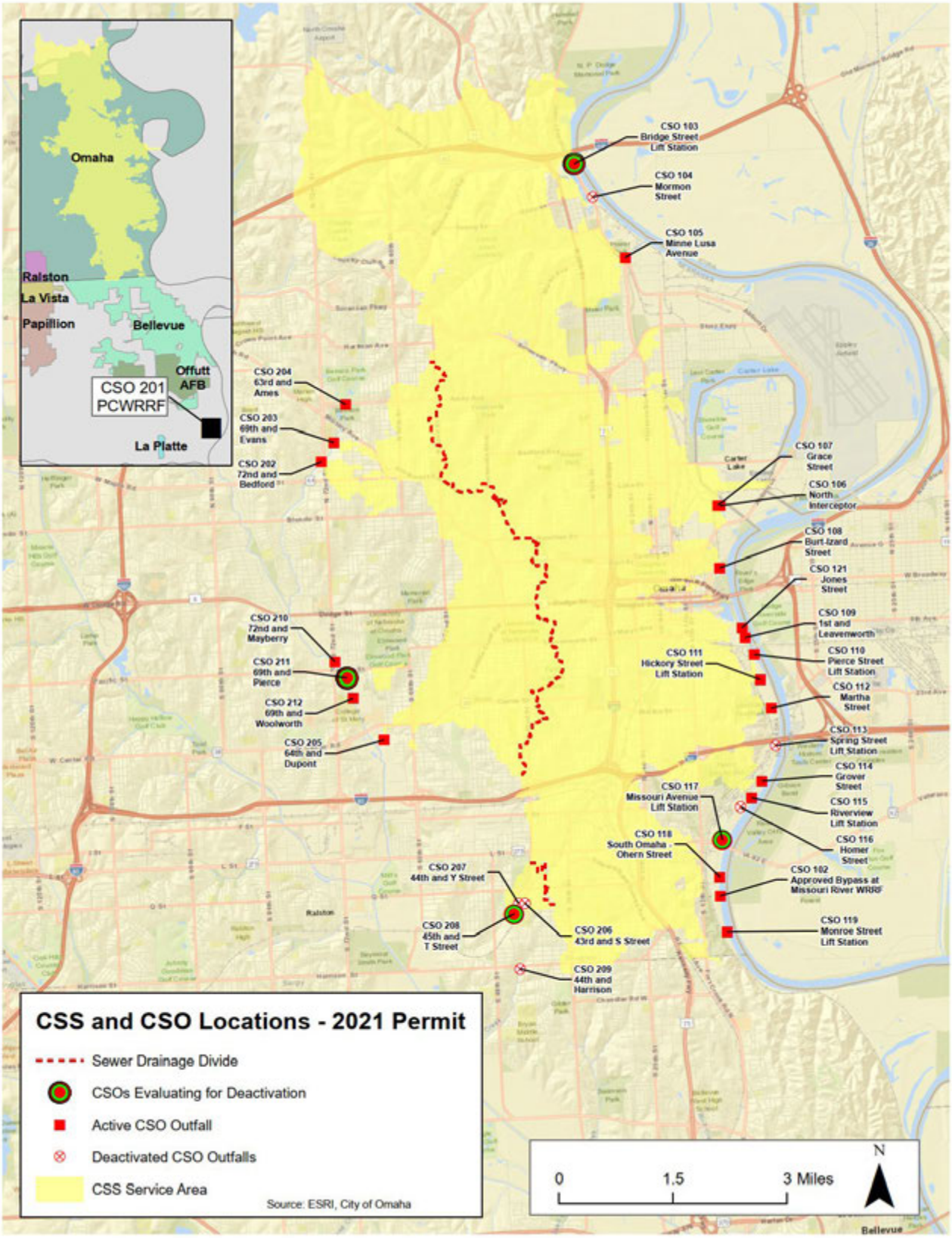
Under the CSO Permit Application, submitted in March 2020 and amended in March 2021, the City has 25 active permitted CSO outfalls; 16 of these are associated with the Missouri River Water Resource Recovery Facility (MRWRRF) collection system; the other 9 are associated

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.[1] This Annual Report includes actions, activities, and measures taken by the City with regard to the Nine Minimum Controls (NMC), the LTCP 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) that make up the CSO PMT.

[1] 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.

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



II. Nine Minimum Controls

As defined in the CSO Permit, NMCs are operations and procedures that can reduce CSOs and their effects in receiving water quality, do not require significant engineering studies or major construction, and are consistent with the City's LTCP. 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 the 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 continue to fulfill the documentation and reporting requirements to assure the NMCs are met in accordance with the following:

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

The City applied for a new CSO Permit during the reporting year, which is anticipated to be issued by NDEE after this reporting year. The City has continued to implement the NMCs in accordance with the submittals on record with the NDEE and in accordance with EPA guidance and policy. The NMC documentation that follows is organized by headings that correspond to the NMCs and addresses the conditions and requirements of Part IV of the CSO Permit. Additional information is included to annually document measures of success or identify areas of improvement.

A. Proper Operation and Maintenance

Per the NMC requirements of the CSO Permit, proper operation and maintenance (O&M) of the CSS and CSO outfalls should include periodic reviews of O&M procedures, updates to the procedures as needed, and proper procedure documentation. A major emphasis of the NMC is the elimination of dry-weather overflows. When a significant procedure is changed, updated, or added, the City will provide the required documentation to NDEE. Revisions and additions to the O&M procedures that occurred during the October 1, 2020 to September 30, 2021 reporting year are included in Attachment 1 of this Annual Report.

The City continues to follow a periodic review of procedures that are a part of the proper O&M of the CSS. The O&M procedures involved are carried out across the several workgroups in the

City's Public Works Department, Environmental Services as described in previous CSO Annual Reports.

The Sewer System Operation and Maintenance Manual (SSOMM) (original publication by Brown and Caldwell 2006) is reviewed semiannually or more frequently as needed. The following is a summary of reviews and updates during this reporting year with excerpts of improvements included in Attachment 1.

1. SSOMM Appendix D was amended to include the City's Wastewater Overflow Emergency Response (WOER) Plan developed during a previous reporting year (Burns and McDonnell 2019). The original reference to an Overflow Emergency Response Plan (OERP) is now referred to as the WOER Plan. These updates and activities took place in the reporting year as follows:

    a. In the 4th quarter of 2020, the City continued improvements to the structure of the WOER Plan, which started as a structured document with chapters, flow charts, and references to procedures. This led to a web-based City of Omaha Google Site, creating easy access to sections of the plan to remote workers.

    b. *Standard Operating Procedure for Reporting and Public Notification of Bypass, Dry Weather Combined Sewer Overflow & Sanitary Sewer Overflow* updated the WOER organizational chart, contact list, and job titles. This standard operating procedure is a standalone document but is part of the WOER Plan. NDEE regulatory contact information and the City contacts and organization chart (Attachment 1) were updated. The City of Omaha Overflow Report Form, a paper form used in place of the NDEE non-compliance form, was slightly modified for the crews and rolled out in January of 2021

    c. Additional activities this reporting year include developing a digital tool (mobile device software application) for CSO and SSO tracking in a field application. Implementation of a digital form is anticipated in early 2022, following training and testing with City crews. This improvement includes converting the Overflow Report Form to a digital format linked to the City of Omaha CMMS system, which is in the final stages of development and implementation with additional training scheduled.

2. SSOMM Appendix B: CSO Station and Monitoring Device Procedures and Locations

    a. The SSOMM Appendix B 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 (Attachment 1).

        i. During the previous reporting year a new CSO 111 (Hickory) diversion was constructed (in April 2020). This structure diverts dry-weather flow to the South Gravity Sewer (SGS), which flows to the Leavenworth Lift Station. During wet weather, combined sewer overflows a weir and discharges at existing CSO 111 outfall.

        ii. The original CSO 111 diversion is downstream of this newer structure connected to the SGS, remains active, and continues to be monitored by the City. This is because the flow from the Martha Street (former CSO 112) basin (from the south) is currently temporarily pumped north to a gravity line that flows to the existing Hickory

Lift Station. There is a property to the west of the Hickory Street Lift Station that also has sanitary flows routed to the CSO 111 diversion, which will be routed west after the completion of a new sanitary sewer service for the property in late 2021. The existing Hickory Lift Station is still active during this reporting year and connects to the new South Interceptor Force Main (SIFM). The Martha area flow will be conveyed south to the Blake Street and Riverview Lift Stations to the new SIFM when these two new lift stations are operational in 2022. At that time, the existing Hickory Lift Station will be decommissioned, the existing CSO 111 diversion will be deactivated, and the new CSO 111 diversion to the Leavenworth Lift Station via the SGS will be monitored.

iii. The Omaha Public Works (OPW) 51997b CSO 117 Missouri Avenue/Spring Lake Park Phase 2 project closed the CSO 117 Missouri Ave diversion on August 30, 2021. The City continued to monitor this outfall until September 30, 2021, and plans to remove this location from the list of CSO Station and Monitoring Devices that are checked for the next reporting year.

3. SSOMM Appendix F: Combined Sewer Overflow Station Procedure Manual has been updated. A summary of updates is included. Note that Appendix B is also the first page of this manual and is provided in Attachment 1. The most notable changes include rehabilitation and new equipment at the CSO 108 Burt-Izard Lift Station, installation of a new bar screen at the CSO 109 Leavenworth diversion structure, and CSO 117 diversion structure deactivation (plugged), changing the former combined sewer to a storm outfall.

4. Sewer Maintenance Division has added more structure and technology to certain operations.

   a. Incorporated a monthly closed-circuit television (CCTV) strategy meeting with O&M and engineering to look at in-house and contracted resources, as well as new equipment and technology. Used rapid inspection methods and hired Pipeline Assessment Certification Program (PACP) technicians to post-process defect codes.

   b. Continued to refine processes related to the implementation of field tablets and work management that integrate with geographic information system (GIS)-based data management software, including maps and dashboards.

   c. Continued simple manhole inspection for jetting crew staff to collect basic information to update inventory (for example, cover type and depth from rim to invert) and general condition ratings. Also expanded to other O&M crews for use. Manholes that receive a poor condition on the inspections were investigated further by technical staff. Any maintenance issues were routed to correct crews for cleaning.

   d. Expanded use of the ArcGIS Collector application to outside contractors. Improvements were made to inspection forms, including collection methods, condition ratings, training, and quality assurance and quality control (QA/QC) processes.

   e. Using these approaches allowed for a total of 9,654 manhole inspections across the total wastewater collection system

   f. A specific query of PM jet-vac tasks for the reporting year showed that the City completed 264 work orders, with 141 on the combined system. In addition, 677

unplanned stormwater cleaning tasks were performed in CSS (for example, inlet/catch basin, grated manholes, and/or junction boxes). This work helps keep the collection system cleaner (removing grit and other debris build up) operational, reducing the likelihood of failure and unauthorized overflows to receiving waters.

g. The Levee and Lift Station Group is responsible for the maintenance of structures associated with the CSO lift stations, the CSO screens located at CSO 106/107 and CSO 108, and aerated and nonaerated grit facilities associated with some of the larger CSO points. The Sewer Maintenance O&M Group is responsible for the maintenance of small grit pits located throughout the collection system, with some of these being associated with diversion structures and pits located near the smaller CSO overflow points. Each Maintenance Group is responsible for recording and documenting its own activities. The Levee Group maintains these records in a log located at the MRWRRF. The Sewer Maintenance O&M Group tracks work in Cityworks AMS, a GIS-centric and web-based software package to help schedule and track O&M work.

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

B. Maximize Use of the Collection System for Storage

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

Preliminary modifications and plans for additional changes to controls at the 20th and Pierce stormwater facility were initiated during the reporting year. This existing facility can 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 can help reduce CSO overflow volumes at CSO 109 and 121. The City is continuing to gather field information and prepare for a design project to upgrade the facility's control systems.

The following is a summary of practices within the City that contribute to maximizing the use of the collection system.

Inspection of the collection system and removal of obstructions. The Sewer Maintenance Division is the primary organization involved with the inspection and maintenance of the collection system and lift stations. Procedures are in place to identify and provide corrective maintenance, which includes inspection, cleaning, and removing blockages. Several corrective repairs to inlet, manholes, and pipelines were performed during the reporting year. A 5-year cycle jetting program for 15-inch and smaller pipes and a preventive maintenance (PM) program are among the practices to meet this control. The City contracts services to clean a small percentage of large-diameter pipelines. The City is also continuing to transition to a risk-based prioritization approach for sewer inspection and cleaning, using asset management principles. This includes evaluating the consequence and likelihood of failure for each gravity sewer asset

and prioritizing maintenance and rehabilitation/repair/replacement work on assets accordingly. For the reporting year, the City accomplishments include the following:

- Inspected 217,823 linear feet (LF) in the CSS (from Granite Net database and information from subcontractors), including the following:
  - 65,307 LF of corrective cleaning completed by City crews as part of normal O&M.
  - 152,516 LF completed as contracted work within Sewer Maintenance Division.
  - 67,056 LF completed using multi-sensor investigation (MSI) technology as part of the CSO Program for large-diameter sewers. Additional information on this effort is provided in Section VIII.D, Other Information, Condition Assessment of Large-Diameter Sewers. Some segments of several sewers could not be inspected due to silt, debris, and rock accumulation or a missing pipe invert. The City is continuing work to clean these segments and find other means to complete the planned inspections.
  - Completed 756 pre-survey simple manhole inspections in CSS by O&M staff.
  - Reviewed data from previous Interceptor Sewer Lamping investigation of 579 manholes for sewer condition assessment investigations of 128 miles of 18-inch- to 144-inch-large-diameter collector and interceptor sewers in Douglas County.
- City crews performed PM cleaning on 1,531,266 LF in the CSS as follows:
  - 1,079,063 LF were part of the 5-year cleaning program.
  - 452,203 LF were part of the additional more frequent PM program.
- Completed heavy cleaning and inspection of a critical 60-inch diameter reinforced concrete pipe (RCP) combined interceptor that conveys flow from Grace Street to Burt-Izard Lift Station (this is the South Interceptor Gravity Sewer between CSO 106/107 and 108). This was a massive effort to locate access points and strategically remove 24 to 30 inches of compacted debris, consisting of years of grit and silt buildup and construction debris, from a period when the bar screens at the CSO 107 diversion were damaged. The south bar screen was damaged in the 2011 Missouri River flood and were removed by the City at that time. Both the south and the north bar screens were replaced as part of a project that was completed in January 2020. Approximately 1,500 tons were removed from the 4,400-foot stretch of sewer and was disposed of at the Pheasant Point Landfill.
- Performed additional on-call CCTV and cleaning contracts were executed to clean up to 54 inches of combined and sanitary sewers.
- Continued Area Jetting Program QA checks with GIS exercises to verify that all combined sewers 8-inch to 15-inch wastewater collectors are on at least a 5-year cleaning cycle. There was an exception made for a portion of the collection system not under the CSO Permit, where acoustic testing, manhole inspections, or CCTV were used to eliminate or postpone the planned cleaning for the year.
- Continued additional PM program improvement efforts. A PM optimization project for preventative maintenance was completed identifying PM program initiatives, developing

a high-level long-term schedule, and determining staffing needs estimates. The next phases are planned to start in 2022.

- Sewer inspection, cleaning, and monitoring efforts included the following:
  - Continued use of Sewer Line Rapid Assessment Tool (SL-RAT) (sewer inspection acoustic technology), which provides information about sewer blockages for 6-inch to 12-inch-diameter gravity sewers (771,153 LF of SL-RAT inspections were completed during the reporting year, none were in the CSS).
  - Performed 87,660 LF of SL-RAT inspections in annexed areas to provide preliminary condition information (none in the combined sewer area); work included lamping of some pipes. Flagged poor condition pipes for more detailed condition investigation. City staff followed up with construction contractors and inspectors to review expectations for compliance with City standards, resulting in better construction products that meet City standards.
  - Contracted additional sewer inspection on City of Omaha interceptor sewers in Sarpy County to support planned sewer rehabilitation projects. Inspections began including manhole inspections, CCTV, and multi-sensor sewer investigations and will continue through the end of 2021. These interceptors are the backbone of the collection system and their proper operation is critical.
  - Levee Certification process requires that all pipes that penetrate the Missouri River levee system be inspected and cleaned; this includes private storm sewers, and City storm and CSO outfall pipes. Work orders related to O&M of the Flood Control system are tracked and reported to the U.S. Army Corps of Engineers (USACE) annually.
  - In the summer of 2020, the City installed level sensors and camera devices at 10 CSO diversion and CSO outfall locations along the Papillion Creek and Missouri River levee system and maintained them through June 2021. In-person device checks and updated camera hardware continued to allow the City to gain confidence in this newer technology. The photo resolution was not always reliable due in part to poor lighting and humid conditions. However, this technology is promising in that several overflow events showed brief durations, where prior to this, duration was largely unknown.
- CSO 210 diversion structure existing configuration allows for debris to accumulate in the junction box in the conveyance channel to the dry-weather pipe that leads to the grit structure. This CSO diversion was selected as one of the sites to monitor with level sensor and camera devices. The sewer separation in the CSO 210 area is underway, with an anticipated completion of construction in 2022, and will reconfigure the diversion structure. PM cleaning will continue until this project is complete.
- CSO 207 diversion structure was closed as part of the 42nd and Q Street Sewer Separation project (OPW 52257) completed in 2019. The City monitored the downstream CSO 208 diversion through spring and summer 2019, 2020, and 2021 to determine if CSOs are still occurring. The City continued to monitor the CSO 208 outfall per routine CSO device checks with only one overflow recorded, during the August 7, 2021 extreme storm event.

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. Flap gates are inspected weekly by the Levee and Lift Station when the gates are visible (when river levels do not submerge gates) to confirm the gates are sealing. The City made progress on updating the computerized maintenance management system to IBM's Maximo v7.6.1 for the flood protection system, the treatment plants, and the collection system lift stations. Part of the process of implementing the extended use of Maximo for maintenance management was assuring that assets were correctly located, identified, and coordinated between the Maximo and GIS systems so that City staff can coordinate efforts.

Elevated river levels can result in intrusion of water from the Missouri River or groundwater into the collection system, particularly in low-lying areas along the Missouri River. This work to replace and repair flap gates on CSO outfalls coincides with the requirements of the flood protection system associated with the Missouri River levee system (regulated under the USACE PL84-99 program). No additional flap gates were repaired or replaced in the CSS during this reporting year. The USACE repaired bulkhead gates at CSO 107, 121, 112, and 115 points as part of the PL84-99 2019 flood repairs project in the spring and summer of 2021.

Future CSO projects, which are still in the planning phases, will consider river intrusion by replacing flap gates at additional CSO outfall locations.

During periods of sustained high river elevations, the City uses existing infrastructure as much as possible to reduce river intrusion. The Papio-Missouri River Natural Resources District (PMR NRD) continued work to elevate the crest elevation of the Papillion Creek levee system, which will make it less likely in the future for the PCWRRF to be inundated by Missouri River and Papillion Creek flood flows, as occurred in 2019.

The City used its experiences from the elevated Missouri River levels from the flood event in 2019 to continue the development and refinement of a High River Operation Plan during this reporting year. This work-in-progress includes identifying critical monitoring of locations impacted by elevated river levels, planning for the possible need to install temporary pumps at critical lift stations, and identifying impacts to the system (including changes to the cost, schedule, and design/construction of ongoing projects). The City is continually adapting O&M plans to improve wastewater system operation effectiveness during high river levels. City staff have access to the web-based GIS dashboard for real-time coordination that includes information regarding Missouri River current and projected levels, weather forecasts, references to U.S. Geological Survey (USGS) stream flow and level gauges, critical flood stages, and locations and status of temporary pumping facilities along the levee and low-lying areas. This GIS dashboard was created and used as the authoritative data source on the 2019 temporary pump sites and flood control infrastructure for flood operations managers.

Installation and adjustment of regulators: The optimization work completed as part of the 2021 LTCP update (described further in LTCP Documentation section of this report) identified locations where in-line storage may be possible in the existing sewer system of the Missouri River Watershed. Ongoing activities subsequent to the completion of the 2021 LTCP document are further evaluating several potential alternatives for in-line storage and active controls. The use of the sewer model and other technologies to optimize the system that go beyond the NMC requirements may be pursued in the future with the City's adaptive management strategy as part of the LTCP implementation.

The City continued a pilot project in the reporting year to use level sensors and camera devices at 2 interior CSS locations and 10 CSO diversion and CSO outfall locations along the Papillion Creek system and Missouri River levee system. In-person device checks and updated camera hardware continued to allow the City to gain confidence in this newer technology. The photo resolution was not always reliable due in part to poor lighting and humid conditions. However, this technology is promising in that several overflow events showed brief durations, where prior to this, duration was largely unknown. These data are used to understand how water levels react to wet weather conditions in the CSS. The sensor at CSO 103 was used to evaluate if additional inflow and infiltration (I/I) removal is needed in the basin or if the diversion can be closed. There were no overflows observed at CSO 103 during the reporting year. The heaviest rainfall intensity on August 7 did measure a rise in the flow level of nearly 4 inches, but not enough to cause an overflow. The current Bridge Street lift station and CSO 103 diversion are planned to be decommissioned after a replacement lift station is constructed.

In the Papillion Creek Watershed, the City uses regulators at the influent to the PCWRRF to maximize in-line storage in the Papillion Creek Interceptor to maximize the amount of wet weather that goes to the PCWRRF and minimize activation of CSO 201.

Reduction and retardation of inflows and infiltration: The City continues to include and evaluate these methods of inflow reduction as part of the management of the CSS. There are a few items to note, as follows:

- Pipeline and manhole assessment continued as part of O&M programs, and inflow and infiltration source defects are catalogued. Complaint data, including sewer backups into property, street flooding, manhole covers displaced, and manhole overflows, continue to be tracked in the City CMMS and GIS systems. Heat maps or system area weighting are performed to understand the concentration of issues. This analysis is used along with other risk factors to highlight areas of concern that could warrant a future rehabilitation project.
- The City continued refining a more formalized procedure and list of techniques for I/I reduction. As part of the CSO Program, the PMT completed a guidance technical memorandum for how the City may want to develop and implement a plan for I/I reduction. The task gathered field data in a pilot area during the reporting year to demonstrate how to use such a plan. Flow meters and three piezometers were installed in the spring of 2021 and results showed that the pilot area was not high for infiltration and was moderate for inflow. The City is currently evaluating these data to determine if this pilot area warrants further rehabilitation methods to reduce inflow and infiltration.
- The CSO 117 diversion was deactivated (plugged) on August 30, 2021 as part of the OPW 51997b Missouri Avenue/Spring Lake Phase 2 Sewer Separation Project. This disconnects the storm and sanitary sewer systems at this location, preventing stormwater and river intrusion from entering the Missouri Ave Lift Station through this former diversion.
- City staff continue monitoring and enforcement of City code related to illicit connections, lateral defects, and new plumbing connections. No new illicit connections were found during this reporting year.
- 18th and Fort Sewer Separation project construction was completed during this reporting year. The primary goal of this project is to reduce and potentially eliminate the

surcharging experienced in the 36-inch combined line in Fort Street between approximately 16th and 20th Streets, while also reducing wet weather flows to the North Interceptor. No issues or complaints reported in the system since 2019.

Stormwater management practices evaluations continue to be required during the design of all CSO LTCP projects for applicability, cost-effectiveness, and long-term maintenance requirements. In addition, the City continues enforcing stormwater management regulations in redevelopment projects within the CSS areas.

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. Also notable is the City of Bellevue's Paradise Lift Station (which pumped wastewater to the PCWRRF) was damaged during the 2019 flood. The City is working with Bellevue as they implement repairs and plan for long-term replacement of this lift station, which may include changes to the service area and monitoring location.

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 water resource recovery facility (WRRF). As new facilities are built, permanent meters are installed and connected to the SCADA system for real-time monitoring at the WRRFs. The City is also working 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 so the data can be pushed to the Sewer Maintenance Division. 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.

C. Review and Modification of Pretreatment Programs

The CSO Permit requires the City to minimize the impacts of discharges into the CSS from non-domestic sources. When new significant industrial users are added to the CSS, the City is required to determine what impact the dischargers would have on the quality and quantity of CSO discharges during wet weather events.

The NPDES Permit requires the City to minimize the impacts of discharges into the CSS from non-domestic sources. When new significant industrial users are added to the CSS, the City is required to determine what impact the dischargers would have on the quality and quantity of CSO discharges during wet weather events. The EQCD is responsible for taking measures to address discharges during wet weather through the review and modification of the Pretreatment Program. 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 categorial industries with NPP permits addressing wet weather discharges in the City's sewer service area are included in Table 2.1. This table also includes the one new user added during the reporting year; Hormel Foods – Papillion Foods facility received a NPP permit on July 1, 2021. A summary of new significant industrial users and measures taken by the City to address

discharges during wet weather is also documented in the City's semiannual reports to the state for the Pretreatment Program.

Table 2-1. Categorial 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
GSI-Omaha, f/k/a Intersystems	9575 N 109th Avenue	No
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

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

The CSO Permit requires in both Part IV.D and Part V.G the City to evaluate and implement simple modifications to the CSS and procedures at the WRRFs to maximize flow to the Publicly Owned Treatment Works (POTWs) and document such modifications in Annual Reports. 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.

E. Prohibition of CSOs during Dry Weather

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

The City continues to work to comply with meeting the control of prohibition of dry-weather overflows. The City exercises procedures for response to, documentation of, and reporting of dry-weather overflows to prevent subsequent events where possible. Table 2-2 includes

summaries of the dry-weather overflows discovered during the reporting year that did not reach a water of the State. Table 2-3 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, as follows:

- There were four dry-weather overflows or basement backups that were contained and did not reach waters of the State. These resulted from construction debris or roots and rags (Table 2-2).
- There were five dry-weather overflows that reached waters of the State, four directly through a permitted CSO discharge point and one by a waterway or nearby separate storm sewer. Causes included grease and water main breaks (Table 2-3).

Each event was evaluated for true cause and appropriate long-term corrective action. The City also continued to place an emphasis on sewer design and construction controls. Construction specifications regarding pipeline and manhole channel construction, as well as removing debris remaining in new pipe, are being enforced with the goal of reducing maintenance issues and eliminating dry-weather CSOs.

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

Discovery Date ***(Date letter sent to NDEE)***	**Location of Overflow**	**Cause**	**Mitigation Steps**	**Long-Term Corrective Action**
12/10/2020 *(12/17/2020)*	6619 Franklin St.	Rags, Roots	Jet Line	Preventive Maintenance
1/8/2021 *(1/15/2021)*	9035 Raven Oaks Dr. (in the separated Bridge St Basin)	Rags, Roots	Jet Line, Saw Line	Scheduled Inspection
2/4/2021 *(2/11/2021)*	2749 N 49th St.	Construction Debris, Rags	Jet Line	Preventive Maintenance
3/4/2021 *(3/11/2021)*	6913 N 41st Circle	Construction Debris, Rags	Jet Line, Vacuumed	Scheduled Inspection

Table 2-3. 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
3/11/2021 *(3/18/2021)*	602 Seward St. (CSO 107)	Unknown	Unknown	Water Main Break	Water Main Repaired	Repair/Replace
4/5/2021 *(4/12/2021)*	6059 Taylor St. (CSO 204)	Unknown	< 50 gpm	Water Main Break	Water Main Repaired	Repair/Replace
4/14/2021 *(4/21/2021)*	6727 N 56th St.	Unknown	30 gpm	Rags, Grease	Jet Line	To EQCD for FOG
6/18/2021 *(6/22/2021)*	7229 Bedford Ave. (CSO 202)	Unknown	Unknown	Water Main Break	Water Main Repaired	Repair/Replace
9/27/2021 *(9/30/2021)*	CSO 119 Monroe St	1 hour	780 gpm	Water Main Break	Water Main Repaired	Repair/Replace

FOG = Fats, Oils, and Grease
gpm = gallons per minute

F. Control of Solid and Floatable Materials in CSOs

The CSO Permit restates the objective of this NMC as "control of solid and floatable materials in CSOs is intended to reduce visible floatables and solids using relatively simple measures." The permit requires the City to, as appropriate, re-assess and implement site-specific processes to control solids and floatables in CSOs using relatively simple measures. 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 flooding. The City advertised for bidding a project to repair the floatables screen in the Grace Street ditch CSO channel. The City is also pursuing Federal Emergency Management Agency reimbursement for this work.

- The City also continued work designing improvements to the 6th and Leavenworth Grit Facility (not a CSO Program project; contracted for design in 2021.

- 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 (MS4) or are part of the CSS as the stormwater recombines downstream.

G. Pollution Prevention

As stated in the CSO Permit, “Pollution prevention is intended to keep contaminants from entering the CSS and accordingly the receiving waters by way of the CSOs.” EPA Nine Minimum Controls Guidance defines this control as, “Pollution prevention measures such as street cleaning, public education programs, solid waste collection, and recycling can keep contaminants from entering the CSS. The CSO Permit requires the City to document in this Annual Report any new pollution prevention measures enacted by the City.

Pollution prevention efforts are shared between several divisions and workgroups within the Public Works Department. Most records for pollution prevention are compiled and included in an Annual Report as required by the City’s MS4 NPDES Permit NE0133698. Specifically, the MS4 Annual Report contains a section on Pollution Prevention/Good Housekeeping and includes a summary of storm sewer cleaning and other sewer maintenance records, as well as street-sweeping efforts from January 1 to December 31, 2020. The 2020 MS4 Annual report was submitted by the City to NDEE on March 31, 2021, and should be consulted for the list of Pollution Prevention activities in the CSS.

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

H. Public Notification

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

Locations of CSOs have been identified for the public through specific signage posted near the outfalls, 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. Procedure responsibilities continue to be carried out by Sewer Maintenance Division staff. CSO outfall sign inspections were completed in this reporting year in fall 2020 (between August 11 and September 16, 2020) and spring 2021 (April 27 and May 25, 2021). The CSO 207 44th & Y outfall was deactivated during the previous reporting year and the CSO sign was removed after separation was verified. As of the last inspection date of April 25, 2021, 46 of the 48 signs were in place. 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)” sign is temporarily removed during the construction of the Saddle Creek RTB. This sign will be replaced after RTB construction is complete.

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*, which was updated this reporting year as described in Section II.A, Proper Operation and Maintenance, and updated pages are included in Attachment 1. This standard operating procedure is reviewed semiannually. No other policies or procedures for public notification have been revised or updated.

One public notification was issued during the reporting year due to loss of power at the MRWRRF during the July 10, 2021 windstorm. Public Works Assistant Director, Environmental Services determines “significant” qualification in conjunction with NDEE, on a case-by-case basis under these guidelines: duration greater than 24 hours; quantity greater than 100,000 gallons, considering nature of pollutants and location. An additional summary is provided in Section III.B, Public Participation, documenting public informational methods with regard to understanding CSOs and the CSO Program.

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

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

Information on efforts made during the implementation of the LTCP to characterize the CSS system can be found in Section III.A, 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, 2020, to September 30, 2021, there were no known beach closings or fish kills. 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. During a flash flooding event on August 7, 2021, the City recorded 58 combined sewer backups and 27 manhole covers dislodged or missing. Previous to this, the City recorded three other wet-weather related basement backups, due to combination of issues, such as surcharged conditions, power supply loss at a diversion gate, and storm debris blockage. Details are recorded for each location in the City’s databases and retrievable upon request. Other notable rain events occurred on March 13–14, August 25, and August 31, 2021, with only one notable issue due to backflow valve failure in the CSS.

The area of N. 66th and Charles Street is downstream of the CSO 210 diversion structure; however, this system still receives flow from four storm inlets connected upstream. Two basement backups and two manhole overflows occurred during wet weather on May 30, 2021, which were primarily due to excessive roots in the 18-inch diameter collector pipe’s joints and storm debris. These remaining inlets will be removed with the CSO 210 sewer separation project. The storm event was minor in both intensity and duration.

The storm events during the reporting year are outlined in Table 2-4.

Table 2-4. Storm Events

Date	Duration (Hours)	Total Rainfall (Inches)	Recurrence Interval (NOAA)
March 13–14, 2021	27	3.46	5 year
Summary: Peak Hour Intensity .25 inch per hour			
March 23, 2021	36	1.40	< 1 year
Summary: Peak Hour Intensity of .20 inch per hour			
May 27, 2021	4	1.07	< 1 year
Summary: Peak Hour Intensity of .40 inch per hour			
June 25, 2021	1.5	1.01	2 year
Summary: Peak Hour Intensity of .97 inch per hour			
July 31, 2021	24	1.53	2 year
Summary: Peak hour intensity of .95 inch per hour			
August 7, 2021	3	4.2	200 year
Summary: Peak Hour Intensity of 4.0 inches per hour			
August 25, 2021	2.5	1.2	10 year
Summary: Peak Hour Intensity of 1.14 inches per hour			
August 31, 2021	6	2.13	5 year
Summary: Peak Hour Intensity of 0.80 inches per hour			

< = less than

NOAA = National Oceanic and Atmospheric Administration

All basement backups and manhole overflows are evaluated for actual causes or conditions that lead to the backup or overflow. OPW Environmental Services engineering groups will refer properties for back-water valves if CSS capacity is determined to be the cause. Sewer system evaluation surveys are referred if chronic occurrences and regions of the service area are affected by wet weather. In some cases, minor repairs to reduce I/I sources are completed 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 the original LTCP to NDEE on September 25, 2009, in fulfillment of Permit requirements and EPA's CSO Control Policy. The LTCP was approved by NDEE on February 10, 2010. An update to the LTCP was submitted to NDEE on September 29, 2014, which was approved by NDEE on January 23, 2015. Minor modifications to the LTCP Update were submitted and approved by the NDEE on April 3, 2015; August 28, 2015; July 19, 2017; May 20, 2019; and July 9, 2019. On March 31, 2021, the latest LTCP Update (2021 LTCP Update) was submitted to the NDEE. This update was approved by the NDEE on August 11, 2021, with no modifications required.

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 2014 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

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. A narrative summary of changes during the last 12 months to the characterization, monitoring, and modeling of the CSS as construction and sewer separation projects are implemented must be included in each Annual Report. The permit requires the City to continue to characterize, monitor, and model the CSS.

While the CSS is almost completely mapped in 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.

Characterization Efforts

Characterization efforts of the CSS 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.

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 results are discussed in the following sections.

Monitoring Efforts

The City has been performing flow monitoring of its CSS, specifically related to the characterization of the system, since 2004. The City continued City-wide flow monitoring of the Papillion Creek Interceptors and conducted temporary flow monitoring in multiple locations. For the reporting year, 43 permanent flow monitoring sites, 34 temporary flow monitoring sites, and 11 CSO surveillance locations (with camera and level sensor) supported a variety of studies. Flow monitoring for excessive I/I in post-separated, post-rehabilitated sewers was a focus.

Additionally, the City gathered precipitation data using 12 permanent City-managed, two temporary consultant-managed rain gauges, and several U.S. Geological Survey (USGS) gauges. The City also obtained radar processing of rainfall data from April 6 through August 8, 2021, to provide increased spatial accuracy. The Sewer Maintenance Division coordinates with the CSO PMT and other City divisions to plan the flow and rain monitoring program.

City and consultant rain gauges are listed in Table 3-1. Permanent and temporary (generally rented equipment installed for a short time for a specific purpose) flow monitoring locations are listed in Tables 3-2 and 3-3, respectively. 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 2021, including locations of gauges within the Papio-Missouri River Natural Resources District alert rain gauge system (managed by USGS), which is used to supplement the City's rain gauge network.

Table 3-1. City and Consultant Rain Gauges

Rain Gauge Name	Longevity	Sewer Area
RG 1 - 10205 U St. (Oak Heights Pool) (until 6/20/21)	Permanent	Sanitary
RG 1 - 6111 S. 99th St. (Johnny Goodman Golf Course) (as of 6/20/21)	Permanent	Sanitary
RG 2 - 3200 Ed Creighton Blvd. (Hanscom Park)	Permanent	Combined
RG 3 - 5120 Maple St. (Benson High 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 - 100 Martha St. (Martha CSO Diversion) (until 3/25/21)	Permanent	Combined
RG 9 - 20th and Pierce (as of 3/25/21)	Permanent	Combined
RG 10 - 19615 Old Lincoln Highway (Elkhorn WRRF)	Permanent	Sanitary
RG 11 - 120 S. 24th St. (Family Lutheran Service Building)	Permanent	Combined
RG 12 - 1110 S 67th St. (PKI Maintenance Building)	Permanent	Combined
TREKK 2021 RG 1 - 4708 S. 15th St.	Temporary	Combined
TREKK 2021 RG 2 - 599 Marcy St.	Temporary	Combined

Table 3-2. Permanent Flow Monitoring Sites

Location	Pipe Size	Longevity	Purpose
0225352 - 6900 Ames Ave.	30-inch circular	Permanent	CC Interceptor-E/CSS
0225354 - 6900 Ames Ave., north pipe	12-inch circular	Permanent	CC Interceptor-E/CSS
0225354 - 6900 Ames Ave., southwest pipe	24-inch circular	Permanent	CC Interceptor-E/CSS
0246042 - 7601 Corby Cir.	24-inch circular	Permanent	CC Interceptor-W
0246069 - 2808 N. 75th St.	18-inch circular	Permanent	CC Interceptor-E
0265099 - 8019 Cass St.	42-inch circular	Permanent	LP Interceptor
0293022 - 1501 N. 85th St.	36-inch circular	Permanent	LP Interceptor
0297005 - 3020 Keystone Dr.	24-inch circular	Permanent	LP Interceptor
0302016 - 8754 Browne St.	30-inch circular	Permanent	LP Interceptor
0692078 - CSO 205 – 64th and Dupont	10-foot by 12-foot box	Permanent	Saddle Creek CSO Outfall
0699028 - 6303 L St.	66-inch circular	Permanent	LP Interceptor/CSS
0644377 - 4224 R St.	12-inch circular	Permanent	Post Separation

Location	Pipe Size	Longevity	Purpose
0726052 - 828 Rose Blumkin Dr.	60-inch circular	Permanent	LP Interceptor/CSS
4062002 - 8970 S. 48th St.	90-inch circular	Permanent	BP Interceptor
0390004 - 10875 W. Dodge Rd.	21-inch circular	Permanent	BP Interceptor
0452002 - 12440 W. Maple Rd.	36-inch circular	Permanent	BP Interceptor
0737008 - 7310 North Plaza	72-inch circular	Permanent	BP Interceptor
0786041 - 9503 Walnut St.	36-inch circular	Permanent	BP Interceptor
0786049 - 9503 Walnut St.	54-inch circular	Permanent	BP Interceptor
0839020 - 10800 Leavenworth St.	54-inch circular	Permanent	BP Interceptor
1038004 - 9111 N 138th St.	18-inch circular	Permanent	BP Interceptor
1167001 - 168th and Military Rd.	24-inch circular	Permanent	S. Bennington Interceptor
0426046 - 4712 N. 120th St.	24-inch circular	Permanent	BP Interceptor-E
0941005 - 4131 S. 143rd Cir.	48-inch circular	Permanent	WP Interceptor-W
0942004 - 4526 S. 140th St.	30-inch circular	Permanent	WP Interceptor-E
0978002 - 3992 S. 153rd Cir.	30-inch circular	Permanent	Zorinsky Interceptor
1141001 - 16229 Harney St.	18-inch circular	Permanent	WP Interceptor-E
1141017 - 323 S. 166th St.	30-inch circular	Permanent	WP Interceptor-W
1188007 - 17007 Burt St.	36-inch circular	Permanent	WP Interceptor-W
4051002 - 11820 Harry Andersen Ave.	60-inch circular	Permanent	WP Interceptor
4052015 - 10900 Harry Andersen Ave.	72-inch circular	Permanent	WP Interceptor
4052051 - 11435 S. 36th St.	78-inch circular	Permanent	WP Interceptor
4052029 - 1107 E. 1st St. - Papillion	78-inch circular	Permanent	WP Interceptor
4079029 - 12001 Cary Cir.	30-inch circular	Permanent	SP Interceptor-N
4088200 - 8001 S. 120th St.	42-inch circular	Permanent	SP Interceptor-S
4052005 - 10808 Olive St.	18-inch circular	Permanent	Hell Creek Interceptor
4052060 - 10808 Olive St.	30-inch circular	Permanent	Hell Creek Interceptor
4001001 - 15705 Harlan Lewis Rd.	108-inch x 112-inch box	Permanent	Papio Interceptor/CSS
4016001 - 13th St. and Capehart Rd.	120-inch circular	Permanent	Papio Interceptor/CSS
4026001 - S. 25th St. - Bellevue	96-inch x 112-inch box	Permanent	Papio Interceptor/CSS
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)

Table 3-3. Temporary Flow Monitoring Sites

Location	Pipe Size	Longevity	Purpose
0004505 - 1333 N. 16th St.	24 inches	Temporary	RNC/Post Separation
0016001 - 6421 John J. Pershing Dr.	10 inches	Temporary	RNC/Post Separation
0016103 - 6395 N. 16th St.	10 inches	Temporary	RNC/Post Separation
0036016 - 6639 N. 16th St.	10 inches	Temporary	RNC/Post Separation
0063067 - 9308 N. 28th Ave.	48 inches	Temporary	CSO
0546005 - Missouri Ave./S. 15th St.	15 inches	Temporary	CSO
0564009 - S. 21st St./F St.	15 inches	Temporary	CSO
0519351 - Hickory diversion influent	30 inches	Temporary	CSO
0519351 - Hickory diversion CSO	30 inches	Temporary	CSO
0518355 - Pierce diversion influent	36 inches	Temporary	CSO
0518355 - Pierce diversion CSO	36 inches	Temporary	CSO
0518023 - S. 4th St. south of Pierce	30 inches	Temporary	CSO
0032038 - Florence Blvd. north of Browne St.	36 inches	Temporary	RNC/Post Separation
0596661 - Hanscom Park West GI	30 inches	Temporary	GI Assessment
0596663 - Hanscom Park West GI	30 inches	Temporary	GI Assessment
0596038 - Hanscom Park West GI	33 inches	Temporary	GI Assessment
0596683 - Hanscom Park Lagoon	24 inches	Temporary	GI Assessment
0577062 - Hanscom Park Lagoon	24 inches	Temporary	GI Assessment
0556147 - 20th/Pierce GI	60 inches x 84 inches	Temporary	GI Assessment
0556165 - 20th/Pierce GI	60 inches x 54 inches	Temporary	GI Assessment
0556162 - 20th/Pierce GI	48 inches	Temporary	GI Assessment
0175108 - 4223 N. 60th St.	8 inches	Temporary	CSO - Infiltration
0175116 - 5619 Sprague St.	12 inches	Temporary	CSO - Infiltration
0304022 - 6060 Wenninghoff Rd.	30 inches	Temporary	LP Interceptor
0305016 - 6112 N. 89th Cir.	24 inches	Temporary	LP Interceptor
0688002 - Elmwood Park Rd.	18 inches	Temporary	Happy Hollow
0667041 - 303 S. Happy Hollow Blvd. (northwest line)	15 inches	Temporary	Happy Hollow
0667041 - 303 S. Happy Hollow Blvd. (northeast line)	18 inches	Temporary	Happy Hollow
0167021 - 5644 Western Ave.	15 inches	Temporary	Happy Hollow
0687001 - Elmwood Park Rd.	12 inches	Temporary	Happy Hollow
0687369 - 606 Elmwood Park Rd.	8 inches	Temporary	Happy Hollow
0546540 - 1000 Missouri Ave.	18 inches	Temporary	CSO/Post Separation
0556013 - 1054 S. 20th St.	38 inches	Temporary	CSS
0645024 - 5813 S. 46th St.	12 inches	Temporary	CSS/WA23

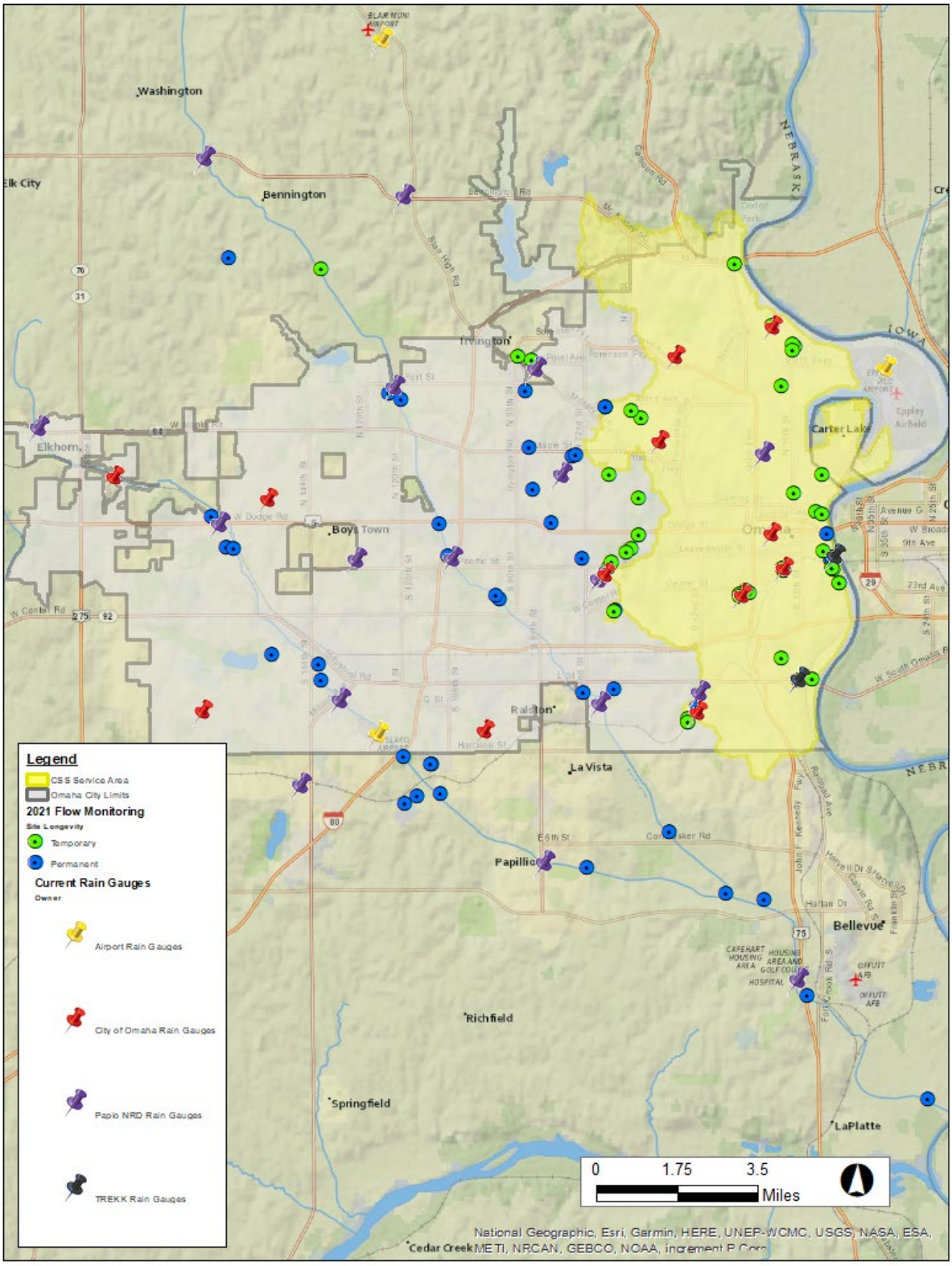
Note: RNC is the funding program for the renovation of combined sewers, GI is green infrastructure.

Table 3-4. CSO Surveillance Locations

CSO ID	Approximate Location	Manhole ID	Notes
CSO 103	Bridge St. and Dick Collins	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 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 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	0708026	Monitor overflow pipe

ID = identification

Figure 3-1. Flow and Rain Monitoring Locations



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 discovered and as the system is modified as CSO controls are implemented.

This year, modeling efforts were focused on development of a new LTCP model to evaluate and incorporate decisions resulting from the optimization task and provide data and statistics for the 2021 LTCP Update (refer to Section 5, Updated CSO Controls, of the 2021 LTCP Update).

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

During the annual report year, the Clean Solutions for Omaha (CSO!) Program facilitated engagement with neighborhoods and the general public, both in-person and virtually. This, in addition to conveying timely and accurate project information, resulted in continually building on strong relationships and advancement toward community acceptance of the Long Term Control Plan. Examples are shown in the sections below.

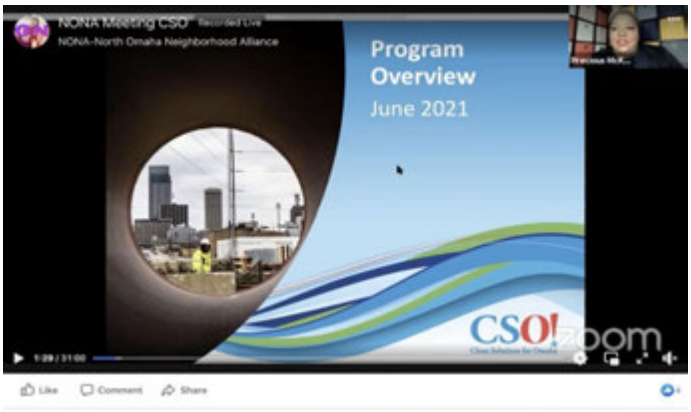
Pandemic Outreach

As a result of the ongoing COVID-19 pandemic, many aspects of public outreach that transitioned to a virtual environment last year continued. The primary goal is to safely inform and educate neighborhood stakeholders, students, elected officials, and the community. As vaccination has become more prevalent, there has been a move to in-person meetings following Centers for Disease Control and Prevention (CDC) guidelines when pertinent.

Informing Stakeholders

The CSO! Program used email, phone calls, and video conferencing to inform neighbors about upcoming projects in their area and attended neighborhood alliance meetings in person (when possible and with necessary safety measures in place) and virtually (Figure 3-2). 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.

Figure 3-2. North Omaha Neighborhood Association (NONA) Screen Shot



Youth Outreach

Although limited by pandemic protocols, the Program was able to reach youth this year through various activities. Outreach included:

Fish Stocking. On June 17, 2021, Nebraska Game and Parks restocked Fontenelle Lagoon and the Hanscom Park pond for catch and release fishing (Figure 3-3). Families and children explored the improved parks and watched the stocking of 300 hybrid bluegill and green sunfish at each location. A City of Omaha youth summer camp called Camp Hanscom coincided with the event, creating a youth outreach opportunity. Approximately 40 elementary and middle school campers observed the Hanscom Park restocking.

Daryl Bauer, Nebraska Game and Parks fisheries outreach program manager, was onsite at the Fontenelle location, answering questions and sharing information with observers. As part of the CSO! Program, both bodies of water were dredged and deepened to decrease the volume and flow rate of stormwater entering Omaha's CSS. In addition to helping meet Program goals, these green infrastructure projects revitalized parks that serve as community amenities with wildlife and outdoor recreation.

Figure 3-3. Staff from Nebraska Game and Parks stock the pond at Hanscom Park

An educational video about the restocking was also produced and added to the e-learning page on the CSO! Website. Figure 3-4 provides an image from the video.

Figure 3-4. Image from Daryl Baur video

World O! Water: Self-Guided Tour

World O! Water is an annual event for Omaha-area youth to learn about the important role water plays in our lives and community. The free, online event began in mid-September, promoting water education activities that can be accessed via its website, worldowater.org.

The CSO! public outreach team toured Spring Lake Park with a Program engineer to learn more about how the park can be leveraged as a learning destination. Modeling this experience, the team developed a worksheet for families and educators to download and use in promoting self-guided tours of the area (Figure 3-5). The worksheet leads participants through the

revitalized park and helps adults engage children in conversation about stormwater management and green infrastructure. The worksheet is available to download through the end of 2021 at worldowater.org/activities under “Explore Omaha Challenges.”

Figure 3-5. Image of Self-Guided Tour Sheet

Clean Water Action Patch

The Economic and Inclusion Team (EIT) engaged with the chief operating officer at Girl Scouts Spirit of Nebraska to develop an at-home guide with tailored activities for scouts of all ages to learn about the CSO! Program and earn a Clean Water Action patch (Figure 3-6). These activities will help scouts learn what causes pollution in our local waterways, what’s being done to reduce pollution, and how they can help. The guide, which is going through final review with the Girl Scouts, will be converted into a generic, non-Scout version as well.

Figure 3-6. Image of Clean Water Action Patch

ACE Mentoring

The CSO! EIT, through membership with Architecture, Construction, Engineering (ACE) Mentoring, developed an Advisory Council to bring more diversity to the architecture, construction, and engineering industries. On September 22, 2021, the inaugural meeting was held. Members include representation from 100 Black Men of Omaha, Boys and Girls Club, and Stem Ecosystem.

Workforce development is one of CSO!’s Economic Equity and Inclusion Program (EEIP) goals, focused on fostering a future where more young women and people of color develop an interest and participate in architecture, construction, and engineering. Any firm that secures a $500,000+ construction contract with the City is required to have an Economic Equity and Inclusion plan. Many firms in the Omaha area have united their efforts to form a local affiliate of the national ACE Mentor Program, expanding opportunities to give back to the community, contribute to Omaha’s workforce development, and make a bigger impact.

The program features a year-long mentoring period where students gain hands-on experience working with a team of architects, engineers, and contractors on a real-world project. Karen Hickey, a standout student from Omaha North High School who has been involved in the program for 2 years, was recently awarded a scholarship of $16,000 from the ACE National CMiC Scholarship Committee—one of the top awards available.

New Website

A revamped version of the CSO! Program website debuted on May 1, 2021, providing an enhanced and streamlined public user experience.

The public website is a powerful tool that connects and educates ratepayers and other interested parties on important CSO! Program work being accomplished. It includes in-depth information about Program projects, current and upcoming activities, contractor resources, and historic Program documents.

In late 2020, it became evident that a new website architecture was needed. The previous design was more than 8 years old and technical programming support was being phased out. The new site is easier to maintain and update, and it includes navigational and aesthetic improvements for users.

With a fresh, lighter look and enhanced navigation, site visitors can quickly find and access the information they are searching for. On the homepage, six red buttons now serve as quick links to educational resources about the CSO! Program. A fly-out menu containing links to the most visited pages can be accessed across the site.

