

THE CITY OF CEDAR RAPIDS 2022 ANNUAL REPORT

CEDAR RAPIDS MUNICIPAL SEPARATE STORM SEWER SYSTEM

Iowa NPDES Permit Number: 57-15-0-05

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INTRODUCTION AND PURPOSE

The City of Cedar Rapids’ stormwater system is designed to collect and convey surface flow through a combination of storm drains, pipes, and ditches. The conveyance system ultimately discharges water to the Cedar River without being treated. This type of stormwater system is called a municipal separate storm sewer system (MS4) and is regulated by the Iowa Department of Natural Resources (IDNR) under a National Pollutant Discharge Elimination System (NPDES) Permit (Permit). The City’s Permit requires the City to implement numerous Best Management Practices (BMPs), identify measurable goals, and document program progress. This Annual Report is a summary and update on the City’s efforts to meet the NPDES requirements.

A. PUBLIC EDUCATION AND OUTREACH ON STORMWATER IMPACTS

The City of Cedar Rapids continues to implement a public education and outreach program to educate the public on the impacts of various activities and pollutants on stormwater quality and quantity, as well as measures that residents of the City of Cedar Rapids can implement to reduce pollutants in stormwater runoff.

1. GENERAL STORMWATER EDUCATION MATERIALS

The City of Cedar Rapids distributed stormwater advocacy materials using a variety of methods, as well as facilitated and participated in numerous stormwater educational events. The following includes a summary and quantifiable statistics of the City’s efforts to promote stormwater management and pollution prevention practices:

- The City continues to assess and implement effective ways to distribute stormwater education to the public. Here is a summary of distribution and estimate of audience:

Year	Stormwater Management & Stormwater Pollution Prevention¹	Stormwater Pollution Prevention²	Watershed & Stormwater Education³	OurCR Magazine distribution⁴	iGreenCR Newsletter⁵	Social Media⁶
2014	364	47,000	NT	NT	NT	NT
2015	593	47,000	NT	NT	NT	NT
2016	461	47,000	NT	NT	3,200	NT
2017	480	47,000	NT	67,000	14,400	NT
2018	803	48,000	72,200	67,000	4,800	NT
2019	701	47,000	72,287	72,287	3,200	19,687+
2020	547	48,166	71,795	>71,000	3,200	45,808
2021	254	48,520	73,576	292,554	6,472	15,863
2022	NT	48,888	73,108	290,306	6,120	11,693

¹ 'Welcome Packets' sent to new residents

² Utility bill inserts sent to all users

³ Water Quality Report distributed to residential addresses, large local employers, new utility customer packets, and at open house events

⁴ Our CR publication has varying stormwater topics at various times of the year

⁵ iGreen CR Newsletter distribution number based on the number of issues sent that year

⁶ Social media (Facebook) promotes various stormwater programs and events

NT: Not Tracked

- “Our CR” magazine includes news and information from multiple City departments and divisions; it is mailed to over 72,000 households and businesses in Cedar Rapids, Robins, Hiawatha, and surrounding communities that benefit from the services provided by the City of Cedar Rapids. The quarterly City publication, titled “OurCR,” continues to publish articles of noteworthy value to the City’s outreach goals. Stormwater articles in 2022 included:
 - ‘Stormwater Superpowers’ (August 2022).
 - ‘Controlling Flood Water’ (August 2022).

Issues of “Our CR” can be found here:
http://www.cedar-rapids.org/discover_cedar_rapids/city_news/our_cr.php



- The City of Cedar Rapids distributes the iGreenCR Newsletter to roughly 900 City staff and 700 community partners requesting to be on the distribution list. The newsletter is a way to connect the community to internal and external sustainability projects. In each edition, the newsletter highlights a City employee whose job responsibilities connect to sustainability, as well as key sustainability projects, initiatives, and events.

Year	Number of issues
2016	2
2017	9
2018	3
2019	2
2020	2
2021	4
2022	3

Archived issues can be found here: http://www.cedar-rapids.org/local_government/sustainability/igreencr_newsletter.php

- The City of Cedar Rapids continues to participate in annual events where stormwater education material is distributed and/or stormwater topics are demonstrated in a variety of ways in order to educate various audiences. In addition to a continued effort to provide training for the public, there has been a more focused effort for the City to lead by example. Attendance at internal training on various stormwater topics has been instrumental in creating buy-in and coordination within the City as a whole. Here is a summary of training events:

Year	Number of Public Events¹	Number of Trainings for Internal Staff²	Number of Trainings for the Public
2014	6	10	16
2015	3	8	15
2016	4	18	16
2017	7	20	15
2018	4	17	20
2019	5	11	11
2020*	-	-	-
2021	-	-	1
2022	5	8	2

¹Public events include having a table with a variety of educational information available (Farmers Market, EcoFest, Public Works Open House, Linn County Landowner Forum).

²Trainings for City staff include when City staff have attended or lead trainings that included stormwater topics.

³ Attendees for public trainings have included local consultants, developers, and educational institutions, among others.

* The 2020 calendar year held many challenges, including the COVID-19 pandemic, social distancing, and derecho recovery that hindered the typical outreach goals.

- The City continues to bring broader awareness to protect storm drains. Storm drain marking initiatives through local educational institutions, which educates the students and leaves a message for the public to see, is on-going.

Year	Number of Storm Drain Marking Events
2016	2
2017	7
2018	2
2019	2
2020*	-
2021*	-
2022*	-

*The 2020-2022 calendar year held many challenges, including the COVID-19 pandemic, social distancing, and derecho recovery, that hindered the typical outreach goals.

- In 2019, the City partnered with the Cedar Rapids Metro Economic Alliance on the 2nd Storm Drain Mural Program. Eight visible downtown locations were chosen to educate the public about the storm drains direct connectivity to the Cedar River. In 2020 the murals were touched up to maintain their vibrancy. This continues to be a highly successful initiative and received a lot of great local publicity on many platforms, including the local news stations, the City’s social media, and live social media coverage from IDNR. There are plans to replicate the program in the future at different locations.



- The City continues to develop new educational materials that are made available at City facilities, events, site visits, mailings, or via the City's Stormwater Program website. Topics covered include:
 - Illicit Discharge
 - Resident Pollution Prevention
 - Erosion Control
 - Construction Site Pollution Prevention
 - Swimming Pool Discharge
 - Disposal of Yard Waste
 - Drainage Easements
 - Maintenance of Private Detention Basins
 - Stormwater Best Management Practices Cost-Share Program

- Educational letters have been created and are distributed as part of various programs. These include:
 - Private post-construction stormwater facilities letter that outlines the role of stormwater structures and the importance of their maintenance. This letter is distributed to each property owner after their private stormwater facility is inspected.
 - Yard waste disposal letter that outlines the impacts of improper disposal and provides proper disposal options. This letter is distributed to an

individual property owner if the City receives a report that they are disposing of leaves or grass clippings in the street.

- General illicit discharge education letter that describes the health, safety, and environmental implications of such discharges. The letter also provides information on how to recognize, prevent, and report illicit discharges. This letter is distributed to illicit discharge violators, as well as surrounding residents and/or businesses, when applicable.
 - Carpet cleaning and kitchen hood cleaning letter to companies outlining proper disposal of wastewater and illicit discharge information.
 - Swimming pool discharge letter educating residents on proper discharge procedures to minimize the impact to aquatic health.
- The City instituted a stormwater cost-share program in 2016 and continues to expand the program. Various outreach efforts were made to highlight this program. Outreach included utility inserts, articles, presentations to various groups, correspondence to target audiences, and one-on-one discussions. A more detailed summary of this program is included in 'Section E: Post Construction Stormwater Management'.
 - In 2016, the City instituted a new stormwater utility based on the quantity of hard-impermeable surface area on each parcel. The new method of billing is intended to be more equitable, incentivize good stormwater management, and simplify the administration of the utility. In addition to these changes in billing, an expanded incentive program was also included. Outreach continues to educate users on the financial incentives and stormwater BMPs.
 - Effective education and outreach require buy-in from partner entities on a variety of levels. The City of Cedar Rapids has many active partners in the community that continuously educate the public on various environmental topics. The momentum has continued to build; various partners can be thanked for this shift. The Corridor Conservation Coalition is an umbrella group that was formed in 2005 and rediscovered in 2018 to band together to address environmental concerns in the community.

2. WEBSITE

The City of Cedar Rapids' Stormwater Program continues to revise and update their website. The website continues to be developed and maintained, providing an easy portal to general stormwater information, guidance documents, community events, and City policies. The website also provides a tool to elicit community involvement. The Stormwater Program main page can be accessed at www.CityofCR.com/stormwater. Figure 1 is a screen capture of the updated Stormwater Program main page. Website visits for 2013-2022 are shown in Figure 2 and Figure 3.

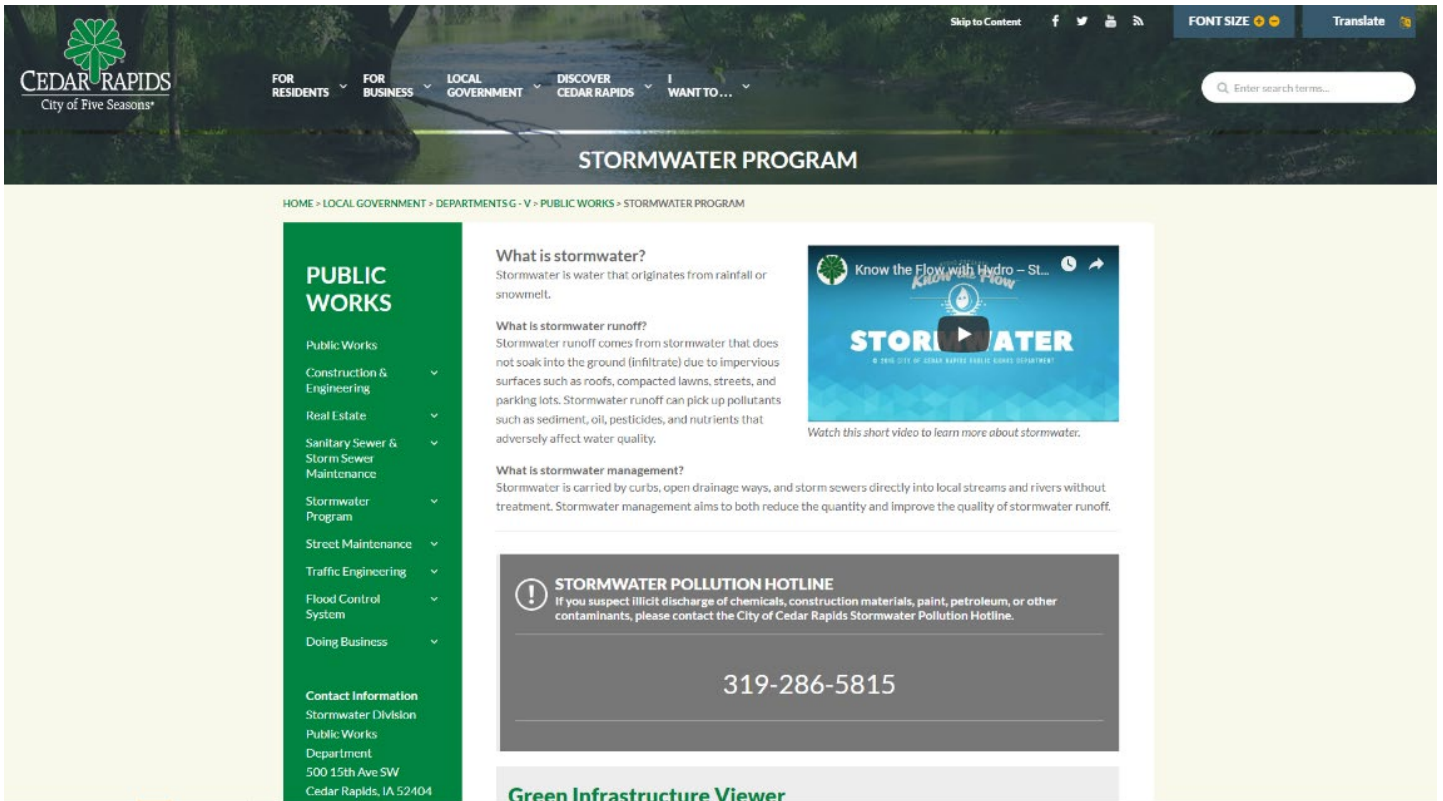


Figure 1

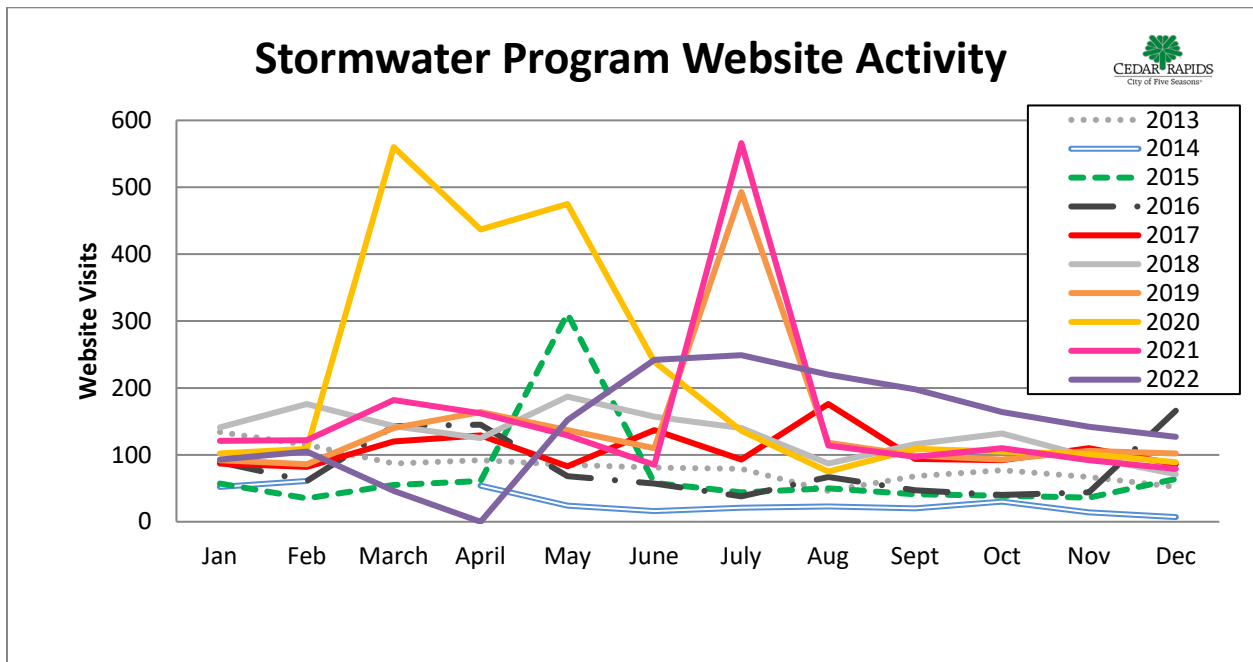


Figure 2

Website visits show a steady increase since the data was tracked, as shown in Figure 3. Spikes in website activity (Figure 2) correspond with marketing efforts that include utility inserts and social media publicity.

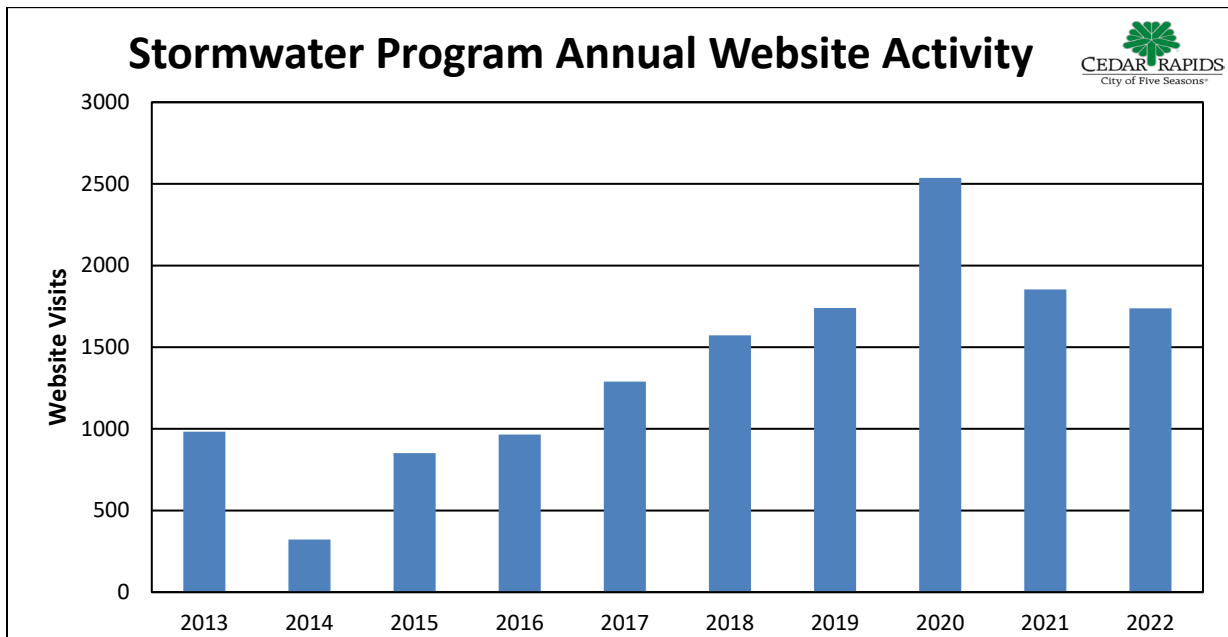


Figure 3

An interactive Green Infrastructure Map (Figure 4) was created and put on the website to allow residents to see spatially where different practices are located and broaden the awareness of stormwater practices.

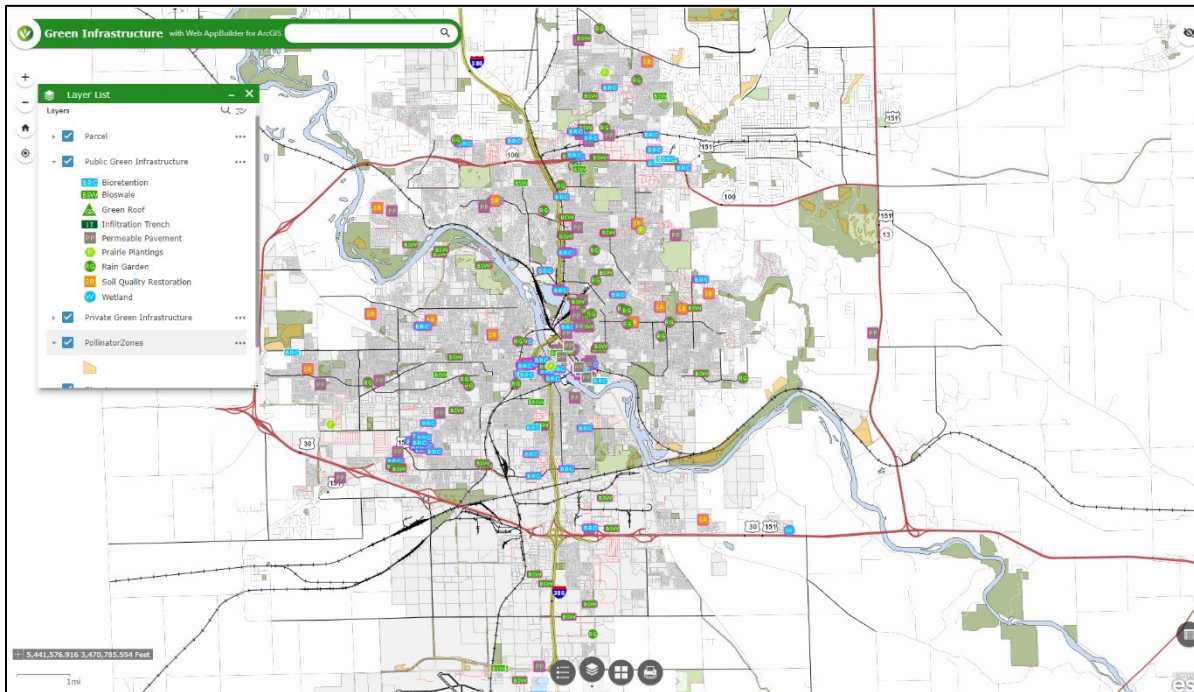


Figure 4

3. PRIVATELY OWNED STORMWATER STRUCTURAL CONTROLS

The manual titled “Maintenance of Private Detention Basins” continues to be posted on the City of Cedar Rapids Stormwater Program website. The manual includes a description of maintenance and inspection tasks that should be followed to ensure stormwater is flowing in and out of the structure as designed. The manual, and how it can be accessed, is noted in each letter that is mailed to private stormwater facility owners. In addition, basin letters were developed based on the condition of individual basins and the level of maintenance required, including good, minor maintenance needed, major maintenance needed, or potential non-compliance. The letters describe the current status of the basin and any necessary maintenance or corrective actions recommended/required. In addition, the letter describes the role of stormwater structural controls and the importance of maintenance. Starting in 2014, the owner of every private stormwater facility receives a letter regardless of basin status after the facility is inspected. An educational private stormwater facility maintenance brochure, created in 2014, also accompanies every letter.

The City’s goal is to have 20% of the private basins inspected annually. City staff provide inspections and education. Statistics are included in ‘Section E: Post Construction Stormwater Management, Section 2: ‘Inspection of Runoff Control Devices’. The Department of Public Works has a longstanding practice of consulting with private property owners, as time allows, on a wide range of drainage, erosion control, floodplain, and stormwater management issues.

B. PUBLIC INVOLVEMENT AND PARTICIPATION

The City of Cedar Rapids continues to implement a public involvement and participation program.

1. STORMWATER POLLUTION HOTLINE

The 24/7 stormwater pollution hotline (319-286-5815) continued to be used by the public in calendar year 2022. The hotline number is prominently placed on the stormwater website and is included in educational material. The hotline also receives feedback from residents on other municipal infrastructure. In addition to a hotline, the City instituted a mobile app and reporting system called MyCR. Received calls are logged in the maintenance department work order system as work requests. In 2022, a total of 115 requests entered were explicitly assigned to either the Stormwater Program Manager or Environmental Specialists:

Year	Number of drainage complaints/requests
2012	7
2013	41
2014	139

2015	128
2016	81
2017	42
2018	39
2019	41
2020	74
2021	98
2022	115

2. STORMWATER ADVISORY COMMISSION

The City of Cedar Rapids established the Stormwater Commission in 2008. General duties of the commission include developing and recommending stormwater policies, reviewing public input regarding stormwater drainage or erosion, recommending corrective actions, advising the City Council regarding stormwater capital improvement projects, and providing property owners with additional resources to resolve private drainage problems. The Commission consists of five members who are Cedar Rapids residents.

Year	Number of Meetings
2016	6
2017	6
2018	7
2019	6
2020	5
2021	4
2022	3

All meetings are open to the public and posted on the City website. Agendas and minutes are also available on-line:

http://www.cedar-rapids.org/local_government/city_boards_and_commissions/stormwater_commission.php

3. PUBLIC NOTICE

The City implements a public involvement and participation program that complies with all state and local public notice requirements. Public input is sought on a continual basis at formal events, such as the Stormwater Commission, Infrastructure Committee, and City Council meetings. Schedules and agendas are found on the City of Cedar Rapids' website. The City hosts open houses and seeks public input as needed. Public meetings are advertised in the local paper, *The Cedar Rapids Gazette*.

C. ILLICIT DISCHARGES

The City of Cedar Rapids continues to implement and enforce a discharge detection and elimination program.

1. ILLICIT DISCHARGE PROHIBITION ORDINANCE

The illicit discharge ordinance is provided by the City of Cedar Rapids Municipal Code Chapters: 9-Streets, Alleys, and Sidewalks, 13-Wastewater Facilities, 24-Solid Waste and Recycling, 71-Erosion and Sediment Control for Construction Sites, and 72-Stormwater Management Ordinances.

- Chapter 24.04 (b) and (c) of the Cedar Rapids Municipal Code stipulates:

No person shall sweep, dump, lay deposit, scatter, cast, throw, keep, or place any solid waste, yard waste, or recycling materials, as defined in Section 24.01 of the Municipal Code, in or on any alley, sidewalk, street, sewer, storm sewer, catch basin, ditch or any other public property except as otherwise authorized.

No person shall sweep, dump, lay deposit, scatter, cast, throw, keep, or place any solid waste, yard waste, or recycling materials, as defined in Section 24.01 of the Municipal Code, in or on any creek, stream, river, pond, lake, or other bodies of water or upon any land adjoining the aforementioned areas which is subject to overflow.

