BOZEMAN MT
Stormwater Division

February 28, 2020

Submitted via NET DMR and Regular Mail on 2/28/2020

Attn: Mr. Jon Kenning
Montana Department of Environmental Quality
Water Protection Bureau
PO Box 200901
Helena, MT 59620-0901

RE: City of Bozeman Small MS4 2019 Annual Report (MTR040002)

Mr. Jon Kenning,

The City of Bozeman (City) is pleased to submit its 2019 Phase II Small MS4 General Permit Annual Report, updated Stormwater Management Plan (SWMP), and various attachments for your review. A few accomplishments from 2019 include:

- Collected and disposed of 5,922.7 tons of stormwater pollutants through street sweeping, storm sewer cleaning, and treatment system maintenance (SWMP Section 2.5)
- Established an Adopt a Storm Drain Program, where eleven residents collected 772.7 lbs. of debris from their neighborhood inlets (SWMP Section 3.4)
- Developed six Facility Stormwater Pollution Prevention Plans and two Activity Stormwater Pollution Plans (SWMP Section 7.0 and Attachment D)
- Responded to and resolved four illicit discharge events (SWMP Section 4.4)

The City looks forward to further improving and implementing its numerous programs in 2020, as detailed in the attached SWMP.

Please do not hesitate to contact me if you have any questions.

Regards,

Kyle Mehrens, Stormwater Program Coordinator

Cc:

- Project File
- ERF

Attachments:

- 2019 MS4 Annual Report Form
- The City of Bozeman and Montana State University Stormwater Management Plan
- Attachment A: 2019 MS4 Annual Report Additional Information
- Attachment B: 2019 MS4 Outfalls
- Attachment C: Bozeman Municipal Code
- Attachment D: Good Housekeeping Program

DEQ
Montana Department of Environmental Quality
WATER PROTECTION BUREAU

Agency Use
MTR04
Date Rec'd:
Amount Rec'd:
Check No.:
Rec'd By:

FORM
MS4-AR

MPDES Storm Water Small MS4 Annual Report Form

Reporting period is for the calendar year, January 1st through December 31st. Check one. Annual Report is due by March 1st of the following year.

○ 2017 ○ 2018 ● 2019 ○ 2020 ○ 2021

Instructions: This Annual Report Form is to be completed by each permittee and co-permittee authorized to discharge storm water under the General Permit for Storm Water Discharges Associated with Small Municipal Separate Storm Water Sewer Systems (MS4s). All authorized permittees and co-permittees are required to complete this Annual Report Form for each calendar year reporting period. For co-permittees authorized under one permit authorization or for co-permittees with multiple authorizations, you are required to complete this form and submit separate required documents/information exclusively for your respective regulated Small MS4 area(s). This completed Annual Report Form must be electronically submitted to the Montana Department of Environmental Quality, Water Protection Bureau. Electronic submission is required through the web-based tool: NetDMR. Additional information is located on DEQ's website: http://deq.mt.gov/Water/WQINFO/ctss/netdmr.

Small MS4 Authorization Number: MTR04 0002

Small MS4 Classification	● **Traditional**	○ **Non-Traditional**

Small MS4 Name: City of Bozeman

Small MS4 Mailing Address: P.O. Box 1230

City, State, and Zip Code: Bozeman, MT 59771

Small MS4 Contact Person (and Title): Kyle Mehrens, Stormwater Program Coordinator

Mailing Address: P.O. Box 1230

City, State, and Zip Code: Bozeman, MT 59771

Phone Number: (406) 582-2270	**E-mail address:** kmehrens@bozeman.net

Storm Water Management Team: Attach an organizational chart identifying a primary SWMP coordinator and the positions responsible for implementing each minimum measure.		
Requested above chart:	◉ Attached	○ Not Attached
Has the permittee established and executed a formalized mechanism for regular communication between storm water management team members?	◉ Yes	○ No

Permittee's SWMP Resources:
How many FTEs does the permittee designate to the MS4 permit? 7.5 If needed, provide an explanation.

If more space is needed, submit on an additional page with corresponding reference or on a data storage device.

Answer the following five (5) questions on an additional page with corresponding reference or on a data storage device.

(1) What are the source(s) of funding for implementation of the MS4 permit and the estimated percentage of the total budget allocated from each source listed?

(2) Specific to the annual reporting calendar year, how did the permittee justify commitment of resources or budget allocations to the implementation of the MS4 permit to decision-makers and the public? Provide a summary of meetings and outcomes held with decision-makers and the public.

(3) Has the permittee demonstrated program effectiveness to obtain budget allocations for this annual reporting calendar year or previous years? Why or why not? If so, what program effectiveness metrics were presented?

(4) How was this annual reporting calendar year's approach to allocate resources different than the previous year's approach?

(5) Was the permittee successful in their request for budget allocations? Describe the outcome and factors that affected or resulted in that outcome.

Illicit Discharge Detection & Elimination: Per the IDDE MCM requirement (Part II (3)(c.i)), has the permittee reviewed, and updated if needed, the storm sewer map during the calendar year?	◉ Yes	○ No
Per the IDDE MCM requirement (Part II (3)(e.i)), has the permittee dry weather inspected and screened outfalls during the calendar year?	◉ Yes	○ No

Fill in the blanks with numbers. The permittee has inspected 108 outfalls during this calendar year. Since authorization under the 2017 General Permit, the permittee has inspected 108 total outfalls out of the 634 total MS4 outfalls.

Per the Illicit Discharge Detection & Elimination MCM (Part II (3)(e.i)), the permittee will complete the requirement to inspect and screen all outfalls during dry weather by the end of the permit cycle.	◉ Yes	○ No
Construction Site Storm Water Management: During the calendar year, how many construction storm water management plan reviews were completed (Part II (4)(b))? 372		
During the calendar year, how many construction projects were inspected for their storm water management controls (Part II (4)(c))? 59		
Pollution Prevention/Good Housekeeping for Permittee Operations: Has the permittee reviewed, and updated if needed, the inventory of permittee-owned/operated facilities and activities (Part II (6)(a.i))?	◉ Yes	○ No
Has the permittee reviewed, and updated if needed, the map that identifies the locations of facilities and known locations of activities (Part II (6)(a.ii))?	◉ Yes	○ No
Has the permittee conducted annual storm water pollution prevention training for permittee staff during the next permit year after development of each standard operating procedure (Part II (6)(a.v))? ***Not applicable during calendar year 2017, 2018, and 2019. Check "No" during these years.***	○ Yes	◉ No
Training: According to Part II (B) Training requirements, has the permittee conducted applicable training during the 1st and 4th calendar years? ***Not required during calendar year 2018, 2019, and 2021. Check "No" during these years.***	○ Yes	◉ No
According to Part II (B) Training requirements, has the permittee conducted applicable new employee training within 90 days of the hire date?	◉ Yes	○ No
Special Conditions: Per **Pre-TMDL Approval (Part III.A) requirements**, attach the required information regarding identification of all outfalls that discharge to impaired waterbodies, the impaired waterbodies, and the associated pollutants of impairments. Summarize the BMPs implemented over the reporting period and a schedule of BMPs planned for the following year.		
○ Attached	○ Not Attached	◉ Not Applicable
Special Conditions: Approved TMDLs (Part III.B) requirements per calendar year below.		
Calendar Year 2017: The permittee has attached a Sampling Plan that includes strategy rationale, monitoring frequency, monitoring parameters, and monitoring locations.		
○ Attached	○ Not Attached	◉ Not Applicable

Calendar Year 2017: The permittee has attached all outfalls that discharge to impaired waterbodies and the associated pollutants of impairment.		
○ Attached	○ Not Attached	◉ Not Applicable
Calendar Year 2018: The permittee has attached all outfalls that discharge to impaired waterbodies and the associated pollutants of impairment.		
○ Attached	○ Not Attached	◉ Not Applicable
Calendar Year 2019: The permittee has attached all outfalls that discharge to impaired waterbodies and the associated pollutants of impairment.		
◉ Attached	○ Not Attached	○ Not Applicable
Calendar Year 2020: The permittee has attached all outfalls that discharge to impaired waterbodies and the associated pollutants of impairment.		
○ Attached	○ Not Attached	◉ Not Applicable
Calendar Year 2020: The permittee has attached the TMDL section of the SWMP that identifies the measures and BMPs it plans to implement, describes the MS4's impairment priorities and long term strategy, and outlines interim milestones for controlling the discharge of the pollutants of concern and making progress towards meeting the TMDL.		
○ Attached	○ Not Attached	◉ Not Applicable
Calendar Year 2021: The permittee has attached all outfalls that discharge to impaired waterbodies and the associated pollutants of impairment.		
○ Attached	○ Not Attached	◉ Not Applicable
Calendar Year 2021: The permittee has evaluated the TMDL section of the SWMP based on monitoring results. The section has been revised, if needed, and is attached.		
○ Attached	○ Not Attached	◉ Not Applicable
Monitoring: Per requirements in Part IV (B), has the permittee attached monitoring results, calculations, and evaluations?		
◉ Attached	○ Not Attached	○ Not Applicable

INSTRUCTIONS: The permittee will only fill out the Annual Report Attachments section below that corresponds to the calendar in which an Annual Report is being submitted for. Attach the requested documents/information.

2017 Annual Report Attachments (1st Calendar Year)		
Public Education and Outreach:		
Per requirements a.i in the referenced MCM, attach the required information regarding key target audiences and associated pollutants.		
◯ Attached	◯ Not Attached	
Public Involvement and Participation:		
Per requirements a.i in the referenced MCM, attach the required information regarding the public involvement approach and schedule of each key audience.		
◯ Attached	◯ Not Attached	
Illicit Discharge Detection & Elimination:		
Per requirements a.i in the referenced MCM, attach the required information regarding categories of non-storm water discharges or flows, associated pollutants, and local controls or conditions.		
◯ Attached	◯ Not Attached	
Per requirements b.i in the referenced MCM, attach the required information regarding occasional non-storm water discharges or flows, associated pollutants, and local controls or conditions.		
◯ Attached	◯ Not Attached	
Per requirements f.i in the referenced MCM, attach the required Illicit Discharge Investigation and Corrective Action Plan and any associated documents.		
◯ Attached	◯ Not Attached	
Construction Site Storm Water Management:		
Per requirements a.iii in the referenced MCM, attach progress towards an Enforcement Response Plan and associated documents.		
◯ Attached	◯ Not Attached	
Specific to Traditional MS4s and per requirements b.i in the referenced MCM, attach the construction storm water management plan review checklist.		
◯ Attached	◯ Not Attached	◯ Not applicable
Specific to Non-Traditional MS4s and per requirements b.iii in the referenced MCM, attach the construction storm water management plan review checklist.		
◯ Attached	◯ Not Attached	◯ Not applicable
Specific to Traditional MS4s and per requirements c.i in the referenced MCM, attach the construction storm water management inspection form or checklist.		
◯ Attached	◯ Not Attached	◯ Not applicable
Specific to Non-Traditional MS4s and per requirements c.ii in the referenced MCM, attach the construction storm water management inspection form or checklist.		
◯ Attached	◯ Not Attached	◯ Not applicable

Post-Construction Site Storm Water Management in New and Redevelopment		
Specific to Traditional MS4s and per requirements b.i in the referenced MCM, attach the post-construction storm water management plan review checklist.		
◯ Attached	◯ Not Attached	◯ Not applicable
Specific to Non-Traditional MS4s and per requirements b.ii in the referenced MCM, attach the post-construction storm water management plan review checklist.		
◯ Attached	◯ Not Attached	◯ Not applicable
Per requirements in b.iii in the referenced MCM, attach the performance standards and associated documents.		
◯ Attached	◯ Not Attached	

2018 Annual Report Attachments (2nd Calendar Year)		
Public Education and Outreach:		
Per requirements b.i in the referenced MCM, attach the required information regarding outreach messages.		
◯ Attached	◯ Not Attached	
Per requirements c.i in the referenced MCM, attach the required information regarding a description of formats, distribution channels and schedule for key target audiences.		
◯ Attached	◯ Not Attached	
Public Involvement and Participation:		
Per requirements a.ii in the referenced MCM, attach the required information regarding participation and key target audience feedback on approaches.		
◯ Attached	◯ Not Attached	
Illicit Discharge Detection & Elimination:		
Per requirements a.i in the referenced MCM, attach the required information regarding categories of non-storm water discharges or flows, associated pollutants, and local controls or conditions.		
◯ Attached	◯ Not Attached	
Per requirements b.i in the referenced MCM, attach the required information regarding occasional non-storm water discharges or flows, associated pollutants, and local controls or conditions.		
◯ Attached	◯ Not Attached	
Specific to Traditional MS4s and per requirements d.i in the referenced MCM, attach the adopted ordinance or other regulatory mechanism to prohibit illicit discharges.		
◯ Attached	◯ Not Attached	◯ Not applicable
Specific to Non-Traditional MS4s and per requirements d.ii in the referenced MCM, attach the summary of legal authority to prohibit illicit discharges.		
◯ Attached	◯ Not Attached	◯ Not applicable
Per requirements d.iii in the referenced MCM, attach the required summary of the cooperative agreements.		

◯ Attached	◯ Not Attached	
Per requirements d.iv in referenced MCM, attach the Enforcement Response Plan and associated documents.		
◯ Attached	◯ Not Attached	
Per requirements e.ii in referenced MCM, attach the list of high priority outfalls.		
◯ Attached	◯ Not Attached	
Specific to Traditional MS4s and per requirements f.iii in the referenced MCM, attach the summary of investigations conducted and corrective actions taken per the required Illicit Discharge Investigation and Corrective Action Plan and any associated documents.		
◯ Attached	◯ Not Attached	◯ Not applicable
Specific to Non-Traditional MS4s and per requirements f.iv in the referenced MCM, attach the summary of investigations conducted and corrective actions taken per the required Illicit Discharge Investigation and Corrective Action Plan and any associated documents.		
◯ Attached	◯ Not Attached	◯ Not applicable
Post-Construction Site Storm Water Management in New and Redevelopment		
Specific to Traditional MS4s and per requirements c.i in the referenced MCM, attach the post-construction storm water management inspection form or checklist.		
◯ Attached	◯ Not Attached	◯ Not applicable
Specific to Non-Traditional MS4s and per requirements c.ii in the referenced MCM, attach the post-construction storm water management inspection form or checklist.		
◯ Attached	◯ Not Attached	◯ Not applicable
Per requirements in c.iii in the referenced MCM, attach the inventory of all new permittee-owned and private post-construction storm water management controls.		
◯ Attached	◯ Not Attached	
Per requirements in c.vi in the referenced MCM, attach an inspection frequency protocol.		
◯ Attached	◯ Not Attached	
Specific to Traditional MS4s and per requirements c.vii, attach the developed inspection program.		
◯ Attached	◯ Not Attached	◯ Not applicable
Pollution Prevention/Good Housekeeping for Permittee Operations		
Per requirements in a.iii in the referenced MCM, attach completed Standard Operating Procedures.		
◯ Attached	◯ Not Attached	

2019 Annual Report Attachments (3rd Calendar Year)		
Public Education and Outreach:		
Per requirements c.ii in the referenced MCM, attach the required information regarding outreach materials distributions.		
(•) Attached	( ) Not Attached	
Public Involvement and Participation:		
Per requirements a.ii in the referenced MCM, attach the required information regarding participation and key target audience feedback on approaches.		
(•) Attached	( ) Not Attached	
Illicit Discharge Detection & Elimination:		
Per requirements a.i in the referenced MCM, attach the required information regarding categories of non-storm water discharges or flows, associated pollutants, and local controls or conditions.		
(•) Attached	( ) Not Attached	
Per requirements b.i in the referenced MCM, attach the required information regarding occasional non-storm water discharges or flows, associated pollutants, and local controls or conditions.		
(•) Attached	( ) Not Attached	
Per requirements e.ii in referenced MCM, attach the list of high priority outfalls.		
(•) Attached	( ) Not Attached	
Per requirements e.iii in referenced MCM, attach the required summary of screening results.		
(•) Attached	( ) Not Attached	
Specific to Traditional MS4s and per requirements f.iii in the referenced MCM, attach the summary of investigations conducted and corrective actions taken per the required Illicit Discharge Investigation and Corrective Action Plan and any associated documents.		
(•) Attached	( ) Not Attached	( ) Not applicable
Specific to Non-Traditional MS4s and per requirements f.iv in the referenced MCM, attach the summary of investigations conducted and corrective actions taken per the required Illicit Discharge Investigation and Corrective Action Plan and any associated documents.		
( ) Attached	( ) Not Attached	(•) Not applicable
Construction Site Storm Water Management:		
Specific to Traditional MS4s and per requirements a.i in the referenced MCM, attach the adopted ordinance or other regulatory mechanism to require construction storm water controls.		
(•) Attached	( ) Not Attached	( ) Not applicable
Specific to Non-Traditional MS4s and per requirements a.ii in the referenced MCM, attach the legal authority summary.		
( ) Attached	( ) Not Attached	(•) Not applicable
Per requirements a.iii in the referenced MCM, attach the adopted Enforcement Response Plan and associated documents.		
(•) Attached	( ) Not Attached	
Post-Construction Site Storm Water Management in New and Redevelopment		

Per requirements in c.viii in the referenced MCM, attach findings and compliance actions regarding inspections of high priority post-construction storm water management controls.		
(•) Attached	( ) Not Attached	
Specific to Traditional MS4s and per requirements c.ix, attach the findings and resulting actions regarding inspections of high priority privately-owned post-construction storm water management controls.		
(•) Attached	( ) Not Attached	( ) Not applicable
Pollution Prevention/Good Housekeeping for Permittee Operations		
Per requirements in a.iii in the referenced MCM, attach the completed Standard Operating Procedures.		
(•) Attached	( ) Not Attached	

2020 Annual Report Attachments (4th Calendar Year)		
Public Education and Outreach:		
Per requirements c.ii in the referenced MCM, attach the required information regarding outreach materials distributions.		
( ) Attached	( ) Not Attached	
Public Involvement and Participation:		
Per requirements a.ii in the referenced MCM, attach the required information regarding participation and key target audience feedback on approaches.		
( ) Attached	( ) Not Attached	
Illicit Discharge Detection & Elimination:		
Per requirements a.i in the referenced MCM, attach the required information regarding categories of non-storm water discharges or flows, associated pollutants, and local controls or conditions.		
( ) Attached	( ) Not Attached	
Per requirements b.i in the referenced MCM, attach the required information regarding occasional non-storm water discharges or flows, associated pollutants, and local controls or conditions.		
( ) Attached	( ) Not Attached	
Per requirements e.ii in referenced MCM, attach the list of high priority outfalls.		
( ) Attached	( ) Not Attached	
Per requirements e.iii in referenced MCM, attach the required summary of screening results.		
( ) Attached	( ) Not Attached	
Specific to Traditional MS4s and per requirements f.iii in the referenced MCM, attach the summary of investigations conducted and corrective actions taken per the required Illicit Discharge Investigation and Corrective Action Plan and any associated documents.		
( ) Attached	( ) Not Attached	( ) Not applicable
Specific to Non-Traditional MS4s and per requirements f.iv in the referenced MCM, attach the summary of investigations conducted and corrective actions taken per the required Illicit Discharge		

Investigation and Corrective Action Plan and any associated documents.		
◯ Attached	◯ Not Attached	◯ Not applicable
Post-Construction Site Storm Water Management in New and Redevelopment		
Specific to Traditional MS4s and per requirements a.i in the referenced MCM, attach the adopted ordinance or other regulatory mechanism to require post-construction storm water controls.		
◯ Attached	◯ Not Attached	◯ Not applicable
Specific to Non-Traditional MS4s and per requirements a.ii in the referenced MCM, attach the legal authority summary.		
◯ Attached	◯ Not Attached	◯ Not applicable
Per requirements in a.iii in the referenced MCM, attach the Enforcement Response Plan and associated documents.		
◯ Attached	◯ Not Attached	
Per requirements in c.viii in the referenced MCM, attach findings and compliance actions regarding inspections of high priority post-construction storm water management controls.		
◯ Attached	◯ Not Attached	
Specific to Traditional MS4s and per requirements c.ix, attach the findings and resulting actions regarding inspections of high priority privately-owned post-construction storm water management controls.		
◯ Attached	◯ Not Attached	◯ Not applicable
Per requirements in d.i in the referenced MCM, attach a summary of the discussion outcomes.		
◯ Attached	◯ Not Attached	
Pollution Prevention/Good Housekeeping for Permittee Operations		
Per requirements in a.iii in the referenced MCM, attach the completed Standard Operating Procedures.		
◯ Attached	◯ Not Attached	

2021 Annual Report Attachments (5th Calendar Year)
Public Education and Outreach:
Per requirements c.ii in the referenced MCM, attach the required information regarding outreach materials distributions.
◯ Attached ◯ Not Attached
Public Involvement and Participation:
Per requirements a.ii in the referenced MCM, attach the required information regarding participation and key target audience feedback on approaches.
◯ Attached ◯ Not Attached
Illicit Discharge Detection & Elimination:
Per requirements a.i in the referenced MCM, attach the required information regarding categories of non-storm water discharges or flows, associated pollutants, and local controls or conditions.