A key element of the new website design is an interactive project map. This feature makes it easy to see current activity locations at a glance, as well as search for specific addresses. The color-coded design makes it easy to see the status of a project, and the map provides quick links to more information about each project.

Bright, on-brand infographics and videos on the site help convey information about the CSO! Program, including the mission, vision and goals, a timeline of events, community benefits, funding, and more.

The design is also responsive, meaning it displays well on different sized screens and devices such as smartphones and tablets (Figure 3-7). Figure 3-8 provides a summary of the activity on the CSO! Website over the past year.

Figure 3-7. New CSO! Website

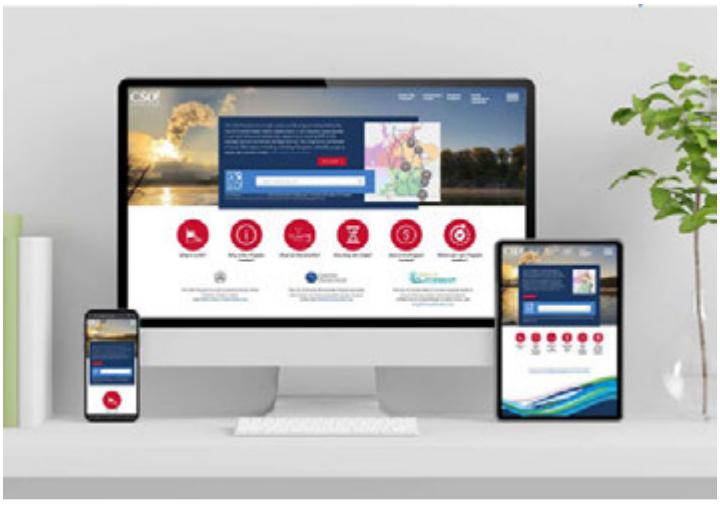
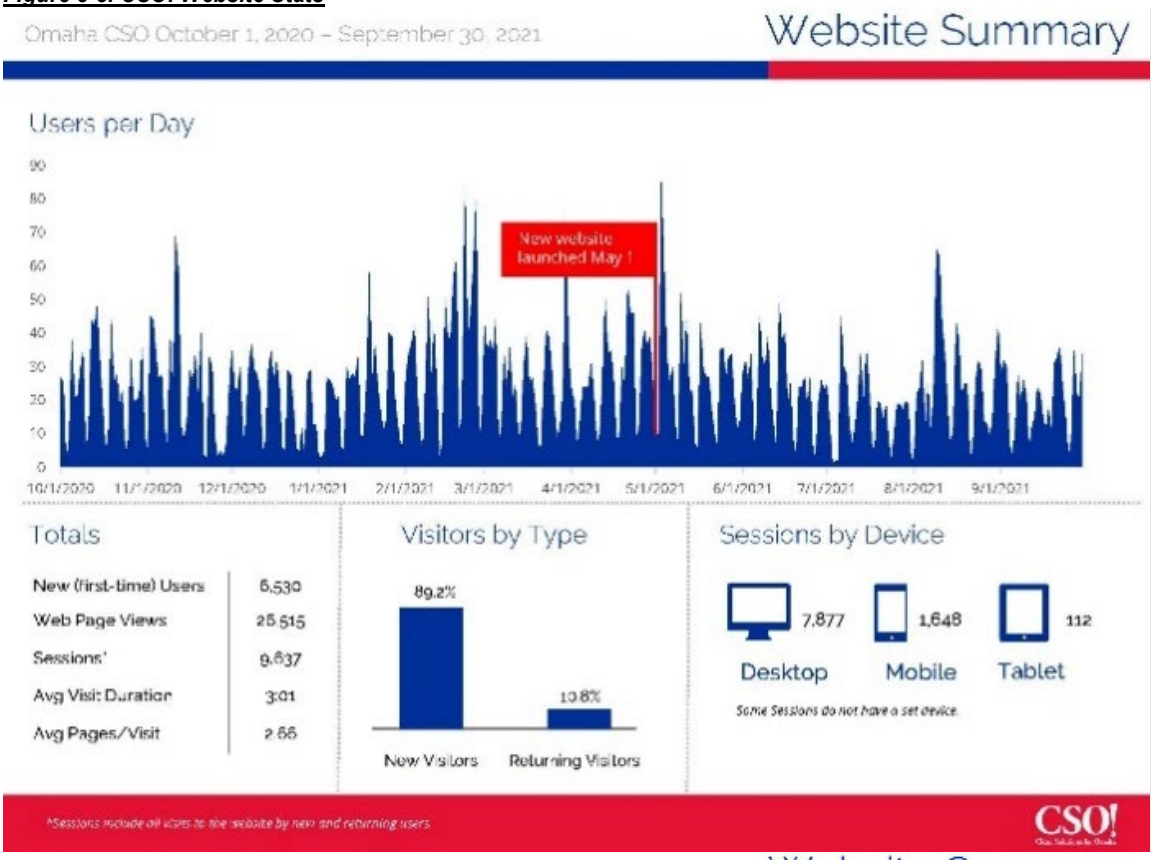
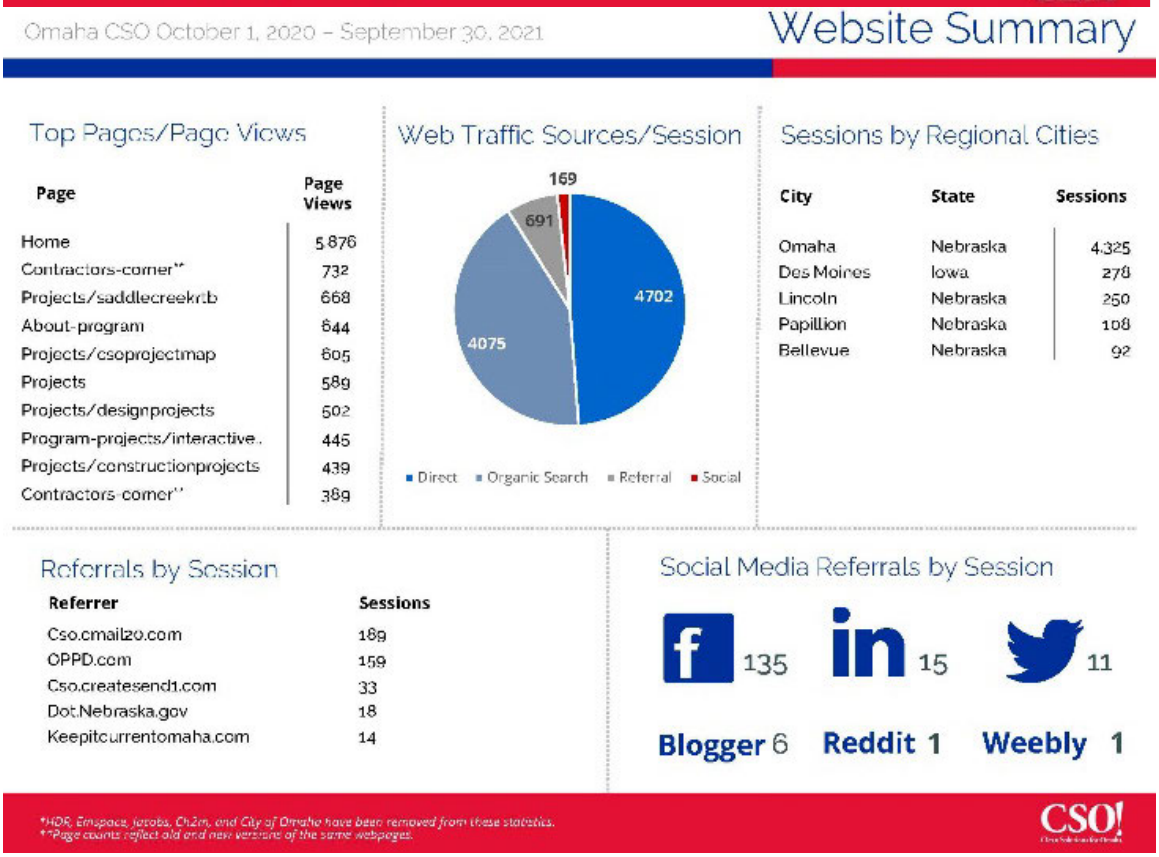


Figure 3-8. CSO! Website Stats





Information Line Update

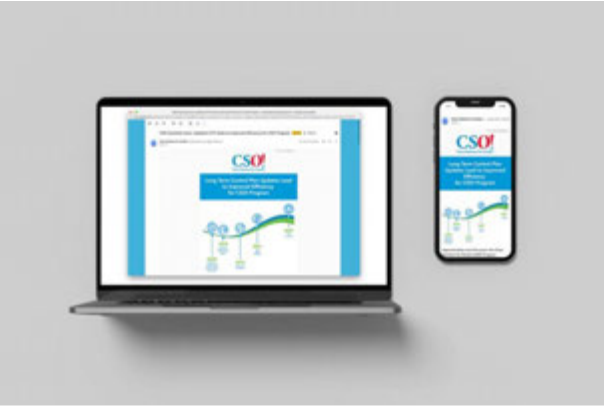
During this past program year, the CSO! information line (402-341-0245) received 49 phone calls. Topics ranged from questions on bills and sewer maintenance to specific CSO! project schedules. The phone is answered live during business hours, with a goal to return all messages within 1 business day (Figure 3-9).

Figure 3-9. Phone Infographic

LTCP E-Newsletter Update

In the first quarter of 2021, an email about the LTCP Update was sent to a list of more than 800 stakeholders, which garnered a 21.4% and 24.24% click-through rate (Figure 3-10). According to our email sending engine, Campaign Monitor, the average open rate for emails is 18% with a 2.6% click-through rate.

Figure 3-10. E-news Preview



Link: https://cso.createsend1.com/t/ViewEmail/r/C7FFEDD673888FF12540EF23F30FEDED

Engaging the Community

During the reporting year CSO! engaged the community via Omaha Public Works' Twitter account through 47 tweets, which cumulatively received 58,994 impressions and 3,116 engagements (averaging a 2.8% engagement rate). Figure 3-11 is an example of one of the tweets that was sent.

Figure 3-11. Example Tweet

Traveling Display

The CSO! Program display continued traveling around the metro area, though on a limited basis due to the pandemic. From November to December 2020, the small display was at City Hall. Later, from April to May 2021, it moved to Milton R. Abrahams Public library, while the large display was housed at the Benson Public Library.

Messaging Document

The Public Outreach team developed a messaging document that outlines key talking points for the Program and how those points should be framed when communicating with different public audiences, whether it's ratepayers, city officials or contractors. The creation of this document ensures all public-facing communications are clear and consistent across all media.

C. Consideration of Sensitive Areas

Sensitive areas include waters with threatened or endangered species and their designated critical habitat, waters with primary contact recreation, public drinking water intakes, and any other areas identified by state or federal agencies. An update of the known sensitive areas was included in the 2021 LTCP Update, Section 2.7. No new sensitive areas were identified.

D. Evaluation of Alternatives

The process the City originally undertook to identify, screen, evaluate, and select CSO control technologies and alternatives for the Missouri River and the Papillion Creek Watersheds is described in the 2009 LTCP and the 2014 LTCP Update (City 2009, 2014). That process resulted in a group of selected CSO controls that included two retention treatment basins (RTBs), four tanks, upgrades to the MRWRRF, replacement of force mains, a deep tunnel for conveyance and equalization, green infrastructure, and sewer separation projects. All selected CSO controls were anticipated to satisfy the presumption approach of EPA's CSO Control Policy while meeting the water quality standards in the Missouri River and not precluding adherence to water-quality standards in the Papillion Creek Watershed.

As part of the 2021 LTCP Update development, an optimization evaluation was performed along with other relevant evaluations. The result of these evaluations is described in detail in the 2021 LTCP Update in Sections 3.3 and 3.4 and LTCP Appendices E, F and G. As a result of this evaluation, the following projects have been removed from the LTCP:

- CSO Deep Tunnel
- CSO Tunnel Lift Station and Force Main
- RTB at MRWRRF
- RTB Dewatering Lift Station

- Bridge Street Lift Station and Force Main
- Minne Lusa Stormwater Conveyance Sewer and associated sewer separation projects[2]
- Phase 1 and 2 Storage Facility at CSO 105 - Minne Lusa
- CSO 204 Storage Tank
- CSO 204 Phase 2
- CSO 204 Phase 5
- CSO 210 Inflow Reduction
- CSO 211 Inflow Reduction
- Webster and Nicholas Phase 2

The following are new projects that have been added:

- East Cole Creek Interceptor Rehabilitation
- Minne Lusa Relief Sewer Diversion Modifications
- 61st and Radial Storm Sewer
- Grace St and North Interceptor DWF Diversion Rehabilitation
- CSO 105 Outfall Active Control
- North Downtown Conveyance Sewer - 11th and Izard to 6th and Abbott
- 11th and Izard Grit and Screening Facility
- 11th and Izard Active Control
- Northeast Omaha RTB - 6th Street and Abbott Drive
- 21st and Cuming Active Control
- Leavenworth Basin Storage Tank (CSO 109)

No additional evaluations are anticipated at this time.

E. Cost and Performance Considerations

Section 4, Program Financing and Financial Considerations, of the 2021 LTCP Update was written to meet the requirements of Part V.E., Cost/Performance Considerations of the City's CSO permit. Section 4 and its contents also serve as the financial report that was required by the CSO permit to be submitted to NDEE by March 31, 2021, setting forth a strategy to obtain sufficient revenue to fund the CSO Program through at least the year 2024. 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

[2] This project was deleted as a result of the Technical Assessment for Cost Savings project completed in 2018. These projects had been removed from the permit and 2014 LTCP previously.

next rate ordinance, to be finalized in 2023, 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 and PCWRRF, and in the collection system.

In addition, the City has retained the services of their rate consultant to conduct a Wastewater Cost of Services (COS) Study. The purpose of the study is 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 earnest in early 2021 and is expected to be completed in late 2021. Upon completion of the study, City staff will determine the appropriate stakeholder engagement and information required prior to the development of a rate structure that will require City Council approval. The amount of stakeholder engagement will depend on the study outcome, and it may involve meetings with elected officials, large commercial and industrial customers, and outside communities that are served by the system.

F. Operational Plan

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

An Operation Plan was provided to NDEE on November 13, 2015. The plan included a summary of the anticipated operation of the MRWRRF once the construction of the MRWRRF Improvement project, which is part of the CSO program, was complete. The modifications to the MRWRRF were substantially complete in August 2019 and were operationally complete in December 2019. The Disinfection and Dechlorination Operations and Maintenance Manual was submitted to NDEE in June 2020 as part of the State Revolving Fund (SRF) loan requirements. The City has until January 1, 2023[3] to refine the operation of the treatment system before having to meet the effluent limits in the permit.

Although not operationally complete due to some ancillary equipment issues, the facility could be operated with some limitation prior to the December 2019 date noted previously. The City decided to test the new facility prior to the end of the 2019 recreation season. The first storm event occurred on September 29, 2019. Since then, the facilities have treated 10 total overflow events during the recreation seasons, 5 in the Annual Report year. Additionally, several events have been fully captured in storage (clarifiers) and the disinfection basin without discharge during that time period. The current collection system does not take advantage of the full capacity of the primary treatment facilities. As projects are completed in the collection system, especially lift stations, influent flows will increase and more overflows events per year would be

[3] The date was changed in a permit modification dated November 1, 2019.

expected. Additional event, particularly of longer duration, are needed to fully evaluate the system.

The data from the overflow events are analyzed and reporting from operations staff is combined after each event, which results in adjustment to the system to improve performance. However, only two events of a duration longer than 4 hours occurred in 2021. Because of instrumentation and process delays, a change in a parameter such as sodium hypochlorite can take 30 minutes or more before the results of the change can be determined. In short events, the event ends before any system changes can be evaluated. The ability to see how the system will maintain proper disinfection over longer overflow events that are anticipated to occur once the collection system and lift station projects are complete is difficult to confirm. However, based on the available information analyzed and as part of the City's ongoing commitment to improve operations, the City plans to make additional improvements and adjustments to be completed prior to the start of the 2022 recreation season of May 1.

The SOIA Lift Station has been in operation since 2014; however, issues have continued to persist with operation of the pumps that require frequent replacement of the seals. The City is working with the pump manufacturer to resolve the cause of the seal failures. In addition, after 5 years of operation, the City has completed a study of the facility to improve operations and reduce maintenance requirements. This study included an evaluation of the wet well and pumping operations, grit management, grease management, odor control systems, and the gates and valves. The first construction project to address these maintenance issues was bid in 2021 and includes improvements to the wet well, gates in front of the screens, odor control system, and replacement of the pump check valves.

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

The CSO Permit requires the City to continue to evaluate opportunities to maximize treatment at the WRRFs as part of the adaptive management strategy for implementation of the NMC, LTCP and to provide a summary of any new approaches identified to maximize treatment of combined wastewater at the WRRFs in Annual Reports. 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. An evaluation of the feasibility of expanding wet weather treatment at both the MRWRRF and the PCWRRF is described in Section 3 of the 2009 LTCP and the 2014 LTCP Update. The status of these efforts is summarized below.

As noted above, the MRWRRF CSO 102 disinfection facilities were operationally complete in December 2019. The system has the capacity to disinfect a peak hour flow of up to 101 million gallons per day (MGD) prior to discharge through CSO 102. The project was originally anticipated to be put into operation in early 2019 before the recreation season of May 1 to September 30. However, during the 2019 flood, the Disinfection Basin and construction area were inundated with flood waters. As a result, the NDEE extended the interim requirements until January 1, 2023.

There are several projects included in the LTCP that will deliver additional 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":

- Burt-Izard Lift Station Improvement Project: Enables the City to pump an additional 25 MGD flow (for a total of 50 MGD) to the MRWRRF.

- The Riverview Lift Station Replacement Project and the Blake Street Lift Station Project: Enables the City to pump increased wet weather flows 7 MGD and take some older lift stations out service.

- Monroe Street Lift Station Improvements Project: Enables the City to increase pumping of wet weather flows from 40 MGD to 65 MGD to the MRWRRF.

Completion of these project will further maximize the ability of the City to capture, treat, and manage the CSO events. Currently, the flow to the headworks and through primary disinfection is limited by the capacity of the collection system to deliver combined sewage. The upgrades in the collection system will allow the City to take full advantage of the facility capacity and, therefore, capture and treat more flow that would have normally discharge to the river. In addition, the upgrades provide more flexibility in what flow will be pumped through primary treatment and disinfection which could further reduce the concentrations of contaminants going to the river as the City could preferentially treat and disinfect more contaminated waters.

H. Implementation Schedule

A new schedule was provided in the 2021 LTCP Update in Section 6. Several changes in the 2021 LTCP Update affect the way the schedule is tracked, including that projects will no longer be classified as Major or Sewer Separation Projects and there are no longer Phases to implementation. The 2021 LTCP Update includes LTCP Milestone dates that are the completion date of construction. Section IV, Compliance Schedule, provides a status update on LTCP implementation. This Annual Report will list projects as Major and Sewer Separation and reference the Phase that the projects fall into. This will be changed in subsequent Annual Reports. Attachment 2 contains an APPR for each of the active projects under a compliance schedule and includes both the old and new LTCP Milestone dates.

System Reliability Projects

The 2009 LTCP and the 2014 LTCP Update identified four projects (Burt-Izard Lift Station Improvements, Bridge Street Lift Station, Riverview Lift Station Replacement Project, 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 three active projects is listed in the following text. The Transfer Lift Pump Replacement Project, which is not a LTCP project, was undertaken to improve the reliability of the lift station pumps and installed as part of the MRWRRF Improvements Project. The status of these projects are as follows:

Burt-Izard Lift Station Improvements: The project includes lift station improvements, including 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 (Figure 3-12). As noted previously, the project will result in flows up to 50 MGD to be conveyed to the MRWRRF during wet weather events. This

affects the operation of the disinfection basin and the discharge from CSO 102. Construction Notice to Proceed was issued in August 2018. The inlet isolation gates have been replaced, grit basins capacity has been increased, bypass pumping operations are currently in operation, and start-up testing of the new pumps commenced in September 2021. Construction is anticipated to be completed in December 2021. This will allow for the new SIFM to be fully operational and the new one to be taken out of service.

Figure 3-12. Burt Izard Lift Station New Pumps, Valves, Discharge Piping and Lighting – April 1, 2021

Riverview Lift Station Replacement Project: The project is being delivered in two construction contracts. The first construction contract 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. The second construction contract includes a gravity sewer extending south from the Spring Street Lift Station to a new 1 MGD lift station near Blake Street and Hascall Street (Blake Street Lift Station, described below). 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 two construction contracts, when completed, will help maximize flow to the MRWRRF during wet weather events. 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, and it will extend for 30 months to September 2022. The installation of the 42-inch sewer along Gibson Road is completed, along with the Grover and Riverview Diversion Structures. The Riverview Lift Station Replacement Project construction has made significant progress in 2021 with the recent installation of the pre-cast concrete walls (Figure 3-13).

The Blake Street Lift Station construction contract is anticipated to bid in late 2021 or early 2022 and extend for a duration of approximately 12 months. The Blake Street Lift Station project bidding has been significantly delayed because of protracted negotiations with the property owners for the proposed lift station.

Figure 3-13. New Riverview Lift Station Construction Following Installation of Pre-Cast Concrete Walls

Blake Street Lift Station construction contract is anticipated to bid in late 2021 or early 2022 and extend for a duration of approximately 12 months. The Blake Street Lift Station project bidding has been significantly delayed because of protracted negotiations with the property owners for the proposed lift station.

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. Conceptual design was completed in December 2018, and preliminary design was completed in March 2020. The project was advertised for bids on May 5, 2021, and bids were opened on June 30, 2021. The project was awarded to the contractor on August 27, 2021, and a Notice to Proceed will occur on January 3, 2022, with construction extending for a duration of 26 months, resulting in project completion in April 2024.

MRWRRF Transfer Lift Station: The project is not a LTCP project. It includes replacement of the pumps installed under MRWRRF Schedule A (Figure 3-14). 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. Design of the MRWRRF Transfer Lift Station Pump Replacement Project commenced in late 2018 and extended through 2019. The project was advertised for bids on September 11, 2019, and bids were opened on October 23, 2019. The project was awarded to the contractor on November 28, 2019, Notice to Proceed was issued on March 16, 2020, and construction completion is anticipated for March 2022.

The project schedule has been impacted by COVID-related delays for delivery of the pumps and check valves resulting in over 90 days of delay. Also, in July 2021, a storm disrupted power to the MRWRRF for approximately 9 hours, resulting in flooding of the lift station and the need to replace many of the installed electrical elements in the pump dry well area. The total impact in costs and schedule delays has not been finalized.

Figure 3-14. Transfer Lift Station Construction as of October 1, 2021

Three of five wastewater pumps have been replaced and in operations

I. Post-Construction Compliance Monitoring Program

An outline of a post-construction compliance monitoring program is included in Section 8 of the 2009 LTCP Monitoring Program and CSO Wet Weather Operations Plan; in addition, a draft document *Water Quality Monitoring for the Implementation Monitoring Plan (IMP)* was included with 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. No modifications were made to the Monitoring Plan during the Annual Report period. However, as part of the 2021 LTCP Update, the Post-construction Monitoring Plan was updated.

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. During the reporting year, surveillance cameras and level sensors were also used to observe the outfalls. During other City capital projects and studies, several pipeline and manhole investigations have been carried out. These data will integrate with the 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

This section provides information about the LTCP implementation as required by the City's CSO Permit in Part VI. Compliance Schedule for Implementation of CSO Control Projects and the Complaint and Compliance Order by Consent (or Consent Order), dated August 8, 2007, NDEE Case No. 2710 issued to the City (amended May 30, 2012; January 17, 2018; and October 16, 2019) and the status of individual or component projects. The January 17, 2018, amendment to the Consent Order changed the completion date from October 1, 2027, to October 1, 2037. The October 2019 amendment to the Consent Order changed the LTCP Update submittal date from March 1, 2020, to March 31, 2021.

The City, through quarterly progress meetings and correspondence, has communicated any 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. As stated in Section I, Introduction, a NPDES Permit for the City's CSOs was issued by NDEE in 2015 with subsequent extensions. The CSO Permit sets compliance schedules for the permit cycle based on the 2014 LTCP Update schedule and subsequent schedule approvals with NDEE. A permit has not yet been issued that reflects the latest 2021 LTCP Update and the revised schedules.

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. The CSO Permit states: "…the City of Omaha shall implement the compliance schedule [as listed in the Permit] for construction projects set forth in the LTCP. This schedule may be modified in accordance with NDEQ Title 119 and written notice from the NDEQ." The CSO Permit requires that the City of Omaha include a yearly summary of construction activities, actions, and other measures applicable to this compliance schedule in the Annual Report.

These requirements are achieved though the summary tables and figures in this section and through the Annual Project Progress Reports (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:

- **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. This compliance action only applies to sewer separation projects.
- **Begin Final Design –** The date when a Notice to Proceed is issued to a design consultant, or in the case of a design 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 Major CSO 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:

"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 the LTCP compliance are also achieved 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. Major CSO Control Projects

Tables 4-1 and 4-2 provide an implementation summary of those projects that were formerly classified as "Major CSO Control Projects" and list the LTCP milestone dates as required in the CSO Permit and the 2014 LTCP Update, subsequent modifications, and which projects, if any, met the initial milestone date. In addition to the Project Name and OPW Number, the tables list the project status during the reporting year (e.g., Final Design), 2014 LTCP Milestone Compliance (date project achieved the milestone, or for active projects, if it is on schedule or will not meet the LTCP Milestone date), and, where appropriate, notes that include the project status under the 2021 LTCP Update.

Table 4-3 lists system reliability projects that have had activity but do not have a specific schedule for construction under the LTCP.

When the MRWRRF Improvements project was determined operationally complete in December 2019, Major Projects Phase 1 was completed as stated in the 2020 Annual Report; therefore, Phase 1 is not included.

Table 4-1. Phase 2 Major CSO Control Project Status and Compliance

Major Projects Phase 2 *CSO Permit Requirement/LTCP Milestone*[a]: Project shall complete construction (operationally complete) by December 31, 2023					
ID	**Project Name**	**OPW Number**	**Status**	**2014 LTCP Milestone Compliance[b]**	**Notes/2021 LTCP Update[c]**
2C	Saddle Creek Retention Treatment Basin (SCRTB)	52049	Under Construction	On Schedule	Final compliance date unchanged in the 2021 LTCP Update.

[a] Permit modification issued June 12, 2017, changed the complete construction milestone date from December 31, 2020 to December 31, 2023.

[b] LTCP milestone dates are noted in Chapter 5 of the 2014 LTCP Update, unless noted otherwise.

[c] 2021 LTCP Update Milestones are now only complete construction.

OPW = Omaha Public Works

Table 4-2. Phase 4 Major CSO Project Status and Compliance

Major Projects Phase 4 *CSO Permit Requirement/LTCP Milestone*[a]*:* Commence final design on one project on or before December 31, 2023 LTCP Milestone[b]: Begin final design of one project by December 31, 2023 Commence construction of one project by December 31, 2023 All projects complete construction (operationally complete) by September 30, 2027					
ID	**Project Name**	**OPW Number**	**Status**	**2014 LTCP Milestone Compliance[b]**	**Notes/2021 LTCP Update[c]**
4G	Jones Street to Leavenworth Diversion	N/A	Future		New 2021 LTCP Update Milestone date is 12/31/2035.
4B	Deep Tunnel Lift Station and Force Main	N/A	Future		Project is removed in 2021 LTCP Update.
4A	CSO Deep Tunnel and Drop Shafts	N/A	Future		Project is removed in 2021 LTCP Update.
4H	Deep Tunnel Grit Basin Facilities	N/A	Future		Project is removed in 2021 LTCP Update.
4C	Conveyance to Deep Tunnel Drop Shafts	N/A	Future		Project is removed in 2021 LTCP Update.
4I	CSO 119 Monroe Basin Storage Facility	N/A	Not Started	Will not meet Milestone	Project is removed in 2021 LTCP Update.
4D	MRWRRF Retention Treatment Basin	N/A	Future		Project is removed in 2021 LTCP Update.
4K	CSO 118 MRWRRF Storage Facility	N/A	Future		Project is removed in 2021 LTCP Update.
4E	CSO 204 Storage Facility (If needed)	N/A	Future		Project is removed in 2021 LTCP Update.

[a] Permit modification issued November 1, 2019, changed the commence final design milestone date from December 31, 2019 to December 31, 2023.

[b] LTCP milestone dates are noted in Chapter 5 of the 2014 LTCP Update, except where noted.

[c] 2021 LTCP Update Milestones are now only complete construction.

N/A = not applicable

Table 4-3. System Reliability Projects

System Reliability Projects *CSO Permit Requirement/LTCP Milestone*[a]: NONE				
Project Name	**OPW Number**	**Status**	**2014 LTCP Milestone Compliance**	**Notes/2021 LTCP Update**
Burt-Izard Lift Station Improvements	52472	Under Construction	N/A	Anticipated completion date is December 2021.
Riverview Lift Station Replacement	52402 53270[b]	Under Construction	N/A	Anticipated completion date is July 2022.
Monroe Street Lift Station Improvements	53082	Final Design	N/A	Anticipated completion date is February 2024.
Bridge Street Lift Station	N/A	Future	N/A	Project is removed in 2021 LTCP Update.

[a] System reliability projects do not have a specific schedule for construction under the LTCP.

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

C. Sewer Separation Projects

Implementation of sewer separation projects continued in the reporting year. Sewer Separation Phases 1, 2, and 3 are complete and will not be reported here. Sewer Separation Phases 4 through 6 are listed in Tables 4-4 through 4-6, which list the LTCP Milestone dates facing the projects as stated in the CSO Permit and the 2014 LTCP Update, including subsequent modifications, and which projects, if any, met the CSO Permit/LTCP Milestone dates that are "commence bidding" and "complete construction." In addition to the Project Name and OPW Number, the tables list the project status during the reporting year (e.g., Final Design), LTCP Milestone Compliance (date project achieved the milestone, or, for active projects, if it is on schedule or will not meet the LTCP Milestone date), and, where appropriate, notes that include the status of the project under the 2021 LTCP Update.

Sewer separation projects listed in LTCP Update under Phase 7 are not included in the CSO Permit. The City did commence the design of one Phase 7 project, Cole Creek 204 Phase 4, during the Annual Report year. The 2014 LTCP Update Cole Creek 204 Phase 4 was divided into two projects in the 2021 LTCP Update. The status of these projects is included in Attachment 2.

Table 4-4. Phase 4 Sewer Separation Projects Status and Schedule Compliance

Sewer Separation Phase 4 *CSO Permit Requirement/LTCP Milestone[a]:* Commence bidding on one project on or before December 31, 2016 (Lake James to Fontenelle Park Project met this date on 10/5/2016) LTCP Milestone [a]: Complete construction of all projects by June 30, 2022					
ID	**Project Name**	**OPW Number**	**Status**	**2014 LTCP Milestone Compliance[a]**	**Notes/2021 LTCP Update[b]**
4B	Burt-Izard (CSO 108-3, Nicholas Street, Phase 3)	52721	Under Construction	Will not meet Complete Construction Milestone.	Nicholas Phase 3A was complete on 9/4/2020. On schedule with the 2021 LTCP Milestone date of 6/30/2025.
4G	Minne Lusa (CSO 105-15, Forest Lawn Separation)	52470	Final Design	Will not meet Complete Construction Milestone	Project under redesign. On schedule with the 2021 LTCP Milestone date of 12/31/2024.
4M	Lake James to Fontenelle Park	52658/ 52659	Completed Construction	ACHIEVED 12/6/2019	
4N	South Interceptor (CSO 117-1, Missouri Ave. Phase 2)	51997[c]	Completed Construction	ACHIEVED 8/30/2021	
4P	Papillion Creek South (CSOs 207/208, 42nd and Q)	52257	Completed Construction	ACHIEVED 7/16/2019	
e4Q	Cole Creek (CSO 204, Phase 2)	52814	Final Design (On Hold)	Will not meet Complete Construction Milestone	Project is removed in 2021 LTCP Update.
4R	Burt-Izard (CSO 108-3, Nicolas and Webster Separation, Phase 2)	N/A	Not Started	Will not meet Complete Construction Milestone	Project is removed in 2021 LTCP Update.

[a] LTCP milestone dates are noted in Chapter 5 of the 2014 LTCP Update.

[b] 2021 LTCP Update Milestones are now only complete construction.

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

Sewer Separation Phase 5 *CSO Permit Requirement/LTCP Milestone*[a]: Commence bidding on one of the following projects on or before December 31, 2019 (Cole Creek 202, Phase 1 Project met this date on 11/28/2018) LTCP Milestone[a]: Complete construction of all projects on or before December 31, 2023					
ID	**Project Name**	**OPW Number**	**Status**	**2014 LTCP Milestone Compliance[a]**	**Notes/2021 LTCP Update[b]**
5A	Papillion Creek North 210-2 Inflow Reduction Project	N/A	Future		Project is removed in 2021 LTCP Update.
5B	Cole Creek 204, Phase 3	53206	Under Construction	On Schedule	On schedule with the 2021 LTCP Milestone date of 6/30/2022.
5C	Cole Creek 203-1 Sewer Separation	53059	Under Construction	On Schedule	On schedule with the 2021 LTCP Milestone date of 12/31/2023.
5D	Cole Creek 202, Phase 1	53059	Completed Construction	ACHIEVED 1/14/2020	
5E	Cole Creek 202, Phase 2	53059	Final Design	Will not meet Complete Construction Milestone	On schedule with the 2021 LTCP Milestone date of 12/31/2026.
5F	Papillion Creek North 212-1, Separation	51685	Preliminary Design	On Schedule	On schedule with the 2021 LTCP Milestone date of 6/30/2025.
5G	Papillion Creek North 210-1, Separation	53320	Under Construction	On Schedule	On schedule with the 2021 LTCP Milestone date of 12/31/2022.
5H	Papillion Creek North 211-2, Inflow Reduction Project	N/A	Future		Project is removed in 2021 LTCP Update.

[a] LTCP milestone dates are noted in Chapter 5 of the 2014 LTCP Update.

[b] 2021 LTCP Update Milestones are now only complete construction.

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

Sewer Separation Phase 6 *CSO Permit Requirement/LTCP Milestone:* Commence bidding on one of the following projects on or before December 31, 2021[a] LTCP Milestone[b]: Complete construction of all projects by September 30, 2027					
ID	**Project Name**	**OPW Number**	**Status**	**2014 LTCP Milestone Compliance[b]**	**Notes/2021 LTCP Update[c]**
6B	South Interceptor 110-1, Pierce St.	N/A	Future		New 2021 LTCP Milestone date is 6/30/2037.
6C	Ohern/Monroe - 119-5A, South Barrel Conversion	53149	Preliminary Design	Will not meet Commence Bidding Milestone	On schedule with the 2021 LTCP Milestone date of 6/30/2026.
6D	Ohern/Monroe - 119-5B, South Barrel Conversion	53149	Preliminary Design	Will not meet Commence Bidding Milestone	Project combined with South Barrel Conversion 5A in the 2021 LTCP Update. Bidding Anticipated in 2023.
6F	Burt-Izard 108-8, 18th and Seward	52721	Final Design	Will not meet Complete Construction Milestone	Project included within Nicholas Street Phase 3B area. Project is removed in 2021 LTCP Update.

[a] Permit modification issued November 1, 2019, changed the commence bidding milestone date from June 30, 2020 to December 31, 2021.

[b] LTCP milestone dates are noted in Chapter 5 of the 2014 LTCP Update, except where noted.

[c] 2021 LTCP Update Milestones are now only complete construction.

D. 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 summary 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.

With the submission and approval of the 2021 LTCP Update, the schedule for the CSO Projects has been updated to take full advantage of the additional 10 years provided for in the Consent Order in 2018 to complete the projects (October 1, 2037). The City will continue to use Adaptive Management of the LTCP to allow for the implementation of lessons learned and the adjustment of scheduling of the projects in the LTCP, with the concurrence and approval of the NDEE. As noted previously, the City has communicated and will continue to communicate any potential future impacts it may have to the scheduling and completion of projects to the NDEE.

Under the 2014 LTCP Update there were 59 projects (Figure 4-1 reflects the general status of projects completed, in design, under construction, and those that are planned in the future). Figure 4-2 shows the same general status and counts of projects for the 2021 LTCP Update; there are four fewer projects in the 2021 LTCP Update.

Figure 4-1. 2014 LTCP Projects Counts Graph per General Status

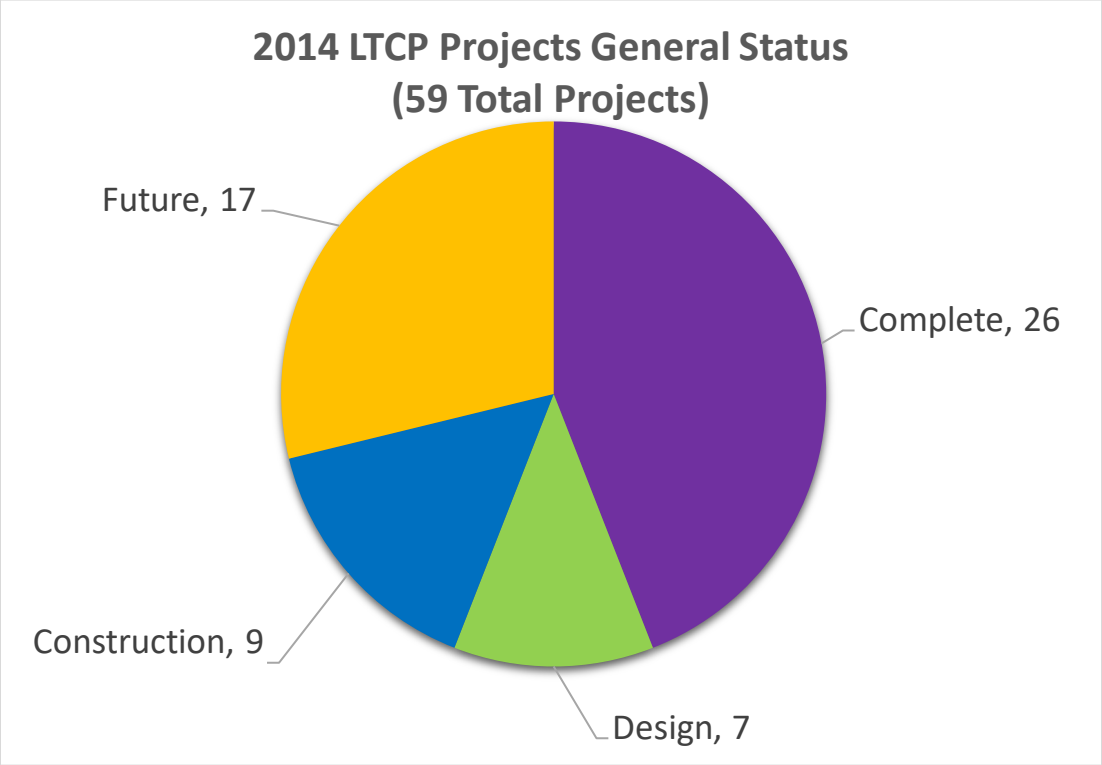
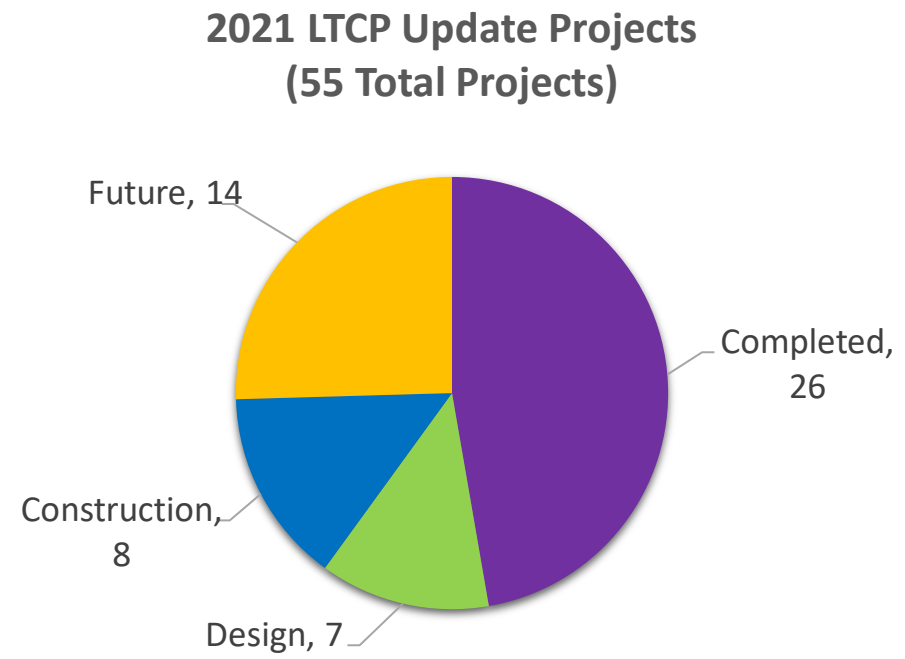


Figure 4-2. 2021 LTCP Update Project Counts



In the current CSO Permit, as stated in Section I, Introduction, there are 38 projects listed. A review of the compliance status as listed in Tables 4-1, 4-2, 4-4, 4-5, and 4-6 shows that there

are 29 projects that are either future, completed, or on schedule (Figure 4-3). The CSO 117 Missouri Avenue, Phase 2, was completed in August 2021.

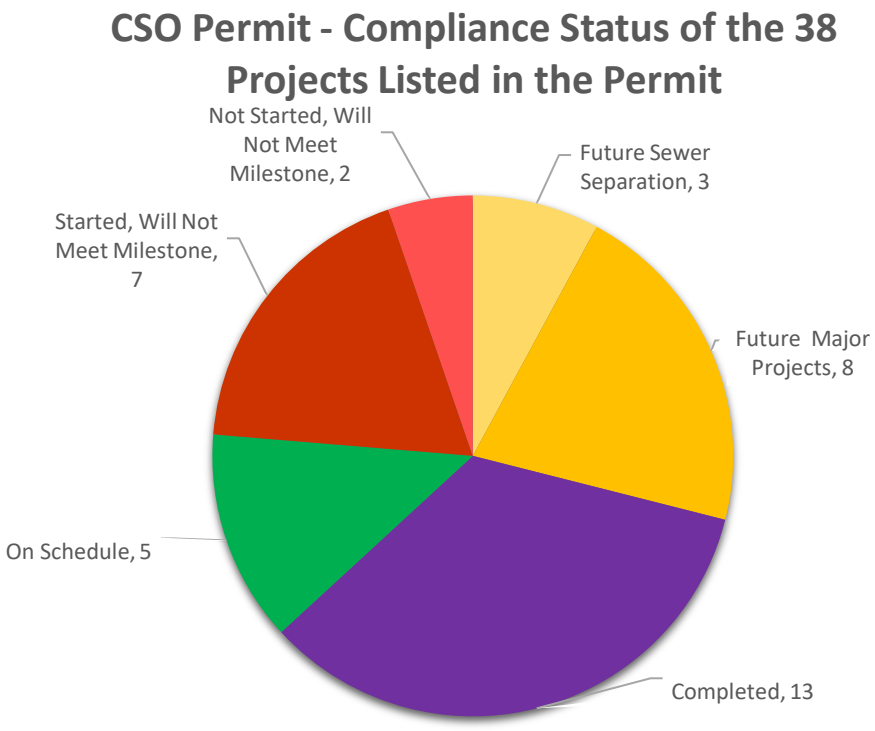
There are seven projects that have started but will not meet the LTCP Milestone date in the permit or 2014 LTCP Update. New schedules have been included in the 2021 LTCP Update, which bring them back into compliance. These projects include:

- 18th & Seward
- CSO 202 Phase 2 - 70th Avenue and Spencer Street (formerly Cole Creek 202 Phase 2)
- CSO 204 Phase 2
- Forest Lawn Creek Inflow Removal and Outfall Storm Sewer
- Nicholas Street Sewer Extension - Phase 3B (formerly Nicholas Street Phase 3)
- South Barrel Conversion 5A (now CSO 119 South Barrel Conversion and Sewer Separation)
- South Barrel Conversion 5B (CSO 119 South Barrel Conversion and Sewer Separation)

The remaining two projects, CSO 119 Monroe Basin Storage Facility and Nicholas and Webster Phase 2, have not yet started and would not meet the 2014 LTCP Milestone Dates. These have been removed from the 2021 LTCP Update.

It should be noted that the CSO 204 Phase 4 project is in preliminary design. This project is not reported in these tables or graphs because it is a Phase 7 Sewer Separation project, which are not included in the current CSO Permit.

Figure 4-3. Compliance Status Summary



E. 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. A new escalating approach was used again in this reporting year. 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 cost of the Program with contingencies is $2.0 billion through 2037, which is a reduction from the cost of the Program reported in the 2020 Annual Report, reflecting the extensive evaluations and modifications reported on in the 2021 LTCP Update. Rates are in place for 2019 to 2023, as noted previously.

Through September 2021, the City has paid $790 million to implement the LTCP. Approximately $499 million has been for construction. The City has awarded or is currently bidding more than $622 million in construction contracts. Another $107 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

The CSO Permit requires a summary of monitoring data from Outfall CSO 102, located at MRWRRF, and Outfall CSO 205, located at 64th Street and Dupont Street. Figure 6-1, in Section VI, shows the locations of the CSO outfalls.

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 CSO Permit, were in effect for this permit year. These requirements are in effect until January 1, 2023, after which effluent limits for *E. coli* and total residual chlorine limits will be in effect. The conditions for approved bypass of combined sewer complied with these requirements.

There were five overflow events at CSO 102 from October 1, 2020, through September 30, 2021, with all of them occurring during the recreation season of May 1 to September 30. Results from these events are reported on quarterly DMRs submitted to NDEE. Table 5-1 summarizes the data for CSO 102. *E. coli* values improved from the previous reporting year. The values reported are defined as follows:

- Flow rate: average flow rate of each event at the CSO 102 outfall in the reporting year
- Total flow: total 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

Table 5-1. CSO 102 Monitoring[a]

Parameter	Value		Units
Flow Rate	4.84		MGD
Total Flow	58.13		MG
Duration of Discharge	62.5		hours
TSS	227		mg/L
Biochemical Oxygen Demand	100		mg/L
TRC	0.00		mg/L
Dieldrin	< 0.0001		mg/L
Polychlorinated Biphenyls	< 0.001		mg/L
E. coli	8		Colonies/100 mL
pH 00400	Min = 6.65	Max = 7.76	Standard Units

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

Notes:

MG = million gallons

max = maximum

min = minimum

mL = milliliter(s)

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

The CSO 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 lists all flow monitoring sites. Section IV 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 details CSO occurrences during wet weather.

VI. Instream Monitoring Data

The current CSO Permit requires a summary of instream monitoring data, consistent with the Draft Instream Monitoring Plan (IMP) objectives, to include monitoring station identification, stream identification, the list of parameters, and monitoring results. The Draft 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 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.

A. City Instream Monitoring

The instream monitoring for this reporting year was performed by the City's Sewer Maintenance Division. The objectives of the monitoring were twofold: (1) to meet requirements of the CSO Permit, and (2) to meet the requirements of the City's MS4 NPDES Permit. However, the City submitted a modification request for the MS4 Permit in March 2016, which was approved by NDEE in April 2016 and eliminated an element of the *Stormwater Monitoring Plan* that included the instream monitoring.

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 this section. 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 third season of 2020 and the first two seasons of the 2021 reporting year. The third season of 2020 is included in this year's report because these data were primarily collected during the 2021 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. The 2021 Season 3 (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. 2021 Season 3 sampling results will 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 Total Coliform, E. Coli occurs, BOD, and TSS are all worse during wet weather.

Figure 6-1. Instream Water-quality Monitoring

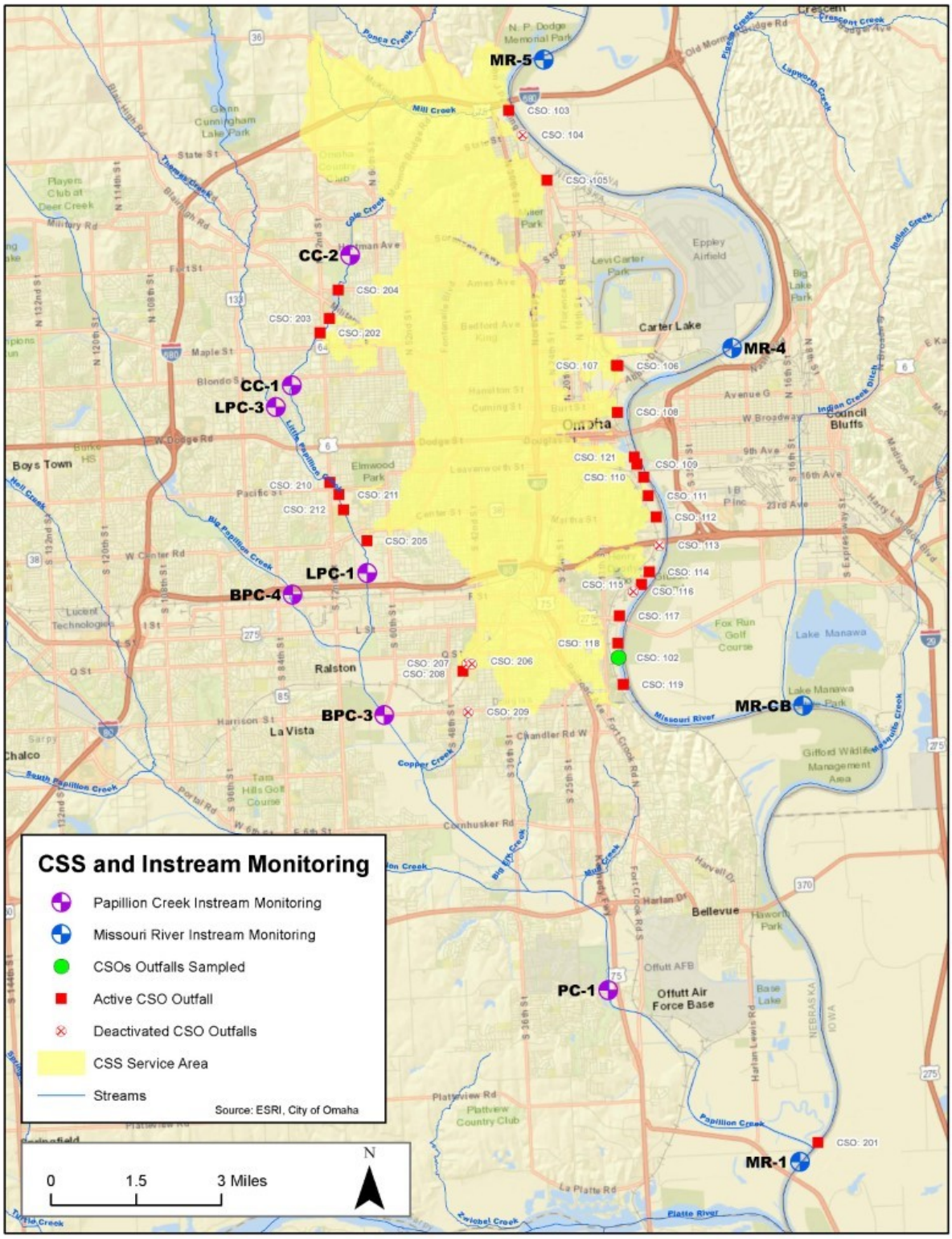


Table 6-1. 2021 City Instream Monitoring Site Descriptions

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

Table 6-2. 2021 City Instream Monitoring Results

2020 SEASON 3 – DRY – SEPTEMBER 1 TO NOVEMBER 30							
Parameter/Site[a]	CC-2	LPC-3	CC-1	BPC-3	LPC-1	BPC-4	PC-1
Date	9/3/2020	9/3/2020	9/3/2020	9/3/2020	9/3/2020	9/3/2020	9/3/2020
Time	9:00	10:30	9:45	12:30	12:00	11:15	13:30
Field Temp (°C)	19.5	21.9	19.6	22.4	21.7	20.7	22.6
Field Conductivity (mMHO/cm)	1248	965	1060	885	1023	903	899
Field pH	7.48	8.37	8.26	8.33	8.36	8.37	8.26
Field DO (%)	107	90	93	86	85	94	103
Field DO (mg/L)	9.77	7.90	8.54	7.45	7.48	8.37	8.92
BOD (mg/L)	3	3	2	2	3	2	6
TSS (mg/L)	9	<	4	48	35	27	70
Total Coliforms (MPN/100 mL)	> 2,420[b]	> 2,420[b]	> 2,420[b]	> 2,420[b]	> 2,420b	> 2,420[b]	> 2,420[b]
***E. coli* (cfu/100 mL)**	416.0	488.4	1,414.0	261.3	248.9	248.9	290.9
Solids or Foam Present?	NO	NO	NO	NO	NO	NO	NO
2020 SEASON 3 – WET – SEPTEMBER 1 TO NOVEMBER 30							
Parameter/Site	CC-2	LPC-3	CC-1	BPC-3	LPC-1	BPC-4	PC-1
Date	11/10/2020	11/10/2020	11/10/2020	11/10/2020	11/10/2020	11/10/2020	11/10/2020
Time	10:00	10:45	10:30	12:15	12:00	11:30	13:00
Field Temp (°C)	9.5	6.3	6.9	6.9	6.7	6.7	6.7
Field Conductivity (mMHO/cm)	7	8	4	8	9	6	7
Field pH	8.66	8.23	7.92	7.85	8.12	8.18	8.14
Field DO (%)	43	43	49	42	42	42	40
Field DO (mg/L)	4.90	5.25	5.90	5.12	5.10	5.12	4.85
BOD (mg/L)	11	12	18	15	14	13	15
TSS (mg/L)	8	76	20	196	140	156	360
Total Coliforms (MPN/100 mL)	> 2,420[b]	> 2,420[b]	> 2,420[b]	> 2,420[b]	> 2,420[b]	> 2,420[b]	> 2,420[b]
***E. coli* (cfu/100 mL)**	> 2,420[b]	> 2,420[b]	> 2,420[b]	> 2,420[b]	> 2,420[b]	> 2,420[b]	> 2,420[b]
Solids or Foam Present?	YES	YES	YES	YES	YES	YES	YES

2021 SEASON 1 – DRY – MARCH 1 TO MAY 31							
Parameter/Site	CC - 2	LPC - 3	CC - 1	BPC - 3	LPC-1	BPC-4	PC-1
Date	5/26/2021	5/26/2021	5/26/2021	5/26/2021	5/26/2021	5/26/2021	5/26/2021
Time	11:00	12:15	12:00	14:00	13:35	12:55	14:30
Field Temp (°C)	22.4	23.3	22.5	25.2	24.8	23.3	25.0
Field Conductivity (mMHO/cm)	1400	953	1001	855	1069	802	858
Field pH	7.30	8.08	7.75	8.15	7.97	8.17	8.12
Field DO (%)	62	85	53	88	85	83	86
Field DO (mg/L)	5.36	7.23	4.60	7.26	7.01	7.08	7.10
BOD (mg/L)	2	2	<	3	<	4	3
TSS (mg/L)	6	19	6	86	15	142	70
Total Coliforms (MPN/100 mL)	> 2,4196[b]	29,900[b]	> 2,4196[b]	> 2,4196[b]	> 2,4196[b]	> 2,4196[b]	290,900
***E. coli* (cfu/100 mL)**	383	1,000	1,414	723	602	670	410
Solids or Foam Present?	YES	NO	NO	NO	NO	NO	NO
2021 SEASON 1 – WET – MARCH 1 TO MAY 31							
Parameter/Site	CC-2	LPC-3	CC-1	BPC-3	LPC-1	BPC-4	PC-1
Date	3/23/2021	3/23/2021	3/23/2021	3/23/2021	3/23/2021	3/23/2021	3/23/2021
Time	9:00	10:15	10:00	12:55	11:35	11:00	13:45
Field Temp (°C)	9.0	9.3	10.0	9.9	9.8	9.7	10.0
Field Conductivity (mMHO/cm)	303	436	400	345	339	464	455
Field pH	7.12	7.97	8.20	8.43	8.40	8.11	8.03
Field DO (%)	125	125	129	128	127	130	125
Field DO (mg/L)	14.40	14.30	14.50	14.50	14.34	14.80	14.14
BOD (mg/L)	5	6	3	6	7	7	7
TSS (mg/L)	90	224	8	372	292	482	960
Total Coliforms (MPN/100 mL)	15,530	24,200	307,600	75,400	172,300	9,804	51,720
***E. coli* (cfu/100 mL)**	1,722	2,382	90,800	26,200	34,500	1,374	9,330
Solids or Foam Present?	YES	YES	YES	YES	YES	YES	YES
2021 SEASON 2 – DRY – JUNE 1 TO AUGUST 31							
Parameter/Site	CC-2	LPC-3	CC-1	BPC-3	LPC-1	BPC-4	PC-1
Date	8/5/2021	8/5/2021	8/5/2021	8/5/2021	8/5/2021	8/5/2021	8/5/2021

Time	9:50	10:40	10:20	12:25	12:06	11:20	12:55
Field Temp (°C)	21.6	23.2	22.2	25.8	24.7	23.7	24.2
Field Conductivity (mMHO/cm)	1,406	928	1,015	888	1,028	850	853
Field pH	7.80	8.32	8.15	8.28	8.20	8.36	8.31
Field DO (%)	82	85	82	104	113	89	102
Field DO (mg/L)	7.25	7.21	7.10	8.42	9.40	7.50	8.57
BOD (mg/L)	<	<	<	<	<	<	2
TSS (mg/L)	4	13	<	49	12	87	33
Total Coliforms (MPN/100 mL)	42,800	33,600	37,300	35,900	24,200	77,100	38,730
***E. coli* (cfu/100 mL)**	2,000	1,000	2,000	1,000	428	7,400	1,100
Solids or Foam Present?	NO	NO	NO	YES	YES	NO	NO
2021 SEASON 2 - WET - JUNE 1 TO AUGUST 31							
Parameter/Site	CC-2	LPC-3	CC-1	BPC-3	LPC-1	BPC-4	PC-1
Date	6/11/2021	6/11/2021	6/11/2021	6/11/2021	6/11/2021	6/11/2021	6/11/2021
Time	10:45	11:45	11:30	13:45	13:20	12:50	14:15
Field Temp (°C)	21.6	22.6	22.3	22.6	22.6	22.6	22.4
Field Conductivity (mMHO/cm)	312	335	362	469	434	489	500
Field pH	7.55	7.40	7.42	7.16	7.17	7.56	6.96
Field DO (%)	77	73	69	63	63	77	49
Field DO (mg/L)	6.78	6.33	5.95	5.43	5.40	6.68	4.28
BOD (mg/L)	20	35	> 50.84	37	> 50.84	31	37
TSS (mg/L)	188	444	556	484	390	572	707
Total Coliforms (MPN/100 mL)	275,500	727,000	579,400	1,046,000	365,400	178,500	> 241,960
***E. coli* (cfu/100 mL)**	23,100	38,600	38,400	29,500	25,900	8,500	198,600
Solids or Foam Present?	YES	YES	YES	YES	YES	YES	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 and is anticipated to continue. 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 (BOD_5), total Kjeldahl nitrogen (TKN), nitrogen, nitrate, ammonia nitrogen, and floating debris.