- Chapter 13.07(b)2 of the Cedar Rapids Municipal Code stipulates the following use of public storm sewers:

No wastewaters except unpolluted waters and wastewater allowed by a NPDES permit shall be discharged to storm sewers.

- Chapter 13.12(a) states:

Authorized employees of the city shall be permitted to enter all properties for the purposes of inspection, observation, measurement, sampling, and testing.

- Chapter 13.12(c) states:

Authorized employees of the city shall be permitted to enter all private properties through which the city holds a fully negotiated easement for the purposes of, but not limited to, inspection, observation, measurement, sampling, repair and maintenance.

Municipal Code definitions:

- *Storm sewer: A public sewer that carries storm, surface and groundwater drainage but excludes wastewater other than unpolluted water. [13.01(h)4]*
- *Wastewater: The spent water of a community. It may be liquid or a combination of liquid and water-carried wastes from residences, commercial buildings, industrial plants, and institutions, together with any ground, surface or stormwater. [13.01(g)1]*

- *Unpolluted water: Water of quality equal or better than the applicable effluent criteria in effect under the State or Federal Act or water that would not cause violation of receiving water quality standards under the applicable act and would not be benefited by discharge to the sanitary sewers and wastewater treatment facilities provided. [13.01(g)5]*
- *Yard Waste: Materials, as designated by the City of Cedar Rapids and set out in Schedule “B,” that would otherwise become solid waste that can be source separated, collected, processed, and returned to the economic stream in the form of raw materials or products.*

2. ILLICIT DISCHARGE DETECTION AND ELIMINATION PROGRAM

Dry weather flow inspections of outfalls

The Illicit Discharge Detection and Elimination (IDDE) Program continues to be implemented. Outfalls are also known as “point sources”. A point source discharge as defined by 40CFR1.122.2 (2011) as the point where a municipal separate storm sewer discharges to waters of the United States. Previously, the City had 250 total outfalls identified for the dry weather sampling program. In 2018 the total number of outfalls identified was over 1200, and a goal was set to sample 20% of outfalls annually. Newly developed areas with new infrastructure connections have been prioritized by the creation of a post-bore program that requires infrastructure be televised for inspection of defects after construction.

Procedures are in place to identify the sources of the dry weather flows and for disconnecting illicit connections. If there is flow in the outfall, a second screening is required. If there is no water quality concern, it is assumed other drainage has been piped into the stormwater system (including sump-pump groundwater drainage). Further investigation is required if there is a water quality concern, City staff obtaining samples further upstream in the stormwater system to better locate the source.

Year	Outfall Inspections	Water Present
2013	29	NT
2014	67	36
2015	49	21
2016	53	20
2017	50	14
2018	128	45
2019	326	78
2020	250	90
2021	228	81
2022	184	52

NT: Not Tracked

A total of 184 outfalls were inspected in 2022, with 52 having water present. A map was generated that identifies the total number of outfalls inspected in 2022. This map is contained in Appendix A: Supplementary Information. Inspections were conducted June through December 2022. The results of the 2022 inspections are contained in Appendix A. Visual observations and chemical tests were performed and identified a handful of areas for further investigation. A standard operating procedure (SOP) has been created, and dry weather screening will continue for 2023.

Illicit discharge elimination

All illicit discharges are eliminated within 21 days of discovery, unless the IDNR is otherwise informed. In 2022, the City investigated 8 illicit discharge reports involving a variety of pollutants, including sewage, concrete waste, and an illicit connection to the storm sewer. In all cases, the discharge was eliminated, and cleanup was completed, where necessary. Educational letters, brochures, notices to comply, and/or notices of violation were issued according to site-specific needs.

A total of 9 sanitary sewer overflows were reported in 2022. Most of these were backups into homes, one was into a parking lot, and two were into the environment. Infrastructure was assessed, and the appropriate maintenance was done. The maintenance included cleaning the sanitary sewer line, removing large debris, and replacing pieces of pipe where needed.

Year	Illicit Discharges Discovered	Sanitary Sewer Overflows	Illicit Discharges due to Sanitary Sewer
2017	11	21	1
2018	7	8	4
2019	10	26	5
2020	10	12	4
2021	6	10	1
2022	8	9	3

The City Solid Waste Division collects addresses during routes where grass clippings and leaves were placed in the street along the curb. Yard clippings and excess leaves can contribute to clogging storm drains, carrying pollutants, and reducing the amount of oxygen for aquatic habitat. Informative brochures were sent to reported addresses.

D. CONSTRUCTION SITE STORMWATER RUNOFF CONTROL

The City of Cedar Rapids implements and enforces a construction site stormwater runoff control program to reduce pollutants in any stormwater runoff from construction activities for which stormwater permit coverage is required.

1. CONSTRUCTION SITE RUNOFF CONTROL ORDINANCE

The ordinance governing construction site runoff within the City of Cedar Rapids Municipal Code is Chapter 71: Erosion and Sediment Control for Construction Sites.

Enforcement of City regulations continues to progress. Enforcement procedures were finalized in 2014 for sediment and erosion control violations on construction sites. These procedures grant the Environmental Specialists authority to assess monetary penalties, in the form of environmental infractions, for violations of the provisions of approved erosion control plans.

Amendments to Chapter 71 and 72 include requiring a minor erosion control permit for all new single-family dwellings, transfer agreement option, soil quality plan, phased stormwater pollution prevention plans, required use by contractors/developers of the City interactive website, and private stormwater facilities (basins) to be certified every 5 years.

2. CONSTRUCTION SITE REVIEW AND INSPECTION PROGRAM

The City of Cedar Rapids construction site review and inspection program continues to grow alongside residential and commercial development with hiring private development inspectors. The additional support in overseeing proper implementation of sediment and erosion control practices on all types of construction sites has elevated the City of Cedar Rapids from a reactive status, in many cases, to one that is proactive in the enforcement of General Permit No. 2 requirements and Chapter 71 Municipal Code. Prior to issuing permits, the site plans and pollution prevention plans are reviewed by the Environmental Specialists. Data for 2013-2022 inspections are presented in Table 1 below. The inspection program requires compliance with the IDNR's General Permit #2 (GP2). The Stormwater Environmental Specialists also conduct inspections that are reactionary to complaints and provide follow-up and enforcement.

Another way in which the City's construction site review and inspection program continues to thrive is through the implementation of the City's interactive Erosion Control website. The 2016 ordinance amendment requires developers and contractors to utilize the site for inspections and plan submittals. The site has received great feedback and assists with more timely and thorough communication.

An amendment to Chapter 71: Erosion and Sediment Control for Construction Sites has been instituted that requires existing topsoil be retained and uniformly distributed on private and public development sites, as well as implementation of a Soil Quality Plan

(SQP). These requirements are intended to ensure the benefits of healthy soil that removal, disturbance, and construction activity diminishes or eliminates. Quality soil promotes the infiltration of stormwater and decreases runoff, thereby decreasing flooding and erosion, protecting water quality and habitat, and providing homeowner benefits. This amendment passed in 2016 and took effect in 2017.

Table 1: Inspection and mailings data

Number of Inspections Performed										
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
New Residential Lot Development (SFD ¹ and MFD ²)	219	219	243	219	247	161	205	157	178	151
Estimated quarterly inspections for NPDES GP2 sites (approximate)	150/qtr. 600/yr.	143/qtr. 572/yr.	140/qtr. 560/yr.	158/qtr. 632/yr.	171/qtr. 684/yr.	168/qtr. 672/yr.	165/ qtr. 660/yr.	165/qtr. 660/yr.	160/ qtr. 640/yr.	176/qtr. 702/yr.
NPDES GP2 Follow-up's (approximate)	55/qtr. 220/yr.	45/qtr. 180/yr.	32/qtr. 128/yr.	48 129	34	65	45	50	40	20
NPDES GP2 NOD ³ (approximate)	26	24	39	32	27	6	28	18	20	47
NPDES GP2 NOI ⁴ (approximate)	28	40	50	62	52	60	60	56	80	87
Notice To Comply (SFD ¹ and MFD ²)	53	45	27	31	51	36	37	8	6	3
Notice of Violation (SFD ¹ or MFD ²)	5	7	1	5	0	5	1	1	1	0
Notice of Violation (NPDES GP2 Sites)	1	6	22	20	4	16	27	9	7	12
Municipal Infraction	0	0	0	0	1	0	0	1	1	0

- 1 Single Family Dwelling
- 2 Multi-Family Dwelling
- 3 Notice of Discontinuation
- 4 Notice of Intent

E. POST CONSTRUCTION STORMWATER MANAGEMENT

The City of Cedar Rapids continues to implement and enforce a program to address stormwater runoff from new construction and re-construction projects for which stormwater coverage is required. The program ensures that controls are in place that prevent and/or minimizes water quality impacts.

1. CONSTRUCTION SITE RUNOFF CONTROL POLICY ORDINANCE

The City of Cedar Rapids Municipal Code maintains Chapter 72: Stormwater Management as the ordinance to provide the means to enforce the operations and maintenance of runoff from developed sites. The ordinance contains a stormwater rate structure, as well as requirements to maintain detention basin capacity and design outfall flowrates. City staff reviews the water quality and water volume components of stormwater features during the site plan review. The City has a rate structure based on impermeable areas and incentivizes the utility user to install infiltration practices through a bill reduction and cost-share programs. The City also adopted Iowa Statewide Urban Design Specifications (SUDAS) and the Unified Sizing Criteria in 2019. Any new

construction or redevelopment greater than 0.5 acre will be required to meet the new stormwater standards.

- **Stormwater Cost-Share Programs**

http://www.cedar-rapids.org/local_government/departments_g_-_v/public_works/stormwater_best_management_practices_cost-share_program.php

The City has initiated stormwater BMP cost-share programs. The cost-share programs are intended to provide private property owners (residential and commercial) financial assistance (up to 50%) and technical assistance with installation of BMPs. The programs encourage the use of practices that promote infiltration, thereby improving stormwater quality and decreasing stormwater quantity.

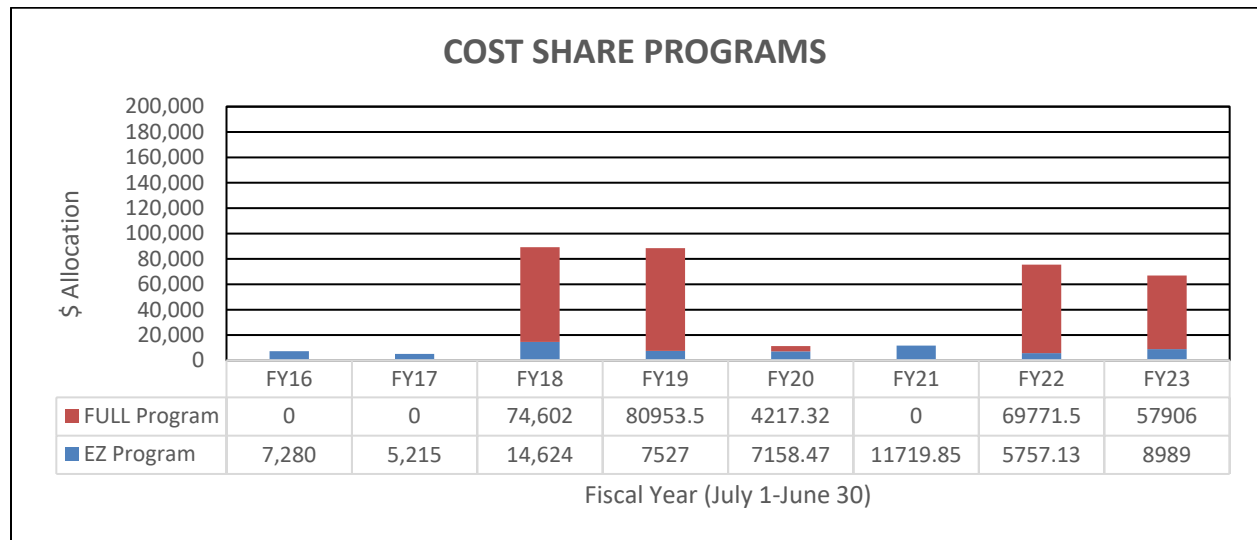


Figure 5

Projects include infiltration practices that can be reimbursed up to 50% of the project expenses. The 'EZ' program (residential properties) has a maximum reimbursement of \$2,000; where the 'FULL' program (non-residential) has no maximum. This allows for some potential large impact projects. The City has allocated \$250,000 for the non-residential program and \$25,000 for the residential program each fiscal year. Projects are scored and ranked for prioritization. Figures 5 and 6 provide a summary of the amount allocated for the fiscal years and a breakdown of type of practices funded.

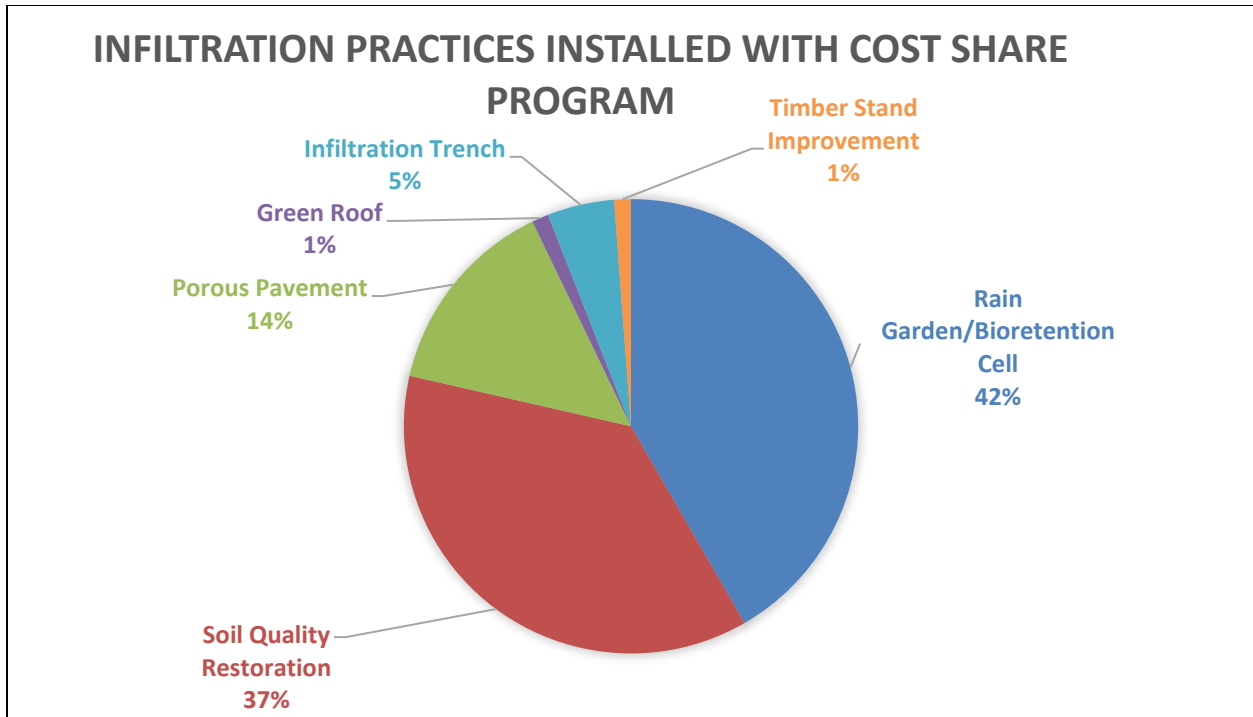


Figure 6

- Stormwater Utility Reduction Program**

http://www.cedar-rapids.org/local_government/departments_g_-_v/public_works/stormwater_utility.php

The City has a stormwater utility based on impervious area, which began in 2016. This more equitable way of billing its users will allow the City to increase and utilize this new revenue stream for stormwater capital improvements, operations, maintenance, and meeting federal/state permit obligations. Rates are based on

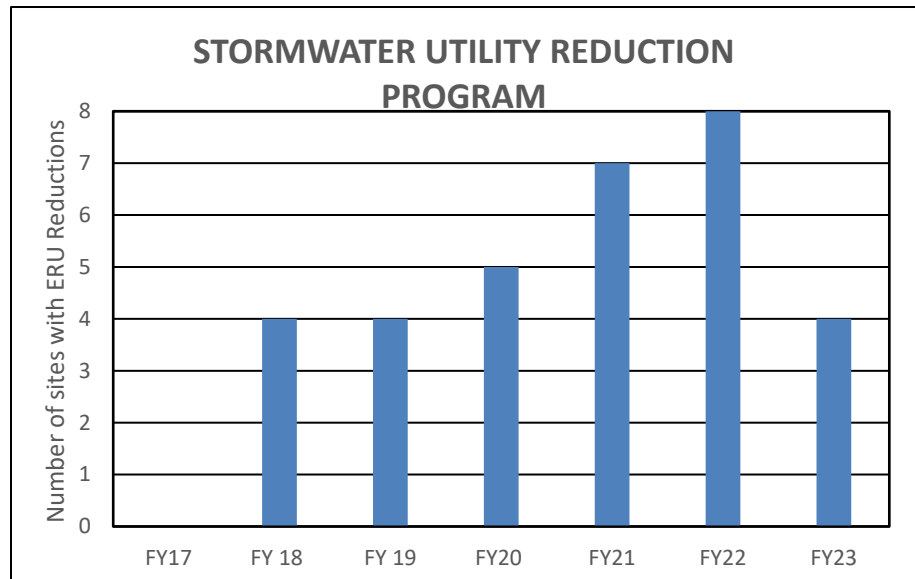


Figure 7

the quantity of hard surface area(s) on each parcel. These include rooftops, parking lots, and driveways. This billing method is generally accepted nationwide as being an appropriate and equitable method of measuring how much each property benefits from the City's stormwater conveyance system.

As part of the changes instituted, an expanded incentive program was also included. Stormwater utility fees can be reduced based on implementation of certain stormwater-related practices connected to a specific property. The stormwater utility reduction program is an incentive for owners to reduce stormwater runoff from their property and gives monetary incentive for implementing additional management practices. Outreach efforts have been done by the City to educate property owners of this new billing system and how to manage the stormwater from their property. Beginning in FY 18, owners began to utilize the reduction program and implementing different stormwater practices. Stormwater implementation projects included education, permeable pavers, and zero discharge. Figures 7 and 8 provide the number of reduction sites and a break-down of the type of practices implemented.

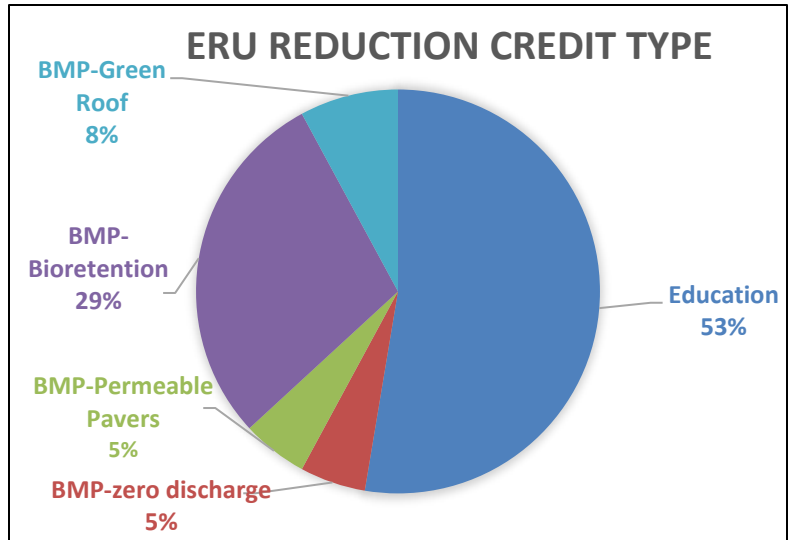


Figure 8

2. INSPECTION OF RUNOFF CONTROL DEVICES

City staff performs inspections of public and private runoff control devices. These devices include detention basins, conveyance structures, and street stormwater inlets. Public basins are inspected annually, with a focus on inlet and outlet structures, basin sedimentation loading, and proper vegetative maintenance. Private detention basins are inspected on a 5-year cycle. Similar attributes to the public basins are inspected; the results of the inspection are then communicated to the basin owner with the request for maintenance, should any be necessary. Inspection letters are sent to each private basin owner whose basin is inspected. These letters explain the role of detention basins and the importance of maintaining them, along with a request for maintenance actions resulting from the inspection. An educational brochure summarizing pertinent maintenance information accompanies each letter.

Year	Public Basins Inspected ¹	Private Basins Inspected
2013	80	72
2014	80	31
2015	80	130
2016	83	118
2017	83	-
2018	83	183
2019	83	90
2020	114	153
2021	135	195
2022	134	186

¹ Approximately 11 basins are classified as public; however, they are maintained by a private entity.

3. INSPECTION OF STRUCTURAL CONTROLS

The sewer division oversees 683 miles of sanitary sewer mains, 628 miles of stormwater mains, 15,397 manholes, 142 public detention basins, and 24,418 storm structures (inlets). Staff inspects private stormwater facilities and developments for required stormwater management practices to keep Cedar Rapids' waterways clean.

Since 2009, the City of Cedar Rapids has had the goal to inspect and map 2,000 storm water assets annually. As a large part of the City stormwater system was unmapped at the time, this annual goal was based on a best-guess estimate of the number of City-owned storm infrastructure (approximately 20,000). During the past decade of survey and inspection, City inspection staff have found the number of storm structures to be closer to 25,000. As a result, the City has increased the annual goal to 2,500 per year, beginning in 2018.

The inspection and mapping program for storm sewer structures has been conducted 2009-2019. A total of 20,371 structures have been inspected and mapped using GPS-based equipment. A summary of inlets inspected to date are in the table below, and a map of the inspected inlets from 2009 to present is in Appendix A. In 2020, storm sewer structures (inlets/manholes) were not inspected due to challenges related to the global pandemic. The inspection and mapping program has relaunched as of May 2023.

Year	Stormwater Inlets Inspected and Located with GPS
2009	3,047
2010	1,976
2011	1,795
2012	1,228
2013	2,506
2014	2,094
2015	3,009
2016	898
2017	37
2018	2,686
2019	1,095
2020	0
2021	0
2022	0
TOTAL complete	20,371

In 2016, the City initiated a proactive maintenance plan for stormwater infrastructure that included televising, cleaning, and assessing stormwater mains. Locations in low-lying areas that were inundated with floodwater were identified as areas to target as a pilot project (2016-2017). Cleaning out the sediment and debris has been a successful way of ensuring our infrastructure can maintain capacity and minimize localized flooding impacts.

It has been determined that boring construction poses the greatest risk to sewer infrastructure and health, welfare, and public safety. Consequently, the City has a new

requirement for all post-boring construction to be televised by the contractor and reviewed by City staff for potential damage assessment. The table below summarizes the miles of stormwater infrastructure televised and cleaned.

Year	Number of miles televised	Number of miles cleaned
2016	7.1	NS
2017	4.8	NS
2018	3.3	NS
2019*	-	0.696
2020	3.27	5.66
2021	4.03	3.555
2022	11.9	15.8
TOTAL	34.4	25.71

* A new data management system was established December 2019. This data is from December 1, 2019 - December 31, 2019.

4. WATERSHED ASSESSMENT PROGRAM

The City continues to focus on land use policies and programs to reduce flooding and erosion; additionally, improvements in water quality and wildlife habitat are also prioritized. Some activities and initiatives that the City led or participated in to meet these goals include:

- A new Stormwater Master Plan was adopted in 2016 and continues to be updated. The objectives of the plan include:
 1. Reflect the City’s vision for the future as presented in Envision CR.
 2. Develop a hydraulic model that can serve as a platform to better define needs and consider cost-effective solutions.
 3. Reflect City staff efforts to maintain and preserve the existing stormwater system through asset management.
 4. Prioritize and recommend projects for the capital improvement plan.

Part of the plan included hydraulic modeling to better assess the functionality of the system. The hydraulic model is performed at two scales:

- A city-wide "macro-level" model, which provides an overall picture of which areas of the City experience stormwater conveyance challenges, and how widespread the issue is (measured in city blocks and/or square miles)
- Detailed "basin-level" models, where each drainage basin is analyzed in detail using topographic and detailed stormwater conveyance system data to pinpoint street and property flooding severities. A map of the City of Cedar Rapids’ Watersheds is included in Appendix A. The tentative schedule for basin level studies is shown below:

FY16 (adopted)	FY17 (completed)	FY18 (completed)	FY19 (completed)	FY22 (in progress)
Kenwood	E Ave NW	Rockford Road	McLoud Run	Dry Creek
O Avenue NW		Czech Village	Cedar River SE	Indian Creek

*Scopes in future years subject to change

Additional information can be found here: http://www.cedar-rapids.org/local_government/departments_g_-_v/public_works/stormwater_master_plan.php

- A Cedar Lake Watershed Management Plan was developed in 2019 and continued in 2022. The identified goals of the plan included:
 1. Monitor and maintain water quality standards for recreational use.
 2. Manage sediment and pollutant loads.
 3. Improve water clarity; and
 4. Support healthy fish populations.