◯ Attached	◯ Not Attached	
Per requirements b.i in the referenced MCM, attach the required information regarding occasional non-storm water discharges or flows, associated pollutants, and local controls or conditions.		
◯ Attached	◯ Not Attached	
Per requirements e.ii in referenced MCM, attach the list of high priority outfalls.		
◯ Attached	◯ Not Attached	
Per requirements e.iii in referenced MCM, attach the required summary of screening results.		
◯ Attached	◯ Not Attached	
Specific to Traditional MS4s and per requirements f.iii in the referenced MCM, attach the summary of investigations conducted and corrective actions taken per the required Illicit Discharge Investigation and Corrective Action Plan and any associated documents.		
◯ Attached	◯ Not Attached	◯ Not applicable
Specific to Non-Traditional MS4s and per requirements f.iv in the referenced MCM, attach the summary of investigations conducted and corrective actions taken per the required Illicit Discharge Investigation and Corrective Action Plan and any associated documents.		
◯ Attached	◯ Not Attached	◯ Not applicable
Post-Construction Site Storm Water Management in New and Redevelopment		
Per requirements in c.viii in the referenced MCM, attach findings and compliance actions regarding inspections of high priority post-construction storm water management controls.		
◯ Attached	◯ Not Attached	
Specific to Traditional MS4s and per requirements c.ix, attach the findings and resulting actions regarding inspections of high priority privately-owned post-construction storm water management controls.		
◯ Attached	◯ Not Attached	◯ Not applicable
Pollution Prevention/Good Housekeeping for Permittee Operations		
Per requirements in a.iii in the referenced MCM, attach completed Standard Operating Procedures.		
◯ Attached	◯ Not Attached	
Attach any updates, changes, or improvements to the Small MS4 Storm Water Management Program per requirements in Part IV (E).		
◉ Attached	◯ Not Attached	◯ Not applicable

Annual Report Form Signature	
This Annual Report Form must be completed, signed, and certified as follows: • **For a corporation, by a principal officer of at least the level of vice president;** • **For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or** **For a municipality, state, federal, or other public facility, by either a principal executive officer or ranki elected official.**	
All Permittees Must Complete the Following Certification: I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information; including the possibility of fine and imprisonment for knowing violations. [75-5-633, MCA]. ***Certification of this form indicates conformance with the 2017 General Permit for Storm Water Discharge Associated with Small Municipal Separate Storm Sewer Systems and the required Annual Reporting upon receipt of permit coverage.***	
Name (Type or Print) Dennis M. Taylor	
Title (Type or Print) Interim City Manager	**Phone Number** (406)582-2306
Signature Dennis M. Taylor	**Date Signed** 2/24/2020

City of Bozeman and Montana State University

Stormwater Management Plan

Graphic: Stormwater treatment unit installation

Graphic: Surcharging storm sewer manhole

2017 - 2021 MS4 General Permit Term

Updated February 28, 2020

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Section 1.0

Program Administration

Graphic 1.0.1: Street-flooding resulting from clogged infrastructure

Graphic 1.0.2: Failed stormwater pipe

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1.1 Introduction

This Stormwater Management Plan (SWMP) describes the City of Bozeman (City) and Montana State University's (University), collectively known as the MS4, structural and administrative Best Management Practices (BMPs) engineered, implemented, maintained, and enforced to meet the following objectives:

- Protect public safety
- Improve water quality
- Comply with environmental regulations

The MS4 also refers to this SWMP as the Stormwater Master Plan. This SWMP is an iterative and evolving document with updates occurring annually. The MS4 tracks updates in SWMP Section 9.0. SWMP Section 1.0 details the following components necessary to administer the MS4's Program, including:

- Background Information
- City Program Framework
- University Program Framework
- Stormwater Management Team
- MS4 Coordination
- Affiliations
- Additional Regulatory Responsibilities
- Annual Report
- Public Comment

1.2 Background Information

The MS4 is an incorporated town located in Gallatin County, Montana, and has a population of 61,953 as of 2016 (*City population 45,250, University population 16,703*). The MS4's primary land-use type is residential and commercial, with isolated industrial areas. Other notable geographical details include:

- Elevation: 4820 ft.
- Climate: Cold continental, with warm and dry summers, cold and dry winters
- Average Temperature: 44.6 ˚F
- Average Precipitation: 18.4 inches (*University rain gauge*)

The MS4 is located at the headwaters of the Upper Missouri Watershed and possesses relatively pristine surface water quality that supports several beneficial uses, including aquatic life, drinking water, agriculture, and recreation. Numerous waterways originate within and pass through the MS4.

The MS4's most notable waterway is Bozeman Creek (aka Sourdough Creek), which originates in the Gallatin Mountains south of its jurisdictional boundary. Flowing north, Bozeman Creek enters the MS4 at its southeastern border and continues until its confluence with the E. Gallatin River. The Montana Department of Environmental Quality (MDEQ) determined that Bozeman Creek has various impairments from natural and anthropogenic sources when developing its 2013 Lower Gallatin Planning Area Total Maximum Daily Load Report (TMDL).

The second most notable waterway is Mandeville Creek, which is a small spring feed watercourse that originates south of Bozeman. Flowing north, Mandeville Creek enters the MS4 at its southcentral boundary and continues until its confluence with the E. Gallatin River. The Montana DEQ determined that Mandeville Creek also has various impairments from natural and anthropogenic sources when developing its TMDL.

Numerous other perennial and intermittent spring creeks flow through the MS4 in a web of channels, irrigation ditches, and underground pipes. The Montana DEQ has not completed an assessment of these waterways; however, it is likely they receive similar impacts as the other more notable waterways.

The MS4's water resources represent a significant community value and are the backbone of its tourism, recreation, and neighboring agricultural industries. A growing threat to these invaluable resources is stormwater runoff, which occurs when rainfall and snowmelt flow over developed surfaces, such as yards, roadways, parking lots, and rooftops. Stormwater picks up pollutants before entering storm sewers, such as drains, pipes, and ditches, and eventually discharges into the MS4's waterways. Stormwater runoff can result in property damage, public health threats, and environmental degradation if not proactively managed. Specific pollutants of concern include:

- Sediment: Sourced from barren ground, construction sites, road sand, unpaved roads and trails, windblown dust, and vehicle grime, resulting in suffocated aquatic habitat and changes to stream channel morphology
- Nitrogen and Phosphorous: Sourced from improper lawn fertilizer application, grass clippings, and yard debris, resulting in oxygen-depleting algae blooms
- E.coli: Sourced from substandard septic systems and pet waste, resulting in toxic conditions for the public and wildlife
- Floatables: Sourced from littering, overfilled garbage cans, and unsecured loads, resulting in clogged infrastructure, impaired aesthetic value, and endangered wildlife
- Oil, Grease, Metals, and Detergents: Sourced from improper vehicle maintenance, car spills, and car washing, resulting in toxic conditions for humans and wildlife
- Temperature: Sourced from extensive and continuous impervious areas, resulting in harmful impacts to coldwater fisheries

To counter stormwater runoff's impact, the United States Congress established the National Pollutant Discharge Elimination System (NPDES) as a part of the Clean Water Act (CWA) in 1972 to preserve and restore the health of the United States' Waters. The U.S. Environmental Protection Agency (EPA) is the lead organization tasked with implementing and oversight of the CWA. In Montana, the MDEQ has assumed authority, allowing for further state-scale interpretation, enactment, and enforcement.

The NDPES program regulates water pollution through a series of permits focused on point sources, such as industrial facilities, wastewater plants, and stormwater discharges. The driving permit behind the development and implementation of this SWMP is the MDEQ's Phase 2 Small Municipal Separate Storm Sewer Systems General Discharge Permit (MS4 Permit), which requires the City and University to implement a variety of subprograms to mitigate polluted discharges to waterways.

The MDEQ designates the City as a traditional permittee and the University as a non-traditional permittee. Both parties are co-permittees, because their storm sewers are connected, and they work together on some administrative programs. The MDEQ requires the MS4 to complete the following:

- Prepare and submit individual Notices of Intent (NOI)
- Receive authorizations to discharge from MDEQ by January 1, 2017
- Prepare and submit individual Annual Reports
- Develop, implement, and update this SWMP throughout the MS4 Permit term
- Execute a Memorandum of Understanding (MOU)

Also, the MDEQ requires the MS4 to administer a program that works to accomplish the following:

- Educate the public (see SWMP Section 3.0)

- Engage citizens through involvement and participation (see SWMP Section 3.0)
- Detect and eliminate illicit discharges (see SWMP Section 4.0)
- Regulate construction sites (see SWMP Section 5.0)
- Regulate stormwater facilities constructed with new development (see SWMP Section 6.0)
- Prevent pollution stemming from internal facilities and operations (see SWMP Section 7.0)
- Collect and analyze water quality and stormwater runoff data (see SWMP Section 8.0)

The following sections of this SWMP outline the MS4's work within each of these subprograms.

1.3 City Program Framework

On June 25, 2012, the City adopted Ordinance 1831, creating a stormwater utility, providing for the collection revenue for the operation and maintenance of the City's stormwater system. Funding was initially allocated to inventory, map, and assess the condition of the City's storm sewer. This effort was in response to findings identified during a 2011 MDEQ MS4 Permit audit, which included one violation, 16 program deficiencies, and 23 improvement recommendations.

On March 3, 2014, the City presented the results of their inventory, mapping, and assessment effort to City Commissioners. The City inventoried over ten thousand individual assets, many of which were found to be clogged, cracked, buried, or in disrepair. Also, a program administration review identified significant shortfalls. Commissioners directed the City to develop options for addressing known issues.

On April 21, 2014, the City presented three levels of service, differing primarily on the timeline required to address issues and the annual funding level. Commissioners decided to implement a program that included a funding level of $1.2 million annually for operations, treatment, and deferred maintenance.

On February 23, 2015, the City adopted a new level of service and a rate model to collect service fees based on individual property's impact on the stormwater system.

On December 1, 2015, the City implemented the final piece of the new rate model allowing the Stormwater Utility to be fully funded and functional for the first time in its history.

The City's utility rate model includes the following components and funding allocations:

- Approximately $450,000 annually for deferred maintenance, which includes costs associated with the replacement and cleaning of storm sewer components
- Approximately $550,000 annually for operations and maintenance, which includes expenses related to personnel, reoccurring system maintenance, supplies, and equipment
- Approximately $200,000 annually for system enhancements, which includes costs associated with projects that provide stormwater treatment to remove pollutants before discharging to waterways

The City's rate model has three distinct guiding principles:

- Flat Charge: Charged evenly across the service area. Properties with a water meter receive a flat monthly charge per meter. Properties that have impervious area, but do not have a water meter also receive a flat charge. The funding pays for deferred maintenance projects.
- Variable Charge: Charged proportional to the amount of impervious area individual properties have. Impervious area does not allow water to soak into the ground during rain events creating stormwater runoff. Larger areas result in more impact on public storm sewers and waterways.
- Utility Credit: Properties that have installed quantity and quality-based stormwater infrastructure controls receive a billing credit as these properties impact the stormwater system less than those without stormwater infrastructure.

The Stormwater, Building, Strategic Services, and Finance Divisions work collaboratively to update the stormwater utility rate model regularly as new development occurs. The workflow includes:

1. Developers submit site plans to the Building Division through electronic permit software.
2. Staff reviews and uploads site plans to a shared group folder on the City's internal drive.
3. Strategic Services Staff checks the folder regularly, imports site plans into GIS, digitizes impervious area, and updates the polygon's ERU attribute.
4. Finance sends water meter notice to Staff when a project is nearing completion.
5. Stormwater Staff reviews impervious area data based on the address information provided by Finance and calculates an ERU total, including percentage credit, if applicable.
6. Stormwater Staff provides Finance Staff with an ERU value and credit value.
7. Finance Staff updates software and generates a bill for customers.

The MS4 tracks impervious area growth to gauge the workload associated with updating the rate model. The following data points display multi-family and commercial impervious area added within their respective years (does not include single-family residential properties and public right-of-way), including:

- 2017: 75 acres (86 site plans digitized)
- 2018: 73 acres (100 site plans digitized)
- 2019: 67.8 acres (98 site plans digitized)
- 2020: XX acres
- 2021: XX acres

<u>FY18 Approved Budget (July 1, 2017, through June 30, 2018)</u>

- Source: Municipal Enterprise Fund
  - Rate Model Type: Impervious Area
  - Percent Allocation: 100%
  - Resource Justification: Budget approval process completed June 26, 2017
  - Program Effectiveness: See SWMP Sections 2.6, 3.4, 4.4, 5.4, 6.4, 7.2, 7.3, 7.4, 8.8, and 8.9
  - Resource Variation: Proposed addition of one FTE (Stormwater Specialist), approved
  - Success Determination: See SWMP Sections 2.6, 3.4, 4.4, 5.4, 6.4, 7.2, 7.3, 7.4, 8.8, and 8.9
- Staff: 6.5 FTEs
- Budget: $1,488,360
  - Salaries and Benefits: $451,548
  - Operating Budget: $161,466
  - Capital: $650,000
  - Debt Service: $225,346
  - Transfers: $0.00

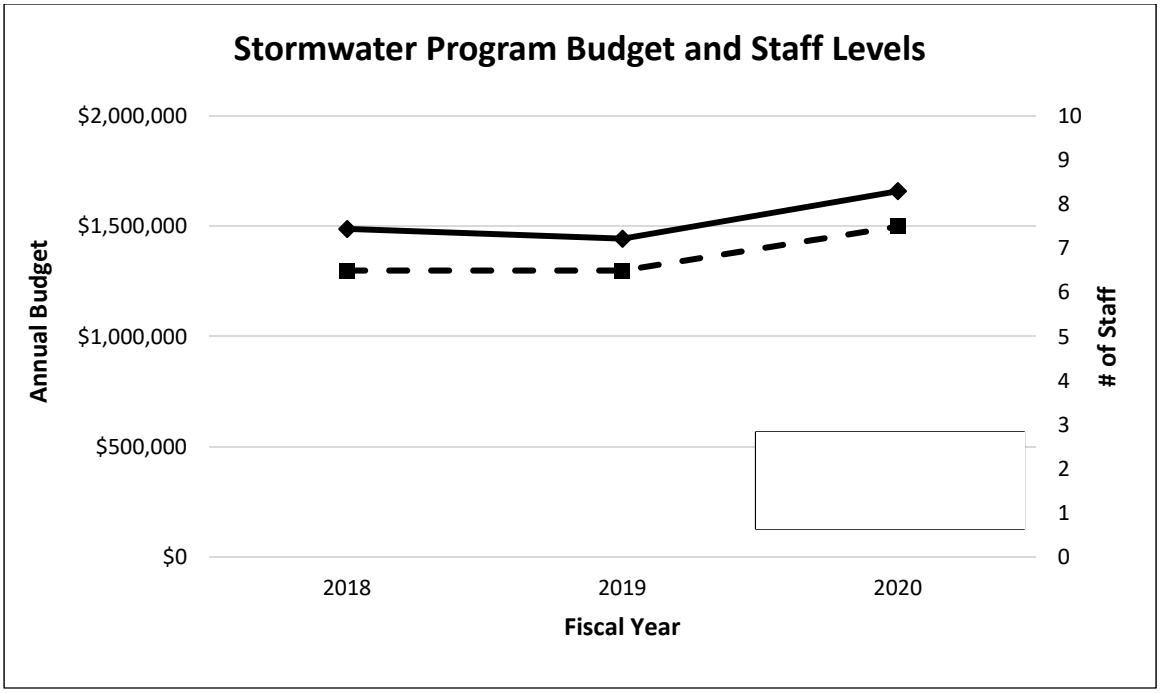
<u>FY19 Approved Budget (July 1, 2018, through June 30, 2019)</u>

- Source: Municipal Enterprise Fund
  - Rate Model Type: Impervious Area
  - Percent Allocation: 100%
  - Resource Justification: Budget approval process completed June 25, 2018
  - Program Effectiveness: See SWMP Sections 2.6, 3.4, 4.4, 5.4, 6.4, 7.2, 7.3, 7.4, 8.8, and 8.9
  - Resource Variation: Proposed addition of one FTE (Project Manager), pending approval
  - Success Determination: See SWMP Sections 2.6, 3.4, 4.4, 5.4, 6.4, 7.2, 7.3, 7.4, 8.8, and 8.9

- Staff: 6.5 FTEs
- Budget: $1,444,302
  - Salaries and Benefits: $408,583
  - Operating Budget: $240,373
  - Capital: $635,000
  - Debt Service: $160,346
  - Transfers: $0.00

FY20 Approved Budget (July 1, 2019, through June 30, 2020)

- Source: Municipal Enterprise Fund
  - Rate Model Type: Impervious Area
  - Percent Allocation: 100%
  - Resource Justification: Public budget approval process completed June 24, 2019
  - Program Effectiveness: See SWMP Sections 2.6, 3.4, 4.4, 5.4, 6.4, 7.2, 7.3, 7.4, 8.8, and 8.9
  - Resource Variation: 4% rate increase to pay for new FTE and inflation
  - Success Determination: See SWMP Sections 2.6, 3.4, 4.4, 5.4, 6.4, 7.2, 7.3, 7.4, 8.8, and 8.9
- Staff: 7.5 FTEs
- Budget: $1,660,521
  - Salaries and Benefits: $580,938
  - Operating Budget: $268,372
  - Capital: $650,000
  - Debt Service: $161,211
  - Transfers: $0.00



Graphic 1.3.1: Stormwater Program Budget and Staff Levels

1.4 University Program Framework

In the current permit cycle, the University has managed four projects of an acre or larger, which have influenced stormwater quantity and quality. Those projects are:

- Norm Asbjornson Hall Construction
  - Over One Acre, Active, 2019 planned completion, *(the SWMP remains open as we wait for final acceptance of landscape components)*
- Dormitory Construction
  - Over One Acre, Active, 2020 planned completion
- American Indian Hall
  - Over One Acre, Active, 2021 planned completion
- Montana Hall Elevator and Renovation project.
  - Under One Acre, Active
- Romney Hall Renovation project
  - Under One Acre, Active, No stormwater specific work but is being staged south of the building requiring management of materials, storage, toilet facilities and tracking and remains active.
- ~~Lambert Field Renovations~~
  - ~~Over One Acre, Active, 2019 planned completion~~
- ~~Rendezvous Dining Hall Construction~~
  - ~~Over One Acre, 2019 Complete~~
- ~~College and 11th Treatment Unit~~
  - ~~Under One Acre, 2019 Complete~~

Current funding is not a line item but included in the general campus maintenance operations budget for Facilities Services. As allowable and necessary funding from Facilities Services General Operating budget are allocated to specific stormwater improvement projects.

In 2019, the University devoted approximately 840 hours annually to stormwater maintenance, management, and improvements and tracks work activities and labor using a work order system. Under the general guidance of the Engineering and Utilities Manager, the Environmental Service Manager coordinates and ensures MS4 Permit compliance.

1. Current Staff:
   - Engineering and Utility Manager: Directional and political support (*40 hours per year*)
   - Director - Facilities Services: Overall program coordination. Administers and supports environmental compliance programs; manages support personnel; identifies and advocates for infrastructure projects; conducts sampling, training, inspections, permit reviews, data collection, and reporting; manages reoccurring infrastructure maintenance, structural inspections, repairs, and replacements *(300 hours/year)*
   - Support Staff and Contracted Services: Groundskeepers, laborers, plumbers, and street sweeping *(500 hours/year)*

The following representatives make up the University's stormwater management team. Regular communication occurs, allowing for the exchange of necessary information:

1. Megan Sterl, Engineering and Utility Manager
    - Program Administration
2. EJ Hook, Director – Facilities Services *(Primary SWMP Coordinator)*
    - Community Outreach and Education Program
    - Public Involvement and Participation Program
    - Construction-Site Management Program
    - Post-Construction Management Program
    - Illicit Discharge Detection and Elimination Program
    - Project Management
    - Good Housekeeping Program
    - Training

<u>FY18 Approved Budget (July 1, 2017, through June 30, 2018)</u>

- Source: Facility Budget
    - Rate Model Type: Part of Facilities Services Major maintenance budget
    - Percent Allocation: 100%
    - Resource Justification: Budget approval process completed June 29, 2017
    - Program Effectiveness: See SWMP Sections 2.6, 3.4, 4.4, 5.4, 6.4, 7.2, 7.3, 7.4, 8.8, and 8.9
    - Resource Allocation Variation: Approx. $25,000 for College and 11th stormwater improvement project design
    - Success Determination: See SWMP Sections 2.6, 3.4, 4.4, 5.4, 6.4, 7.2, 7.3, 7.4, 8.8, and 8.9
- Staff: 0.3 FTEs
- Budget: $124,000
    - Salaries and Benefits: n/a
    - Operating Budget: $124,000
    - Capital: n/a
    - Debt Service: n/a
    - Transfers: n/a

<u>FY19 Approved Budget (July 1, 2018, through June 30, 2019)</u>

- Source: Facility Budget
    - Rate Model Type: Part of Facilities Services Major maintenance budget
    - Percent Allocation: 100%
    - Resource Justification: Budget approval process completed June 29, 2018
    - Program Effectiveness: See SWMP Sections 2.6, 3.4, 4.4, 5.4, 6.4, 7.2, 7.3, 7.4, 8.8, and 8.9
    - Resource Allocation Variation: Approx. $150,000 for College and 11th stormwater improvement project installation
    - Success Determination: See SWMP Sections 2.6, 3.4, 4.4, 5.4, 6.4, 7.2, 7.3, 7.4, 8.8, and 8.9
- Staff: 0.3 FTEs
- Budget: $124,000
    - Salaries and Benefits: n/a
    - Operating Budget: $124,000

- Capital: Approx. $150,000
- Debt Service: n/a
- Transfers: n/a

FY20 Approved Budget (July 1, 2019, through June 30, 2020)

- Source: Facility Budget
  - Rate Model Type: Part of Facilities Services Major maintenance budget
  - Percent Allocation: 100%
  - Resource Justification: Budget approval process completed June 29, 2019
  - Program Effectiveness: See SWMP Sections 2.6, 3.4, 4.4, 5.4, 6.4, 7.2, 7.3, 7.4, 8.8, and 8.9
  - Resource Allocation Variation: None
  - Success Determination: See SWMP Sections 2.6, 3.4, 4.4, 5.4, 6.4, 7.2, 7.3, 7.4, 8.8, and 8.9
- Staff: 0.3 FTEs
- Budget: $126,500
  - Salaries and Benefits: n/a
  - Operating Budget: $126,500
  - Capital: Approx. $150,000
  - Debt Service: n/a
  - Transfers: n/a

1.5 Stormwater Management Team

The City has three tiers of Management Teams: SWMP Team, SWMP Subject Matter Experts, and SWMP Support Divisions. Each group has varying responsibilities and communication protocols further described in this section.