The USGS indicates 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 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, 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 may be found at:

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

Data for MR-4 may 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 last year 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 2021 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, 2021.

Table 6-3. 2021 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)	37,300	20,400	37,300	20,400	37,800	21,700	45,900	21,400
Temperature (°C)	25.5	0	25.8	0	29.3	0	26.6	0.2
Dissolved Oxygen (mg/L)	14.0	7.2	14.0	7.3	14.1	7.2	13.7	6.9
BOD_5 (mg/L)	4	< 2	3	< 2	N/A	N/A	4	< 2
pH	8.6	8.0	8.5	8.1	8.6	7.9	8.7	8.1
TSS (mg/L)	157	< 15	105	< 15	N/A	N/A	656	< 15
E. coli (MPN/100 mL)	820	18	990	16	N/A	N/A	6,100	15
Total Coliform (MPN/100 mL)	> 24,000	120	24,000	120	N/A	N/A	> 24,000	690

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 at times in compliance with the 126 org/100 mL stream standard at times.

VII. Performance Report

As stated in the CSO Permit, Part VIII, Section E, the performance report consists of the following:

- Reporting the number of times each CSO outfall has an overflow and evaluating whether the controls are achieving their design intent
- Providing documentation that demonstrates each CSO overflow occurrence was the result of a wet weather event
- Once in the term of the permit, providing the percent by volume of the combined sewage collected in the CSS during precipitation events on a systemwide annual average basis that is eliminated or captured for treatment

These items are discussed in the following sections.

A. CSO Occurrence Inspection

The CSO permit requires in Part VIII. E Performance Report the following:

"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."

The City monitored all 25 active CSO points in the system in the reporting year, when possible. These records are maintained at Sewer Maintenance Division. MRWRRF and PCWRRF are responsible for recording the number of occurrences for CSOs 102 and 201, respectively, and providing those to Sewer Maintenance Division for filing. CSO 109 and CSO 205 are monitored by level sensors and periodically field visited for quality control. The remainder are monitored visually using the CSO device check procedure, and several locations were also monitored in the CSO surveillance pilot program, which is described later in this section.

Access and safety were considered in development of the procedures. The discharge point to the receiving stream is not always the safest or most accessible location for visual observation. If the system has an upstream diversion structure, a "block" or device is placed so that when it moves from its original location, it is a physical indicator that an overflow has occurred. The device is typically placed on the top of a weir wall or edge of an overflow pipe in a CSO diversion structure. The overflow is indicated when the device is moved off the weir wall in the downstream direction.

The City's standard procedure continued this year to inspect the designated CSO structures and 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. Apart from CSOs 102 and 201, the visual observations are logged into a database maintained at the Sewer Maintenance Division.

Table 7-1 shows the counts of wet weather CSOs, including “other” or “unknown” determination if wet weather related CSOs. This would include potential animals disturbing the device, or dry-weather confirmed overflows as reported in Section II. E. A tabular report on the wet weather confirmed CSOs can be found in the CSO Inspection Report in Attachment 3. For information on CSO 102, refer to Section V.

Table 7-1. Wet Weather CSO Occurrences

CSO Outfall	Receiving Water	CSO Frequency (count)	Count of Other/Unknown Visual Results
103	Missouri River	0	N/A
105	Missouri River	28	N/A
106	Missouri River	33	N/A
107	Missouri River	31	1
108	Missouri River	33	1
109	Missouri River	34	N/A
110	Missouri River	31	N/A
111	Missouri River	23	N/A
112	Missouri River	30	N/A
114	Missouri River	28	N/A
115	Missouri River	33	N/A
117[a]	Missouri River	19	N/A
118	Missouri River	34	1
119	Missouri River	31	1
121	Missouri River	32	N/A
201	Papillion Creek/Missouri Confluence	1	N/A
202	Cole Creek	44	2
203	Cole Creek	40	1
204	Cole Creek	38	2
205	Little Papillion Creek	41	N/A
207	Blood Creek to Little Papillion Creek	DIVERSION CLOSED	N/A
208	Blood Creek to Little Papillion Creek	1	N/A
210	Little Papillion Creek	34	N/A
211	Little Papillion Creek	6	N/A
212	Little Papillion Creek	14	N/A

[a] CSO 117 was closed on August 30, 2021.

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

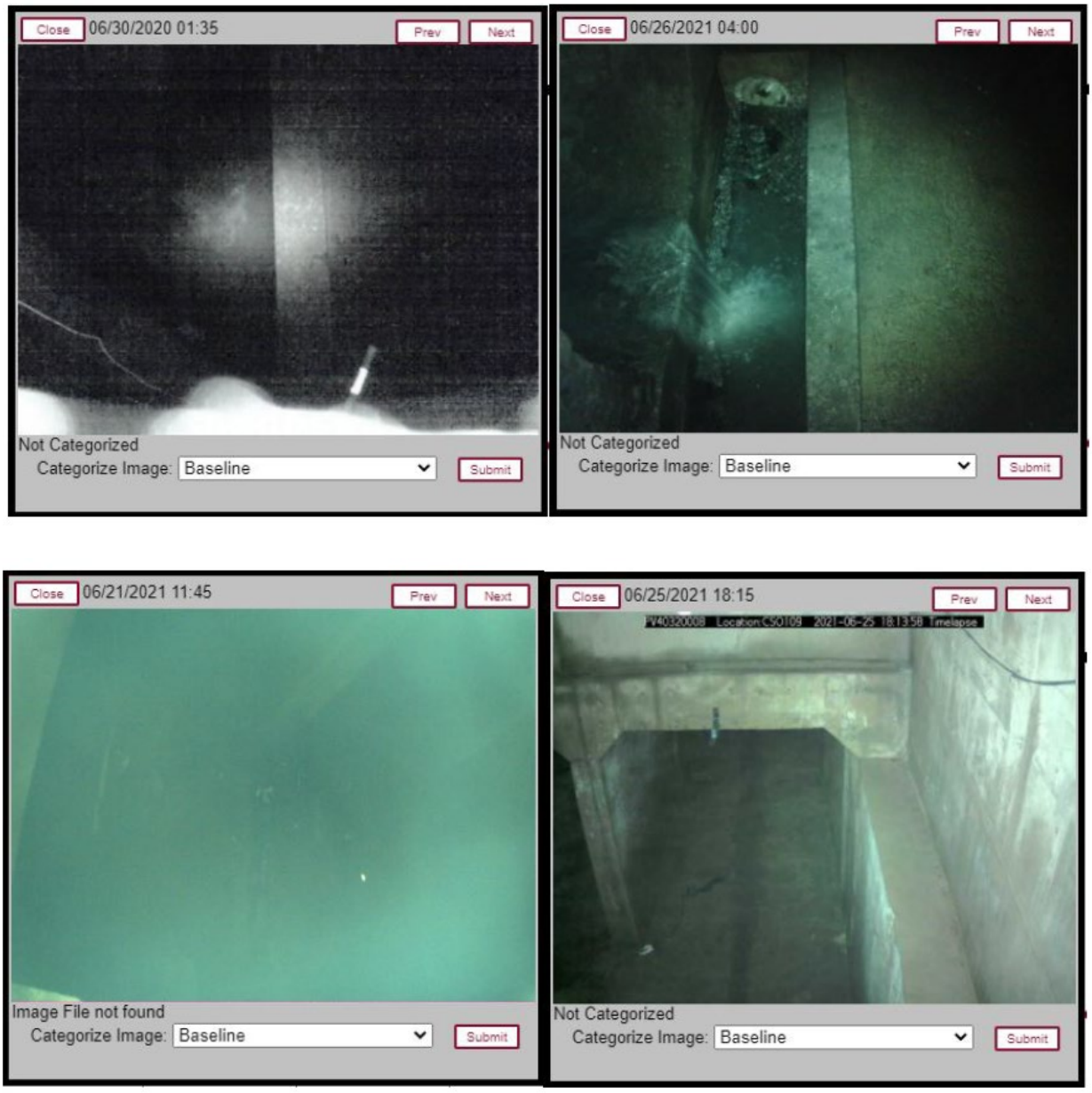
- The bypass gate at CSO 201 was opened only once, in the reporting year, on August 8, 2021, during a significant rain event that resulted in flooding in some parts of the City.
- No overflows occurred at CSO 103 Bridge Street Lift Station during the reporting year. Sewer separation is complete for this basin. Flow monitoring analysis shows excessive infiltration but not excessive inflow. Condition assessment of the basin is planned in the near future.
- CSO 119 historically has been deemed too hazardous to monitor due to dangerous atmospheric conditions and access difficulty, primarily at the Monroe Street Lift Station diversion structure (on the Monroe North Barrel) and it continues to be hazardous. In 2018, after a system study for a future separation project, it was realized that CSO 119 South Barrel had five locations of diverted flow that could be monitored as indications of overflow to the Missouri River via the Monroe South Barrel. CSO block devices were installed at five upstream diversion structures on December 20, 2018. These diversion structures are MHs 0551001, 0551020, 0551021, 0571049, and 0551030. The City is continuing to check these manholes to verify overflows at CSO 119. The original objective of monitoring these five diversions was to prevent dry-weather overflows; however, these sites are some of the most sensitive diversions in the Missouri River Basin. Less than 0.1 inch of rain has triggered an overflow. The Monroe Street Lift Station diversion structure is still too hazardous to use a block or maintain a flow meter. If the MRWRRF operators provide data on wet-well levels, crews are deployed to look at the outfall. This diversion just upstream of the lift station overflows to CSO 119 Monroe Street Lift Station, and it is not as sensitive as the South Barrel diversions. The City will be installing a new flow meter in a new manhole on the North Barrel just upstream of the North Barrel diversion structure as part of the Monroe Street Lift Station upgrade project, which began construction in the fall of 2021.
- CSO 117 Missouri Avenue Lift Station was closed on August 30, 2021, and the existing outfall sewer was converted to a storm-only outfall. CSOs can no longer occur at this outfall.
- Dry-weather overflows are reported in Nine Minimum Controls (Section II) of this Annual Report.

The City conducted a 1-year pilot project to install cameras and level sensors to monitor the occurrence of CSO overflows at 11 locations (Table 7-2). The purpose of the project was to assist the City in verifying overflow events, verifying maintenance needs, providing alerts to staff of flow depths and potential overflow events, and evaluating CSO surveillance technology to reduce time spent conducting field visits after storm events. Surveillance occurred in most locations from July 1, 2020, to August 6, 2021. Photo quality was initially poor, so different camera and lighting technologies were employed during the pilot project to improve the surveillance efforts. Reflective tape added to the check devices made them stand out in the camera lighting. Figure 7-1 is an excerpt from the report that shows the improvement in photo quality at two locations.

Table 7-2. CSO Surveillance Locations

CSO ID	Approximate Location	Manhole ID	Notes
CSO 103	Bridge St. and Dick Collins	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 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 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	0708026	Monitor overflow pipe

Figure 7-1. Comparison of Photos Taken by Different Cameras at CSO 210 (top) and CSO 109 (bottom) (photos courtesy of TREKK Design Group, LLC)



Because this was a pilot project to test the equipment, City staff continued to physically check all CSO devices along with using the level sensors and cameras. The cameras resulted in two important findings: (1) CSO devices may occasionally be moved by animals, potentially leading to a false positive in the City's CSO device check database (Figure 7-2), and (2) a CSO could lift the CSO device and set it back down in the same location (for example, on top of a weir), potentially leading to a false negative. Throughout the year, comparisons were made in the findings between the City's device check program and the pilot project.

City staff is currently reviewing whether changes will be made to the City's CSO device check program and plans to conduct another similar pilot project beginning in early 2022. It is hoped

that use of the cameras will reduce both the number visits to the sites and the manpower required, and that less-safe locations may be observed remotely. Results detailed in the surveillance project report showed that after the substantial initial equipment investment, the City may be able to save an estimated $80,000 per year by using surveillance rather than conducting site visits.

Figure 7-2. Animal Activity on the Weir at CSO 211 (photo courtesy of TREKK Design Group, LLC)

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.

CSOs 207/208 – A construction project was completed in 2019 to separate the sewer system for CSO 207. The CSO 207 diversion structure was reconstructed in January 2019 to convey only sanitary flow. Remaining construction activities were completed in April 2019, with the separation officially completed on April 30, 2019. CSO 208 underwent flow monitoring in the summer of 2019, following construction completion. Four CSOs occurred in fall 2019 at CSO 208. No overflows occurred in the year 2020. Closed-circuit television (CCTV) of sewers in the vicinity was conducted in June 2020, including cleaning of sewer segments just downstream of the CSO 208 diversion structure with heavy grit accumulation and some sewers further downstream with medium grit accumulation. The cleaning appears to have led to significant reduction in overflow frequency at CSO 208. In 2021, only one overflow occurred during a

significant rain event on August 7, which was slightly above a 5-year return frequency based on data from a nearby rain gauge. 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 flow monitoring show that this one storm connection can cause a wet weather CSO. A future project is being considered to separate this connection, which would be managed under an OPW Project and not as part of the LTCP. The City will continue to monitor this CSO to determine if closure of the diversion is possible or if further intervention is needed.

CSO 103 Bridge Street Lift Station – The 36th Street and McKinley sewer separation project was completed in November 2014. A significant 2018 flow monitoring effort by the City yielded a final report in 2019. The report for Bridge Street Basin (GBA 2019) stated:

> A subsystem is considered to have excessive I/I if it averaged 2% or greater total rain volume entering the sanitary sewer" and "Subsystems with excessive infiltration are based on an infiltration rate above 2,500 [gallons per day per inch of diameter per mile (gpd/IDM)], which is based on historical records from flow monitoring areas of similar size and makeup."

The study concluded that parts of the basin have greater than 2% volume of rain reaching the sewer and a subsystem infiltration rate of 4,091 gpd/IDM, which were rated excessive by the study. This basin did not rate excessive for inflow in the study (it had a 1-year subsystem inflow rate of 9,151 gpd/1000 ft, well under the 25,000 gpd/1000 ft threshold for excessive inflow in a basin under 300 acres in area); therefore, it could be concluded that sewer separation is complete and effective.

The objective in the LTCP is to deactivate this CSO outfall pending verification of effective inflow reduction and additional monitoring. This CSO did not discharge during the reporting year. This CSO point previously averaged about 11 overflows per year. In Q4 2019, a level sensor was installed in the chamber that receives the influent flow, near the CSO overflow pipe. This sensor will be used to determine if the outfall can be partially closed by raising the overflow weir elevation, which will further reduce the frequency of CSO discharges. The basin rehabilitation plan will be assessed with the City risk-based asset management procedure to establish its priority for reduction of infiltration. I/I reduction is one measure in the risk assessment. The City also started a study phase for a lift station upgrade.

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.

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 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 was just over 35 inches, although without the very large storm event on August 7, the total would have been 30.6 inches. When compared with the average annual rainfall of 31 inches, this was an above-average rainfall year. The CSO locations in the Papillion Creek Watershed reflect a wet weather CSO frequency as high as 44 overflows, while the CSO locations along the Missouri River show a high frequency of 34 overflows. In the report period there were 63 rain events recorded greater than 0.1 inch. 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

The CSO Permit, Part VII.F, suggests the City could include other information about measures of success for the program; these may include the reduction in the number of overflow events and in the number of CSO outfalls, or other indicators of improved receiving water quality.

As a result, this year's report includes information about the reduction in overflows and CSO outfalls, receiving water quality, condition assessment of large-diameter sewers, construction cost data and bid tracking, Water Resource Recovery Facilities Master Plan, and COVID-19 CSO Program impacts. 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 that impacts the magnitude, volume, and duration of the overflows at a given CSO point

Notable for the reporting year is that Bridge Street Lift Station, CSO 103 experienced zero wet-weather overflows in the reporting year. This CSO is being monitored with a level sensor and camera surveillance for further understanding of its potential to overflow. The City anticipates that this overflow eventually will be deactivated and closed.

Another notable reduction is overflows at CSO 208. The sewer separation project was completed in 2019 and resulted in the CSO 207 diversion being modified to convey only sanitary flow. The outfall pipe to CSO 207 was partially removed, plugged and flowable filled, leaving only a storm water discharge point. The sanitary pipeline from the former CSO 207 diversion is conveyed to the diversion structure for CSO 208, which is still able to overflow during wet weather if flows are high enough. The CSO 208 45th Street and U Street CSO discharge location recorded only one overflow in the reporting year, during a 5-year storm event. The City is continuing to evaluate this CSO for potential deactivation.

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. Four were eliminated previously: CSO 104, CSO 113, CSO 207, and CSO

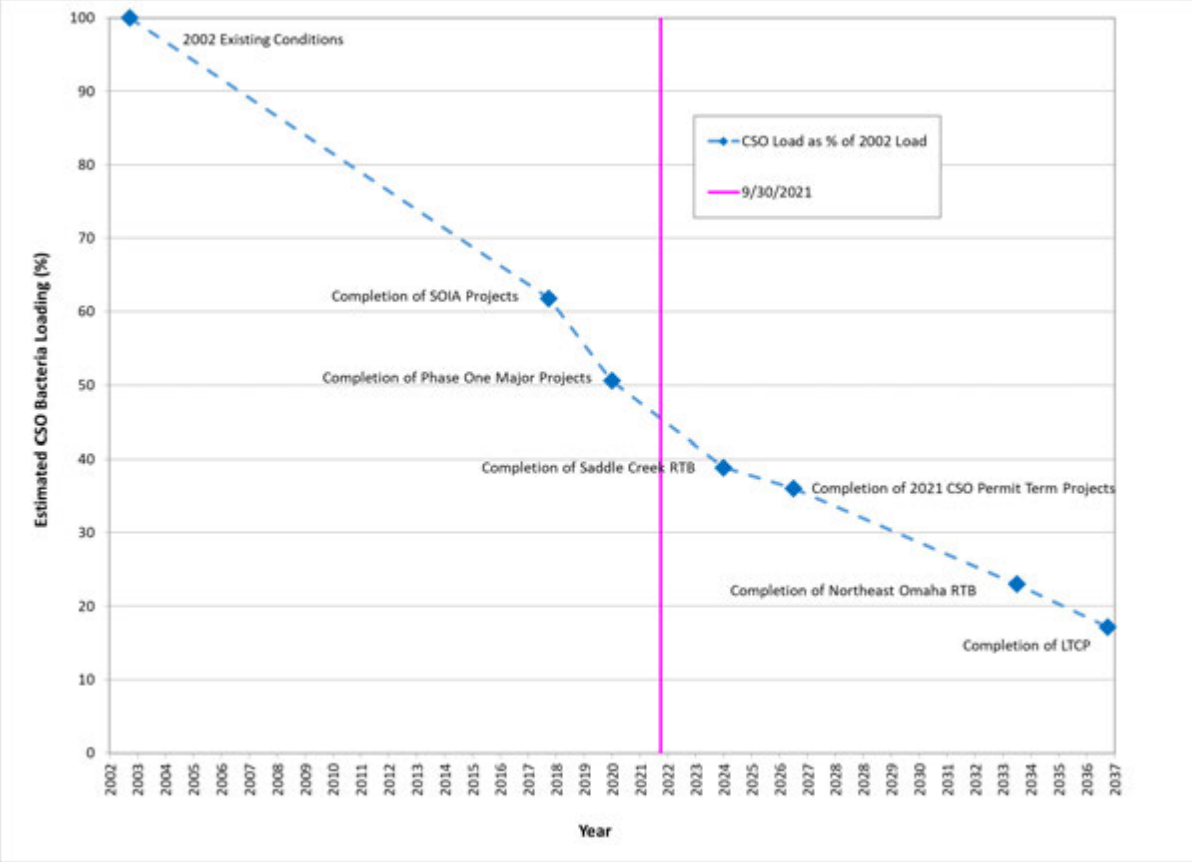
209. During this reporting year, CSO 117 was eliminated with the completion of the sewer separation project. The City still maintains 24 active permitted CSO points.

Sewer separation and inflow reduction projects in the basins of CSOs 202, 203, 210, 211, and 212 are currently underway or are planned in the near future, with the goal of deactivating the outfalls.

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 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 currently under construction.

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



D. Condition Assessment of Large-Diameter Sewers

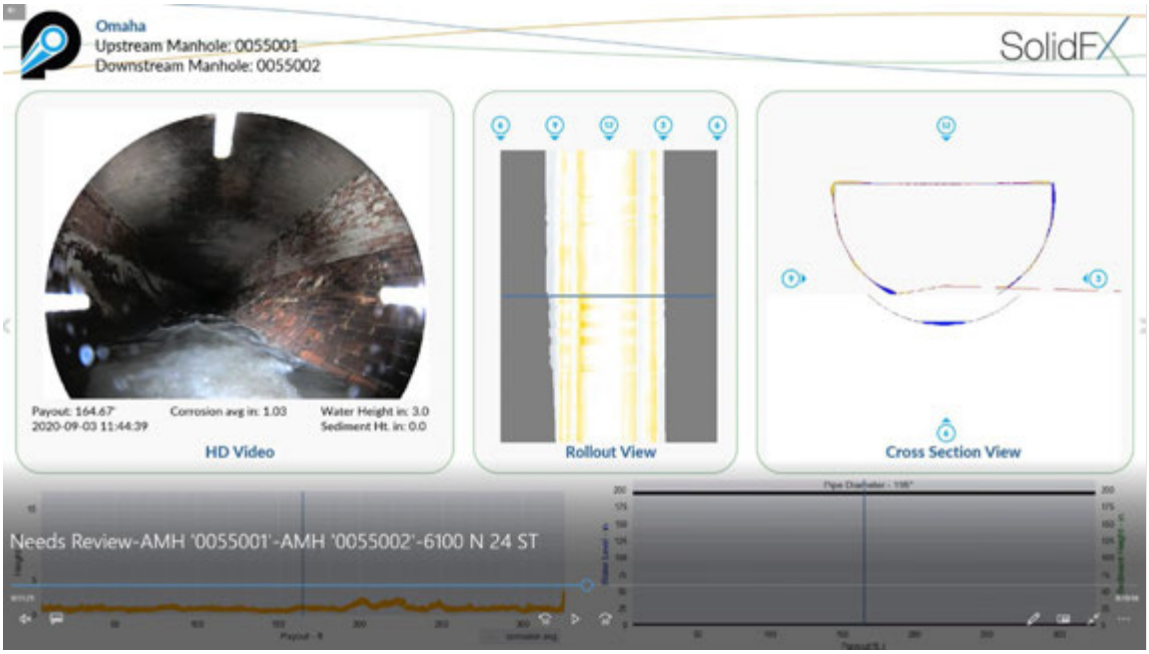
The City recognizes the value and significance of assessing, cleaning and renewing the large-diameter sewers within the CSS. With the investment in SSES for several CSO projects, the City has learned that this aging collection system is at risk for corrosion, deterioration, and debris deposition from decades of roadway and development construction. The success of the CSO controls will rely on the large-diameter sewers for proper conveyance and storage of flows.

The City, as part of the CSO Program, conducted MSIs (CCTV and two-dimensional [2D] LiDar [Light Detection and Ranging remote sensing]) of approximately 12.7 miles of large-diameter combined sewer in the Missouri River Watershed.

The large-diameter sewers inspected are only a small percentage of the large-diameter sewers in the combined system and were selected for inspection based on the criticality to achieve LTCP compliance and to operate the collection system. These inspections and subsequent condition assessments focus on the older, larger-diameter sewers that may be used more frequently, those with different hydraulic conditions, or those used for in-line storage as part of the overall strategy to achieve LTCP compliance. These sewers include some of the oldest sewers placed into service in Omaha, dating back to the early 1900s. The same sewers also have high consequence of failure (COF) risk ratings due to their large service areas (large number of impacted customers) and location (cost to repair or replace sewers).

The City contracted with ACE Pipe Cleaning (ACE) in July 2020 to conduct the MSIs of the targeted sewers. ACE has completed inspection field work and provided inspection data (PACP reports and LiDAR data) of large-diameter sewer. The MSI methods consist of CCTV and two-dimensional LiDar data that were post-processed by ACE prior to submission. An example of the information obtained is shown in Figure 8-2. The data were reviewed and uploaded into the City's GraniteNET database. Several of the targeted sewer lines could not be inspected using a crawler with the multi-sensor technology as a result of debris in the sewer and/or deteriorating pipe conditions; in these circumstances, video was provided via a manned sewer walk.

Figure 8-2. Sample CCTV Video and Two-Dimensional LiDar Output from the Multi-sensor Inspection Data Collection



The post-processed inspection data were analyzed and evaluated by members of the PMT Task Team to assess the sewers and understand the sewer conditions and review the significant defects. The team prioritized the sewers into three categories, Priority 1 – Significant Issues: Structural Repair Needed, Priority 2 – Minor Issues, Priority 3 – Good Condition. Prioritization was conducted by using PACP scores, inspection data, and sewer condition knowledge to

characterize sewers. A workshop was held with the City on May 12, 2021 to present preliminary findings and provide an overview of general condition of the investigated sewers.

The team also developed feasible repair and rehabilitation options for the Priority 1 and 2 sewers using four repair technologies, which included sliplining (pipe within a pipe), spray applied pipe liner (SAPL), cured-in-place pipe (CIPP), and point repairs. A workshop was conducted with the City on September 27, 2021 to present these rehabilitation technologies and feasible alternative improvement, and technology pros and cons and feasibility of application for each sewer were discussed.

Next steps might include prioritizing sewer rehabilitation needs, identifying specific projects and extents, and developing budget-level project costs. The sewer risk scores will also be updated using the total pipe scores and the City's risk methodology. Final results and recommendations are likely to be completed by the end of December 2021.

E. Material Management

During the 2020-2021 reporting year, waste material associated with CSO Program project construction was transported to an industrial fill site in the area. Material deposited was soil. The City monitors and tracks contaminated waste materials and soils and uses this report to update the NDEE Waste Management Division.

Several projects commenced or continued construction in 2021, but only one generated excess soil that required disposal in an industrial fill site. This project and the volume of soil deposited is presented in Table 8-1. 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.

Table 8-1. Volume of Waste Disposed during LTCP Projects

LTCP Project	OPW Number	Material Taken to Landfill	Material Taken to Construction and Demolition (C&D) Landfill or Industrial Fill Site
Saddle Creek RTB	52049	0 tons	Industrial Fill Site: 192 tons (soil)

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 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.

F. Construction Cost Data and Bid Tracking

The CSO Program continued its tracking of regional upcoming bid opportunities and is coordinating bid periods with metro area agencies and utilities (Omaha Public Schools, Nebraska Department of Transportation, Omaha Airport Authority, Council Bluffs Interstate

System, M.U.D., and Sarpy County) to help maximize the number of contractors bidding each project. As bid results become available, entities are sharing the bid results in relation to the engineer's opinion of probable cost, number of bidders, and bidding issues or irregularities. This allows for a more holistic understanding of the construction market in the Omaha metro area.

The CSO Program has maintained a database to capture bid costs from all bidders since 2018, which illustrated a significant increase in project costs as compared to the *Engineering News-Record* Construction Cost Index (ENR CCI). The ENR CCI values increased from 10959 (March 2018) to 11397 (March 2020), which equates to a 4 percent increase in costs. A typical sewer separation project was analyzed for the various bid groupings or cost categories over the same period and identified cost increases of approximately 24 percent.

G. Water Resource Recovery Facilities Master Plan

The City completed the development a Master Plan for the City's MRWRRF and the PCWRRF, with the purpose of identifying near- and long-term facility improvements over a planning horizon of 20 years to meet current and future effluent limits, treat future wastewater flows and loadings, and meet appropriate condition and reliability requirements. Future permit limits are anticipated to include more stringent ammonia and nutrient (nitrogen and phosphorus) limits. A 5-year CIP for the near-term facility improvements was developed, along with a long-term 20-year schedule.

The impacts of the Master Plan on the CSO Program are summarized in Section 2, Current Status of the Program, in the 2021 LTCP Update.

The City is in the process of contracting with an engineering design consultant to design Phase 1 secondary treatment facilities for the MRWRRF and PCWRRF, thereby commencing with the implementation of the Master Plan. The new facilities will provide for activated sludge treatment at both WRRFs.

H. COVID-19 CSO Program Impacts

During the reporting year, the City has continued to deal with the effects of the coronavirus disease (COVID-19) worldwide pandemic. Over the last year, as people became vaccinated, meetings moved back to taking place in person; however, many virtual meetings were still being conducted. The City will continue to allow for virtual attendance at project, progress, and pre-bid and pre-construction meetings until the end of the pandemic.

Projects have been able to move forward with few delays. However, construction progress, most notably the Burt-Izard and Transfer Lift Stations, slowed due to manufacturing delays, inability to travel to witness pump testing, and the need for equipment from outside the U.S. Some projects are experiencing supply chain problems that are the result of the pandemic that will likely continue. For example, the Notice to Proceed for the Monroe Lift Station was delayed from late September to January 2022 because delivery of critical materials and equipment needed to by-pass pumping activities at the start of the project was delayed. The City will continue to track these issues and try to mitigate them.

IX. Works Cited

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Attachment 1 – O & M Procedure Updates and Revisions Summary

CSO STATION AND MONITORING DEVICE PROCEDURES AND LOCATIONS

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

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

			Equipment and Stations	CSO Device Check (routine)	CSO Device Check (WW)
BRIDGE ST	CSO 103		Levee Crew	Sewer Tech	Sewer Tech
MORMON ST (DEACTIVATED)	CSO 104		na	na	na
MINNE LUSA	CSO 105		Levee Crew	Sewer Tech	Sewer Tech
NORTH INT DIV	CSO 106		Levee Crew	Sewer Tech	Sewer Tech
GRACE DIVERSION	CSO 107		Levee Crew	Sewer Tech	Sewer Tech
BURT IZARD	CSO 108		Levee Crew	Sewer Tech	Sewer Tech
6TH LEAVENWORTH	CSO 109		Converting to grit stucture only, not currently online		
NEW LEAVENWORTH	CSO 109	(1)	Levee Crew	Sewer Tech-ND	Sewer Tech-ND
PIERCE	CSO 110	(8)	LS Decommissioned	Sewer Tech	Sewer Tech
HICKORY	CSO 111		Levee Crew	Sewer Tech	Sewer Tech
MARTHA ST	CSO 112		Levee Crew	Sewer Tech	Sewer Tech
SPRING ST (DEACTIVATED)	CSO 113		na	na	na
GROVER	CSO 114		Levee Crew	Sewer Tech	Sewer Tech
RIVERVIEW	CSO 115		Levee Crew	Sewer Tech	Sewer Tech
MO AVE	CSO 117		Levee Crew	Sewer Tech	Sewer Tech
SO OMAHA/OHERN	CSO 118		Levee Crew	Sewer Tech	Sewer Tech
MONROE ST LS (N)	CSO 119	(7)	Levee Crew	Sewer Tech	Sewer Tech
MONROE ST (S)	CSO 119	(2)	na	Sewer Tech	Sewer Tech
JONES ST	CSO 121		Levee Crew	Sewer Tech	Sewer Tech
72ND BEDFORD	CSO 202	(3)	Levee Crew	Sewer Tech	Sewer Tech
69TH EVANS	CSO 203	(3)	Levee Crew	Sewer Tech	Sewer Tech
61ST TAYLOR	CSO 204	(3)	Levee Crew	Sewer Tech	Sewer Tech
63RD PRATT	CSO 204	(3)	Levee Crew	Sewer Tech	Sewer Tech
66TH AMES (NEW)	CSO 204	(4)	na	Sewer Tech	Sewer Tech
64TH DUPONT	CSO 205	(6)	Levee Crew	Sewer Tech-ND	Sewer Tech-ND
43RD & R ST (DEACTIVATED)	CSO 207		na	na	na
45TH & V ST	CSO 208	(5)	na	Sewer Tech	Sewer Tech
44TH & HARRISON ST	CSO 209	(DEACTIVATED)	na	na	na
66TH & BLONDO	CSO 210		na	Sewer Tech	Sewer Tech
66TH & PACIFIC	CSO 211		na	Sewer Tech	Sewer Tech
64TH & WOOLWORTH	CSO 212		na	Sewer Tech	Sewer Tech

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

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

ALL DRY WEATHER CSOs REQUIRE IMMEDIATE REPORTING AND MITIGATION EFFORTS

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

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

REVISED : Nov-21

CITY OF OMAHA
PUBLIC WORKS
ENVIRONMENTAL SERVICES

STANDARD OPERATING PROCEDURE

For

REPORTING AND PUBLIC NOTIFICATION

Of

WASTEWATER BYPASS, UNPERMITTED COMBINED SEWER OVERFLOW & SANITARY SEWER OVERFLOW

DATE REVIEWED:	12/06/2021
NEXT REVIEW DATE:	**3/28/2021**
LAST REVISION:	9/1/2019
ORIGINATION DATE:	12/28/03 – Marty Grate

Reviewed By: J. Morales/J. Birdsall	Updated: Attachments 2, 3 & 5 and follow up flowchart.

WOER Plan Contacts

November 2021

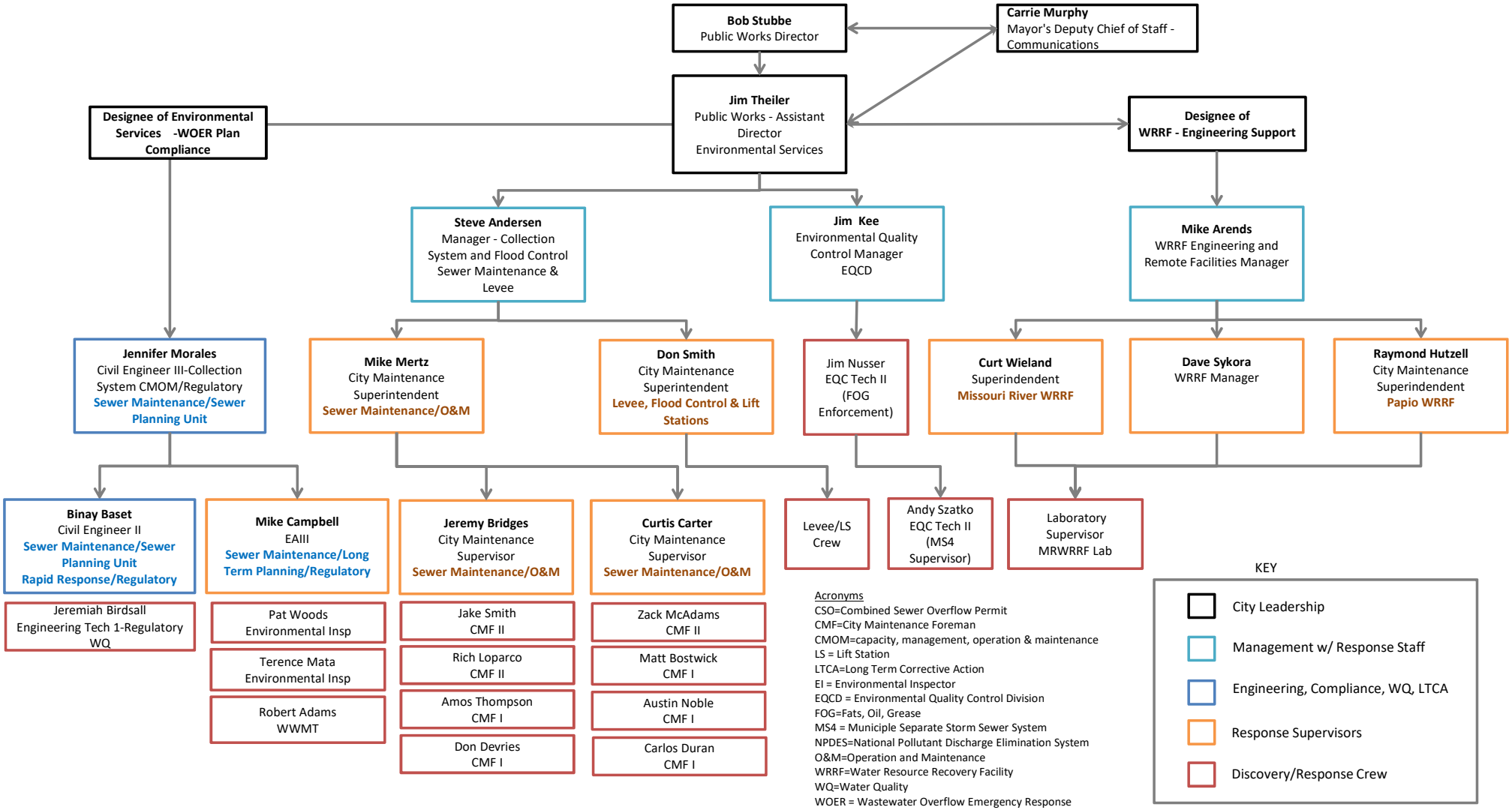
First name	Last name	Phone	Cell Phone	Job Title	Pwks Divison / Org
Steve	**Andersen**	**402-444-5265**	**402-215-8517**	**Manager - Collection System and Flood Contro**	***Sewer Maintenance & MRWWTP Levee***
Mike	**Arends**	**402-444-3910**	**402-619-0067**	**WRRF Manager**	***Missouri River WRRF***
Binay	Basnet	402-444-6005	531-225-5130	Civil Engineer II-Rapid Response	*Sewer Maintenance / Sewer Planning Unit*
Ron	Bartlett	402-444-1113	n/a	Quality Control Technician II	*Missouri River WRRF*
Jeremiah	**Birdsall**	**402-444-5332**	**402-740-9150**	**Engineering Technician I**	***Sewer Maintenance / Sewer Planning Unit***
Matt	Bostwick	402-444-4633	402-670-8028	City Maintenance Foreman I	*Sewer Maintenance / O & M*
Jeremy	**Bridges**	**402-444-4728**	**402-618-6743**	**City Maintenance Supervisor**	***Sewer Maintenance / O & M***
Curtis	**Carter**	**402-444-5332**	**402-619-6084**	**City Maintenance Supervisor**	***Sewer Maintenance / O & M***
Devries	Don	402-444-4633	402-281-8693	City Maintenance Foreman I	*Sewer Maintenance / Construction*
Mike	**Campbell**	**402-444-5332**	**402-676-1673**	**Sewer Tech Crew supervisor**	***Sewer Maintenance / Sewer Planning Unit***
Carlos	Duran	402-444-5332	402-813-9746	City Maintenance Foreman I	*Sewer Maintenance / O & M*
Andrew	Ethofer	402-444-3388	402-658-3896	Maintenance Mechanic II	*Sewer Maintenance*
Jake	Hansen	402-444-5107	402-214-5301	Civil Engineer III	*Design Division / Plant Engineering*
Christina	Tisko	402-444-3915 ext 1034	402-682-2613	WRRF Laboratory Supervisor	*Missouri River WRRF / Laboratory Supervisor*
Raymond	Hutzell	402-444-3922 ext 2302	402-505-0099	City Maintenance Superintendent	*Papio WRRF*
Jim	Kee	402-444-3909	402-657-2951	Environmental Quality Control Mgr	*Environmental Quality Control Division*
Jeff	Matheson	402-444-1693	402-213-7257	City Maintenance Foreman I	*Sewer Maintenance / O & M*
Zach	McAdams	402-444-1693	402-990-5847	City Maintenance Foreman II	*Sewer Maintenance / O & M*
Mike	**Mertz**	**402-444-4923**	**402-660-3997**	**City Maintenance Superintendent**	***Sewer Maintenance / O & M***
Jennifer	**Morales**	**402-444-7136**	**402-661-0053**	**Asset Manager - Acting Designee**	***Sewer Maintenance / Sewer Planning Unit***
Jacob	**Nusser**	**402-444-1032**	**402-619-6815**	**Engineer Technician I**	***Sewer Maintenance / Sewer Planning Unit***
Jim	Nusser	402-444-1033	402-660-3671	Quality Control Technician I	*EQCD/Missouri River WRRF*
George	Parizek	402-444-4765	na	Civil Engineer III	*Sewer Maintenance / Lift Stations*
Don	**Smith**	**402-444-3915 ext 1180**	**402-505-0664**	**City Maintenance Superintendent**	***Flood Levee Control & Lift Stations***
Michael (Jake)	Smith	402-444-5332	402-676-1157	City Maintenance Foreman II	*Sewer Maintenance / Construction*
Bob	**Stubbe**	**402-444-5228**	**402-960-5241**	**Public Works - Director**	***Public Works***
Dave	**Sykora**	**402-444-3915 ext 1006**	**402-505-0981**	**WRRF Manager**	***Papio WRRF***
Andy	Szatko	402-444-1101	402-657-7418	Stormwater Program Supervisor / EQCT II	*Missouri River WRRF*
Jim	**Theiler**	**402-444-5225**	**531-222-7901**	**Public Works - Assistant Director**	***Environmental Services***
Amos	Thompson	402-444-5332	402-660-5296	City Maintenance Foreman I	*Sewer Maintenance / Construction*
Evan	Wickham	402-546-0700	402-619-1730	Civil Engineer II-SSES	*Sewer Maintenance / Sewer Planning Unit*
Jeff	**Saltzman**	**402-444-3915 ext 1015**		**City Maintenance Superintendant**	***Missour River WRRF***
VACaNT	**VACANT**			**Sewer Planning Unit Manager**	***Sewer Maintenance / Sewer Planning Unit***
Curt	**Wieland**	**402-444-3915 ext. 1000**	**402-505-1918**	**Superintendant**	***Missouri River WRRF***

CITY OF OMAHA PUBLIC WORKS DEPARTMENT

WASTEWATER OVERFLOW EMERGENCY RESPONSE PLAN (WOER Plan)

ORGANIZATIONAL CHART 2021

To maintain in compliance with the NPDES Permits issued to the wastewater collection and treatment systems



Acronyms
CSO=Combined Sewer Overflow Permit
CMF=City Maintenance Foreman
CMOM=capacity, management, operation & maintenance
LS = Lift Station
LTCA=Long Term Corrective Action
EI = Environmental Inspector
EQCD = Environmental Quality Control Division
FOG=Fats, Oil, Grease
MS4 = Municiple Separate Storm Sewer System
NPDES=National Pollutant Discharge Elimination System
O&M=Operation and Maintenance
WRRF=Water Resource Recovery Facility
WQ=Water Quality
WOER = Wastewater Overflow Emergency Response

KEY

- City Leadership
- Management w/ Response Staff
- Engineering, Compliance, WQ, LTCA
- Response Supervisors
- Discovery/Response Crew

Attachment 3

NDEE Contact and Reporting Information

Initial Notification shall be provided to the NDEE Field Office in Omaha, NE as soon as possible and always within 24 hours verbally by phone, by fax, or by email per the requirements of this SOP. Contact Information is as follows:

Mr. Reuel Anderson
NDEE Field Office
8901 South 154th Street, Suite 5
Omaha, NE 68138-3621
Phone: (402) 471-1367
Fax: (402) 895-6543
Email: reuel.anderson@nebraska.gov

Follow-up Letters shall be mailed to the NDEE Headquarters in Lincoln, NE as soon as practically possible, postmarked no later than 5 or 7 days after initial notification per the requirements of the NPDES Permit and this SOP. Contact Information is as follows:

Mr. Reuel Anderson
Nebraska Department of Environment & Energy
PO Box 98922
Lincoln, NE 68509-8922

Please provide a copy of the follow up letter to the NDEE Field office by mail or email. CC: Shelley Schneider (NDEE)

COMBINED SEWER OVERFLOW STATION PROCEDURE MANUAL

FOR

SEWER MAINTENANCE DIVISION

CITY OF OMAHA, NEBRASKA

SEPTEMBER 2021

2020-2021 CSO Station Procedure Manual Changes

Summary of changes:

CSO 108 Burt Izard - This lift station was rehabbed this year and some new equipment was installed.

DEBRIS/GRIT REMOVAL

- Weekly - Check operation of bar screens 01, 02 and conveyer 01
- Weekly - Check operation of CSO bar screens and conveyers
- Annually - Check bridge cranes

HYDRAULICS

- Weekly - Check accumulator pressure

CSO 109 Leavenworth - A bar screen was installed in the diversion structure currently in use.

DEBRIS/GRIT REMOVAL

- Weekly - Check lift station bar screens
- Weekly & Wet Weather - Check CSO diversion bar screen

CSO 117 Missouri Ave - The line segment from the diversion structure to the lift station was plugged, changing the CSO point to a storm outfall for Levee reporting purposes.

Attachment 2 – LTCP Annual Project Progress Reports (APPR)

ANNUAL PROJECT PROGRESS REPORT-
OCTOBER 1, 2020, THROUGH SEPTEMBER 30, 2021

Saddle Creek CSO 205 64th and Dupont Retention Treatment Basin (RTB)

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

2021 LTCP Project Name: Saddle Creek Retention Treatment Basin

Project Description as stated in the 2021 LTCP:

The Saddle Creek RTB is the final project in the Saddle Creek Basin. At the time of the 2014 LTCP Update, the City of Omaha (City) was preparing to open bidding for a 315 million gallon per day (MGD) RTB, with a 6.6-million-gallon (MG) storage volume. In August 2015, a single bid was received for the Saddle Creek RTB that was significantly over the engineer's estimate of $91 million. The City worked with the Nebraska Department of Environmental and Energy to modify the project's scheduled completion date to September 30, 2020 (later changed to December 31, 2023), in the CSO Permit. The City worked with the designer to review the project and develop alternatives that would comply with the United States Environmental Protection Agency (EPA) CSO Control Policy at a more affordable cost. Various alternatives were evaluated, including different sizes of RTBs as well as replacement of the RTB with a storage tank. The City decided to move forward with 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.

2014 LTCP Phase[1]: Phase 2 Major CSO Control Projects

2015 CSO Permit Requirement:

On or before December 31, 2023; the City of Omaha shall complete the construction and evaluation of the project listed below so that this project is operationally complete.

2014 LTCP Schedule:

All Major Projects Phase 2 projects operationally complete by December 31, 2023

2021 LTCP Milestone:

Complete Construction of this project by December 31, 2023

Compliance Report

The 2014 LTCP Milestone For Phase 2 Major Projects requires all projects in Phase 2 to be operationally complete by December 31, 2023.

[1] There are no longer Phases in the 2021 LTCP.

The project specific 2014 LTCP Milestone dates are shown in Table 1. Table 2 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.

Table 1. Project-specific 2014 LTCP Schedule Dates for LTCP Milestone Activities

Activity	2014 LTCP Schedule Date	Actual or *Anticipated* Date[a]
Start Final Design	01/01/2014	08/03/2013
Complete Construction	12/31/2023	*07/03/2023*

[a] Anticipated dates are italicized.

Table 2. 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	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	010/10/2018	10/10/2018
Began Construction	04/30/2019	04/30/2019
Operationally Complete	**12/31/2023**	*07/03/2023*

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

According to the information presented, the project is on track to meet both the 2014 and 2021 LTCP Milestone Dates.

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:

- Completed construction of the RTB basin; influent channel was completed. Continued construction of Effluent Channel.
- Began construction of the Operation and Chemical Buildings.
- Began backfilling around the perimeter and top of the basin.
- Began development of the Operation and Maintenance manual and development of training requirements for the RTB facility.
- Installed 60-inch diversion sewer between the Diversion Structure, through the grit pit, and to the tie-in at the Little Papillion Creek Interceptor. Constructed 108-inch dual influent sewers from the diversion structure to the RTB grit basin.

Anticipated Project Activity for Next Period

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

- Complete concrete work in the CSO 205 channel during the 2021–2022 winter season.
- Complete construction of the Chemical Feed Systems, Odor Control, and Headworks Buildings.

- Complete construction of the Operation Building and Chemical Building structures.
- Have the majority of site work complete with the exception of the bioretention basin, final grading, site fencing, and other minor site improvements.

Costs

2021 LTCP Update Budgeted Construction Cost (February 2021[2]): $100,718,227 with contingency.

Current Estimated Construction Cost: $92,935,277 (current contract value as of September 30, 2021).

Changes from the LTCP

Based on the 2021 LTCP there are no changes.

Other Items of Interest

Figure 1 – Saddle Creek RTB Site Construction (October 2021). Chemical Building, Operations Building, and Headworks facilities toward the top of the picture. Dewatering pump station, flow meter vault, and other ancillary facilities toward the bottom of the picture.

[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, 2020, THROUGH SEPTEMBER 30, 2021

Nicholas Street Phase 3/18th & Seward Sewer Separation

CSOP.02.04.4B00 4B-BI Basin 108-3 Nicholas Street Phase 3
CSOP.02.05.6F00 6F-BI Basin 108-8 18th & Seward

2021 LTCP Project Name: Nicholas Street Sewer Extension – Phase 3B

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.

2014 LTCP Phase[1]:

Phase 4 Sewer Separation Projects – Nicholas Street Phase 3

Phase 6 Sewer Separation Projects – 18th & Seward

2015 CSO Permit Requirement:

Nicholas Phase 3 – **On or before December 31, 2016, the City of Omaha shall commence bidding on one of the Sewer Separation Projects in Phase 4.**

18th & Seward – On or before December 31, 2021[2], the City of Omaha shall commence bidding on one of the Sewer Separation Projects in Phase 6.

[1] There are no longer Phases in the 2021 LTCP

[2] Date was modified from June 30, 2020, to December 31, 2021, by a permit modification issued on November 1, 2019.