Water quality data was identified as being limited and needed to better understand the needs of the watershed; this is intended to be reviewed in 2023. The plan was presented at numerous public open houses. Cedar Lake’s watershed efforts will continue to be reviewed and reported on.

- The EnvisionCR comprehensive plan provides a vision for the future of Cedar Rapids, with a focus on priorities for City policies and public investments in the next 20 years. The plan was adopted by the City Council in 2015, and the 2018 Initiatives Update Report was adopted on February 9, 2021. The Green CR element of the plan has an overall goal of having Cedar Rapids be a steward for the environment, promoting economic and social growth while restoring the relationship between the City and the natural environment. There are numerous goals identified in the Green CR element, and it will be an ongoing process to use and update the plan. Additional information can be found on our website: http://www.cedar-rapids.org/local_government/departments_a_-_f/community_development/plans/envisioncr_Comprehensive_Plan.php

Figure 9 contains the updated ongoing goals and initiatives of Envision CR:

Figure 9

Green Goals & Initiatives - 2020 Update					
GREENCR		Schedule	Lead	Status	Comments
Be stewards for the environment, promoting economic and social growth while restoring the relationship between the city and the natural environment.					
1.	Coordinate with adjacent jurisdictions to identify environmentally sensitive areas in need of protection such as wetlands, habitats, and other areas of biological diversity for inclusion in the Environmental Conservation Overlay.	2-3 Years	Lead: Community Development Partners: Parks & Recreation, Utilities, Public Works	On-schedule	Environmentally sensitive areas are identified in the Future Land Use Map with the Environmental Conservation Overlay. The City is participating in a project with the City of Marion to identify and potentially preserve wetlands. The City is looking for areas for regional retention/detention, as shown in the Stormwater Master Plan. Some wetland mitigation locations are within City limits, others are likely in Linn County.
2.	Create a green streets policy that encourages future development and repairs to improve the permeability of the paving system and/or buffering of run-off, as well as a stormwater best management practices cost-share program that elicits community involvement, and thereby advancing "green infrastructure".	2-3 Years	Lead: Community Development Partners: Public Works	On-schedule	Current focus is on infiltration practices and cost-share programs, with efforts to conduct outreach to large users. A follow-up scope meeting will determine how green streets can be incorporated into the complete streets policy.
3.	Expand sustainability practices with iGreenCR and recognize sustainability leaders across the community.	Within 1 Year	Lead: Utilities	Started	The iGreenCR Action Plan will address this and include outreach and education strategies. This will also be part of the Community Climate Action Plan.
4.	Build customer capacity to respond to drought conditions, which may include a rebate program, educational campaign, water conservation, and future updates to the municipal code as part of the green building program.	2-3 Years	Lead: Utilities Partners: Building Services, Facilities, Community Development	Started	Continue rebate program for low flow toilets using grants and city funds. Continue to maintain educational relationship with lawn care professionals and Kirkwood Community College. The City is working with HACAP on program to identify customers with sudden increases in usage to update plumbing based on need.
5.	Develop a strategy to replace removed ash trees in City parks and ROW.	2-3 Years	Lead: Parks and Recreation	On-schedule	No updates at this time.
Have the best parks, recreation, and trails system in the region.					
6.	Continue to update the greenway plan and identify external funding opportunities for construction of the enhanced greenway system.	Within 1 Year	Lead: Parks and Recreation	Started	City Council priority. Updates to portions of the Greenway Parks Plan will occur through the Czech Village NewBo Area Action Plan. The City is currently conducting a River Recreation Feasibility and Implementation Study which will build on the Greenway Parks Plan and identify recommended river recreation option on the Cedar River. This study kicked off in fall 2019 and is expected to be complete by fall 2020.
7.	Update Parks and Recreation Master Plan to include a needs analysis, gap analysis, evaluation of existing facilities and programs, asset management strategies, and implementation actions.	Beyond 5 Years	Lead: Parks and Recreation	On-schedule	To be done every 15 years. Next update planned for 2025.
8.	Develop Site Master Plans, prior to making improvements, for each of the following signature parks: Bever Park and Jones Park	As Needed	Lead: Parks and Recreation	On-schedule	None at this time.

GreenCR Goals & Initiatives - 2020 Update

GREENCR		Schedule	Lead	Status	Comments
9.	Develop Site Master Plans, prior to making improvements, for each of the following signature parks: Bever Park and Jones Park	As Needed	Lead: Parks and Recreation	On-Schedule	None at this time.
10.	Convert select areas of park turfgrass to native prairie or woodland plantings to create wildlife habitat and reduce long-term maintenance costs.	2-3 Years	Lead: Parks and Recreation	Started	Continue 1,000 Acre Pollinator Initiative (five-year timeframe) in coordination with the Monarch Research Project, Linn County, and the City of Marion. Received Iowa DNR REAP grant for plantings. As of 2019, 294 acres have been converted to pollinator habitat.
11.	Develop a land acquisition strategy for new parks and expansion of existing parks.	4-5 Years	Lead: Parks and Recreation Partners: Public Works, Utilities, Community Development	On-schedule	Community Development is currently working on assessing parks level of service and identifying gaps.
12.	Identify ways to incorporate parks and open space into new subdivisions as part of the update to the subdivision code.	2-3 Years	Lead: Community Development	On-schedule	No updates at this time.
13.	Finalize design plans for the Smokestack Bridge and land-based improvements to Cedar Lake	Within 1 Year	Leads: Community Development, Public Works, Parks & Recreation	Started	A consultant has been hired and design is underway.
Lead in energy conservation and innovation.					
14.	Prepare a Community Climate Action Plan that builds on the Energy Management Plan and addresses emissions from land use, transportation, street lights, water consumption, waste generation, and building energy.	4-5 Years	Lead: CMO	Started	The development of the Community Climate Action Plan began in October 2020.
Completed Initiatives					
	Create a municipal sustainability plan by director-level Sustainability Integration Committee (SIC), informed by completion of STAR Communities.	Within 1 Year	Lead: Utilities	Complete	iGreenCR, the City's first municipal sustainability plan was completed in Winter 2020. This plan formalizes City operational goals, expand sustainability practices, and further build leadership and support.
	Prepare the iGreen CR Action Plan, a municipal sustainability plan, that builds off of the Energy Management Plan and addresses emissions from land use, transportation, street lights, water consumption, waste generation, and building energy: 1. Develop municipal greenhouse gas emissions inventory 2. Identify a greenhouse gas emissions reduction target 3. Identify measures for reducing emissions to reach the identified target and outline an approach for implementation and financing	2-3 Years	Lead: Utilities Partner: Public Works, Community Development	Complete	Completed in Winter 2020

- The City of Cedar Rapids understands the importance of trees for stormwater and watershed health. The City of Cedar Rapids was hit with a natural disaster (derecho) in August 2020 that resulted in the loss of approximately 50-65% of the tree canopy. There is a reforestation plan in place, and adjustments are being made to a changed landscape. The ReLeaf plan is found here: https://www.cedar-rapids.org/residents/parks_and_recreation/releaf_cedar_rapids_.php
- The City of Cedar Rapids has partnered with the Monarch Research Project on the 1,000 Acre Pollinator Initiative. This is a commitment to convert 1,000 acres of unused public land into prairie. Currently, the city already maintains approximately 125 acres of prairie within the public park system and rights-of-way. The Parks and Recreation Department worked with City land managers to identify acreage suitable for habitat conversion not only within parks, but also sewer and water detention basins, rights-of-way, property managed by the Utilities Department, Eastern Iowa Airport, and portions of City golf courses. Over 400 acres have been identified within the City for conversion. The City has partnered with Linn County Conservation and the City of Marion to convert additional acreage to meet the 1,000-acre goal. A summary of the program is below:

Year	Acres in Native Pollinator Habitat		
	City of Cedar Rapids	Linn County Conservation	City of Marion
2017	181.8	141.1	27
2018	86	153.5	16
2019	27.8	139.4	29.7
2020	5.3	62.8	22.5
2021	18	150	116.2
TOTAL	1082		

Additional information can be found here: http://www.cedar-rapids.org/residents/parks_and_recreation/pollinator_and_natural_resources_initiatives.php

The Monarch Research Project has also partnered with the Linn County Secondary Road Department on identifying 1,000 miles of the 2,200 secondary roadway ditches for native pollinator vegetation conversion. The 1,000 Mile Project complements the 1,000 Acre Plan. These projects not only expand pollinator habitat but also beautify roadways, provide habitat, reduce long-term maintenance costs, and increase the efficiency of storing stormwater.

- City of Cedar Rapids staff participates in multiple forums and groups that support efforts to improve water quality, promote flood management practices, and improve recreational opportunities. Watershed management is a multi-pronged approach that has multiple-benefits specific to the City. Watershed efforts directly affect specific City goals identified in various departments/programs, including stormwater, source water protection, water pollution control, and sustainability. With a heightened awareness of climate shifts and resulting impacts, the need for lasting impacts to be addressed on a watershed scale has been more widely

accepted. Current watershed partnerships the City is involved with include Cedar River Watershed Coalition, Middle Cedar Partnership Project (MCP), Middle Cedar Watershed Management Authority (MCWMA), Indian Creek Watershed Management Authority (ICWMA), and Lower Cedar Watershed Management Authority (LCWMA). Descriptions for each group include:

1. The Cedar River Watershed Coalition is a facilitated cooperation within the watershed to organize and advocate for land practices and policies that will reduce future flood damage and improve water quality. Periodic meetings allow for open discussion between various entities including legislators, city officials, county officials, soil and water conservation district commissioners, farmers, business peoples, environmentalists, and other concerned citizens. More information can be found here: https://www.ihr.uiowa.edu/cedarriverwatershed/?doing_wp_cron=1596035910.6920690536499023437500
2. The Middle Cedar Partnership Project (MCP) was led by the City of Cedar Rapids and funded by the USDA's Natural Resources Conservation Service (NRCS) through a Regional Conservation Partnership Program (RCP) and various other partnerships and wrapped up in 2020. *"The MCP is a collaboration between downstream water users, upstream conservation entities and local farmers. Led by the City of Cedar Rapids, these groups partner to increase the implementation of nutrient-management and flood-reduction practices in targeted areas of the Middle Cedar watershed. The project's goals are improved water quality, water quantity, and soil health."* (MCP update, December 2018, p.2) More information can be found here: http://www.cedar-rapids.org/residents/utilities/middle_cedar_partnership_project.php
"The City of Cedar Rapids has earned national recognition and drawn attention from farmers and landowners across the State of Iowa and beyond for its collaborative approach with agricultural partners in the watershed." (MCP update, December 2018, p.20). This initial project was funded beginning in 2015 through 2020. The City would like to continue the momentum of having urban and rural communities work together for shared goals.
3. The City of Cedar Rapids participates in the MCWMA in the capacity of a board member and technical team members, as well as general participation in regular open-session meetings. The MCWMA was formed in 2016 and was awarded a portion of a large HUD Resiliency Grant for the State of Iowa. MCWMA will receive \$11.2 million dollars to be used for assessment, planning, and implementation in the watershed. The goal of this project will be to reduce the magnitude of downstream flooding and improve water quality during and after flood events. This project began in 2016 and had a timeline of five years. Additional information can be found here: <http://www.middlecedarwma.com/>

4. The City of Cedar Rapids participates in the ICWMA in the capacity of a board member and technical team members, as well as general participation in regular open-session meetings. A Watershed Management Plan was completed June 2015 and gives strategies and recommendations for the watershed. A routine evaluation to measure the progress towards plan implementation is required to effectively advance the strategies and activities identified in the Plan. Evaluation will be achieved through annual plan reviews and plan updates that occur every five years. The reviews and updates are an important component of the adaptive management approach. The Annual Plan Review was completed in September 2016 by East Central Iowa Council of Governments and ICWMA Board of Directors. A grant was received in 2018 for a Soil Health Coordinator to provide technical support to increase adoption of soil health practices in the Indian Creek Watershed. More information can be found here:
<http://www.indiancreekwma.org/>
5. The City of Cedar Rapids participates in the LCWMA in the capacity of a board member. The LCWMA was formed in 2017. With the addition of the LCWMA, the Cedar River became the first continuous river in Iowa to be covered by watershed management authorities. The LCWMA received a watershed planning grant from the IDNR to develop a comprehensive watershed management plan to address stakeholder concerns involving water quality, flooding, and degrading habitat quality.
6. The City of Cedar Rapids was awarded the Iowa Secretary of Agriculture's Leadership in Conservation award for work done in partnering with upstream farmers. Some of these efforts include:
 - The City of Cedar Rapids owns over 2,000 acres of farmland, which it rents to local farmers. Beginning in 2020, the City of Cedar Rapids now requires cover crops to be planted on all cropland acres that we own.
 - In 2020, a bioreactor was installed at the Tuma Soccer Complex on farmland owned by the City.
 - In 2022, the City of Cedar Rapids launched a new partnership with the Iowa Department of Agriculture and Land Stewardship and six Soil and Water Conservation Districts, with the goal of building 60 saturated buffers across the Middle Cedar Watershed by 2024.
- The City of Cedar Rapids understands the importance of collecting good data in order to make informed decisions on identifying stormwater priorities within the City and within the Cedar River Watershed. Some of the data collection initiatives associated with watershed efforts include:
 1. The US Geological Survey has three in-situ stream gages in the watersheds that measures water level and rainfall. The gage located in Palo, Iowa, also monitors nitrate. The gages are located at:

- Indian Creek at Thomas Park in Marion (Gage 05464695),
 - Cedar River at Cedar Rapids (Gage 05464500),
 - Cedar River at Blairs Ferry Road in Palo (Gage 05464420)
 - Cedar River at Edgewood Rd (Gage 05464480)
2. The City of Cedar Rapids has partnered with Coe College in an annual water quality testing program. Streams (Otter Creek, Lime Creek, Mud Creek, Morgan Creek, Blue Creek, Bear Creek, and North Bear Creek) have been monitored for 22 summers. Originally chosen as part of Cedar Rapids' source water monitoring program, the monitoring of these seven watersheds has resulted in a long-term record of nutrient concentrations in eastern Iowa surface waters. Locations were sampled on a weekly basis from May through August 2021. In addition, Indian Creek watershed (three sites), Lime Creek tile drainage, Morgan Creek, and Silver Creek were also sampled. Results and findings of the 'Cedar River Tributary Study' for the 2021 water quality program include:
- "Median *E. coli* values all exceeded the state value for wadable streams (235 cfu/100mL)." (Coe College, 2021, p.7)
 - "Due to the dry summer, nitrate values followed a different temporal pattern...peak concentrations occurred early in the season, followed by declining concentrations throughout the summer." (Coe College, 2021, p.6-7)
 - "Long term nitrate trends correspond to percentage of the watershed dedicated to row-crop, with Lime and North Bear continuing to have the highest long-term mean nitrate concentrations." (Coe College, 2021, p.9)
 - "The Indian Creek watershed shows trends consistent with past observations. Nitrate and *E. coli* concentrations decrease moving downstream, largely due to dilution by inflows from groundwater and other sources. Chloride concentrations are more likely to be indicative of urban rather than agricultural sources. Chloride concentrations are seen to increase moving downstream." (Coe College, 2021, p. 11)
 - "A finer resolution *E. coli* distribution in the Indian Creek watershed shows there are both open and confinement operations in proximity to highest observations of *E. coli* in the watershed." (Coe College, 2021, p12.)
 - "The Lime Creek Watershed Improvement Association, a group of farmers in the watershed, has focused on implementing best management practices. A wetland monitored shows it is very effective in removing nitrates." (Coe College, 2021, p.15)
3. The City of Cedar Rapids has collaborated with the Iowa Soybean Association and Coe College on five snapshot sampling events in the Middle Cedar Watershed. The objective of the project was to characterize the water quality conditions in subwatersheds to assist with informed

planning decisions and implementation. Monitoring sites are in locations to measure water quality at the outlet of every HUC-12 subwatershed in the Middle Cedar (see Figure 10).

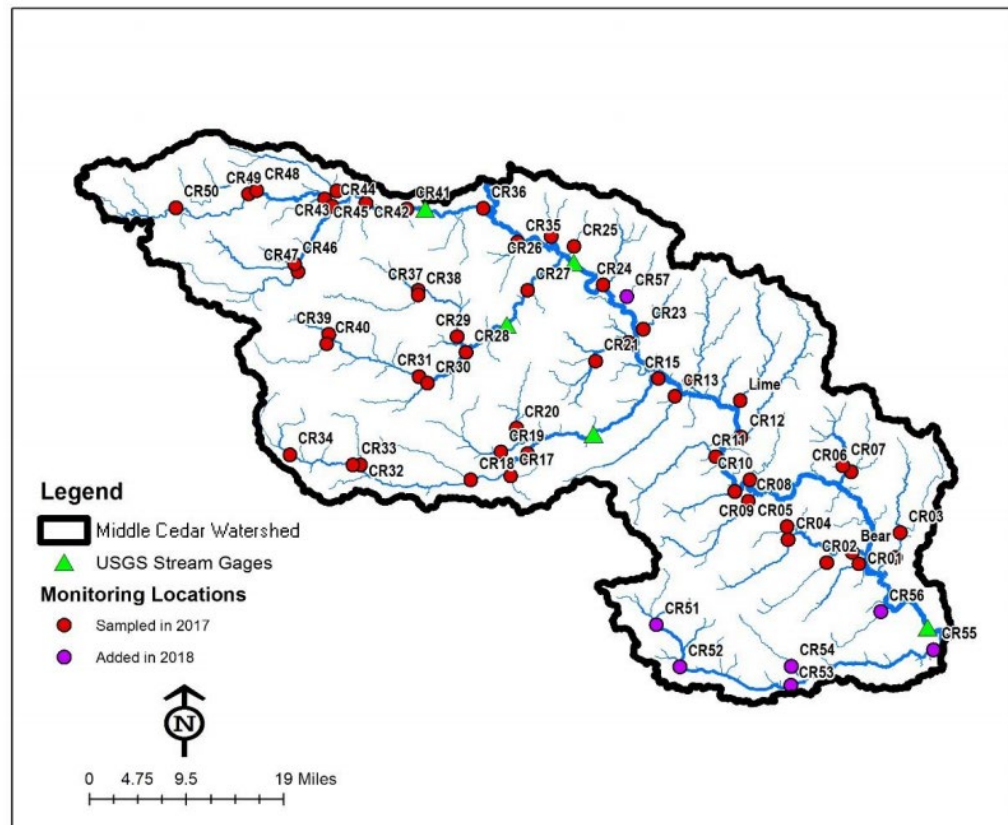


Figure 10

4. The City of Cedar Rapids conducted a Rapid Assessment of Stream Conditions Along Length (RASCAL) on McCloud Run and Morgan Creek to identify opportunities for improving the stream channel and adjacent riparian corridor.
5. An Iowa Department of Agriculture and Land Stewardship (IDALS) Water Quality Initiative planning grant was led by The Nature Conservancy for Morgan Creek Watershed and finalized in 2020. Outreach and conservation planning was conducted as a part of this grant initiative. Partnership opportunities will continue to be reviewed in the Morgan Creek watershed with local partners.
6. The City of Cedar Rapids has partnered with the University of Iowa Flood Center in installing rain sensors at various City locations. Sensors were installed at the NW Water Treatment Plant, City Services Center, and Water Pollution Control in 2016.

- 7. The City of Cedar Rapids utilizes shallow alluvial wells along the Cedar River for its water system. The City collects water samples from the Cedar River at Mohawk Park every week to monitor the River’s water quality. In addition, the water plant facilities are tracking nitrate levels in the raw water and treated water. There is some natural denitrification from the raw river water compared to the raw well water due to the natural filtration of the river water going through the subsurface sands.
- Linn County passed a Linn County Water and Land Legacy Bond in 2016. This obligated \$40 million dollars for the purpose of protecting sources of drinking water and the water quality of rivers and streams; protecting and acquiring land to provide natural floodwater storage, improve water quality, protect natural areas and reduce flooding; providing funds to improve parks; providing biking and walking trails; and protecting wildlife habitat and natural areas. Fifty-five percent of the funds are to be spent on water quality and land protection.

Year	Projects Designated with Bond
2018	\$5,448,000
2019	\$6,695,000
2020	\$5,515,000
Total	\$17,658,000

More information can be found here:

<https://www.linncounty.org/701/Linn-County-Water-and-Land-Legacy-Bond>

- Wings2Water Donations at the airport go towards supporting local water quality initiatives in Linn and Johnson counties. The County Conservation Board is leveraging dollars along with Wings2Water donations for maximum benefits to our region. More information can be found here: <https://www.wings2water.org/>
- The long-term goal for the watershed assessment program continues to be formalization of the program with a focus on physical assessment, water quality monitoring, and real-time data processing and access. The more immediate goals for 2022 include:
 1. Coordinate annual water quality and assessment activities with local organizations to continue and grow momentum and support for public participation in stewardship events.
 2. Continue assessments of urban streams utilizing the RASCAL and IDNR partnership. This will assist with identifying and prioritizing streambank needs and targeted implementation of best management practices.
 3. Continue participation and partnership in Watershed Management Authorities to address larger watershed concerns.
 4. Continue Coe College and Iowa Soybean Association water sampling efforts in the watersheds.

F. POLLUTION PREVENTION/GOOD HOUSEKEEPING

The City of Cedar Rapids continues implementing an operation and maintenance program, including a training component that prevents and/or reduces pollutant runoff from municipal operations.

1. OPERATION AND MAINTENANCE OF MS4

Operation and maintenance of the approximately 628 miles of storm sewer and 683 miles of sanitary sewer is performed by the Cedar Rapids Public Works Sewer Maintenance Division. Maintenance personnel continue to maintain the storm and sanitary sewer system; below is a table of work orders completed from 2016 to present:

Year	Storm and Sanitary Work Orders Completed
2016	2000
2017	1900
2018	2513
2019*	738
2020	8097
2021	1494
2022	644

* a new data management system was established December 2019. This data is from 12/19-6/20.

These efforts included, but were not limited to, storm conduits and structure point repairs, ditching, CCTV inspection, and cleaning. Approximately 11.9 miles of stormwater mains were televised, and 15.8 miles were cleaned. See Section E.2-3. An estimate for fiscal years (July 1-June 30) for the stormwater program include:

FY	Stormwater Operating Budget	Stormwater Capital Improvement Budget	Total
FY18 ¹	\$1,582,708.23	\$4,426,591.33	\$6,009,299.56
FY19 ¹	\$1,820,813.10	\$3,671,927.80	\$5,492,740.90
FY20 ¹	\$2,048,012.12	\$4,646,806.35	\$6,694,818.47
FY21 ¹	\$2,320,414.46	\$4,400,057.63	\$6,720,472.09
FY22 ¹	\$2,038,657.28	\$3,593,156.34	\$5,631,813.62
FY23 ²	\$2,559,758.59	\$10,374,300.00	\$12,934,058.59

1. Actual
2. Adopted

Expenditures include capital improvements, operation, and maintenance.

Public Works Streets Maintenance Division is responsible for street sweeping approximately 1,400 miles of public streets. Street sweeping resulted in approximately 3,000 tons of debris being collected, screened, and recycled for use on maintenance projects across the city and county. The Streets Maintenance Division continues to utilize a variety of methods to manage the amount of salt used on City streets during the winter. Stockpiles remain covered, and stockpile sizes are managed to avoid having unnecessary amounts of salt on hand and limit runoff. The City uses a brine that is only about 23.8% salt. In 2017, the City began blending beet juice into the brine. This mixture helped reduce the amount of salt, stayed in place longer on the pavement,

didn't dissolve or dilute as quickly during rain events, and remained effective when temperatures dropped below zero. Application of the brine is restricted to hills, curves, and intersections, using the flow of traffic to help spread the material. Spreader trucks direct the material to the desired locations by applying in targeted application streams versus broad application.