The SWMP Team: Meets weekly and includes the SWMP Coordinator. This team completes the majority of minimum control measure related-work, reporting, and planning. The following positions make up the SWMP Team:

1. Stormwater Program Coordinator: SWMP Coordinator for the City and leads the SWMP Team, SWMP Subject Matter Experts, and coordination with SWMP Support Divisions. The Coordinator develops and manages the implementation of SWMP and MS4 Permit compliance activities, administers environmental compliance programs, manages personnel, prepares budgets, develops policies, coordinates infrastructure projects, and maintains rate model databases. This position's primary permit responsibilities include:
   - Program Administration (SWMP Section 1.0)
   - Capital Project Program (SWMP Section 2.0)
   - Public Education Program (SWMP Section 3.0)
   - Illicit Discharge Detection and Elimination Program (SWMP Section 4.0)
   - Construction Site Management Program (SWMP Section 5.0)
   - Post Construction Program (SWMP Section 6.0)
   - Good Housekeeping Program (SWMP Section 7.0)
   - Sampling and Evaluation Program (SWMP Section 8.0)
   - Additional Regulatory Responsibilities (SWMP Section 1.8)

2. Stormwater Program Specialist: Develops and implements best practice solutions related to water quality compliance monitoring, BMP effectiveness research, and data analysis. This position's primary permit responsibilities include:

   - Public Education Program (SWMP Section 3.0)
   - Illicit Discharge Detection and Elimination Program (SWMP Section 4.0)
   - Good Housekeeping Program (SWMP Section 7.0)
   - Sampling and Evaluation Program (SWMP Section 8.0)
   - Additional Regulatory Responsibilities (SWMP Section 1.8)

3. Stormwater Program Specialist: Plans and manages stormwater conveyance, flood control, and treatment capital projects, implements the City's stormwater facility and asset maintenance efforts, and regulates new drainage infrastructure through the oversight of development applications. This position's primary permit responsibilities include:

   - Capital Project Program (SWMP Section 2.0)
   - Post Construction Program (SWMP Section 6.0)
   - Good Housekeeping Program (SWMP Section 7.0)

4. Stormwater Program Technician: Performs permit review, site inspection, and reporting tasks. This position's primary permit responsibilities include:

   - Construction Site Management Program (SWMP Section 5.0)

The SWMP Team tracks phone call and email questions, requests, and complaints received from the public to gauge programmatic needs and workloads. The following chart includes the totals:

Correspondence Type	*Count*				
	2018	*2019*	*2020*	*2021*	*Total*
Resident: Flooding Inquiry or Report	*7*	*15*			*22*
Resident: Construction Inquiry or Report	*22*	*19*			*41*
Resident: Water Quality Inquiry or Report	*2*	*2*			*4*
Resident: Pollution Inquiry or Report	*14*	*6*			*20*
Resident: Basin Inquiry or Report	*14*	*12*			*26*
Resident: Outreach Inquiry or Report	*2*	*12*			*14*
Resident: Rate Model Inquiry	*4*	*6*			*10*
Professional: Post-Const. Program	*47*	*60*			*107*
Professional: Pollution Program	*4*	*18*			*22*
Professional: Const. Program	*112*	*295*			*407*
Professional: Project Management	*16*	*181*			*197*
Professional: Education Program	*14*	*57*			*71*
Professional: Division Administration	*9*	*36*			*45*
Professional: Water Quality Program	*11*	*8*			*19*
Professional: Service or Product Solicitation	*17*	*19*			*36*
Referral to other division	*5*	*6*			*11*
Total:	***300***	***752***			***1,052***

Graphic 1.5.2: Correspondence-tracking totals

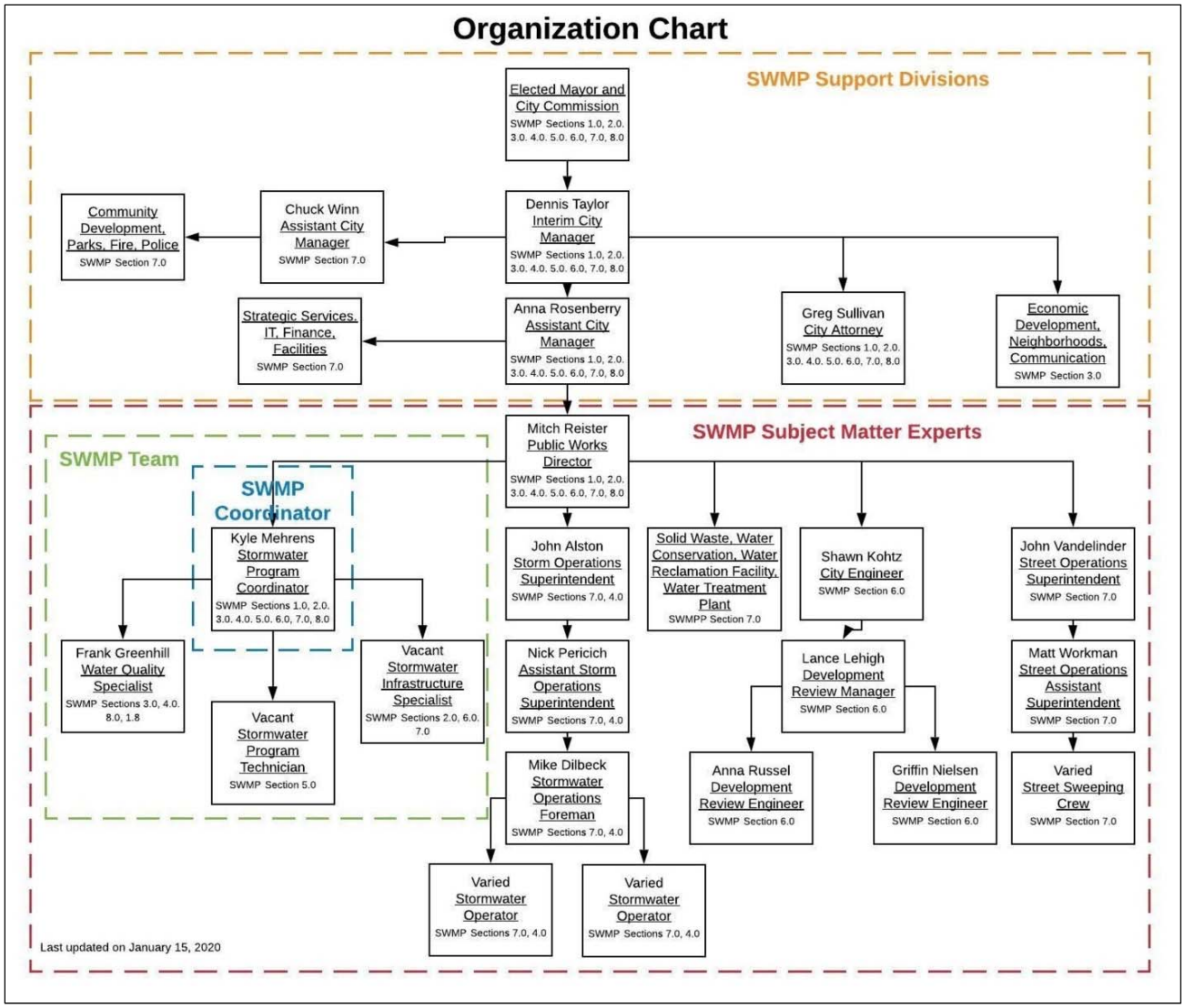
SWMP Subject Matter Experts: Group meets bi-monthly to discuss programmatic issues and needs. Interim communication occurs when situations arise, or the SWMP Team requires information. This

team completes the majority of development review and infrastructure field operations. The following positions make up the SWMP Subject Matter Experts:

1. Engineering Division: Team of three positions that review and regulate new and redevelopment projects utilizing established engineering standards. The positions include the Development Review Manager, Engineer II, and Engineer I.
   - Post Construction Program (SWMP Section 6.0)
2. Operations and Maintenance: Team of five positions that operate and maintain the public storm sewer network, including the inspection, maintenance, and repair of infrastructure. This group also inspects underground pipes to identify illicit discharges and illegal connections. This team includes a Superintendent, Assistant Superintendent, Foreman, and two Operators.
   - Good Housekeeping Program (SWMP Section 7.0)
   - Illicit Discharge Detection and Elimination Program (SWMP Section 4.0)
3. Streets Division: Numerous positions that operate the City's street sweeping, spring cleanup, and fall cleanup activities. This team includes a Superintendent, Assistant Superintendent, and numerous Operators.
   - Good Housekeeping Program (SWMP Section 7.0)

SWMP Support Divisions: Group engaged by the SWMP Team as needs arise. Support Divisions do not typically participate in reoccurring meetings unless invited to discuss a particular topic.

1. Support Divisions: Numerous municipal divisions and employees that provide support when necessary or requested. Parties include the Elected Council, Management, Legal, Strategic Services, Community Development, Parks, Fire, Police, IT, Economic Development, Solid Waste, Communication, Neighborhoods, Facilities, Sustainability, Code Compliance, Water Reclamation, Water Treatment, and Water Conservation Divisions.



Graphic 1.5.1: Organization Chart

1.6 MS4 Coordination

The MS4s works collaboratively on various programs, including:

- Participation in monthly meetings
- University payment of City stormwater fees, rate model update to occur during Q1 of each calendar year and an updated total should be in place by July 1st.
- Performance tracking and reporting
- Project development and implementation
- Inspection forms, training, methodologies, and program documentation
- Pollution event response and resolution
- Stormwater treatment unit maintenance
    - The City removes collected debris from select University stormwater treatment units and incorporates totals into SWMP Section 8.0 annually, including:
        - University Field House Downstream Defender Mechanical Separation Unit

- 11th and College Contech CDS Mechanical Separation Unit

- Water Sampling and Analysis Program
  - The City manages the University's portion of this program, including purchasing equipment, collecting samples/data, analyzing results, and updating SWMP Section 8.0 for the following:
    - Urban Runoff Monitoring
    - In-Stream Wet Weather Monitoring
    - Sediment Reduction Monitoring
    - Long-Term Trend Monitoring
- Post Construction Program
  - The City completes six high-priority stormwater facility inspections on MSU property annually, and provides completed reports.
- The City provides the University an updated SWMP by February 1 of each calendar year.

1.7 Affiliations

The MS4 utilizes and engages with a variety of groups through informal relationships, including:

- Montana Stormwater Committee (MSC): An organization formed in 2016 comprised of public and private stormwater industry representatives. The MSC provides a unified voice for state scale policy changes, rules, issues, and initiatives. The MSC meets monthly to discuss relevant topics. Their most recent accomplishment includes the development of Montana's first American Society of Civil Engineers Stormwater Report Card, resulting in a statewide score of D.
- National Municipal Stormwater Alliance (NMSA): An organization formed in 2015 comprised of stormwater industry professionals. The NMSA provides a unified voice for national scale policy changes, rules, issues, and initiatives.
- Montana Department of Environmental Quality (MDEQ): A state agency tasked with the administration and enforcement of the Montana Clean Water Act. MDEQ provides compliance training, conferences, and enforcement in cases where the MS4's resources become exhausted.
- Gallatin Local Water Quality District (GLWQD): A Gallatin County public agency that conducts water quality sampling and community education.
- Montana State Extension Water Quality: A University Extension agency that provides water quality sampling and community education.
- Montana Water Environment Association (MWEA): A Montana organization that represents water, wastewater, and stormwater professionals. MWEA is a member of the Water Environment Federation (WEF), which has over 34,000 members worldwide. WEF is working to raise knowledge regarding stormwater infrastructure, policy, and science at the national level.
- Gallatin Watershed Council (GWC): An education-based nonprofit organization working to improve waterway health by implementing the Gallatin Watershed Restoration Plan.

1.8 Additional Regulatory Responsibilities

The following MPDES permits also fall under the purview of the MS4:

- General Permit for Stormwater Discharges Associated with Construction Activity (MTR100000): Construction projects that disturb one acre or more of land must obtain a stormwater discharge authorization from the MDEQ. The MS4 implements a Construction Management Program detailed in SWMP Section 5.0

- Multi-Sector General Permit for Discharges Associated with Industrial Activity (MTR000000): The MS4's Water Reclamation Facility (WRF) and Landfill obtain authorizations to discharge stormwater from their facilities. MS4 Staff assist WRF and Landfill personnel with required inspections, BMP development, training, reporting, and records keeping.
- General Permit for Construction Dewatering (MTG070000): The Water and Sewer Division completes main break repairs and preventative maintenance in high groundwater areas, both requiring dewatering activities. Pumped water is land applied whenever possible to avoid any potential impacts from this activity and the need for permit coverage.
- General Permit for Disinfected Water and Hydrostatic Testing (MTG770000): The Water and Sewer Division flow hydrants to flush the water distribution pipe network and test hydrants.

1.9 Annual Report

The MS4 submits an individual Annual Report Form, updated SWMP, and relevant documents to the MDEQ by March 1st each year.

1.10 Public Comments

The MS4 considers and responds to all public comment related to the SWMP. To facilitate, a public comment form exists on the MS4's website and is available year round. Also, the MS4 publically notices the SWMP after making annual updates in the Bozeman Daily Chronicle the second and third Sundays of March during each calendar year. Dates include:

- 2019: March 17th and 24th
- 2020: March 15th and 22nd

The MS4 received the following comments:

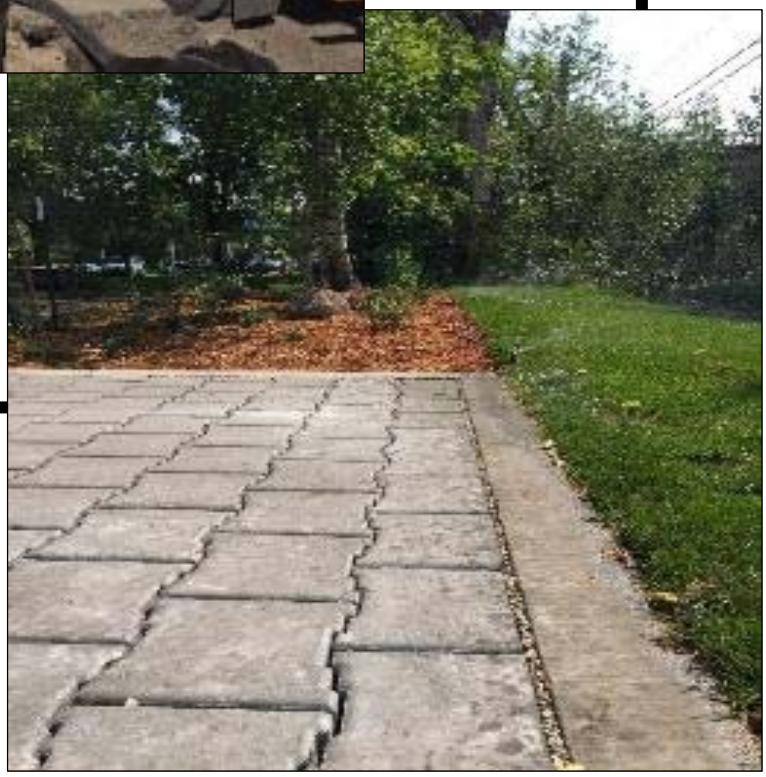
#	Date	Participant	Comment	MS4 Response
1	2019	Adopt-A-Drain Participant	I look at the City in an entirely different way now. Whenever I look at the street, I see the headwaters of a creek (In person feedback).	Noted comment and will request their participation in the 2020 Adopt-A-Drain Program.
2	7/23/2019	Adopt-A-Drain Participant	I cannot believe the debris-filled the whole bucket! You are right how much more aware I have become about the drains and my street surroundings. I even found a pair of swimming goggles near the drain, kind of weird and ironic, who was swimming in the drains!?".	Noted comment and will request their participation in the 2020 Adopt-A-Drain Program.
3	7/23/2019	Adopt-A-Drain Participant	Thank you, I will put the bucket on the front porch! And yes please share my email. And to add to the email...with this new Storm Drain awareness and understanding, I feel like I should be cleaning all the drains that I see that are filled with debris and to let others know how important it is to keep them free of debris. I have always been a big supporter of clean waterways and trying to do my part for the environment but actually being involved in a community program like Adopt A Drain makes it more real and more personal.	Noted comment and will request their participation in the 2020 Adopt-A-Drain Program.

			Thank you so much for being the architect of this great program!! One more note, the drain on the corner of 3rd and Short does look pretty congested inside not sure though.	
4	9/27/2019	Adopt-A-Drain Participant	Of the 563.7 pounds, 563.4 was construction debris!	Noted comment and will request their participation in the 2020 Adopt-A-Drain Program.
5	1/2/2020	Adopt-A-Drain Participant	Thank you for the update! Sorry I fell off the map. The last bit of debris that I removed, I accidentally threw away. I was amazed at how once you clean the drain there is not much that needs to be done until the Fall. Also the drain looked amazing after you guys cleaned the insides out. It is an amazing program! Thank you for doing it and keeping our drains clean. I look forward to doing it again this year.	Noted comment and will request their participation in the 2020 Adopt-A-Drain Program.
6	1/3/2020	Adopt-A-Drain Participant	Frank! Thanks so much for the update on how much we all saved from going down the drain! I still have a full bucket of debris; what should I do with it? And should I continue cleaning my drain? Bravo to you and the others for a great experiment!	Noted comment and will request their participation in the 2020 Adopt-A-Drain Program.
7	1/3/2020	Adopt-A-Drain Participant	My only feedback is that I forget to check/clean "my" drain. I'll create reminders in my calendar. I'll also create a reminder and post a photo and comment about my drain on NextDoor every now and then. What's your goal for 2020? Let's blow the lid off!!	Noted comment and will request their participation in the 2020 Adopt-A-Drain Program.
8	1/10/2020	Adopt-A-Drain Participant	Thanks for the update – that is a lot of debris. Our only problem is that the compostable bags are hard to make stay up and open in the buckets. We are glad that compostable bags are being used – I wonder if there is some kid of giant rubber band that could be put around the bag to hold it up.	Noted comment and will request their participation in the 2020 Adopt-A-Drain Program.

Graphic 1.10.1: Public comments

Section 2.0
Capital Project Program

Graphic 2.0.1: Stormwater treatment unit installation



Graphic 2.0.2: Permeable pavers installed at City Hall

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2.1 Introduction

The MS4's Capital Project Program works to:

- Increase stormwater system capacity
- Preserve the integrity of underground pipes and surface conveyances
- Replace failed or failing infrastructure assets
- Meet water quality requirements set by the Montana Department of Environmental Quality

SWMP Section 2.0 details the following components necessary to administer the MS4's Capital Project Program, including:

- Total Maximum Daily Load (TMDL) Action Plan
- Future Projects
- Ongoing or Completed Projects
- Pollutant Reduction Totals
- Performance Measures

2.2 Total Maximum Daily Load (TMDL) Action Plan

The MS4 allocates over $650,000 per year towards the design and construction of structural and treatment infrastructure projects.

From a structural standpoint, the MS4 replaces infrastructure with deficiencies, capacity limitations, and expired life cycles, focusing the majority of their work in the downtown core where miles of 100-year old vitrified clay pipes exist.

From a treatment standpoint, the MS4 implements specific projects to address 303(d) listed water quality impairments to the maximum extent practicable. For purposes of this permit term, the MS4 prioritizes the following waterways:

1. Bozeman Creek is the highest priority because of its total stormwater discharge points, known impairments, degraded state, and the fact that it is the only waterway with a non-zero MS4 Waste Load Allocation (WLA). According to the TMDL, Total Suspended Solids (TSS) contributions from the MS4 to Bozeman Creek require a 37% or 81 tons/year reduction.
2. Mandeville Creek is the second-highest priority waterway because of its total stormwater discharge points, known impairments, shared responsibilities between co-permittees, and its degraded state. The MS4 has previously made investments to reduce loads to Mandeville Creek and plans to continue pollution reduction efforts as this MS4 General Permit term progresses.
3. Three other impaired waterways exist that receive benefits from the MS4's broad programmatic efforts, such as community education, pollution event response, and construction site management. These waterways include the East Gallatin River, Bridger Creek, and Rocky Creek.

The MS4 targets pollutants of concern for its impaired waterbodies by taking the following project identification and development strategy:

1. Mitigate significant impacts through industry-standard structural treatment technologies, such as mechanical separation, confirmed to achieve 50% TSS removal through independent certification programs. This step allows the MS4 to triage the system, installing effective and maintainable treatment systems near stormwater discharge points for the MS4's large urban drainage areas currently lacking treatment before discharge.

2. Develop, implement, and maintain sustainable operation and education-based programs and initiatives, such as street sweeping, infrastructure cleaning, and community outreach, that target pollutants of concern.
3. Collect and analyze stormwater runoff, in-stream water quality, BMP effectiveness, and long-term monitoring data using an array of industry-standard gages and equipment to plan future investments and initiatives. This step allows the MS4 to monitor its pollutant reductions, impaired waterbody improvement, and investment and conduct program self-evaluation.
4. Enhance pollutant reductions using targeted projects, such as boulevard infiltration galleries, verified to achieve 100% TSS removal by capturing and infiltrating the water quality event. This step allows the MS4 to fine-tune the stormwater system to optimize treatment in larger urban watersheds and treat stormwater in smaller urban watersheds not suitable for larger projects.

2.3 Future Projects

The MS4 prepares a five-year Capital Improvement Plan (CIP) that outlines future infrastructure projects annually. The CIP process is open for public comment, approved by the City Commission, and incorporated into the applicable fiscal year's budget. The MS4 accounts for the following when preparing CIPs:

- Urban Waterway and Watershed Priority
- Development and Land Use
- Infrastructure Condition Analysis
- Programmatic Goals
- Available Budget
- Project Coordination

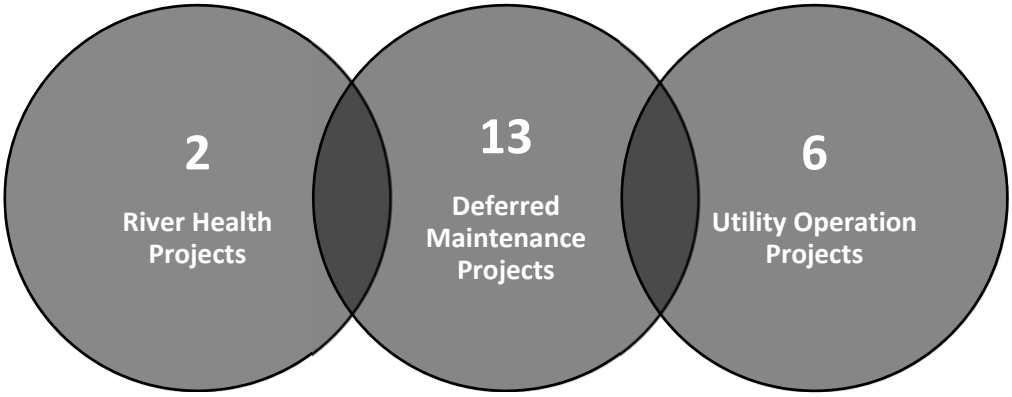
The MS4 maintains the following performance metrics to track Capital Project Program progress and identify future needs:

1. Pollutant Reduction Program: Comply with the MS4's stormwater permit and improve water quality by preventing the discharge of 91 tons of pollutants into rivers annually (Bozeman Creek: 81 tons, Mandeville Creek: 10 tons).
    - Benefit: Reduced permit risk, improved public safety, and a healthier environment
    - Driving Policy: Bronze Level of Service, approximately $200,000 per year
    - Risk: Permit requirements subject to change
    - Percent Complete:
        - 2017 (FY18): 25%
        - 2018 (FY19): 56%
        - 2019 (FY20): 65%
        - 2030 (FY31, estimated): 100%
2. Pipe Rehabilitation Program: Replace 13.9 miles of structurally deficient and undersized historical storm sewer infrastructure throughout the downtown core.
    - Benefit: Reduced urban flooding and improved public safety
    - Driving Policy: Bronze Level of Service, approximately $450,000 per year
    - Risk: Increasing construction costs
    - Percent Complete:
        - 2017 (FY18): 3%
        - 2018 (FT19): 4%
        - 2019 (FY20): 34%

- 2030 (FY31, estimated): 86%

3. Utility Operation Projects: Maintain 20% (+/-2.5%) of city-owned storm sewer assets annually. Totals include inlet maintenance, manhole maintenance, pipe maintenance, and pipe inspection.
   - Benefit: Reduced urban flooding, extended infrastructure lifecycles, and improved environmental health
   - Driving Policy: Bronze Level of Service
   - Risk: Low (adequate funding, rapid growth)
   - Percent Complete:
     - 2017 (FY18): 18.1%
     - 2018 (FY19): 21.6%
     - 2019 (FY20): 18.1%
     - 2030 (FY31, estimated): 14%

MS4 plans to complete the following projects, including:



Graphic 2.3.1: Future projects

1. Utility Operation Project - Stormwater Facility Plan Update
   - ID: STUO01
   - Year: FY20
   - Budget: $150,000
   - Description: The project includes hiring a contractor to update the City's Stormwater Facility Plan last revised in 2007. The City has made significant programmatic, operational, and administrative changes over the past ten years in response to evolving environmental regulations, growth, and aging infrastructure. An updated Stormwater Facility Plan will assist Staff in identifying high-priority infrastructure deficiencies, future needs, and determine the City's regulatory standing with stormwater permit regulations.
   - Alternatives Considered: Staff will continue implementing the recommendations provided in the 2007 Stormwater Facility Plan.
   - Advantages of Approval: An updated Stormwater Facility Plan provides Staff a framework, action plan, and third party professional oversights helping the City achieve its programmatic goals, which include complying with environmental regulations, improving waterway health, protecting public safety, and managing infrastructure.
   - Additional Operating Cost in the Future: None.
2. Deferred Maintenance Project – Downtown Trunk Line Rehabilitation (Phase 1)
   - ID: STDM01

- Year: FY20
- Budget: $400,000
- Description: The project includes designing and rehabilitating 2,000 feet of storm sewer pipe beneath the alley located between Main Street and Mendenhall Street, and beneath North Rouse from Main Street to East Villard Street. The current pipe consists of historical materials throughout its length, including brick, vitrified clay, and concrete. The pipe is over 100 years old, is in poor structural condition (contains 42 identified deficiencies), and conveys significant stormwater flows generated from a 330-acre urban drainage basin, making it a high priority for rehabilitation.
- Alternatives Considered: None. The pipe is a critical component of the City's public storm sewer network, and further deference will impact public safety and increase flood risk in the event of a failure. Further, internally managed spot repairs - which prolong a pipe's life – are infeasible due to the pipe's location, depth, condition, and size.
- Advantages of Approval: The project will ensure the pipe conveys stormwater as originally designed and intended. The project collaborates with the Montana Department of Transportation's (MDT) reconstruction of North Rouse Avenue. MDT will provide a cost-share commensurate with their contribution to the section of pipe within their right-of-way. Completion of FY20 conveyance projects will bring the City to 21% of its deferred maintenance goal set by the City Commission during the Stormwater Utility's development.
- Additional Operating Cost in the Future: Stormwater Personnel will complete maintenance of the pipe on a five-year reoccurring schedule, including flushing, vacuuming, and inspection.