2014 LTCP Schedule[3]

Sewer Separation Phase 4

Bid Year – Commence bidding of one project by December 31, 2016
Complete Construction of all projects by June 30, 2022

Sewer Separation Phase 6

Bid Year – Commence bidding of one project by December 31, 2021[2]
Complete Construction of all projects by December 31, 2023

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

Compliance Report

The 2014 LTCP Milestone for Phase 4 Sewer Separation for one project to "Commence Bidding" on one project by December 31, 2016, was met by the bidding of Lake James to Fontanelle Park – Fontenelle Lagoon Improvements (OPW 52658) on October 5, 2016.

The remaining Phase 4 Sewer Separation milestone in the LTCP is to complete all projects by June 30, 2022. The Nicholas Street Sewer Extension – Phase 3 project will not meet the project dates in the 2014 LTCP Update, nor the milestones. The project dates were re-evaluated as part of the development of the 2021 LTCP Update.

The project specific 2014 LTCP Milestone dates are shown in Table 1. Table 2 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.

Table 1. Project-specific 2014 LTCP Milestone Schedule Dates

Activity	Phase 4 LTCP Schedule Date	Phase 6 LTCP Schedule Date	Actual or *Anticipated* Date[a]
Bidding	08/07/2019	07/01/2021	08/07/2019[b] (Met by Nicholas Phase 3A)
Complete Construction	04/01/2024	04/01/2024	*08/31/2024*[c] (Nicholas Phase 3B)

[a] Anticipated dates are italicized.

[b] While the actual bidding date of 8/7/2019 was about one month past the Phase 4 LTCP Schedule Date of 7/6/2019, the City considered bidding to be accomplished in compliance with LTCP dates.

[c] This date is outside of the 2014 LTCP Milestone Date for Phase 4 Sewer Separation for completion of construction by June 30, 2022, and was updated in the 2021 LTCP schedule to June 30, 2025.

[3] For Sewer Separation Projects, there are two milestone dates in both the permit and LTCP that must be met. This includes having one of the projects in a phase commence bidding, and having all projects in the phase complete construction by the end date of the phase.

Table 2. 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	04/04/2016	07/01/2016
Began Final Design	11/18/2019	02/13/2018
Advertise	002/17/2021	02/10/2021
Bid Opening	03/17/2021	03/17/2021
Begin Construction	09/01/2021	07/06/2021
Substantial Completion	**06/30/2025**	*08/31/2024*

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

According to the information presented, the project may not meet the 2014 LTCP Milestone Date but will meet the 2021 LTCP Milestone Date.

Project Activities for Current Period

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

- Nicholas Street Sewer Extension – Phase 3B project design was completed and advertised for bid in spring 2021. The City continued to coordinate other utilities in anticipation of the Phase 3B construction, expected to begin in the fall of 2021.
- The schedule for Phase 3B is affected by significant utility relocation in the project area. The end construction date was modified in the 2021 LTCP and CSO Permit application accordingly.

Anticipated Project Activity for Next Period

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

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

Costs

2021 LTCP Update Budgeted Construction Costs (February 2021[4]): Nicholas Phase 3A $2,065,310 with contingency; Nicholas Phase 3B $23,341,340 with contingency. Anticipated years of construction: Phase 3A completed in 2020 and Phase 3B scheduled for 2021–2024.

Current Estimated Construction Cost: Costs are based on the final construction cost for the Phase 3A project of $1,424,653 and the construction contract cost for the Phase 3B project of $21,806,256.

Other Items of Interest

There are no other items to report.

[4] 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, 2020 THROUGH SEPTEMBER 30, 2021

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

2021 LTCP Project Name: Forest Lawn Creek Inflow Removal and Outfall Storm Sewer

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.

2014 LTCP Phase[1]: Phase 4 Sewer Separation Projects

2015 CSO Permit Requirement:

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

2014 LTCP Schedule[2]:

Bid Year – Commence bidding of one project by December 31, 2016

Complete Construction of all projects by June 30, 2022

2021 LTCP Milestone:

Complete Construction of this project by December 31, 2024

Compliance Report

The 2014 LTCP Milestone for Phase 4 Sewer Separation for one project to "Commence Bidding" on one project by December 31, 2016, was met by the bidding of Lake James to Fontanelle Park – Fontenelle Lagoon Improvements (OPW 52658) on October 5, 2016.

The project specific 2014 LTCP Milestone dates are shown in Table 1. Table 2 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.

[1] There are no longer Phases in the 2021 LTCP.

[2] For Sewer Separation Projects, there are two Milestone Dates in both the permit and LTCP that must be met. This includes having one of the projects in a phase commence bidding and having all projects in the phase complete construction by the end date of the phase.

Table 1. Project-specific 2014 LTCP Milestone Schedule Dates

Activity	2014 LTCP Schedule Date	Actual or *Anticipated* Date[a]
Re-Bidding	12/31/2022	*02/16/2022*
Complete Construction	12/31/2024	*04/12/2024*

[a] Anticipated dates are italicized.

Table 2. 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	*02/08/22*
Bid Opening	12/10/2021	*03/08/2022*
Begin Construction	06/01/2022	*06/03/2022*
Substantial Completion	**12/31/2024**	*4/12/2024*

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

According to the information presented, the project will meet the “Complete Construction” date in Table 1 and 2021 LTCP Milestone Dates. The project it will not meet the 2014 LTCP Phase 4 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.

- Redesigning of this project started in February 2021. This included updating the plans and specifications for re-bidding.
- Working with Metropolitan Utility District to identify any remaining conflicts and make modifications in the plans as necessary to address problem locations.
- Reviewed the trenchless work, which resulted in changes in a few locations from trenchless to open cut and made changes in the plans and specifications, as appropriate, to address areas that were previously noted of concern as part of the past value engineering work.
- Reviewed plans and specifications as they apply to roadway work, most notably, pavement requirements to address City concerns.
- Addressing remaining right-of-way or easement concerns.
- Developing permits and approvals that will be needed for the project.

Anticipated Project Activity for Next Period

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

- It is anticipated that this project will complete its redesign, bid, and start construction.

Costs

2021 LTCP Update Budgeted Construction Costs (February 2021)[3]: $27,500,000 with contingency (anticipated construction years: 2022–2024).

Current Estimated Construction Cost: $27,500,000 with contingency, based on the 2021 LTCP Update cost. Updated construction costs based on redesign from the project team have not yet been received (anticipated construction years: 2022–2024).

Other Items of Interest

There are no other items to report.

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

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

CSOP.02.04.4N00 – 4N - Basin CSO 117-1 Missouri Avenue Ph 2

2021 LTCP Project Name: N/A

Project Description as stated in the 2009 LTCP:

This project is located in the southern part of the South Interceptor Basin and provides separation to an area bounded on the north by Interstate 80, on the east by the Missouri River levee, on the south by Missouri Avenue, and on the west by 24th Street. The conceptual plan for this project includes construction of both a sanitary sewer and storm sewer to allow for conversion of the existing combined sewer to either storm sewer or sanitary sewer, as appropriate, and to provide sewer separation to this 416-acre sub-basin.

This project would also include construction of the Spring Lake Park Green Solutions project to remove creek flow from the combined sewer system, which would reduce the size of the downstream separated system to be constructed.

Project Description as stated in the 2014 LTCP Update:

The Separation Phase 1 project (OPW 51997) is also known by its City project name: Missouri Avenue/Spring Lake Park Sewer Separation. This overall Phase 1 and Phase 2 project will provide sewer separation to the entire 416-acre Missouri Avenue sub-basin through a combination of new storm and sanitary sewers. Sanitary flows will be directed to the existing Missouri Avenue Lift Station, while storm flows will be conveyed to the Missouri River through the existing combined sewer, which will eventually be converted to a storm-only sewer following completion of the Missouri Avenue Phase 2 Sewer Separation project (OPW 51997b).

2014 LTCP Phase: Phase 4 Sewer Separation Projects

2015 CSO Permit Requirement: One of the Phase 4 Sewer Separation Projects shall commence bidding by December 31, 2016.

2014 LTCP Schedule[1]:

Bid Year – Commence bidding of one project by December 31, 2016

Complete construction of all projects by June 30, 2022

[1] For Sewer Separation Projects, there are two Milestone Dates in both the permit and LTCP that must be met. This includes having one of the projects in a phase commence bidding and having all projects in the phase complete construction by the end date of the phase.

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Compliance Report

The 2014 LTCP Milestone for Phase 4 Sewer Separation for one project to "Commence Bidding" on one project by December 31, 2016, was met by the bidding of Lake James to Fontanelle Park – Fontenelle Lagoon Improvements (OPW 52658) on October 5, 2016.

The project specific 2014 LTCP Milestone dates are shown in Table 1. This project is complete and is not included in the 2021 LTCP Update.

Table 1. Project-specific 2014 LTCP Milestone Schedule Dates

Activity	2014 LTCP Schedule Date	Actual Date
Bidding	06/30/2017	01/18/2017
Complete Construction	12/31/2019	8/30/2021

According to the information presented, the project did not meet the "Complete Construction" date in Table 1 but met the 2014 LTCP Milestone Dates.

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.

Substantial completion was achieved by the contractor on December 27, 2019; however, construction work continued through the end of this reporting period. During construction, it was determined that additional sewer separation work was necessary to meet the level of control needed to close the CSO 117 outfall. Therefore, change orders were added to the construction contract. Phase 2 project construction was completed with the closure of the CSO 117 diversion on August 30, 2021.

Costs

LTCP Budgeted Construction Cost (December 2013[2]): $4,778,000 with contingency.

Current Estimated Construction Cost: Phase 2: $7,825,162 based on the new contract amount, including change orders for the additional sewer separation work.

Other Items of Interest

The additional sewer separation on South 13th Street required connecting new, separate sewers to trunk sewers on Spring Lake Drive near I Street.

[2] Engineering News Record Construction Cost Index 9668.

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Figure 1 - Looking east along I Street to intersection with Spring Lake Drive; erosion control matting covers disturbed areas from installation of new sewer connections from South 13th Street (December 2020)

Figure 2 - Storm sewer outfall into constructed wetland in Spring Lake Park, looking up toward 18th and G Streets (December 2020)

Figure 3 - Protected and restored stream channel south of F Street, looking south, upstream of constructed wetland (December 2020)

Figure 4 - Overview looking north at constructed wetland in Spring Lake Park north of F Street (July 2021)

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Figure 5 - Overview looking south at multi-purpose pond in Spring Lake Park north of F Street (July 2021)

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Cole Creek CSO 204 Sewer Separation Phase 2

CSOP.02.04.4Q00 4Q – CC CSO 204 Ph 2

This project has been removed from the LTCP.

Project Description as stated in the 2021 LTCP Update:

Cole Creek CSO 204 Sewer Separation Phase 2 (OPW 52814) includes a new sanitary sewer along 63rd Street from Spaulding Street to Bedford Street connecting to the sanitary sewer built in Phase 1. The project was placed on indefinite hold in 2017 because of escalating construction costs and construction risk, as well as the social impact of displacing residents to carry out construction that would require demolition of homes. However, Phase 2 is not needed to achieve the 85 percent wet weather volume capture required by the CSO Program. This project has been removed from the 2021 LTCP.

2014 LTCP Phase[1]: Phase 4 Sewer Separation Projects

2015 CSO Permit Requirement:

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

2014 LTCP Schedule[2]:

Bid Year: Commence bidding of one project by December 31, 2016

Complete Construction of all projects by December 31, 2023

2021 LTCP Milestone: Removed from the 2021 LTCP Update.

Compliance Report

The 2014 LTCP Milestone for Phase 4 Sewer Separation for one project to “Commence Bidding” on one project by December 31, 2016, was met by the bidding of Lake James to Fontanelle Park – Fontenelle Lagoon Improvements (OPW 52658) on October 5, 2016.

Table 1. Project-specific 2014 LTCP Milestone Schedule Dates

Activity	2014 LTCP Schedule Date	Actual or *Anticipated* Date[a]
Bidding	6/30/2020	N/A
Complete Construction	*6/30/2022*	N/A

[a] Anticipated dates are italicized.
N/A = not applicable

[1] There are no longer Phases in the 2021 LTCP.

[2] For Sewer Separation Projects, there are two Milestone Dates in both the permit and LTCP that must be met. This includes having one of the projects in a phase commence bidding and having all projects in the phase complete construction by the end date of the phase.

This project has been cancelled and is not in the 2021 LTCP Update. There will be no further reporting on this project.

Project Activities for the Current Period

No work was done on this project during the Annual Report year.

Anticipated Project Activity for Next Period

This project no longer exists in the 2021 LTCP Update.

Costs

LTCP Budgeted Construction Cost (December 2013[3]): $12,000,000 with contingency.

[3] Engineering News Record Construction Cost Index 9668.

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Cole Creek CSO 204 Sewer Separation Phase 3

CSOP.02.05.5B00 5C – CC CSO 204 Ph 3

2021 LTCP Project Name: Cole Creek CSO 204 Area – Phase 3 Combined Sewer Separation (Taylor to Ruggles Between 56th and 61st)

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.

2014 LTCP Phase[1]: Phase 5 Sewer Separation Projects

2015 CSO Permit Requirement: On or before December 31, 2019, the City of Omaha shall commence bidding on one of the Sewer Separation Projects in Phase 5.

2014 LTCP Schedule:

Bid Year: Commence bidding of one project by December 31, 2019

Complete Construction of all projects by December 31, 2023

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

Compliance Report

The 2014 LTCP Milestone Phase 5 Sewer Separation for one project to "Commence Bidding" was met by the bidding of Cole Creek CSO 202 Phase 1 Sewer Separation (OPW 53417) on November 28, 2018.

The project specific 2014 LTCP Milestone dates are shown in Table 1. Table 2 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-specific LTCP Schedule Dates for 2014 LTCP Milestone Activities

Activity	2014 LTCP Schedule Date	Actual or *Anticipated* Date[a]
Bidding	07/01/2020	05/27/2020
Complete Construction	6/30/2022	*12/06/2021*

[a] Anticipated dates are italicized.

[1] There are no longer Phases in the 2021 LTCP.

Table 2. 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	10/3/2017
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**	*12/06/2021*

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

According to the information presented, the project is on track to meet both the 2014 and 2021 LTCP Milestone Dates.

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:

- Addendum 1 was published on May 27, 2020. Bid opening held on July 8, 2020. Bid Award Recommendation Letter sent to L.G. Roloff Construction Company Inc. on July 15, 2020. City Council Approval received on August 4, 2020.
- Construction completed in this period includes pavement removal at 60th Street, Sahler Street, and Taylor Street. Sanitary line laid along Taylor Street and a portion of Sahler Street. Inlets and maintenance holes constructed on Taylor Street. Fine grade and pave along Sahler Street. Backfill behind curb and formed driveways on Sahler Street.

Anticipated Project Activity for Next Period

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

- Construction to be completed in the next Annual Report year includes pavement removal and laying sanitary sewer on the rest of Sprague Street. Construction of concrete pavement, inlets, driveways, and sidewalks on Sprague Street, then finish grading and sodding. Pavement removed, lay sanitary and storm sewer on 56th Street. Construction of pavement, inlets, driveways, and sidewalks on 56th Street, then completion of finish grading and sodding. Remove pavement and lay sanitary and storm sewer on Ruggles Street. Construction of pavement, inlets, driveways, and sidewalks on Ruggles Street, then completion of grading and sodding.
- Substantial completion is anticipated in December 2021. Final Completion date is anticipated in January 2022.

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Costs

2021 LTCP Budgeted Construction Costs (February 2021)[2]: $5,201,528 with contingency (under construction).

Current Estimated Construction Cost: $4,728,662.68 based on construction contract value.

Other Items of Interest

There are no other items to report.

Figure 1. Digging for line connection on Sahler Street.

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

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Figure 2. Paving preparation for intersection at North 60th Avenue and Taylor Street.

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

2021 LTCP Project Name: CSO 202 Phase 2 – 70th Avenue and Spencer Street

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.

2014 LTCP Phase[1]: Phase 5 Sewer Separation Projects

2015 CSO Permit Requirement:

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

2014 LTCP Schedule[2]:

Bid Year: Commence bidding of one project by December 31, 2019

Complete Construction of all projects by December 31, 2023

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

Compliance Report and Progress Activities

The 2014 LTCP Milestone Phase 5 Sewer Separation for one project to "Commence Bidding" was met by the bidding of Cole Creek CSO 202 Phase 1 Sewer Separation (OPW 53417) on November 28, 2018.

The project specific 2014 LTCP Milestone dates are shown in Table 1. Table 2 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-specific 2014 LTCP Milestone Schedule Dates

Activity	2014 LTCP Schedule Date	Actual or *Anticipated* Date[a]
Bidding	01/06/2023	*07/03/2023*
Complete Construction	9/30/2025	*11/01/2026*[b]

[a] Anticipated dates are italicized.
[b] The date listed for Complete Construction will not meet the Milestone Date of 12/31/2023.

1 There are no longer Phases in the 2021 LTCP.

2 For Sewer Separation Projects, there are two Milestone Dates in both the permit and LTCP that must be met. This includes having one of the projects in a phase commence bidding and having all projects in the phase complete construction by the end date of the phase.

Table 2. 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	01/08/2019	03/20/2017
Began Final Design	08/24/2020	08/24/2020
Advertise	07/03/2023	*07/03/2023*
Bid Opening	08/14/2023	*08/14/2023*
Begin Construction	03/01/2024	*03/01/2024*
Substantial Completion	**12/31/2026**	*11/01/2026*

[a] 2021 LTPC Milestone Date is in bold.
[b] Anticipated dates are italicized.

According to the information presented, the project may not meet the 2014 LTCP Milestone Date but 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:

- The 60% design was delivered in June 2021.
- The project has begun coordination with utilities, most notably, Metropolitan Utility District, and preparing for the 90% design deliverable.

Anticipated Project Activity for Next Period

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

- Continue final design for CSO 202 Phase 2 – 70th Avenue and Spencer Street. It is anticipated that 90% design will be delivered in December 2021. The project will be put on hold following the submission of the 90% design deliverable to allow Metropolitan Utility District to complete construction in the arear.
- A public meeting will be held in 2022 to address any public questions or concerns with regards to the construction project.

Costs

2021 LTCP Budgeted Construction Costs (February 2021)[3]: $16,645,631 with contingency (anticipated construction years 2024–2026).

Current Estimated Construction Cost : $14,600,000 in 2024–2026 dollars (source: 60% design opinion of probable construction costs [OPCC])

Other Items of Interest

There are no other items to report.

[3] 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
CSOP.02.05.5C00 5C – CC CSO 203-1 Sewer Separation (Cole Creek)

2021 LTCP Project Name: Cole Creek CSO 203 Sewer Separation Project (CSO)

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.

2014 LTCP Phase[1]: Phase 5 Sewer Separation Projects

2015 CSO Permit Requirement:

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

2014 LTCP Schedule[2]:

Bid Year: Commence bidding of one project by December 31, 2019

Complete Construction of all projects by December 31, 2023

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

Compliance Report

The 2014 LTCP Milestone Phase 5 Sewer Separation for one project to “Commence Bidding” was met by the bidding of Cole Creek CSO 202 Phase 1 Sewer Separation (OPW 53417) on November 28, 2018.

The project specific 2014 LTCP Milestone dates are shown in Table 1. Table 2 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-specific 2014 LTCP Milestone Schedule Dates

Activity	2014 LTCP Schedule Date	Actual or Anticipated Date[a]
Bidding	7/01/2020	9/09/2020
Complete Construction	6/30/2022	*04/26/2023*

[a] Anticipated dates are italicized.

1 There are no longer Phases in the 2021 LTCP.

2 For Sewer Separation Projects, there are two Milestone Dates in both the permit and LTCP that must be met. This includes having one of the projects in a phase commence bidding and having all projects in the phase complete construction by the end date of the phase.

Table 2. 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	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**	*04/26/2023*

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

According to the information presented, the project may not meet the "Complete Construction" date in Table 1, but will meet the 2014 LTCP Milestone Date and 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:

- Bids were received on October 21, 2020. The project was awarded to Roloff Construction, and construction began on June 14, 2021.
- Construction is about 20% complete. Work along Evans Street between 67th Avenue and 69th Street and work along 69th Street between Pratt Street and Manderson Street has been completed.

Anticipated Project Activity for Next Period

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

- Roloff Construction will continue to construct the project, with the majority of it being completed by the end of 2022.

Costs

2021 LTCP Budgeted Construction Costs (February 2021)[3]: $7,801,666 with contingency (under construction).

Current Estimated Construction Cost: $7,358,403 is the construction contracted cost.

Other Items of Interest

There are no other items to report.

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. Construction on the CSO 203 project, September 2021

Figure 2. Construction on the CSO 203 project, July 2021

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Papillion Creek North 210-1 Separation
CSOP.02.05B.5G.01.01 PCN 210

2021 LTCP Project Name: Papillion Creek North (PCN) 210 Sewer Separation

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.

2014 LTCP Phase[1]: Phase 5 Sewer Separation Projects

2015 CSO Permit Requirement:

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

2014 LTCP Schedule[2]:

Bid Year: Commence bidding of one project by December 31, 2019

Complete construction of all projects by December 31, 2023

2021 LTCP Schedule: Complete construction of the project by December 31, 2022

[1] There are no longer Phases in the 2021 LTCP.

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Compliance Report

The 2014 LTCP Milestone Phase 5 Sewer Separation for one project to "Commence Bidding" was met by the bidding of Cole Creek CSO 202 Phase 1 Sewer Separation (OPW 53417) on November 28, 2018.

The project specific 2014 LTCP Milestone dates are shown in Table 1. Table 2 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-specific 2014 LTCP Milestone Schedule Dates

Activity	2014 LTCP Schedule Date	Actual or *Anticipated* Date[a]
Bidding	01/01/2022	10/14/2020
Complete Construction	06/30/2023	*07/07/2022*

[a] Anticipated dates are italicized.

Table 2. 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**	*07/7/2022*

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

According to the information presented, the project is on track to meet both the 2014 and 2021 LTCP Milestone dates.

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 was advertised for bid on October 14, 2020, and began construction on June 28, 2021. The project is currently 23% complete with work along North 62nd Street and North 63rd Street complete.

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 project will continue construction, which began in June 2021. The project will reach substantial completion on July 7, 2022.

[2] For Sewer Separation Projects, there are two Milestone Dates in both the permit and LTCP that must be met. This includes having one of the projects in a phase commence bidding and having all projects in the phase complete construction by the end date of the phase.

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Costs

2021 LTCP Budgeted Construction Cost (February 2021[3]): $7,658,376, with contingency (under construction).

Current Estimated Construction Cost: $7,150,454 is the construction contract cost.

Other Items of Interest

No other items.

Figure 1. PCN 210 Construction September 2021

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

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OM CSO 119 5A/5B South Barrel Conversion

CSOP.02.05.6C00 OM CSO 119 5A South Barrel Conversion
CSOP.02.05.6D00 OM CSO 119 5B South Barrel Conversion

2021 LTCP Project Name: CSO 119 South Barrel Conversion and Sewer Separation

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.

2014 LTCP Phase[1]: Phase 6 Sewer Separation Projects

2015 CSO Permit Requirement:

On or before December 31, 2021[2], the City of Omaha shall commence bidding on one of the Sewer Separation Projects in Phase 6.

1 There are no longer Phases for the 2021 LTCP.
2 Date was modified from June 30, 2020, to December 31, 2021, by a permit modification issued on November 1, 2019.

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2014 LTCP Schedule[3]:

Bid Year – Commence bidding of one project by December 31, 2021[4]

Complete construction of all projects by December 31, 2023

2021 LTCP Schedule: Complete construction of this project by June 30, 2026

Compliance Report

The 2014 LTCP Milestones for Phase 6 Sewer Separation for one project to "Commence Bidding" on one project by December 31, 2021 will not be met by this project.

The project specific 2014 LTCP Milestone dates are shown in Table 1. Table 2 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-specific 2014 LTCP Milestone Schedule Dates

Activity	2014 LTCP Schedule Date	Actual or Anticipated Date[b]
Bidding	06/30/2020	*04/05/2023*
Complete Construction	06/30/2023	*06/01/2026*

[a] On November 1, 2019, a permit modification was issued changing the date to 12/31/2021.
[b] Anticipated dates are italicized.

Table 2. 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	02/15/2021	06/12/2018
Began Final Design	10/26/2021	03/05/2021
Advertise	01/11/2023	*04/05/2023*
Bid Opening	02/15/2023	*05/17/2023*
Begin Construction	08/01/2023	*11/20/2023*
Substantial Completion	**06/30/2026**	*06/1/2026*

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

According to the information presented, the project may not meet the 2014 LTCP Milestone Date but will meet the 2021 LTCP Milestone Date.

[3] For Sewer Separation Projects, there are two Milestone Dates in both the permit and LTCP that must be met. This includes having one of the projects in a phase commence bidding and having all projects in the phase complete construction by the end date of the phase.

[4] Date was modified from June 30, 2020, to December 31, 2021, by a permit modification issued on November 1, 2019.

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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 developed a scope of work and schedule for the project from Preliminary through Final Design. The project team began Preliminary Design work, which included gathering survey field data and sewer connectivity information, and performing additional hydraulic modeling, and continued work to vet project alternatives.

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 project team will continue Preliminary and Final Design during the next reporting period.

Costs

2021 LTCP Budgeted Construction Costs: (February 2021[5]): $13,049,740 with contingency (anticipated construction 2023–2025).

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

Other Items of Interest

There are no items to report at this time.

[5] 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, 2020, THROUGH SEPTEMBER 30, 2021

Papillion Creek North 212-2, Sewer Separation
CSOP.02.05.5F00 5B5

2021 LTCP Project Name: CSO 212 – 64th Avenue and William Street

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.

2014 LTCP Phase[1]: Phase 5 Sewer Separation Projects

2015 CSO Permit Requirement:

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

2014 LTCP Schedule[2]:

Bid Year – Commence bidding of one project by December 31, 2019

Complete construction of all projects by December 31, 2023

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

Compliance Report

The 2014 LTCP Milestone Phase 5 Sewer Separation for one project to "Commence Bidding" was met by the bidding of Cole Creek CSO 202 Phase 1 Sewer Separation (OPW 53417) on November 28, 2018.

The project specific 2014 LTCP Milestone dates are shown in Table 1. Table 2 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-specific 2014 LTCP Milestone Schedule Dates

Activity	2014 LTCP Schedule Date	Actual or *Anticipated* Date[a]
Bidding	01/01/2022	*9/15/2022*
Complete Construction	12/31/2023	*11/01/2023*

[a] Anticipated dates are italicized.

[1] There are no longer Phases in the 2021 LTCP.

[2] For Sewer Separation Projects, there are two Milestone Dates in both the permit and LTCP that must be met. This includes having one of the projects in a phase commence bidding and having all projects in the phase complete construction by the end date of the phase.

Table 2. 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	03/01/2021	04/23/2021
Began Final Design	08/15/2021	*01/01/2022*
Advertise	09/15/2022	*09/15/2022*
Bid Opening	10/15/2022	*10/15/2022*
Begin Construction	06/01/2023	*03/01/2023*
Substantial Completion	**06/30/2025**	*011/1/2023*

[a] 2021 Milestone Date is in bold.
[b] Anticipated dates are italicized.

According to the information presented, the project will meet the 2014 LTCP and 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 project team started preliminary design in April 2021.
- The 30% plans and Basis of Design Report are under development, with submission to the City expected early in the next Annual Report year. Coordination with utilities that may be affected by the project is underway.
- Evaluation of sewer system areas for potential rehabilitation and inclusion in the project is underway.
- Geotechnical report developed and submitted to the City.

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 project team will be finalizing the project design. Final plans and specifications will be submitted in July 2022, with bidding commencing in fall 2022.

Costs

2021 LTCP Update Budgeted Construction Costs (February 2021[3]): $6,930,000 with contingency (anticipated construction years: 2023–2024)

Current Estimated Construction Cost: $5,661,885 with contingency based on 30% opinion of probable construction cost (OPCC) (anticipated construction years: 2023).

Other Items of Interest

There are no other items to report.

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

ANNUAL PROJECT PROGRESS REPORT-
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Cole Creek (CSO 204) Phase 4
CSOP.02.07.7B00 4E

2021 LTCP Project Name: CSO 204 Phase 4a – 57th Street and Pratt Street

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

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 conducted 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.

2014 LTCP Phase[1]: Phase 7 Sewer Separation Projects

2015 CSO Permit Requirement:

On or before June 30, 2022, the City of Omaha shall commence bidding on one of the Sewer Separation Projects in Phase 7.

2014 LTCP Schedule[2]:

Bid Year – Commence bidding of one project by June 30, 2022

Complete construction of all projects by September 30, 2027

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

This 2014 LTCP Milestone Phase 7 Sewer Separation for commencing bids on one project by June 30, 2022, was anticipated to be met by this project.

In the 2014 LTCP Update, the CSO 204 Phase 4 project was a single project. The project specific 2014 LTCP Milestone dates are shown in Table 1. Table 2 and Table 3 show the

[1] There are no longer Phases in the 2021 LTCP.

[2] For Sewer Separation Projects, there are two Milestone Dates in both the permit and LTCP that must be met. This includes having one of the projects in a phase commence bidding and having all projects in the phase complete construction by the end date of the phase.

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 will be included in the next permit.

Table 1. Project-specific 2014 LTCP Milestone Schedule Dates

Activity	2014 LTCP Schedule Date	Actual or *Anticipated* Date[a]
Bidding	07/01/2023	*11/19/2025*
Complete Construction	06/30/2025	*12/31/2032*

[a] Anticipated dates are italicized.

Table 2. 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	*04/21/2023*
Advertise	10/15/2025	*10/15/2025*
Bid Opening	11/19/2025	*11/19/2025*
Begin Construction	9/01/2026	*09/01/2026*
Substantial Completion	**6/30/2030**	*6/30/2030*

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

Table 3. 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	04/21/2023
Advertise	10/18/2028	*10/15/2028*
Bid Opening	11/18/2028	*11/22/2028*
Begin Construction	6/01/2029	*06/06/2029*
Substantial Completion	**12/31/2032**	*12/31/2032*

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

According to the information presented, the project may not meet the 2014 LTCP Milestone Date but will meet the 2021 LTCP Milestone Date.

Project Activities and Progress as of September 30, 2020

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 is working on a 10% design.
- The public kickoff presentation outreach recording and email template for coordination with neighborhood associations has been completed.
- Boundary conditions have been established. Project team finalized Hydrology and Hydraulic Technical Memorandum completed.

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 following field work is anticipated to take place: maintenance hole and inlet inspections, smoke testing, and closed-circuit television inspection. The 10% design is expected to be completed in February 2022.

Costs

2021 LTCP Update Budgeted Construction Costs (February 2021[3]): 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: $24,284.377 with contingency; CSO 204 Phase 4a (anticipated construction years: 2026–2029), $26,203,656 with contingency; CSO 204 Phase 4b (anticipated construction years: 2029–2031). Project team has not yet provided an opinion of probable construction cost.

Other Items of Interest

There are no other items to report.

[3] 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:** 28

CSO Name Minne Lusa Avenue

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/12/2020	9:35	Mata, Terence	Rain	Yes	No	10/11/2020		0.43
10/19/2020	11:30	Mata, Terence	Rain	Yes	No	10/18/2020		0.23
11/11/2020	11:05	Mata, Terence	Rain	Yes	No	11/10/2020		1.06
12/28/2020	10:15	Frolio, Brandon	Snow Melt	Yes	No	12/27/2020		0.004
3/15/2021	11:40	Woods, Patrick	Rain	Yes	No	3/14/2021		3
3/24/2021	10:20	Mata, Terence	Rain	Yes	No	3/23/2021		1
4/7/2021	9:20	Mata, Terence	Rain	Yes	No	4/6/2021		0.1
4/9/2021	10:50	Fagerquist, Dylan	Rain	Yes	No	4/8/2021	0	0.8
5/3/2021	10:40	Mata, Terence	Rain	Yes	No	5/2/2021	Device needs to be repaired/replaced.	0.21
5/17/2021	11:05	Mata, Terence	Rain	Yes	No	5/16/2021		0.28
5/20/2021	11:05	Mata, Terence	Rain	Yes	No	5/19/2021		0.6
5/24/2021	12:45	Mata, Terence	Rain	Yes	No	5/23/2021		0.2
5/27/2021	11:34	Fagerquist, Dylan	Rain	Yes	No	5/27/2021		1.3
6/12/2021	9:15	Fagerquist, Dylan	Rain	Yes	No	6/11/2021		1.99
6/21/2021	11:45	Mata, Terence	Rain	Yes	No	6/20/2021		0.5
6/24/2021	10:20	Mata, Terence	Rain	Yes	No	6/24/2021		1.3
6/27/2021	8:35	Fagerquist, Dylan	Rain	Yes	No	6/25/2021		1.07
6/29/2021	9:15	Mata, Terence	Rain	Yes	No	6/28/2021		0.09
6/30/2021	9:25	Mata, Terence	Rain	Yes	No	6/29/2021		0.6
7/8/2021	9:15	Wickham, Grant	Rain	Yes	No	7/7/2021		0.7
7/12/2021	10:00	Mata, Terence	Rain	Yes	No	7/10/2021	Checks were after a 2 day storm event. 7/10/2021-7/11/2021	0.25
7/15/2021	10:45	Mata, Terence	Rain	Yes	No	7/15/2021		0.35
7/30/2021	13:00	Mata, Terence	Rain	Yes	No	7/30/2021		1.5

CSO Inspection Report

CSO Number 105 **Total Wet Weather Overflows:** 28

CSO Name Minne Lusa Avenue

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
8/1/2021	8:35	Mata, Terence	Rain	Yes	No	7/31/2021		1.5
8/9/2021	8:09	Woods, Patrick	Rain	Yes	No	8/7/2021		4.47
8/31/2021	14:20	Mata, Terence	Rain	Yes	No	8/31/2021		3.4
9/3/2021	9:15	Mata, Terence	Rain	Yes	No	9/3/2021		0.82
9/30/2021	9:35	Adams, Robert	Rain	Yes	No	9/30/2021		1.38

CSO Inspection Report

CSO Number 106 **Total Wet Weather Overflows:** 33

CSO Name North Interceptor

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/12/2020	9:45	Mata, Terence	Rain	Yes	No	10/11/2020		0.43
11/11/2020	11:20	Mata, Terence	Rain	Yes	No	11/10/2020		1.06
11/25/2020	9:50	Frolio, Brandon	Rain	Yes	No	11/24/2020		0.3
2/24/2021	11:30	Mata, Terence	Snow Melt	Yes	No	2/23/2021		0
3/15/2021	12:20	Woods, Patrick	Rain	Yes	Yes	3/14/2021	2 yr rain event. Record 24 hr March rain event	3
3/24/2021	10:40	Mata, Terence	Rain	Yes	Yes	3/23/2021		1
4/9/2021	11:00	Fagerquist, Dylan	Rain	Yes	No	4/8/2021	0	0.8
5/3/2021	10:55	Mata, Terence	Rain	Yes	No	5/2/2021		0.21
5/10/2021	11:05	Mata, Terence	Rain	Yes	No	5/8/2021	Two day rain event.	0.74
5/15/2021	9:35	Mata, Terence	Rain	Yes	No	5/14/2021		0.11
5/17/2021	11:35	Mata, Terence	Rain	Yes	No	5/16/2021		0.28
5/20/2021	11:35	Mata, Terence	Rain	Yes	No	5/19/2021		0.6
5/21/2021	11:05	Mata, Terence	Rain	Yes	No	5/20/2021		0.32
5/24/2021	13:15	Mata, Terence	Rain	Yes	Yes	5/23/2021		0.2
5/27/2021	11:51	Fagerquist, Dylan	Rain	Yes	No	5/27/2021		1.3
6/12/2021	9:30	Fagerquist, Dylan	Rain	Yes	No	6/11/2021		1.99
6/21/2021	12:05	Mata, Terence	Rain	Yes	No	6/20/2021		0.5
6/24/2021	10:40	Mata, Terence	Rain	Yes	Yes	6/24/2021	Crew returned around 1235 and overflowing had stopped.	1.3
6/27/2021	8:50	Fagerquist, Dylan	Rain	Yes	No	6/25/2021		1.07
6/29/2021	9:40	Mata, Terence	Rain	Yes	No	6/28/2021		0.09
6/30/2021	9:45	Mata, Terence	Rain	Yes	No	6/29/2021		0.6
7/8/2021	9:25	Wickham, Grant	Rain	Yes	Yes	7/7/2021		0.7
7/12/2021	10:35	Mata, Terence	Rain	Yes	No	7/10/2021	Checks were after a 2 day storm event. 7/10/2021-7/11/2021	0.25

CSO Inspection Report

CSO Number 106 **Total Wet Weather Overflows:** 33

CSO Name North Interceptor

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
7/15/2021	11:00	Mata, Terence	Rain	Yes	No	7/15/2021		0.35
7/30/2021	13:10	Mata, Terence	Rain	Yes	Yes	7/30/2021	Crew returned to site and waited out overflow until 1630 when device was able to be reset.	1.5
8/1/2021	8:50	Mata, Terence	Rain	Yes	No	7/31/2021		1.5
8/9/2021	8:09	Woods, Patrick	Rain	Yes	Yes	8/7/2021		4.47
8/21/2021	8:35	Mata, Terence	Rain	Yes	No	8/20/2021		0.6
8/30/2021	10:30	Mata, Terence	Rain	Yes	No	8/29/2021		0.8
8/31/2021	14:35	Mata, Terence	Rain	Yes	Yes	8/31/2021	Crew came back at 1650 and reset CSO device.	3.4
9/3/2021	9:30	Mata, Terence	Rain	Yes	No	9/3/2021		0.82
9/21/2021	10:50	Mata, Terence	Rain	Yes	No	9/20/2021		0.1
9/30/2021	12:45	Adams, Robert	Rain	Yes	No	9/30/2021		1.38

CSO Inspection Report

CSO Number 107 **Total Wet Weather Overflows:** 31

CSO Name Grace Street

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/12/2020	9:50	Mata, Terence	Rain	Yes	No	10/11/2020		0.43
10/19/2020	11:50	Mata, Terence	Rain	Yes	No	10/18/2020		0.23
11/11/2020	11:25	Mata, Terence	Rain	Yes	No	11/10/2020		1.06
11/25/2020	10:00	Frolio, Brandon	Rain	Yes	No	11/24/2020		0.3
3/15/2021	12:00	Woods, Patrick	Rain	Yes	No	3/14/2021	Device stuck needed to be replaced	3
3/24/2021	10:30	Mata, Terence	Rain	Yes	No	3/23/2021	CSO device stuck in gate, needs repair.	1
4/9/2021	11:10	Fagerquist, Dylan	Rain	Yes	No	4/8/2021	Device stuck in gate.	0.8
5/3/2021	10:50	Mata, Terence	Rain	Yes	No	5/2/2021		0.21
5/10/2021	11:00	Mata, Terence	Rain	Yes	No	5/8/2021	Two day rain event.	0.74
5/15/2021	9:30	Mata, Terence	Rain	Yes	No	5/14/2021		0.11
5/17/2021	11:30	Mata, Terence	Rain	Yes	No	5/16/2021		0.28
5/20/2021	11:30	Mata, Terence	Rain	Yes	No	5/19/2021		0.6
5/21/2021	11:00	Mata, Terence	Rain	Yes	No	5/20/2021		0.32
5/27/2021	12:03	Fagerquist, Dylan	Rain	Yes	No	5/27/2021		1.3
6/12/2021	9:25	Fagerquist, Dylan	Rain	Yes	No	6/11/2021		1.99
6/29/2021	9:35	Mata, Terence	Rain	Yes	No	6/28/2021		0.09
6/30/2021	9:35	Mata, Terence	Rain	Yes	No	6/29/2021		0.6
7/8/2021	9:20	Wickham, Grant	Rain	Yes	No	7/7/2021		0.7
7/12/2021	10:30	Mata, Terence	Rain	Yes	No	7/10/2021	Checks were after a 2 day storm event. 7/10/2021-7/11/2021	0.25
7/15/2021	11:05	Mata, Terence	Rain	Yes	No	7/15/2021		0.35
7/19/2021	9:35	Mata, Terence	Rain	Yes	No	7/17/2021		0.4
7/30/2021	13:20	Mata, Terence	Rain	Yes	No	7/30/2021		1.5
8/1/2021	8:45	Mata, Terence	Rain	Yes	No	7/31/2021		1.5

CSO Inspection Report

CSO Number 107 **Total Wet Weather Overflows:** 31

CSO Name Grace Street

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
8/9/2021	8:09	Woods, Patrick	Rain	Yes	No	8/7/2021		4.47
8/21/2021	8:30	Mata, Terence	Rain	Yes	No	8/20/2021		0.6
8/25/2021	9:45	Mata, Terence	Rain	Yes	No	8/25/2021		1.5
8/30/2021	10:25	Mata, Terence	Rain	Yes	No	8/29/2021		0.8
8/31/2021	14:30	Mata, Terence	Rain	Yes	No	8/31/2021		3.4
9/3/2021	9:25	Mata, Terence	Rain	Yes	No	9/3/2021		0.82
9/21/2021	10:45	Mata, Terence	Rain	Yes	No	9/20/2021		0.1
9/30/2021	12:50	Adams, Robert	Rain	Yes	No	9/30/2021		1.38

CSO Inspection Report

CSO Number 108 **Total Wet Weather Overflows:** 25

CSO Name Burt Izard Street Lift Station

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/12/2020	10:10	Mata, Terence	Rain	Yes	No	10/11/2020		0.43
10/19/2020	12:05	Mata, Terence	Rain	Yes	No	10/18/2020		0.23
11/11/2020	11:45	Mata, Terence	Rain	Yes	No	11/10/2020	Device broke in MH 3001001 Diversion Structure, needs repair.	1.06
12/14/2020	13:45	Mata, Terence	Rain	Yes	No	12/11/2020	Rain event happened on 12/11/2020, and snow melt happened the following two days.	0.44
12/19/2020	12:10	Mata, Terence	Snow Melt	Yes	No	12/18/2020		0
3/15/2021	12:40	Woods, Patrick	Rain	Yes	Yes	3/14/2021	2 yr rain event. Record 24 hr March rain event	3
3/24/2021	11:00	Mata, Terence	Rain	Yes	No	3/23/2021	CSO device stuck in gate, needs repair.	1
4/7/2021	9:55	Mata, Terence	Rain	Yes	No	4/6/2021		0.1
4/9/2021	11:30	Fagerquist, Dylan	Rain	Yes	No	4/8/2021	Device stuck in gate.	0.8
5/15/2021	9:50	Mata, Terence	Rain	Yes	No	5/14/2021		0.11
5/20/2021	11:50	Mata, Terence	Rain	Yes	No	5/19/2021		0.6
5/24/2021	13:30	Mata, Terence	Rain	Yes	No	5/23/2021		0.2
5/27/2021	12:19	Fagerquist, Dylan	Rain	Yes	No	5/27/2021		1.3
6/24/2021	10:50	Mata, Terence	Rain	Yes	No	6/24/2021		1.3
6/30/2021	9:50	Mata, Terence	Rain	Yes	No	6/29/2021		0.6
7/8/2021	7:50	Wickham, Grant	Rain	Yes	No	7/7/2021		0.7
7/8/2021	9:35	Wickham, Grant	Rain	Yes	No	7/7/2021		0.7
7/12/2021	10:45	Mata, Terence	Rain	Yes	No	7/10/2021	Checks were after a 2 day storm event. 7/10/2021-7/11/2021	0.25
7/15/2021	11:15	Mata, Terence	Rain	Yes	No	7/15/2021		0.35
7/30/2021	13:40	Mata, Terence	Rain	Yes	No	7/30/2021		1.5
8/9/2021	8:10	Woods, Patrick	Rain	Yes	Yes	8/7/2021		4.47
8/25/2021	10:00	Mata, Terence	Rain	Yes	No	8/25/2021		1.5
8/31/2021	14:55	Mata, Terence	Rain	Yes	No	8/31/2021		3.4

CSO Inspection Report

CSO Number 108 **Total Wet Weather Overflows:** 25

CSO Name Burt Izard Street Lift Station

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
9/3/2021	9:40	Mata, Terence	Rain	Yes	No	9/3/2021		0.82
9/30/2021	13:10	Adams, Robert	Rain	Yes	No	9/30/2021		1.38

CSO Inspection Report

CSO Number 109 **Total Wet Weather Overflows:** 33

CSO Name 1st and Leavenworth Lift Station

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
11/11/2020	7:45	Mata, Terence	Rain	Yes	No	11/10/2020	TREKK emailed confirming overflow.	1.06
3/15/2021	13:05	Woods, Patrick	Rain	Yes	No	3/14/2021		3
3/24/2021	11:30	Mata, Terence	Rain	Yes	No	3/23/2021	From TREKK notification.	1
4/7/2021	10:15	Mata, Terence	Rain	Yes	No	4/6/2021		0.1
4/9/2021	12:00	Fagerquist, Dylan	Rain	Yes	No	4/8/2021	0	0.8
5/3/2021	12:00	Mata, Terence	Rain	Yes	No	5/2/2021		0.21
5/10/2021	13:00	Mata, Terence	Rain	Yes	No	5/8/2021	Two day rain event.	0.74
5/15/2021	7:35	Mata, Terence	Rain	Yes	No	5/14/2021		0.11
5/17/2021	9:35	Mata, Terence	Rain	Yes	No	5/16/2021		0.28
5/20/2021	9:35	Mata, Terence	Rain	Yes	No	5/19/2021		0.6
5/21/2021	9:05	Mata, Terence	Rain	Yes	No	5/20/2021		0.32
5/24/2021	11:20	Mata, Terence	Rain	Yes	No	5/23/2021		0.2
5/27/2021	10:16	Fagerquist, Dylan	Rain	Yes	No	5/27/2021		1.3
6/12/2021	7:20	Fagerquist, Dylan	Rain	Yes	No	6/11/2021		1.99
6/21/2021	12:45	Mata, Terence	Rain	Yes	No	6/20/2021		0.5
6/24/2021	9:05	Mata, Terence	Rain	Yes	No	6/24/2021		1.3
6/25/2021	8:05	Mata, Terence	Rain	Yes	No	6/24/2021		1.3
6/27/2021	6:30	Fagerquist, Dylan	Rain	Yes	No	6/25/2021	SCADA email	1.07
6/29/2021	7:55	Mata, Terence	Rain	Yes	No	6/28/2021		0.09
6/30/2021	8:00	Mata, Terence	Rain	Yes	No	6/29/2021		0.6
7/12/2021	8:25	Mata, Terence	Rain	Yes	No	7/10/2021	Checks were after a 2 day storm event. 7/10/2021-7/11/2021	0.25
7/15/2021	9:20	Mata, Terence	Rain	Yes	No	7/15/2021		0.35
7/19/2021	7:20	Mata, Terence	Rain	Yes	No	7/17/2021		0.4

CSO Inspection Report

CSO Number 109 **Total Wet Weather Overflows:** 33

CSO Name 1st and Leavenworth Lift Station

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
7/30/2021	9:40	Mata, Terence	Rain	Yes	No	7/30/2021		1.5
8/1/2021	7:15	Mata, Terence	Rain	Yes	No	7/31/2021		1.5
8/9/2021	8:11	Woods, Patrick	Rain	Yes	No	8/7/2021		4.47
8/21/2021	10:20	Mata, Terence	Rain	Yes	No	8/20/2021		0.6
8/25/2021	12:00	Mata, Terence	Rain	Yes	No	8/25/2021		1.5
8/30/2021	9:05	Mata, Terence	Rain	Yes	No	8/29/2021		0.8
8/31/2021	12:05	Mata, Terence	Rain	Yes	No	8/31/2021		3.4
9/3/2021	8:20	Mata, Terence	Rain	Yes	No	9/3/2021		0.82
9/21/2021	7:10	Mata, Terence	Rain	Yes	No	9/20/2021		0.1
9/30/2021	15:25	Adams, Robert	Rain	Yes	No	9/30/2021		1.38

CSO Inspection Report

CSO Number 110 **Total Wet Weather Overflows:** 31

CSO Name Pierce Street Lift Station

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/12/2020	11:10	Mata, Terence	Rain	Yes	No	10/11/2020		0.43
11/11/2020	12:00	Mata, Terence	Rain	Yes	No	11/10/2020		1.06
11/25/2020	11:00	Frolio, Brandon	Rain	Yes	No	11/24/2020		0.3
3/15/2021	13:10	Woods, Patrick	Rain	Yes	No	3/14/2021		3
3/24/2021	11:40	Mata, Terence	Rain	Yes	No	3/23/2021		1
4/7/2021	10:25	Mata, Terence	Rain	Yes	No	4/6/2021		0.1
4/9/2021	12:30	Fagerquist, Dylan	Rain	Yes	No	4/8/2021	0	0.8
5/3/2021	12:05	Mata, Terence	Rain	Yes	No	5/2/2021		0.21
5/10/2021	11:30	Mata, Terence	Rain	Yes	No	5/8/2021	Two day rain event.	0.74
5/17/2021	12:00	Mata, Terence	Rain	Yes	No	5/16/2021		0.28
5/20/2021	12:00	Mata, Terence	Rain	Yes	No	5/19/2021		0.6
5/21/2021	11:30	Mata, Terence	Rain	Yes	No	5/20/2021		0.32
5/24/2021	13:45	Mata, Terence	Rain	Yes	No	5/23/2021		0.2
5/27/2021	12:47	Fagerquist, Dylan	Rain	Yes	No	5/27/2021		1.3
6/12/2021	9:55	Fagerquist, Dylan	Rain	Yes	No	6/11/2021		1.99
6/21/2021	12:50	Mata, Terence	Rain	Yes	No	6/20/2021		0.5
6/24/2021	11:20	Mata, Terence	Rain	Yes	No	6/24/2021		1.3
6/27/2021	10:00	Fagerquist, Dylan	Rain	Yes	No	6/25/2021		1.07
7/8/2021	9:55	Wickham, Grant	Rain	Yes	No	7/7/2021		0.7
7/12/2021	11:20	Mata, Terence	Rain	Yes	No	7/10/2021	Checks were after a 2 day storm event. 7/10/2021-7/11/2021	0.25
7/15/2021	11:50	Mata, Terence	Rain	Yes	No	7/15/2021		0.35
7/30/2021	13:50	Mata, Terence	Rain	Yes	No	7/30/2021		1.5
8/1/2021	9:10	Mata, Terence	Rain	Yes	No	7/31/2021		1.5

CSO Inspection Report

CSO Number 110 **Total Wet Weather Overflows:** 31

CSO Name Pierce Street Lift Station

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
8/9/2021	8:11	Woods, Patrick	Rain	Yes	No	8/7/2021		4.47
8/21/2021	9:00	Mata, Terence	Rain	Yes	No	8/20/2021		0.6
8/25/2021	10:30	Mata, Terence	Rain	Yes	No	8/25/2021		1.5
8/30/2021	10:55	Mata, Terence	Rain	Yes	No	8/29/2021		0.8
8/31/2021	15:20	Mata, Terence	Rain	Yes	No	8/31/2021		3.4
9/3/2021	10:00	Mata, Terence	Rain	Yes	No	9/3/2021		0.82
9/21/2021	11:20	Mata, Terence	Rain	Yes	No	9/20/2021		0.1
9/30/2021	13:30	Adams, Robert	Rain	Yes	No	9/30/2021		1.38

CSO Inspection Report

CSO Number 111 **Total Wet Weather Overflows:** 23

CSO Name Hickory Street Lift Station

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/12/2020	10:50	Mata, Terence	Rain	Yes	No	10/11/2020		0.43
12/28/2020	11:40	Frolio, Brandon	Snow Melt	Yes	No	12/27/2020		0.004
3/15/2021	13:20	Woods, Patrick	Rain	Yes	No	3/14/2021		3
3/24/2021	12:15	Mata, Terence	Rain	Yes	No	3/23/2021		1
4/9/2021	12:45	Fagerquist, Dylan	Rain	Yes	No	4/8/2021	0	0.8
5/10/2021	11:50	Mata, Terence	Rain	Yes	No	5/8/2021	Two day rain event.	0.74
5/17/2021	12:20	Mata, Terence	Rain	Yes	No	5/16/2021		0.28
5/20/2021	12:20	Mata, Terence	Rain	Yes	No	5/19/2021		0.6
5/21/2021	11:50	Mata, Terence	Rain	Yes	No	5/20/2021		0.32
5/24/2021	13:55	Mata, Terence	Rain	Yes	No	5/23/2021		0.2
5/27/2021	12:55	Fagerquist, Dylan	Rain	Yes	No	5/27/2021		1.3
6/12/2021	10:05	Fagerquist, Dylan	Rain	Yes	No	6/11/2021		1.99
6/21/2021	13:00	Mata, Terence	Rain	Yes	No	6/20/2021		0.5
6/27/2021	10:20	Fagerquist, Dylan	Rain	Yes	No	6/25/2021		1.07
7/8/2021	10:15	Wickham, Grant	Rain	Yes	No	7/7/2021		0.7
7/12/2021	11:35	Mata, Terence	Rain	Yes	No	7/10/2021	Checks were after a 2 day storm event. 7/10/2021-7/11/2021	0.25
7/15/2021	12:00	Mata, Terence	Rain	Yes	No	7/15/2021		0.35
7/30/2021	14:05	Mata, Terence	Rain	Yes	No	7/30/2021		1.5
8/1/2021	9:25	Mata, Terence	Rain	Yes	No	7/31/2021		1.5
8/9/2021	8:12	Woods, Patrick	Rain	Yes	No	8/7/2021		4.47
8/31/2021	15:30	Mata, Terence	Rain	Yes	No	8/31/2021		3.4
9/3/2021	10:15	Mata, Terence	Rain	Yes	No	9/3/2021		0.82
9/30/2021	13:40	Adams, Robert	Rain	Yes	No	9/30/2021		1.38