Multiple litter collection events continued during 2022, in conjunction with the City Manager's ongoing "1 Bag Challenge" helping to further reduce the amount of material entering the storm sewer system. Numerous volunteer initiatives throughout the year cleaned the public right-of-way (1-Bag Challenge and Adopt-a-Road). An interactive sustainability map has been created that includes these locations; it can be found here: <http://crqis.maps.arcgis.com/apps/webappviewer/index.html?id=0d12be64f2524972be255361e2f5bc03>

Fiscal Year	Number bags collected	Volunteers	Number of miles of ROW
FY16	905	NT	91
FY17	972	408	93
FY18	465	52	63
FY19	2349	50	70
FY20	2040	107	99
FY21	2324	111	99
FY22	4254	88	64
FY23	6664	441	147

NT: Not tracked

2. PESTICIDE AND FERTILIZER MANAGEMENT PROGRAM

The City's pesticide and fertilizer management program continues to be evaluated and implemented. All applications are performed by State-licensed applicators and in compliance with current State law. Personnel applying fertilizers and pesticides receive yearly training per State license requirements. Eighteen City staff are Certified Pesticide Applicators and have taken the necessary training. In addition, three City park staff are Certified Pool/Spa Operators for pool chemical management.

The Public Works Department's weed control program is limited to spot spraying of weeds on hard surfaced areas, such as roadway medians. Cedar Rapids Parks Operations staff utilize the Integrated Pest Management (IPM) method for pest management and invasive weed control: http://www.cedar-rapids.org/residents/parks_and_recreation/weed_control.php

The City is not phosphorus-free at this time, as most of the standard fertilizer blends contain phosphorus; however, the City is moving in that direction, with the exception of needing phosphorus to correct a soil deficiency. All applicators maintain logs that include documentation for the site, conditions, and rate. Each applicator reviews their rates based on the results and makes necessary adjustments.

3. TRAINING PROGRAM FOR MUNICIPAL EMPLOYEES

Ongoing training and events were held throughout 2022 for municipal employees with job functions that could impact stormwater quality, as well as the continued advancement of professional licensing and educational materials.

- Ongoing hazard communication training is held monthly at new hire orientation by the City Employee Safety Program Manager.
- Mandatory pollution prevention stormwater training for specified departments as part of the new hire orientation training was initiated in 2016. The targeted departments include Construction Engineering, Building Services, Streets, Sewer, Water, Water Pollution Control, Janitorial, Police, Fire, Parks, Golf, Fleet Maintenance, Transit, Solid Waste and Recycling, and Facilities Maintenance. These staff are targeted because they can have an impact on storm water quality (either directly through design evaluation, chemical use, or being out and about in the City). Since this training has been implemented, some illicit discharges have been identified and reported to the Water Resources Manager by the targeted staff that received training. The number of staff trained on pollution prevention include:

Year	Number of staff trained
2015	90
2016	12
2017	77
2018	42
2019	22
2020	9
2021	28
2022	25

- Spill Prevention, Control, and Countermeasure (SPCC) training was created in 2020 for 'high hazard' employees. High hazard includes staff who have the potential to use the fueling stations at any City facility. Training is provided on SPCC plans, proper handling procedures, spill prevention, spill kits, and contact personnel. A general information page was provided to all City staff in the City newsletter. More detailed training is provided to the following departments: Parks, Golf, Fleet Maintenance, Facilities Maintenance, Transit, Sewer Maintenance, Water Pollution Control, Water, Forestry, Streets, and Solid Waste.
- Training goals for 2023 include:
 1. Updating stormwater initiatives and pollution prevention to pertinent departments
 2. Continue to train relevant staff on pollution prevention
 3. Report on SPCC training

4. CITY FACILITIES BMPS

A program has been implemented to assess BMPs at municipal facilities in order to reduce pollutants in stormwater from these facilities. Stormwater Pollution Prevention Plans (SWPPPs) and SPCC Plans have been developed and reviewed for relevant facilities. Municipal facilities that have a SWPPP plan include J Avenue Water Plant, NW Water Plant, Water Pollution Control Facility, Public Works Facility (City Services

Center), Bever Park Maintenance, Old McDonald Farm, Bowling Street, Ellis Golf and Maintenance, Ellis Park Maintenance, Gardner Golf and Maintenance, Jones Golf and Maintenance, Noelridge Greenhouse and Maintenance, Tuma Maintenance, and Twin Pines Golf and Maintenance. The plans for each facility have been updated and are on a review schedule. Sites that have a SPCC Plan include J Ave Water Plant, NW Water Plant, Water Pollution Control Facility, and City Services Center.

All municipal facilities implement universally applicable BMPs, including covered dumpsters, prohibition of discharge of non-stormwater resulting from municipal activities to the storm sewer, covered salt storage, proper application of pesticides and fertilizers by certified applicators, and spill kit accessibility. Existing and proposed BMPs have been identified at each site with an associated implementation date.

G. MONITORING INDUSTRIAL AND HIGH-RISK RUN-OFF

Part II, Section G, of the Cedar Rapids NPDES MS4 permit requires the City to have a program to monitor industries that are determined to contribute a substantial pollutant load to the MS4. A list of Section “313” industries was obtained from the U.S. Environmental Protection Agency (EPA) website. This dataset is dated 2014 (released March 2016). Stormwater discharge associated with industrial activity regulated by DNR’s General Permit No. 1 (GP1) was evaluated beginning in 2018. There were 57 industrial sites that had a GP1 according to the state website, and 36 of these sites were industrial facilities not previously evaluated. A table quantifying the industrial facilities evaluated in Cedar Rapids is summarized below:

Year	313 Sites (May also have a General Permit)	General Permit Sites Only (GP1 & GP3)	Total High-Risk Sites-Survey & WQ Request Mailed	Sites inspected by City staff	Industrial sites returning survey	Industrial sites submitting water quality results*	Sites that implemented corrective actions for values above benchmark
2016	22	NA ¹	26	25	22	22	NA ¹
2017	22	NA ¹	26	25	22	22	NA ¹
2018	22	36	61	25	30	24	8
2019	21	40	34	37	37	32	11
2020	21	33	34	25	28	30	11
2021	21	16	37	24	35	35	12
2022	28	47	36	20	19	28	12

*Some sites may have a no exposure certificate. Others need follow up.

¹ Not Applicable (NA) - not evaluated

A letter and survey were sent to each industry that was identified as a potential ‘high risk’ site that may be contributing a substantial pollutant load. As surveys and data are evaluated, the number of high-risk sites may fluctuate. Table 3 provides a summary of the industries contacted and their response to a survey given by the City of Cedar Rapids. A copy of the survey and letter utilized to obtain the below information is included in Appendix A.

Sampling results provided by industrial facilities were compiled; there were a total of 31 industrial facility locations. Table 4 shows the industrial sampling results that were collected. In 2022, 20 sites identified water quality values above benchmark values.

The following sites identified elevated stormwater water quality results and initiated specific corrective action:

- ADM Corn Processing identified outfalls at different locations that had elevated levels of total phosphorus (TP), chemical oxygen demand (COD), biochemical oxygen demand (BOD), and/or nitrate plus nitrite (nitrate). Possible explanation to contributions includes plant start up and possible impact from tank farm. Corrective actions include general housekeeping.
- ADM Cogeneration Facility identified outfalls at different locations that had elevated levels of nitrate, TSS, BOD, and pH. Corrective actions include general housekeeping.
- Cargill Inc. has three different facilities that sample for stormwater. Elevated levels included: TP, TSS, COD, BOD, and pH. Possible explanation of some of the elevated levels may include wildlife and facility processes. Corrective actions include continued monitoring, continue implementing housekeeping practices, and evaluating the effectiveness of said practices.
- Crandic Maintenance Shop had slightly elevated level of nitrate. Corrective actions include continuing to sample for nitrate, monthly visual inspections per the site's SPCC Plan and SWPPP, and emphasize general housekeeping.
- Croell Redi-mix had slightly elevated concentrations of nitrate and high levels of TSS. Water quality parameters will continue to be monitored in 2023.
- Dupont/Danisco US, Inc. showed elevated levels of TSS, BOD, pH, and nitrate. Concentrations will continue to be monitored in 2023.
- Ingredion (Penford) had elevated TSS, BOD, and COD. The identified corrective action is to increase sweeping in high traffic areas. Concentrations will continue to be monitored in 2023.
- Iowa Specialties had elevated BOD and COD. Parameters will continue to be monitored in 2023.
- King's Material had TSS levels outside the benchmark values. Quarterly sweeping and bi-monthly inspection will be instituted. Water quality parameters will continue to be monitored in 2023.
- Klinger Paint had nitrate above the benchmark value. Water quality parameters will continue to be monitored in 2023.
- PMX Industries Inc. had elevated nitrate levels. Concentrations will continue to be monitored in 2023.
- Schneider Electric had elevated levels of nitrate and TSS. Site results were discussed with facility staff. Concentrations will continue to be monitored in 2023.
- Facilities that did not sample in 2022 include: CHEP, Forterra, L.L. Pelling, and Sunline.

Table 3: List of Section 313 Facilities, 2022 survey information

Facility Name	Survey & Lab Returned to City 2022	Survey & Lab Returned to City 2018	Subject to SARA Sec. 313	GP1	Storm Water Mgmt Plan	Sampling Completed for 2022	Sampling Completed for 2018	Last Year Sampled (prior to 2022)	Industrial Waste Discharge Permit	Storm Water Inspection by City
ADM CORN PROCESSING (Wet Mill)	Yes	Yes	Yes	Yes	Last revision 12/29/2021	Yes	Yes	2021	Expires: 10/1/2027	9/12/2022
ADM DRY GRIND FACILITY	Yes	Yes	Yes	Yes	Last revision 12/29/2021	Yes	Yes	2021	Expires: 6/21/2024	9/9/2022
ADM COGENERATION UTILITY	Yes	Yes	Yes	yes	Last revision 12/29/2021	Yes	Yes	2021	Wety Mill & CoGeneration under same discharge permit	9/12/2022
ALTER METAL RECYCLING - CEDAR RAPIDS		No	No	Yes	Created 2022	N/A	not required	N/A	GP1	
BIO SPRINGER NORTH AMERICA CORP	Yes	No	Yes	Yes	Facility review 8/2016	RedStar Samples for Bio Springer	RedStar Samples for Bio Springer	RedStar Samples for Bio Springer (2018)	Permit is under Red Star Yeast	9/9/2020
CARGILL CORN INC 1110 12th AVE SW	yes	Yes	Yes	Yes	Last revision 4/2/21	Yes	Yes	2021	Expires 2/28/2023	8/3/2021
CARGILL INC 1710 16th SE	Yes	Yes	Yes	Yes	Last revision 2017	Yes (missing nitrate)	Yes	2021	Expires 7/27/2022	7/28/2021
CARGILL INC. 410 C Ave NE	Yes	Yes	Yes	Yes	Facility revised 7/2019	Yes (missing pH)	Yes	2021	Expires 10/1/2022	7/27/2021
CEI	Yes	yes	No	Yes	Last revision 1/1/2018	no	yes	2021	Expires: 12/16/2026	-
CHEP SERVICES; CEDAR RAPIDS SERVICE CENTER	yes	yes	No	Yes	Last revision 4/27/2018	Yes	yes	2021	GP1	-
COVANTA ENVIRONMENTAL SOLUTIONS, INDUSTRIAL FACILITY	yes	no	No	yes	2018	yes	not required	2021	GP1	2019
COVANTA ENVIRONMENTAL SOLUTIONS, INDUSTRIAL WASTEWATER TREATMENT FACILITY	yes	NO	No	yes	2018	yes	not required	2021	GP1	11/10/2021
Crandic	Yes	Yes	No	Yes	Last revision 12/20/19	Yes	yes	2021	Expires:12/21/2026	2004
CRANDIC MAINTENANCE SHOP	Yes	no	No	Yes	Last revision 12/20/19	Yes	no	2021	Expires: 04/03/2028	-
CROELL REDIMIX	Yes		No	Yes	-	yes		2021	Expires: 10/01/2025	9/20/2021
DIAMOND V MILLS INC. (NORTH) CLOSED	Yes	Yes	Yes	Yes	Annual review 2018	Yes	Yes	2020	Expired 4/6/2021	4/6/2020
DIAMOND V MILLS INC. SOUTH PLANT	Yes		Yes	Yes	Last revision 8/3/21	Yes		2021	Expires 6/1/2024	7/19/2022
DUPOINT (GENENCOR INTERNATIONAL)	Yes	Yes	Yes	Yes	44713	Yes	Yes	2021	Expires 10/1/2025	10/27/2022
ELECTROCOATINGS OF IOWA	Yes	Yes	Yes	Yes	44805	Yes	Yes	2021	Expires 3/3/2026	12/6/2022
FORTERRA / CROTEX CONCRETE	No	No	Yes	Yes	Facility revised 2018	No	No	2017	Expires: 12/20/2024	9/21/2021
GENERAL MILLS	Yes	yes	no	Yes	Last revision October 2021	Yes	yes	2021	Expires: 10/1/2027	11/2/2022
HAWKEYE READY MIX	no	No	No	No	Last revision 11/21/22	Yes	yes	2021	Expires: 11/17/2025	#REF!
HIGHWAY EQUIPMENT CO (New Leader manufacturing)	Yes	Yes	Yes	Yes	Facility review 8/21/2009	Yes	Yes	2021	Expires 10/9/2023	1/30/2023
INGREDION / PENFORD	Yes	Yes	Yes	Yes	Fall 2021	Yes	Yes	2020	Expires 10/1/2022	9/2/2021
INTERNATIONAL PAPER CO (C St)	Yes	Yes	Yes	Yes	Facility revised 10/2020	Yes	Yes	2021	Expires 10/1/2027	8/30/2021
INTERNATIONAL PAPER CO (Shaver Rd)	Yes	no	No	Yes	Last Revision 11/2018	Yes	Yes	2020	expires 10/20/2022	10/21/2021
IOWA SPECIALTIES INC	Yes	Yes	Yes	Yes	Facility revised 12/2020	Yes	Yes	2020	46295	9/20/2021
KAPSTONE CONTAINER CORPORATION (Westrock)	Yes	yes	No	Yes	Last revision June 2021	Yes	Yes	2020	GP1	10/14/2021
KING'S MATERIAL, INC	yes	no	No	No	last revision 10/1/22	Yes	Yes	2020	GP3, expires 10/22	-
KING'S MATERIAL, INC	yes	No	No	Yes	Last revision 10/1/21	Yes	Yes	2020	GP1, GP3	7/15/2019
KLINGER PAINT CO	Yes	Yes	Yes	Yes	Facility revised 11/20/2019	Yes	No	2020	Expires 10/1/2024	9/21/2021
L.L. PELLING COMPANY, INC.	Yes	No	No	No	Last revision 3/31/20	Yes	yes	2020	GP3 expires 10/1/2022	10/18/2019
PMX INDUSTRIES INC	Yes	Yes	Yes	Yes	Facility revised 2020	Yes	Yes	2018	Expires 10/1/2022	12/8/2021
RED STAR YEAST COMPANY/LESAFFRE	Yes	Yes	Yes	Yes	Facility revised 9/4/2019	Yes	Yes	2020	Expires 9/30/2024	11/5/2021
ROCKWELL COLLINS, INC. 400 COLLINS RD NE (C Ave Facility)	Yes	Yes	Yes	Yes	Revised 12/2/2020	Yes	Yes	2020	Expires 10/8/2025	12/6/2021
ROGERS CONSTRUCTION READY MIX CONCRETE PLANT	lab. No survey	No	No	No	yes	2022		-	GP3 expires 4/24/26	2019
SUN LINE, INC.	Yes	No	No	Yes	Yes	yes	yes	2020	GP1	2019

Table 4: Industrial Sampling Results

<i>values in mg/L unless otherwise indicated</i>	<i>year</i>	<i>date sampled</i>	Total Kjeldahl Nitrogen⁴	Total Phosphorus⁴	Total Suspended Solids⁴	Nitrate Nitrite as N	Biochemical Oxygen Demand⁴	Chemical Oxygen Demand⁴	pH (standard units)⁴	Oil & Grease⁴
IAC Use Designation (Chronic)²										
IAC Use Designation (Acute)²									6.5-9	
EPA Benchmark³				2.0	100	0.68	30	120	6.0-9.0	15
ADM Wet Mill Facility CP 02 (grab)	2015	5/3/15	7.6	1.79	277	0.396	27.6	296	9	3.65
ADM CP 02 (grab)	2016	6/22/16	5.34	1.29	151	0.541	28.7	122	6.61	2.04
ADM CP 02 (grab)	2017	6/28/17	3.14	0.971	48	0.639	17.3	129	7.94	<1.4
ADM CP 02 (grab)	2018	6/9/18	5.88	1.4	93	0.729	16.9	130	6.94	<1.4
ADM CP 02 (grab)	2019	7/9/19	20.3	2.32	40	0.155	70.8	274	7.15	2.1
ADM CP 02 (grab)	2020	11/10/20	4.39	1.8	26.5	0.521	32.3	53.6	7.51	<4.4
ADM CP 02 (grab)	2021	7/14/21	3.84	0.878	134	0.739	118	88.6	7.75	<4.6
ADM CP 02 (grab)	2022	5/18/22	26.3	5.65	51	2.74	60.8	340	7.17	<4.5
ADM CP 02 (comp)	2015	5/3/15	3	0.814	202	0.652	21.3	62.4	9.25	NA
ADM CP 02 (comp)	2016	6/22/16	2.82	1.09	127	1.12	14.8	81.8	7.29	NA
ADM CP 02 (comp)	2017	6/28/17	5.15	1.43	446	0.922	18.7	181	7.93	NA
ADM CP 02 (comp)	2018	6/9/18	2.7	0.71	164	1.04	16.6	97	NA	NA
ADM CP 02 (comp)	2019	7/9/19	21.3	2.65	38	0.117	88.4	276	6.9	NA
ADM CP 02 (comp)	2020	11/10/20	3.07	1.37	30	0.378	23.1	73.6	7.55	NA
ADM CP 02 (comp)	2021	7/14/21	4.71	1.44	46	1.07	62.7	162	7.26	NA
ADM CP 02 (comp)	2022	5/18/22	18.8	4.3	32.5	1.98	47.1	240	7.15	NA
ADM CP 03 (grab)	2015	5/3/15	2.91	0.425	159	0.492	20.7	43.9	Corn Processing & CoGeneration under same discharge permit	3.98
ADM CP 03 (grab)	2016	6/22/16	2.03	0.71	12.3	0.655	4.03	52.7	6.66	<1.08
ADM CP 03 (grab)	2017	6/28/17	3.04	0.464	35	0.438	8.18	104	8.92	<1.4
ADM CP 03 (grab)	2018	6/9/18	7.37	1.36	394	0.644	18	116	8.81	3
ADM CP 03 (grab)	2019	7/9/19	14.2	2.77	38	0.575	65.1	260	6.96	9.7
ADM CP 03 (grab)	2020	11/10/20	40.1	6.46	22	0.545	73.3	625	7.68	<4.5
ADM CP 03 (grab)	2021	7/14/21	4.6	1.36	17	1.17	26.9	92.2	7.87	<4.6
ADM CP 03 (grab)	2022	5/18/22	2.97	0.785	65.3	0.383	12.5	60.1	7.31	<4.6
ADM CP 03 (comp)	2015	5/3/15	2.9	0.408	28	0.487	11.8	72.6	8.75	NA

ADM CP 03 (comp)	2016	6/22/16	2.16	0.693	100	1.78	5.88	18.8	7.33	NA
ADM CP 03 (comp)	2017	6/28/17	4.94	0.845	135	0.504	10.2	186	8.71	NA
ADM CP 03 (comp)	2018	6/9/18	3.86	0.581	21.5	0.746	8.88	113	NA	NA
ADM CP 03 (comp)	2019	7/9/19	9.83	2.35	39	0.42	66.6	165	7.08	NA
ADM CP 03 (comp)	2020	11/10/20	7.18	1.98	22.5	0.403	46.9	96.9	7.39	NA
ADM CP 03 (comp)	2021	7/14/21	6.91	1.99	19	1.48	43	146	7.41	NA
ADM CP 03 (comp)	2022	5/18/22	9.72	2.1	56	0.365	121	183	7.04	NA
ADM CP 06 (grab)	2015	5/3/15	5.64	1.09	257	0.566	50.4	193	8.56	5.11
ADM CP 06 (grab)	2016	6/22/16	1.35	0.352	29.3	0.274	3.58	43	7.53	<1.09
ADM CP 06 (grab)	2017	6/28/17	1.26	0.186	41	0.387	8.66	83.6	8.89	<1.4
ADM CP 06 (grab)	2018	6/9/18	2.28	0.454	42	0.429	14.8	87.6	6.81	2.9
ADM CP 06 (grab)	2019	7/9/19	21.9	2.2	37	0.69	40.1	226	7.66	6.1
ADM CP 06 (grab)	2020	11/10/20	7.85	1.23	67	1.07	167	283	8.9	8.8
ADM CP 06 (grab)	2021	7/14/21	9.36	2.47	60	0.895	40	171	7.19	<4.7
ADM CP 06 (grab)	2022	5/18/22	3.37	0.931	28.5	0.625	12.2	60.1	7.59	<4.5
ADM CP 06 (comp)	2015	5/3/15	2.94	0.519	35	0.498	27.3	87.8	8.88	NA
ADM CP 06 (comp)	2016	6/22/16	0.683	0.192	12.7	0.197	3.25	44.6	7.23	NA
ADM CP 06 (comp)	2017	6/28/17	3.69	0.941	45	0.455	35.8	122	9.45	NA
ADM CP 06 (comp)	2018	6/9/18	1.98	0.35	20.7	0.469	13.3	70.3	NA	NA
ADM CP 06 (comp)	2019	7/9/19	20.2	1.95	43.3	0.858	53.4	174	7.3	NA
ADM CP 06 (comp)	2020	11/10/20	7.51	1.19	72	1.03	181	278	7.87	NA
ADM CP 06 (comp)	2021	7/14/21	8.83	2.33	31	0.76	32.7	168	7.19	NA
ADM CP 06 (comp)	2022	5/18/22	5.7	1.48	57	0.719	21.5	80.4	7.42	NA
ADM CP 12 (grab)	2015	5/3/15	3.22	0.587	142	1.35	17.7	106	8.19	3.66
ADM CP 12 (grab)	2016	6/22/16	3.42	0.925	28.7	2.88	5.64	81.5	7.61	1.82
ADM CP 12 (grab)	2017	6/28/17	2.53	0.604	62.7	1.69	5.99	174	8.5	<1.5
ADM CP 12 (grab)	2018	6/9/18	1.97	0.463	30.3	0.663	4.87	105	7.95	4.9
ADM CP 12 (grab)	2019	7/9/19	2.25	0.233	9.67	0.591	14.8	59.8	7.6	4.1
ADM CP 12 (grab)	2020	11/10/20	2.99	0.651	19.5	0.418	15.1	95.2	7.26	<4.4
ADM CP 12 (grab)	2021	7/14/21	2.67	0.923	100	1.11	18.8	97.6	7.63	<4.6
ADM CP 12 (grab)	2022	5/18/22	3.4	0.564	28	1.86	12	55.4	7.39	<0.48
ADM CP 12 (comp)	2015	5/3/15	2.12	0.284	25.3	1.06	8.52	76	8.51	NA
ADM CP 12 (comp)	2016	6/22/16	5.77	1.21	28	1.52	9.38	89.9	7.63	NA
ADM CP 12 (comp)	2017	6/28/17	1.88	0.348	51.7	1.06	5.03	111	8.21	NA
ADM CP 12 (comp)	2018	6/9/18	1.13	0.187	13.3	0.511	4.37	39	NA	NA
ADM CP 12 (comp)	2019	7/9/19	2.17	0.251	6.33	0.563	14.6	80.5	7.59	NA
ADM CP 12 (comp)	2020	11/10/20	1.49	0.402	17.3	2.88	<5.64	41.9	7.14	NA
ADM CP 12 (comp)	2021	7/14/21	2.49	0.747	144	1.04	19.9	70.7	7.49	NA
ADM CP 12 (comp)	2022	5/18/22	2.76	0.517	15.7	1.84	<12	7.56	7.56	NA