3. Deferred Maintenance Project – Manley Ditch Rehabilitation

- ID: STDM02
- Year: FY20
- Budget: $100,000
- Description: The project includes designing and rehabilitating 1,500 feet of Manley Ditch located east of Manley Road. Ther ditch conveys stormwater generated from a 58-acre urban drainage basin. The ditch includes a vegetated swale that has experienced significant degradation, resulting in a nonfunctional conveyance and obstructed railroad-owned culvert crossing. Specific issues include sediment deposition, overgrown vegetation, an illegal bulkhead, and bank erosion.
- Alternatives Considered: None. The ditch is a critical component of the City's public storm sewer network, and further deference will impact public safety and further heighten ongoing flooding impacts. Also, the ditch's location, length, and tight grades make an internally managed repair infeasible.
- Advantages of Approval: The project will ensure the ditch conveys stormwater as originally designed and intended. Completion of FY20 conveyance projects will bring the City to 21% of its deferred maintenance goal set by the City Commission during the Stormwater Utility's development.

4. River Health Project – Downtown Mechanical Stormwater Treatment (Phase 3)

- ID: STRH01
- Year: FY21
- Budget: $300,000
- Description: Installation of two stormwater treatment units near the intersections of N. Rouse Ave. and E. Peach St., and N. Rouse Ave. and E. Tamarack St.

- Alternatives Considered: Staff has not identified an alternative treatment approach with comparable maintenance ease, construction footprint, or pollutant removal efficiency.
- Advantages of Approval: The units will collect over 20-tons of pollutants annually from 138-acres. They will improve public safety, Bozeman Creek's water quality, and DEQ permit standing.
- Additional Operating Cost in the Future: Staff will complete maintenance semi-annually using existing vacuuming equipment and drying beds. Debris will eventually be disposed at the landfill.

5. Deferred Maintenance Project – Downtown Trunk Line Rehabilitation (Phase 2)

   - ID: STDM03
   - Year: FY21
   - Budget: $350,000
   - Description: Rehabilitation of approximately 1,500 feet of 100-year-old brick storm sewer pipe beneath the alley located between E. Main St. and E. Mendenhall St.
   - Alternatives Considered: The infrastructure is a critical component of the City's storm sewer network. Delay will increase chances of collapse, road failure, flooding, and total replacement.
   - Advantages of Approval: This project is preventative and targets vulnerable infrastructure prone to failure. Completion will mitigate the risks and extend the asset's life cycle 50-75 years.
   - Additional Operating Cost in the Future: Stormwater Personnel will complete maintenance on a reoccurring schedule, including flushing, vacuuming, and inspection.

6. Utility Operation Project – Stormwater Utility Cost of Service and Rate Study

   - ID: STOP02
   - Year: FY21
   - Budget: $50,000
   - Description: Hiring a qualified consultant to complete a cost of service and rate study. Studies are a best practice for utility management and will guide future rate adjustments.
   - Alternatives Considered: Maintain existing rate structure and determine adjustments annually.
   - Advantages of Approval: The project will result in recommendations to ensure the City's service charges match the actual cost of utility operation.
   - Additional Operating Cost in the Future: None.

7. Utility Operation Project – Street Sweeper (#01)

   - ID: STOP05
   - Year: FY21
   - Budget: $200,000
   - Description: Replacement of a mechanical street sweeper leased in 2015. The sweeper has been in operation for six years, has 3,320 hours, and 24,000 miles.
   - Alternatives Considered: Use the existing street sweeper, resulting in increased downtime and maintenance. Industry guidance recommends replacing municipal sweepers every five years.
   - Advantages of Approval: Street sweeping protects air quality, improves waterways and DEQ permit standing, and reduces slip hazards.

- Additional Operating Cost in the Future: The Stormwater Division will fund operation and maintenance costs. The sweeper supplements the cleaning program led by the Streets Division.

8. River Health Project – Downtown Mechanical Stormwater Treatment (Phase 4)
   - ID: STRH02
   - Year: FY22
   - Budget: $250,000
   - Description: Installation of two stormwater treatment units near the intersections of S. Black Ave. and E. Cleveland St., and S. Bozeman Ave. and E. Cleveland St.
   - Alternatives Considered: Staff has not identified an alternative treatment approach with comparable maintenance ease, construction footprint, or pollutant removal efficiency.
   - Advantages of Approval: The units will collect over 27-tons of pollutants annually from 193-acres. They will improve public safety, Bozeman Creek's water quality, and DEQ permit standing.
   - Additional Operating Cost in the Future: Staff will complete maintenance semi-annually using existing vacuuming equipment and drying beds. Debris will eventually be disposed at the landfill.
9. Deferred Maintenance Project – Historic Pipe Replacement Program (FY22)
   - ID: STDM04
   - Year: FY22
   - Budget: $315,000
   - Description: Rehabilitation of 2,000 feet of 100-year-old vitrified clay storm sewer, which has exceeded its life cycle, does not meet capacity standards, and includes many structural failures.
   - Alternatives Considered: The infrastructure is a critical component of the City's storm sewer network. Delay will increase chances of collapse, road failure, and flooding.
   - Advantages of Approval: This project is preventative and targets pipes prone to failure and surcharging. Rehabilitation will reduce risks by addressing structural and capacity deficiencies.
   - Additional Operating Cost in the Future: Stormwater Personnel will complete maintenance on a reoccurring schedule, including flushing, vacuuming, and inspection.
10. Deferred Maintenance – Annual Unplanned Pipe Rehabilitation and Drainage Projects
    - ID: STDM05
    - Year: FY22
    - Budget: $45,000
    - Description: An annual program that provides funding for the design and construction of unplanned pipe, drainage, and treatment projects.
    - Alternatives Considered: Use of internal crews and equipment to complete work. Staff determined the workload required would reduce capacity applied towards critical services.
    - Advantages of Approval: Unplanned funds allows staff to be responsive to essential needs, increasing customer service, improving system efficiency, and reducing City liability.
    - Additional Operating Cost in the Future: Stormwater Personnel will complete the maintenance of rehabilitated, repaired, or new infrastructure concurrently with existing public assets.
11. Operation Support Project – Sediment Disposal Facility Asphalt Repair

- ID: STOS01
- Year: FY22
- Budget: $50,000
- Description: Preventative maintenance of the asphalt surface located at the Sediment Disposal Facility used for stormwater waste disposal generated from infrastructure operation.
- Alternatives Considered: Prolong asphalt maintenance risking degradation of drivable surfaces and increased deferred expense.
- Advantages of Approval: The project will ensure the facility remains operational and safe.
- Additional Operating Cost in the Future: None

12. Operation Support Project – Administrative Vehicle (#01)

- ID: STOP03
- Year: FY22
- Budget: $35,000
- Description: Replacement of staff's 2001 Dodge Dakota. The truck has been in operation for 22 years and served numerous divisions. Significant maintenance and safety issues exist.
- Alternatives Considered: The Stormwater Division has four administrative employees that share two dedicated vehicles. Not replacing would result in impacts to daily operations of the Division.
- Advantages of Approval: Provides for a reliable and safe vehicle for staff to complete daily activities, such as pollution mitigation, equipment transport, flood response, and field inspections.
- Additional Operating Cost in the Future: The Stormwater Division will fund operation and maintenance costs.

13. Deferred Maintenance Project – North 9th Avenue Ditch Rehabilitation

- ID: STDM06
- Year: FY23
- Budget: $125,000
- Description: Rehabilitation of 900 feet of conveyance ditch located near N. 9th Ave. from W. Villard St. to W. Peach St., which has sediment buildup, overgrown vegetation, and bank erosion
- Alternatives Considered: The infrastructure is a critical component of the City's storm sewer network. Delay will result in an increased chance of adjacent property flooding.
- Advantages of Approval: The targeted ditch is increasingly prone to backups and flooding. Rehabilitation will reduce risks by addressing structural and capacity deficiencies.
- Additional Operating Cost in the Future: Stormwater Personnel will complete maintenance on a reoccurring schedule, including inspection and clearing.

14. Deferred Maintenance Project – Historic Pipe Replacement Program (FY23)

- ID: STDM07
- Year: FY23
- Budget: $550,000
- Description: Rehabilitation of 3,000 feet of 100-year-old vitrified clay storm sewer, which has exceeded its life cycle, does not meet capacity standards, and includes many structural failures.
- Alternatives Considered: The infrastructure is a critical component of the City's storm sewer network. Delay will increase chances of collapse, road failure, and flooding.

- Advantages of Approval: This project is preventative and targets pipes prone to failure and surcharging. Rehabilitation will reduce risks by addressing structural and capacity deficiencies.
- Additional Operating Cost in the Future: Stormwater Personnel will complete maintenance on a reoccurring schedule, including flushing, vacuuming, and inspection.

15. Deferred Maintenance – Annual Unplanned Pipe Rehabilitation and Drainage Projects

- ID: STDM08
- Year: FY23
- Budget: $45,000
- Description: An annual program that provides funding for the design and construction of various unplanned pipe, drainage, and treatment projects.
- Alternatives Considered: Use of internal crews and equipment to complete work. Staff determined the workload required would reduce capacity applied towards critical services.
- Advantages of Approval: Unplanned funds allows Staff to be responsive to essential needs, increasing customer service, improving system efficiency, and reducing City liability.
- Additional Operating Cost in the Future: Stormwater Personnel will complete the maintenance of rehabilitated, repaired, or new infrastructure concurrently with existing public assets.

16. Deferred Maintenance Project – Middle Creek Ditch Rehabilitation

- ID: STDM09
- Year: FY24
- Budget: $175,000
- Description: Rehabilitation of 1,500 feet of conveyance ditch located near N. 15th Ave. from W. Main St. to W. Beall St., which has sediment buildup, overgrown vegetation, and bank erosion
- Alternatives Considered: The infrastructure is a critical component of the City's storm sewer network. Delay will result in an increased chance of adjacent property flooding.
- Advantages of Approval: The targeted ditch is increasingly prone to backups and flooding. Rehabilitation will reduce risks by addressing structural and capacity deficiencies.
- Additional Operating Cost in the Future: Stormwater Personnel will complete maintenance on a reoccurring schedule, including inspection and clearing.

17. Deferred Maintenance Project – Historic Pipe Replacement Program (FY24)

- ID: STDM10
- Year: FY24
- Budget: $520,000
- Description: Rehabilitation of 3,000 feet of 100-year-old vitrified clay storm sewer, which has exceeded its life cycle, does not meet capacity standards, and includes many structural failures.
- Alternatives Considered: The infrastructure is a critical component of the City's storm sewer network. Delay will increase chances of collapse, road failure, and flooding.
- Advantages of Approval: This project is preventative and targets pipes prone to failure and surcharging. Rehabilitation will reduce risks by addressing structural and capacity deficiencies.
- Additional Operating Cost in the Future: Stormwater Personnel will complete maintenance on a reoccurring schedule, including flushing, vacuuming, and inspection.

18. Deferred Maintenance – Annual Unplanned Pipe Rehabilitation and Drainage Projects

- ID: STDM11
- Year: FY24
- Budget: $45,000
- Description: An annual program that provides funding for the design and construction of various unplanned pipe, drainage, and treatment projects.
- Alternatives Considered: Use of internal crews and equipment to complete work. Staff determined the workload required would reduce capacity applied towards critical services.
- Advantages of Approval: Unplanned funds allows Staff to be responsive to essential needs, increasing customer service, improving system efficiency, and reducing City liability.
- Additional Operating Cost in the Future: Stormwater Personnel will complete the maintenance of rehabilitated, repaired, or new infrastructure concurrently with existing public assets.

19. Deferred Maintenance Project – Historic Pipe Replacement Program (FY25)

- ID: STDM11
- Year: FY25
- Budget: $455,000
- Description: Rehabilitation of 2,400 feet of 100-year-old vitrified clay storm sewer, which has exceeded its life cycle, does not meet capacity standards, and includes many structural failures.
- Alternatives Considered: The infrastructure is a critical component of the City's storm sewer network. Delay will increase chances of collapse, road failure, and flooding.
- Advantages of Approval: This project is preventative and targets pipes prone to failure and surcharging. Rehabilitation will reduce risks by addressing structural and capacity deficiencies.
- Additional Operating Cost in the Future: Stormwater Personnel will complete maintenance on a reoccurring schedule, including flushing, vacuuming, and inspection.

20. Deferred Maintenance – Annual Unplanned Pipe Rehabilitation and Drainage Projects

- ID: STDM11
- Year: FY25
- Budget: $45,000
- Description: An annual program that provides funding for the design and construction of various unplanned pipe, drainage, and treatment projects.
- Alternatives Considered: Use of internal crews and equipment to complete work. Staff determined the workload required would reduce capacity applied towards critical services.
- Advantages of Approval: Unplanned funds allows Staff to be responsive to essential needs, increasing customer service, improving system efficiency, and reducing City liability.
- Additional Operating Cost in the Future: Stormwater Personnel will complete the maintenance of rehabilitated, repaired, or new infrastructure concurrently with existing public assets.

21. Operation Support Project – Pipe Inspection Van (#01)

- ID: STOP04
- Year: FY25
- Budget: $250,000
- Description: Replacement of the pipe inspection van purchased in 2001 and refurbished in 2015. The vehicle's chassis is heavily worn and the onboard computer system is aged.

- Alternatives Considered: Continue using the existing vehicle, which could result in downtime and increasingly costly maintenance.
- Advantages of Approval: The vehicle facilitates the City's pipe inspection program, which identifies maintenance needs, locates structural deficiencies, and detects illegal connections.
- Additional Operating Cost in the Future: The Stormwater Division will fund operation and maintenance costs.

22. Operation Support Project – Administrative Vehicle (#02)

- ID: n/a
- Year: Unscheduled
- Budget: $35,000
- Description: Replacement of staff's 2019 Dodge Ram.
- Alternatives Considered: The Stormwater Division has four administrative employees that share two dedicated vehicles. Not replacing would result in impacts to daily operations of the Division.
- Advantages of Approval: Provides for a reliable and safe vehicle for staff to complete daily activities, such as pollution mitigation, equipment transport, flood response, and field inspections.
- Additional Operating Cost in the Future: The Stormwater Division will fund operation and maintenance costs.

23. Operation Support Project – Service Vehicle (#01)

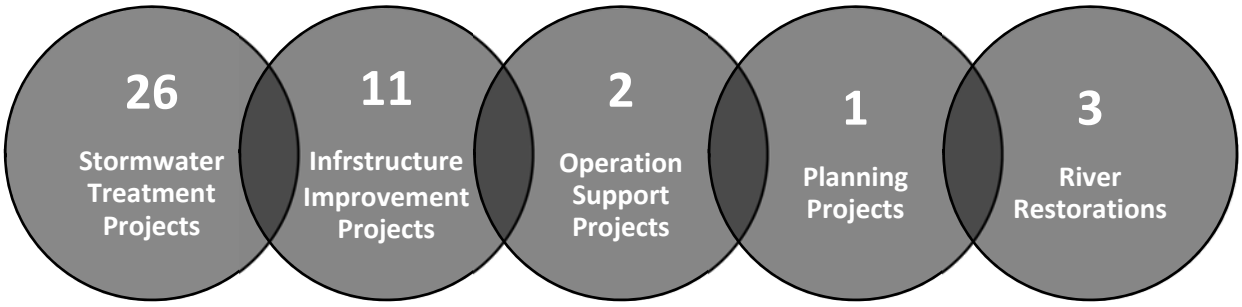
- ID: n/a
- Year: Unscheduled
- Budget: $50,000
- Description: Replacement of staff's 2017 Ford F350 service vehicle.
- Alternatives Considered: The Stormwater Division has three operations employees that share one dedicated service vehicle. Not replacing would result in negative impacts to daily operations.
- Advantages of Approval: Provides for a reliable and safe vehicle for staff to complete daily activities, such as infrastructure inspection, repair, and replacement.
- Additional Operating Cost in the Future: The Stormwater Division will fund operation and maintenance costs.

24. Operation Support Project – Vacuum and Jetting Truck (#01)

- ID: n/a
- Year: Unscheduled
- Budget: $520,000
- Description: Replacement of the vacuum and jetting truck leased in 2015.
- Alternatives Considered: Continue using the existing vehicle, which could result in downtime and increasingly costly maintenance.
- Advantages of Approval: The vehicle performs infrastructure maintenance, pollution event cleanup, and vacuum excavation for pipe repairs.
- Additional Operating Cost in the Future: The Stormwater Division will fund operation and maintenance costs.

2.4 Ongoing or Completed Projects

The MS4 has or is in the process of completing the following projects:



Graphic 2.4.1: Ongoing or completed projects

1. Stormwater Treatment Project: Mechanical Separation Unit (Westridge Dr.)
   - Purpose: Reduced pollutant loading
   - Type: Mechanical separation unit
   - Expected Treatment Efficiency: 50% TSS Reduction
   - Treatment Area: ≈28 Acres
   - Discharge Location: Matthew Bird Creek (a tributary of Bozeman Creek)
   - Date of Completion: Planned for summer of 2020
   - Co-Benefits: Progress towards WLA
2. Stormwater Treatment and Infrastructure Improvement Project: N. Rouse Ave. Stormwater Upgrades (Main St. to Oak St., Phase 2, MDT)
   - Purpose: Flood control, reduced pollutant loading
   - Type: Inlets, manholes, pipes, and five mechanical treatment units
   - Expected Treatment Efficiency: 50% TSS Reduction
   - Treatment Area: ≈94 Acres
   - Discharge Location: Bozeman Creek
   - Date of Completion: Planned for summer of 2020
   - Co-Benefits: Progress towards WLA
3. Operation Support Project: Administrative Vehicle Purchase
   - Purpose: Transportation for Administrative Staff
   - Type: 2019 Dodge Ram
   - Expected Treatment Efficiency: n/a
   - Treatment Area: n/a
   - Discharge Location: n/a
   - Date of Completion: Spring 2019
   - Co-Benefits: n/a
4. Infrastructure Replacement: BMX Park Storm Improvements (E. Peach St. and N. 4th Ave.)
   - Purpose: Flood control
   - Type: 244’ of 30” RCP Pipe, three 72” manhole structures
   - Expected Treatment Efficiency: n/a
   - Treatment Area: n/a
   - Discharge Location: East Gallatin River
   - Date of Completion: Spring 2019

- Co-Benefits: n/a

5. Stormwater Treatment Project: Mechanical Separation Unit (S. Church Ave. and E. Main St.)
   - Purpose: Reduced pollutant loading
   - Type: Contech CDS (6' Diameter)
   - Expected Treatment Efficiency: 50% TSS Reduction
   - Treatment Area: ≈35 Acres
   - Discharge Location: Bozeman Creek
   - Date of Completion: Fall 2019
   - Co-Benefits: Progress towards WLA
6. Stormwater Treatment Project: Mechanical Separation Unit (N. Black Ave. and W. Main St.)
   - Purpose: Reduce sediment loads
   - Type: Contech CDS (6' Diameter)
   - Expected Treatment Efficiency: 50% TSS Reduction
   - Treatment Area: ≈28 Acres
   - Discharge Location: Bozeman Creek
   - Date of Completion: Spring 2019
   - Co-Benefits: Progress towards WLA
7. Stormwater Treatment Project: Mechanical Separation Unit (N. Bozeman Ave. and W. Main St.)
   - Purpose: Reduce sediment loads
   - Type: Contech CDS (6' Diameter)
   - Expected Treatment Efficiency: 50% TSS Reduction
   - Treatment Area: ≈29 Acres
   - Discharge Location: Bozeman Creek
   - Date of Completion: Spring 2019
   - Co-Benefits: Progress towards WLA
8. Stormwater Treatment and Infrastructure Improvement Project: N. Rouse Ave. Stormwater Upgrades (Oak St. to Story Mill Rd., Phase 1, MDT Project)
   - Purpose: Flood control, reduced pollutant loading
   - Type: Inlets, manholes, pipes, and three mechanical treatment units
   - Expected Treatment Efficiency: 50% TSS
   - Treatment Area: n/a
   - Discharge Location: Bozeman Creek
   - Date of Completion: Spring 2019
   - Co-Benefits: Flood control and water quality
9. Stormwater Treatment Project: Pilot Boulevard Infiltration Structure (E. Mason St. and S. Tracy Ave.)
   - Purpose: Reduce sediment loads and flood mitigation
   - Type: Rain Garden
   - Expected Treatment Efficiency: 100% TSS Reduction
   - Treatment Area: ≈2 Acres
   - Discharge Location: Matthew Bird Creek (a tributary of Bozeman Creek)
   - Date of Completion: Summer 2019
   - Co-Benefits: Progress towards WLA and peak flow reduction

10. Stormwater Treatment Project: Mechanical Separation Unit (S. 11th Ave. and College St.)

    - Purpose: Reduce sediment loads
    - Type: Contech CDS (8' Diameter)
    - Expected Treatment Efficiency: 50% TSS Reduction
    - Treatment Area: ≈60 Acres
    - Discharge Location: Mandeville Creek
    - Date of Completion: Summer 2019
    - Co-Benefits: n/a

11. Infrastructure Improvement: S. Tracy Ave. Stormwater Upgrades (E. College St. to W. Babcock St.)

    - Purpose: Flood control
    - Type: Inlets, utility holes, and 2,850 ft. of pipe
    - Expected Treatment Efficiency: n/a
    - Treatment Area: n/a
    - Discharge Location: Bozeman Creek
    - Date of Completion: Summer 2018 and 2019
    - Co-Benefits: n/a