CSO Inspection Report

CSO Number 112 **Total Wet Weather Overflows:** 31

CSO Name Martha Street

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/12/2020	10:40	Mata, Terence	Rain	Yes	No	10/11/2020		0.43
11/11/2020	12:10	Mata, Terence	Rain	Yes	No	11/10/2020	Needs to be cleaned, lots of debris/leaves restricting flow.	1.06
2/24/2021	12:40	Mata, Terence	Snow Melt	Yes	No	2/23/2021		0
3/15/2021	13:15	Woods, Patrick	Rain	Yes	No	3/14/2021		3
3/24/2021	12:00	Mata, Terence	Rain	Yes	No	3/23/2021		1
4/7/2021	10:30	Mata, Terence	Rain	Yes	No	4/6/2021		0.1
4/9/2021	12:10	Fagerquist, Dylan	Rain	Yes	No	4/8/2021	0	0.8
5/3/2021	12:25	Mata, Terence	Rain	Yes	No	5/2/2021		0.21
5/3/2021	12:15	Mata, Terence	Rain	Yes	No	5/2/2021		0.21
5/10/2021	11:40	Mata, Terence	Rain	Yes	No	5/8/2021	Two day rain event.	0.74
5/17/2021	12:10	Mata, Terence	Rain	Yes	No	5/16/2021		0.28
5/21/2021	11:40	Mata, Terence	Rain	Yes	No	5/20/2021		0.32
5/27/2021	12:57	Fagerquist, Dylan	Rain	Yes	No	5/27/2021		1.3
6/12/2021	10:00	Fagerquist, Dylan	Rain	Yes	No	6/11/2021		1.99
6/21/2021	12:55	Mata, Terence	Rain	Yes	No	6/20/2021		0.5
6/24/2021	11:25	Mata, Terence	Rain	Yes	No	6/24/2021		1.3
6/25/2021	10:25	Mata, Terence	Rain	Yes	No	6/24/2021		1.3
6/27/2021	10:10	Fagerquist, Dylan	Rain	Yes	No	6/25/2021		1.07
6/30/2021	10:10	Mata, Terence	Rain	Yes	No	6/29/2021		0.6
7/8/2021	10:05	Wickham, Grant	Rain	Yes	No	7/7/2021		0.7
7/12/2021	11:30	Mata, Terence	Rain	Yes	No	7/10/2021	Checks were after a 2 day storm event. 7/10/2021-7/11/2021	0.25
7/15/2021	11:55	Mata, Terence	Rain	Yes	No	7/15/2021		0.35
8/1/2021	9:20	Mata, Terence	Rain	Yes	No	7/31/2021		1.5

CSO Inspection Report

CSO Number 112 **Total Wet Weather Overflows:** 31

CSO Name Martha Street

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
8/9/2021	8:12	Woods, Patrick	Rain	Yes	No	8/7/2021		4.47
8/21/2021	9:05	Mata, Terence	Rain	Yes	No	8/20/2021		0.6
8/25/2021	10:40	Mata, Terence	Rain	Yes	No	8/25/2021		1.5
8/30/2021	11:00	Mata, Terence	Rain	Yes	No	8/29/2021		0.8
8/31/2021	15:25	Mata, Terence	Rain	Yes	No	8/31/2021		3.4
9/3/2021	10:10	Mata, Terence	Rain	Yes	No	9/3/2021		0.82
9/21/2021	11:30	Mata, Terence	Rain	Yes	No	9/20/2021		0.1
9/30/2021	13:35	Adams, Robert	Rain	Yes	No	9/30/2021		1.38

CSO Inspection Report

CSO Number 114 **Total Wet Weather Overflows:** 28

CSO Name Grover Street

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/19/2020	12:40	Mata, Terence	Rain	Yes	No	10/18/2020		0.23
11/11/2020	12:30	Mata, Terence	Rain	Yes	No	11/10/2020		1.06
3/15/2021	13:25	Woods, Patrick	Rain	Yes	No	3/14/2021		3
3/24/2021	12:25	Mata, Terence	Rain	Yes	No	3/23/2021		1
4/9/2021	12:55	Fagerquist, Dylan	Rain	Yes	No	4/8/2021	0	0.8
5/3/2021	12:35	Mata, Terence	Rain	Yes	No	5/2/2021		0.21
5/10/2021	12:00	Mata, Terence	Rain	Yes	No	5/8/2021	Two day rain event.	0.74
5/15/2021	10:45	Mata, Terence	Rain	Yes	No	5/14/2021		0.11
5/17/2021	12:30	Mata, Terence	Rain	Yes	No	5/16/2021		0.28
5/20/2021	12:30	Mata, Terence	Rain	Yes	No	5/19/2021		0.6
5/21/2021	12:00	Mata, Terence	Rain	Yes	No	5/20/2021		0.32
5/24/2021	14:05	Mata, Terence	Rain	Yes	No	5/23/2021		0.2
5/27/2021	13:05	Fagerquist, Dylan	Rain	Yes	No	5/27/2021		1.3
6/12/2021	10:15	Fagerquist, Dylan	Rain	Yes	No	6/11/2021		1.99
6/21/2021	13:10	Mata, Terence	Rain	Yes	No	6/20/2021		0.5
6/24/2021	11:35	Mata, Terence	Rain	Yes	No	6/24/2021		1.3
6/25/2021	10:40	Mata, Terence	Rain	Yes	No	6/24/2021		1.3
6/27/2021	10:30	Fagerquist, Dylan	Rain	Yes	No	6/25/2021		1.07
7/8/2021	10:20	Wickham, Grant	Rain	Yes	No	7/7/2021		0.7
7/12/2021	11:40	Mata, Terence	Rain	Yes	No	7/10/2021	Checks were after a 2 day storm event. 7/10/2021-7/11/2021	0.25
7/15/2021	12:05	Mata, Terence	Rain	Yes	No	7/15/2021		0.35
8/1/2021	9:30	Mata, Terence	Rain	Yes	No	7/31/2021		1.5
8/9/2021	8:13	Woods, Patrick	Rain	Yes	No	8/7/2021		4.47

CSO Inspection Report

CSO Number 114 **Total Wet Weather Overflows:** 28

CSO Name Grover Street

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
8/21/2021	9:20	Mata, Terence	Rain	Yes	No	8/20/2021		0.6
8/25/2021	10:50	Mata, Terence	Rain	Yes	No	8/25/2021		1.5
8/31/2021	15:35	Mata, Terence	Rain	Yes	No	8/31/2021		3.4
9/3/2021	10:20	Mata, Terence	Rain	Yes	No	9/3/2021		0.82
9/30/2021	13:45	Adams, Robert	Rain	Yes	No	9/30/2021		1.38

CSO Inspection Report

CSO Number 115 **Total Wet Weather Overflows:** 33

CSO Name Riverview Lift Station

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/12/2020	11:30	Mata, Terence	Rain	Yes	No	10/11/2020		0.43
10/19/2020	12:45	Mata, Terence	Rain	Yes	No	10/18/2020		0.23
11/11/2020	12:35	Mata, Terence	Rain	Yes	No	11/10/2020		1.06
3/15/2021	13:35	Woods, Patrick	Rain	Yes	No	3/14/2021		3
3/24/2021	12:35	Mata, Terence	Rain	Yes	No	3/23/2021		1
4/7/2021	10:50	Mata, Terence	Rain	Yes	No	4/6/2021		0.1
4/9/2021	13:05	Fagerquist, Dylan	Rain	Yes	No	4/8/2021	0	0.8
5/3/2021	12:50	Mata, Terence	Rain	Yes	No	5/2/2021		0.21
5/10/2021	12:05	Mata, Terence	Rain	Yes	No	5/8/2021	Two day rain event.	0.74
5/15/2021	10:40	Mata, Terence	Rain	Yes	No	5/14/2021		0.11
5/17/2021	12:35	Mata, Terence	Rain	Yes	No	5/16/2021		0.28
5/20/2021	12:35	Mata, Terence	Rain	Yes	No	5/19/2021		0.6
5/21/2021	12:05	Mata, Terence	Rain	Yes	No	5/20/2021		0.32
5/24/2021	14:10	Mata, Terence	Rain	Yes	No	5/23/2021		0.2
5/27/2021	13:15	Fagerquist, Dylan	Rain	Yes	No	5/27/2021		1.3
6/12/2021	10:20	Fagerquist, Dylan	Rain	Yes	No	6/11/2021		1.99
6/21/2021	13:15	Mata, Terence	Rain	Yes	No	6/20/2021		0.5
6/24/2021	11:40	Mata, Terence	Rain	Yes	No	6/24/2021		1.3
6/25/2021	10:45	Mata, Terence	Rain	Yes	No	6/24/2021		1.3
6/27/2021	10:35	Fagerquist, Dylan	Rain	Yes	No	6/25/2021		1.07
7/8/2021	10:25	Wickham, Grant	Rain	Yes	No	7/7/2021		0.7
7/12/2021	11:45	Mata, Terence	Rain	Yes	No	7/10/2021	Checks were after a 2 day storm event. 7/10/2021-7/11/2021	0.25
7/15/2021	12:10	Mata, Terence	Rain	Yes	No	7/15/2021		0.35

CSO Inspection Report

CSO Number 115 **Total Wet Weather Overflows:** 33

CSO Name Riverview Lift Station

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
7/19/2021	10:35	Mata, Terence	Rain	Yes	No	7/17/2021		0.4
8/1/2021	9:35	Mata, Terence	Rain	Yes	No	7/31/2021		1.5
8/9/2021	8:13	Woods, Patrick	Rain	Yes	No	8/7/2021		4.47
8/21/2021	9:25	Mata, Terence	Rain	Yes	No	8/20/2021		0.6
8/25/2021	10:55	Mata, Terence	Rain	Yes	No	8/25/2021		1.5
8/30/2021	11:15	Mata, Terence	Rain	Yes	No	8/29/2021		0.8
8/31/2021	15:40	Mata, Terence	Rain	Yes	No	8/31/2021		3.4
9/3/2021	10:25	Mata, Terence	Rain	Yes	No	9/3/2021	Device needs to be repaired.	0.82
9/21/2021	11:45	Mata, Terence	Rain	Yes	No	9/20/2021		0.1
9/30/2021	13:50	Adams, Robert	Rain	Yes	No	9/30/2021		1.38

CSO Inspection Report

CSO Number 117 **Total Wet Weather Overflows:** 19

CSO Name Missouri Avenue Lift Station

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/12/2020	11:40	Mata, Terence	Rain	Yes	No	10/11/2020		0.43
11/11/2020	12:40	Mata, Terence	Rain	Yes	No	11/10/2020		1.06
3/15/2021	13:45	Woods, Patrick	Rain	Yes	No	3/14/2021		3
3/24/2021	12:45	Mata, Terence	Rain	Yes	No	3/23/2021		1
4/7/2021	11:05	Mata, Terence	Rain	Yes	No	4/6/2021		0.1
4/9/2021	13:15	Fagerquist, Dylan	Rain	Yes	No	4/8/2021	0	0.8
5/10/2021	12:10	Mata, Terence	Rain	Yes	No	5/8/2021	Two day rain event.	0.74
5/15/2021	10:35	Mata, Terence	Rain	Yes	No	5/14/2021		0.11
5/17/2021	12:45	Mata, Terence	Rain	Yes	No	5/16/2021		0.28
5/20/2021	12:45	Mata, Terence	Rain	Yes	No	5/19/2021		0.6
5/21/2021	12:10	Mata, Terence	Rain	Yes	No	5/20/2021		0.32
5/24/2021	14:15	Mata, Terence	Rain	Yes	No	5/23/2021		0.2
5/27/2021	13:30	Fagerquist, Dylan	Rain	Yes	No	5/27/2021		1.3
6/12/2021	10:30	Fagerquist, Dylan	Rain	Yes	No	6/11/2021		1.99
6/21/2021	13:25	Mata, Terence	Rain	Yes	No	6/20/2021		0.5
6/24/2021	11:45	Mata, Terence	Rain	Yes	No	6/24/2021		1.3
6/25/2021	10:50	Mata, Terence	Rain	Yes	No	6/24/2021		1.3
6/27/2021	10:45	Fagerquist, Dylan	Rain	Yes	No	6/25/2021		1.07
7/8/2021	10:30	Wickham, Grant	Rain	Yes	No	7/7/2021		0.7

CSO Inspection Report

CSO Number 118 **Total Wet Weather Overflows:** 34

CSO Name South Omaha (Ohern Street)

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/12/2020	11:50	Mata, Terence	Rain	Yes	No	10/11/2020		0.43
11/11/2020	12:50	Mata, Terence	Rain	Yes	No	11/10/2020	Device broke in MH 0548041 Diversion structure, needs repair.	1.06
12/14/2020	15:20	Mata, Terence	Rain	Yes	No	12/11/2020	Rain event happened on 12/11/2020, and snow melt happened the following two days.	0.44
2/24/2021	14:10	Mata, Terence	Snow Melt	Yes	No	2/23/2021		0
3/15/2021	14:10	Woods, Patrick	Rain	Yes	Yes	3/14/2021		3
3/24/2021	13:10	Mata, Terence	Rain	Yes	No	3/23/2021		1
4/7/2021	11:20	Mata, Terence	Rain	Yes	No	4/6/2021		0.1
4/9/2021	13:40	Fagerquist, Dylan	Rain	Yes	No	4/8/2021		0.8
5/3/2021	13:10	Mata, Terence	Rain	Yes	Yes	5/2/2021		0.21
5/10/2021	12:25	Mata, Terence	Rain	Yes	No	5/8/2021	Two day rain event.	0.74
5/15/2021	11:15	Mata, Terence	Rain	Yes	No	5/14/2021		0.11
5/17/2021	13:00	Mata, Terence	Rain	Yes	No	5/16/2021		0.28
5/21/2021	12:25	Mata, Terence	Rain	Yes	No	5/20/2021		0.32
5/24/2021	14:30	Mata, Terence	Rain	Yes	No	5/23/2021		0.2
5/27/2021	13:44	Fagerquist, Dylan	Rain	Yes	No	5/27/2021		1.3
6/12/2021	10:50	Fagerquist, Dylan	Rain	Yes	No	6/11/2021		1.99
6/21/2021	13:40	Mata, Terence	Rain	Yes	No	6/20/2021		0.5
6/24/2021	11:55	Mata, Terence	Rain	Yes	No	6/24/2021		1.3
6/25/2021	11:00	Mata, Terence	Rain	Yes	No	6/24/2021		1.3
6/27/2021	11:05	Fagerquist, Dylan	Rain	Yes	No	6/25/2021		1.07
6/30/2021	10:35	Mata, Terence	Rain	Yes	No	6/29/2021		0.6
7/8/2021	2:30	Wickham, Grant	Rain	Yes	No	7/7/2021		0.7
7/12/2021	12:00	Mata, Terence	Rain	Yes	No	7/10/2021	Checks were after a 2 day storm event. 7/10/2021-7/11/2021	0.25

CSO Inspection Report

CSO Number 118 **Total Wet Weather Overflows:** 34

CSO Name South Omaha (Ohern Street)

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
7/15/2021	13:40	Mata, Terence	Rain	Yes	No	7/15/2021		0.35
7/19/2021	10:55	Mata, Terence	Rain	Yes	No	7/17/2021		0.4
8/1/2021	9:50	Mata, Terence	Rain	Yes	No	7/31/2021		1.5
8/9/2021	10:45	Woods, Patrick	Rain	Yes	No	8/7/2021		4.47
8/21/2021	9:40	Mata, Terence	Rain	Yes	No	8/20/2021		0.6
8/25/2021	11:15	Mata, Terence	Rain	Yes	No	8/25/2021		1.5
8/30/2021	11:30	Mata, Terence	Rain	Yes	No	8/29/2021		0.8
9/1/2021	7:25	Mata, Terence	Rain	Yes	No	8/31/2021	unable to check same day as others due to train parked on tracks. Per recommendation of upper management, return to site first thing next day.	3.4
9/3/2021	10:45	Mata, Terence	Rain	Yes	No	9/3/2021		0.82
9/21/2021	11:55	Mata, Terence	Rain	Yes	No	9/20/2021		0.1
9/30/2021	13:55	Adams, Robert	Rain	Yes	No	9/30/2021		1.38

CSO Inspection Report

CSO Number 119 **Total Wet Weather Overflows:** 31

CSO Name Monroe Street Lift Station

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/12/2020	12:05	Mata, Terence	Rain	Yes	No	10/11/2020		0.43
10/23/2020	14:00	Frolio, Brandon	Rain	Yes	No	10/22/2020		0.08
11/11/2020	13:00	Mata, Terence	Rain	Yes	No	11/10/2020	Device broke in MH 0551021 Diversion structure, needs repair.	1.06
11/25/2020	12:30	Frolio, Brandon	Rain	Yes	No	11/24/2020		0.3
2/24/2021	14:35	Mata, Terence	Snow Melt	Yes	No	2/23/2021		0
3/15/2021	14:35	Woods, Patrick	Rain	Yes	No	3/14/2021		3
3/24/2021	13:35	Mata, Terence	Rain	Yes	No	3/23/2021		1
4/7/2021	11:35	Mata, Terence	Rain	Yes	No	4/6/2021		0.1
5/3/2021	13:20	Mata, Terence	Rain	Yes	No	5/2/2021		0.21
5/10/2021	12:45	Mata, Terence	Rain	Yes	No	5/8/2021	Two day rain event.	0.74
5/17/2021	13:30	Mata, Terence	Rain	Yes	No	5/16/2021		0.28
5/20/2021	13:35	Mata, Terence	Rain	Yes	No	5/19/2021		0.6
5/21/2021	12:45	Mata, Terence	Rain	Yes	No	5/20/2021		0.32
5/24/2021	14:45	Mata, Terence	Rain	Yes	No	5/23/2021		0.2
5/27/2021	14:14	Fagerquist, Dylan	Rain	Yes	No	5/27/2021		1.3
6/12/2021	11:20	Fagerquist, Dylan	Rain	Yes	No	6/11/2021		1.99
6/21/2021	13:50	Mata, Terence	Rain	Yes	No	6/20/2021		0.5
6/24/2021	12:10	Mata, Terence	Rain	Yes	No	6/24/2021		1.3
6/27/2021	11:20	Fagerquist, Dylan	Rain	Yes	No	6/25/2021		1.07
7/8/2021	10:50	Wickham, Grant	Rain	Yes	No	7/7/2021		0.7
7/12/2021	12:15	Mata, Terence	Rain	Yes	No	7/10/2021	Checks were after a 2 day storm event. 7/10/2021-7/11/2021	0.25
7/19/2021	11:10	Mata, Terence	Rain	Yes	No	7/17/2021		0.4
8/1/2021	10:05	Mata, Terence	Rain	Yes	No	7/31/2021		1.5

CSO Inspection Report

CSO Number 119 **Total Wet Weather Overflows:** 31

CSO Name Monroe Street Lift Station

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
8/9/2021	8:15	Woods, Patrick	Rain	Yes	No	8/7/2021		4.47
8/21/2021	9:55	Mata, Terence	Rain	Yes	No	8/20/2021		0.6
8/25/2021	11:30	Mata, Terence	Rain	Yes	No	8/25/2021		1.5
8/30/2021	11:45	Mata, Terence	Rain	Yes	No	8/29/2021		0.8
8/31/2021	16:10	Mata, Terence	Rain	Yes	No	8/31/2021		3.4
9/3/2021	11:00	Mata, Terence	Rain	Yes	No	9/3/2021		0.82
9/21/2021	12:10	Mata, Terence	Rain	Yes	No	9/20/2021		0.1
9/30/2021	14:10	Adams, Robert	Rain	Yes	No	9/30/2021		1.38

CSO Inspection Report

CSO Number 121 **Total Wet Weather Overflows:** 32

CSO Name Jones Street

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/12/2020	10:20	Mata, Terence	Rain	Yes	No	10/11/2020		0.43
11/11/2020	11:55	Mata, Terence	Rain	Yes	No	11/10/2020		1.06
3/15/2021	13:00	Woods, Patrick	Rain	Yes	No	3/14/2021		3
3/24/2021	11:20	Mata, Terence	Rain	Yes	No	3/23/2021		1
4/7/2021	10:05	Mata, Terence	Rain	Yes	No	4/6/2021		0.1
4/9/2021	11:50	Fagerquist, Dylan	Rain	Yes	No	4/8/2021	0	0.8
5/3/2021	11:55	Mata, Terence	Rain	Yes	No	5/2/2021		0.21
5/10/2021	11:25	Mata, Terence	Rain	Yes	No	5/8/2021	Two day rain event.	0.74
5/17/2021	11:55	Mata, Terence	Rain	Yes	No	5/16/2021		0.28
5/20/2021	11:55	Mata, Terence	Rain	Yes	No	5/19/2021		0.6
5/21/2021	11:25	Mata, Terence	Rain	Yes	No	5/20/2021		0.32
5/24/2021	13:40	Mata, Terence	Rain	Yes	No	5/23/2021		0.2
5/27/2021	12:32	Fagerquist, Dylan	Rain	Yes	No	5/27/2021		1.3
6/12/2021	9:50	Fagerquist, Dylan	Rain	Yes	No	6/11/2021		1.99
6/21/2021	12:35	Mata, Terence	Rain	Yes	No	6/20/2021		0.5
6/24/2021	11:15	Mata, Terence	Rain	Yes	No	6/24/2021		1.3
6/27/2021	9:25	Fagerquist, Dylan	Rain	Yes	No	6/25/2021		1.07
6/29/2021	10:15	Mata, Terence	Rain	Yes	No	6/28/2021		0.09
6/30/2021	10:00	Mata, Terence	Rain	Yes	No	6/29/2021		0.6
7/8/2021	9:50	Wickham, Grant	Rain	Yes	No	7/7/2021		0.7
7/12/2021	11:15	Mata, Terence	Rain	Yes	No	7/10/2021	Checks were after a 2 day storm event. 7/10/2021-7/11/2021	0.25
7/15/2021	11:45	Mata, Terence	Rain	Yes	No	7/15/2021		0.35
7/30/2021	13:45	Mata, Terence	Rain	Yes	No	7/30/2021		1.5

CSO Inspection Report

CSO Number 121 **Total Wet Weather Overflows:** 32

CSO Name Jones Street

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
8/1/2021	9:05	Mata, Terence	Rain	Yes	No	7/31/2021		1.5
8/9/2021	8:11	Woods, Patrick	Rain	Yes	No	8/7/2021		4.47
8/21/2021	8:55	Mata, Terence	Rain	Yes	No	8/20/2021		0.6
8/25/2021	10:20	Mata, Terence	Rain	Yes	No	8/25/2021		1.5
8/30/2021	10:45	Mata, Terence	Rain	Yes	No	8/29/2021		0.8
8/31/2021	15:05	Mata, Terence	Rain	Yes	No	8/31/2021		3.4
9/3/2021	9:50	Mata, Terence	Rain	Yes	No	9/3/2021		0.82
9/21/2021	11:10	Mata, Terence	Rain	Yes	No	9/20/2021		0.1
9/30/2021	13:20	Adams, Robert	Rain	Yes	No	9/30/2021		1.38

CSO Inspection Report

CSO Number 202 **Total Wet Weather Overflows:** 44

CSO Name 72nd & Bedford

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/3/2020	8:10	Frolio, Brandon	Rain	Yes	No	10/2/2020		0.1
10/12/2020	8:50	Mata, Terence	Rain	Yes	No	10/11/2020		0.43
10/27/2020	11:30	Frolio, Brandon	Snow Melt	Yes	No	10/26/2020		0.04
11/11/2020	9:15	Mata, Terence	Rain	Yes	No	11/10/2020		1.06
11/25/2020	8:45	Frolio, Brandon	Rain	Yes	No	11/24/2020		0.3
12/14/2020	11:30	Mata, Terence	Rain	Yes	No	12/11/2020	Rain event happened on 12/11/2020, and snow melt happened the following two days.	0.44
1/7/2021	9:20	Frolio, Brandon	Snow Melt	Yes	No	1/6/2021		0.2
1/19/2021	10:30	Frolio, Brandon	Snow Melt	Yes	No	1/18/2021		0.004
1/29/2021	9:40	Frolio, Brandon	Snow Melt	Yes	No	1/28/2021		0
2/1/2021	9:40	Frolio, Brandon	Snow Melt	Yes	No	1/31/2021		0.004
2/24/2021	10:40	Mata, Terence	Snow Melt	Yes	No	2/23/2021		0
3/15/2021	10:40	Woods, Patrick	Rain	Yes	No	3/14/2021		3
3/24/2021	9:40	Mata, Terence	Rain	Yes	No	3/23/2021		1
4/7/2021	8:25	Mata, Terence	Rain	Yes	No	4/6/2021		0.1
4/9/2021	10:10	Fagerquist, Dylan	Rain	Yes	No	4/8/2021	0	0.8
4/17/2021	11:15	Woods, Patrick	Rain	Yes	No	4/16/2021		0.14
4/28/2021	9:00	Mata, Terence	Rain	Yes	No	4/28/2021		0.07
5/3/2021	9:40	Mata, Terence	Rain	Yes	No	5/2/2021		0.21
5/10/2021	9:40	Mata, Terence	Rain	Yes	No	5/8/2021	Two day rain event.	0.74
5/17/2021	10:10	Mata, Terence	Rain	Yes	No	5/16/2021		0.28
5/20/2021	10:10	Mata, Terence	Rain	Yes	No	5/19/2021		0.6
5/24/2021	11:55	Mata, Terence	Rain	Yes	No	5/23/2021		0.2
5/27/2021	10:26	Fagerquist, Dylan	Rain	Yes	No	5/27/2021		1.3

CSO Inspection Report

CSO Number 202 **Total Wet Weather Overflows:** 44

CSO Name 72nd & Bedford

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
6/12/2021	8:25	Fagerquist, Dylan	Rain	Yes	No	6/11/2021		1.99
6/21/2021	11:00	Mata, Terence	Rain	Yes	No	6/20/2021		0.5
6/24/2021	9:45	Mata, Terence	Rain	Yes	No	6/24/2021		1.3
6/25/2021	8:50	Mata, Terence	Rain	Yes	No	6/24/2021		1.3
6/27/2021	7:25	Fagerquist, Dylan	Rain	Yes	No	6/25/2021		1.07
6/29/2021	8:40	Mata, Terence	Rain	Yes	No	6/28/2021		0.09
6/30/2021	8:50	Mata, Terence	Rain	Yes	No	6/29/2021		0.6
7/8/2021	8:30	Wickham, Grant	Rain	Yes	No	7/7/2021		0.7
7/12/2021	9:15	Mata, Terence	Rain	Yes	No	7/10/2021	Checks were after a 2 day storm event. 7/10/2021-7/11/2021	0.25
7/15/2021	10:05	Mata, Terence	Rain	Yes	No	7/15/2021		0.35
7/19/2021	8:30	Mata, Terence	Rain	Yes	No	7/17/2021		0.4
7/30/2021	10:50	Mata, Terence	Rain	Yes	No	7/30/2021		1.5
8/1/2021	8:05	Mata, Terence	Rain	Yes	No	7/31/2021		1.5
8/9/2021	8:06	Woods, Patrick	Rain	Yes	No	8/7/2021		4.47
8/21/2021	7:45	Mata, Terence	Rain	Yes	No	8/20/2021		0.6
8/25/2021	9:00	Mata, Terence	Rain	Yes	No	8/25/2021		1.5
8/30/2021	9:10	Mata, Terence	Rain	Yes	No	8/29/2021		0.8
8/31/2021	13:45	Mata, Terence	Rain	Yes	No	8/31/2021		3.4
9/3/2021	8:50	Mata, Terence	Rain	Yes	No	9/3/2021		0.82
9/21/2021	9:25	Mata, Terence	Rain	Yes	No	9/20/2021		0.1
9/30/2021	8:45	Adams, Robert	Rain	Yes	No	9/30/2021		1.38

CSO Inspection Report

CSO Number 203 **Total Wet Weather Overflows:** 40

CSO Name 69th & Evans

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/3/2020	8:20	Frolio, Brandon	Rain	Yes	No	10/2/2020		0.1
10/12/2020	9:00	Mata, Terence	Rain	Yes	No	10/11/2020		0.43
10/19/2020	10:55	Mata, Terence	Rain	Yes	No	10/18/2020		0.23
10/23/2020	11:00	Frolio, Brandon	Rain	Yes	No	10/22/2020		0.08
10/27/2020	11:40	Frolio, Brandon	Snow Melt	Yes	No	10/26/2020		0.04
11/11/2020	9:25	Mata, Terence	Rain	Yes	Yes	11/10/2020	Dead raccoon blocking flow forcing overflow. Vac truck removed body, flow continured 1025	1.06
11/25/2020	8:55	Frolio, Brandon	Rain	Yes	No	11/24/2020		0.3
12/14/2020	11:40	Mata, Terence	Rain	Yes	No	12/11/2020	Rain event happened on 12/11/2020, and snow melt happened the following two days.	0.44
1/7/2021	9:35	Frolio, Brandon	Snow Melt	Yes	No	1/6/2021		0.2
1/29/2021	9:50	Frolio, Brandon	Snow Melt	Yes	No	1/28/2021		0
2/24/2021	10:50	Mata, Terence	Snow Melt	Yes	No	2/23/2021		0
3/15/2021	10:50	Woods, Patrick	Rain	Yes	No	3/14/2021		3
3/24/2021	9:50	Mata, Terence	Rain	Yes	No	3/23/2021		1
4/7/2021	8:35	Mata, Terence	Rain	Yes	No	4/6/2021		0.1
4/9/2021	10:20	Fagerquist, Dylan	Rain	Yes	No	4/8/2021	0	0.8
4/28/2021	9:00	Mata, Terence	Rain	Yes	No	4/28/2021		0.07
5/3/2021	9:50	Mata, Terence	Rain	Yes	No	5/2/2021		0.21
5/10/2021	9:45	Mata, Terence	Rain	Yes	No	5/8/2021	Two day rain event.	0.74
5/17/2021	10:15	Mata, Terence	Rain	Yes	No	5/16/2021		0.28
5/20/2021	10:15	Mata, Terence	Rain	Yes	No	5/19/2021		0.6
5/27/2021	10:37	Fagerquist, Dylan	Rain	Yes	No	5/27/2021		1.3
6/12/2021	8:30	Fagerquist, Dylan	Rain	Yes	No	6/11/2021		1.99

CSO Inspection Report

CSO Number 203 **Total Wet Weather Overflows:** 40

CSO Name 69th & Evans

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
6/21/2021	11:05	Mata, Terence	Rain	Yes	No	6/20/2021		0.5
6/24/2021	9:50	Mata, Terence	Rain	Yes	No	6/24/2021		1.3
6/25/2021	9:00	Mata, Terence	Rain	Yes	No	6/24/2021		1.3
6/27/2021	7:45	Fagerquist, Dylan	Rain	Yes	No	6/25/2021		1.07
6/29/2021	8:45	Mata, Terence	Rain	Yes	No	6/28/2021		0.09
6/30/2021	9:00	Mata, Terence	Rain	Yes	No	6/29/2021		0.6
7/8/2021	8:35	Wickham, Grant	Rain	Yes		7/7/2021		0.7
7/12/2021	9:15	Mata, Terence	Rain	Yes	No	7/10/2021	Checks were after a 2 day storm event. 7/10/2021-7/11/2021	0.25
7/15/2021	10:20	Mata, Terence	Rain	Yes	No	7/15/2021		0.35
7/19/2021	8:35	Mata, Terence	Rain	Yes	No	7/17/2021		0.4
7/30/2021	11:00	Mata, Terence	Rain	Yes	No	7/30/2021		1.5
8/1/2021	8:10	Mata, Terence	Rain	Yes	No	7/31/2021		1.5
8/9/2021	8:07	Woods, Patrick	Rain	Yes	No	8/7/2021		4.47
8/21/2021	7:50	Mata, Terence	Rain	Yes	No	8/20/2021		0.6
8/31/2021	13:55	Mata, Terence	Rain	Yes	No	8/31/2021		3.4
9/3/2021	8:55	Mata, Terence	Rain	Yes	No	9/3/2021		0.82
9/21/2021	9:30	Mata, Terence	Rain	Yes	No	9/20/2021		0.1
9/30/2021	8:50	Adams, Robert	Rain	Yes	No	9/30/2021		1.38

CSO Inspection Report

CSO Number 204 **Total Wet Weather Overflows:** 38

CSO Name 63rd & Ames

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/3/2020	8:30	Frolio, Brandon	Rain	Yes	No	10/2/2020		0.1
10/12/2020	9:10	Mata, Terence	Rain	Yes	No	10/11/2020		0.43
10/19/2020	11:05	Mata, Terence	Rain	Yes	No	10/18/2020		0.23
11/11/2020	10:45	Mata, Terence	Rain	Yes	No	11/10/2020		1.06
11/25/2020	9:05	Frolio, Brandon	Rain	Yes	No	11/24/2020		0.3
1/7/2021	9:50	Frolio, Brandon	Snow Melt	Yes	No	1/6/2021		0.2
1/29/2021	10:00	Frolio, Brandon	Snow Melt	Yes	No	1/28/2021		0
2/24/2021	11:00	Mata, Terence	Snow Melt	Yes	No	2/23/2021		0
3/15/2021	11:20	Woods, Patrick	Rain	Yes	No	3/14/2021		3
3/24/2021	10:00	Mata, Terence	Rain	Yes	No	3/23/2021		1
4/7/2021	8:50	Mata, Terence	Rain	Yes	No	4/6/2021		0.1
4/9/2021	10:30	Fagerquist, Dylan	Rain	Yes	No	4/8/2021	0	0.8
4/17/2021	11:40	Woods, Patrick	Rain	Yes	No	4/16/2021		0.14
5/3/2021	10:10	Mata, Terence	Rain	Yes	No	5/2/2021		0.21
5/10/2021	10:10	Mata, Terence	Rain	Yes	No	5/8/2021	Two day rain event.	0.74
5/17/2021	10:40	Mata, Terence	Rain	Yes	No	5/16/2021		0.28
5/20/2021	10:40	Mata, Terence	Rain	Yes	No	5/19/2021		0.6
5/24/2021	12:15	Mata, Terence	Rain	Yes	No	5/23/2021		0.2
5/27/2021	10:58	Fagerquist, Dylan	Rain	Yes	No	5/27/2021		1.3
6/12/2021	8:40	Fagerquist, Dylan	Rain	Yes	No	6/11/2021		1.99
6/21/2021	11:25	Mata, Terence	Rain	Yes	No	6/20/2021		0.5
6/24/2021	10:00	Mata, Terence	Rain	Yes	No	6/24/2021		1.3
6/25/2021	9:10	Mata, Terence	Rain	Yes	No	6/24/2021		1.3

CSO Inspection Report

CSO Number 204 **Total Wet Weather Overflows:** 38

CSO Name 63rd & Ames

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
6/29/2021	8:55	Mata, Terence	Rain	Yes	No	6/28/2021		0.09
6/30/2021	9:10	Mata, Terence	Rain	Yes	No	6/29/2021		0.6
7/8/2021	8:45	Wickham, Grant	Rain	Yes	No	7/7/2021		0.7
7/12/2021	9:35	Mata, Terence	Rain	Yes	Yes	7/10/2021	Checks were after a 2 day storm event. 7/10/2021-7/11/202. Power was still off causing gate to remain closed.OPPD contacted and power restored around 1645. TM checked gate, was open and flowing properly.	0.25
7/15/2021	10:30	Mata, Terence	Rain	Yes	No	7/15/2021		0.35
7/30/2021	11:10	Mata, Terence	Rain	Yes	No	7/30/2021		1.5
8/1/2021	8:20	Mata, Terence	Rain	Yes	No	7/31/2021		1.5
8/9/2021	8:07	Woods, Patrick	Rain	Yes	No	8/7/2021		4.47
8/21/2021	7:55	Mata, Terence	Rain	Yes	No	8/20/2021		0.6
8/25/2021	9:10	Mata, Terence	Rain	Yes	No	8/25/2021		1.5
8/30/2021	9:30	Mata, Terence	Rain	Yes	No	8/29/2021		0.8
8/31/2021	14:00	Mata, Terence	Rain	Yes	No	8/31/2021		3.4
9/3/2021	9:00	Mata, Terence	Rain	Yes	No	9/3/2021		0.82
9/21/2021	9:40	Mata, Terence	Rain	Yes	No	9/20/2021		0.1
9/30/2021	9:10	Adams, Robert	Rain	Yes	No	9/30/2021		1.38

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)
10/3/2020	7:30	Frolio, Brandon	Rain	Yes	No	10/2/2020		0.1
10/12/2020	8:10	Mata, Terence	Rain	Yes	No	10/11/2020		0.43
10/19/2020	10:00	Mata, Terence	Rain	Yes	No	10/18/2020		0.23
11/11/2020	8:30	Mata, Terence	Rain	Yes	No	11/10/2020		1.06
11/25/2020	8:00	Frolio, Brandon	Rain	Yes	No	11/24/2020		0.3
12/14/2020	10:45	Mata, Terence	Rain	Yes	No	12/11/2020	Rain event happened on 12/11/2020, and snow melt happened the following two days.	0.44
1/7/2021	8:30	Frolio, Brandon	Snow Melt	Yes	No	1/6/2021		0.2
2/23/2021	10:00	Mata, Terence	Snow Melt	Yes	No	2/22/2021	Notified and reset by RTB Contractor	0
2/24/2021	10:00	Mata, Terence	Snow Melt	Yes	No	2/23/2021		0
3/15/2021	10:00	Woods, Patrick	Rain	Yes	No	3/14/2021		3
3/24/2021	9:00	Mata, Terence	Rain	Yes	No	3/23/2021	2 day rain event. 1.25"	1
4/7/2021	7:45	Mata, Terence	Rain	Yes	No	4/6/2021		0.1
4/9/2021	9:30	Fagerquist, Dylan	Rain	Yes	No	4/8/2021	0	0.8
4/17/2021	7:30	Mata, Terence	Rain	Yes	No	4/16/2021		0.14
5/3/2021	9:00	Mata, Terence	Rain	Yes	No	5/2/2021		0.21
5/10/2021	9:00	Mata, Terence	Rain	Yes	No	5/8/2021	Two day rain event.	0.74
5/15/2021	7:30	Mata, Terence	Rain	Yes	No	5/14/2021		0.11
5/17/2021	9:30	Mata, Terence	Rain	Yes	No	5/16/2021		0.28
5/20/2021	9:30	Mata, Terence	Rain	Yes	No	5/19/2021		0.6
5/27/2021	10:16	Fagerquist, Dylan	Rain	Yes	No	5/27/2021		1.3
6/12/2021	7:15	Fagerquist, Dylan	Rain	Yes	No	6/11/2021		1.99
6/21/2021	10:00	Mata, Terence	Rain	Yes	No	6/20/2021		0.5
6/24/2021	9:00	Mata, Terence	Rain	Yes	No	6/24/2021		1.3

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)
6/25/2021	8:00	Mata, Terence	Rain	Yes	No	6/24/2021		1.3
6/27/2021	6:30	Fagerquist, Dylan	Rain	Yes	No	6/25/2021		1.07
6/29/2021	8:00	Mata, Terence	Rain	Yes	No	6/28/2021		0.09
6/30/2021	7:55	Mata, Terence	Rain	Yes	No	6/29/2021		0.6
7/8/2021	7:50	Wickham, Grant	Rain	Yes	No	7/7/2021		0.7
7/12/2021	8:20	Mata, Terence	Rain	Yes	No	7/10/2021	Checks were after a 2 day storm event. 7/10/2021-7/11/2021	0.25
7/15/2021	9:15	Mata, Terence	Rain	Yes	No	7/15/2021		0.35
7/19/2021	7:15	Mata, Terence	Rain	Yes	No	7/17/2021		0.4
7/30/2021	9:35	Mata, Terence	Rain	Yes	No	7/30/2021		1.5
8/1/2021	7:05	Mata, Terence	Rain	Yes	No	7/31/2021		1.5
8/9/2021	7:57	Woods, Patrick	Rain	Yes	No	8/7/2021		4.47
8/21/2021	10:25	Mata, Terence	Rain	Yes	No	8/20/2021		0.6
8/25/2021	8:20	Mata, Terence	Rain	Yes	No	8/25/2021		1.5
8/30/2021	8:00	Mata, Terence	Rain	Yes	No	8/29/2021		0.8
8/31/2021	12:00	Mata, Terence	Rain	Yes	No	8/31/2021		3.4
9/3/2021	8:15	Mata, Terence	Rain	Yes	No	9/3/2021		0.82
9/21/2021	7:05	Mata, Terence	Rain	Yes	No	9/20/2021		0.1
9/30/2021	15:25	Adams, Robert	Rain	Yes	No	9/30/2021		1.38

CSO Inspection Report

CSO Number 208 **Total Wet Weather Overflows:** 1

CSO Name 45th & T Street

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
8/9/2021	8:15	Woods, Patrick	Rain	Yes	No	8/7/2021		4.47

CSO Inspection Report

CSO Number 210 **Total Wet Weather Overflows:** 34

CSO Name 72nd and Mayberry

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/3/2020	8:00	Frolio, Brandon	Rain	Yes	No	10/2/2020		0.1
10/12/2020	8:40	Mata, Terence	Rain	Yes	No	10/11/2020		0.43
11/11/2020	9:05	Mata, Terence	Rain	Yes	No	11/10/2020		1.06
1/7/2021	9:05	Frolio, Brandon	Snow Melt	Yes	No	1/6/2021		0.2
1/19/2021	9:10	Frolio, Brandon	Snow Melt	Yes	Yes	1/18/2021	It was overflow due to a water main. It stopped overflowing at 15:40.	0.004
3/15/2021	10:30	Woods, Patrick	Rain	Yes	No	3/14/2021		3
3/24/2021	9:30	Mata, Terence	Rain	Yes	No	3/23/2021		1
4/7/2021	8:15	Mata, Terence	Rain	Yes	No	4/6/2021		0.1
4/9/2021	10:00	Fagerquist, Dylan	Rain	Yes	No	4/8/2021	0	0.8
4/17/2021	8:00	Mata, Terence	Rain	Yes	Yes	4/16/2021	MH was barely trickling over, called in for Jet truck. After downstream MH was found to be holding, Vac truck was called in to clear the way. Another Vac truck called in to help. Build up of debris blocked outgoing LS which was restricting flow. LS clear as of 1300 on 04/17/2021	0.14
5/3/2021	9:30	Mata, Terence	Rain	Yes	No	5/2/2021	About 12" of grit in DS MH.	0.21
5/10/2021	9:30	Mata, Terence	Rain	Yes	No	5/8/2021	Two day rain event. About 4" of Grit in DS MH.	0.74
5/17/2021	10:00	Mata, Terence	Rain	Yes	No	5/16/2021		0.28
5/20/2021	10:00	Mata, Terence	Rain	Yes	No	5/19/2021	About 3" of grit felt using story pole in DS MH.	0.6
5/27/2021	10:09	Fagerquist, Dylan	Rain	Yes	No	5/27/2021	Grit measurement - 0.65’	1.3
6/12/2021	8:20	Fagerquist, Dylan	Rain	Yes	No	6/11/2021		1.99
6/21/2021	10:45	Mata, Terence	Rain	Yes	No	6/20/2021	About 2" of grit in DS MH/Grit pit.	0.5
6/24/2021	9:35	Mata, Terence	Rain	Yes	No	6/24/2021	About 3" of grit in DS MH/grit pit.	1.3
6/25/2021	8:45	Mata, Terence	Rain	Yes	No	6/24/2021	12IN OF GRIT OBSERVED IN DOWNSTREAM MH	1.3
6/27/2021	7:15	Fagerquist, Dylan	Rain	Yes	No	6/25/2021		1.07
6/29/2021	8:30	Mata, Terence	Rain	Yes	No	6/28/2021	about 4" of grit observed in DS MH.	0.09

CSO Inspection Report

CSO Number 210 **Total Wet Weather Overflows:** 34

CSO Name 72nd and Mayberry

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
6/30/2021	8:40	Mata, Terence	Rain	Yes	No	6/29/2021	about 3" of grit observed in DS MH.	0.6
7/8/2021	8:20	Wickham, Grant	Rain	Yes	No	7/7/2021		0.7
7/12/2021	9:05	Mata, Terence	Rain	Yes	No	7/10/2021	Checks were after a 2 day storm event. 7/10/2021-7/11/2021. Approximately 3" of grit observed in DS MH.	0.25
7/15/2021	10:00	Mata, Terence	Rain	Yes	No	7/15/2021	about 5" of grit observed in the DS MH.	0.35
7/19/2021	8:25	Mata, Terence	Rain	Yes	No	7/17/2021	About 6" of grit observed in DS MH.	0.4
7/30/2021	10:45	Mata, Terence	Rain	Yes	No	7/30/2021	About 5" of grit observed in DS MH.	1.5
8/1/2021	8:00	Mata, Terence	Rain	Yes	No	7/31/2021	About 6" of grit observed in D/S manhole.	1.5
8/9/2021	8:06	Woods, Patrick	Rain	Yes	No	8/7/2021		4.47
8/21/2021	7:35	Mata, Terence	Rain	Yes	No	8/20/2021	About 5" of grit observed in DS MH.	0.6
8/25/2021	8:50	Mata, Terence	Rain	Yes	No	8/25/2021	About 3" of grit observed in DS MH	1.5
8/31/2021	13:25	Mata, Terence	Rain	Yes	No	8/31/2021	About 2" of grit observed in DS MH.	3.4
9/3/2021	8:45	Mata, Terence	Rain	Yes	No	9/3/2021	About 4" of grit observed in DS MH.	0.82
9/30/2021	8:25	Adams, Robert	Rain	Yes	No	9/30/2021	Approx. 7" grit	1.38

CSO Inspection Report

CSO Number 211 **Total Wet Weather Overflows:** 6

CSO Name 69th & Pierce

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
2/1/2021	9:20	Frolio, Brandon	Snow Melt	Yes	No	1/31/2021		0.004
4/17/2021	7:50	Mata, Terence	Rain	Yes	No	4/16/2021		0.14
6/24/2021	9:20	Mata, Terence	Rain	Yes	No	6/24/2021		1.3
7/12/2021	8:40	Mata, Terence	Rain	Yes	No	7/10/2021	Checks were after a 2 day storm event. 7/10/2021-7/11/2021	0.25
8/9/2021	8:02	Woods, Patrick	Rain	Yes	No	8/7/2021		4.47
9/21/2021	9:00	Mata, Terence	Rain	Yes	No	9/20/2021		0.1

CSO Inspection Report

CSO Number 212 **Total Wet Weather Overflows:** 14

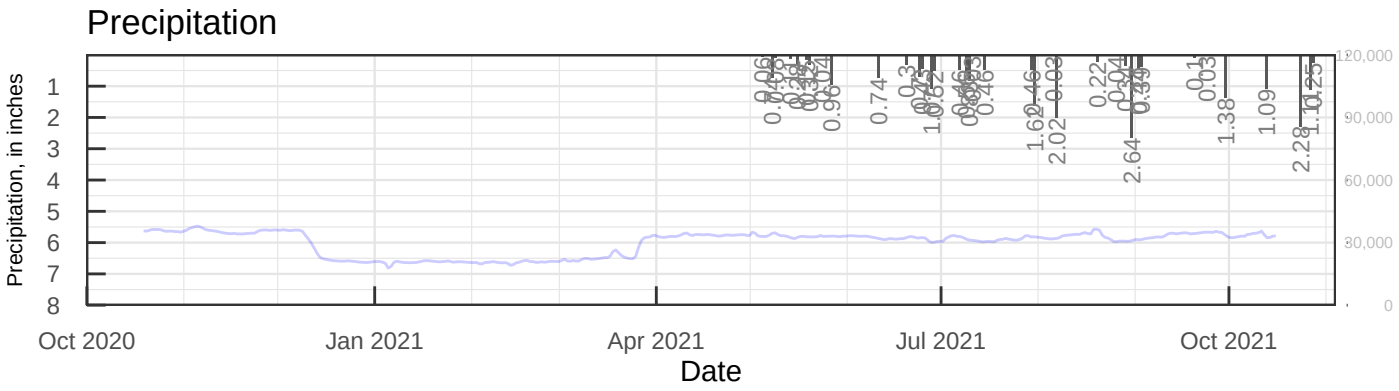
CSO Name 69th & Woolworth

Inspection Date	Time	Inspected by	Reason	Overflow	Overflow at inspection?	Date of Precipitation	Comments	Rain (in)
10/12/2020	8:15	Mata, Terence	Rain	Yes	No	10/11/2020		0.43
11/11/2020	8:45	Mata, Terence	Rain	Yes	No	11/10/2020		1.06
6/29/2021	8:10	Mata, Terence	Rain	Yes	No	6/28/2021		0.09
6/30/2021	8:15	Mata, Terence	Rain	Yes	No	6/29/2021		0.6
7/8/2021	8:05	Wickham, Grant	Rain	Yes	No	7/7/2021		0.7
7/12/2021	8:35	Mata, Terence	Rain	Yes	No	7/10/2021	Checks were after a 2 day storm event. 7/10/2021-7/11/2021	0.25
7/19/2021	8:00	Mata, Terence	Rain	Yes	No	7/17/2021		0.4
8/1/2021	7:45	Mata, Terence	Rain	Yes	No	7/31/2021		1.5
8/9/2021	8:02	Woods, Patrick	Rain	Yes	No	8/7/2021		4.47
8/25/2021	8:30	Mata, Terence	Rain	Yes	No	8/25/2021		1.5
8/31/2021	13:15	Mata, Terence	Rain	Yes	No	8/31/2021		3.4
9/3/2021	8:30	Mata, Terence	Rain	Yes	No	9/3/2021		0.82
9/21/2021	8:50	Mata, Terence	Rain	Yes	No	9/20/2021		0.1
9/30/2021	8:00	Adams, Robert	Rain	Yes	No	9/30/2021		1.38

Attachment 4 – USGS Missouri River Monitoring Provisional Data

Table 1. Recent precipitation in Omaha exceeding 0.1 inch

Date	Precipitation, inches
07/31/2021	1.62
08/07/2021	2.02
08/20/2021	0.22
08/29/2021	0.34
08/31/2021	2.64
09/02/2021	0.44
09/03/2021	0.39
09/30/2021	1.38
10/13/2021	1.09
10/24/2021	2.28
10/27/2021	1.11
10/28/2021	0.25



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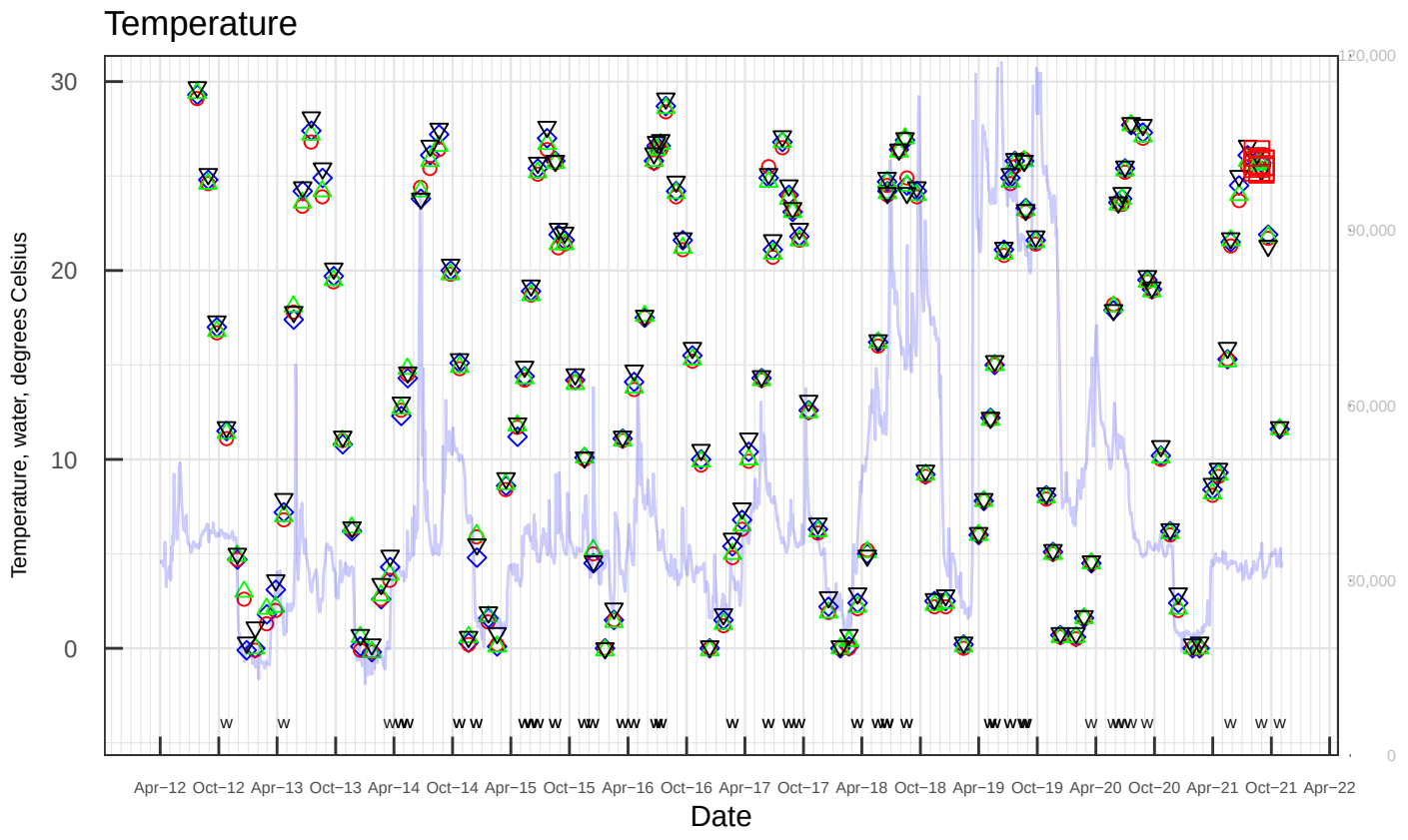