	year	date sampled	Total Kjeldahl Nitrogen ⁴	Total Phosphorus ⁴	Total Suspended Solids ⁴	Nitrate Nitrite as N	Biochemical Oxygen Demand ⁴	Chemical Oxygen Demand ⁴	pH (standard units) ⁴	Oil & Grease ⁴
<i>values in mg/L unless otherwise indicated</i>										
IAC Use Designation (Chronic) ²										
IAC Use Designation (Acute) ²									6.5-9	
EPA Benchmark ³				2.0	100	0.68	30	120	6.0-9.0	15
ADM Dry Mill Facility NE Basin 1 (grab)	2015	4/18/15	1.78	0.284	32.7	3.24	9.28	34.8	8.3	2.9
ADM NE Basin 1 (grab)	2016	5/26/16	4.29	3.7	518	1.25	<2.82	42.8	9.47	2.42
ADM NE Basin 1 (grab)	2017	5/18/17	0.936	0.399	110	1.55	<2.82	60.8	7.83	<1.4
ADM NE Basin 1 (grab)	2018	5/12/18	13.1	1.45	176	4.75	<1.41	67.2	8.47	2.9
ADM NE Basin 1 (grab)	2019	7/1/19	0.987	0.157	50	0.573	<5.64	24	7.9	4.7
ADM NE Basin 1 (grab)	2020	11/10/20	0.622	0.317	88	1.05	<5.64	26.9	8.4	<4.4
ADM NE Basin 1 (grab)	2021	9/20/21	1.18	0.521	172	0.562	<12	30.6	8.29	<5
ADM NE Basin 1 (grab)	2022	8/8/22	1.51	0.304	4.67	5.45	<3.00	<24	6.87	<4.5
ADM NE Basin 1 (comp)	2015	4/18/15	1.4	0.522	189	1.74	5.26	<19.4	7.86	NA
ADM NE Basin 1 (comp)	2016	5/26/16	2.13	0.928	310	1.14	3.81	25.9	10.25	NA
ADM NE Basin 1 (comp)	2017	NS	NS	NS	NS	NS	NS	NS	NS	NS
ADM NE Basin 1 (comp)	2018	5/12/18	3.9	1.55	524	3.66	NA	23.7	NA	NA
ADM NE Basin 1 (comp)	2019	7/1/19	NS	NS	NS	NS	NS	NS	NS	NS
ADM NE Basin 1 (comp)	2020	NS	NS	NS	NS	NS	NS	NS	NS	NS
ADM NE Basin 1 (comp)	2021	NS	NS	NS	NS	NS	NS	NS	NS	NS
ADM NE Basin 1 (comp)	2022	NS	NS	NS	NS	NS	NS	NS	NS	NS
ADM Dry NW Basin 2 (grab)	2015	4/19/15	1.95	0.516	198	0.72	12.3	43.4	8.4	2.81
ADM Dry NW Basin 2 (grab)	2016	5/26/16	3.41	0.654	356	0.961	12.3	41.1	7.3	2.4
ADM Dry NW Basin 2 (grab)	2017	5/18/17	2.44	0.456	106	2.07	6.15	62.5	7.66	2.4
ADM Dry NW Basin 2 (grab)	2018	6/14/18	12.3	1.63	740	<0.085	14.6	50	8.55	3.5
ADM Dry NW Basin 2 (grab)	2019	7/1/19	3.24	1.1	43	2.8	8.82	25.3	7.1	5.7
ADM Dry NW Basin 2 (grab)	2020	11/10/20	1.48	1.07	76	0.737	<5.64	25.3	8.81	<4.4
ADM Dry NW Basin 2 (grab)	2021	9/20/21	2.66	0.947	154	2.38	15	83.4	7.37	<4.6
ADM Dry NW Basin 2 (grab)	2022	8/8/22	2.35	1.93	26	1.34	27.2	114	7.29	<4.4
ADM Dry NW Basin 2 (comp)	2015	NS	NS	NS	NS	NS	NS	NS	NS	NS
ADM Dry NW Basin 2 (comp)	2016	5/26/16	3.76	0.83	548	1.03	7.49	46.1	7.73	NA
ADM Dry NW Basin 2 (comp)	2017	NS	NS	NS	NS	NS	NS	NS	NS	NS
ADM Dry NW Basin 2 (comp)	2018	5/12/18	22.8	2.15	716	<0.085	NA	30.3	NA	NA
ADM Dry NW Basin 2 (comp)	2019	7/1/19	NS	NS	NS	NS	NS	NS	NS	NS

ADM Dry NW Basin 2 (comp)	2020	NS	NS	NS	NS	NS	NS	NS	NS	NS
ADM Dry NW Basin 2 (comp)	2021	NS	NS	NS	NS	NS	NS	NS	NS	NS
ADM Dry NW Basin 2 (comp)	2022	NS	NS	NS	NS	NS	NS	NS	NS	NS
ADM Dry SE Basin 4 (grab)	2015	4/18/15	1.97	0.519	38	0.0885	7.36	31.4	7.89	2.95
ADM Dry SE Basin 4 (grab)	2016	5/26/16	3.03	0.859	160	1.23	6.21	<11.6	8.48	2.2
ADM Dry SE Basin 4 (grab)	2017	5/18/17	2.4	0.54	1220	1.12	6.43	84.7	7.39	<1.4
ADM Dry SE Basin 4 (grab)	2018	5/12/18	4.18	0.908	180	1.19	16.1	<8.5	NA	1.6
ADM Dry SE Basin 4 (grab)	2019	7/1/19	2.28	0.433	38	<0.063	11.3	30.6	8.2	3
ADM Dry SE Basin 4 (grab)	2020	11/10/20	0.882	0.351	56	0.326	<5.64	29.3	8.77	<4.4
ADM Dry SE Basin 4 (grab)	2021	9/20/21	2.81	1.41	23.3	0.153	8.09	88.3	7.53	<4.8
ADM Dry SE Basin 4 (grab)	2022	8/8/22	4.71	1.84	26	<0.0260	15.6	66.1	6.63	<4.2
ADM Dry SE Basin 4 (comp)	2015	4/18/15	2.32	0.791	145	0.623	12	50.3	8.2	NA
ADM Dry SE Basin 4 (comp)	2016	5/26/16	2.38	0.519	118	1.41	<2.82	<11.6	8.27	NA
ADM Dry SE Basin 4 (comp)	2017	NS	NS	NS	NS	NS	NS	NS	NS	NS
ADM Dry SE Basin 4 (comp)	2018	5/12/18	4.65	1.02	168	1.26	NA	38.5	NA	NA
ADM Dry SE Basin 4 (comp)	2019	NS	NS	NS	NS	NS	NS	NS	NS	NS
ADM Dry SE Basin 4 (comp)	2020	NS	NS	NS	NS	NS	NS	NS	NS	NS
ADM Dry SE Basin 4 (comp)	2021	NS	NS	NS	NS	NS	NS	NS	NS	NS
ADM Dry SE Basin 4 (comp)	2022	NS	NS	NS	NS	NS	NS	NS	NS	NS
ADM Dry SW Basin 5 (grab)	2015	4/18/15	3.12	0.952	225	2.57	63.4	105	8.18	1.8
ADM Dry SW Basin 5 (grab)	2016	5/26/16	4.4	1.27	210	1.75	16.9	15.8	7.73	1.53
ADM Dry SW Basin 5 (grab)	2017	5/18/17	2.88	0.775	145	1.85	4.98	76.2	7.87	5.3
ADM Dry SW Basin 5 (grab)	2018	5/12/18	17.1	2.86	288	0.519	8.98	150	7.81	2.4
ADM Dry SW Basin 5 (grab)	2019	7/9/19	2.74	0.253	47	<0.063	125	222	8.08	4.1
ADM Dry SW Basin 5 (grab)	2020	11/10/20	2	0.701	138	1.28	<5.64	37.6	8.21	<4.4
ADM Dry SW Basin 5 (grab)	2021	9/20/21	1.78	0.458	58	0.0803	<12	65.2	9.76	<4.6
ADM Dry SW Basin 5 (grab)	2022	8/8/22	2.56	0.452	14	0.662	7.93	31.3	7.01	<4.2
ADM Dry SW Basin 5 (comp)	2015	4/18/15	NS	NS	NS	NS	NS	NS	NS	NS
ADM Dry SW Basin 5 (comp)	2016	5/26/16	NS	NS	NS	NS	NS	NS	NS	NS
ADM Dry SW Basin 5 (comp)	2017	5/18/17	NS	NS	NS	NS	NS	NS	NS	NS
ADM Dry SW Basin 5 (comp)	2018	5/12/18	11.2	2.03	166	2.69	NA	102	NA	NA
ADM Dry SW Basin 5 (comp)	2019	NS	NS	NS	NS	NS	NS	NS	NS	NS
ADM Dry SW Basin 5 (comp)	2020	NS	NS	NS	NS	NS	NS	NS	NS	NS
ADM Dry SW Basin 5 (comp)	2021	NS	NS	NS	NS	NS	NS	NS	NS	NS

<i>values in mg/L unless otherwise indicated</i>	<i>year</i>	<i>date sampled</i>	Total Kjeldahl Nitrogen⁴	Total Phosphorus⁴	Total Suspended Solids⁴	Nitrate Nitrite as N	Biochemical Oxygen Demand⁴	Chemical Oxygen Demand⁴	pH (standard units)⁴	Oil & Grease⁴
IAC Use Designation (Chronic) ²										
IAC Use Designation (Acute) ²									6.5-9	
EPA Benchmark ³				2.0	100	0.68	30	120	6.0-9.0	15
ADM Cogeneration Facility CG02 (Grab)	2015	4/18/15	4.62	0.551	101	2.49	24.9	134	9.05	3.47
ADM CG02 (Grab)	2016	5/26/16	2.5	0.657	710	0.761	<2.82	61.3	8.92	<1.05
ADM CG02 (Grab)	2017	6/28/17	1.04	0.178	41.3	0.582	4.2	71.4	8.96	<1.4
ADM CG02 (Grab)	2018	5/12/18	3.98	0.51	224	0.914	14.4	135	8.93	4.2
ADM CG02 (Grab)	2019	7/9/19	3.19	0.631	15.7	1.5	11.3	54.6	8.8	3.9
ADM CG02 (Grab)	2020	11/10/20	1.94	0.609	276	0.506	<5.64	74	9.17	<4.5
ADM CG02 (Grab)	2021	9/20/21	3.26	0.569	122	0.528	14.8	153	9.39	<4.9
ADM CG02 (Grab)	2022	5/18/22	2.93	0.765	100	0.892	<12	92.9	7.46	4.9
ADM CG02 (comp)	2015	4/18/15	1.61	0.229	109	1.42	12.8	31.4	9.31	NA
ADM CG02 (comp)	2016	5/26/16	1.79	0.421	114	1.04	<2.82	46.1	8.62	NA
ADM CG02 (comp)	2017	6/28/17	1.21	0.234	125	0.634	5.13	95.8	8.55	NA
ADM CG02 (comp)	2018	5/12/18	3.52	0.48	290	0.898	5.83	119	NA	NA
ADM CG02 (comp)	2019	7/9/19	2.69	0.547	20	1.7	13.7	84	NA	NA
ADM CG02 (comp)	2020	11/10/20	3.09	1.79	296	0.268	<5.64	336	8.97	NA
ADM CG02 (comp)	2021	9/20/21	2.48	0.382	66	1.36	11.1	111	8.12	NA
ADM CG02 (comp)	2022	5/18/22	2.93	0.559	78	0.853	12.4	67.9	7.53	NA
ADM CG04 (grab)	2015	4/18/15	2.24	0.355	27.2	1.43	10.5	70.8	8.3	4.94
ADM CG04 (grab)	2016	5/26/16	3.24	0.617	144	0.718	2.01	135	8.88	4.64
ADM CG04 (grab)	2017	7/18/17	<0.384	0.144	37.3	0.679	<2.82	48.5	9.12	<1.4
ADM CG04 (grab)	2018	5/12/18	3.84	0.421	140	1.47	3.84	74.1	8.65	4.1
ADM CG04 (grab)	2019	7/9/19	3.41	0.363	40	1.6	51.5	115	8.52	5.1
ADM CG04 (grab)	2020	11/10/20	4.61	0.708	164	0.63	<5.64	746	9.05	<4.5
ADM CG04 (grab)	2021	9/20/21	8.95	2.26	114	0.219	8.27	1960	8.46	<5.2
ADM CG04 (grab)	2022	5/18/22	3.24	0.645	81	0.832	15.8	107	8.96	<4.5
ADM CG04 (comp)	2015	4/18/15	2.08	0.262	41.6	1.27	6.16	48.5	8.4	NA
ADM CG04 (comp)	2016	5/26/16	1.8	0.385	82	0.977	4.38	59.6	8.04	NA
ADM CG04 (comp)	2017	7/18/17	2.72	0.384	76	0.863	10.9	69.2	8.93	NA
ADM CG04 (comp)	2018	5/12/18	3.43	0.471	360	1.22	4.02	105	NA	NA
ADM CG04 (comp)	2019	7/9/19	8.03	0.623	35.7	1.37	17.4	222	NA	NA

ADM CG04 (comp)	2020	11/10/20	3.18	0.524	76	0.46	<5.64	303	8.83	NA
ADM CG04 (comp)	2021	9/20/21	1.28	0.401	201	0.465	<12	55.3	7.81	NA
ADM CG04 (comp)	2022	5/18/22	7.84	1.1	324	0.23	33.8	182	7.98	NA

	year	date sampled	Total Kjeldahl Nitrogen ⁴	Total Phosphorus ⁴	Total Suspended Solids ⁴	Nitrate Nitrite as N	Biochemical Oxygen Demand ⁴	Chemical Oxygen Demand ⁴	pH (standard units) ⁴	Oil & Grease ⁴
<i>values in mg/L unless otherwise indicated</i>										
IAC Use Designation (Chronic) ²										
IAC Use Designation (Acute) ²									6.5-9	
EPA Benchmark ³				2.0	100	0.68	30	120	6.0-9.0	15
CEI Equipment	2018	10/15/18	<1.00	0.266	538	1.04	<3.00	27	7.8	NA
CEI Equipment	2019	12/18/19	<1	0.359	80.5	<1	<3	<25	7.1	<5.2
CEI Equipment	2020	9/14/20	1.18	0.812	1140	<0.1	3.4	77.5	8.1	56.2
CEI Equipment	2021	NS	NS	NS	NS	NS	NS	NS	NS	NA
CEI Equipment	2022	5/25/22	1.6	0.309	378	0.508	<12	<25	7.7	<5.1

	year	date sampled	Total Kjeldahl Nitrogen ⁴	Total Phosphorus ⁴	Total Suspended Solids ⁴	Nitrate Nitrite as N	Biochemical Oxygen Demand ⁴	Chemical Oxygen Demand ⁴	pH (standard units) ⁴	Oil & Grease ⁴
<i>values in mg/L unless otherwise indicated</i>										
IAC Use Designation (Chronic) ²										
IAC Use Designation (Acute) ²									6.5-9	
EPA Benchmark ³				2.0	100	0.68	30	120	6.0-9.0	15
Cargill NE Outfall 1 (411 6th St NE)	2017	12/4/17	7.42	0.827	74.5	1.46	64.3	78.7	NA	NA
Cargill NE Outfall 1	2018	9/18/18	5.8	0.737	46	0.537	28.1	82	NA	NA
Cargill NE Outfall 1	2019	8/20/19	8.94	1.16	27.3	0.641	17.5	58.2	NA	<4.8
Cargill NE Outfall 1	2020	11/10/20	21.3	2.44	136	0.13	37.5	281	NA	<4.8
Cargill NE Outfall 1	2021	7/14/21	96.8	5.4	724	2.32	83.5	2090	NA	<5.1
Cargill NE Outfall 2	2017	12/4/17	52.9	4.54	506	2.84	450	1430	NA	7.5
Cargill NE Outfall 2	2020	11/10/20	21.3	2.82	416	2.51	74	271	NA	<5.3
Cargill NE Outfall 2	2021	7/14/21	31.2	4.9	3410	4.85	138	569	NA	6.5
Cargill SW Exit	2019	9/12/19	1.73	0.338	180	0.516	8.52	60.4	7.7	<5.1

Cargill SW Exit	2020	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cargill SW Exit	2021	5/27/21	1.03	0.214	66	NA	9.13	98.1	NA	<5.3
Cargill SW Entrance	2017	8/3/17	1.33	0.331	241	0.614	6.12	77.3	7.9	NA
Cargill SW Entrance	2018	10/19/18	<1.00	0.135	9.0	1.23	6.92	43.7	8.1	<5.2
Cargill SW Entrance	2019	9/12/19	2.16	0.529	212	0.439	12.4	49.9	7.7	<5.1
Cargill SW Entrance	2020	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cargill SW Entrance	2021	5/27/21	1.09	0.30	116	NA	9.49	82.7	NA	<5.6
Cargill SW Drain	2017	8/3/17	27.1	2.12	80	0.571	201	562	6.9	NA
Cargill SW Drain	2018	10/19/18	35.1	2.11	50	1.2	392	1220	6.7	7
Cargill SW Drain	2019	10/2/19	12.9	1.28	48	0.171	37.5	216	6.9	11
Cargill SW Drain	2020	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cargill SW Drain	2021	5/27/21	11.8	1.2	78	NA	50.6	237	NA	<5.5
Cargill SE Outfall 2 (1710 16th SE)	2015	7/11/15	29.2	2.1	105	0.14	162	369	6.8	9.57
Cargill SE Outfall 2 Grab	2016	8/4/16	7.67	2.56	73	1.11	48.3	141	7.8	4.1
Cargill SE Outfall 2 Grab	2017	10/22/17	26.5	2.08	40	0.453	63.4	727	8.44	<1.4
Cargill SE Outfall 2 Grab	2018	11/3/18	49.5	8.94	212	0.601	498	690	7.3	18.3
Cargill SE Outfall 2 Grab	2019	10/20/19	5.02	0.25	26	0.91	32.7	88.4	7.5	<1.5
Cargill SE Outfall 2 Grab	2020	10/18/20	68	7.42	144	NA	178	1300	8.21	55.9
Cargill SE Outfall 2 Grab	2021	6/29/21	7.25	2.07	100	NA	97.6	358	6.78	<4.8
Cargill SE Outfall 2 Grab	2022	5/24/22	64.1	10.3	238	NA	295	2940	5.58	<4.5
Cargill SE Outfall 2 Comp	2015	7/11/15	29.7	2.16	53	<0.0571	152	329	NA	NA
Cargill SE Outfall 2 Comp	2016	8/4/16	18.3	6.82	62	2	60.4	220	NA	NA
Cargill SE Outfall 2 Comp	2017	10/22/17	4.55	1.13	38	0.417	47.6	119	NA	NA
Cargill SE Outfall 2 Comp	2018	11/3/18	30.8	6.75	128	0.643	233	427	NA	NA
Cargill SE Outfall 2 Comp	2019	10/20/19	5.76	0.277	28	1.02	34.2	104	7.4	NA
Cargill SE Outfall 2 Comp	2020	10/18/20	23.3	4.05	660	NA	128	509	NA	NA
Cargill SE Outfall 2 Comp	2021	6/29/21	7.3	2.06	91	NA	164	346	NA	NA
Cargill SE Outfall 2 Comp	2022	5/25/22	94.2	13.4	264	NA	386	2060	NA	NA
Cargill SE Outfall 3 Grab	2015	7/11/15	4	1.24	122	0.365	32.9	125	7.3	1.63
Cargill SE Outfall 3 Grab	2016	8/4/16	1.89	0.429	120	0.82	15.8	44.8	7.37	3.5
Cargill SE Outfall 3 Grab	2017	10/22/17	4.41	0.901	114	0.319	15.2	124	9.3	2.4
Cargill SE Outfall 3 Grab	2018	11/3/18	3.67	0.455	52.7	0.558	43.8	65.6	8.7	6.9
Cargill SE Outfall 3 Grab	2019	10/20/19	6.79	1.39	48	0.223	73.6	108	7.12	3.5
Cargill SE Outfall 3 Grab	2020	10/18/20	11.2	5.54	64	NA	95.5	235	NA	7.7
Cargill SE Outfall 3 Grab	2021	6/29/21	4.3	0.78	123	NA	64	181	7.35	<4.8
Cargill SE Outfall 3 Grab	2022	5/24/22	5.11	1.51	206	NA	84.8	170	7.21	<4.5
Cargill SE Outfall 3 Comp	2015	7/11/15	4.35	1.43	76.7	0.738	30.8	62.5	NA	NA
Cargill SE Outfall 3 Comp	2016	8/11/16	4.6	1.08	127	0.778	37.3	117	NA	NA

Cargill SE Outfall 3 Comp	2017	10/22/17	1.89	0.522	141	0.521	13.1	73.2	NA	NA
Cargill SE Outfall 3 Comp	2018	11/3/18	2.95	0.45	44.5	0.46	31.3	77.3	NA	NA
Cargill SE Outfall 3 Comp	2019	10/20/19	12.8	1.94	48	0.191	88.2	163	NA	NA
Cargill SE Outfall 3 Comp	2020	10/18/20	7.29	1.94	40	NA	27.9	163	NA	NA
Cargill SE Outfall 3 Comp	2021	6/29/21	6.63	1.61	156	NA	81.1	244	NA	NA
Cargill SE Outfall 3 Comp	2022	5/25/22	3.73	0.88	124	NA	29.7	77	NA	NA
Cargill SE Outfall 4 Grab	2015	7/11/15	2.08	0.57	95	0.273	18.2	55.7	8	<1.11
Cargill SE Outfall 4 Grab	2016	8/4/16	1.59	0.361	203	0.588	26.1	70.1	7.4	1.8
Cargill SE Outfall 4 Grab	2017	10/22/17	2.27	0.586	190	0.242	28.7	101	9.11	3.3
Cargill SE Outfall 4 Grab	2018	11/3/18	3.79	0.639	166	0.685	50.8	80.7	8.7	5.8
Cargill SE Outfall 4 Grab	2019	10/21/19	3.42	0.511	83	0.5	30.3	54.6	7.26	<1.6
Cargill SE Outfall 4 Grab	2020	10/18/20	12.6	5.57	64	NA	93.14	280	7.4	<4.5
Cargill SE Outfall 4 Grab	2021	6/29/21	2.58	0.942	321	NA	29.4	120	8.1	<4.9
Cargill SE Outfall 4 Grab	2022	5/24/22	6.59	1.31	85	NA	52.9	152	7.04	<4.2
Cargill SE Outfall 4 Comp	2015	7/11/15	1.65	0.24	42.3	0.198	12.4	49	NA	NA
Cargill SE Outfall 4 Comp	2016	8/4/16	1.79	0.255	39	0.852	11.2	104	NA	NA
Cargill SE Outfall 4 Comp	2017	10/22/17	1.18	0.309	72	0.291	12.6	48.5	NA	NA
Cargill SE Outfall 4 Comp	2018	11/3/18	2.52	0.387	64	0.665	25.3	17.1	NA	NA
Cargill SE Outfall 4 Comp	2019	10/21/19	2.7	0.375	132	0.262	29.6	54.6	NA	NA
Cargill SE Outfall 4 Comp	2020	10/18/20	3.53	1.5	33	NA	29.3	162	NA	NA
Cargill SE Outfall 4 Comp	2021	6/29/21	2.95	1.02	199	NA	21.6	112	NA	NA
Cargill SE Outfall 4 Comp	2022	5/25/22	7.42	1.38	78	NA	69.6	175	NA	NA

	year	date sampled	Total Kjeldahl Nitrogen ⁴	Total Phosphorus ⁴	Total Suspended Solids ⁴	Nitrate Nitrite as N	Biochemical Oxygen Demand ⁴	Chemical Oxygen Demand ⁴	pH (standard units) ⁴	Oil & Grease ⁴
<i>values in mg/L unless otherwise indicated</i>										
IAC Use Designation (Chronic) ²										
IAC Use Designation (Acute) ²									6.5-9	
EPA Benchmark ³				2.0	100	0.68	30	120	6.0-9.0	15
Covanta Environmental Solutions 5604 6th St SW	2020	10/22/20	0.653	0.0676	13	0.258	<1.41	33	7.9	<4.4
5604 6th St SW	2021	10/13/21	NA	0.04	15.7	0.0886	<3	39.2	7.7	<4.6
5605 6th St SW	2022	12/9/22	NA	NA	NA	NA	NA	NA	NA	NA
Covanta Environmental Solutions 640 63rd Ave SW	2020	10/22/20	1.94	0.0393	2	1.27	<1.41	<24	7.1	<4.5
640 63rd Ave SW	2021	10/13/21	NA	<0.039	<1.7	<0.063	<3	37.4	5.7	<4.6
641 63rd Ave SW	2022	12/9/22	NA	NA	NA	NA	NA	NA	NA	NA