12. Stormwater Treatment Project: Mechanical Separation Unit (N. 3rd Ave. and W. Main St.)

    - Purpose: Reduce sediment load to Bozeman Creek
    - Type: Contech CDS (6' *Diameter*)
    - Expected Treatment Efficiency: 50% TSS Reduction
    - Treatment Area: ≈94 Acres
    - Discharge Location: Bozeman Creek
    - Date of Completion: Spring 2018
    - Co-Benefits: Progress towards WLA

13. Stormwater Treatment Project: Mechanical Separation Unit (N. Grand Ave. and W. Main St.)

    - Purpose: Reduce sediment load to Bozeman Creek
    - Type: Contech CDS (6' *Diameter*)
    - Expected Treatment Efficiency: 50% TSS Reduction
    - Treatment Area: ≈58 Acres
    - Discharge Location: Bozeman Creek
    - Date of Completion: Spring 2018
    - Co-Benefits: Progress towards WLA

14. Stormwater Treatment Project: Mechanical Separation Unit (N. Tracy Ave. and W. Main St.)

    - Purpose: Reduce sediment load to Bozeman Creek
    - Type: Contech CDS (6' *Diameter*)
    - Expected Treatment Efficiency: 50% TSS Reduction
    - Treatment Area: ≈32 Acres
    - Discharge Location: Bozeman Creek
    - Date of Completion: Spring 2018
    - Co-Benefits: Progress towards WLA

15. Stormwater Treatment Project: Permeable Streetscape Project (N. 7th Ave. and W. Peach St.)

    - Purpose: Pilot permeable paver use

- Type: Basalite Pavers
- Expected Treatment Efficiency: 100% TSS Reduction
- Treatment Area: .1 Acres
- Discharge Location: East Gallatin
- Date of Completion: Spring 2018
- Co-Benefits: Flood control and water quality

16. Infrastructure Replacement: Baxter Lane Stormwater Upgrades

- Purpose: Improve drainage for 7th and Baxter
- Type: Inlets, manholes, and mains
- Expected Treatment Efficiency: n/a
- Treatment Area: n/a
- Discharge Location: Mandeville Creek
- Date of Completion: Summer 2018
- Co-Benefits: Flood control and water quality

17. Planning Project: Bozeman Creek Stream Gage Installation

- Purpose: Data collection
- Type: DNRC Stream Gage
- Expected Treatment Efficiency: n/a
- Treatment Area: n/a
- Discharge Location: n/a
- Date of Completion: Summer 2018
- Co-Benefits: Includes port for sediment monitoring device

18. Infrastructure Replacement: East Olive Street Stormwater Upgrades

- Purpose: Improve drainage for East Olive Street
- Type: Inlets, manholes, and mains
- Expected Treatment Efficiency: n/a
- Treatment Area: n/a
- Discharge Location: Bozeman Creek
- Date of Completion: Fall 2017
- Co-Benefits: Flood control and water quality

19. Treatment Project: City Hall Patio Permeable Paver Project

- Purpose: LID/Green infrastructure pilot project and community education
- Type: Pave Drain Permeable Pavers
- Expected Treatment Efficiency: 100% TSS Reduction
- Treatment Area: ≈1,000 square feet
- Discharge Location: Bozeman Creek
- Date of Completion: Summer 2017
- Co-Benefits: Progress towards WLA

20. Infrastructure Replacement: Inlet Replacements

- Purpose: Reduce sediment to Bozeman Creek and flood control
- Type: Standard inlet with 9” sump
- Expected Treatment Efficiency: Unknown
- Treatment Area: 23 inlets

- Discharge Location: Bozeman Creek
- Date of Completion: Fall 2017
- Co-Benefits: Progress towards WLA

21. Infrastructure Replacement: Pipe Replacements (S. Black and S. Bozeman)

- Purpose: Flood control
- Type: 15" SDR
- Expected Treatment Efficiency: n/a
- Treatment Area: 600'
- Discharge Location: Bozeman Creek
- Date of Completion: Fall 2017
- Co-Benefits: n/a

22. Treatment Project: Mechanical Separation Unit Installation – N. Rouse and E. Griffin

- Purpose: Reduce sediment load to Bozeman Creek
- Type: Contech CDS (*6' Diameter*)
- Expected Treatment Efficiency: 80% TSS Reduction
- Treatment Area: ≈ 14 Acres
- Discharge Location: Bozeman Creek
- Date of Completion: Fall 2017
- Co-Benefits: Progress towards WLA

23. Treatment Project: Mechanical Separation Unit Installation - N. Rouse and Bridger Center

- Purpose: Reduce sediment load to Bozeman Creek
- Type: Contech CDS (*5' Diameter*)
- Expected Treatment Efficiency: 80% TSS Reduction
- Treatment Area: ≈12 Acres
- Discharge Location: Bozeman Creek
- Date of Completion: Fall 2017
- Co-Benefits: Progress towards WLA

24. Treatment Project: Mechanical Separation Unit Installation - S. Rouse and E. Olive

- Purpose: Reduce sediment load to Bozeman Creek
- Type: Contech CDS (*5' Diameter*)
- Expected Treatment Efficiency: 80% TSS Reduction
- Treatment Area: ≈9 Acres
- Discharge Location: Bozeman Creek
- Date of Completion: Fall 2017
- Co-Benefits: Progress towards WLA

25. Treatment Project: Mechanical Separation Unit Installation – Perkins and E. Peach

- Purpose: Reduce sediment load to Bozeman Creek
- Type: Contech CDS (*4' Diameter*)
- Expected Treatment Efficiency: 80% TSS Reduction
- Treatment Area: ≈ 22 Acres
- Discharge Location: Bozeman Creek
- Date of Completion: Fall 2017
- Co-Benefits: Progress towards WLA

26. Operations Project: Stormwater Operations Disposal Facility

- Purpose: Sediment dewatering and storage
- Type: Asphalt pad with ecology block bays
- Expected Treatment Efficiency: n/a
- Treatment Area: n/a
- Discharge Location: Lined wastewater pond
- Date of Completion: Fall 2017
- Co-Benefits: Facilitates pollutant reduction totals

27. Treatment Project: Mechanical Separation Unit Installation - S. Rouse and E. Lincoln

- Purpose: Reduce sediment load to Bozeman Creek
- Type: Contech CDS (*5' Diameter*)
- Expected Treatment Efficiency: 80% TSS Reduction
- Treatment Area: ≈32 Acres
- Discharge Location: Bozeman Creek
- Date of Completion: Fall 2016
- Co-Benefits: Progress towards WLA

28. Treatment Project: Mechanical Separation Unit Installation - N. 11th and W. Lamme

- Purpose: Reduce sediment load to Mandeville Creek
- Type: Contech CDS (*4' Diameter*)
- Expected Treatment Efficiency: 80% TSS Reduction
- Treatment Area: ≈7 Acres
- Discharge Location: Mandeville Creek
- Date of Completion: Fall 2016
- Co-Benefits: Located adjacent to High School and includes educational signage

29. Treatment Project: Mechanical Separation Unit, Underground Infiltration Basin, Wash Pad, and Paving Project – Shops Complex

- Purpose: Reduce sediment load to Bozeman Creek
- Type: Contech CDS (*4' Diameter*), ADS StormTech, and Inlet Sumps
- Expected Treatment Efficiency: 80% TSS Reduction for Mechanical Separation Unit and 100% for Underground Infiltration Basin
- Treatment Area: ≈2 Acres
- Discharge Location: Bozeman Creek
- Date of Completion: Fall 2016
- Co-Benefits: Progress towards WLA

30. Treatment Project: Mechanical Separation Unit Installation – N. Wallace and E. Tamarack

- Purpose: Reduce sediment load to Bozeman Creek
- Type: Contech CDS (8' *Diameter*)
- Expected Treatment Efficiency: 80% TSS
- Treatment Area: ≈100 Acres
- Discharge Location: Bozeman Creek
- Date of Completion: November 2016
- Co-Benefits: Progress towards WLA

31. Treatment Project: Underground Infiltration Basin – N. 7th and Baxter

- Purpose: Reduce localized flooding; reduce sediment load to Mandeville Creek
- Type: Perforated gravity main embedded in aggregate for storage
- Expected Treatment Efficiency: 100% TSS
- Treatment Area: ≈9 Acres
- Discharge Location: Mandeville Creek
- Date of Completion: Summer 2016
- Co-Benefits: Joint water conservation and stormwater LID pilot project

32. Treatment Project: Underground Infiltration Basin – Plum and Avocado

- Purpose: Reduce localized flooding; reduce sediment load to East Gallatin;
- Type: ADS StormTech
- Expected Treatment Efficiency: 100% TSS
- Treatment Area: ≈14 Acres
- Discharge Location: Subsurface
- Date of Completion: Fall 2016
- Co-Benefits: Resolved localized flooding issue

33. River Restoration: Backwater Slough – Story Mill Park

- Purpose: Reduce sediment load in Bozeman Creek
- Type: Constructed wetland
- Expected Treatment Efficiency: 100% TSS
- Treatment Area: Entire Bozeman Creek Watershed
- Discharge Location: Bozeman Creek
- Date of Completion: Summer 2015
- Co-Benefits: Nutrient uptake, flood mitigation, and wetland restoration

34. River Restoration: Bozeman Creek Meander Construction – Bogert Park

- Purpose: Stream restoration; improve streamside vegetative cover; reduce sediment load due to streambank erosion; flood control
- Type: Excavated meander and pool addition; inset floodplain construction
- Expected Treatment Efficiency: Unknown
- Treatment Area: Entire Bozeman Creek Watershed
- Discharge Location: Bozeman Creek
- Date of Completion: Spring 2017
- Co-Benefits: Education, fish habitat, stream bank stabilization, and flood control

35. River Restoration: Meander the Mandeville Construction Phase 1 – Bozeman High School

- Purpose: Stream restoration; improve streamside vegetative cover; flood control
- Type: Construction of meanders, riffles, and pools
- Expected Treatment Efficiency: Unknown
- Treatment Area: Entire Mandeville Creek Watershed
- Discharge Location: Mandeville Creek
- Date of Completion: 2016
- Co-Benefits: Education, fish habitat, stream bank stabilization, and flood control

36. Treatment Project: LID Infiltration Galleries – University Field House

- Purpose: Reduce sediment load to Mandeville Creek
- Type: LID Infiltration Galleries

- Expected Treatment Efficiency: 100% TSS Reduction
- Treatment Area: 2.4 Acres
- Discharge Location: Mandeville Creek
- Date of Completion: 2016

37. Treatment Project: Mechanical Separation Unit Installation – University Field House

    - Purpose: Reduce sediment load to Mandeville Creek
    - Type: Hydro International Downstream Defender and Sediment Separator
    - Expected Treatment Efficiency: 80% TSS removal
    - Treatment Area: 3 Acres
    - Discharge Location: Mandeville Creek
    - Date of Completion: Fall 2015

38. Treatment Project: Underground Infiltration – Jabs and Wilson Halls

    - Purpose: Reduce sediment load to Mandeville Creek
    - Type: Underground Infiltration Gallery
    - Expected Treatment Efficiency: 100% TSS Reduction
    - Treatment Area: 3.9 Acres
    - Discharge Location: Subsurface
    - Date of Completion: 2016

39. Infrastructure Replacement: Gravity Main Install – 15th and Babcock

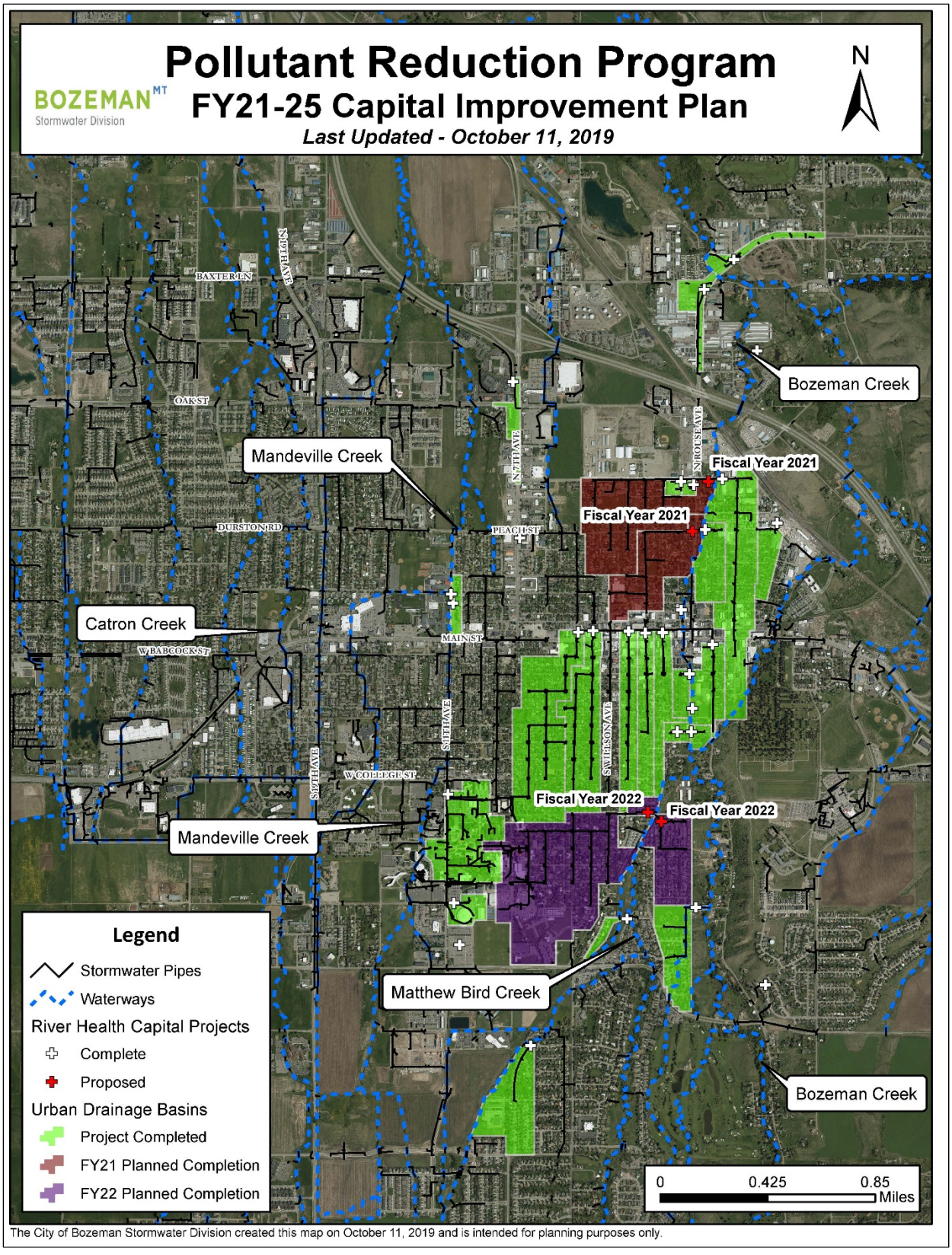
    - Purpose: Eliminate localized flooding issue
    - Type: Construction of underground stormwater main
    - Expected Treatment Efficiency: None
    - Treatment Area: None
    - Discharge Location: Mandeville Creek
    - Date of Completion: Fall 2015

40. Infrastructure Replacement: Wallace Street Reconstruction and Stormwater System Improvements

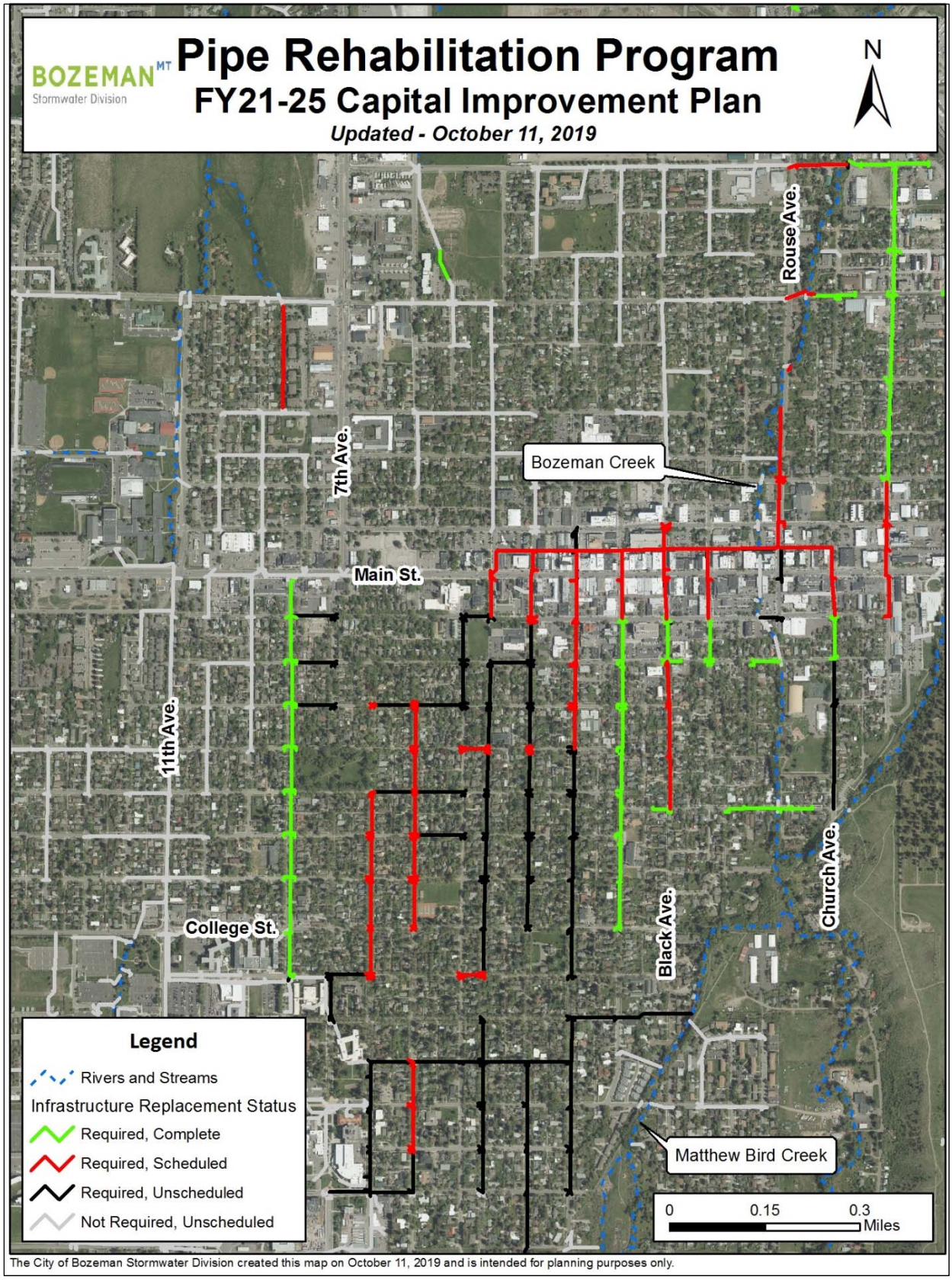
    - Purpose: Eliminate localized flooding issue and provide treatment
    - Type: Construction of 3,000 feet of underground stormwater mains and new inlets
    - Expected Treatment Efficiency: None
    - Treatment Area: None
    - Discharge Location: Bozeman Creek
    - Date of Completion: 2016

41. Infrastructure Replacement: Story Street Reconstruction and Stormwater System Improvements

    - Purpose: Eliminate localized flooding issue and provide treatment
    - Type: Construction of underground stormwater mains, new inlets, and oil/sand separators
    - Expected Treatment Efficiency: Unknown
    - Treatment Area: 10 Acres
    - Discharge Location: Bozeman Creek
    - Date of Completion: 2015



Graphic 2.4.2: Planned and complete stormwater projects



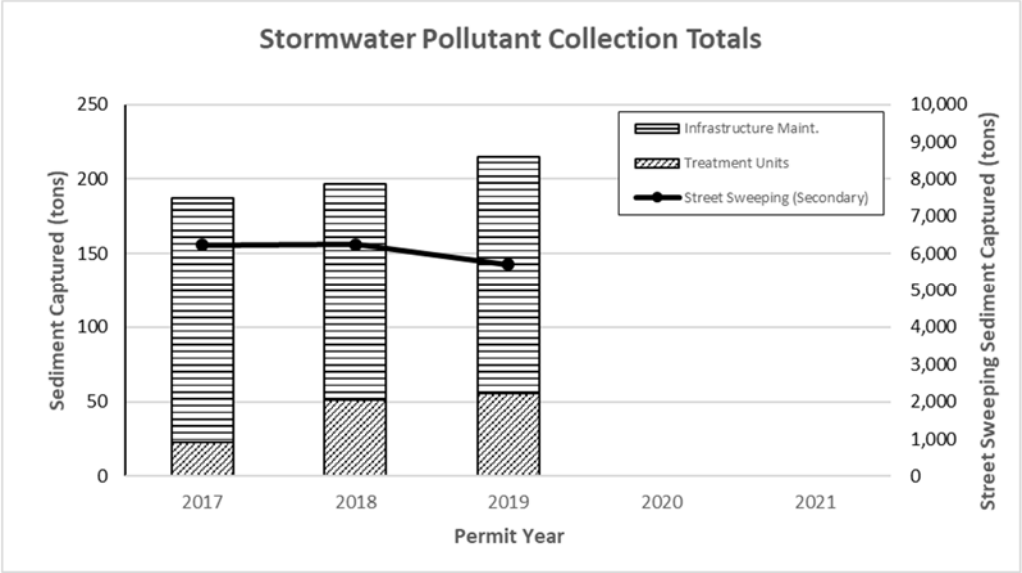
Graphic 2.4.3: Planned and complete stormwater projects

2.5 Pollutant Reduction Totals

The MS4 tracks pollutant reduction totals using a variety of data tracking mechanisms, including:

- Total Suspended Solids (Sediment)
  - Treatment Unit Maintenance: The MS4 calculates tonnage totals by measuring the depth of sediment within each unit before cleaning. The MS4 subtracts a top of sediment depth measurement from a total depth measurement, calculates a volume of sediment (cubic feet) using dimension information for each unit, and converts the volume to tons by using an assumed sand weight ratio of .056 tons = 1 cubic foot of sand.
    - 2017: 22.6 Tons
      - Bozeman Creek Watershed: 16.3 Tons
      - Mandeville Creek Watershed: 5.0 Tons
      - East Gallatin: 1.3 Tons
    - 2018: 51.0 Tons
      - Bozeman Creek Watershed: 45.7 Tons
      - Mandeville Creek Watershed: 1.0 Tons
      - East Gallatin: 4.3 Tons
    - 2019: 55.3 Tons
      - Bozeman Creek Watershed: 44.8 Tons
      - Mandeville Creek Watershed: 5.8 Tons
      - East Gallatin: 4.7 Tons
  - Infrastructure Maintenance: The MS4 calculates tonnage totals by calculating the depth of sediment vacuumed out of manholes and inlets before cleaning. The MS4 multiplies the area of each assets sump by an assumed 1/2 full depth measurement, multiplies the volume by the total assets maintained for that year, and converts the volume to tons by using an assumed sand weight ratio of .056 tons = 1 cubic foot.
    - 2017: 164.7 Tons
      - City: 117.7 Tons
      - MSU Campus: 46.9 Tons
    - 2018: 145.6 Tons
      - City: 99.3 Tons
      - MSU Campus: 46.3 Tons
    - 2019: 159.4 Tons
      - City: 111.7 Tons
      - MSU Campus: 50.3 Tons
  - Street Sweeping: The MS4 calculates tonnage totals for year-round, spring cleanup, and fall cleanup street sweeping operations. The Streets Division tracks cubic yard totals for each of the activities, which is then stored in Cityworks and reported. The MS4 converts yards to tons using an assumed weight ratio of 1.5 tons = 1 cubic yard of sand for reoccurring and spring street sweeping and converts yards to tons using an assumed weight ratio of .18 tons = 1 cubic yard of leaves for fall street sweeping.