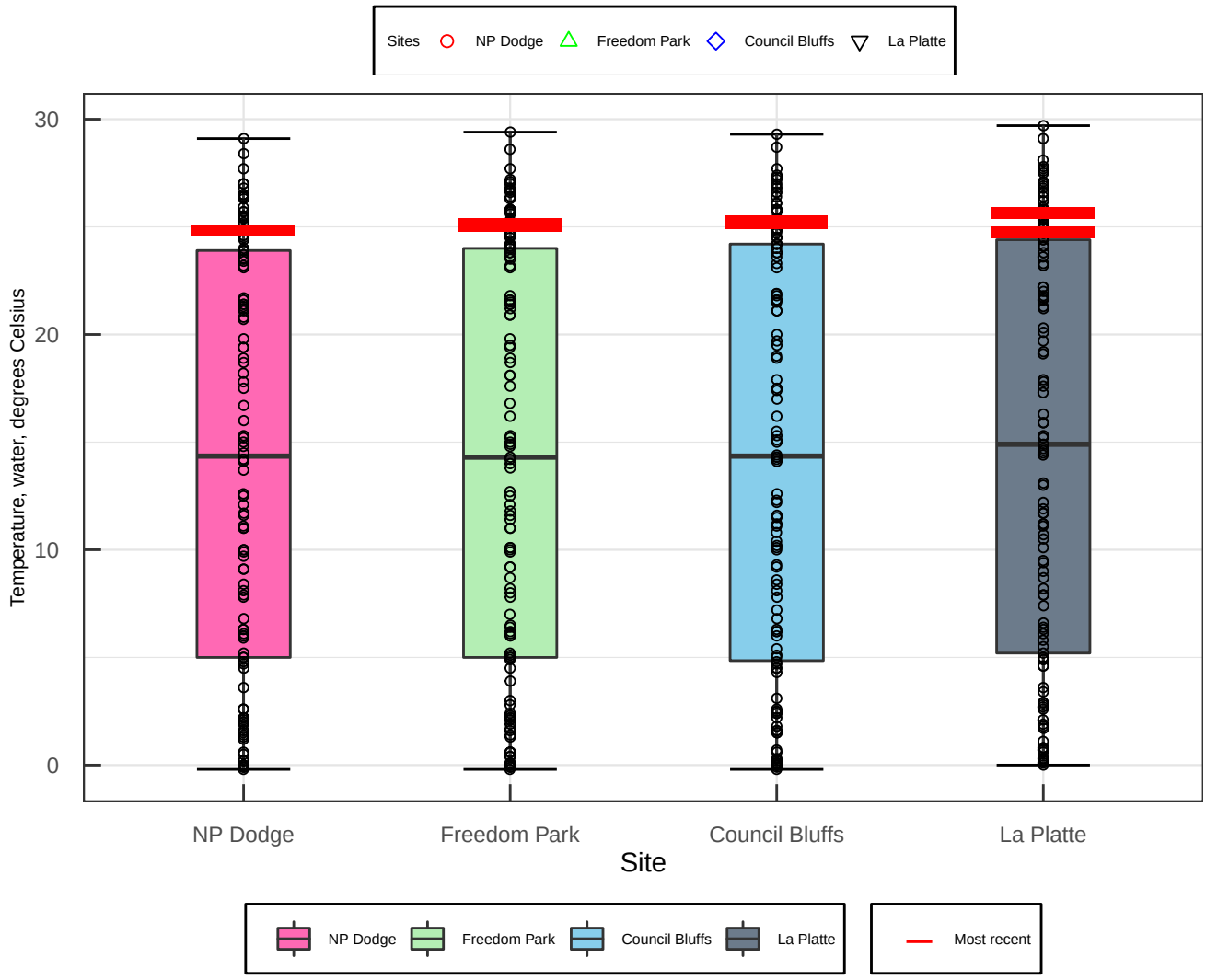

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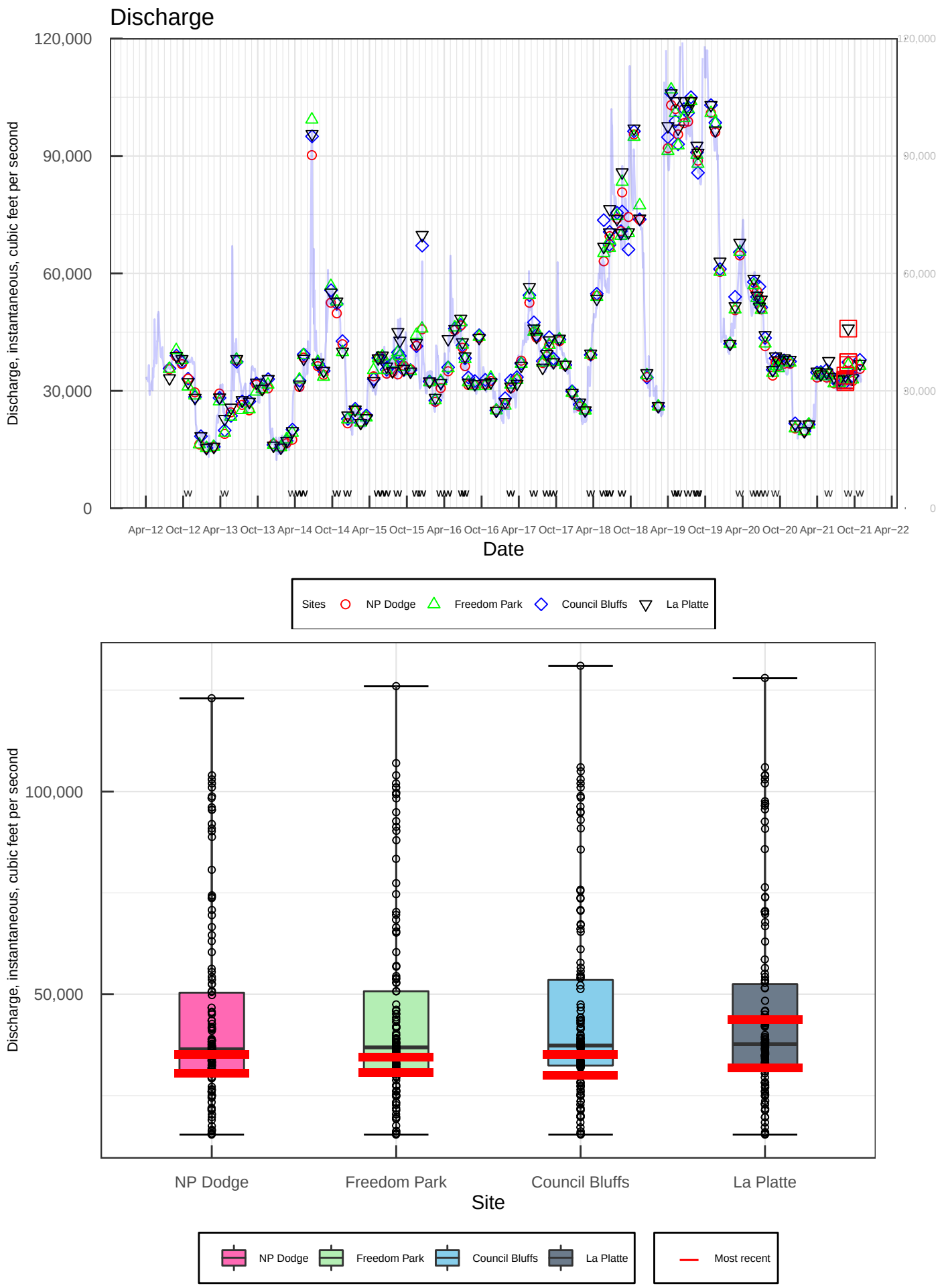

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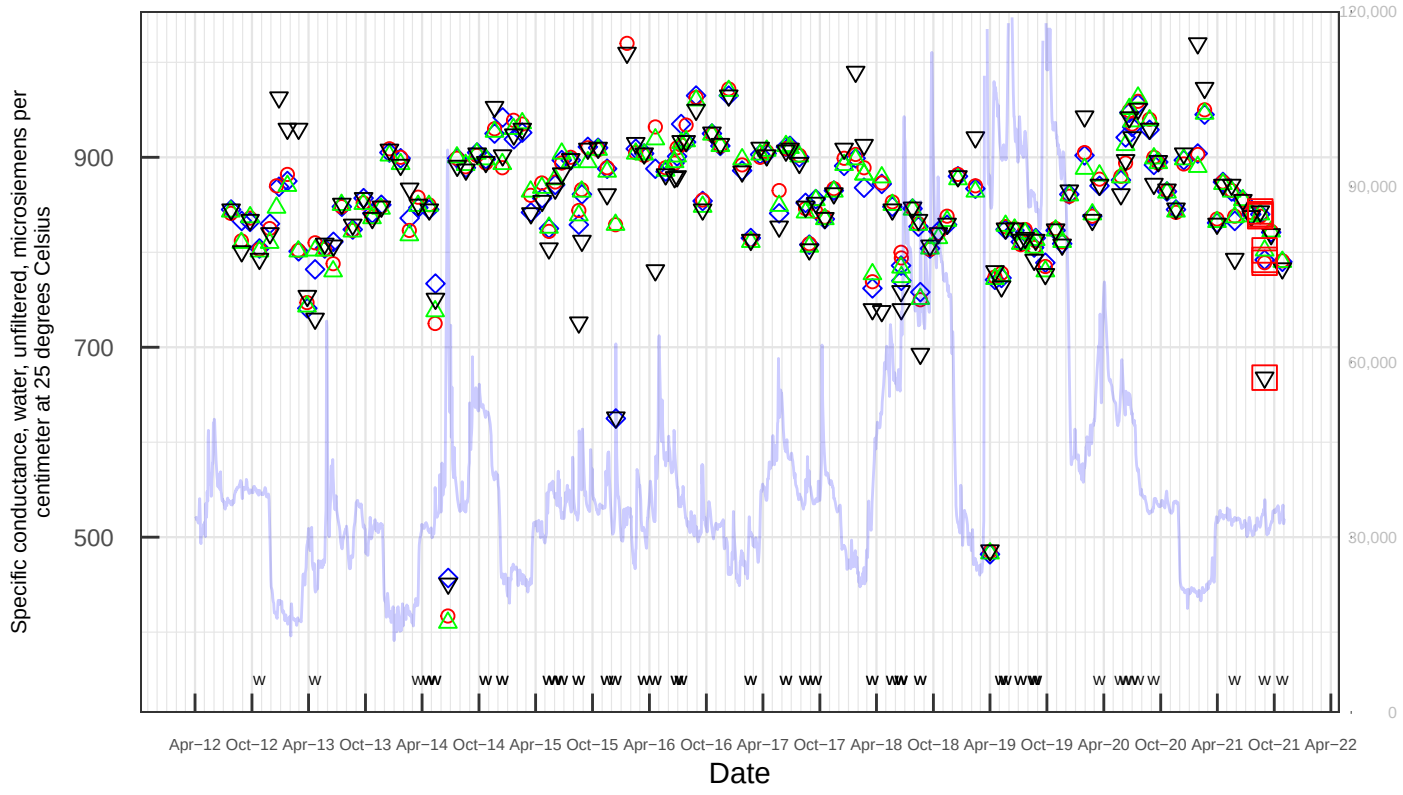
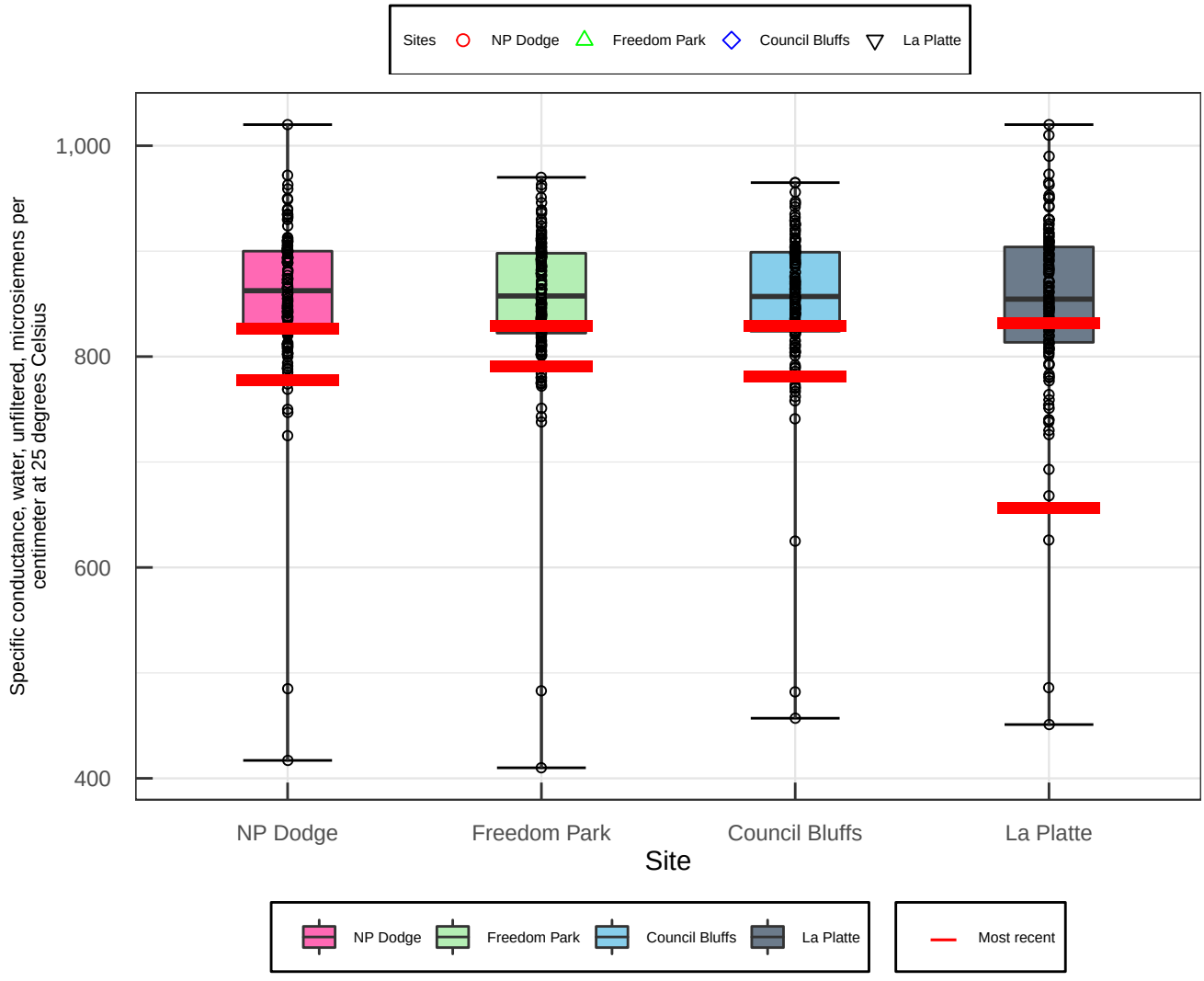
Specific conductance





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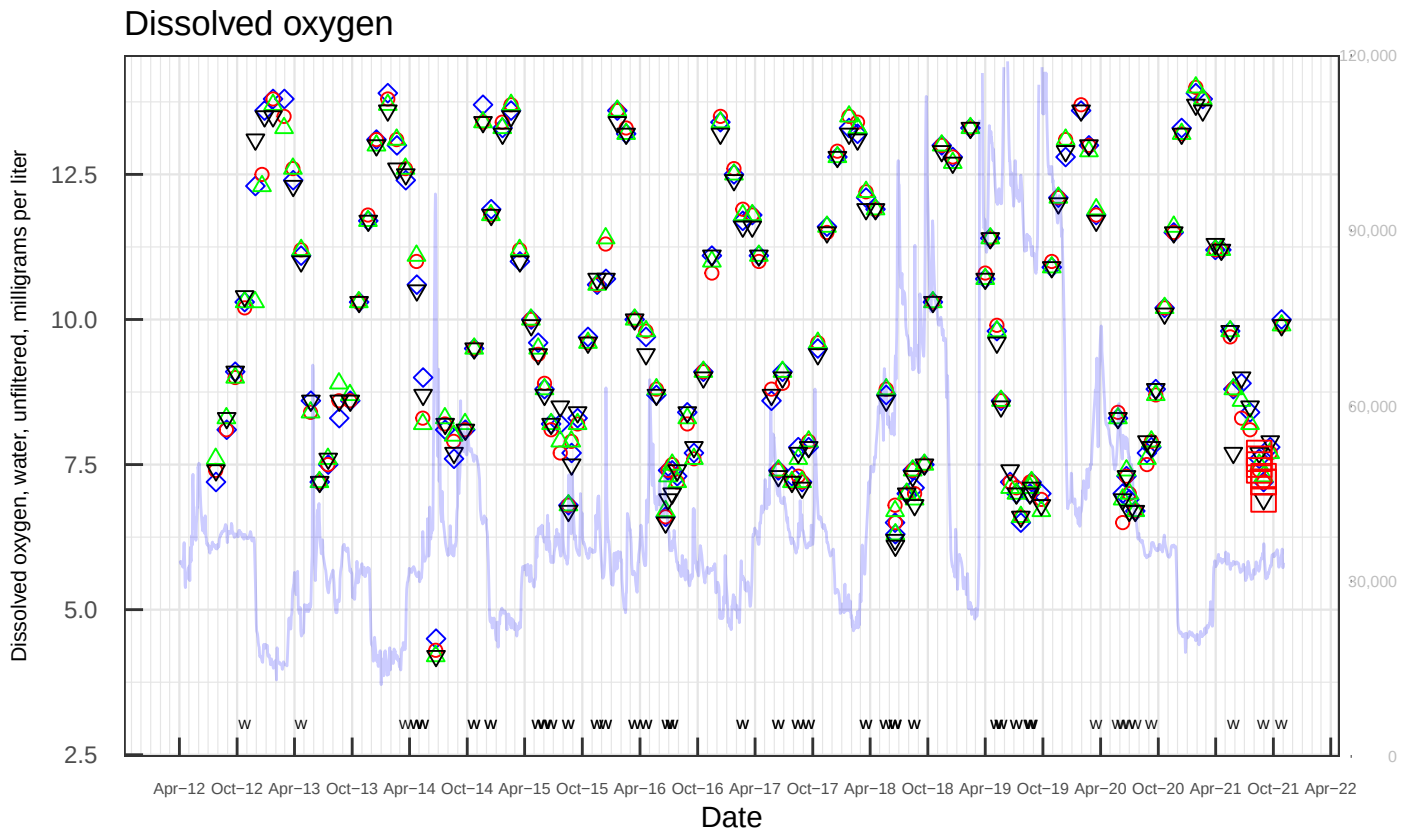

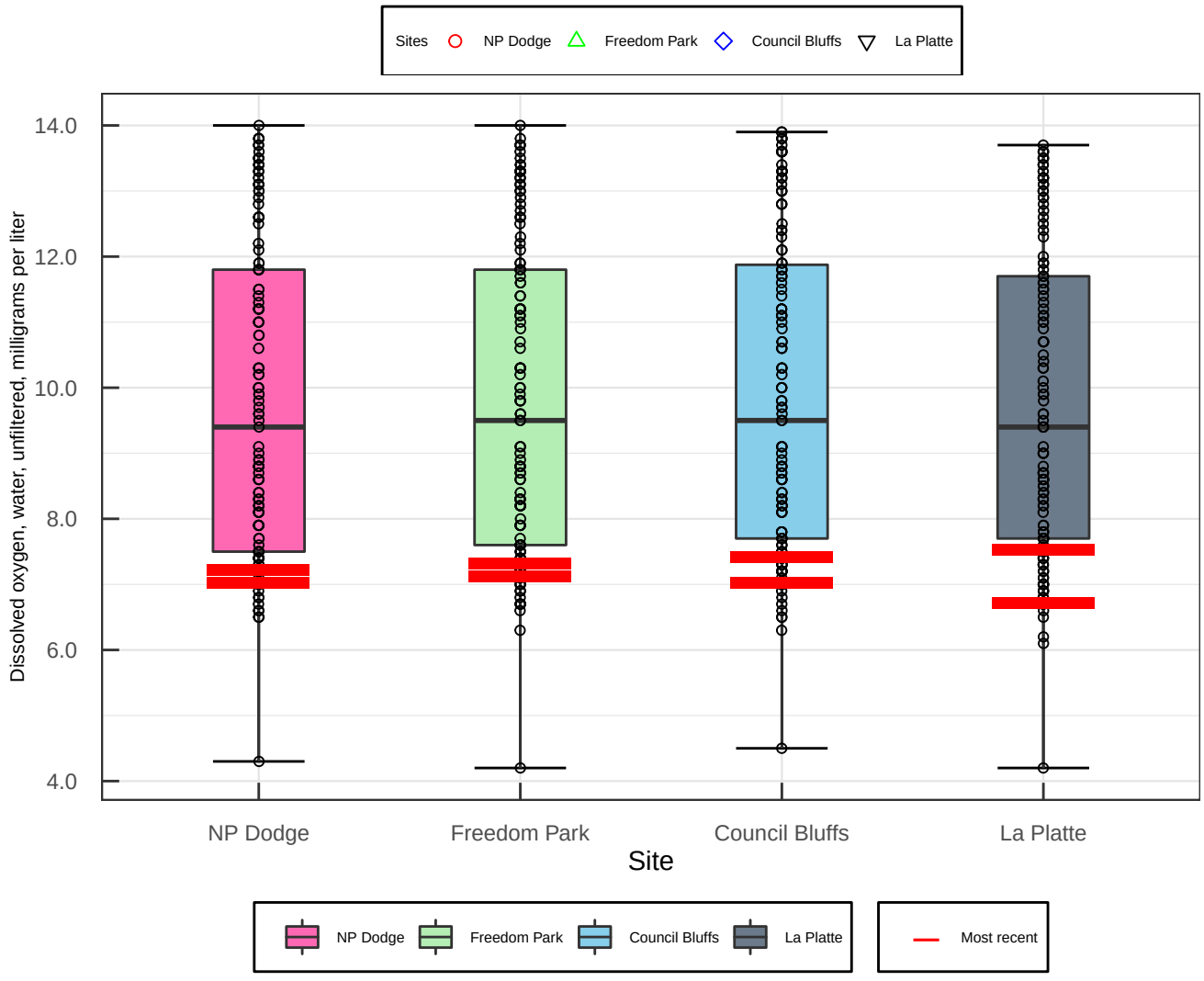

−−PRELIMINARY DATA SUBJECT TO REVISION−−

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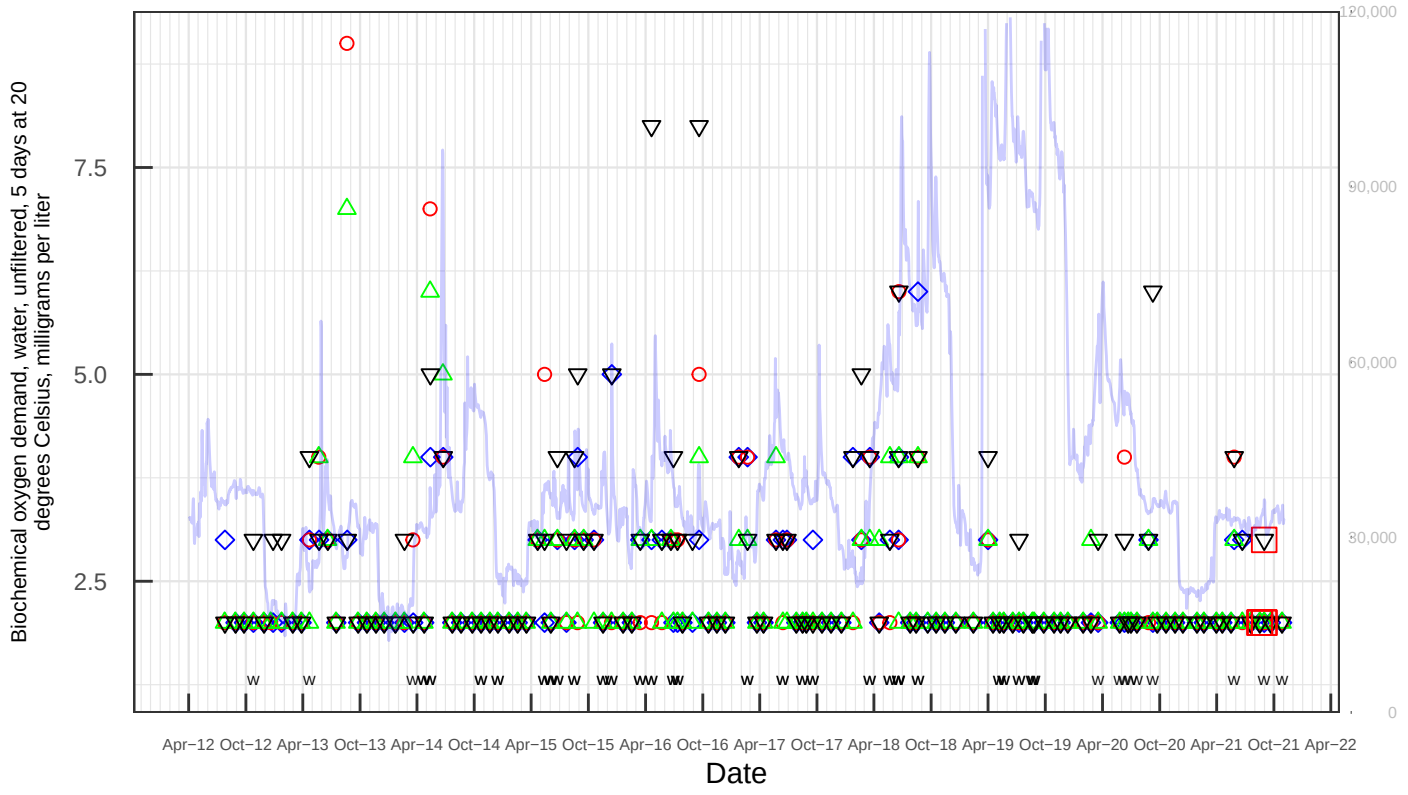
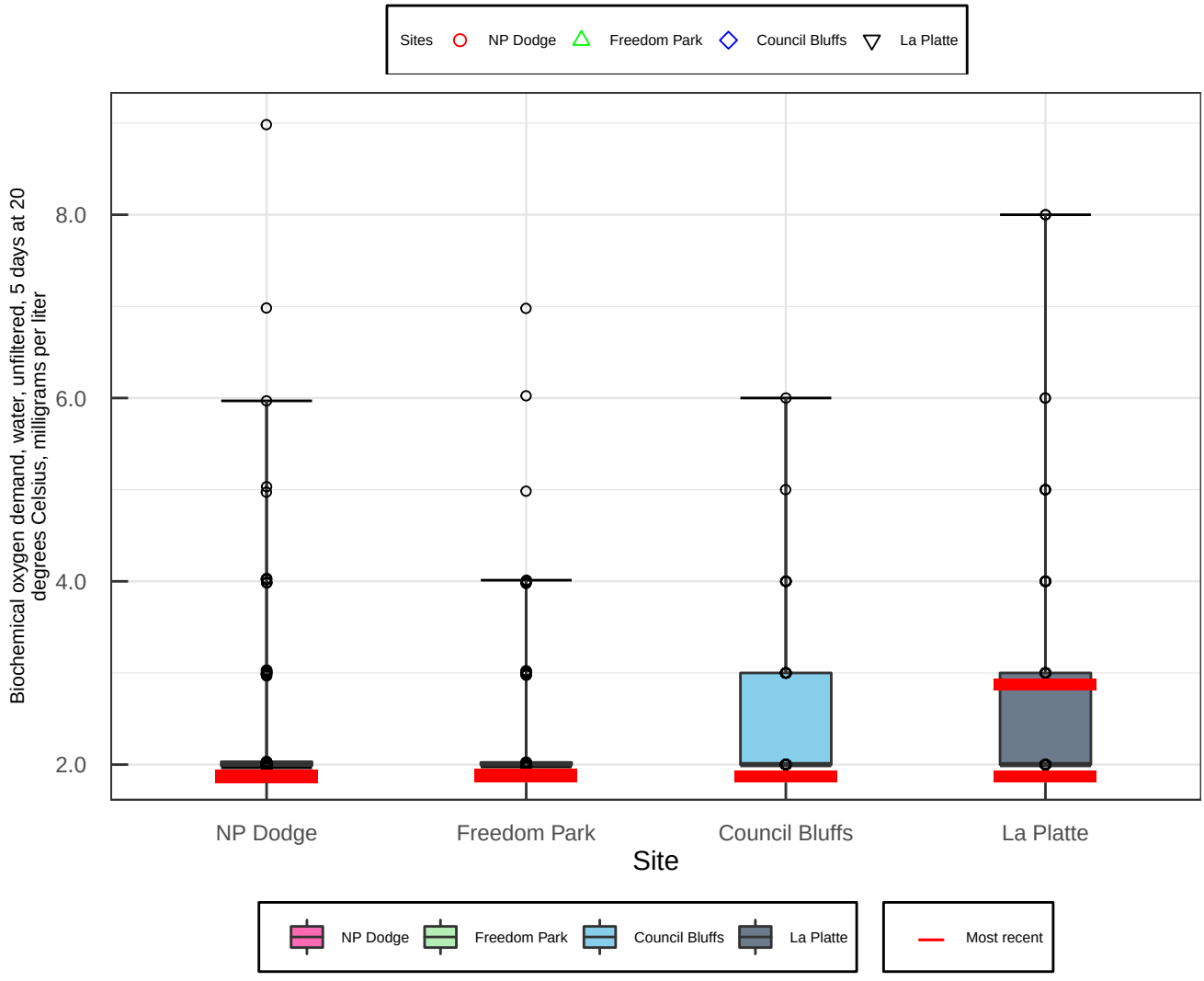
Biochemical oxygen demand





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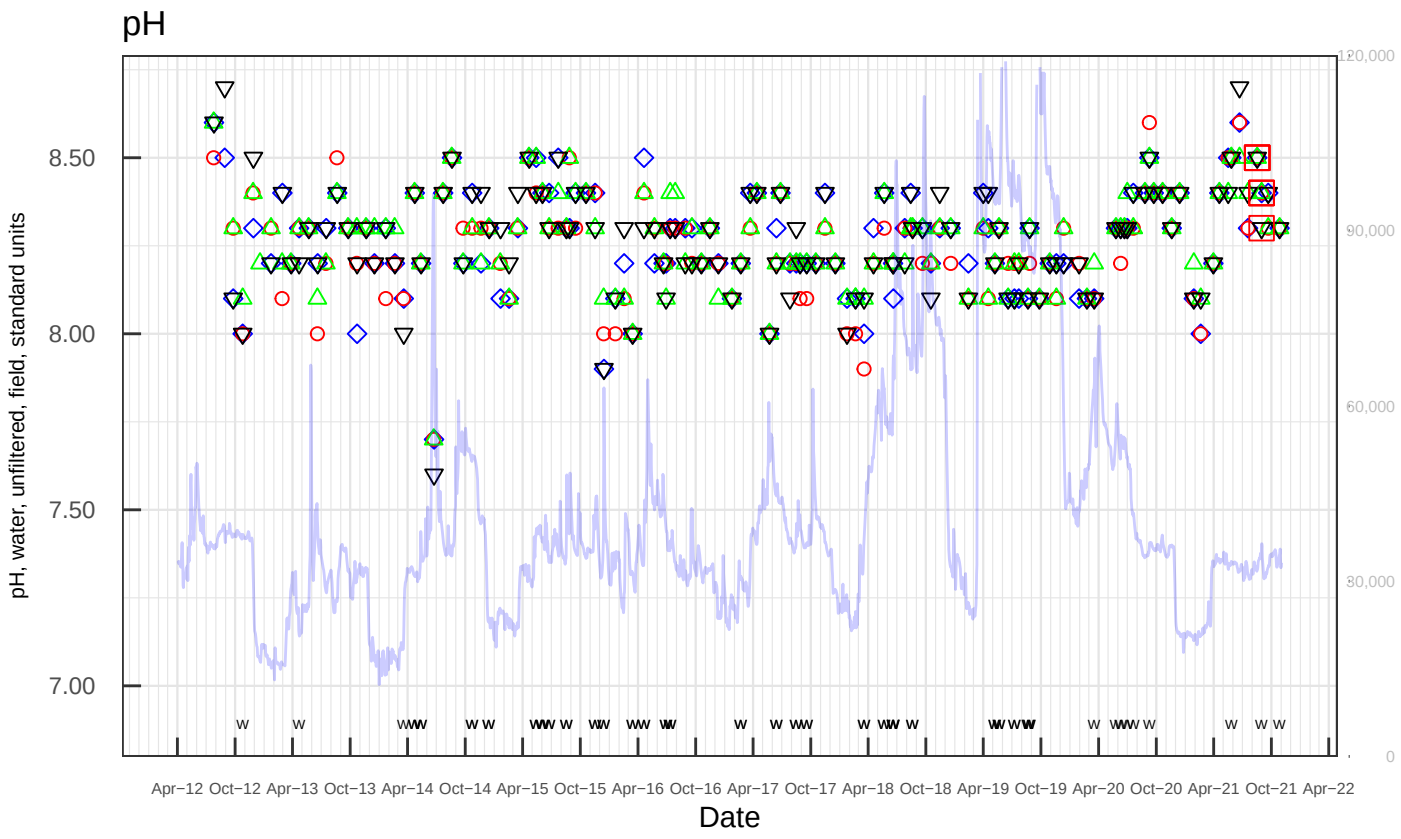
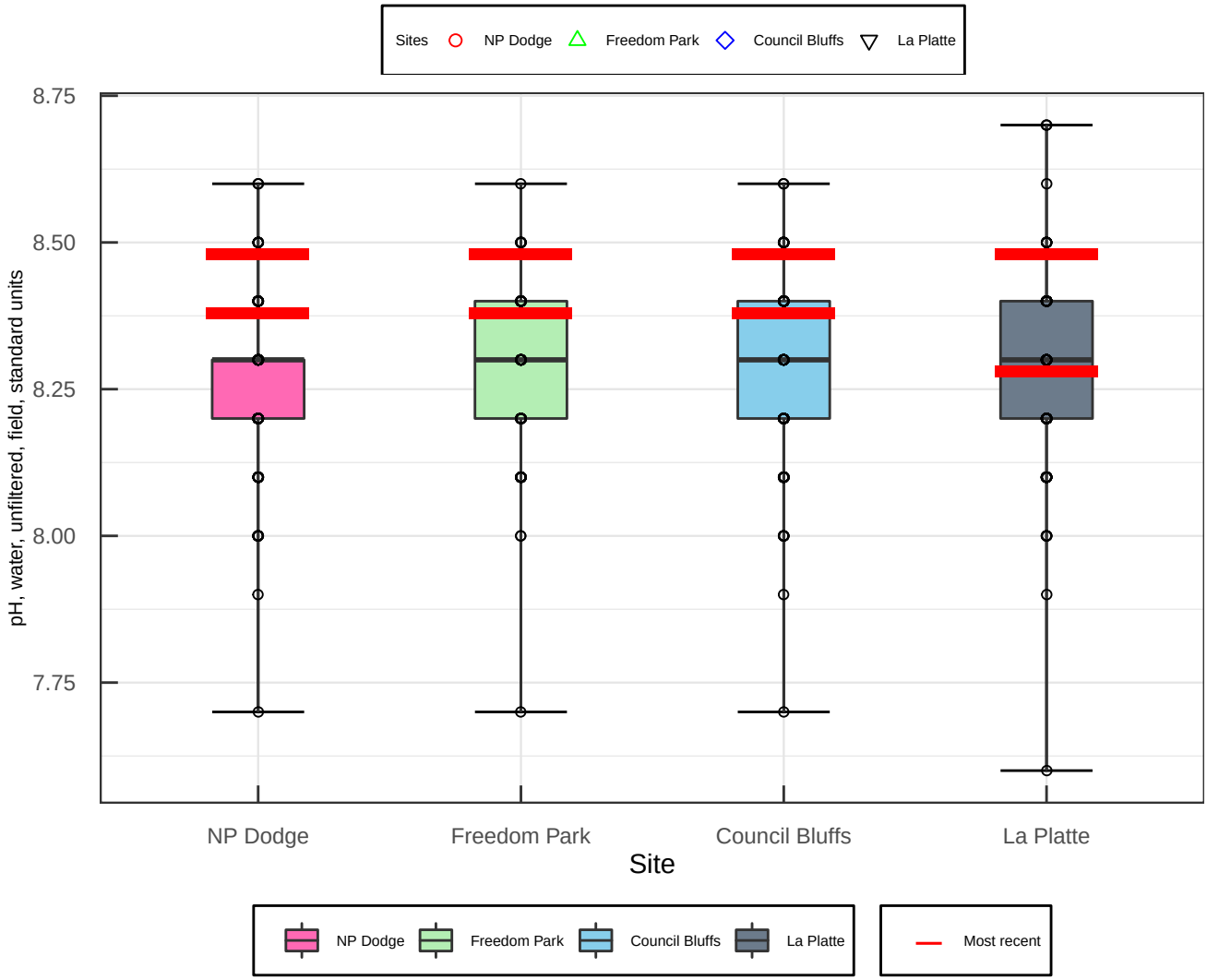
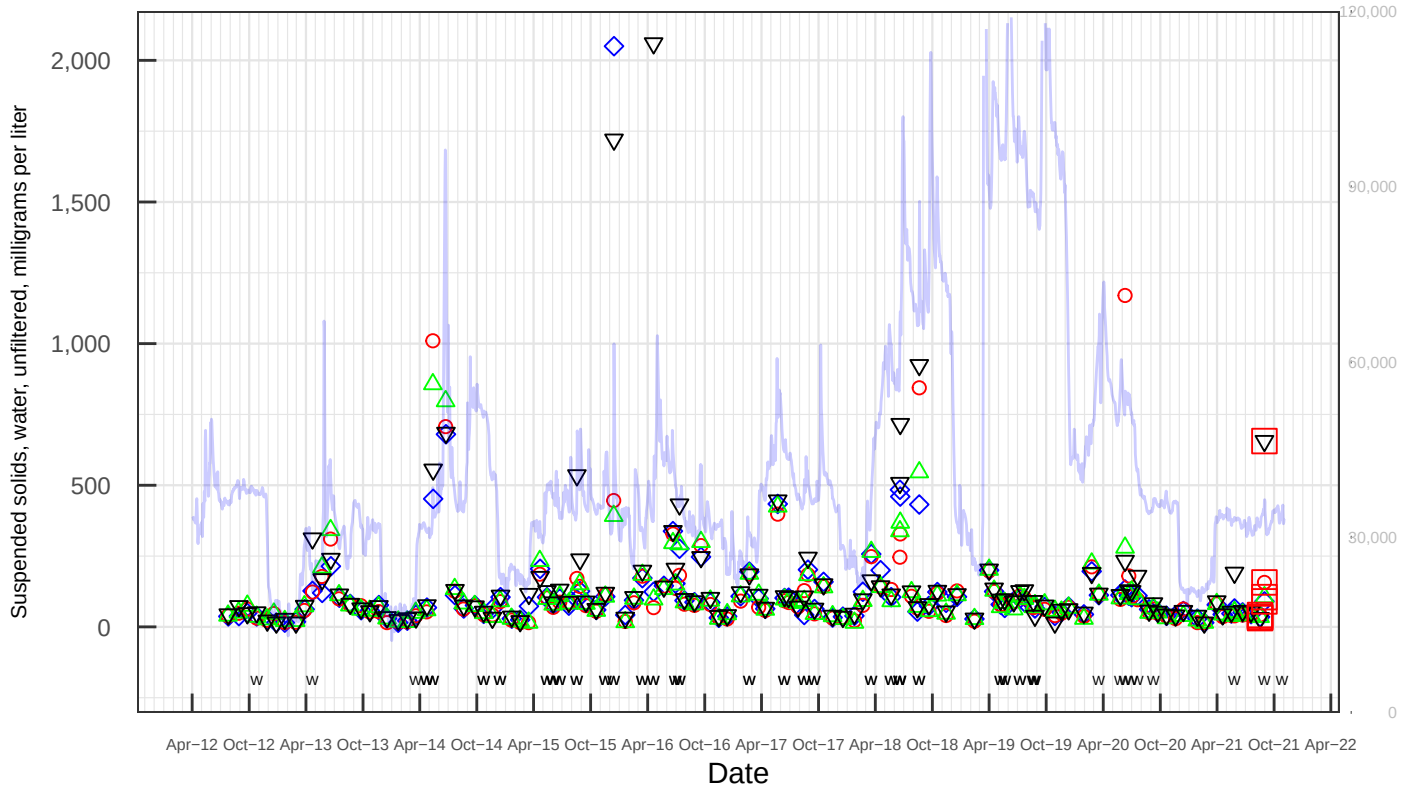


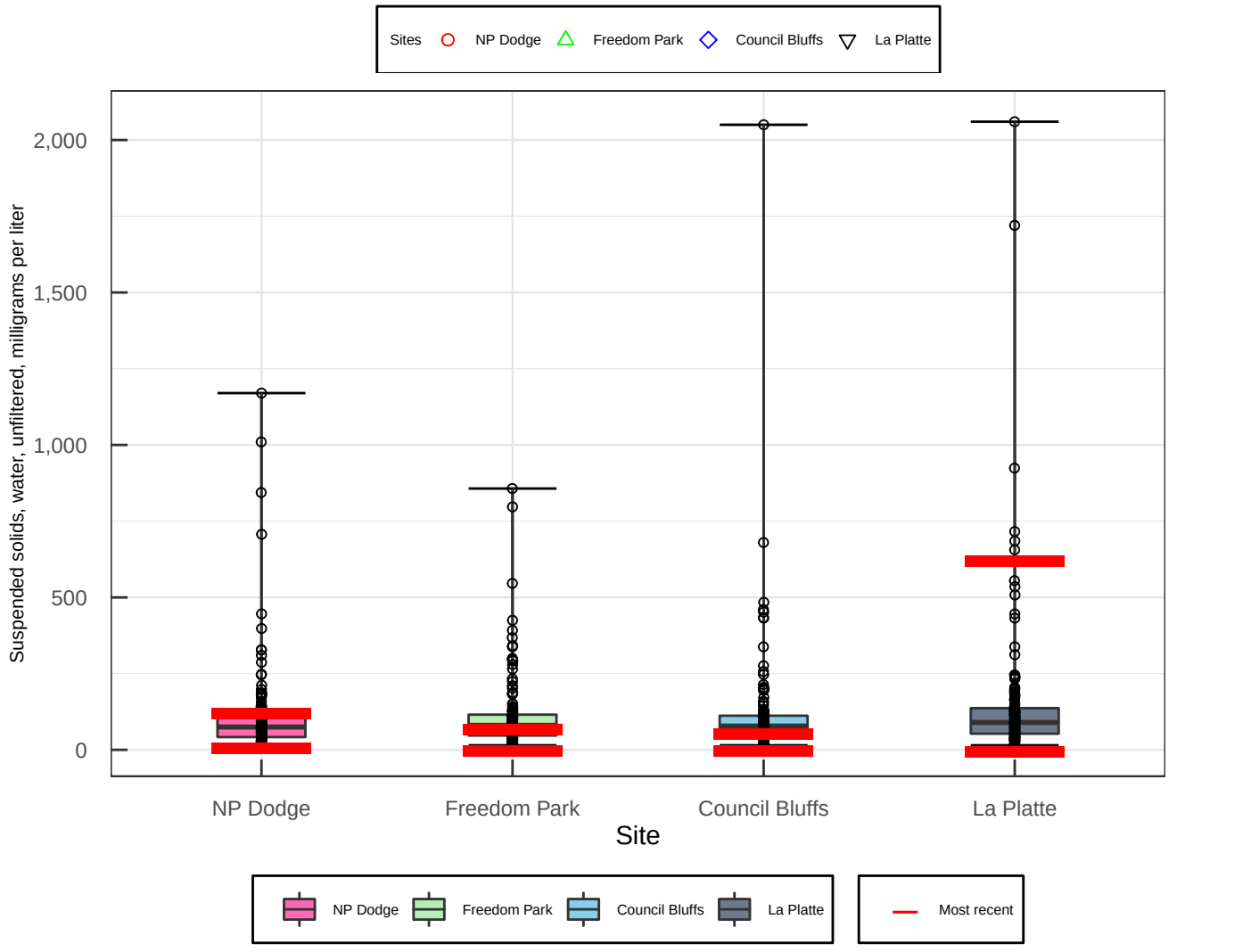


−−PRELIMINARY DATA SUBJECT TO REVISION−−

data retrieved 11/04/2021

Suspended solids





−−PRELIMINARY DATA SUBJECT TO REVISION−−

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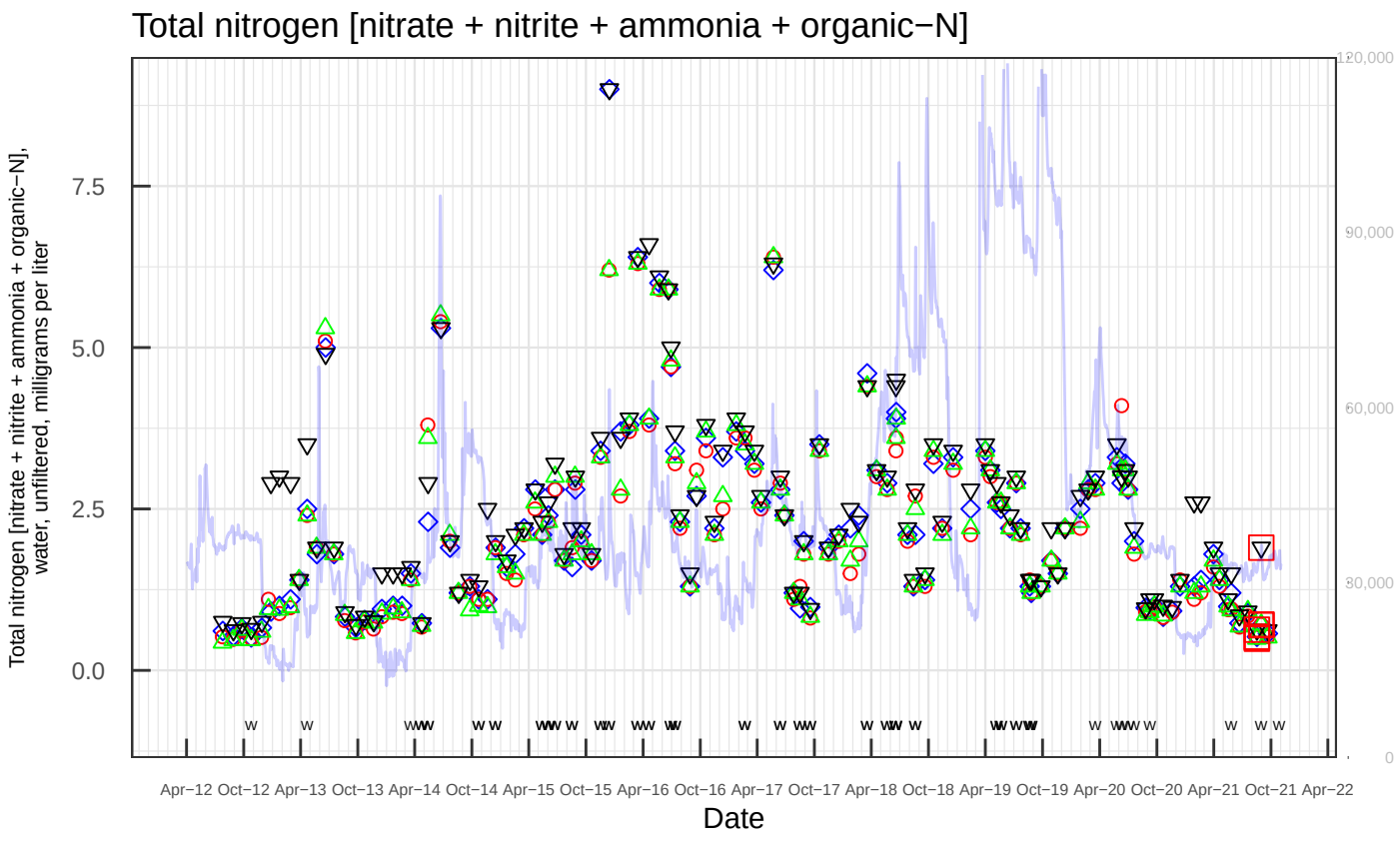

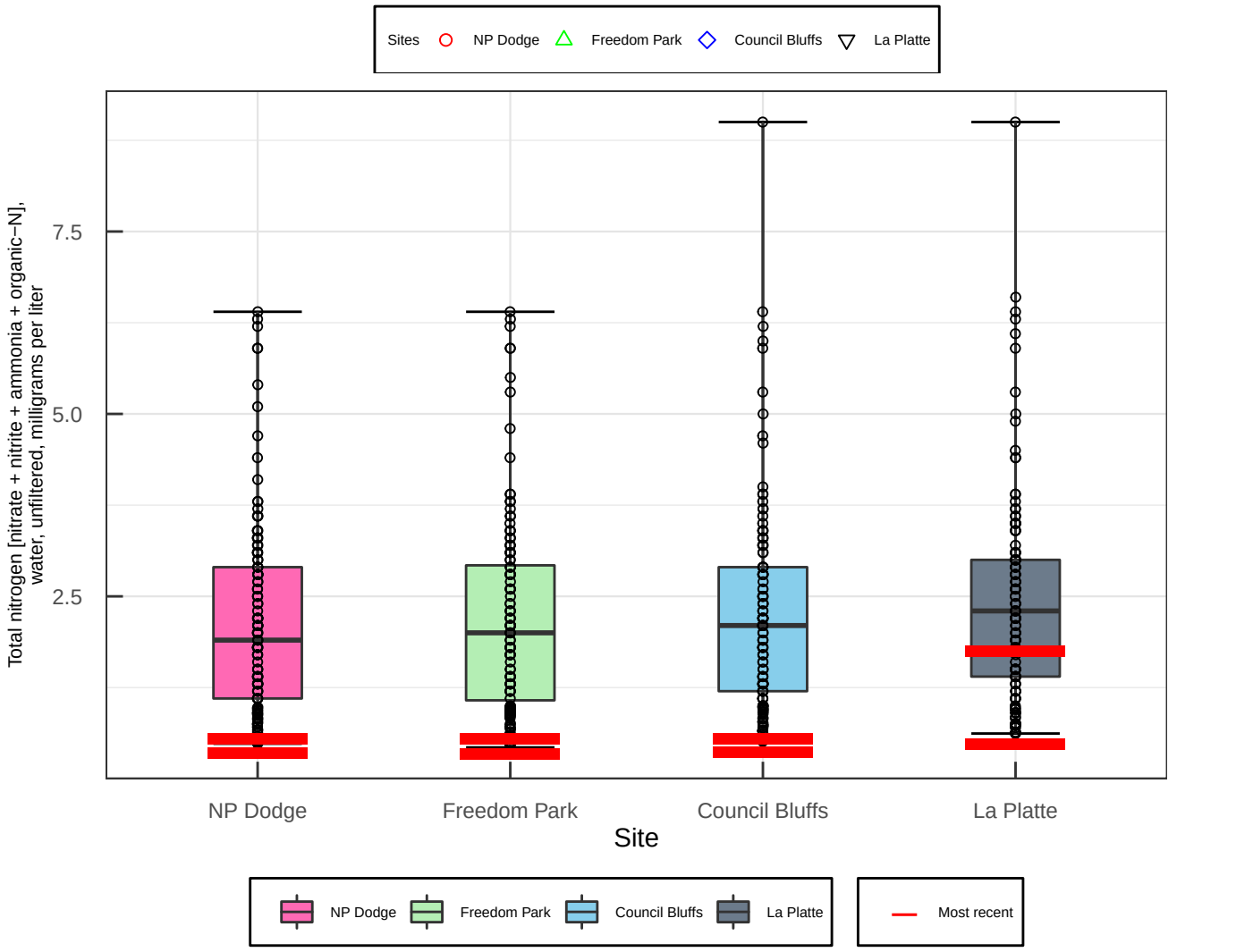

−−PRELIMINARY DATA SUBJECT TO REVISION−−

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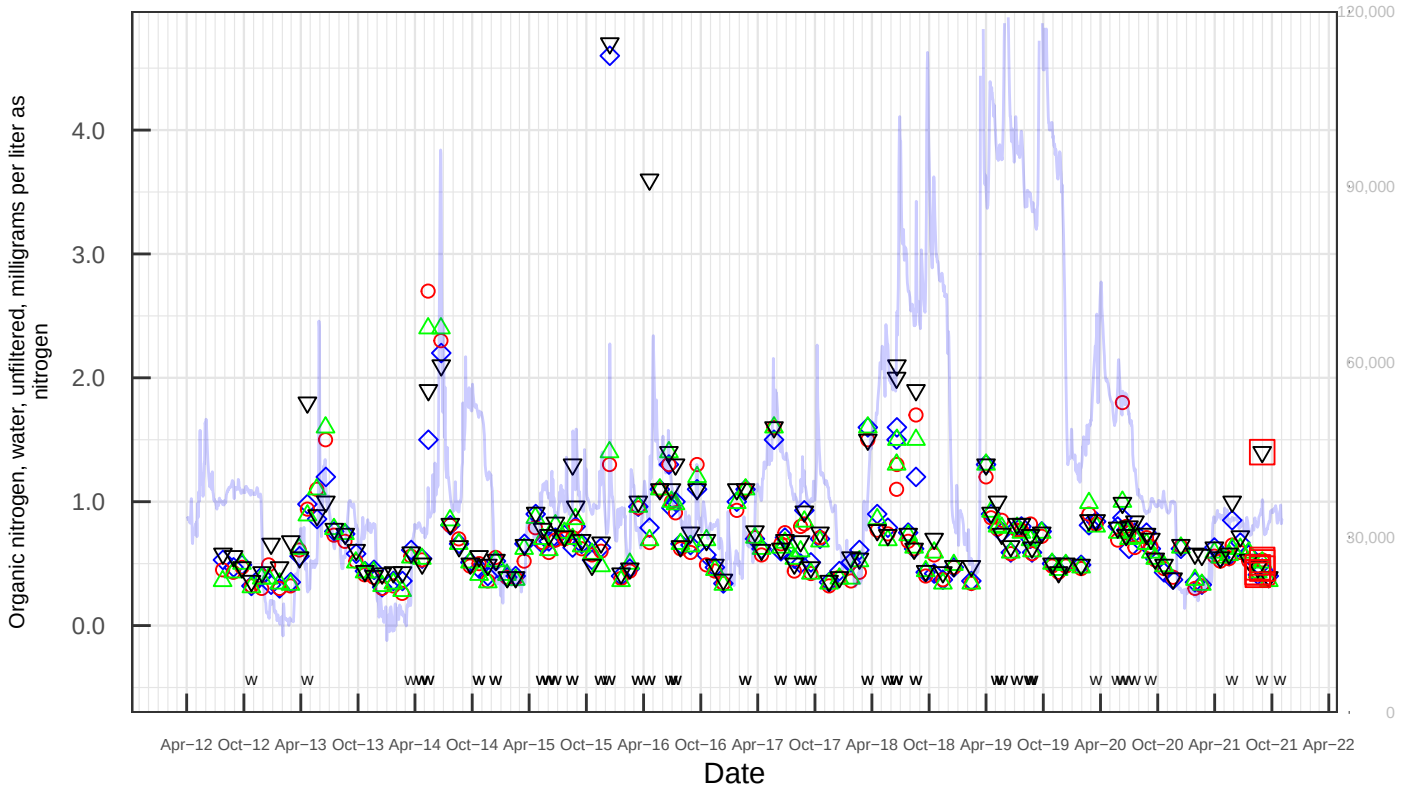
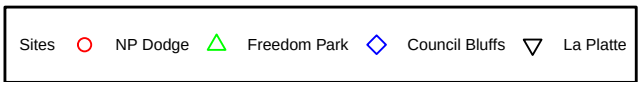
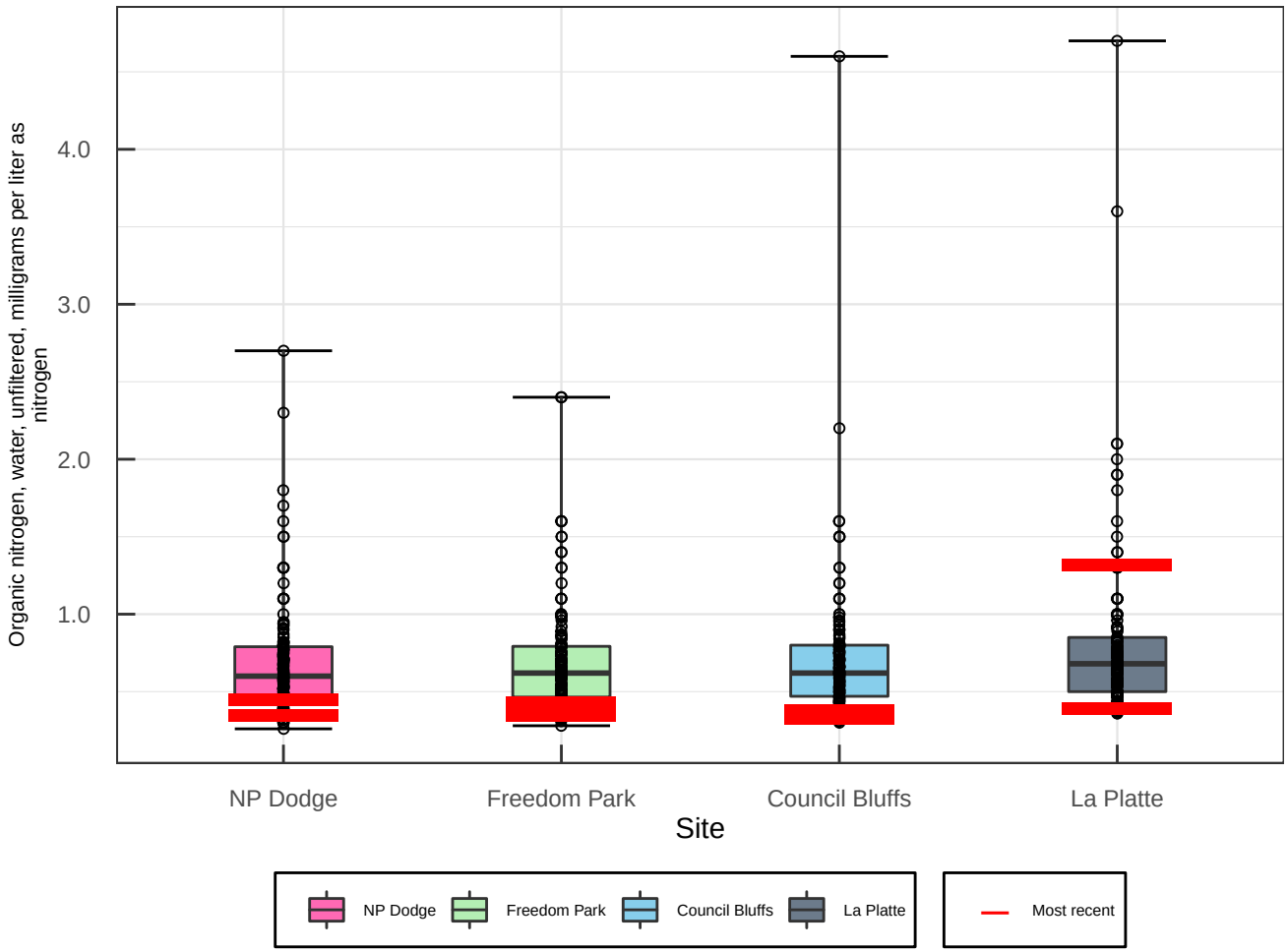
Organic nitrogen