<i>values in mg/L unless otherwise indicated</i>	<i>year</i>	<i>date sampled</i>	Total Kjeldahl Nitrogen⁴	Total Phosphorus⁴	Total Suspended Solids⁴	Nitrate Nitrite as N	Biochemical Oxygen Demand⁴	Chemical Oxygen Demand⁴	pH (standard units)⁴	Oil & Grease⁴
IAC Use Designation (Chronic) ²										
IAC Use Designation (Acute) ²									6.5-9	
EPA Benchmark ³				2.0	100	0.68	30	120	6.0-9.0	15
Crandic	2018	6/11/18	NS	NS	NS	NS	NS	NS	7.4	NS
Crandic	2019	6/19/19	NS	NS	NS	NS	NS	NS	7.4	NS
Crandic	2020	11/10/20	1.32	0.407	970	0.198	<3	75.2	9	<4.8
Crandic	2021	9/2/21	1.24	0.259	55.3	0.209	18	40.5	8.7	<4.7
Crandic	2022	10/24/22	1.01	0.166	36.3	0.211	4.7	19.7	8	<5
Crandic Maintenance Shop	2021	10/24/21	<1	0.119	19.7	0.745	3.61	19.2	8.5	<4.7
Crandic Maintenance Shop	2022	10/25/22	<1	0.156	276	0.138	<3	17.7	9.1	<5
OWS	2022	10/22/22	NA	NA	NA	NA	NA	NA	7.4	NA

<i>values in mg/L unless otherwise indicated</i>	<i>year</i>	<i>date sampled</i>	Total Kjeldahl Nitrogen⁴	Total Phosphorus⁴	Total Suspended Solids⁴	Nitrate Nitrite as N	Biochemical Oxygen Demand⁴	Chemical Oxygen Demand⁴	pH (standard units)⁴	Oil & Grease⁴
IAC Use Designation (Chronic) ²										
IAC Use Designation (Acute) ²									6.5-9	
EPA Benchmark ³				2.0	100	0.68	30	120	6.0-9.0	15
Croell Redimix Outfall	2017	5/10/17	1.05	<0.1	80.4	2.15	3.71	<25	7.8	<5.3
Croell Redimix Outfall	2018	NS	NS	NS	NS	NS	NS	NS	NS	NS
Croell Redimix Outfall	2019	NS	NS	NS	NS	NS	NS	NS	NS	NS
Croell Redimix Outfall	2020	6/22/20	<1	<0.1	<5	<0.1	<3	40.2	8.5	<5.8
Croell Redimix Outfall	2021	10/11/21	<1	<0.1	6.3	0.955	<3	28.6	7.9	<5.6
Croell Redimix Outfall	2022	7/11/22	2.56	0.205	266	0.891	<12	62.6	9	<5.6

	year	date sampled	Total Kjeldahl Nitrogen ⁴	Total Phosphorus ⁴	Total Suspended Solids ⁴	Nitrate Nitrite as N	Biochemical Oxygen Demand ⁴	Chemical Oxygen Demand ⁴	pH (standard units) ⁴	Oil & Grease ⁴
<i>values in mg/L unless otherwise indicated</i>										
IAC Use Designation (Chronic) ²										
IAC Use Designation (Acute) ²									6.5-9	
EPA Benchmark ³				2.0	100	0.68	30	120	6.0-9.0	15
Diamond V Outfall	2018	9/18/18	12.9	2.27	262	0.274	81.2	540	7.78	9.1
Diamond V Outfall	2019	11/20/19	6.17	1.41	64	0.93	48.5	223	7.61	<5.1
Diamond V Outfall	2020	9/27/20	6.88	0.757	88	1.51	23.4	155	7.46	11
Diamond V Outfall- CLOSED	-	-	-	-	-	-	-	-	-	-
Diamond V S Outfall	2017	6/28/17	1.98	0.601	159	0.361	26.9	193	8.51	<5.6
Diamond V S Outfall	2018	9/18/18	<1.00	<0.100	6.67	0.143	<3.00	<25.0	7.18	<4.9
Diamond V S Outfall	2019	11/21/19	3.84	0.53	90	0.163	10.1	118	7.15	<5.4
Diamond V S Outfall	2020	9/27/20	2.65	0.115	12.7	1.08	18.1	90.5	7.32	<5.1
Diamond V S Outfall	2021	7/14/21	1.41	0.131	43.3	0.636	9.8	47.3	6.84	<5.3
Diamond V S Outfall	2022	10/12/22	1.6	0.377	131	0.409	9.09	<25	6.82	<5.5

	year	date sampled	Total Kjeldahl Nitrogen ⁴	Total Phosphorus ⁴	Total Suspended Solids ⁴	Nitrate Nitrite as N	Biochemical Oxygen Demand ⁴	Chemical Oxygen Demand ⁴	pH (standard units) ⁴	Oil & Grease ⁴
<i>values in mg/L unless otherwise indicated</i>										
IAC Use Designation (Chronic) ²										
IAC Use Designation (Acute) ²									6.5-9	
EPA Benchmark ³				2.0	100	0.68	30	120	6.0-9.0	15
Dupont Outfall	2017	6/14/17	1.73	0.491	108	0.978	9.07	63.7	7.8	<4.8
Dupont Outfall	2018	9/18/18	3.71	1.12	3.6	1.95	16.3	82	7.6	5.5
Dupont Outfall	2019	11/17/19	<1.00	0.282	8	2.15	<12.0	<25.0	8	13.4
Dupont Outfall	2020	4/28/20	5.4	1.55	136	0.674	30.2	93	7.1	<6.6
Dupont Outfall	2021	7/14/21	4.52	1.4	174	3.66	14.3	81.4	7.8	<5.9
Dupont Outfall	2022	11/4/22	3.67	1.75	860	0.771	32.2	<25	9.5	<5.3
Dupont North Inlet	2021	7/14/21	2.27	0.417	30.7	1.85	<12	52.7	7.9	<6.3
Dupont South Inlet	2021	7/14/21	1.58	0.313	76	1.54	<12	61.7	7.7	<7.1

Dupont Culvert	2021	7/14/21	1.25	0.153	17	0.676	<12	50.9	8	<6.4
Dupont Culvert	2022	11/4/22	1.19	0.192	33.5	2.19	6.2	<25	7.5	NA

	year	date sampled	Total Kjeldahl Nitrogen ⁴	Total Phosphorus ⁴	Total Suspended Solids ⁴	Nitrate Nitrite as N	Biochemical Oxygen Demand ⁴	Chemical Oxygen Demand ⁴	pH (standard units) ⁴	Oil & Grease ⁴
<i>values in mg/L unless otherwise indicated</i>										
IAC Use Designation (Chronic) ²										
IAC Use Designation (Acute) ²									6.5-9	
EPA Benchmark ³				2.0	100	0.68	30	120	6.0-9.0	15
Electrocoatings Outfall 1	2017	5/10/17	1.53	<0.1	12.3	0.433	<3	47.9	7.6	<4.8
Electrocoatings Outfall 1	2018	6/14/18	2.3	0.174	48.7	1.3	4.19	69.5	7.7	<5.0
Electrocoatings Outfall 1	2019	9/27/19	1.48	0.198	15.3	0.575	<3.0	51	7.8	<6.3
Electrocoatings Outfall 1	2020	7/21/20	1.27	0.128	19.7	3.31	<3	50.1	7.7	<4.8
Electrocoatings Outfall 1	2021	10/28/21	<1	<0.1	9.3	0.142	<3	<25	7.7	<5.1
Electrocoatings Outfall 1	2022	10/12/22	<1	<0.1	108	0.363	<3	28.4	7.6	<6.3
Electrocoatings Outfall 2	2017	5/10/17	2.23	<0.1	44.3	0.814	9.65	75.7	8.2	<4.9
Electrocoatings Outfall 2	2018	6/14/18	2.52	0.314	244	2.72	4.9	81.6	8.1	<4.8
Electrocoatings Outfall 2	2019	9/27/19	1.12	<0.1	5.7	0.469	<3.0	35.7	7.8	<4.9
Electrocoatings Outfall 2	2020	7/21/20	1.88	<0.1	15	2.13	5.45	109	7.3	<4.8
Electrocoatings Outfall 2	2021	10/28/21	<1	<0.1	<5	<0.1	<3	27.3	8.3	<5.1
Electrocoatings Outfall 2	2022	10/12/22	1.24	<0.1	10	0.475	<0.300	<25	7.6	<5.3
Electrocoatings Outfall 3	2017	5/10/17	3.3	0.26	253	0.863	7.61	178	8.3	<4.8
Electrocoatings Outfall 3	2018	6/14/18	3.81	0.114	19.7	2.03	10	131	7.4	<5.0
Electrocoatings Outfall 3	2019	NS	NS	NS	NS	NS	NS	NS	NS	NS

	year	date sampled	Total Kjeldahl Nitrogen ⁴	Total Phosphorus ⁴	Total Suspended Solids ⁴	Nitrate Nitrite as N	Biochemical Oxygen Demand ⁴	Chemical Oxygen Demand ⁴	pH (standard units) ⁴	Oil & Grease ⁴
<i>values in mg/L unless otherwise indicated</i>										
IAC Use Designation (Chronic) ²										
IAC Use Designation (Acute) ²									6.5-9	
EPA Benchmark ³				2.0	100	0.68	30	120	6.0-9.0	15
Evergreen Outfall	2017	10/18/17	<1	<0.1	<5	0.271	<3	<25	8	NA
Evergreen Outfall	2018	9/18/18	1.01	<0.100	17.7	0.382	3.55	25.5	7.7	6.6
Evergreen Outfall	2019	10/10/19	1.01	0.179	<5.0	0.922	<3.00	<25.0	8	5.3
Evergreen Outfall	2021	7/14/21	2.11	0.12	147	0.614	9.04	29.4	7.6	<5.1
Evergreen Outfall	2022	9/10/22	1.23	0.12	46	0.345	6.4	NA	7.8	<5.1

	year	date sampled	Total Kjeldahl Nitrogen ⁴	Total Phosphorus ⁴	Total Suspended Solids ⁴	Nitrate Nitrite as N	Biochemical Oxygen Demand ⁴	Chemical Oxygen Demand ⁴	pH (standard units) ⁴	Oil & Grease ⁴
<i>values in mg/L unless otherwise indicated</i>										
IAC Use Designation (Chronic) ²										
IAC Use Designation (Acute) ²									6.5-9	
EPA Benchmark ³				2.0	100	0.68	30	120	6.0-9.0	15
General Mills GMI Rail	2018	11/23/18	1.31	0.33	11.3	0.53	20.4	78.4	7.4	<5.1
General Mills GMI Rail	2019	9/17/19	2.82	0.232	28	0.402	16.4	90.1	7.64	2.3
General Mills GMI Rail	2020	6/26/20	3.8	0.0734	7.33	0.613	23.9	<24	7.41	<4.3
General Mills GMI Rail	2021	9/3/21	0.964	0.0586	10.7	0.254	<12	42.2	7.74	<4.6
General Mills GMI Rail	2022	4/20/22	1.32	0.11	16	0.423	42.7	168	6.94	<4.5
General Mills Pond (grab)	2018	11/23/18	3.48	0.204	61	0.206	334	518	6.7	<6.3
General Mills Pond (grab)	2019	9/17/19	3.09	0.247	39	1.07	8.62	146	8.25	2.6
General Mills Pond (grab)	2020	6/26/20	1.6	0.152	7	<0.063	9.53	80.1	8.17	<4.3
General Mills Pond (grab)	2021	9/3/21	0.755	0.075	15.7	0.467	<12	62.6	7.19	<4.6
General Mills Pond (grab)	2022	4/20/21	0.95	0.254	210	0.259	9.5	128	7.97	<4.4

	year	date sampled	Total Kjeldahl Nitrogen ⁴	Total Phosphorus ⁴	Total Suspended Solids ⁴	Nitrate Nitrite as N	Biochemical Oxygen Demand ⁴	Chemical Oxygen Demand ⁴	pH (standard units) ⁴	Oil & Grease ⁴
<i>values in mg/L unless otherwise indicated</i>										
IAC Use Designation (Chronic) ²										
IAC Use Designation (Acute) ²									6.5-9	
EPA Benchmark ³				2.0	100	0.68	30	120	6.0-9.0	15
Highway Equipment Co. (New Leader)	2017	4/26/17	<1	0.141	<30	3.14	<3	<25	7.8	<7.2
Highway Equipment Co.	2018	6/14/18	<1	<0.1	10.3	0.739	<3	149	7.7	<5.9
Highway Equipment Co.	2019	5/21/19	<1	<0.100	<5.0	1.89	<3.00	45.1	7.6	<5.9
Highway Equipment Co.	2020	NS	NS	NS	NS	NS	NS	NS	NS	NS
Highway Equipment Co.	2021	6/29/21	<1	<0.1	6.7	0.672	<3	41.9	7.7	<6.1
Highway Equipment Co.	2022	6/6/22	<1	0.259	<5	NA	<3	<25	9.2	<6.2

	year	date sampled	Total Kjeldahl Nitrogen ⁴	Total Phosphorus ⁴	Total Suspended Solids ⁴	Nitrate Nitrite as N	Biochemical Oxygen Demand ⁴	Chemical Oxygen Demand ⁴	pH (standard units) ⁴	Oil & Grease ⁴
<i>values in mg/L unless otherwise indicated</i>										
IAC Use Designation (Chronic) ²										
IAC Use Designation (Acute) ²									6.5-9	
EPA Benchmark ³				2.0	100	0.68	30	120	6.0-9.0	15
Ingredion(Penford)-grab	2017	10/14/17	6.73	3.51	151	0.171	206	632	7.34	2.9
Ingredion(Penford)-grab	2018	11/3/18	4.84	1.28	244	0.289	106	347	6.4	6.5
Ingredion(Penford)-grab	2019	10/21/19	1.47	0.289	120	0.346	73.4	81.3	7.36	3.7
Ingredion(Penford)-grab	2020	7/9/20	1.23	0.303	80	0.352	11.1	72.1	8.56	<4.4
Ingredion(Penford)-grab	2021	8/24/21	1.14	0.362	181	0.24	27	75.3	8.09	<4.6
Ingredion(Penford)-grab	2022	10/24/22	9.49	1.55	904	0.485	197	702	6.93	6.3
Ingredion(Penford)-comp	2017	10/14/17	2.36	1.01	204	0.211	101	205	NA	NA
Ingredion(Penford)-comp	2018	11/3/18	3.99	1.11	138	0.259	32.9	97.4	NA	NA
Ingredion(Penford)-comp	2019	10/21/19	1.91	0.565	100	0.192	369	486	7.06	NA
Ingredion(Penford)-comp	2020	7/9/20	1.83	0.493	147	0.462	19.6	103	8.31	NA
Ingredion(Penford)-comp	2021	8/24/21	1.14	0.257	159	0.461	31.9	53.4	8.38	NA
Ingredion(Penford)-comp	2022	10/24/22	3.62	0.716	164	0.392	118	157	6.93	NA

Ingredion(Penford)-Cedar River Bkgrd	2017	10/14/17	1.38	0.252	61.5	4.83	<1.41	21	8.72	<1.5
Ingredion(Penford)-Cedar River Bkgrd	2018	11/3/18	1.44	0.106	24	5.51	<1.41	35.5	7.2	4.7
Ingredion(Penford)-Cedar River Bkgrd	2019	10/21/19	3.17	0.619	418	4.75	5.69	54.6	8.47	<1.5

	year	date sampled	Total Kjeldahl Nitrogen ⁴	Total Phosphorus ⁴	Total Suspended Solids ⁴	Nitrate Nitrite as N	Biochemical Oxygen Demand ⁴	Chemical Oxygen Demand ⁴	pH (standard units) ⁴	Oil & Grease ⁴
<i>values in mg/L unless otherwise indicated</i>										
IAC Use Designation (Chronic) ²										
IAC Use Designation (Acute) ²									6.5-9	
EPA Benchmark ³				2.0	100	0.68	30	120	6.0-9.0	15
International Paper (4600C St SW)	2017	5/10/17	1.19	0.15	18.5	<0.10	8.92	53.1	7.5	NA
International Paper (4600C St SW)	2018	6/19/18	<1.00	<0.100	6	0.313	<3.00	<25	7.7	<5.1
International Paper (4600C St SW)	2019	4/12/19	1.68	<0.100	28.5	0.456	67.3	188	7.5	5.4
International Paper (4600 C St SW)	2020	4/17/20	<1.00	<1.00	9.3	0.788	3.45	27.9	8.1	<4.9
International Paper (4600 C St SW)	2021	4/26/21	<1	<0.1	16.7	0.346	<12	62.6	7.7	<5.3
International Paper (4600 C St SW)	2022	3/18/22	1.12	<0.1	77	0.579	15.2	<125	7.4	<4.9
International Paper Shaver Rd	2018	10/31/18	<1.0	0.152	8	1.8/<0.1	4.2	24	7.78	4.6
International Paper Shaver Rd	2019	11/27/19	<1	0.0524	2.1	0.9/<0.1	4.6	<6	8.06	12.4
International Paper Shaver Rd	2020	12/14/20	3.3	0.0524	11	0.2	5	58	7.83	7.5
International Paper Shaver Rd	2021	8/25/21	<1	0.0607	9	0.3	<3	<7	7.95	5.1
International Paper Shaver Rd	2023	3/16/23	3	NA	8	NA	6.4	NA	6.87	NA

	year	date sampled	Total Kjeldahl Nitrogen ⁴	Total Phosphorus ⁴	Total Suspended Solids ⁴	Nitrate Nitrite as N	Biochemical Oxygen Demand ⁴	Chemical Oxygen Demand ⁴	pH (standard units) ⁴	Oil & Grease ⁴
<i>values in mg/L unless otherwise indicated</i>										
IAC Use Designation (Chronic) ²										
IAC Use Designation (Acute) ²									6.5-9	
EPA Benchmark ³				2.0	100	0.68	30	120	6.0-9.0	15
Iowa Specialties	2017	8/3/17	<1.0	0.127	164	<1.25	<3.0	122	8.7	<5.2
Iowa Specialties	2018	7/19/18	2.75	0.692	458	0.385	4.56	132	8.6	<5.1
Iowa Specialties	2019	9/18/19	1.57	0.188	610	0.143	16.4	187	8.5	<5.1
Iowa Specialties	2020	6/9/20	<1	<0.1	668	<0.1	<3	<25	9.4	<5.1

Iowa Specialities	2021	8/23/21	1.41	0.115	131	<1	86.2	574	8.3	<5.1
Iowa Specialities	2022	10/24/22	1.32	<0.1	90	0.246	86.6	270	8.2	<5.4

	year	date sampled	Total Kjeldahl Nitrogen ⁴	Total Phosphorus ⁴	Total Suspended Solids ⁴	Nitrate Nitrite as N	Biochemical Oxygen Demand ⁴	Chemical Oxygen Demand ⁴	pH (standard units) ⁴	Oil & Grease ⁴
<i>values in mg/L unless otherwise indicated</i>										
IAC Use Designation (Chronic) ²										
IAC Use Designation (Acute) ²									6.5-9	
EPA Benchmark ³			2.0	100	0.68	30	120	6.0-9.0	15	
Kapstone Outfall 1	2018	6/14/18	1.59	NA	29.7	0.54	3.43	41	7.6	NA
Kapstone Outfall 1	2019	NS	NS	NS	NS	NS	NS	NS	NS	NS
Kapstone Outfall 1	2020	10/10/20	1.24	0.146	74	0.388	4.79	43.3	8.1	<4.8
Kapstone Outfall 1	2021	9/20/21	2.6	0.244	123	0.949	13	94.9	8.1	<5.4
Kapstone Outfall 1	2022	9/10/22	1.89	0.17	88.3	0.744	9.17	32.1	8	<5.7
Kapstone Outfall 2	2018	6/14/18	NA	0.19	237	0.619	8.88	38	7.9	NA
Kapstone Outfall 2	2019	NS	NS	NS	NS	NS	NS	NS	NS	NS
Kapstone Outfall 2	2020	10/10/20	1.13	<0.1	28.5	0.663	6.87	25.2	7.6	5.1
Kapstone Outfall 2	2021	9/20/21	1.56	0.445	12.7	0.518	<3	48.7	7.9	<5.2
Kapstone Outfall 2	2022	9/10/22	3.94	0.381	151	4.19	24.5	<25	7.3	<5.5
Kapstone Outfall 3	2018	6/14/18	3.26	0.583	808	0.728	36.6	81.6	8.9	NA
Kapstone Outfall 3	2019	NS	NS	NS	NS	NS	NS	NS	NS	NS

	year	date sampled	Total Kjeldahl Nitrogen ⁴	Total Phosphorus ⁴	Total Suspended Solids ⁴	Nitrate Nitrite as N	Biochemical Oxygen Demand ⁴	Chemical Oxygen Demand ⁴	pH (standard units) ⁴	Oil & Grease ⁴
<i>values in mg/L unless otherwise indicated</i>										
IAC Use Designation (Chronic) ²										
IAC Use Designation (Acute) ²									6.5-9	
EPA Benchmark ³			2.0	100	0.68	30	120	6.0-9.0	15	
Klinger Paint Outfall 1-N	2019	11/21/19	1.87	<0.1	12.0	0.42	<3	62.3	7.50	<5.9
Klinger Paint Outfall 2-S	2017	10/11/17	1.35	0.204	258	0.567	6.18	<25	8.3	<5.3

Klinger Paint Outfall 2-S	2018	NS	NS	NS	NS	NS	NS	NS	NS	NS
Klinger Paint Outfall 2-S	2019	11/21/19	1.39	0.18	48	0.434	3.67	82.1	7.9	<5.7
Klinger Paint Outfall 2-S	2020	11/10/20	<1	0.176	11.7	0.382	6.39	39.7	7.8	<5.7
Klinger Paint Outfall 2-S	2021	11/10/21	3.72	0.531	124	0.58	10.6	133	7.3	9.2
Klinger Paint Outfall 2-S	2022	11/4/22	<1	0.341	79	0.764	9.73	60.6	7.9	<5.2

	year	date sampled	Total Kjeldahl Nitrogen ⁴	Total Phosphorus ⁴	Total Suspended Solids ⁴	Nitrate Nitrite as N	Biochemical Oxygen Demand ⁴	Chemical Oxygen Demand ⁴	pH (standard units) ⁴	Oil & Grease ⁴
<i>values in mg/L unless otherwise indicated</i>										
IAC Use Designation (Chronic) ²										
IAC Use Designation (Acute) ²									6.5-9	
EPA Benchmark ³				2.0	100	0.68	30	120	6.0-9.0	15
PMX Outfall 1&2 (grab)	2017	8/3/17	<1	<0.1	48	0.126	7.13	97	7.7	<4.9
PMX Outfall 1&2 (grab)	2018	9/18/18	1.19	<0.100	14	0.22	4.42	<25.0	7.7	<5.1
PMX Outfall 1&2 (grab)	2019	NS	NS	NS	NS	NS	NS	NS	NS	NS
PMX Outfall 1&2 (grab)	2020	10/22/20	<1	0.113	12.7	0.434	3.64	27.2	7.8	<5
PMX Outfall 1&2 (grab)	2021	10/28/21	<1	<0.1	<5	0.821	<3	57.9	7.1	<5.1
PMX Outfall 1&2 (grab)	2022	11/10/22	1.28	0.103	7	0.311	3.83	<25	6.9	<5.1
PMX Outfall 1&2 (comp)	2017	8/3/17	2.04	0.124	35	0.337	18.6	126	NA	NA
PMX Outfall 1&2 (comp)	2018	9/18/18	<1.00	<0.100	10	0.303	4.15	<25.0	NA	NA
PMX Outfall 1&2 (comp)	2019	NS	NS	NS	NS	NS	NS	NS	NS	NS
PMX Outfall 1&2 (comp)	2020	10/22/20	<1	0.111	13.3	0.436	3.53	27.2	NA	NA
PMX Outfall 1&2 (comp)	2021	NS	NS	NS	NS	NS	NS	NS	NS	NS
PMX Outfall 1&2 (comp)	2022	11/10/22	1.32	<0.100	20.7	0.301	4.76	<25	NA	NA
PMX Outfall 3 (grab)	2017	8/3/17	<1	<0.1	9	0.181	4.82	52.2	7	<5.1
PMX Outfall 3 (grab)	2018	9/18/18	1.05	<0.100	15	0.319	<3.00	68.7	7.3	<4.9
PMX Outfall 3 (grab)	2019	NS	NS	NS	NS	NS	NS	NS	NS	NS
PMX Outfall 3 (grab)	2020	10/22/20	<1	0.178	17	0.469	4.02	36.3	7.3	<4.9
PMX Outfall 3 (grab)	2021	10/28/21	<1	<0.01	14	0.947	<3	52.5	7.1	<5.1
PMX Outfall 3 (grab)	2022	11/10/22	1.33	<0.100	<5	0.319	3.7	<25	7.1	<5.1
PMX Outfall 3 (comp)	2017	8/3/17	2.05	0.105	16.7	0.581	12.3	147	NA	NA
PMX Outfall 3 (comp)	2018	9/18/18	1.26	0.113	29.7	0.631	6.16	40.4	NA	NA
PMX Outfall 3 (comp)	2019	NS	NS	NS	NS	NS	NS	NS	NS	NS
PMX Outfall 3 (comp)	2020	10/22/20	<1	0.18	15.7	0.49	3.74	<25	NA	NA
PMX Outfall 3 (comp)	2021	NS	NS	NS	NS	NS	NS	NS	NS	NS
PMX Outfall 3 (comp)	2022	11/10/22	1.48	<0.1	<5	0.319	3.7	<25	NA	<5.1