- 2017: 6,232.0 Tons
    - City Citywide: 6,108.0 Tons
    - MSU Campus: 124.0 Tons
- 2018: 6,246.0 Tons
    - City Citywide: 6,022.0 Tons
    - MSU Campus: 224.0 Tons
- 2019: 5,708.0 Tons
    - City Citywide: 5,501.7 Tons
    - MSU Campus: 206.3 Tons



Graphic 2.5.1: Stormwater pollutant collection totals chart

2.6 Performance Measures

The MS4 utilizes performance measures to evaluate programmatic strategies with the goal of optimizing limited resources, increasing efficiencies, and balancing annual workloads.

1. Stream Health Improvement: Final Grade generated by the MS4 that provides a consistent and communicable method for tracking stream health improvement and permit compliance risk. The MS4's target level of service is to facilitate an upward trend annually, which is calculated using the methods described in SWMP Section 8.0. Results include:
    - 2018: D Grade (60.5%)
    - 2019: F Grade (54.0%)
2. Community Safety and Urban Flood Risk: Tracking mechanism utilized by the MS4 that provides a consistent and communicable method for tracking community safety and urban flood risk. The MS4's target level of service is to have zero insurance claims filed annually as a result of public storm sewer deficiencies.
    - 2017: 0 Claims Filed
    - 2018: 0 Claims Filed
    - 2019: 0 Claims Filed

Section 3.0

Public Education Program

Graphic 3.0.1: Construction field academy

Graphic 3.0.2: Dog waste station with educational signage

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3.1 Introduction

The MS4 strives to improve waterway health, protect public safety, and comply with its MS4 Permit through the education of the public by:

- Passively engaging residents through the consistent supply of educational information
- Actively engaging residents, providing them tools to take direct action

SWMP Section 3.0 details the following components necessary to administer the MS4's Public Education Program, including:

- Protocol
- Key Audiences
- Ongoing Initiatives
- Future Opportunities

3.2 Protocol

The MS4 educates audiences on stormwater-related issues to reduce the public's contribution of pollutants to waterbodies using the following strategies:

1. Passive Engagement (Education): Creation and distribution of educational messages, targeting pollutant-generating activities and behaviors distributed via the following platforms:
   - Website
   - Utility bill inserts
   - Internet and radio advertisements
   - Brochures
   - Magazine articles
   - Educational signage
   - Vehicle wraps
2. Active Engagement (Involvement and Enforcement): Customized interpersonal interactions with various audiences, targeting pollutant-generating activities and behaviors distributed via the following activities:
   - Presentations
   - Meetings
   - Training
   - Tours
   - Activities
   - Events
   - Penalties

3.3 Key Audiences

The MS4 targets the following audiences because they conduct activities that do not conform to best practices, such as proper erosion control, landscape maintenance, and stormwater basin maintenance.

1. Residents
   - Pollutant(s): Nutrients, floatables, and sediment
   - Activity: Yard maintenance
   - Rationale: See SWMP Section 8.9
   - Outreach Strategy: Passive Engagement and Active Engagement
   - Initiatives: See SWMP Section 3.4
2. Construction Industry
   - Target Pollutant(s): TSS, floatables, oil, grease, and concrete waste
   - Targeted Activity: Construction

- Rationale: See SWMP Section 5.4
- Outreach Strategy: Passive and Active Engagement
- Initiatives: See SWMP Section 3.4

3. Youth/MSU Students

   - Pollutant(s): E.coli, nutrients, and sediment
   - Activity: Early education and class projects
   - Rationale: Initiation of a paradigm shift and trickle-up impact
   - Outreach Strategy: Active Engagement
   - Initiatives: SWMP Section 3.4

4. Home Owner Associations (HOAs) and Property Management Companies

   - Pollutant(s): Nutrients, sediment, E. coli, and flood control
   - Activity: Stormwater basin maintenance
   - Rationale: SWMP Section 6.4
   - Outreach Strategy: Passive and Active Engagement
   - Initiatives: See SWMP Section 3.4

5. Carpet Cleaning and Restoration Companies

   - Pollutant(s): Wash waters
   - Activity: Illegal dumping/Illicit Discharge
   - Rationale: See SWMP Section 4.4
   - Outreach Strategy: Active Engagement
   - Initiatives: See SWMP Section 3.4

6. Pet Owners

   - Pollutant(s): E.coli
   - Activity: Dog waste pickup
   - Rationale: See SWMP Section 8.2
   - Outreach Strategy: Active and Passive Engagement
   - Initiatives: See SWMP Section 3.4

3.4 Ongoing Initiatives

The MS4 completes initiatives to engage, educate, and promote sustainable behavior of its key target audiences. Ongoing initiatives include:

1. Adopt a Storm Drain: A program that actively engages watershed champions, and supplies them with a tool to make a measurable difference in their neighborhoods by periodically cleaning and disposing debris from adopted stormwater inlets. The program also passively engages residents by creating an environment where stormwater-related issues can be discussed and acted upon at a neighborhood level, rather than the City acting as the sole information provider.

   A participant in the program is subject to the following: (1) recruitment through meetings, mailers, social media, or informative videos, (2) selection of inlet through online web map application, (3) receipt of a welcome packet, including tools, educational information, and instructions, (4) engagement and troubleshooting with City Staff through email or phone, (5) incentivization through receipt of a yard sign and other rewards based on seniority, (6) completion of inlet cleaning and debris collection during the spring, summer, and fall, (7) annual reporting of debris collected to City, (8) survey allowing for a feedback mechanism, and (9) receipt of annual thank you and report.

- Key Audience: Residents
- Targeted Pollutant(s): E.coli, nutrients, floatables, and sediment
- Strategy: Active and Passive Engagement
- Treatment Area: Citywide
- Distribution Channels: Recruitment, training, troubleshooting, and engagement
- Performance Measure: Total weight of debris collected annually
    - 2017: n/a
    - 2018: n/a
    - 2019: 772.7 lbs. of debris (11 residents, 21 inlets)
        - 2019 Task(s): Implement pilot program (complete)
        - 2019 Performance Goal: Collect 250 lbs. of debris (met)
        - 2019 Note(s): Time intensive but effective program
    - 2020: TBD
        - 2020 Task(s): Implement program, retain majority of the recruited residents, explore opportunities for expansion in 2021
        - 2020 Performance Goal: Collect 500 lbs. of debris
        - 2020 Note(s): TBD

2. Adopt a Rain Garden: A program that actively engages businesses and supplies them with a tool to make a measurable difference by periodically cleaning and disposing debris from adopted rain gardens. Adopters complete trash removal, weeding, and minor sediment collection through the spring, summer, and fall. The City completes major maintenance activities semi-annually. Gardens typically also have an educational component, such as a sign.

    - Key Audience: Residents via commercial businesses
    - Targeted Pollutant(s): E.coli, nutrients, floatables, and sediment
    - Strategy: Active and Passive Engagement
    - Treatment Area: Citywide
    - Distribution Channels: Recruitment, training, troubleshooting, and engagement
    - Performance Measure: Number of adopted rain gardens.
        - 2020: TBD
            - 2020 Task(s): Implement a pilot program with one business
            - 2020 Performance Goal: Two maintenance efforts by the adopter
            - 2020 Note(s): TBD

3. Educational Stormwater Video: Seven-minute video that describes the MS4's Program, the context for why stormwater is important, and ways residents/property owners can make a difference. Residents view the video on the City's website or YouTube.

    - Key Audience: Residents
    - Targeted Pollutant(s): E.coli, nutrients, oil, grease, floatables, and sediment
    - Strategy: Passive Engagement
    - Treatment Area: Citywide
    - Distribution Channels: MS4 website and email signature attachment
    - Performance Measure: Total views, watch time, and average view duration tracked annually
        - 2017: 179 views, 12 hours watch time, and 4:02 average view duration
        - 2018: 502 views, 31 hours watch time, and 3:42 average view duration

- 2019: 214 views, 14.1 hours watch time, and 3:57 average view duration
    - 2019 Task(s): Maintain video (complete), add to City Channel (not complete)
    - 2019 Performance Goal: Repeat 2018 view count +/-5% (not met)
    - 2019 Note(s): View drop attributed to the number of interested residents and limited distribution channels.
- 2020: TBD
    - 2020 Task(s): Maintain video, add to City Channel, promote using Facebook
    - 2020 Performance Goal: Repeat 2019 view count +/-5%
    - 2020 Note(s): TBD

4. Dog-Waste Campaign: Campaign devoted to educating residents about the importance of dog waste collection and disposal. The campaign includes the deployment and maintenance of educational signage and dog waste stations in numerous parks and trail corridors.

    - Key Audience: Residents
    - Targeted Pollutant(s): E.coli
    - Strategy: Passive and Active Engagement
    - Treatment Area: Citywide
    - Distribution Channels: Strategic signage and waste stations placed in high use areas.
    - Performance Measure: Tonnage tracked annually by calculating the total amount of dog waste collected at all waste stations. The MS4 derives the total by multiplying the total waste station bags collected by 10 lbs., which is the assumed weight of each bag.
        - 2017: 19.5 Tons
        - 2018: 20.6 Tons
        - 2019: 18.2 Tons
            - 2019 Task(s): Maintain dog waste signs (complete), add urban specific signs in four locations (not complete)
            - 2019 Performance Goal: Repeat 2018 collection total +/-5% (not met)
            - 2019 Note(s): 27% drop in visits from 2018 to 2019 (37,518 visits to 27,378 visits), meaning bags likely filled up more and were replaced less often.
        - 2020: TBD
            - 2020 Task(s): Maintain dog waste signs, add urban specific signs in four locations
            - 2020 Performance Goal: Repeat 2019 collection total +/-5%
            - 2020 Note(s): TBD

5. Vehicle Decal Wraps: Educational signage installed on the MS4's Vactor truck and street sweeper that visually displays the connection between urban areas and waterways.

    - Key Audience: Residents
    - Targeted Pollutant(s): E.coli, nutrients, oil, grease, floatables, and sediment
    - Strategy: Passive Engagement
    - Treatment Area: Citywide
    - Distribution Channel: Vehicle use
    - Performance Measure: Stormwater operator hours
        - 2017: 4,300 hours

- 2018: 5,400 hours
- 2019: 4,100 hours
    - 2019 Task(s): Maintain decals (complete)
    - 2019 Performance Goal: Repeat operator hours +/-5% (not met)
    - 2019 Note(s): Staffing shortages prevalent through 2019.
- 2020: TBD
    - 2020 Task(s): Maintain decals
    - 2020 Performance Goal: Repeat operator hours +/-5%
    - 2020 Note(s): TBD

6. Website: Publically accessible website that includes a variety of information, spanning from what stormwater is, how to report a pollution event, rate model information, post-construction design standards, and more. Address: www.bozeman.net/government/stormwater.

- Key Audience: Residents, Home Owner Associations, and Contractors
- Targeted Pollutant(s): E.coli, nutrients, oil, grease, floatables, and sediment
- Strategy: Passive Engagement
- Treatment Area: Citywide
- Distribution Channels: Available to the public via the internet
- Performance Measure: Total unique page views tracked by Google Analytics
    - 2017: 677 Views
    - 2018: 1,225 Views
    - 2019: 2,408 Views
        - 2019 Task(s): Maintain website (complete)
        - 2019 Performance Goal: Repeat total unique page views +/-5% (met)
        - 2019 Note(s): Homepage, Apply for a Construction Permit, and Contact Us were the most visited pages.
    - 2020: TBD
        - 2020 Task(s): Maintain website, update News and Events periodically
        - 2020 Performance Goal: Repeat total unique page views +/-5%
        - 2020 Note(s): TBD

7. General Outreach: Information developed by the MS4 and applied in various settings focused on providing general stormwater information and soliciting public participation.

- Key Audience: Residents
- Targeted Pollutant(s): E.coli, nutrients, oil, grease, floatables, and sediment
- Strategy: Active Engagement
- Treatment Area: Entire MS4
- Distribution Channels: Presentations, conferences, community events, and advertisements
- Performance Measure: Total events
    - 2017: 10 (Green Drinks Event, MSU Class Presentations, GLWQD Board Presentation, (2) MSAWWA Conference Presentation, SWMBIA Home Show Booth, Environment Summit Community Event, Water Works Art Initiative, Gallatin Watershed Sourcebook, Breaking Ground Advertisement)

- 2018: 15 (Montana DNRC Water Summit Presentation, MDEQ Stormwater Conference Presentation, MDEQ Stormwater Conference Tour, Parade of Homes Garden Tour, Gallatin College Presentation, MSU Landscape School Presentation, Stream Team Training, City Commission Emergency Ordinance Presentation, City Commission Capital and Budget Presentation, Gallatin Watershed Sourcebook Creation and Distribution, Water and Society Class Presentation, Horticulture 201 Stormwater Design Project, (2) Student-Led Campus Cleanup Events: Loose Litter and Cigarettes, Campus Cleanup Event)
- 2019: 17 (City of Bozeman Planning Board Presentation, Lives and Landscapes Article, Raccoon Facebook Post, Arbor Day Event, Mountain Outlaw Article, S. Church Traffic Calming, MSU Teacher Tour, Water School Presentation, MSU EENG 341 Class Presentation, Active Aging Week Presentation, Eagle Scout Stenciling Project, Montana Stormwater Committee Webinar, Water and Society Class Presentation, Water Hydrology Class Presentation, Hort. 201 Stormwater Design Project, Health Advancement Butt Clean Up-Day, and Campus Clean Up Event)
    - 2019 Task(s): Identify and pursue education opportunities (complete)
    - 2019 Performance Goal: Complete ten events (met)
    - 2019 Note(s): Increased MSU collaboration through new CATs Program
- 2020: TBD
    - 2020 Task(s): Identify and pursue general education opportunities
    - 2020 Performance Goal: Complete 10 events
    - 2020 Note(s): TBD

8. Construction Training: Trainings that educate contractors on proper selection and use of best management practices (BMPs) and permit preperation. The MS4 holds training tailored to various education levels, construction activities, and inspection procedures. Further, the MS4 maintains a Construction Program that includes permits, processes, and materials tailored to this group, also described in SWMP Section 5.0.

- Key Audience: Contractors and Engineers
- Targeted Pollutant(s): Sediment, floatables, oil, grease, and concrete waste
- Strategy: Active and Passive Engagement
- Treatment Area: Citywide
- Distribution Channels: Best Management Practices Manual, conducting annual training, and lunch and learns
- Performance Measure: Annual construction-site audit earned score (see SWMP Section 5.4)
    - 2017: n/a
    - 2018: 33%
    - 2019: 28%
        - 2019 Task(s): Hold BMP 101 Introduction to Stormwater Management and 201 SWPPP Preparer and Administrator (48 participants, complete)
        - 2019 Performance Goal: Improve the audit score by 10% (not met)
        - 2019 Note(s): High growth rate, see SWMP Section 5.0
    - 2020: TBD
        - 2020 Task(s): Hold BMP 101 Introduction to Stormwater Management, 201 SWPPP Preparer and Administrator, and 201R SWPPP Re-certification

- ❖ 2020 Performance Goal: Improve the audit score by 10%
- ❖ 2020 Note(s): See SWMP Section 5.0

9. Project WET Curriculum: Class exercises taught by 4th, 5th, and 6th-grade teachers in Bozeman School District (BSD) classrooms, educating students on stormwater-related issues, utilizing customized, and location-specific lesson plans and activities. The City's Park's Division also uses the lesson plans for their summer camps.

   - ➢ Key Audience: Residents
   - ➢ Targeted Pollutant(s): E.coli, nutrients, floatables, and sediment
   - ➢ Strategy: Active Engagement
   - ➢ Treatment Area: Entire MS4
   - ➢ Distribution Channel: Trainings for teachers who then present lessons to students
   - ➢ Performance Measure: Total student participants
     - o 2017: 492 students
     - o 2018: 526 students
     - o 2019: 100 students
       - ❖ 2019 Task(s): Coordinate use in classrooms and summer camps (complete)
       - ❖ 2019 Performance Goal: Repeat student totals +/-5% (not met)
       - ❖ 2019 Note(s): Spent year incorporating into the BSD curriculum.
     - o 2020: TBD
       - ❖ 2020 Task(s): Coordinate use in classrooms and summer camps
       - ❖ 2020 Performance Goal: Repeat 2018 student totals +/-5%
       - ❖ 2020 Note(s): TBD

10. Post-Construction Stormwater Control Training: Tailored outreach that educates HOA Boards and management representatives on the proper function and maintenance of stormwater basins. The MS4 maintains a Post-Construction Program that includes processes and materials tailored to this group further described in SWMP Section 6.0.

    - ➢ Key Audience: Home Owner Associations and Property Management Companies
    - ➢ Targeted Pollutant(s): Nutrients, sediment, flood control (downstream erosion)
    - ➢ Strategy: Active and Passive Engagement
    - ➢ Treatment Area: Citywide
    - ➢ Distribution Channels: Participation in facility tours, board meetings, annual assemblies, and development of educational information
    - ➢ Performance Measure: Annual post-construction audit earned score (see SWMP Section 6.4)
      - o 2017: n/a
      - o 2018: 25%
      - o 2019: 32%
        - ❖ 2019 Task(s): Justify FTE to run the Post Construction Program (complete)
        - ❖ 2019 Performance Goal: Improve the audit score by 10% (not met)
        - ❖ 2019 Note(s): Limited capacity to implement sub-program due to other priorities.
      - o 2020: TBD
        - ❖ 2020 Task(s): Hire dedicated FTE, and implement an improved program

- ❖ 2020 Performance Goal: Improve the audit score by 10%
- ❖ 2020 Note(s): TBD

11. Targeted Outreach: Educate local carpet cleaning and restoration companies on proper disposal methods and potential enforcement penalties for illicit discharges to the storm sewer system.

- ➢ Key Audience: Carpet Cleaning and Restoration Companies
- ➢ Targeted Pollutant(s): Wash waters
- ➢ Strategy: Active Engagement
- ➢ Treatment Area: Entire MS4
- ➢ Distribution Channels: Written and verbal correspondence
- ➢ Performance Measure: Illicit discharge reports related to targeted activities
  - o 2017: 0
  - o 2018: 1
  - o 2019: 0
    - ❖ 2019 Task(s): Distribute a letter to owners (complete)
    - ❖ 2019 Performance Goal: No related illicit discharges (met)
    - ❖ 2019 Note(s): Increased engagement yielded a good result
  - o 2020: TBD
    - ❖ 2020 Task(s): None
    - ❖ 2020 Performance Goal: No related illicit discharges
    - ❖ 2020 Note(s): TBD

12. Targeted Outreach: Educate residents on best practices related to lawn mowing and grass clippings.

- ➢ Key Audience: Residents
- ➢ Targeted Pollutant(s): Organics
- ➢ Strategy: Passive Engagement
- ➢ Treatment Area: Entire MS4
- ➢ Distribution Channels: Mailer sent with a monthly utility bill.
- ➢ Performance Measure: Residential sites' Total Suspended Solids (TSS) median concentration (SWMP Section 8.4)
  - o 2020: TBD
    - ❖ 2020 Task(s): Distribute a mailer to residents, implement Adopt a Drain
    - ❖ 2020 Performance Goal: Reduction over time
    - ❖ 2020 Note(s): TBD

13. CATs Program: Collaborative program where MSU students complete projects in support of the City's goals. Projects typically span a semester and include a variety of lectures, workshops, presentations, and different deliverables.

- ➢ Key Audience: MSU students and professors
- ➢ Targeted Pollutant(s): E.coli, nutrients, oil, grease, floatables, and sediment
- ➢ Strategy: Active and Passive Engagement
- ➢ Treatment Area: Entire MS4
- ➢ Distribution Channels: Lectures, workshops, presentations, and varying deliverables
- ➢ Performance Measure: Projects completed per year.

- 2020: TBD
    - 2020 Task(s): Coordinate projects with an Engineering and Geography class
    - 2020 Performance Goal: Complete two projects
    - 2020 Note(s): TBD

3.5 Future Initiatives

The following items represent future initiatives for the MS4:

1. Education Video Series: Development of a multifaceted video library that would bring to life many of the concepts presented in the MS4's static educational materials, such as how to properly fertilize, pick up dog waste, manage grass clippings, and install rain barrels.

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Section 4.0

Illicit Discharge Detection and Elimination Program

Graphic 4.0.1: Bentonite slurry spill

Graphic 4.0.2: Illicit connection confirmation

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4.1 Introduction

The MS4 strives to improve waterway health, protect public safety, and comply with its MS4 Permit through the identification and elimination of pollutant sources by:

- Completing dry weather screening of outfalls
- Inspecting the storm sewer for illegal connections (see SWMP Section 7.2)
- Responding to and resolving pollution events
- Enforcing municipal ordinances

SWMP Section 4.0 details the following components necessary to administer the MS4's Illicit Discharge Detection and Elimination Program, including:

- Regulatory Framework
- Response Protocol
- Event Tracking
- Non-Stormwater Discharge Evaluation
- Outfall Reconnaissance Inventory
- Storm Sewer Infrastructure Totals

4.2 Regulatory Framework

The MS4 uses Bozeman Municipal Code Section 40.04.200 as its regulatory mechanism, which states:

"It shall be unlawful to discharge or cause to be discharged into the MS4 any materials, including, but not limited to, pollutants or waters containing any pollutants that cause or contribute to a violation of applicable water quality standards or that could cause the city to be in violation of its MPDES. It shall be unlawful to store, handle, or apply any pollutant in a manner that will cause exposure to rainfall or runoff and discharge to the MS4 and to state waters or waters of the United States."