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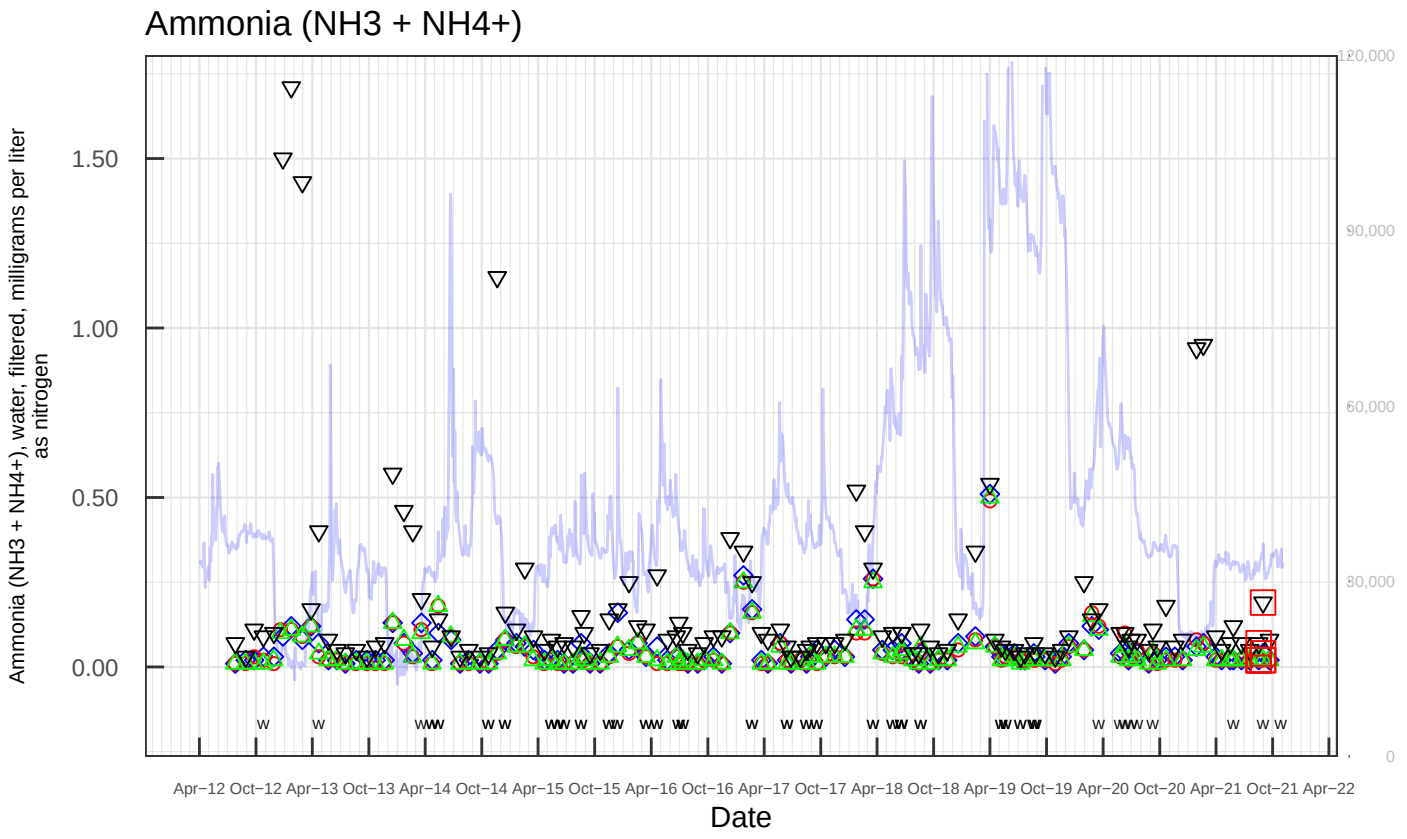

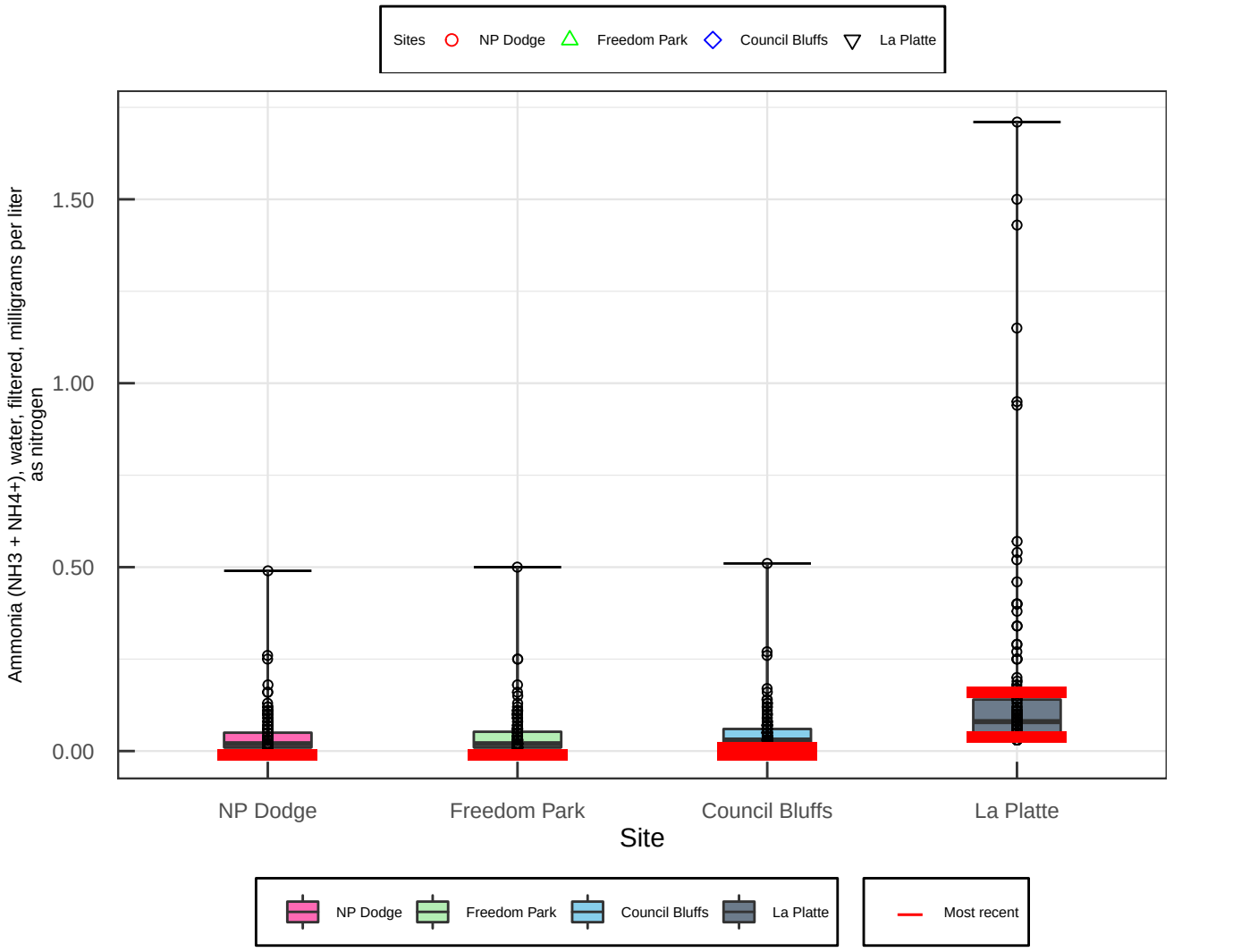

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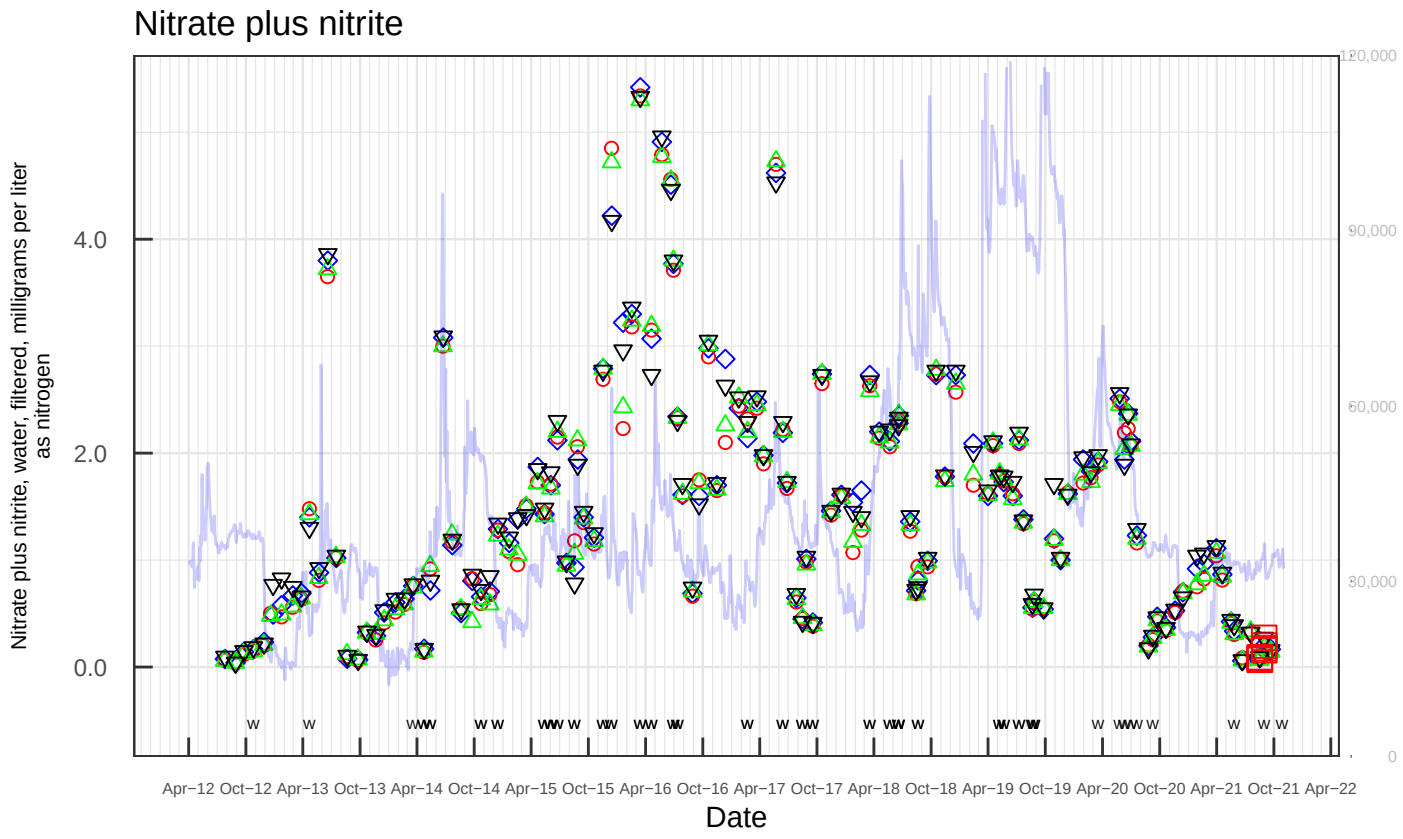

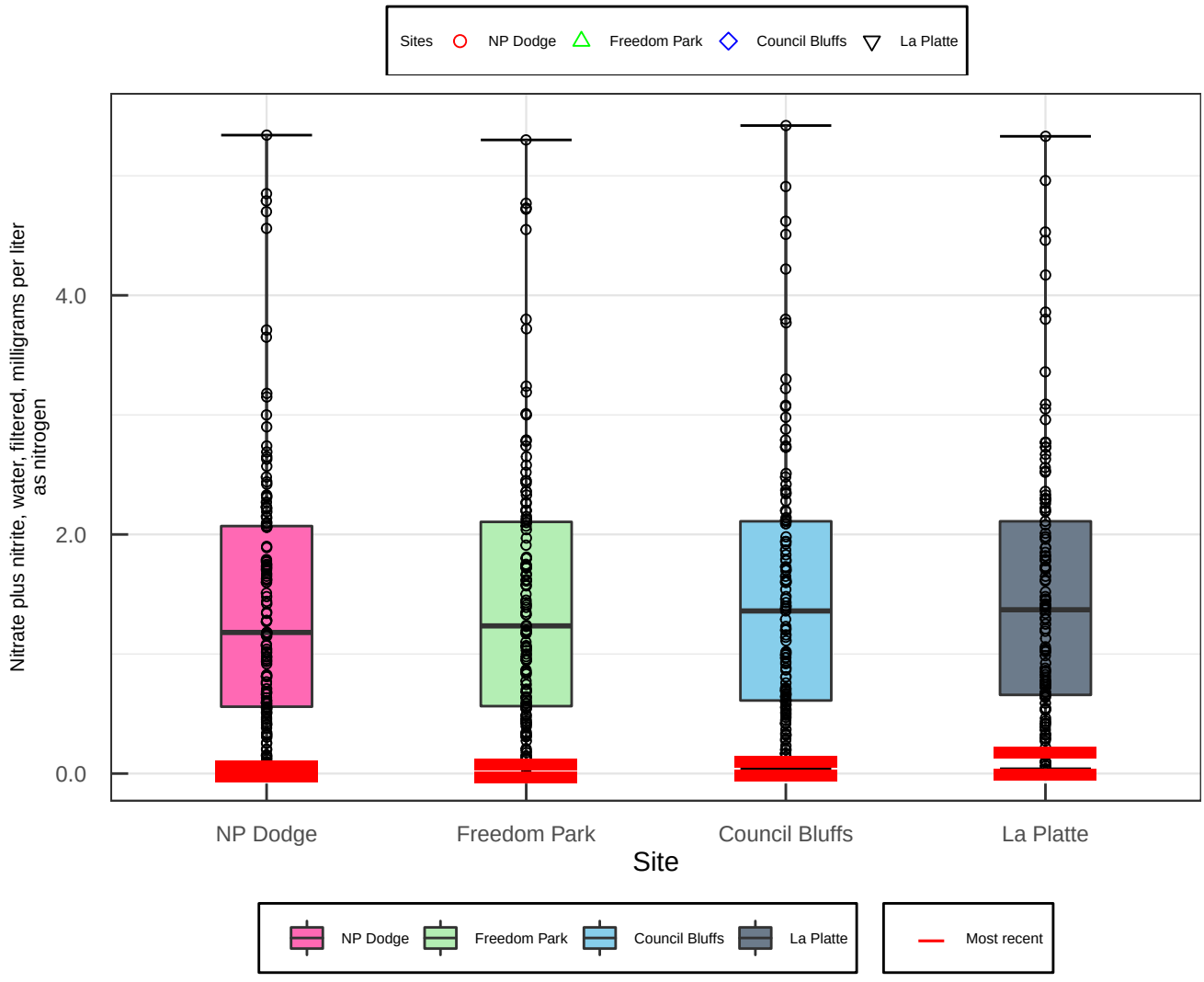

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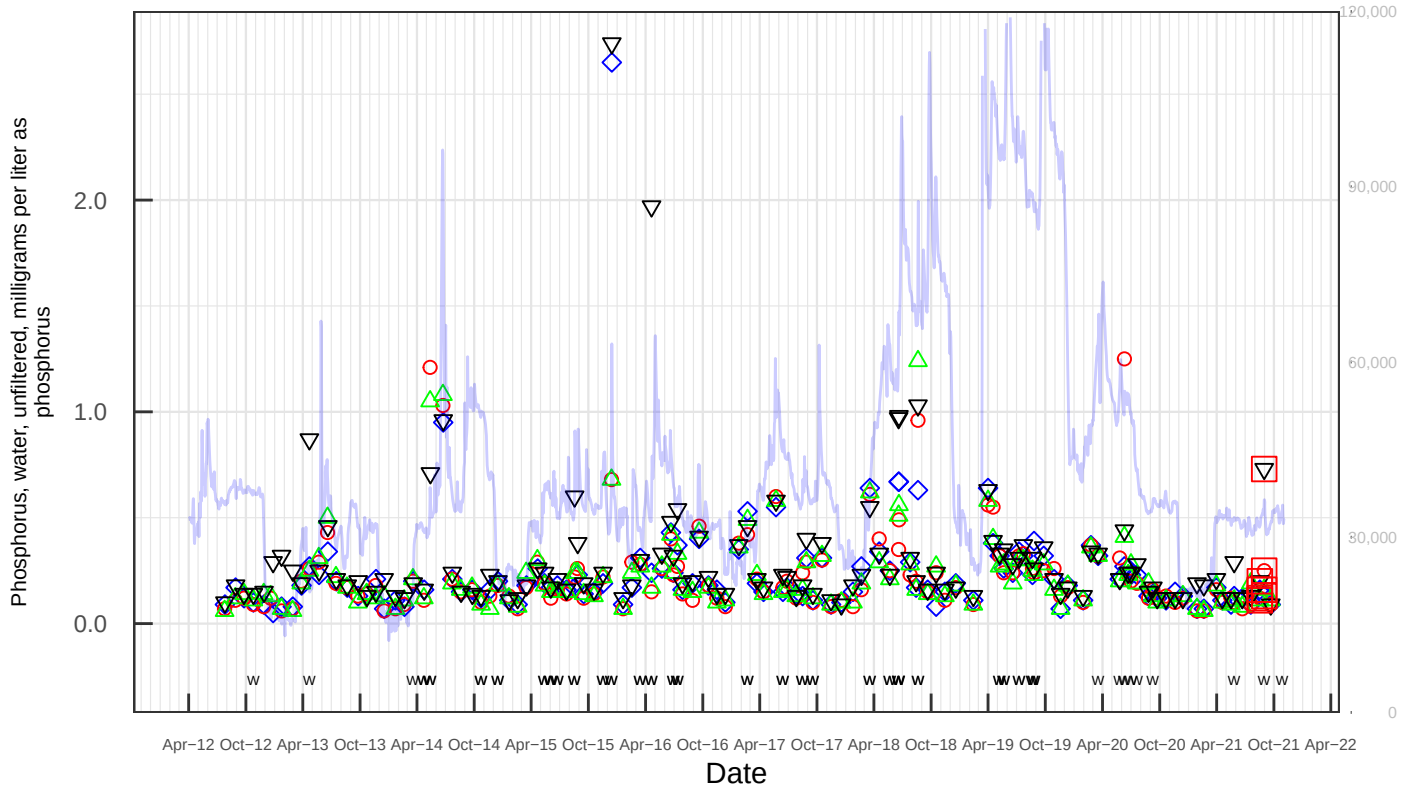
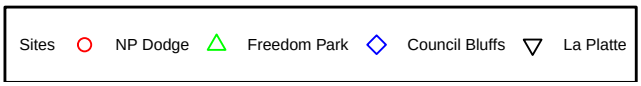
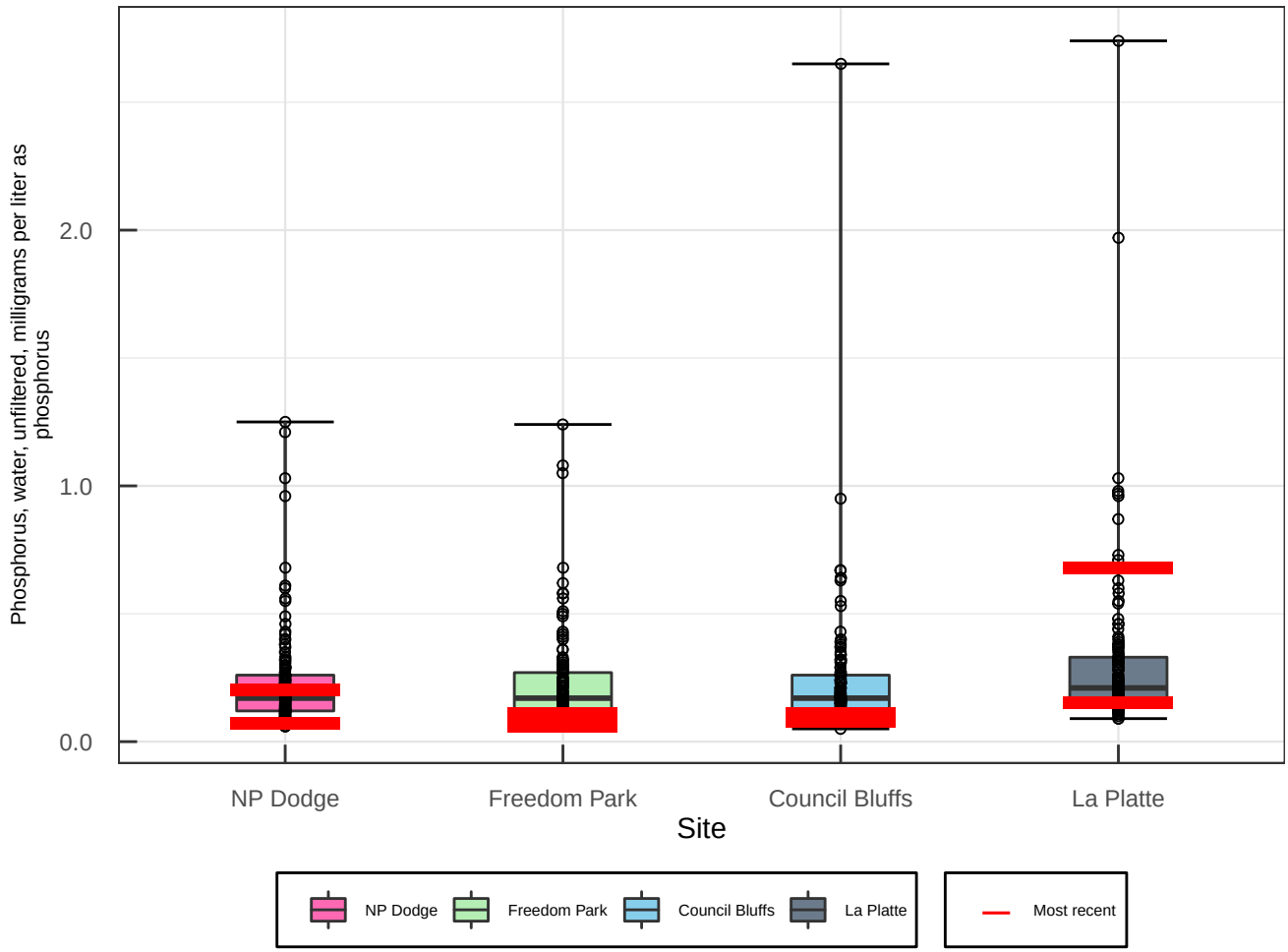
Phosphorus







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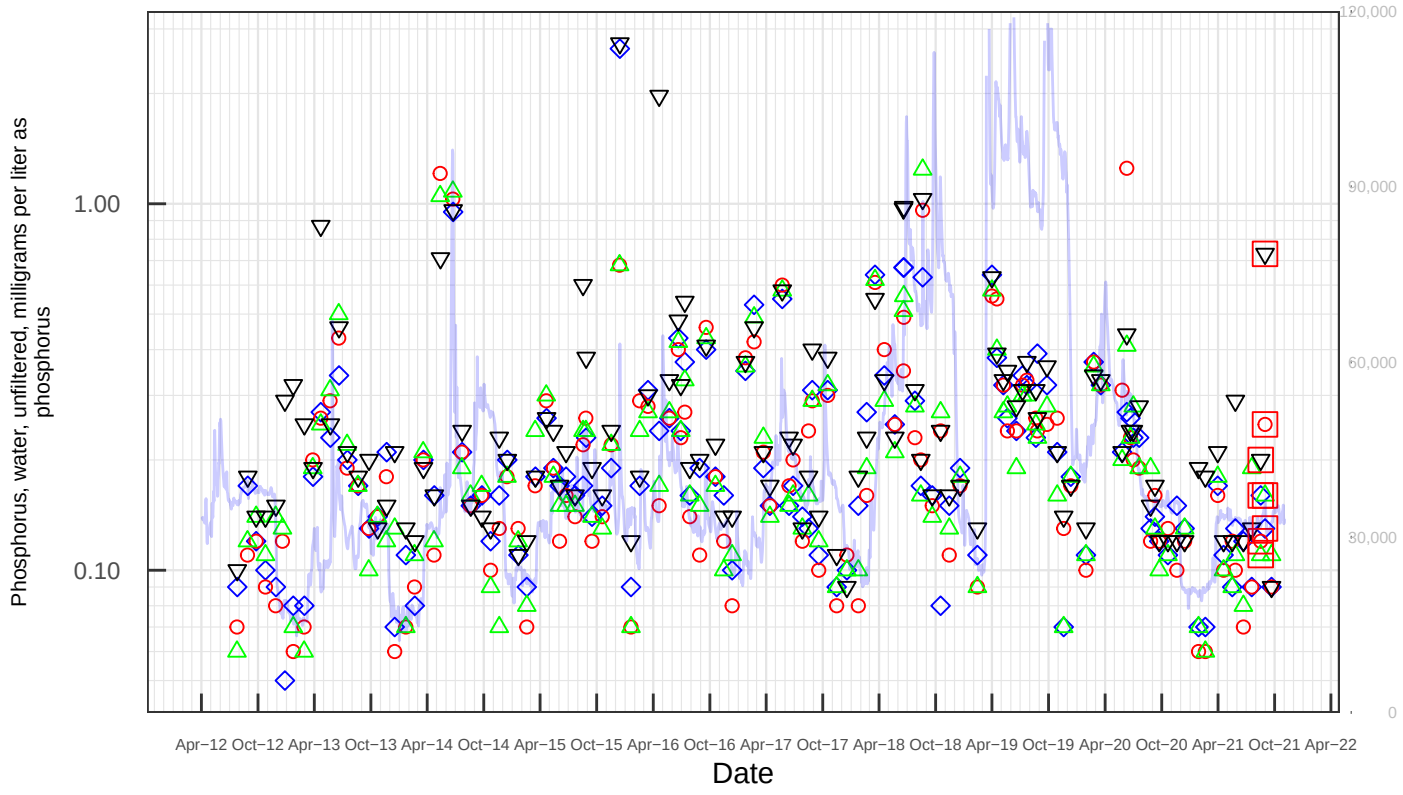
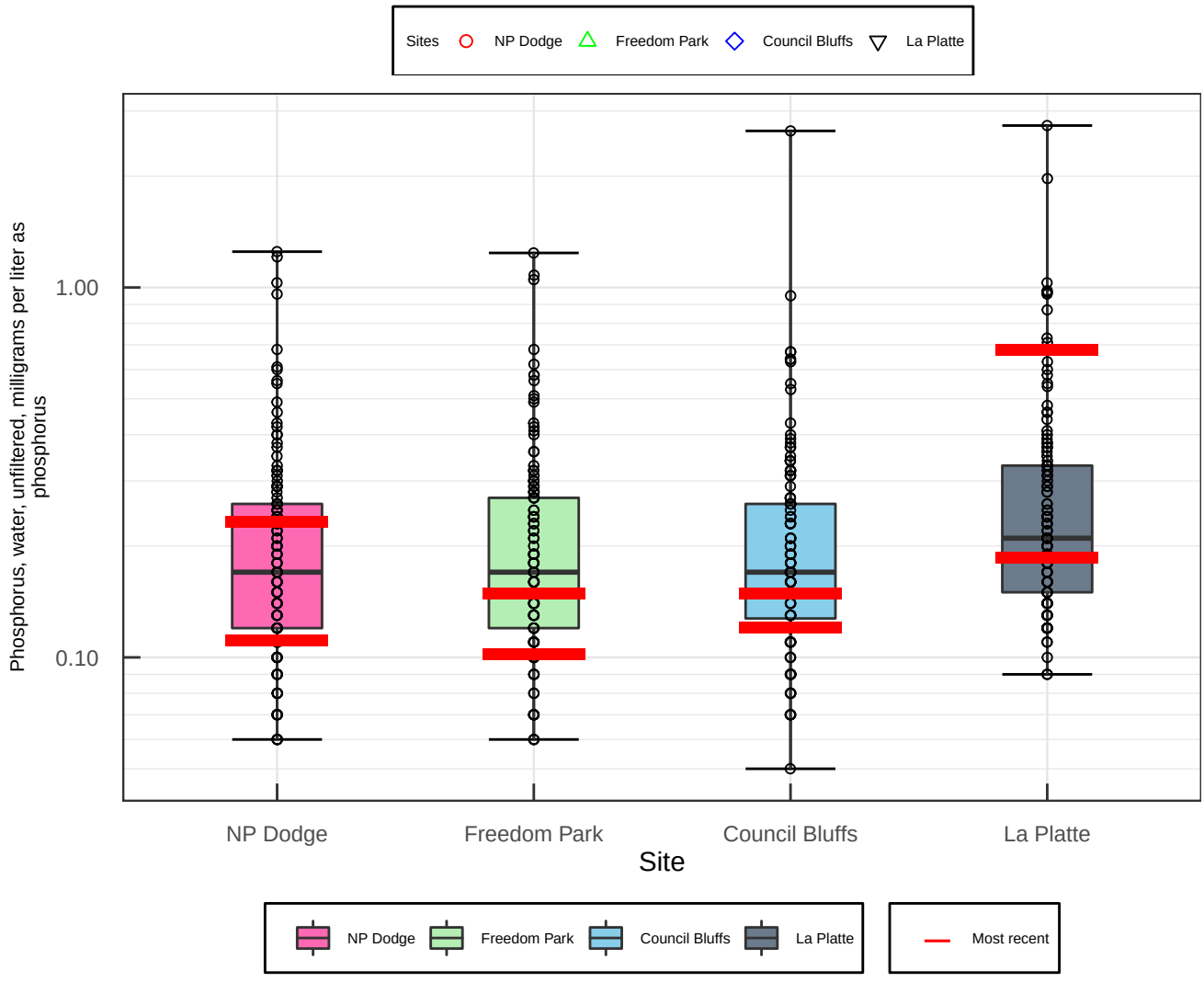
Phosphorus





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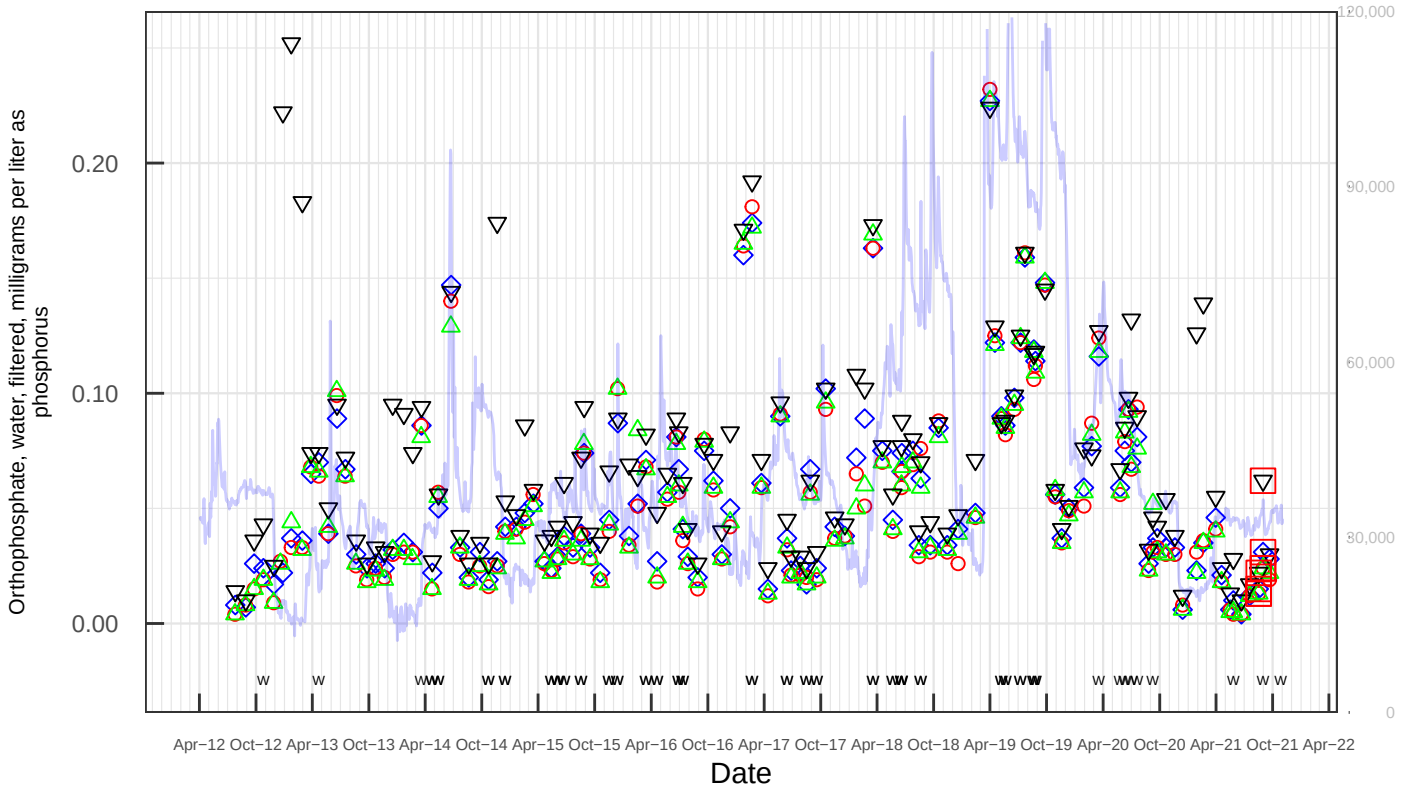
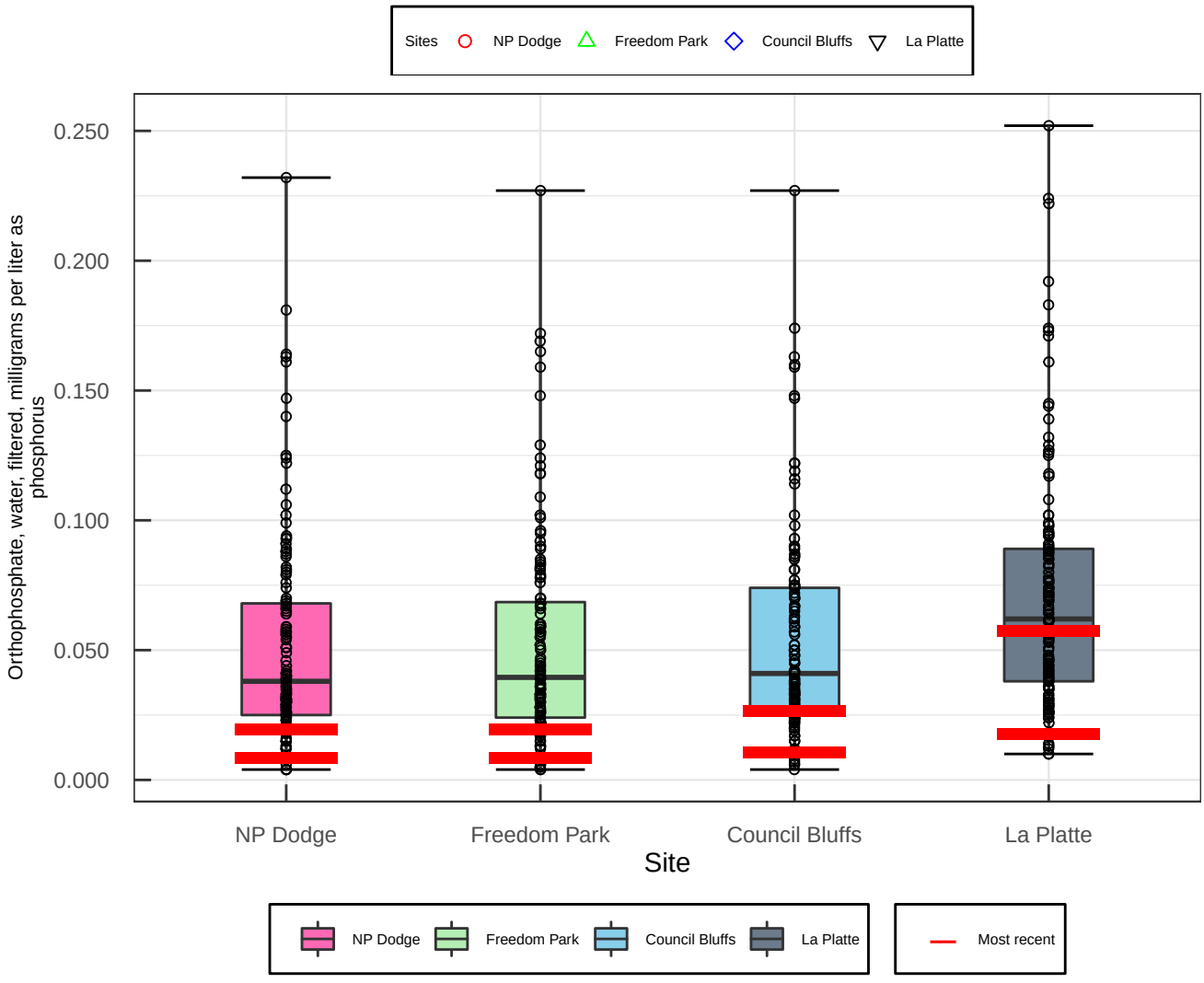
Orthophosphate





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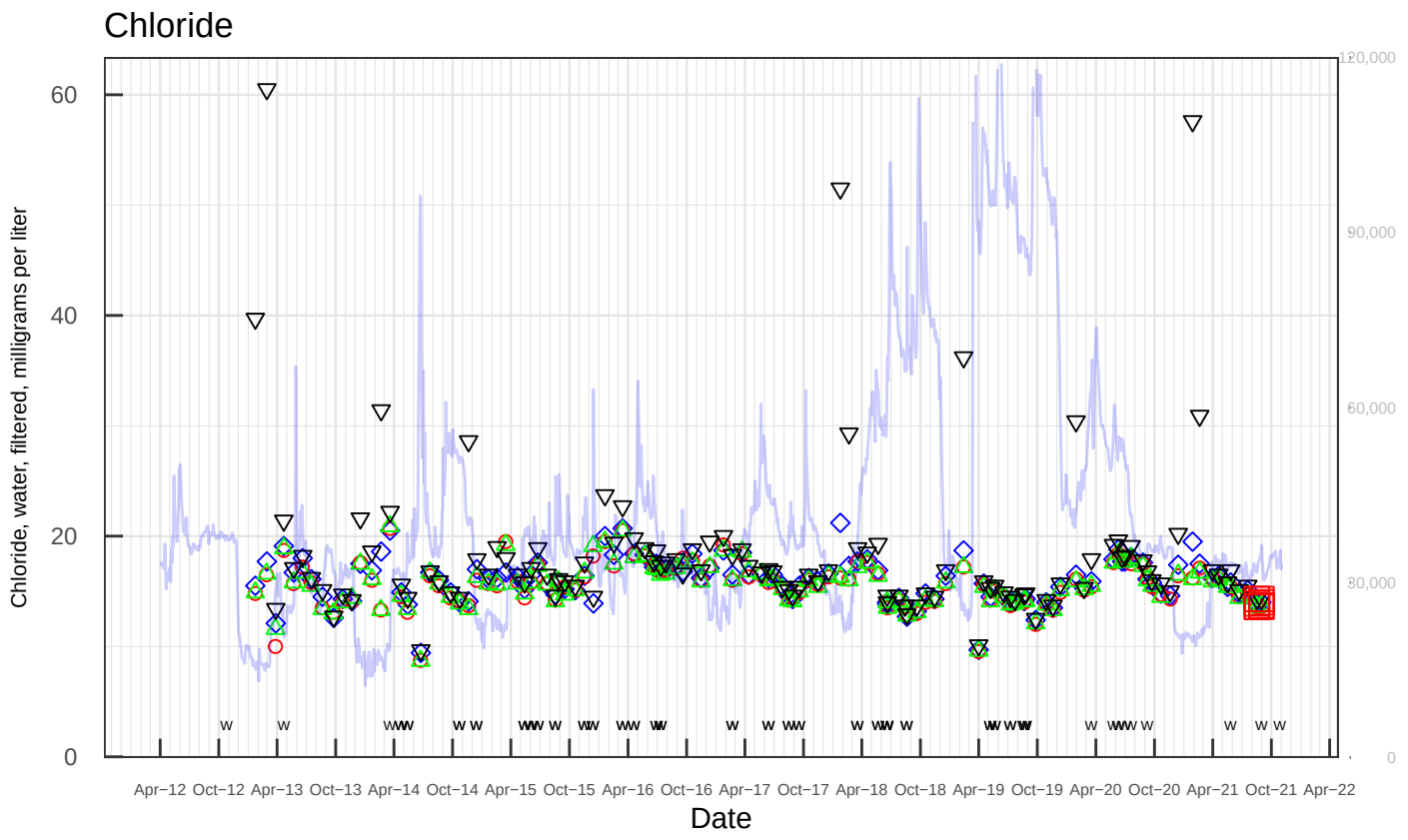

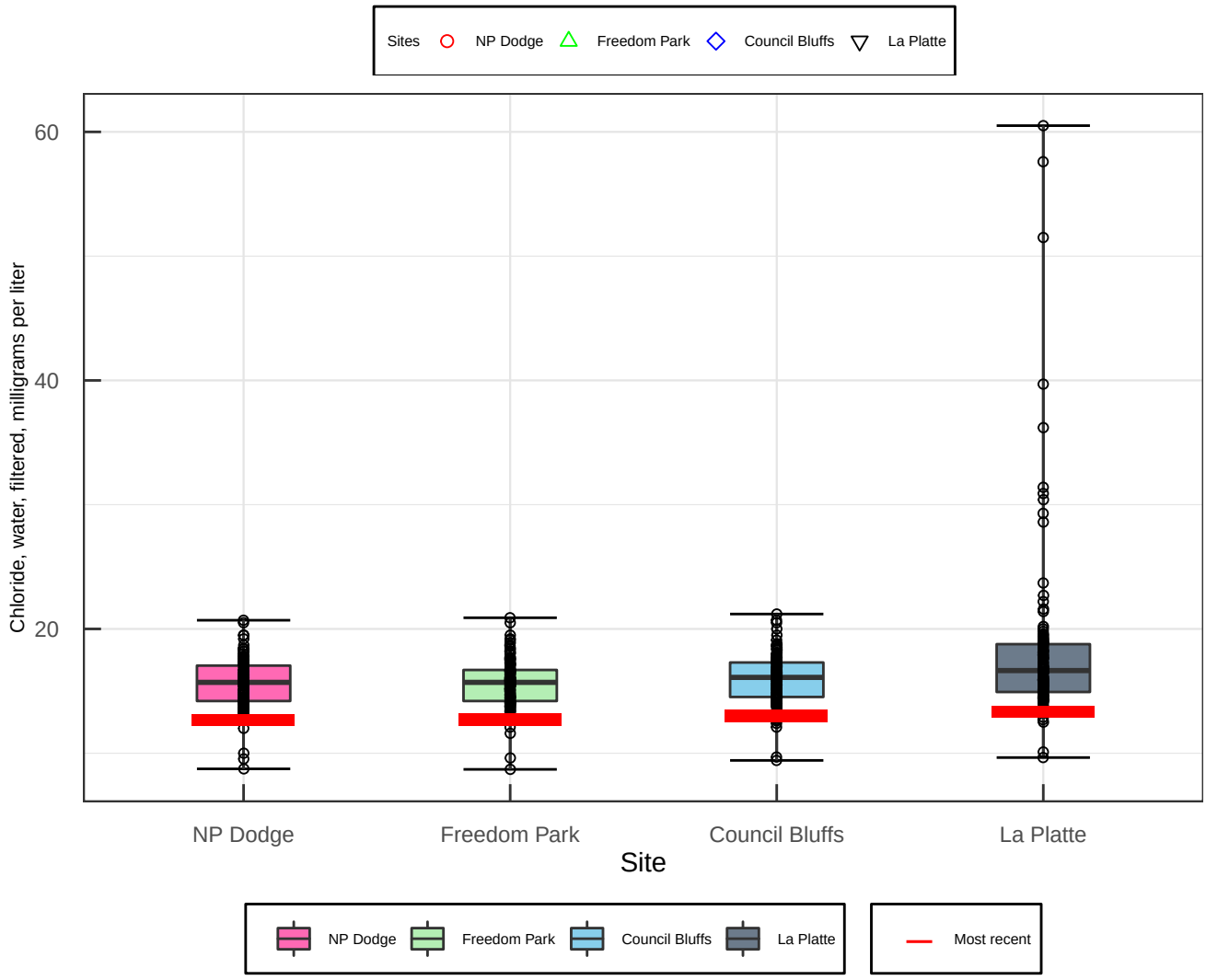

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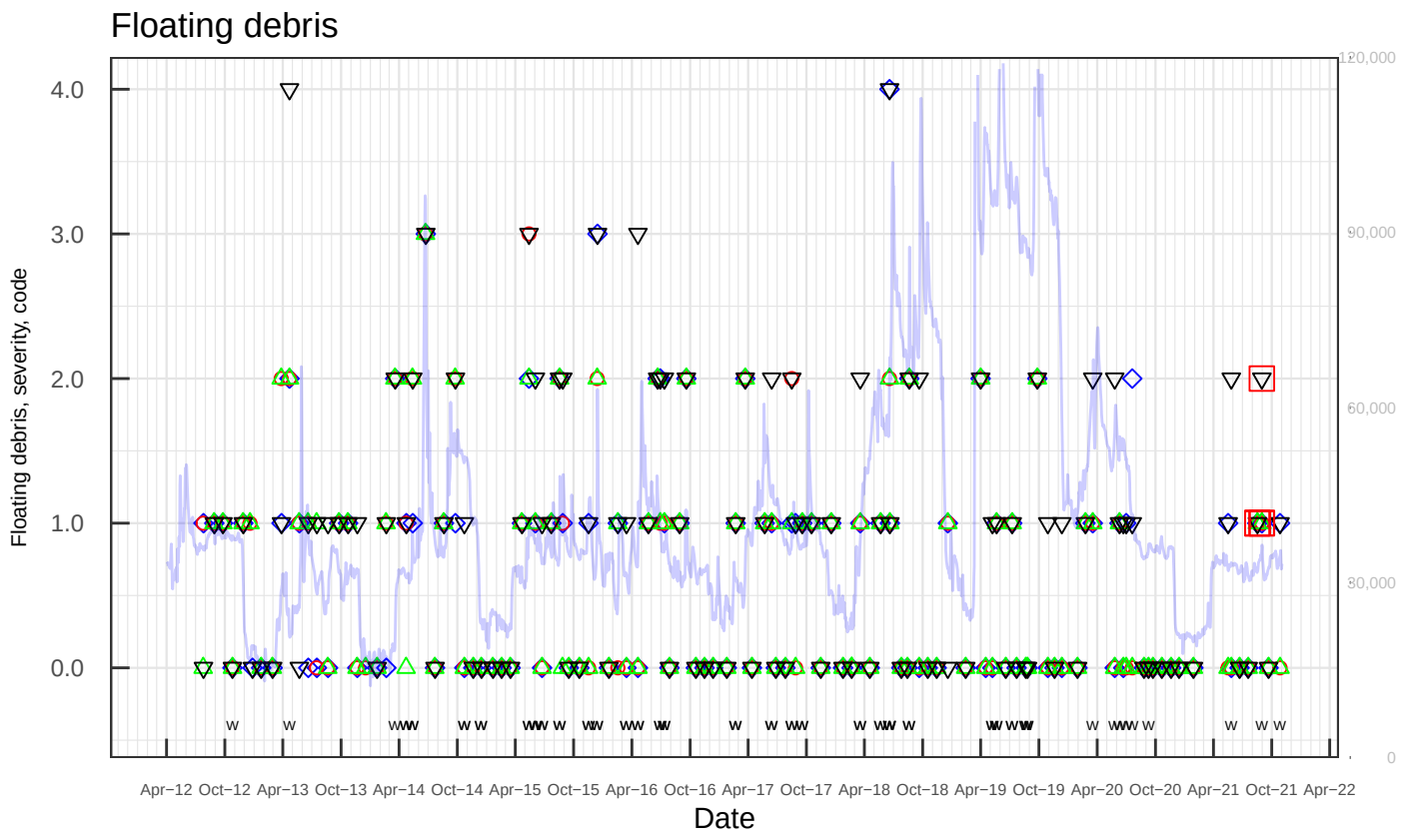