PMX Outfall 4 (grab)	2017	8/3/17	<1	<0.1	5.67	0.772	<3	39.7	7	<4.8
PMX Outfall 4 (grab)	2018	9/18/18	1.49	0.135	38.3	0.716	4.97	38.8	7.6	<4.9
PMX Outfall 4 (grab)	2019	NS	NS	NS	NS	NS	NS	NS	NS	NS
PMX Outfall 4 (grab)	2020	10/22/20	<1	0.187	9.33	0.568	4.27	<25	7.5	<4.9
PMX Outfall 4 (grab)	2021	10/13/21	<1	0.14	11.3	0.521	<3	35.1	7.2	<5.1
PMX Outfall 4 (grab)	2022	11/10/22	2.48	0.836	<5	0.623	4.31	<25	7.1	<5.1
PMX Outfall 4 (comp)	2017	8/3/17	1.01	<.1	5.67	0.211	3.58	64.7	NA	NA
PMX Outfall 4 (comp)	2018	9/18/18	1.05	0.13	39	0.605	4.6	37.1	NA	NA
PMX Outfall 4 (comp)	2019	NS	NS	NS	NS	NS	NS	NS	NS	NS
PMX Outfall 4 (comp)	2020	10/22/20	1.84	<0.1	<5	1.52	<3	29.8	NA	NA
PMX Outfall 4 (comp)	2021	10/13/21	<1	0.128	8.33	1.63	<3	52.3	NA	NA
PMX Outfall 4 (comp)	2022	11/10/22	2.57	0.806	<5	0.617	4.49	<25	NA	NA
PMX Outfall 5 (grab)	2017	8/3/17	1.16	0.147	68.5	0.888	13	98.8	8.1	<4.8
PMX Outfall 5 (grab)	2018	9/18/18	1.74	0.159	188	0.536	3.73	45.4	8.3	<5.1
PMX Outfall 5 (grab)	2019	NS	NS	NS	NS	NS	NS	NS	NS	NS
PMX Outfall 5 (grab)	2020	10/22/20	<1	<0.01	13.7	0.793	3.05	42.8	7.4	<5.1
PMX Outfall 5 (grab)	2021	10/13/21	<1	0.148	52	1.43	<3	48.2	7.1	<5.4
PMX Outfall 5 (grab)	2022	11/10/14	1.11	0.144	105	1.07	4.01	<25	7.8	<5.1
PMX Outfall 5 (comp)	2017	8/3/17	1.44	0.113	30.3	1.03	8.51	73.7	NA	NA
PMX Outfall 5 (comp)	2018	9/18/18	<1.00	0.103	36.5	0.725	<3.00	50.4	NA	NA
PMX Outfall 5 (comp)	2019	NS	NS	NS	NS	NS	NS	NS	NS	NS
PMX Outfall 5 (comp)	2020	10/22/20	<1	<0.1	8.67	0.811	3.01	44.4	NA	NA
PMX Outfall 5 (comp)	2021	10/13/21	<1	0.109	5.67	0.946	<3	41	NA	NA
PMX Outfall 5 (comp)	2022	11/10/22	1.12	0.158	98	1.04	<3	<25	NA	NA
PMX Outfall 6 (grab)	2017	8/3/17	1.67	0.101	32	1.01	13.2	64.7	7.6	<4.9
PMX Outfall 6 (grab)	2018	9/18/18	1	0.127	92	0.726	3.02	42.1	8.6	<4.9
PMX Outfall 6 (grab)	2019	NS	NS	NS	NS	NS	NS	NS	NS	NS
PMX Outfall 6 (grab)	2020	10/22/20	<1	0.174	51	1.24	<3	28.2	8.5	<5
PMX Outfall 6 (grab)	2021	10/13/21	<1	0.135	9.67	2.52	<3	43.7	8.7	<5.1
PMX Outfall 6 (grab)	2022	11/10/22	1.15	0.228	134	0.95	4.42	<25	8.3	<0.51
PMX Outfall 6 (comp)	2017	8/3/17	<1.0	0.165	88.3	1.11	<12.0	66.5	NA	NA
PMX Outfall 6 (comp)	2018	9/18/18	1	0.127	92	0.726	3.02	42.1	8.6	<4.9
PMX Outfall 6 (comp)	2019	NS	NS	NS	NS	NS	NS	NS	NS	NS
PMX Outfall 6 (comp)	2020	10/22/20	<1	0.125	9	1.32	<3	39.6	NA	NA
PMX Outfall 6 (comp)	2021	10/13/21	<1	0.12	11	1.9	<3	54.1	NA	NA
PMX Outfall 6 (comp)	2022	11/10/22	<1	0.214	122	0.952	4.56	<25	NA	NA
PMX Outfall 7 (grab)	2017	8/3/17	1.18	0.225	132	0.678	<12.0	34.3	8.5	<5.0

PMX Outfall 7 (grab)	2018	9/18/18	1.86	0.11	47	0.327	7.68	52.1	7.8	<4.9
PMX Outfall 7 (grab)	2019	NS	NS	NS	NS	NS	NS	NS	NS	NS
PMX Outfall 7 (grab)	2020	10/22/20	1.28	<0.1	<5	1.02	<3	<25	7.3	<4.8
PMX Outfall 7 (grab)	2021	10/28/21	<1	0.151	<5	<0.1	<3	45.4	5.6	<5.3
PMX Outfall 7&8 (grab)	2022	11/10/22	<1	0.161	12.7	0.292	<3	<25	7.4	<4.7
PMX Outfall 7 (comp)	2017	8/3/17	<1.0	0.155	74	0.601	4.64	46.8	NA	NA
PMX Outfall 7 (comp)	2018	9/18/18	1.27	<0.100	21.7	0.332	5.33	47.1	NA	NA
PMX Outfall 7 (comp)	2019	NS	NS	NS	NS	NS	NS	NS	NS	NS
PMX Outfall 7 (comp)	2020	10/22/20	<1	<0.1	<5	1.04	<3	36.3	NA	NA
PMX Outfall 7 (comp)	2021	NS	NS	NS	NS	NS	NS	NS	NS	NS
PMX Outfall 7&8 (comp)	2022	11/10/22	<1	0.162	13	0.29	<3	<25	NA	NA
PMX Outfall 9 (comp)	2020	10/22/20	<1	0.271	11.7	3.17	<3	36.3	NA	NA
PMX Outfall 9 (comp)	2021	NS	NS	NS	NS	NS	NS	NS	NS	NS
PMX Outfall 9 (comp)	2022	11/10/22	1.03	<0.100	7.67	0.47	4.05	<25	NA	NA
PMX Outfall 9 (grab)	2020	10/22/20	<1	0.285	12.3	3.5	3.62	<25	7.4	<5
PMX Outfall 9 (grab)	2021	10/28/21	<1	<0.1	12.3	0.201	<3	50.7	7	<5.2
PMX Outfall 9 (grab)	2022	11/10/22	1.33	<0.1	7.33	0.653	4.31	<25	7.5	<4.7
PMX Pond (comp)	2020	10/22/20	1.39	0.415	<5	<0.1	<3	68.9	NA	NA
PMX Pond (comp)	2021	NS	NS	NS	NS	NS	NS	NS	NS	NS
PMX Pond (comp)	2022	11/10/22	<1	0.722	21	0.722	3.04	20.6	NA	NA
PMX Pond (grab)	2020	10/22/20	1.33	0.437	<5	<0.1	<3	51	7.6	<5
PMX Pond (grab)	2021	10/28/21	<1	0.506	10	0.979	<3	56.1	7.4	<5.1
PMX Pond (grab)	2022	11/10/22	<1	0.711	22	0.719	3.37	<25	7.7	<4.7

	year	date sampled	Total Kjeldahl Nitrogen ⁴	Total Phosphorus ⁴	Total Suspended Solids ⁴	Nitrate Nitrite as N	Biochemical Oxygen Demand ⁴	Chemical Oxygen Demand ⁴	pH (standard units) ⁴	Oil & Grease ⁴
<i>values in mg/L unless otherwise indicated</i>										
IAC Use Designation (Chronic) ²										
IAC Use Designation (Acute) ²									6.5-9	
EPA Benchmark ³				2.0	100	0.68	30	120	6.0-9.0	15
Red Star Yeast Outfall	2017	10/29/17	61.1	8.85	63	0.126	429	670	9	<5.2
Red Star Yeast Outfall	2018	8/20/18	NA	0.505	92	0.516	14.8	NA	8.2	<4.9
Red Star Yeast Outfall	2019	10/19/19	4.74	1.28	16	1.42	42.4	99.3	7.2	<4.8

Red Star Yeast Outfall	2020	10/19/20	17.8	1.56	28	1.09	527	597	5.3	<4.9
Red Star Yeast Outfall	2021	10/28/21	19.1	3.17	33	1.43	231	633	5.5	6
Red Star Yeast Outfall	2022	8/3/22	NA	2.17	68	3.12	13.3	44.7	10	<5.1

	year	date sampled	Total Kjeldahl Nitrogen ⁴	Total Phosphorus ⁴	Total Suspended Solids ⁴	Nitrate Nitrite as N	Biochemical Oxygen Demand ⁴	Chemical Oxygen Demand ⁴	pH (standard units) ⁴	Oil & Grease ⁴
<i>values in mg/L unless otherwise indicated</i>										
IAC Use Designation (Chronic) ²										
IAC Use Designation (Acute) ²									6.5-9	
EPA Benchmark ³				2.0	100	0.68	30	120	6.0-9.0	15
Rockwell Outfall 1 Comp	2017	5/17/17	1.96	<0.4	9	1.7	15	98	6.71	NA
Rockwell Outfall 1 Comp	2018	7/19/18	<0.50	<0.4	13	0.1	<5	<20	7.21	NA
Rockwell Outfall 1 Comp	2019	9/27/19	0.862	<0.100	17	0.862	5.96	51	NA	NA
Rockwell Outfall 1 Comp	2020	11/10/20	1.01	0.262	38	0.121	<3	33.6	NA	NA
Rockwell Outfall 1 Comp	2021	10/28/21	2.3	0.206	18	1.24	<12	116	NA	NA
Rockwell Outfall 1 Comp	2022	10/24/22	<1	<0.1	22.7	0.163	<3	<25	NA	NA
Rockwell Outfall 1 Grab	2017	5/17/17	2.42	<0.4	16	2.2	20	139	7.4	<5
Rockwell Outfall 1 Grab	2018	7/19/18	0.58	<0.4	8	0.2	<5	41	8.5/6.81	NA
Rockwell Outfall 1 Grab	2019	9/27/19	2.99	<0.100	40.3	1.17	19.2	66.3	7.9	<5.9
Rockwell Outfall 1 Grab	2020	11/10/20	1.88	0.372	74	0.511	<3	65.2	8.3	<4.8
Rockwell Outfall 1 Grab	2021	10/28/21	<1	0.462	5	2.49	<12	44.6	8.2	<5.9
Rockwell Outfall 1 Grab	2022	10/24/22	1	<0.1	41.5	0.225	6.22	<25	9	<4.7
Rockwell Outfall 4 Comp	2018	7/19/18	<0.5	<0.4	<2	<0.1	<5	32	7.15	NR
Rockwell Outfall 4 Comp	2019	9/27/19	<1.00	<0.100	23.7	0.443	6.84	40.8	NA	NA
Rockwell Outfall 4 Comp	2020	11/10/20	2.03	0.18	34	0.328	10.9	120	NA	NA
Rockwell Outfall 4 Comp	2021	10/28/21	<1	0.143	23	2.13	<12	46.4	NA	NA
Rockwell Outfall 4 Grab	2018	7/19/28	0.67	<0.4	<2	0.1	9	63	9.1/6.75	9
Rockwell Outfall 4 Grab	2019	9/27/19	2.06	0.133	59.7	0.704	11.3	73.1	7.7	<4.9
Rockwell Outfall 4 Grab	2020	11/10/20	3.22	0.218	44	0.631	22.7	187	7.5	6.5
Rockwell Outfall 4 Grab	2021	10/28/21	1.49	0.439	80	1.73	<12	53.3	7.5	<5.4

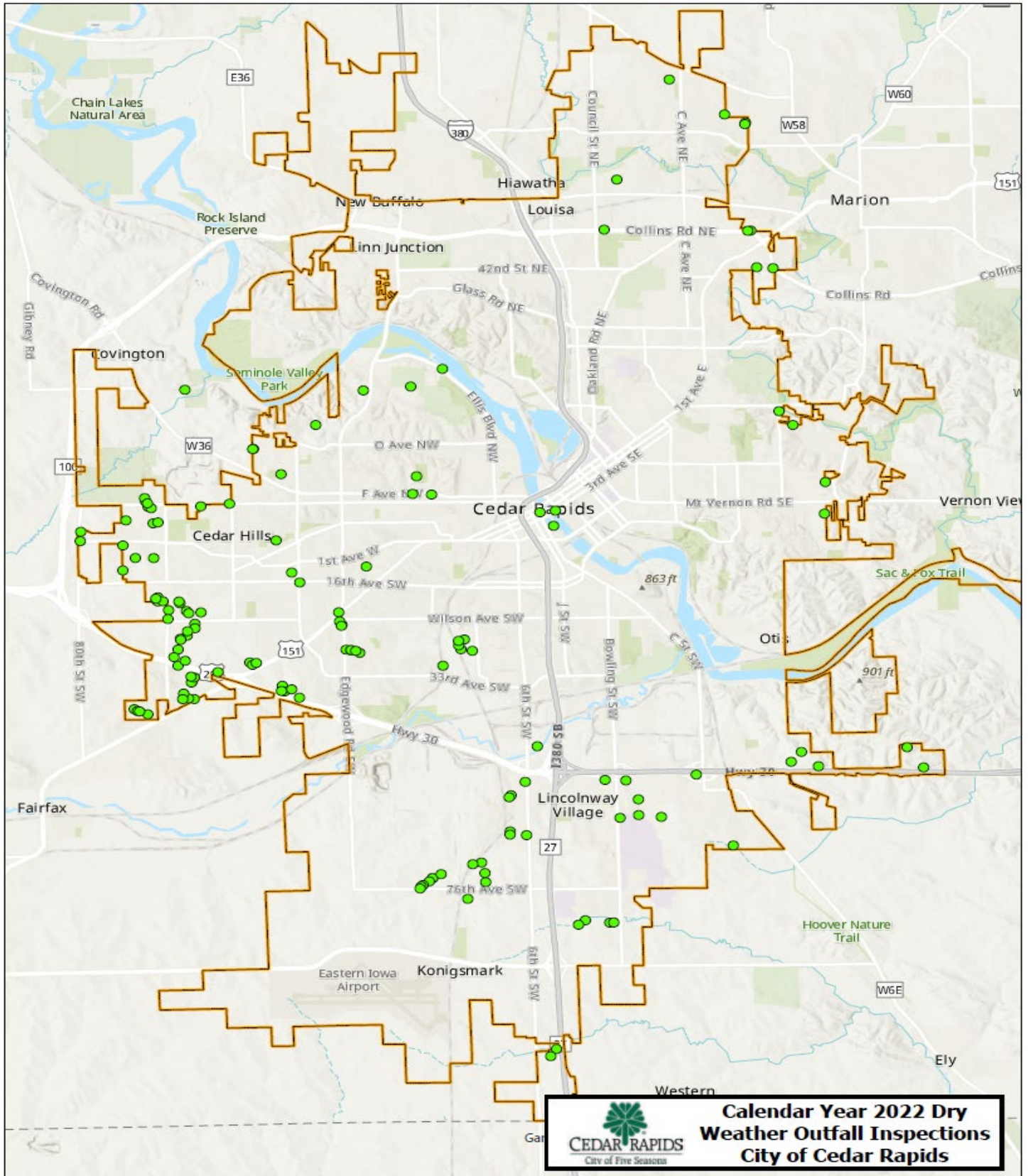
	year	date sampled	Total Kjeldahl Nitrogen ⁴	Total Phosphorus ⁴	Total Suspended Solids ⁴	Nitrate Nitrite as N	Biochemical Oxygen Demand ⁴	Chemical Oxygen Demand ⁴	pH (standard units) ⁴	Oil & Grease ⁴
<i>values in mg/L unless otherwise indicated</i>										
IAC Use Designation (Chronic) ²										
IAC Use Designation (Acute) ²									6.5-9	
EPA Benchmark ³				2.0	100	0.68	30	120	6.0-9.0	15
Roger's Concrete	2022	4/13/22	1.6	0.165	84	0.863	14.1	107	8	<5.2

	year	date sampled	Total Kjeldahl Nitrogen ⁴	Total Phosphorus ⁴	Total Suspended Solids ⁴	Nitrate Nitrite as N	Biochemical Oxygen Demand ⁴	Chemical Oxygen Demand ⁴	pH (standard units) ⁴	Oil & Grease ⁴
<i>values in mg/L unless otherwise indicated</i>										
IAC Use Designation (Chronic) ²										
IAC Use Designation (Acute) ²									6.5-9	
EPA Benchmark ³				2.0	100	0.68	30	120	6.0-9.0	15
Schneider Electric North grab	2017	5/10/17	2.4	0.135	86.5	1.52	7.54	117	7.5	<5.4
Schneider Electric North grab	2018	6/15/18	<1.00	<0.100	30	2.98	<3.00	<25.0	<5.2	NA
Schneider Electric North grab	2019	6/12/19	1.25	0.128	19.7	1.19	<3.00	77.4	NA	<5.3
Schneider Electric North grab	2020	4/11/20	2.06	<0.1	21	0.813	3.2	33.8	7	<6.1
Schneider Electric North grab	2021	5/3/21	4.92	0.731	127	1.41	23.6	140	7.3	<5.3
Schneider Electric North grab	2022	4/20/22	<1.00	<1.00	29.7	2.8	3.12	<25	7.3	<5.1
Schneider Electric North comp	2017	5/10/17	1.59	<0.100	15	1.12	<6.0	75.7	7.5	NA
Schneider Electric North comp	2018	6/15/18	6.45	0.191	29.3	0.632	5.39	60.5	NA	NA
Schneider Electric North comp	2019	6/12/19	1.84	0.12	6.7	1.22	<3.00	79.2	NA	NA
Schneider Electric North comp	2020	4/11/20	2	0.156	96	1	3.52	42.1	7	NA
Schneider Electric North comp	2021	5/3/21	3.41	0.639	88	1.91	16.2	136	7.3	NA
Schneider Electric North comp	2022	4/20/22	<1.00	<0.100	11	1.16	3.76	53	7.1	NA
Schneider Electric South grab	2017	5/10/17	2.1	<0.100	12	1.29	6.17	91.3	6.9	<5.2
Schneider Electric South grab	2018	6/15/18	1.87	<0.100	46	0.556	<3.00	69.5	<5.2	NA
Schneider Electric South grab	2019	6/12/19	2.16	<0.100	21.3	0.466	4.5	121	NA	<5.3
Schneider Electric South grab	2020	4/11/20	2.54	<0.1	42	0.298	5.17	<25	6.9	<5.5
Schneider Electric South grab	2021	5/3/21	4.84	0.474	316	0.367	53.2	293	7.1	<5.1

Schneider Electric South grab	2022	4/20/22	1.15	0.417	198	0.842	7.97	58.2	7.1	<5.2
Schneider Electric South comp	2017	5/10/17	1.59	<0.100	6.3	0.845	<6.0	49.6	7	NA
Schneider Electric South comp	2018	6/15/18	<1.00	<0.100	5.3	0.405	9.5	48.5	NA	NA
Schneider Electric South comp	2019	6/12/19	1.89	<0.100	16	0.605	6.54	121	NA	NA
Schneider Electric South comp	2020	4/11/20	1.98	<0.1	14	0.636	<6	38.7	6.9	NA
Schneider Electric South comp	2021	5/3/21	3.42	0.239	60	0.636	17.5	86.3	7.2	NA
Schneider Electric South comp	2022	4/20/22	1.53	0.101	14	0.795	8.86	70.5	7.1	NA