4.3 Response Protocol

The MS4 uses the following Emergency Response Plan (ERP) to assess event priority, formulate a response, and, if necessary, pursue enforcement in cases where a party completes a repeat, blatant, or knowing violation of BMC:

1. Assign event coordinator
2. Investigate complaint to determine pollutant type and severity (site visit and correspondence)
3. Implement one of the following responses:

   - Tier 1 Event

     - Threat: Minimal impact on public safety, infrastructure and environment
     - Priority: High
     - Team: MS4 staff
     - Timeline: Initiate response within 5-days
     - Resolution: MS4 operations staff and/or contracted restoration firm
     - Pollutant Disposal: Public - Disposal Facility, private - varies
     - Reporting: Internal report
     - Examples: Leaking vehicles, dripping dumpster, and minor construction violations

   - Tier 2 Event

- Threat: Moderate impact on public safety, infrastructure, and environment
- Priority: High
- Team: MS4 Staff
- Timeline: Initiate response within 24-hours
- Resolution: MS4 operations staff and/or contracted restoration firm
- Pollutant Disposal: Public - Disposal Facility, private - varies
- Reporting: Internal report
- Examples: Carpet cleaning process water discharge, sanitary overflow, camper waste disposal, homeless camp cleanup, floor drain, and illicit sanitary connections, non-hazardous chemical spills, and moderate to severe construction violations

➢ Tier 3 Event

- Threat: Immediate threat to human health, infrastructure, and environment
- Priority: High
- Team: MS4 operations staff and emergency services
- Timeline: Immediate response
- Resolution: Fire, MS4 operations, and/or restoration firm
- Pollutant Disposal: Public - Disposal Facility, private - varies
- Reporting: Internal report and DEQ Notification
- Example: Hazardous chemical spills

4. Eliminate discharge
5. If applicable, notify appropriate state and federal agencies
6. Prepare and file an event report
7. If applicable, assess one or more of the following penalties to the responsible party:

➢ Informal Response: Warning issued via correspondence, email notification, or verbal notice
➢ Formal Response: Notice of Violation and Cease and Desist Order using compliance timeline and monetary penalties based on staff time accrued and remediation costs.
➢ Judicial Response: Civil penalties, injunctive relief, or criminal penalties using court systems

4.4 Event Tracking

1. 2017 Events: 5

➢ Tier 1 Event: Ellis Apartments - Leaking vehicle

- Event ID: 201701
- Pollutant: Oil
- Local Control: Bozeman Municipal Code *(report available upon request)*
- Resolved: Yes, owner cleaned up oil
- Significant: No, less than 5-gallons, no confirmed discharge to the storm sewer

➢ Tier 1 Event: Crystal Bar - Illicit roof drain

- Event ID: 201702
- Pollutant: Wash water
- Local Control: Bozeman Municipal Code *(report available upon request)*
- Resolved: Yes, owner disconnected sink from the roof drain
- Significant: Yes, over 5-gallons, confirmed discharge to the storm sewer

➢ Tier 2 Event: Lindley Park - Homeless camp clean up

- Event ID: 201703
- Pollutant: Trash, human waste, and drug paraphernalia
- Local Control: Bozeman Municipal Code *(report available upon request)*
- Resolved: Yes, restoration firm cleaned up debris
- Significant: No, less than 5-gallons, no confirmed discharge to the storm sewer

➢ Tier 1 Event: NAC Construction Site Fueling Spill

- Event ID: 201704
- Pollutant: Diesel Fuel
- Local Control: MSU Safety and Risk Management
- Resolved: Yes, MSU Facility Services clean up
- Significant: Yes, over 5-gallons

➢ Tier 1 Event: Stadium Tractor Hydraulic Oil Spill

- Event ID: 201705
- Pollutant: Hydraulic Oil (<25 gallons)
- Local Control: MSU Safety and Risk Management
- Resolved: Yes, MSU Facility Services clean up
- Significant: Yes, over 5-gallons, no confirmed discharge to the storm sewer

2. 2018 Events: 7

➢ Tier 1 Event: 15th & Patrick Oil Dumping

- Event ID: 201801
- Location: See map 4.2.1
- Pollutant: Used motor oil
- Local Control: BMC Section 40.04.200 and system cleaning
- Significant: No, less than 5-gallons, confirmed discharge to the storm sewer

➢ Tier 1 Event: Solid Waste Hydraulic Hose

- Event ID: 201802
- Location: See map 4.2.1
- Pollutant: Hydraulic fluid
- Local Control: Solid Waste and Streets spill response
- Significant: No, over 5-gallons, no confirmed discharge to the storm sewer

➢ Tier 1 Event: Prue Clean Technologies Carpet Cleaners

- Event ID: 201803
- Location: See map 4.2.1
- Pollutant: Soaps and cleaning chemicals
- Local Control: BMC Section 40.04.200
- Significant: Yes, over 5-gallons, confirmed discharge to the storm sewer

➢ Tier 1 Event: Northwestern Energy Frac-Out

- Event ID: 201804
- Location: See map 4.2.1
- Pollutant: Bentonite slurry
- Local Control: BMC Section 40.04.200
- Significant: No, over 5-gallons, no confirmed discharge to the storm sewer

- Tier 2 Event: Sanitary Sewer Overflow
    - Event ID: 201805
    - Location: See map 4.2.1
    - Pollutant: Sediment and pathogens
    - Local Control: Sewer Department sanitary sewer overflow response and system cleanout
    - Significant: Yes, over 5-gallons, confirmed discharge to the storm sewer
- Tier 1 Event: John Deer Contractor Hydraulic Hose Failure
    - Event ID: 201806
    - Location: See map 4.2.1
    - Pollutant: Hydraulic Fluid
    - Local Control: MSU Safety and Risk Spill Response (sorbent material, 55-gallon drum, disposal)
    - Significant: No, under 5-gallons, no confirmed discharge to the storm sewer
- Tier 1 Event: Barnard Holder Snow Machine Hydraulic Hose Failure
    - Event ID: 201807
    - Location: See map 4.2.1
    - Pollutant: Hydraulic Fluid
    - Local Control: MSU Safety and Risk Spill Response (sorbent material, 5-gallon buckets, disposal)
    - Significant: No, under 5-gallons, no confirmed discharge to the storm sewer

3. 2019 Events: 4

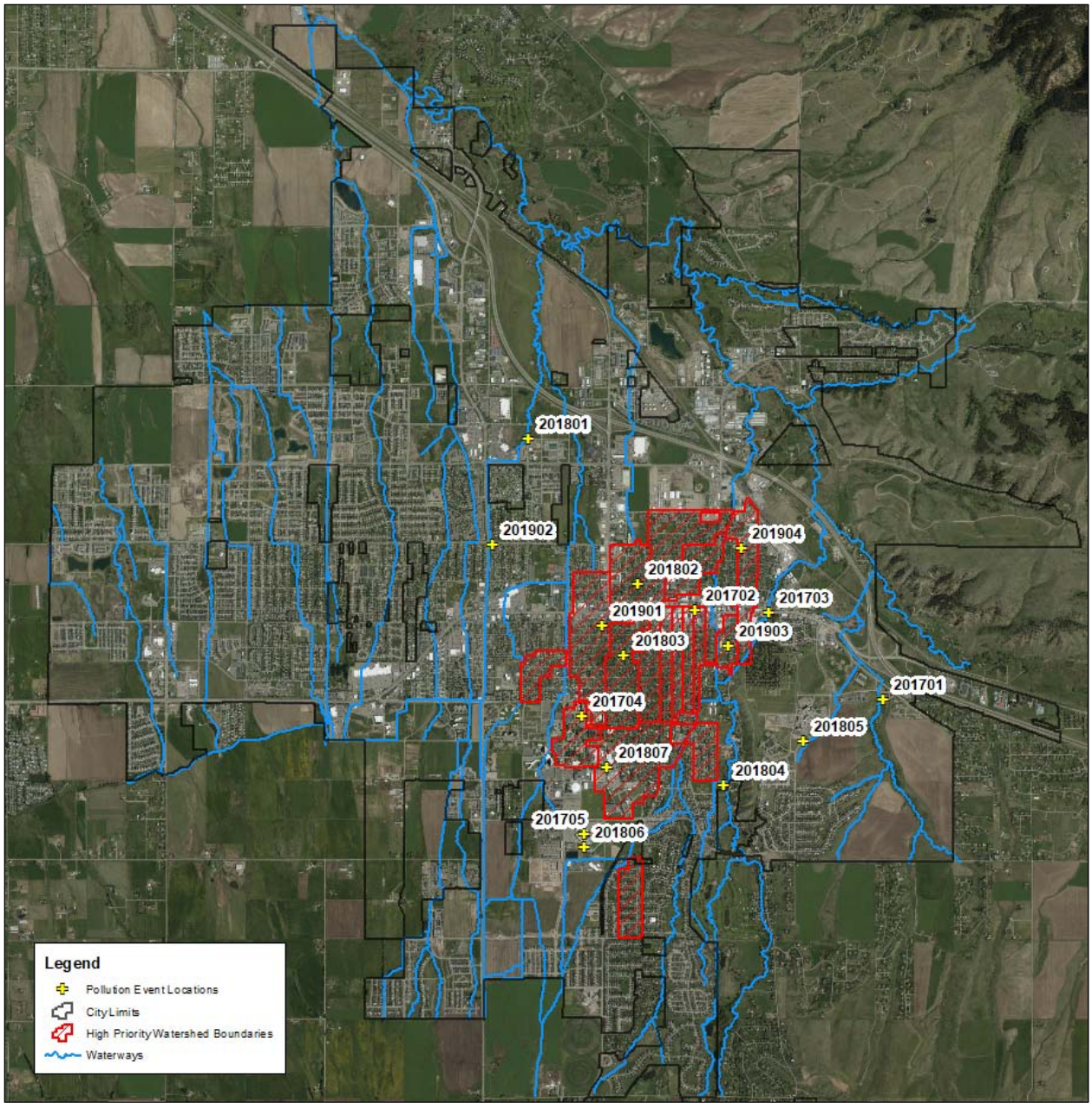
- Tier 2 Event: Sobo Lofts Fire
    - Event ID: 201901
    - Location: See map 4.2.1
    - Pollutant: Ash, construction debris/chemicals, traction sand, and chlorinated water
    - Local Control: Emergency fire operation and system cleaning
    - Significant: Yes, 1.5 million gallons of water sprayed on the fire. The majority did not discharge to Mandeville Creek due to a degraded historical irrigation conveyance that ponded the flows until infiltration occurred.
- Tier 1 Event: Durston Oil Spill
    - Event ID: 201902
    - Location: See map 4.2.1
    - Pollutant: Motor oil
    - Local Control: BMC Section 40.04.200
    - Significant: No, immediate response and mitigation by MS4 Staff.
- Tier 2 Event: Bogert Pool Filter Backflush
    - Event ID: 201903
    - Location: See map 4.2.1
    - Pollutant: Chlorinated water, Celatom Diatomite Filter Media, and filter debris
    - Local Control: BMC Section 40.04.200

- Significant: No, immediate response and implementation of operational controls, plugged connection soon after eliminating the chance of future discharges.

- Tier 1 Event: Karst Stage Oil Spill
  - Event ID: 201904
  - Location: See map 4.2.1
  - Pollutant: Motor oil
  - Local Control: BMC Section 40.04.200
  - Significant: No, immediate response and mitigation by Karst stage staff.

Illicit Discharge Events Resolved					
	2017	**2018**	**2019**	**2020**	**2021**
Tier 1 Events	4	6	2		
Tier 2 Events	1	1	2		
Tier 3 Events	0	0	0		
Total	5	7	4		

Graphic 4.4.1: Illicit discharge events



Graphic 4.4.2: Illicit discharge locations

4.5 Non-Stormwater Discharge Evaluation

The MS4 evaluates the following non-stormwater discharges to identify if they pose a waterway threat:

1. Water Line Flushing
    - Description: Chlorinated water resulting from Bac-T testing and cleaning of new water lines
    - Associated Pollutant(s): Chlorine
    - Local Control(s): Construction specifications requiring contractors to contain flush water
    - Risk: Medium, managed as Tier 2 illicit discharge
    - Illicit Discharges Reported: 0

2. Landscape Irrigation, Irrigation, Lawn Watering, and Potable Water

   - Description: Intermittent over-watering or faulty sprinklers
   - Associated Pollutant(s): Varied depending on the source (well or potable supply)
   - Local Control(s): Water Conservation landscaping audits and outreach initiatives
   - Risk: Low, not managed as an illicit discharge
   - Illicit Discharges Reported: 0

3. Rising Groundwater, Springs, and Flows from Riparian Habitats

   - Description: Flows that enters the storm sewer system when ground and surface water levels rise above the bottom elevation of the storm drain
   - Associated Pollutant(s): None
   - Local Control(s): Prohibition of sump drains that discharge to a street or other public right-of-way, a sanitary sewer line, or onto neighboring properties
   - Risk: Low, not managed as an illicit discharge
   - Illicit Discharges Reported: 0

4. Uncontaminated Groundwater Infiltration

   - Description: Water other than wastewater that enters a storm sewer system from the ground through such means as defective pipes, pipe joints, connections, or utility holes
   - Associated Pollutant(s): None
   - Local Control(s): Inspection of storm sewer pipe annually, and defective pipe repair
   - Risk: Low, not managed as an illicit discharge
   - Illicit Discharges Reported: 0

5. Uncontaminated Pumped Groundwater

   - Description: Groundwater pumped into the storm sewer system for lowering subsurface levels, particularly for construction
   - Associated Pollutant(s): None
   - Local Control(s): Discharge must originate from a well located in an undisturbed area, initial turbid first flush contained on site
   - Risk: Low, not managed as an illicit discharge
   - Illicit Discharges Reported: 0

6. Foundation Drains, Crawl Space Pumps, and Footing Drains

   - Description: Groundwater pumped or diverted from building foundations to the MS4.
   - Associated Pollutant(s): None
   - Local Control(s): Prohibition of sump drains that discharge to a street or other public right-of-way, a sanitary sewer line, or onto neighboring properties
   - Risk: Low, not managed as an illicit discharge
   - Illicit Discharges Reported: 0

7. Air Conditioning Condensation

   - Description: HVAC and refrigeration condensation discharged to the MS4
   - Associated Pollutant(s): None
   - Local Control(s): Allowed
   - Risk: Low, not managed as an illicit discharge
   - Illicit Discharges Reported: 0

8. Swimming Pool and Hot Tub Drain Water

   - Description: Dumping of swimming pool and hot tub drain water into the MS4
   - Associated Pollutant(s): Chlorine
   - Local Control(s): Required dechlorinating of swimming pool and hot tub discharge water
   - Risk: Medium, managed as Tier 2 illicit discharge
   - Illicit Discharges Reported: 0

9. Fire Hydrant Flushing

   - Description: Discharges resulting from regular fire hydrant flushing by MS4 operators
   - Associated Pollutant(s): Chlorine
   - Local Control(s): Water and Sewer Division fire hydrant flushing process
   - Risk: Low, not managed as an illicit discharge
   - Illicit Discharges Reported: 0

10. Non-Commercial, Individual Residential, and Charity Carwashes

    - Description: Wash-waters resulting from vehicle washing
    - Associated Pollutant(s): Soaps, oils, greases, metals, and sediment
    - Local Control(s): The City requires a public assembly permit for non-commercial and charity car washes on public property. If deemed appropriate, the MS4 can utilize this process to require specific controls.
    - Risk: Low, not managed as an illicit discharge
    - Illicit Discharges Reported: 0

11. Street Wash Waters

    - Description: Water used to wash sidewalks, streets, parking lots, and buildings
    - Associated Pollutant(s): Sediment, oils, greases, and metals
    - Local Control(s): Allowed
    - Risk: Low, not managed as an illicit discharge
    - Illicit Discharges Reported: 0

12. Construction Dewatering

    - Description: Water discharged from the excavated trench, deep well point, or cofferdam
    - Associated Pollutant(s): Sediment
    - Local Control(s): MDEQ General Permit for Construction Dewatering for excavated trench and cofferdam dewatering, well points are required to be in undisturbed areas with the first turbid first-flush contained on site, Article 4 Ch. 40 Bozeman Municipal Code, and protocols described in SWMP Section 5.0.
    - Risk: Medium, managed using protocols described in SWMP Section 5.0
    - Illicit Discharges Reported: 1

4.6 Outfall Reconnaissance Inventory (ORI)

The MS4 has hundreds of storm sewer outfalls that discharge into numerous waterways and irrigation ditches within its boundary. Staff used the Draft 2016 Integrated Report available at the MDEQ's Clean Water Act Information Center, TMDL, and City GIS databases to compile the following information:

1. Baxter Creek

   - Total Outfalls:

- 2018: 14
- 2019: 18

- Approved TMDL: No
- Impairments: None
- MS4 Waste Load Allocation: None

2. Bozeman (aka Sourdough) Creek

- Total Outfalls:
  - 2018: 60
  - 2019: 63
- Approved TMDL: Yes
- Impairments: E. Coli, Total Nitrogen, Sediment, Chlorophyll-a, and Alteration in streamside cover
- MS4 Waste Load Allocation: TN = 0 lb/day; E. Coli = 0 cfu/day; sediment = 81 tons/year

3. Bridger Creek

- Total Outfalls:
  - 2018: 1
  - 2019: 1
- Approved TMDL: Yes
- Impairments: Chlorophyll-a and Nitrate/Nitrite (Nitrite + Nitrate as N)
- MS4 Waste Load Allocation: N/N = 0 lbs./day

4. East, West and Main Forks of Catron Creek

- Total Outfalls:
  - 2018: 82
  - 2019: 83
- Approved TMDL: No
- Impairments: None
- MS4 Waste Load Allocation: None

5. Cattail Creek

- Total Outfalls:
  - 2018: 42
  - 2019: 44
- Approved TMDL: No
- Impairments: None
- MS4 Waste Load Allocation: None

6. East Gallatin River

- Total Outfalls:
  - 2018: 13
  - 2019: 22

- Approved TMDL: Yes
- Impairments: Total Nitrogen and Total Phosphorous
- MS4 Waste Load Allocation: TN = 0 lbs./day; TP = 0 lbs./day

7. Farmers Canal
   - Total Outfalls:
     - 2018: 46
     - 2019: 51
   - Approved TMDL: No
   - Impairments: None
   - MS4 Waste Load Allocation: N/A
8. Figgins Creek
   - Total Outfalls: 23
     - 2018: 23
     - 2019: 22
   - Approved TMDL: No
   - Impairments: None
   - MS4 Waste Load Allocation: N/A
9. Flat Creek
   - Total Outfalls:
     - 2018: 11
     - 2019: 11
   - Approved TMDL: No
   - Impairments: None
   - MS4 Waste Load Allocation: N/A
10. Mandeville Creek
    - Total Outfalls:
      - 2018: 48
      - 2019: 53
    - Approved TMDL: Yes
    - Impairments: Total Nitrogen and Total Phosphorous
    - MS4 Waste Load Allocation: TN = 0 lbs./day; TP = 0 lbs./day; sediment = 10 tons/year (self-imposed)
11. Mathew Bird Creek
    - Total Outfalls: 29
      - 2018: 29
      - 2019: 31
    - Approved TMDL: No
    - Impairments: None
    - MS4 Waste Load Allocation: N/A

12. Maynard Border Ditch
    - Total Outfalls:
        - 2018: 16
        - 2019: 13
    - Approved TMDL: No
    - Impairments: None
    - MS4 Waste Load Allocation: N/A
13. Middle Creek Ditch
    - Total Outfalls:
        - 2018: 26
        - 2019: 25
    - Approved TMDL: No
    - Impairments: None
    - MS4 Waste Load Allocation: N/A
14. Mill Ditch
    - Total Outfalls:
        - 2018: 0
        - 2019: 0
    - Approved TMDL: No
    - Impairments: None
    - MS4 Waste Load Allocation: N/A
15. Nash Spring Creek
    - Total Outfalls:
        - 2018: 0
        - 2019: 1
    - Approved TMDL: No
    - Impairments: None
    - MS4 Waste Load Allocation: N/A
16. Rocky Creek
    - Total Outfalls:
        - 2018: 1
        - 2019: 3
    - Approved TMDL: Yes
    - Impairments: Alteration in Streamside Vegetative Cover, Other Anthropogenic Substrate Alterations, Physical Substrate Habitat Alterations, and Sedimentation/Siltation
    - MS4 Waste Load Allocation: N/A
17. Story Ditch
    - Total Outfalls:

- 2018: 10
- 2019: 10

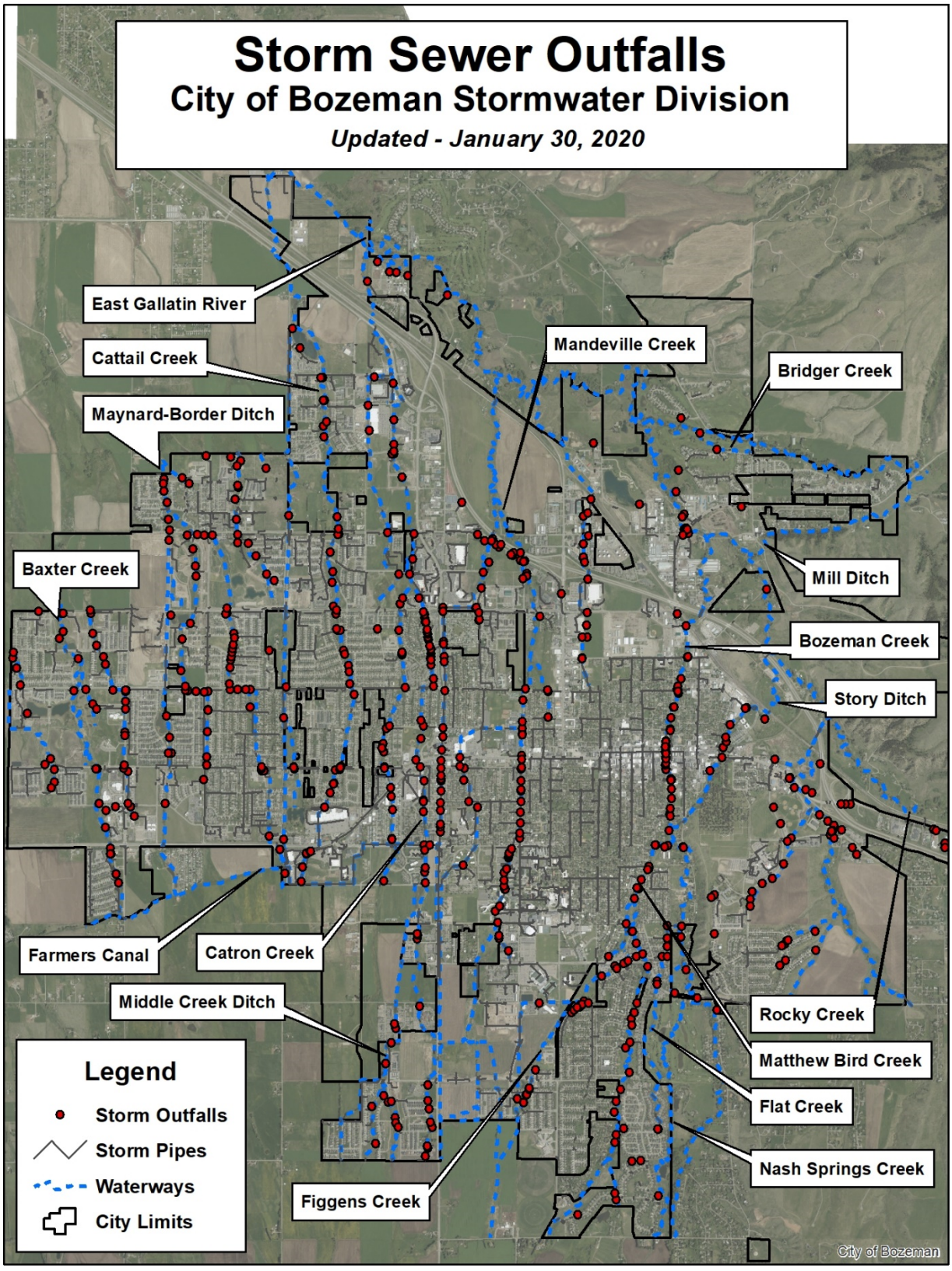
- Approved TMDL: No
- Impairments: None
- MS4 Waste Load Allocation: N/A