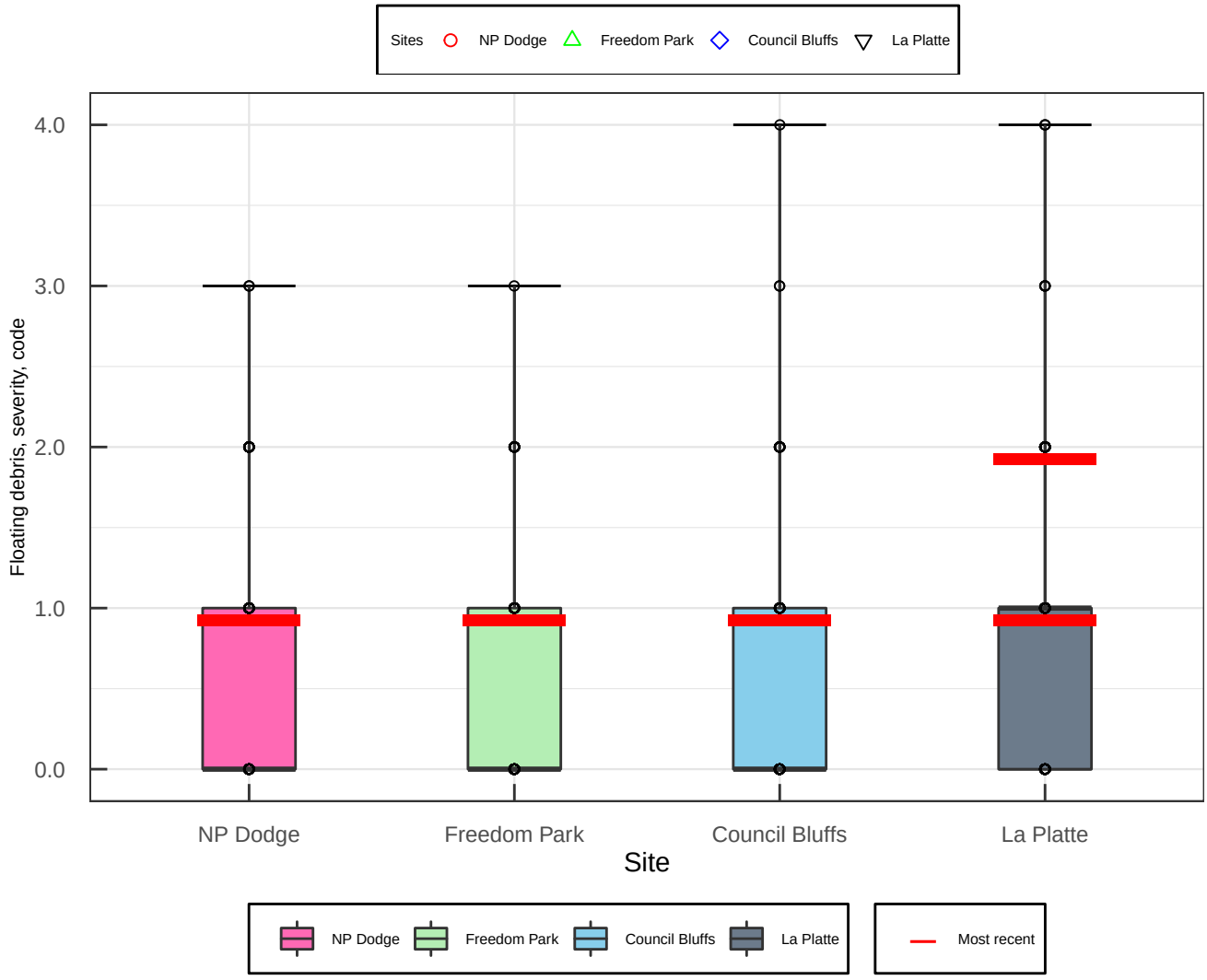

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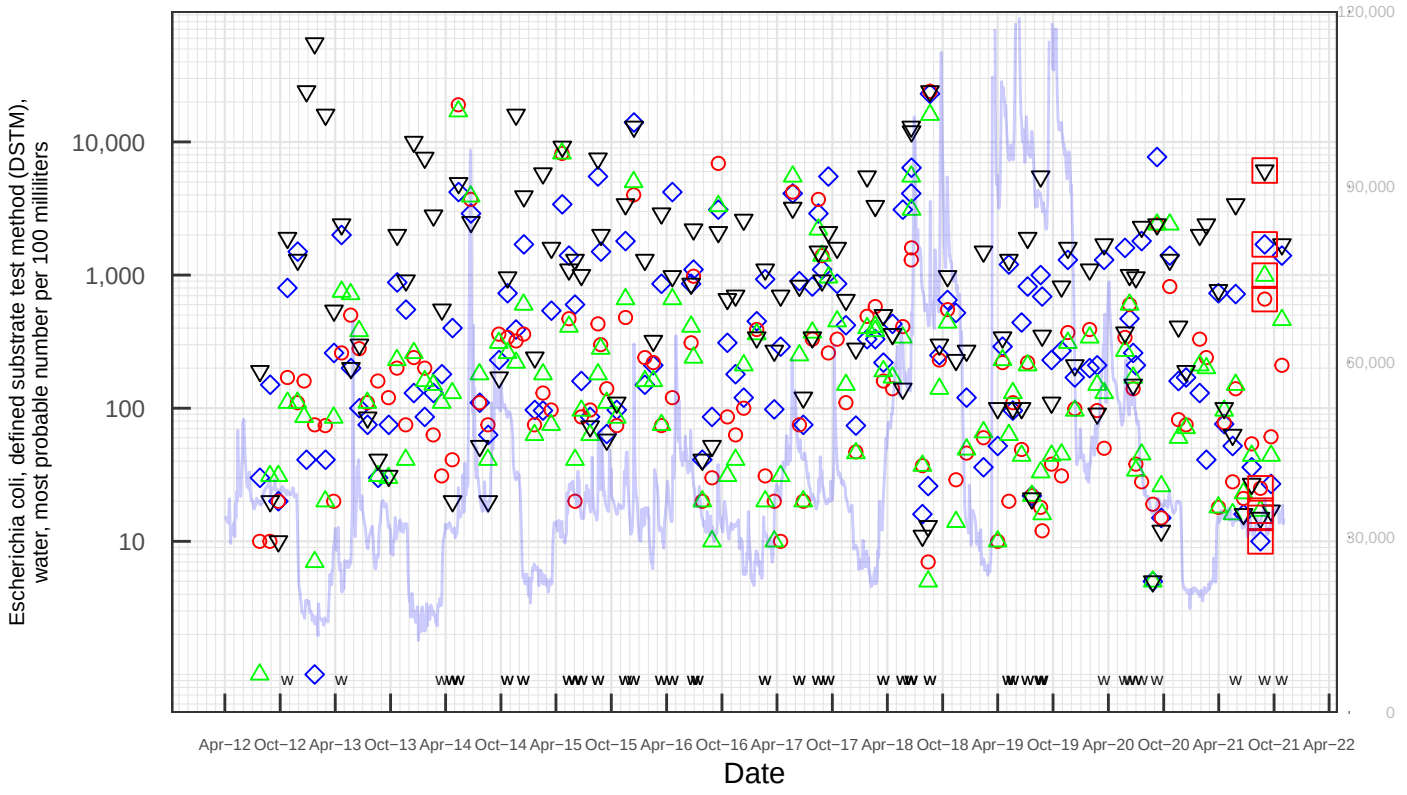
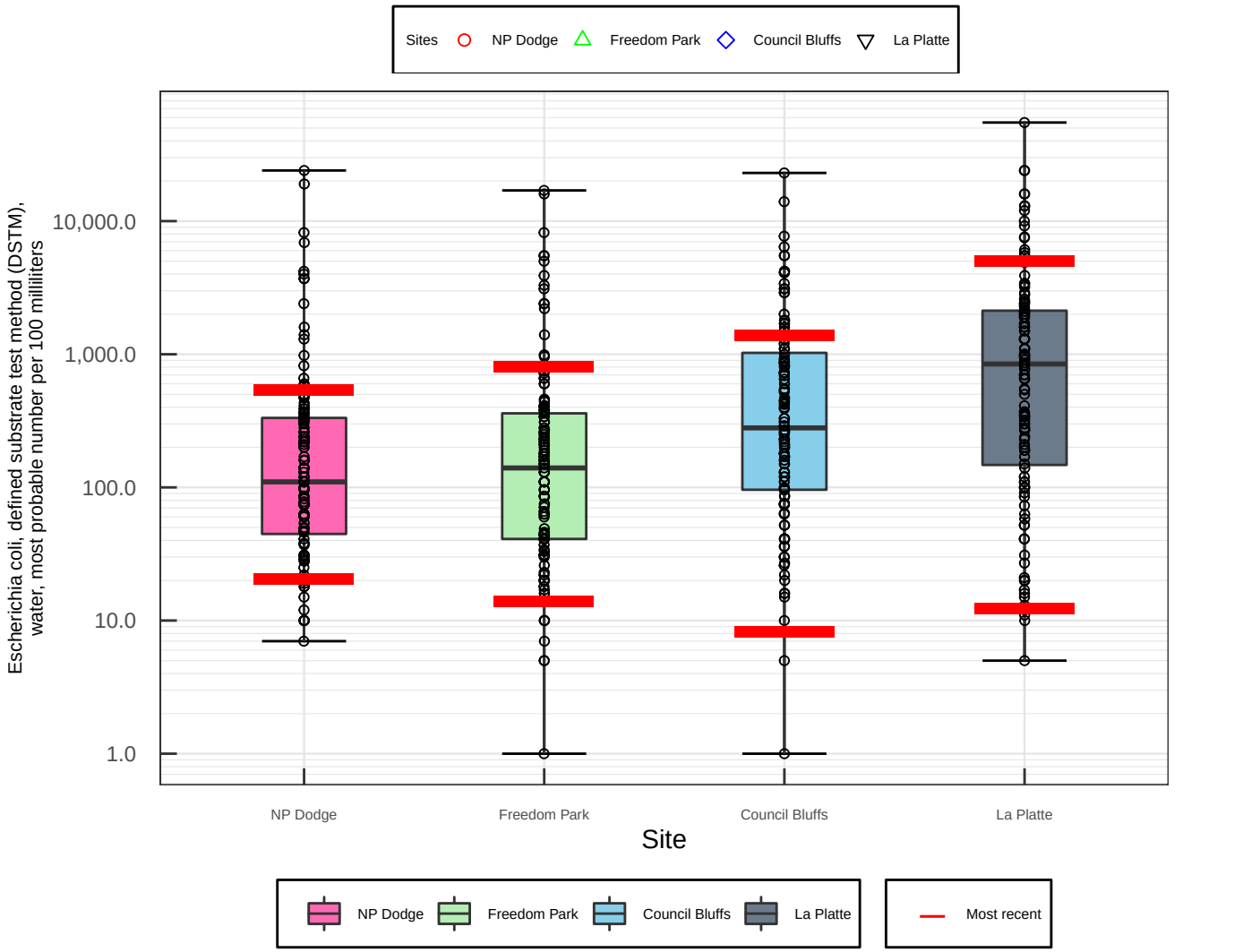
Escherichia coli





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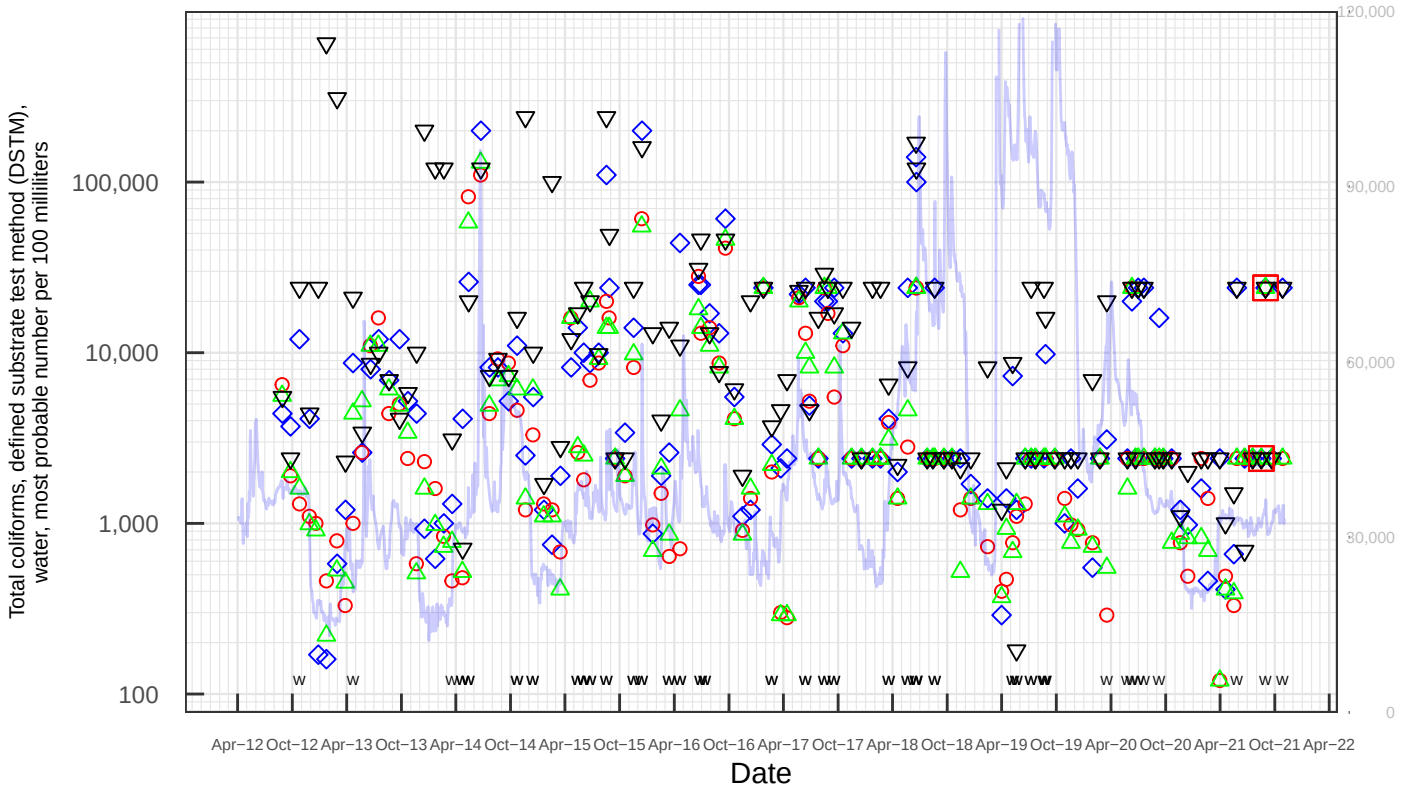
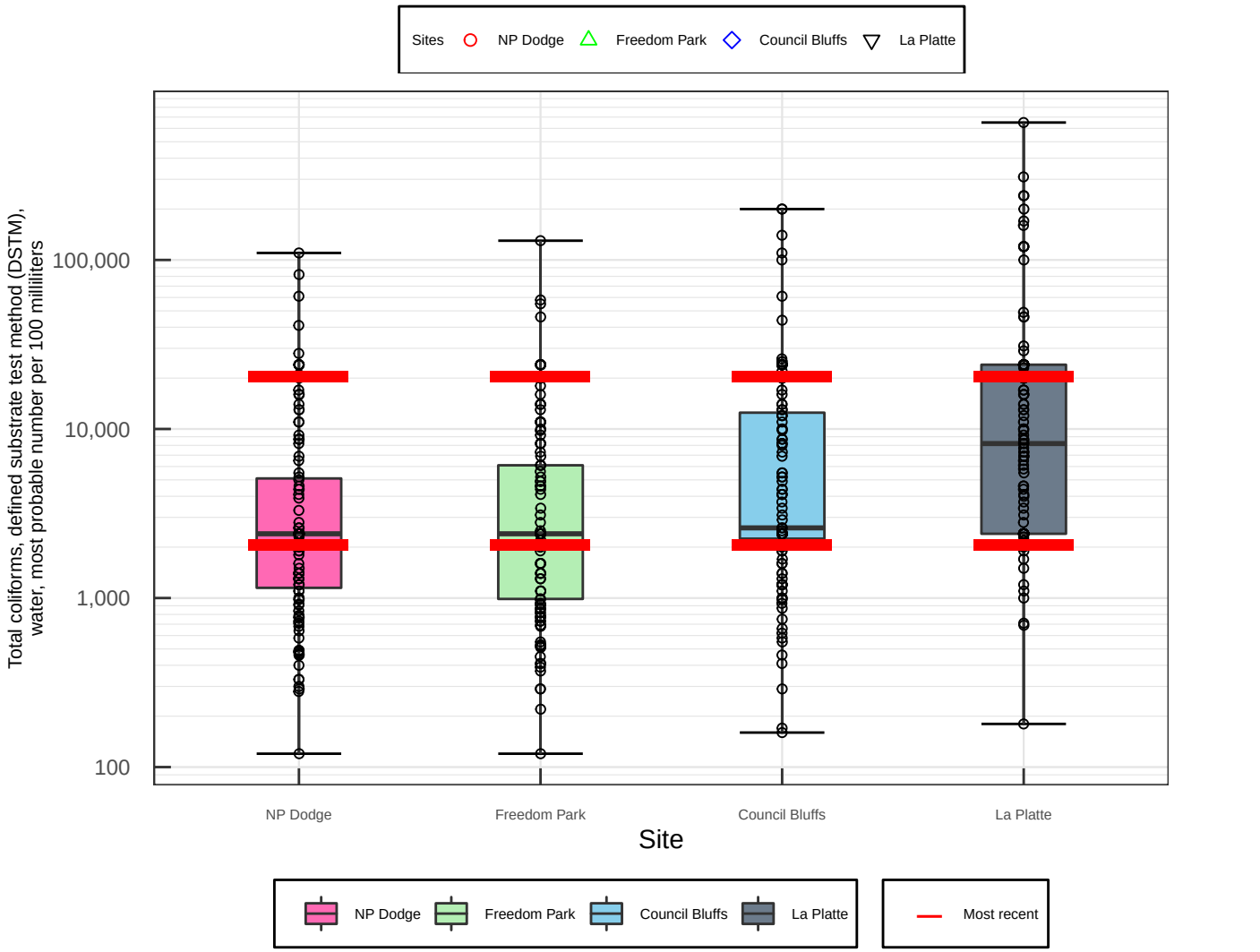
Total coliforms





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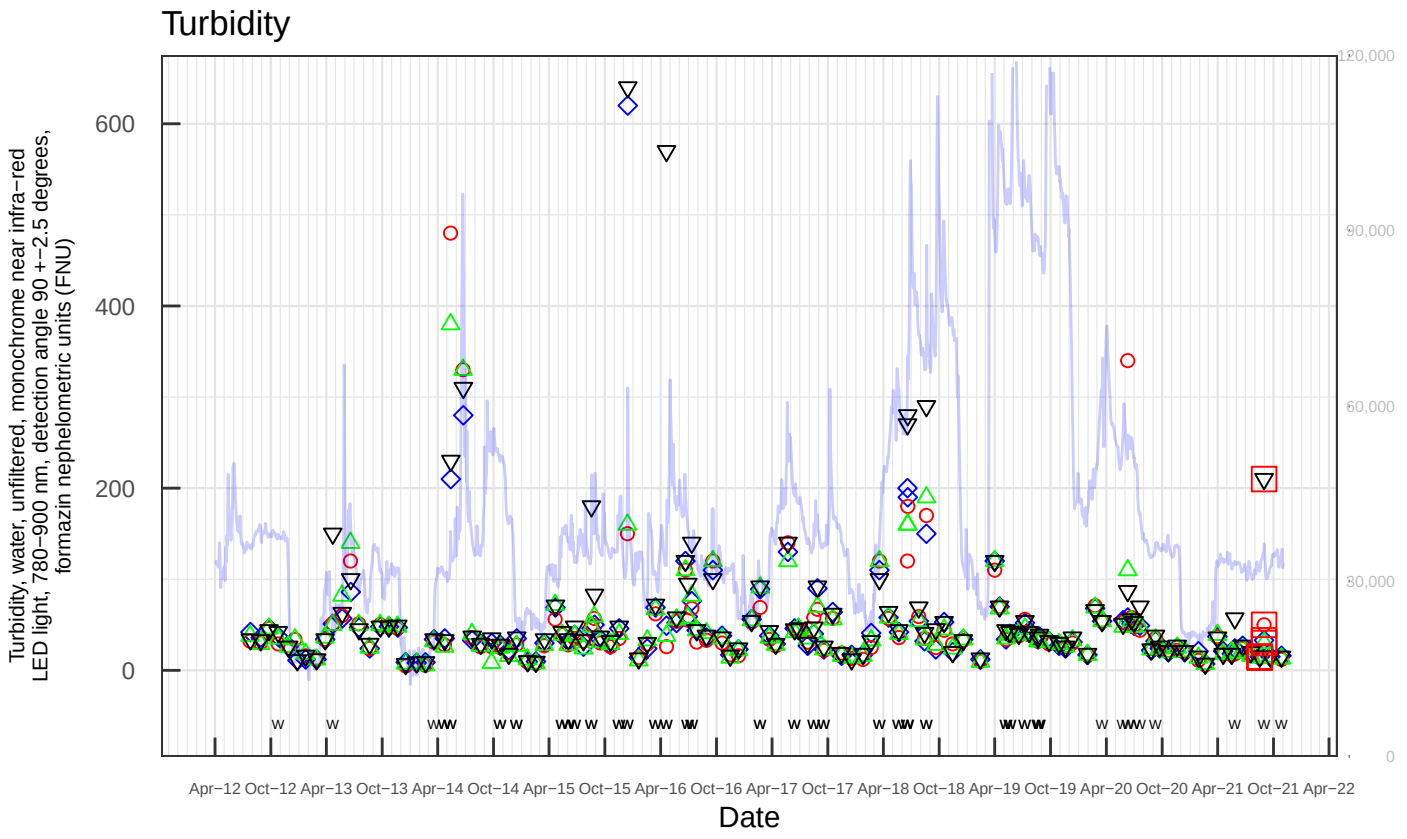

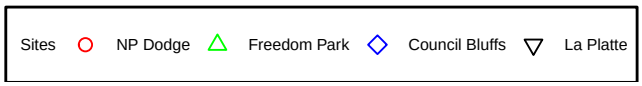

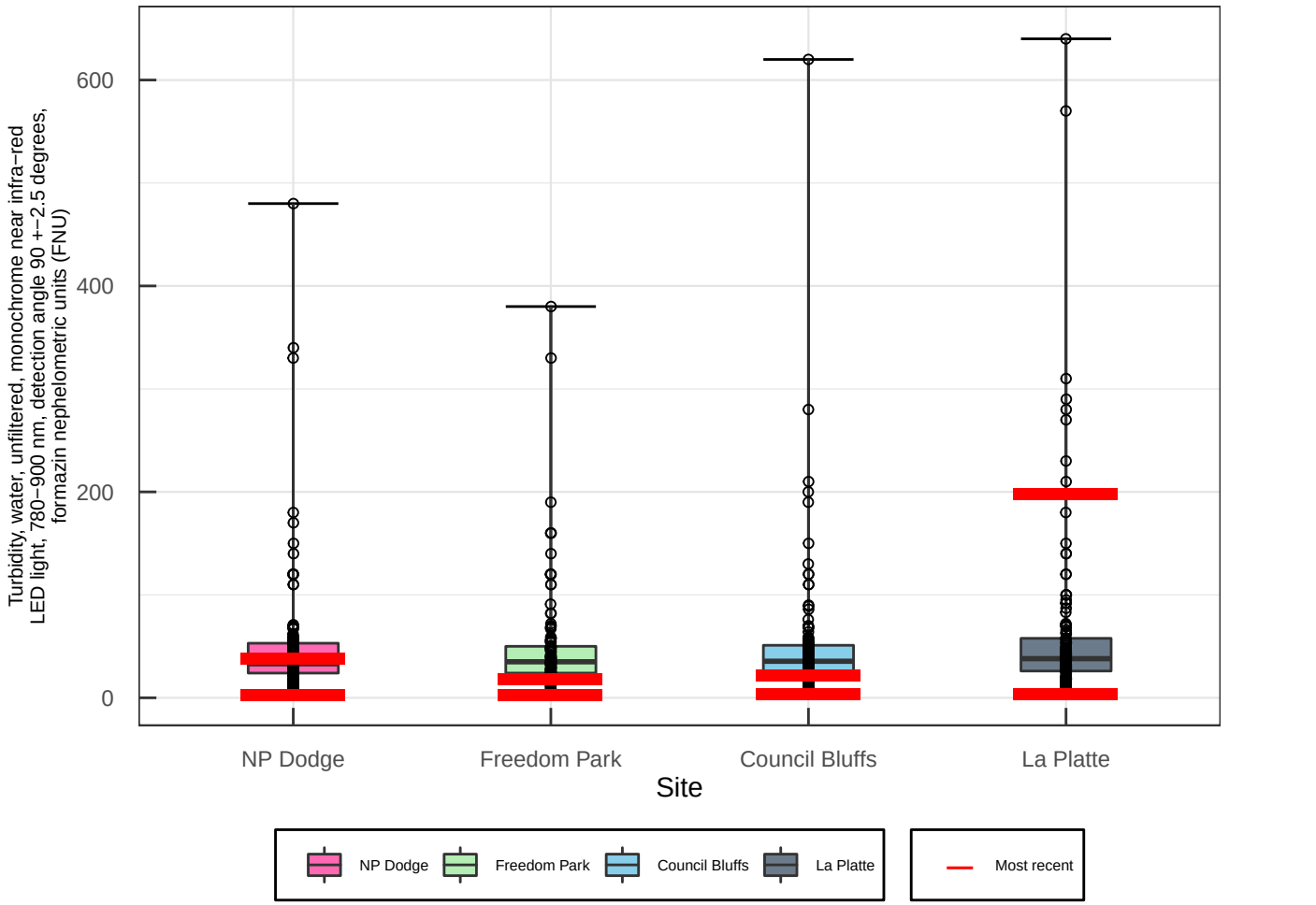

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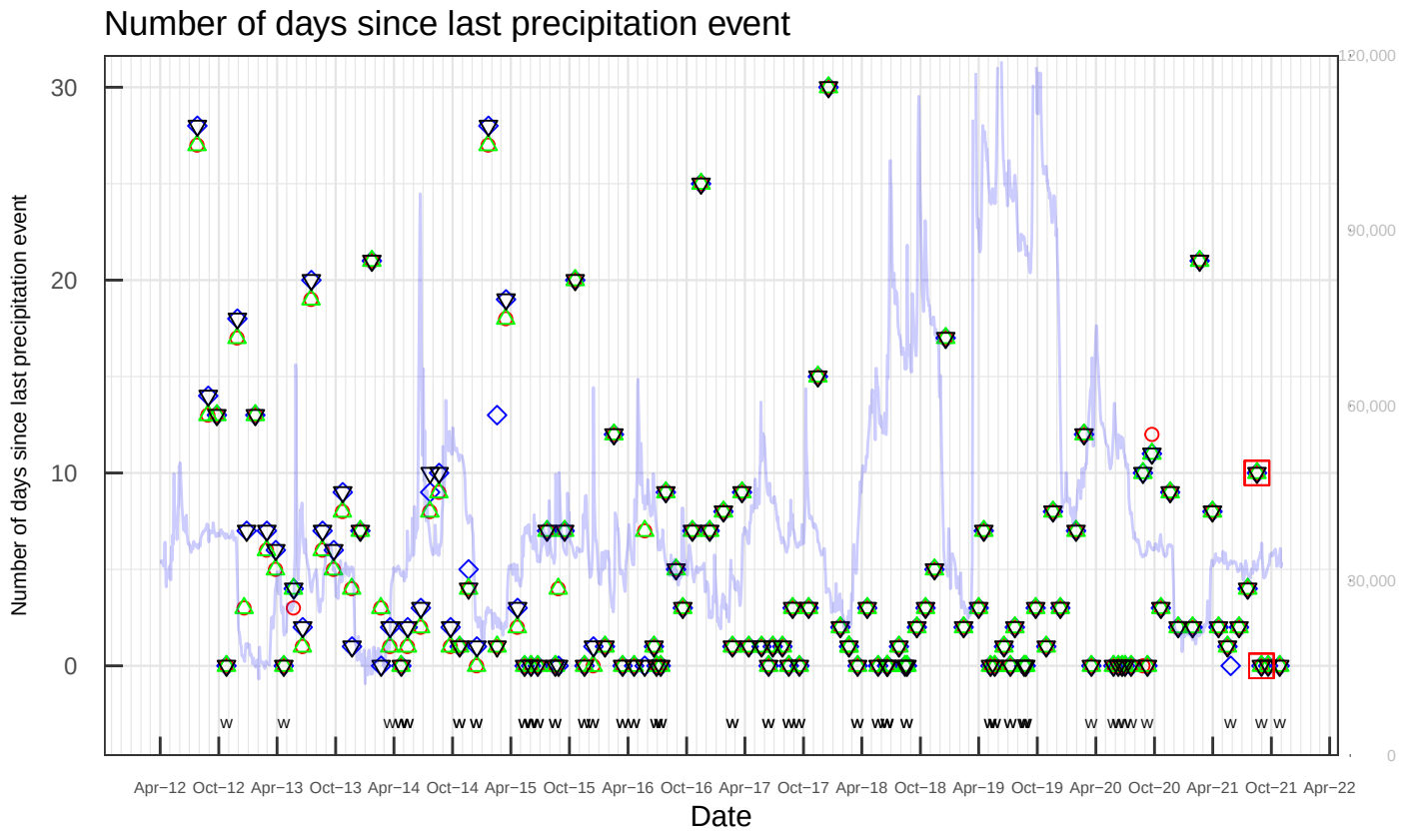

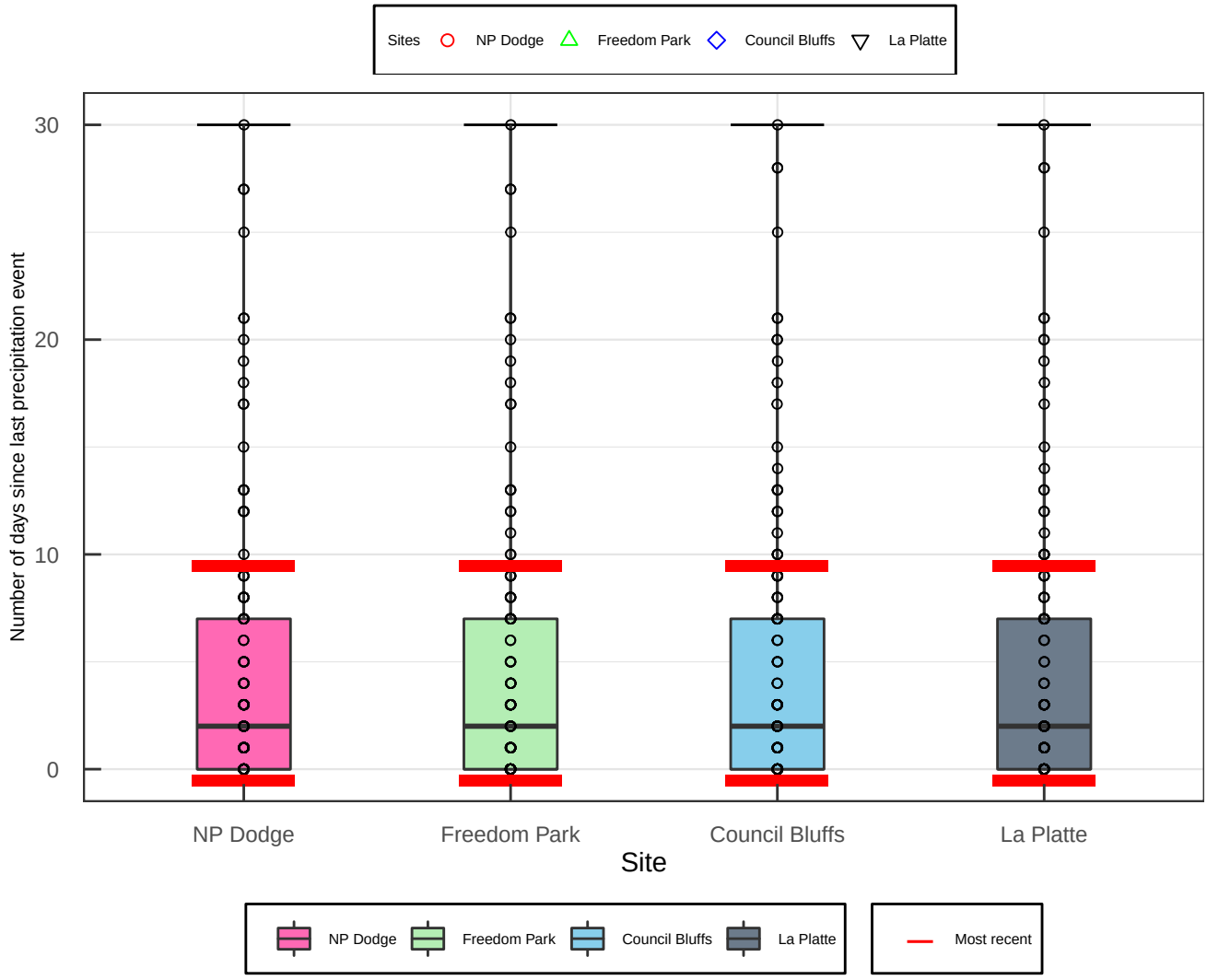

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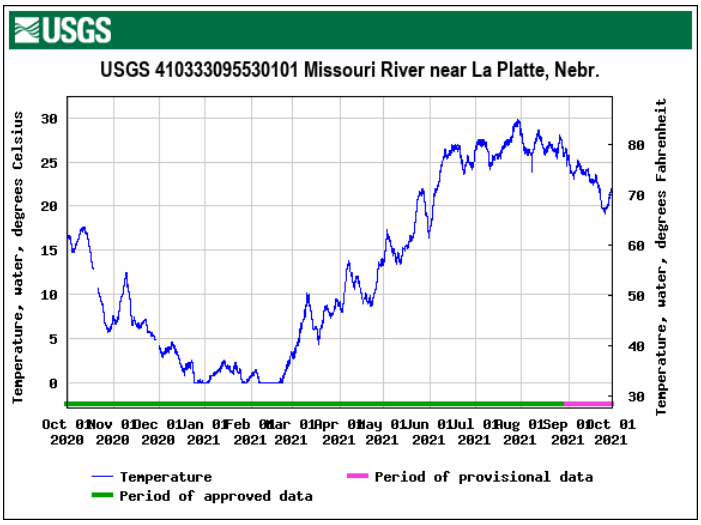
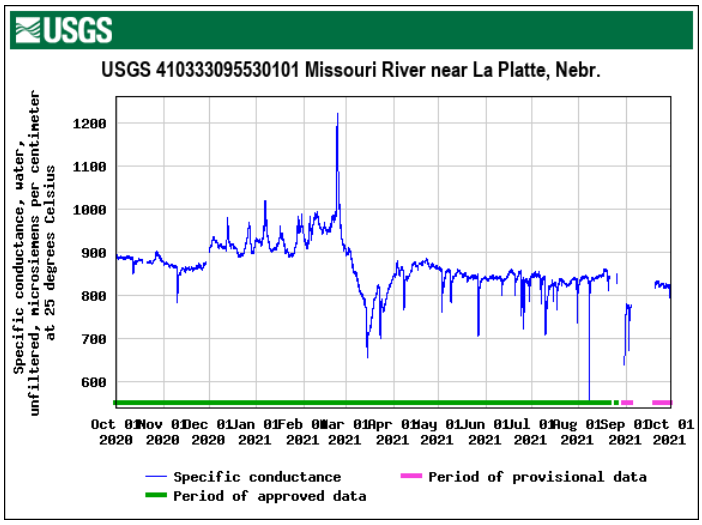
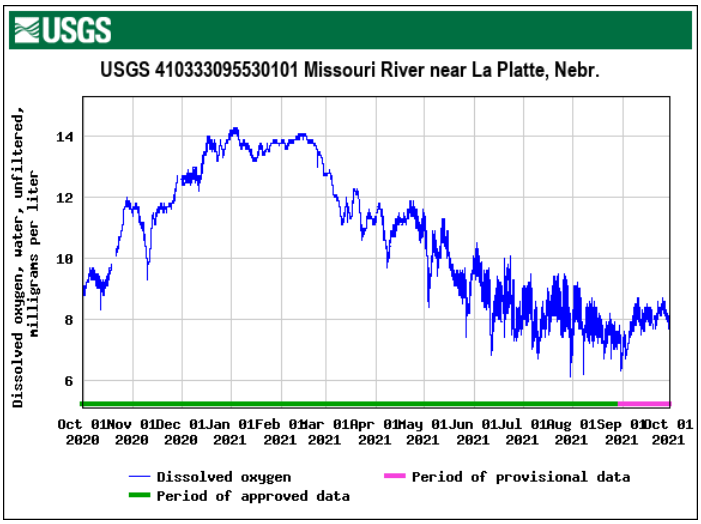
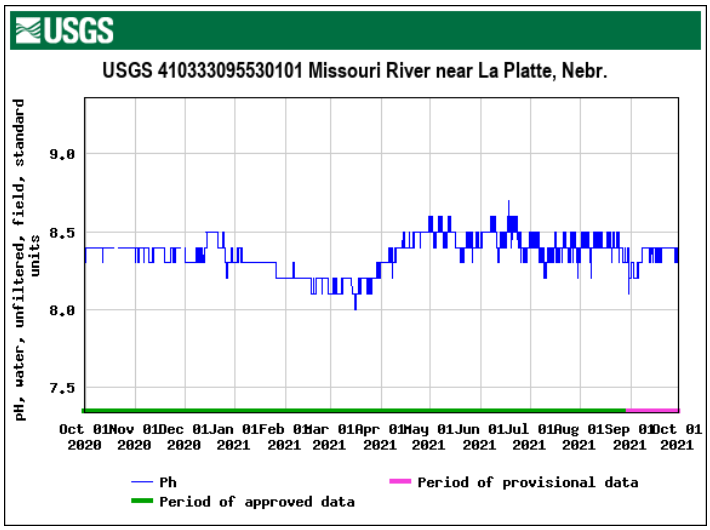
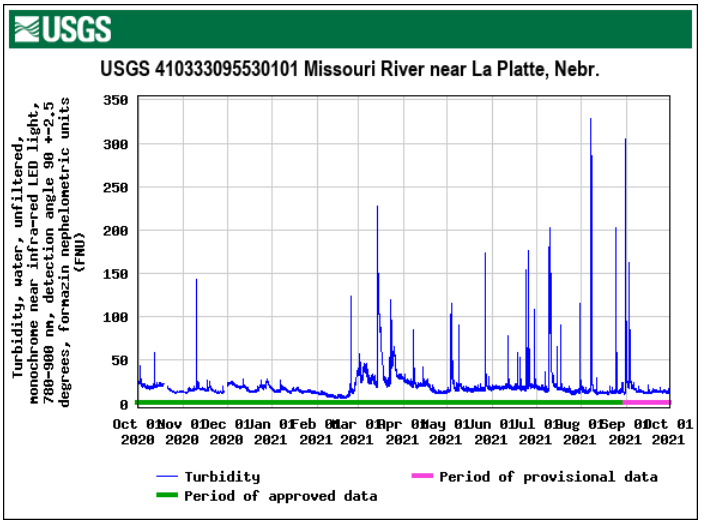
Continuous Water Quality Monitoring Graphs - Site MR-1



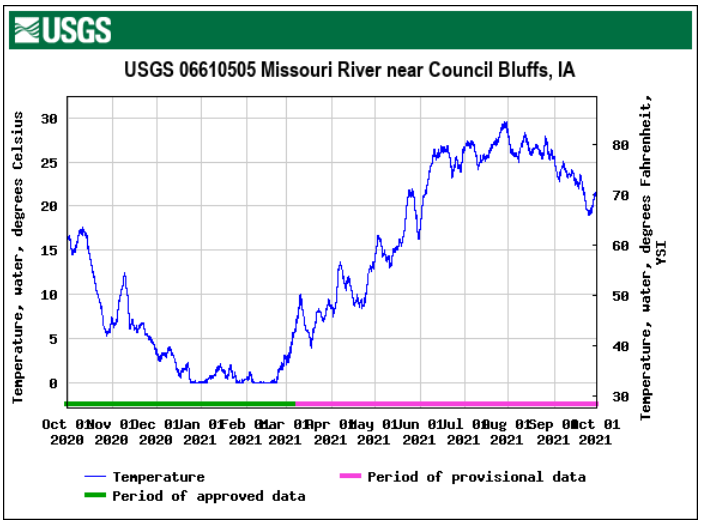


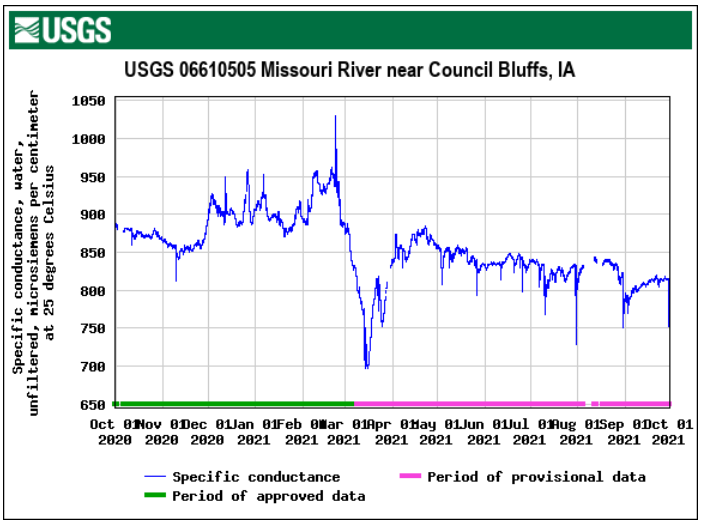


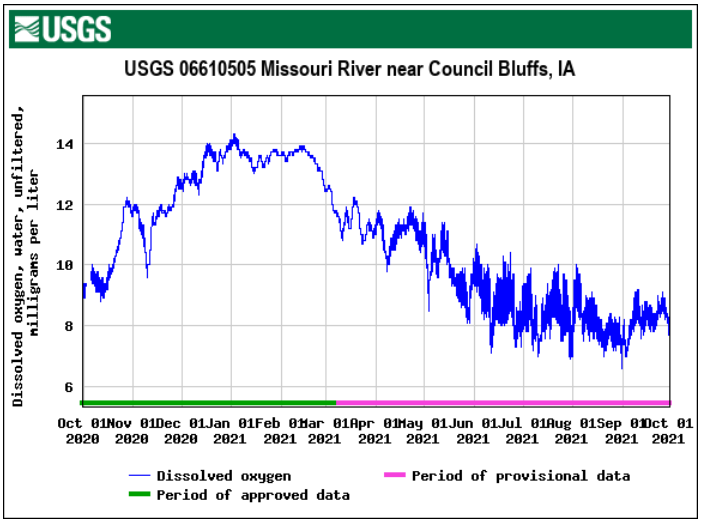


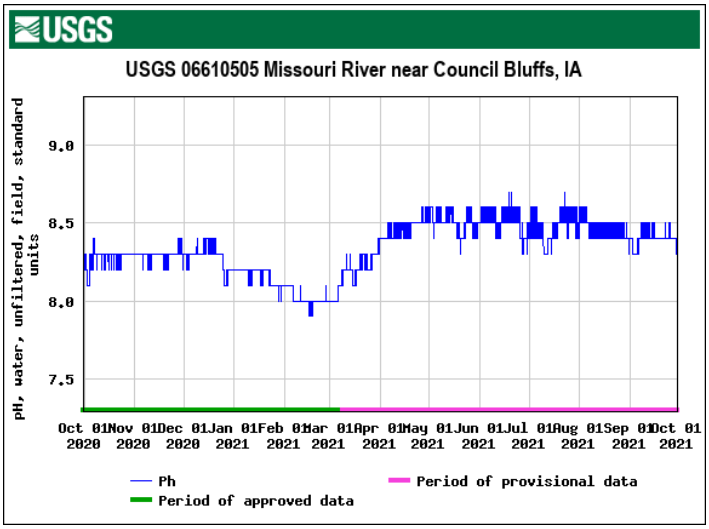


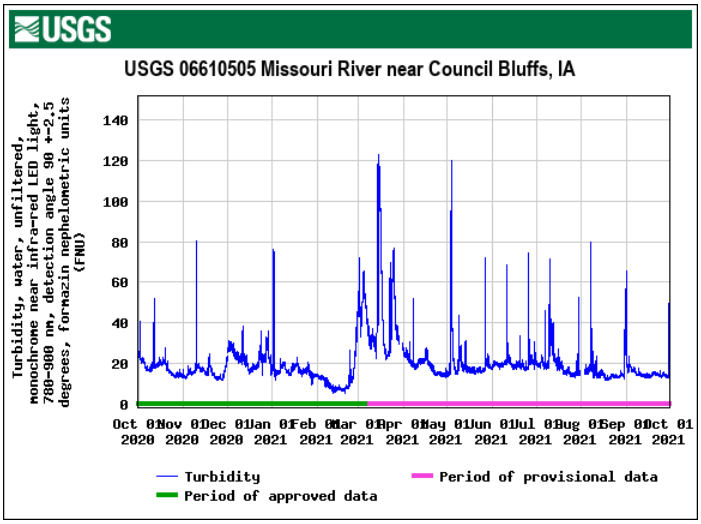
Continuous Water Quality Monitoring Graphs - Site MR-CB











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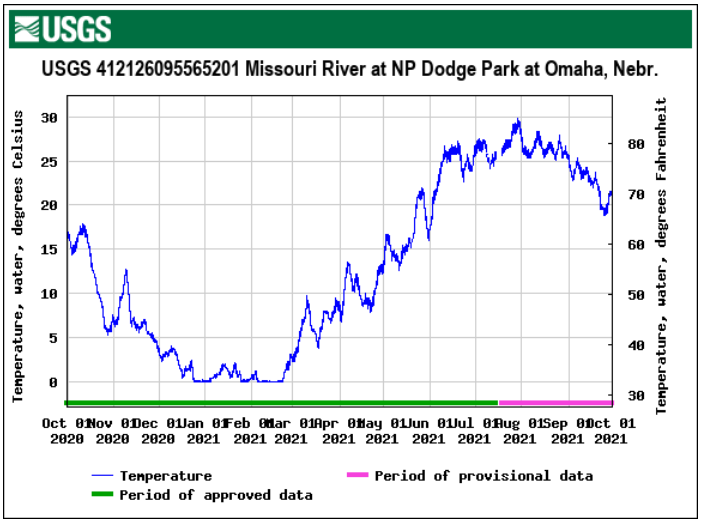
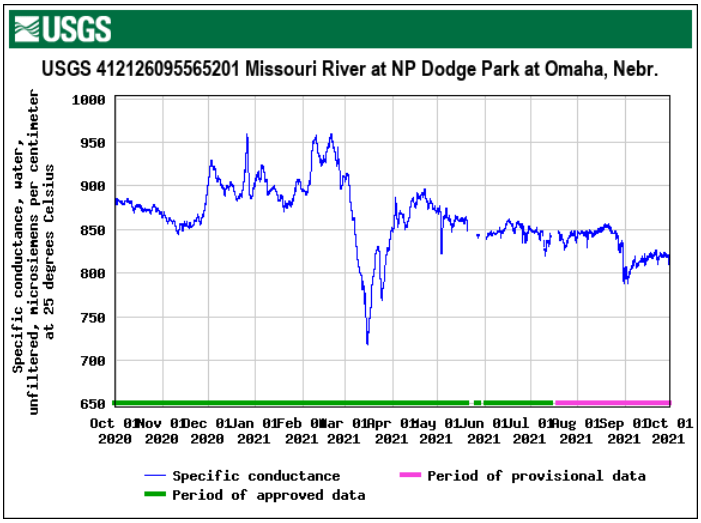
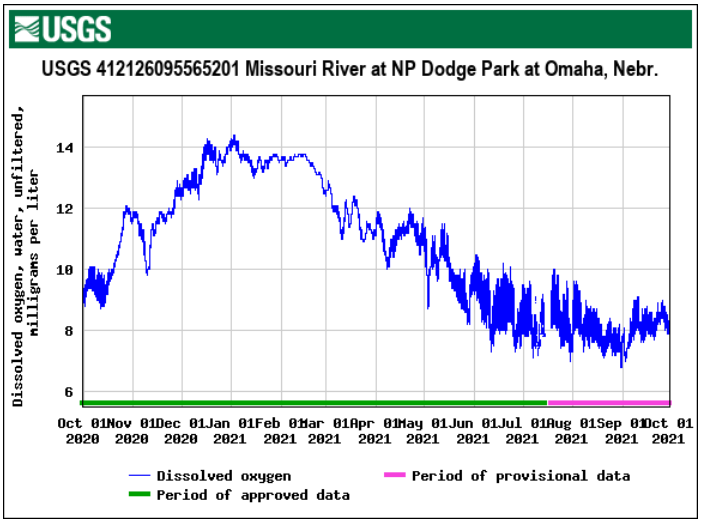
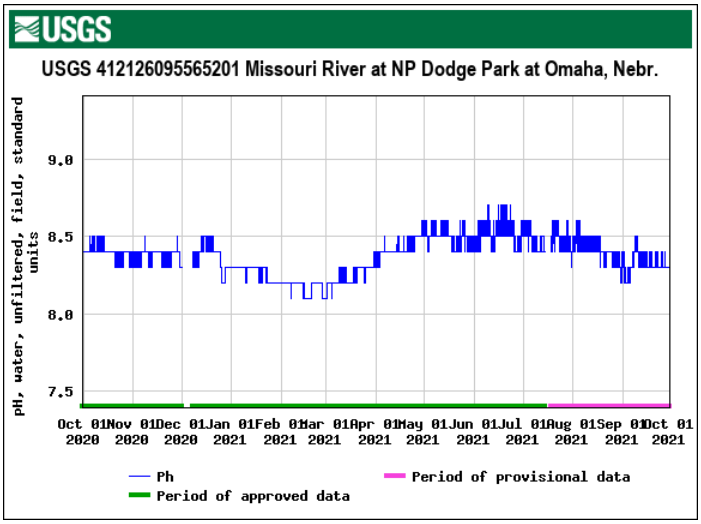
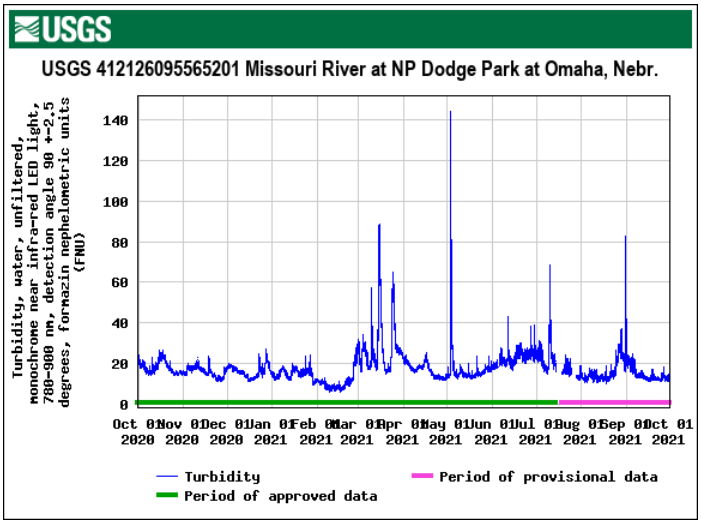


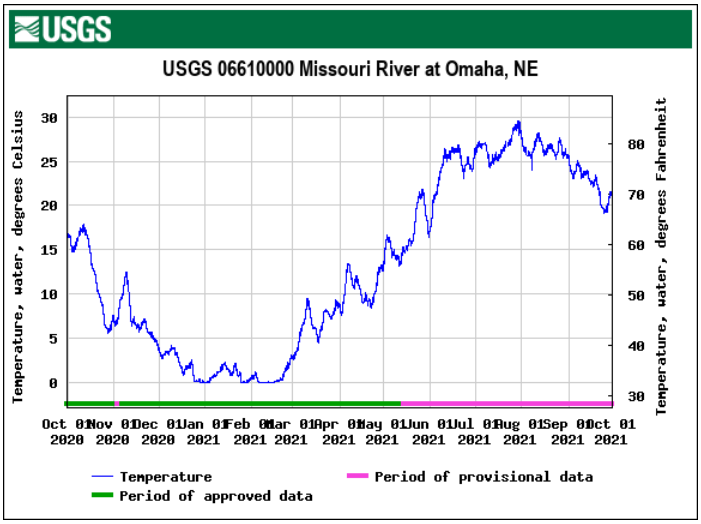


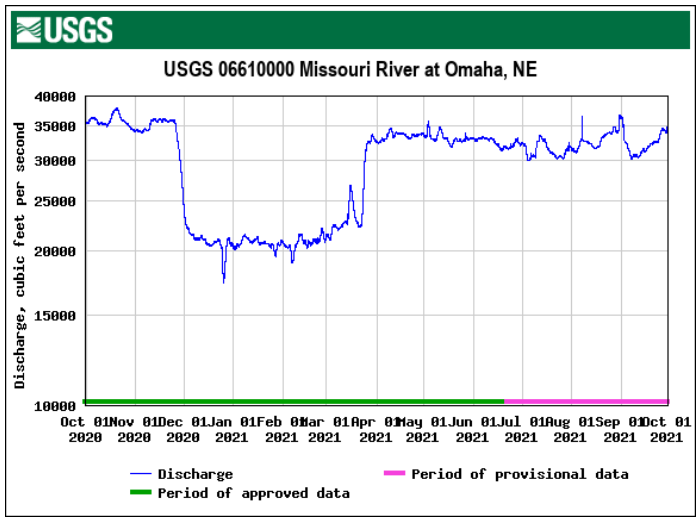


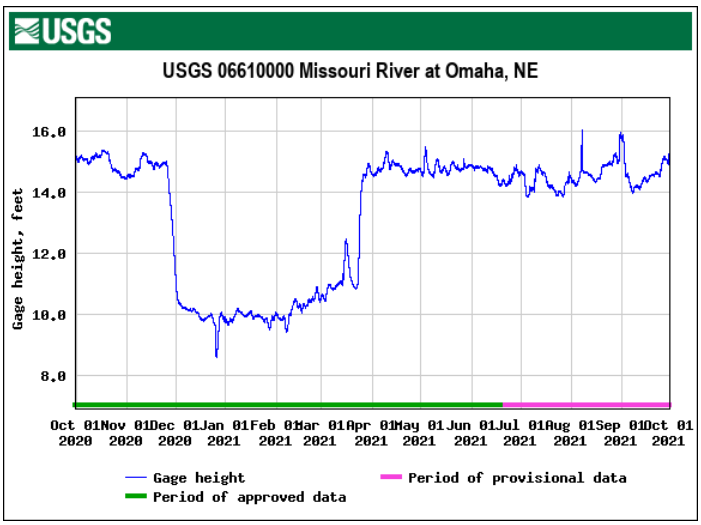




Continuous Water Quality Monitoring Graphs - Site I-480







Continuous Water Quality Monitoring Graphs - Site Highway 275