APPENDIX A: SUPPLEMENTARY INFORMATION

DRY WEATHER OUTFALL INSPECTIONS



MS4 Dry Weather Screens - Completed

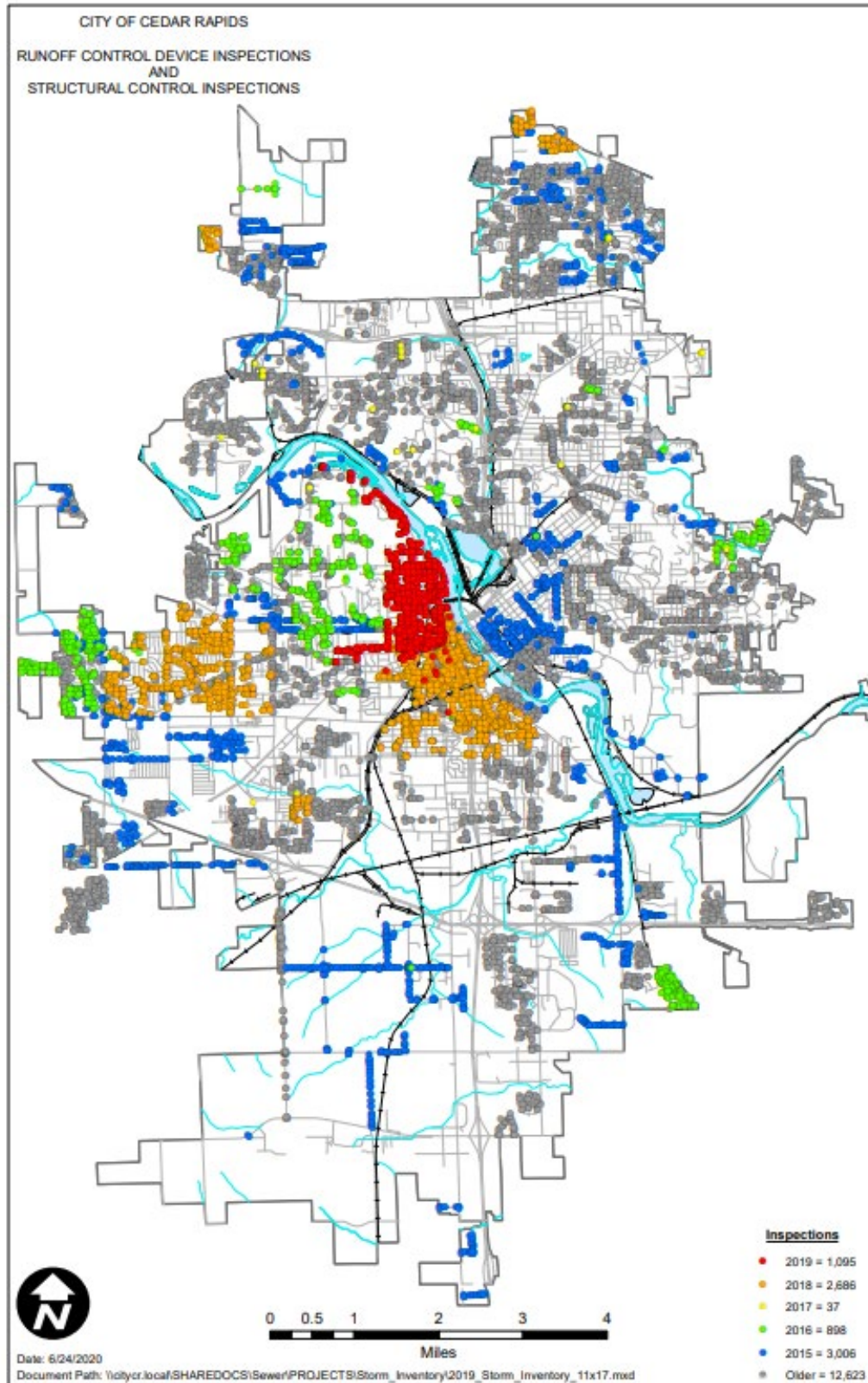
Asset ID	Record Date	Rain Date	Rain Quantity	NH ₃	Cl ⁻	Cl	Deposits	EColi	Landuse	NO ₃	Vegetation	Water Clarity	Water Color	Water Floatables	Water Flow	Water Odor	Resolution	Additional Notes
SWST-15638	11/3/2022	10/25/2022	0.002				None		Residential		Normal				Dry			
SWST-10373	5/24/2022	5/20/2022	0.001				None		Residential		Normal				Dry			
SWST-10324	12/2/2022	11/27/2022	0.65				None		Residential		Normal				Dry			
SWST-03452	11/3/2022	10/25/2022	0.002				None		Residential		Normal				Dry			
SWST-14639	9/30/2022	9/27/2022	0.003				None		Residential		Normal				Dry			
SWST-03050	11/3/2022	10/25/2022	0.002				None		Residential		Normal				Dry			
SWST-03025	11/3/2022	10/25/2022	0.002	0	34	0	None		Residential		Normal	Clear	None	None	Flow	None		Retention pond discharge
SWST-14091	12/5/2022	11/25/2022	0.65				None		Commercial		Normal				Dry			Private infrastructure broken due to stream bank erosion
SWST-14086	12/5/2022	11/25/2022	0.65				None		Commercial		Normal				Dry			
SWST-02867	11/23/2022	11/19/2022	0.007	0	312	0	None		Industrial		Normal	Clear	None	None	Flow	None		
SWST-14084	12/5/2022	11/25/2022	0.65	0	312	0	None		Commercial		Normal	Clear	None	None	Flow	None		
SWST-14082	12/5/2022	11/25/2022	0.65				None		Commercial		Normal				Dry			
SWST-00246	7/14/2022	7/11/2022	0.67	0	263	0	None		Residential		Normal	Clear	None	None	Flow	None		
SWST-00104	11/9/2022	11/5/2022	0.13	0	88	0	None		Commercial		Normal	Clear	None	None	Wet/No	None		
SWST-12269	9/30/2022	9/27/2022	0.003	0	312		None		Commercial		Normal	Clear	None	None	Submerged/Flow	None		Iron bacteria present
SWST-10086	6/21/2022	6/15/2022	0.05				None		Industrial		Normal				Dry			
SWST-10007	6/21/2022	6/15/2022	0.05				None		Industrial		Normal				Dry			
SWST-09287	9/30/2022	9/27/2022	0.003				None		Residential		Normal				Dry			
SWST-08205	6/24/2022	6/15/2022	0.05															Can't locate
SWST-08185	6/24/2022	6/15/2022	0.05	0.25	58	0						Clear	None			None		
SWST-07991	6/24/2022	6/15/2022	0.05				None		Residential		Normal	Clear	None	None	Dry	None		
SWST-06931	6/21/2022	6/15/2022	0.05	0	49	0	Other		Industrial		Normal	Cloudy	None	Other	Submerged/Flow	None		
SWST-05121	12/5/2022	11/25/2022	0.65				None		Commercial		Normal				Dry			
SWST-05119	12/5/2022	11/25/2022	0.65				None		Commercial		Normal				Dry			
SWST-02788	6/24/2022	6/15/2022	0.05				None		Residential		Normal			None	Dry	None		
SWST-02255	9/14/2022	9/12/2022	0.001	0.5	292	0	None		Residential		Normal			None	No Flow	None		
SWST-02132	6/24/2022	6/15/2022	0.05				None		Residential		Normal				Dry	None		
SWST-25249	5/24/2022	5/20/2022	0.001				None		Commercial		Normal				Dry			
SWST-24558	5/24/2022	5/20/2022	0.001				None		Commercial		Normal				Dry			
SWST-20916	12/2/2022	11/27/2022	0.65	0	88	0	None		Residential		Normal	Clear	None	None	Flow	None		
SWST-16920	6/21/2022	6/15/2022	0.05				None		Industrial		Normal				Dry			
SWST-16916	6/21/2022	6/15/2022	0.05				None		Industrial		Normal				Dry			
SWST-36959	10/19/2022	10/14/2022	0.012				None		Residential		Normal				Dry			
SWST-35756	11/3/2022	10/25/2022	0.002				Sediment		Residential		Normal				Dry			
SWST-16510	6/21/2022	6/15/2022	0.05				None		Industrial		Normal				Dry			
SWST-35091	5/23/2022	5/20/2022	0.001				None		Residential		Normal				Dry			
SWST-34577	11/2/2022	10/25/2022	0.002				None		Residential		Normal				Dry			

SWST-34573	11/2/2022	10/25/2022	0.002				None	Residential	Normal				Dry		
SWST-15975	6/24/2022		0.05				None	Residential	Normal	Clear	None	None	Submerged/ No Flow	None	
SWST-29304	12/2/2022	11/27/2022	0.65				Sediment	Residential	Normal				Dry		
SWST-28257	7/27/2022	7/24/2022	0.09				None	Commercial	Normal				Dry		
SWST-28253	7/27/2022	7/24/2022	0.09	0	78	0	None	Residential	Normal	Clear	None	None	Flow	None	
SWST-28236	7/27/2022	7/24/2022	0.09				None	Commercial	Normal				Dry		
SWST-28223	7/27/2022	7/24/2022	0.09				None	Residential	Normal				Dry		
SWST-43504	11/23/2022	11/19/2022	0.007				None	Industrial	Normal	Clear	None	None	Dry	None	
SWST-42323	7/14/2022	7/11/2022	0.67				Sediment	Commercial	Normal				Dry		
SWST-41852	11/3/2022	10/25/2022	0.002				Sediment	Residential	Normal				Dry		
SWST-41316	10/19/2022	10/14/2022	0.012				None	Residential	Normal				Dry		
SWST-38367	5/24/2022	5/20/2022	0.001				None	Residential	Normal				Dry		
SWST-37492	10/19/2022	10/14/2022	0.012										Dry		
SWST-37432	10/19/2022	10/14/2022	0.012				Sediment	Residential	Normal				Dry		
SWST-33457	10/20/2022	10/14/2022	0.012				None	Industrial	Normal				Dry		
SWST-33412	9/30/2022	9/27/2022	0.003				None	Commercial	Normal				Dry		
SWST-33361	9/30/2022	9/27/2022	0.003				None	Commercial	Inhibited Plant Growth				Wet/No Flow		
SWST-31618	9/14/2022	9/12/2022	0.001				None	Residential	Normal				Dry		
SWST-31623	9/14/2022	9/12/2022	0.001				None	Residential	Normal				Dry		
SWST-29572	12/2/2022	11/27/2022	0.65				None	Residential	Normal				Dry		
SWST-29554	12/2/2022	11/27/2022	0.65				Sediment	Residential	Normal				Dry		
SWST-29540	12/2/2022	11/27/2022	0.65	0	41	0	None	Residential	Normal	Clear	None	None	Flow	None	
SWST-28509	9/14/2022	9/12/2022	0.001				None	Residential	Normal				Dry		
SWST-28443	9/14/2022	9/12/2022	0.001				None	Residential	Normal				Dry		
SWST-28438	9/14/2022		0.001				None	Residential	Normal				Dry		
SWST-25718	6/30/2022	6/25/2022	2.99	0	148	0	None	Commercial	Normal	Clear	None	None	Wet/No Flow	None	
SWST-25714	6/30/2022	6/25/2022	2.99				None	Residential	Normal				Dry		
SWST-25055	9/14/2022	9/12/2022	0.001				None	Residential	Normal				Dry		
SWST-25054	9/14/2022	9/12/2022	0.001				None	Residential	Normal				Dry		
SWST-25052	9/14/2022	9/12/2022	0.001	0	78	0	None	Residential	Normal	Clear	None	None	Submerged/ No Flow	None	
SWST-24393	12/5/2022	11/25/2022	0.65				Sediment	Commercial	Normal				Dry		
SWST-24391	12/5/2022	11/25/2022	0.65				Sediment	Commercial	Normal				Dry		
SWST-24386	12/5/2022	11/25/2022	0.65				Sediment	Commercial	Normal				Dry		
SWST-23621	12/5/2022	11/25/2022	0.65				None	Commercial	Normal				Dry		
SWST-22112	6/21/2022	6/15/2022	0.05				None	Industrial	Normal				Dry		
SWST-35552	6/30/2022	6/25/2022	2.99				None	Residential	Normal				Dry		
SWST-35535	6/30/2022	6/25/2022	2.99	0	136	0	None	Residential	Normal	Clear	None	None	Wet/No Flow	None	
SWST-36126	10/20/2022	10/14/2022	0.012				None	Industrial	Normal				Dry		
SWST-35567	6/30/2022	6/25/2022	2.99				None	Residential	Normal				Dry		

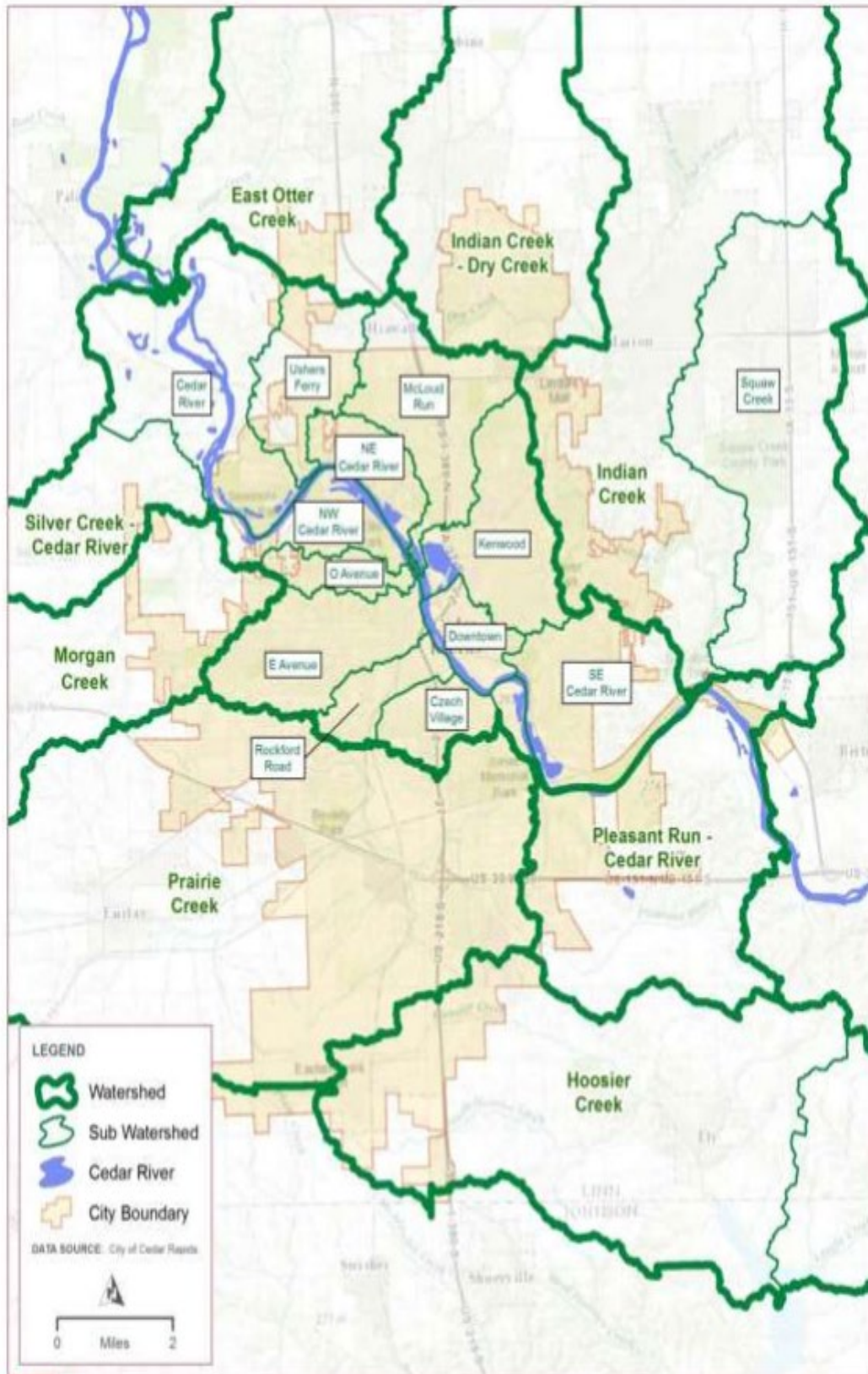
SWST-35562	6/30/2022	6/25/2022	2.99	0	28	0	None	Residential	Excessive Vegetation	Clear	None	None	Flow	None	
SWST-33622	5/23/2022	5/20/2022	0.001				None	Residential	Normal				Dry		
SWST-39791	10/20/2022	10/14/2022	0.012				None	Industrial	Normal				Dry		
SWST-39339	12/5/2022	11/25/2022	0.65				None	Commercial	Normal				Dry		
SWST-38210	5/23/2022	5/20/2022	0.001				None	Industrial	Normal	Clear	None	None	Wet/No Flow	None	
SWST-37985	12/5/2022	11/25/2022	0.65				Sediment	Residential	Normal				Dry		
SWST-23397	12/2/2022	11/27/2022	0.65				Sediment	Residential	Normal				Dry		
SWST-42618	10/20/2022	10/14/2022	0.012				Sediment	Industrial	Normal				Dry		Need to talk with asphalt company about housekeeping
SWST-17888	4/12/2022	4/8/2022	0.012				None	Residential	Normal				Dry		
SWST-03331	4/12/2022	4/8/2022	0.012				None	Residential	Normal				Dry		
SWST-02912	5/24/2022	5/20/2022	0.001	0	49	0	None	Residential	Normal	Clear	None	None	Flow	None	
SWST-08062	4/12/2022	4/8/2022	0.012				None	Residential	Normal				Dry		
SWST-06006	12/2/2022	11/27/2022	0.65				Sediment	Residential	Normal				Dry		
SWST-03361	4/12/2022	4/8/2022	0.012				None	Residential	Normal				Dry		
SWST-12188	7/21/2022	7/15/2022	0.56				None	Residential	Normal				Dry		
SWST-07989	6/24/2022	6/15/2022	0.05				None	Residential	Normal	Clear	None	None	Wet/No Flow	None	
SWST-25703	6/30/2022	6/25/2022	2.99				None	Residential	Normal				Dry		
SWST-09593	6/24/2022	6/15/2022	0.05	0	28	0	None	Residential	Normal	Clear	None	None	Submerged/No Flow	None	
SWST-28540	6/30/2022	6/25/2022	2.99				Sediment	Industrial	Normal				Dry		
SWST-02790	6/24/2022	6/15/2022	0.05				None	Residential	Normal	Clear	None	None	Dry	None	
SWST-25679	6/30/2022	6/25/2022	2.99				None	Residential	Normal				Dry		
SWST-07988	6/24/2022	6/15/2022	0.05				None	Residential	Normal	Clear	None	None	Dry	None	
SWST-29873	7/14/2022	7/11/2022	0.67				None	Commercial	Normal				Dry		
SWST-29867	7/14/2022	7/11/2022	0.67	0	148	0	None	Commercial	Normal	Clear	None	None	Submerged/Flow	None	
SWST-25825	10/31/2022	10/25/2022	0.002				None	Residential	Normal				Dry		
SWST-15647	10/31/2022	10/25/2022	0.002				None	Residential	Normal				Dry		
SWST-15327	10/31/2022	10/25/2022	0.002				Sediment	Residential	Normal				Dry		
SWST-03294	7/14/2022	7/11/2022	0.67				None	Residential	Normal				Dry		
SWST-03349	4/12/2022	4/8/2022	0.012				None	Residential	Normal				Dry		
SWST-03329	4/12/2022	4/8/2022	0.012				None	Residential	Normal				Dry		
SWST-24815	7/14/2022	7/11/2022	0.67				None	Residential	Normal				Dry		
SWST-08573	4/12/2022	4/8/2022	0.012				None	Residential	Normal				Dry		
SWST-01800	7/21/2022	7/15/2022	0.56				None	Residential	Normal				Dry		
SWST-13463	7/21/2022	7/15/2022	0.56				Sediment	Commercial	Normal		None	None	Wet/No Flow		
SWST-29173	4/12/2022	4/8/2022	0.012	0	123	0	None	Residential	Normal	Clear	None	None	Wet/No Flow	None	
SWST-03517	10/31/2022	10/25/2022	0.002	0	136	0	None	Residential	Normal	Clear	None	None	Flow	None	
SWST-42309	5/23/2022	5/20/2022	0.001				None	Residential	Normal				Dry		

SWST-41138	11/9/2022	11/5/2022	0.13	0	111	0	None		Residential		Normal	Clear	None	None	Wet/No Flow	None		
SWST-40491	10/31/2022	10/25/2022	0.002				None		Residential		Normal				Dry			
SWST-42234	11/2/2022	10/25/2022	0.002				None		Commercial		Normal				Dry			
SWST-42233	11/2/2022	10/25/2022	0.002	0	205	0	None		Commercial		Normal	Clear	None	None	Flow	None		
SWST-40831	12/5/2022	11/25/2022	0.65				None		Residential		Normal				Dry			
SWST-40829	12/5/2022	11/25/2022	0.65				None		Residential		Normal				Dry			
SWST-40825	12/5/2022	11/25/2022	0.65				None		Residential		Normal				Dry			
SWST-40820	12/5/2022	11/25/2022	0.65				None		Residential		Normal				Dry			
SWST-40755	6/24/2022	6/15/2022	0.05															
SWST-40708	7/21/2022	7/15/2022	0.56				Sediment		Residential		Normal				Dry			
SWST-23816	5/24/2022	5/20/2022	0.001				None		Residential		Normal				Dry			

INSPECTED INLETS



WATERSHED MAP



DATE: Sampling year 2022

TO: Cedar Rapids Industrial Facilities & Customers – General Permit #1 holders and potentially subject to Section 313 of Title III of SARA (Form R), municipal landfills, hazardous waste treatment facilities, disposal and recovery facilities, and any specific industrial category subject to annual storm water sampling requirements under NPDES General Permit #1 (industrial activities).

RE: City of Cedar Rapids Municipal Separate Storm Sewer (MS4) NPDES Permit #57-15-0-05. Requirements for Industrial Facilities **annual storm water sampling and Industrial Facilities Survey requirements.**

The MS4 NPDES permit for Cedar Rapids requires under part II, section I (monitoring industrial & high risk run-off) that **General Permit #1 holders, Section 313 Industries, municipal landfills, hazardous waste treatment facilities, disposal and recovery facilities, and any specific industrial category subject to annual storm water sampling requirements under NPDES General Permit #1 (industrial activities) shall collect and analyze storm water samples of their industrial storm water effluent once per calendar year.**

Sampling Procedure

A minimum of one grab sample shall be taken during the first one hour of discharge from a storm event resulting in 0.10 inches or more of rainfall. **The sample shall be taken during a storm event occurring after at least 72 hours of dry weather.**

Required Analysis

The storm water sample shall be analyzed for pollutants limited in the facility's existing NPDES permit as well as oil and grease, chemical oxygen demand, pH, biochemical oxygen demand (5 day), total suspended solids, total phosphorus, total kjeldahl nitrogen and nitrate plus nitrite nitrogen.

The US Environmental Protection Agency has developed benchmarks for storm water discharges. The "benchmarks" are the pollutant concentrations above which EPA determined represent a level of concern. The established benchmarks are enclosed and available on the EPA's website: <http://https://www.cwea.org/p3s/documents/multi-sectorrev.pdf>. The level of concern is a concentration at which a storm water discharge could potentially impair, or contribute to impairing, water quality or affect human health from ingestion of water or fish. The "benchmarks" are also viewed by EPA as a level that, if below, a facility presents little potential for water quality concern. As such, the benchmarks also provide an appropriate level to determine whether a facility's storm water pollution prevention measures are successfully implemented. The benchmark concentrations are not effluent limitations and should not be interpreted or adopted as such. These values are merely levels which EPA has used to determine if storm water discharge from any given facility merits further monitoring to ensure that the facility has been successful in implementing SWPPP. As such these levels represent a target concentration for a facility to achieve through implementation of pollution prevention measures at the facility.

If any parameters exceed the EPA established benchmarks in 2018, attach a document to the enclosed survey detailing the sample results. Include an explanation of the factors that contributed to the excess concentration of the parameter in the storm water leaving this facility and the pollution prevention measures your organization implemented to improve the storm water quality at this facility.

Reporting Timeline

The City is required to obtain a certification from each industrial facility by December 31, 2019 the industrial facility complies with applicable storm water management plans and with the facility's storm water permit. Complete the **General Permit #1 Industrial Facilities Survey and Certification Statement** (attached with this letter) and **sampling results** for CY 2018 and return to the Cedar Rapids Water Pollution Control Facilities (CRWPCF) no later than **two weeks after receiving the lab results**. If you require more time to complete, please submit a written request to CRWPCF.

Please review the Iowa Department of Natural Resources website to determine if your facility might be able to apply for a "storm water no-exposure certification". The following link will direct you to the IDNR storm water permitting section to help you with your facility's no-exposure determination.

<http://www.iowadnr.com/water/stormwater/who.html>

Please take this opportunity to review the NPDES General Permit #1 & #2 requirements and develop or update your Storm Water Pollution Prevention Plans, if you have not already done so.

If you have not sampled the storm water effluent for your facility and do not qualify for a no-exposure certification, a storm water effluent sample for industrial activities at your facility must be collected no later than December 31, 2022. Sampling results must be submitted to CRWPCF no later than two weeks after receiving your lab results.

If you have any questions or require additional information, please call me at 319-538-6467.

Steve Salyer
Environmental Specialist
7525 Bertram Rd. SE
Cedar Rapids, Iowa 52403
s.salyer@cedar-rapids.org

General Permit #1 Industrial Facilities Survey

CITY OF CEDAR RAPIDS MS4 Storm Water Permit
IDNR NPDES Permit No. 57-15-0-05

Part II. Storm Water Pollution Prevention & Management Program
Section J. Monitoring Industrial and High-Risk Run-Off

General Facility Information

Business Name: _____
Business Address: _____
Mailing Address: _____
City & Zip: _____
Phone: _____
Contact Name, Phone & Fax #, e-mail (if available): _____
Date Completed: _____
SIC code: _____

Survey Questions

A. Facility Section General Permit #1 Applicability:

Does Facility utilize the Cedar Rapids separate storm sewer system? Yes / No
List on-site chemicals subject to General Permit #1:

Chemical Name	Last Reported Annual Usage (in pounds)	Chemical exposed to stormwater? (yes/no)

Survey (Continued)

Facility IDNR NPDES Information:

Note: Facility Permit Type, Permit Discharge Authorization Number, and Expiration Date of any applicable IDNR NPDES Permit

General Permit No.1(Industrial Activity): _____

General Permit No.2 (Construction Activity): _____

Direct Discharge: _____

C. Storm-water management plan on-site? (Yes / No)

Date of most recent storm water management plan update.

D. Storm-water analysis results available? (Yes / No)

List the date and all parameters that were analyzed during the rain event, and if available, attach results of most recent storm water run-off sample.

Certification:

"I certify that based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information submitted is, to the best of my knowledge and belief, true, accurate, and complete."

_____ Date: _____

Signature & Title

Section 313 Industrial Facilities Survey

CITY OF CEDAR RAPIDS MS4 Storm Water Permit
IDNR NPDES Permit No. 57-15-0-05

Part II. Storm Water Pollution Prevention & Management Program
Section J. Monitoring Industrial and High-Risk Run-Off

General Facility Information

Business Name:

Business Address: _____

Mailing Address: _____

City & Zip: _____

Phone: _____

Contact Name, Phone & Fax #, e-mail (if available): _____

Date Completed: _____

SIC code: _____

Survey Questions

A. Facility Section 313 Applicability:

Does Facility utilize the Cedar Rapids separate storm sewer system? Yes / No

Is Facility subject to SARA Section 313? Yes / No (circle one)

If yes, list most recent year Section 313 (Form R) report was submitted: _____

List on-site chemicals subject to section 313:

Chemical Name	Last Reported Annual Usage (in pounds)	Chemical exposed to stormwater? (yes/no)

Survey (Continued)

Facility IDNR NPDES Information:

Note: Facility Permit Type, Permit Discharge Authorization Number, and Expiration Date of any applicable IDNR NPDES Permit

General Permit No.1 (Industrial Activity): _____

General Permit No.2 (Construction Activity): _____

Direct Discharge: _____

C. Storm-water management plan on-site? (Yes / No)

Date of most recent storm water management plan update.

D. Storm-water analysis results available? (Yes / No)

List the date and all parameters that were analyzed during the rain event, and if available, attach results of most recent storm water run-off sample.

Certification:

"I certify that based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information submitted is, to the best of my knowledge and belief, true, accurate, and complete."

Signature & Title

Date: _____