18. West Gallatin Canal

- Total Outfalls:
  - 2018: 31
  - 2019: 30
- Approved TMDL: No
- Impairments: None
- MS4 Waste Load Allocation: N/A

19. Unnamed Irrigation Canals, Surface Ponds, and Tributaries

- Total Outfalls:
  - 2018: 167
  - 2019: 153
- Approved TMDL: No
- Impairments: None
- MS4 Waste Load Allocation: N/A



Graphic 4.6.1: Storm sewer outfalls and receiving waterways

The MS4 prioritizes and inspect outfalls once during each MS4 Permit term. Further, the MS4 inspects outfalls deemed a high-priority annually. The MS4 considers an outfall to be high-priority if it meets the following criteria:

- 18" or more in diameter
- Drains an urban watershed area of 25 acres or more
- Dumps stormwater directly into an impaired receiving water (i.e., no stormwater basin)

High-priority outfalls include:

1. Outfall ID: OF.G08.00035
    - Discharge Location: Overbrook Dr. and Langhor Ave.
    - Receiving Waterway: Figgins Creek
    - Size and Material: 30" RCP
        - 2019 Inspection
            - Date: February 1, 2019
            - Flow: Yes, trickle
            - Outfall Characterization: Unlikely (no indicators)
2. Outfall ID: OF.F06.00090
    - Discharge Location: S. Bozeman Ave. and E. Cleveland St.
    - Receiving Waterway: Matthew Bird Creek
    - Size and Material: 20" Steel
        - 2019 Inspection
            - Date: July 19, 2019
            - Flow: No
            - Outfall Characterization: Unlikely (no indicators)
3. Outfall ID: OF.F06.00089
    - Discharge Location: S. Black Ave. and W. Cleveland St.
    - Receiving Waterway: Matthew Bird Creek
    - Size and Material: 19" RCP
        - 2019 Inspection
            - Date: July 19, 2019
            - Flow: No
            - Outfall Characterization: Unlikely (no indicators)
4. Outfall ID: OF.H05.00370
    - Discharge Location: N. 11th Ave. and W. College St.
    - Receiving Waterway: Mandeville Creek
    - Size and Material: 18" RCP
        - 2019 Inspection
            - Date: January 19, 2019
            - Flow: Yes, moderate
            - Outfall Characterization: Unlikely (no indicators)

5. Outfall ID: OF.H05.00384
    - Discharge Location: N. 11th Ave. and W. Koch St.
    - Receiving Waterway: Mandeville Creek
    - Size and Material: 12" RCP
        - 2019 Inspection
            - Date: January 31, 2019
            - Flow: No
            - Outfall Characterization: Unlikely (no indicators)
6. Outfall ID: OF.F04.00441
    - Discharge Location: N. Rouse Ave. and E. Villard St.
    - Receiving Waterway: Bozeman Creek
    - Size and Material: 42" CMP
        - 2019 Inspection
            - Date: August 8, 2019
            - Flow: No
            - Outfall Characterization: Unlikely (no indicators)
7. Outfall ID: OF.G04.00398
    - Discharge Location: N. 9th Ave. and W. Villard St.
    - Receiving Waterway: Tributary SWWW_00053
    - Size and Material: 24" RCP
        - 2019 Inspection
            - Date: January 19, 2019
            - Flow: No
            - Outfall Characterization: Unlikely (no indicators)
8. Outfall ID: OF.F03.00446
    - Discharge Location: N. Rouse Ave. and E. Peach St.
    - Receiving Waterway: Bozeman Creek
    - Size and Material: 27" RCP
        - 2019 Inspection
            - Date: January 31, 2019
            - Flow: No
            - Outfall Characterization: Unlikely (no indicators)
9. Outfall ID: OF.G03.00399
    - Discharge Location: N. 4th Ave. and W. Peach St.
    - Receiving Waterway: Tributary SWWW_00034
    - Size and Material: 30" RCP
        - 2019 Inspection
            - Date: January 31, 2019
            - Flow: No

- ❖ Outfall Characterization: Potential (presence of two or more indicators)

10. Outfall ID: OF.E03.00450

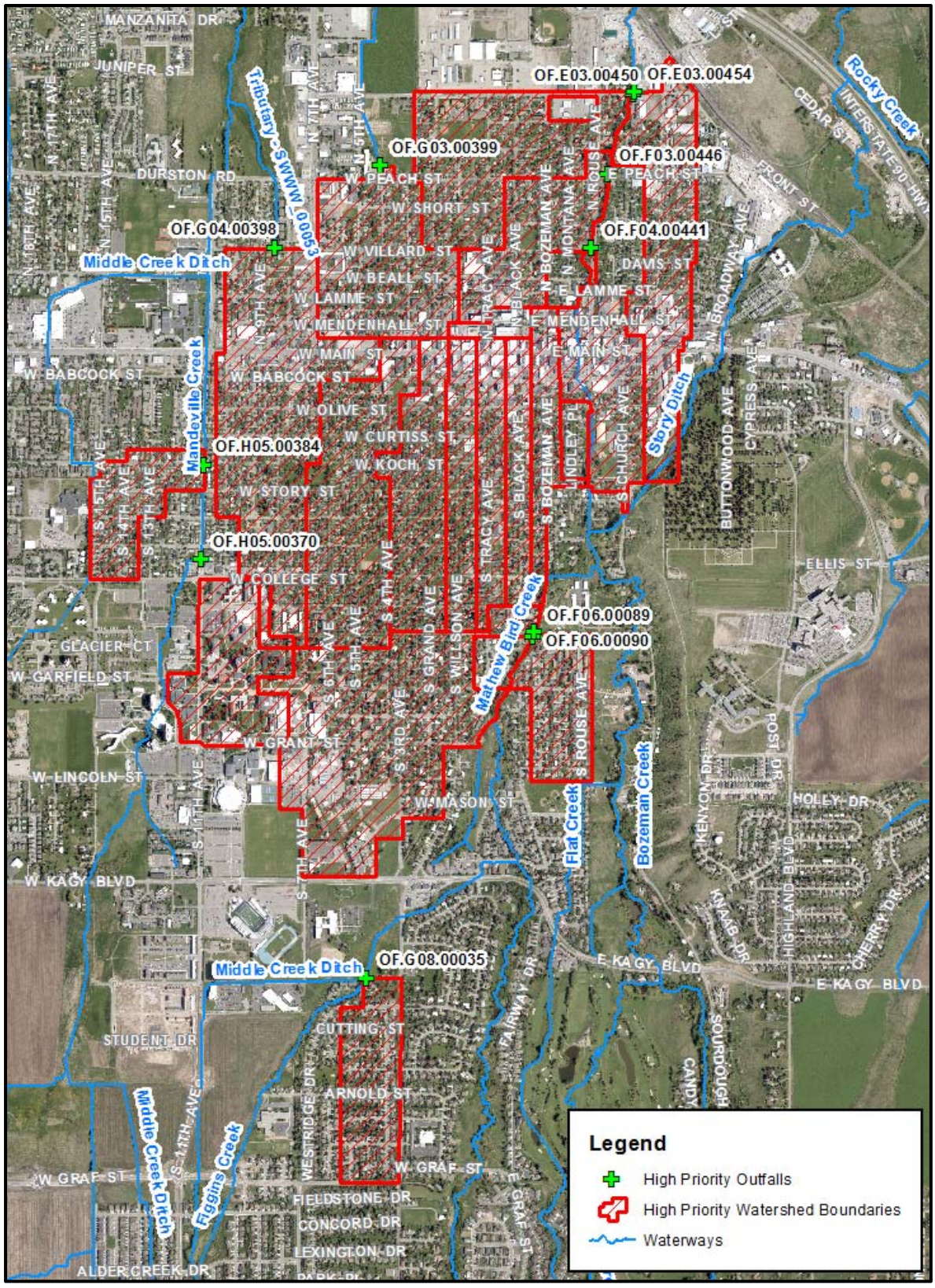
- ➢ Discharge Location: N. Rouse Ave. and E. Tamarack St.
- ➢ Receiving Waterway: Bozeman Creek
- ➢ Size and Material: 36" RCP
    - o 2019 Inspection
        - ❖ Date: January 31, 2019
        - ❖ Flow: No
        - ❖ Outfall Characterization: Unlikely (no indicators)

11. Outfall ID: OF.E03.00454

- ➢ Discharge Location: N. Rouse Ave. and E. Tamarack St.
- ➢ Receiving Waterway: Bozeman Creek
- ➢ Size and Material: 30" RCP
    - o 2019 Inspection
        - ❖ Date: January 31, 2019
        - ❖ Flow: No
        - ❖ Outfall Characterization: Unlikely (no indicators)

The MS4 completed the following per the Center for Watershed Protection protocol:

1. 2017 ORI Inspection Totals
    - ➢ Priority Outfalls: 594
    - ➢ Priority Outfalls Inspected: 0 (0%)
    - ➢ High-Priority Outfalls: n/a
    - ➢ High-Priority Outfalls Inspected: n/a
2. 2018 ORI Inspection Totals
    - ➢ Priority Outfalls: 622
    - ➢ Priority Outfalls Inspected: 0 (0%)
    - ➢ High-Priority Outfalls: 11
    - ➢ High-Priority Outfalls Inspected: 0 (0%)
3. 2019 ORI Inspection Totals
    - ➢ Priority Outfalls: 634
    - ➢ Priority Outfalls Inspected: 108 (17.0%)
        - ❖ Flow: 99 No, 1 Trickle, 6 Moderate, 2 Unknown
        - ❖ Pollution Characterization: 104 Unlikely, 1 Potential, 1 Suspect, 2 Unknown



Graphic 4.6.2: High-priority watersheds and outfalls

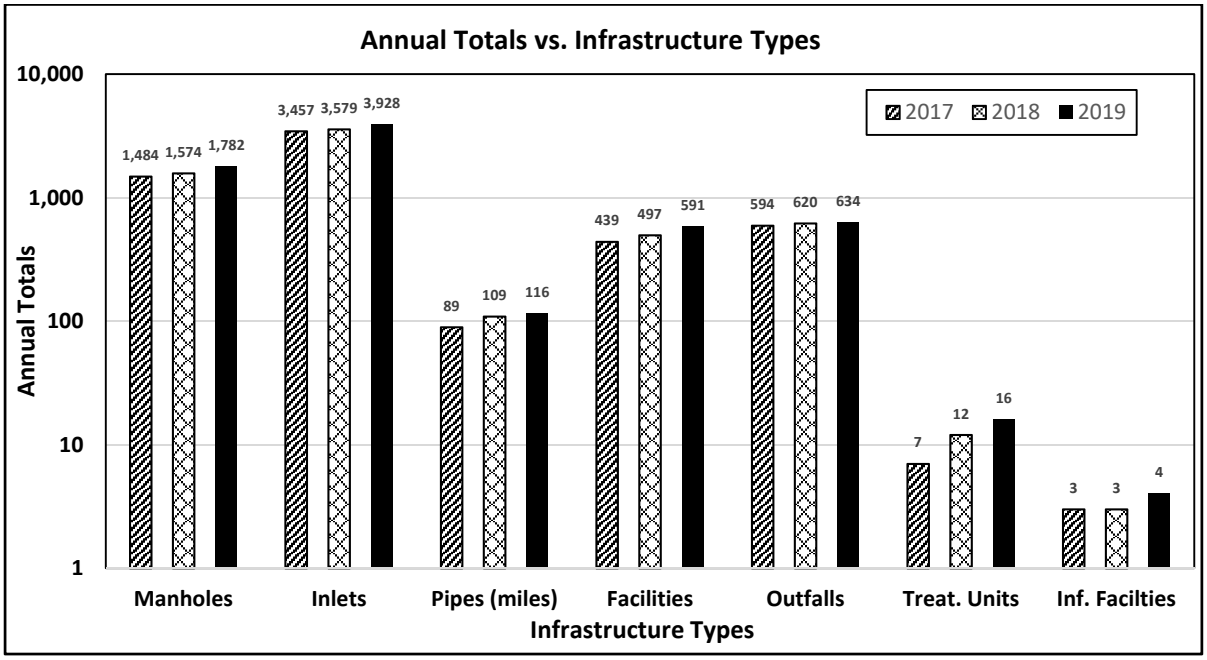
4.7 Storm Sewer Infrastructure Totals

The MS4 collects and updates storm sewer data annually using GPS and GIS technology. The public can access an interactive map by visiting: https://gisweb.bozeman.net/Html5Viewer/?viewer=infrastructure

1. 2017 Infrastructure Totals *(includes public, private, MDT, and MSU assets)*
   - Manholes: 1,484
   - Inlets: 3,457
   - Gravity Mains: 89.2 miles
   - Stormwater Basins: 435
   - Outfalls: 594
   - Culverts and Bridges (Gravity mains 'Others' ownership): 425
   - Public Mechanical Separation Treatment Units: 7
   - Public Infiltration Facilities: 3
2. 2018 Infrastructure Totals:
   - Manholes: 1,574
     - City of Bozeman: 999
     - Montana State University: 155
     - Private: 352
     - Montana Dept. of Transportation: 68
   - Inlets: 3,579
     - City of Bozeman: 2,524
     - Montana State University: 207
     - Private: 661
     - Montana Dept. of Transportation: 187
   - Gravity Mains, Culverts and Bridges: 109.1 miles
     - City of Bozeman: 66.9 miles
     - Montana State University: 8.3 miles
     - Private/Other: 30.4 miles
     - Montana Dept. of Transportation: 3.5 miles
   - Stormwater Basins: 497 (57.6 acres)
   - Outfalls: 622
   - Public Mechanical Separation Treatment Units: 12
     - City of Bozeman: 9
     - Montana State University: 1
     - MDT: 2
   - Public Infiltration Facilities: 3
     - City of Bozeman: 2
     - Montana State University: 1
     - MDT: 0
3. 2019 Infrastructure Totals:
   - Manholes: 1,782

- City of Bozeman: 1,162
- Montana State University: 155
- Private: 398
- Montana Dept. of Transportation: 67

- Inlets: 3,928
  - City of Bozeman: 2,800
  - Montana State University: 207
  - Private: 734
  - Montana Dept. of Transportation: 187
- Gravity Mains, Culverts, and Bridges: 115.7 miles
  - City of Bozeman: 72.6 miles
  - Montana State University: 8.6 miles
  - Private/Other: 30.7 miles
  - Montana Dept. of Transportation: 3.8 miles
- Stormwater Facilities: 591 (61.6 acres)
- Outfalls: 634
- Public Mechanical Separation Treatment Units: 16
  - City of Bozeman: 12
  - Montana State University: 2
  - Montana Dept. of Transportation: 2
- Public Infiltration Facilities: 4
  - City of Bozeman: 3
  - Montana State University: 1
  - Montana Dept. of Transportation: 0



Graphic 4.7.1: Storm sewer infrastructure totals

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Section 5.0

Construction Site Management Program

Graphic 5.0.1: Compliant single-family residential property

Graphic 5.0.2: Inlet sump clogged with construction debris

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5.1 Introduction

The MS4 strives to improve waterway health, protect public safety, and comply with its MS4 Permit through the regulation of construction sites by:

1. Providing educational opportunities
2. Administering a permitting program
3. Conduct inspections and enforce municipal and state standards

SWMP Section 5.0 details the following components necessary to administer the MS4's Construction Site Management Program, including:

- Regulatory Framework
- Oversight Protocol
- Performance Tracking
- Future Opportunities
- Applicable Documents

5.2 Regulatory Framework

The MS4 requires the construction industry to comply with the following regulations:

1. Article 4 Ch. 40 of the Bozeman Municipal Code
2. Montana Clean Water Act's Montana Pollution Discharge Elimination System
3. U.S. Clean Water Act National Pollution Discharge Elimination System

5.3 Oversight Protocol

The MS4 implements the following protocol to manage construction activities within its jurisdiction:

1. Hold Training *(optional)*: Classes held regularly for construction industry professionals, including Introduction to Stormwater Management, Construction Site BMP Field Academy, Stormwater Pollution Prevention Plan (SWPPP) Administrator, SWPPP Administrator Re-Certification, SWPPP Preparer, Construction Dewatering, and Compliance Evaluation Inspector. See SWMP Sec. 3.2.
2. Conduct Pre-Submittal Meeting *(optional)*: Initial meeting where parties discuss minimum expectations, project details, and specific concerns.
3. Complete Permit Review: Adequacy reviews for all permits, tracking steps using Cityworks permit software. Stage repeats until the applicant submits an adequate permit. Permits include:
    - MDEQ Construction Stormwater Pollution Prevention Plan (SWPPP)
    - Construction Stormwater Permit: Sites Less than One (1) Acre
    - Construction Stormwater Permit: Single-Family Residential Projects
4. Inspect Site: Inspections based on the following prioritization:
    - Priority Site: Goal is to inspect one per week or 20% of total per year.
        - Complaint-driven (internal or external);
        - Field observation; or
        - Compliance history
    - High-Priority Site: Goal is to inspect per frequency outlined in the MS4 Permit.
        - Greater than One (1) Acre; and
        - Direct Discharge to Bozeman Creek

- Rain Gage: Bozeman International Airport NOAA Station

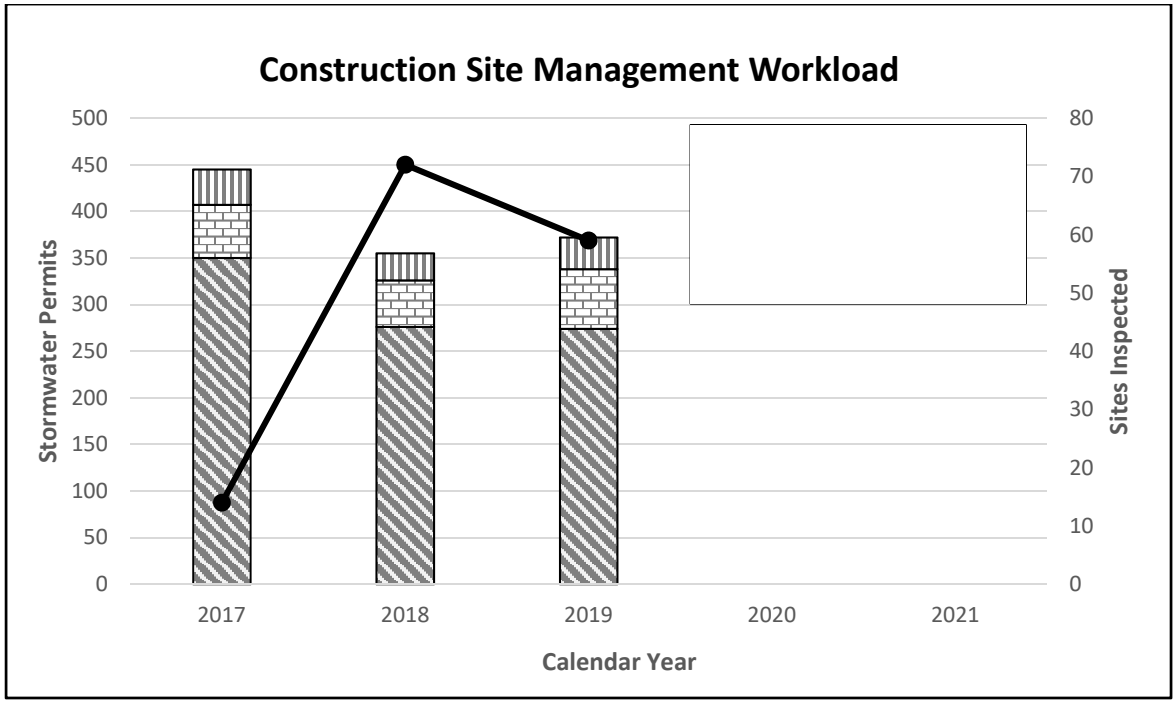
5. Compile and send Construction Stormwater Site Inspection Form: Document includes general information, weather, prohibited discharges, and findings related to the implementation and maintenance of Best Management Practices (BMPs) and applicable permits. Two outcomes:
   - Proceed to next step if violations identified.
   - Issue a Acknowledgement of Corrective Actions
6. Issue Notice of Violations, Cease and Desist & Abatement Order, Notice to File Abatement Lien: Documents Bozeman Municipal Code and approved permit violations, required corrective actions, schedule to remedy, and potential penalties if not resolved.
7. Follow Up Inspection: Completed the day of the compliance timeline expiration to confirm corrective action implementation. Complete a Construction Stormwater Site Inspection Form documenting remaining violations. Two outcomes:
   - Close inspection and send Acknowledgement of Corrective Actions if all violations resolved
   - Provide verbal warning of what violations have not been resolved and notify onsite personnel, project owner, and permittee that the Building Division will issue a Stop Work Order in a determined amount of time (1-3 days).
8. Issue Building Division Stop Work Order: Issued if the contractor does not implement corrective actions within required timeframes, ceasing all work related to the Project's Building Permit and planned inspections until the violator brings the site into compliance. Generate a Building Division Stop Work Order that details the violations not resolved in the appropriate timeline. The MS4 obtains the following before the Building Division issues a Stop Work Order:
   - Legal review and approval
   - Community Development review and approval
   - Two inspectors and Police Department support upon issuance, if necessary
9. Stop Work Order Follow Up Inspection: Completed upon request by the contractor. Complete a Construction Stormwater Site Inspection Form documenting remaining violations. Outcomes:
   - Close inspection and inform Building Division to lift the Stop Work Order if contractor resolves all violations.
   - Provide verbal warning of what violations have not been resolved and notify onsite personnel, project owner, and permittee that a Stop Work Order will continue.
10. Notice of Penalty: Document describing assessed penalties related to Civil Action and Criminal Charges, if pursued, including:
    - Civil Action: Monetary relief sought from the violator for the cost of the investigation, inspection, remediation, and bringing legal action if determined to be necessary.
    - Criminal Charges: Pursued when a contractor completes repeat or knowing violations, or when a Contractor ignores the Building Division's Stop Work Order.
11. Final Occupancy and Infrastructure Approval: Review of site conditions before completing final sign-off of the project. Email the owner with the City's expectations before scheduling a site visit. Inspect and complete a site inspection form documenting the site conditions. Coordinate with the owner, as necessary, to flag any issues. Outcomes include:
    - Sign-off on request.
    - Refuse approval and state justification, re-inspect when the owner resolves the issues.

The MS4 tracks the following annual totals:

1. 2017 Totals:
   - Construction Projects: 445
     - Single-Family Residential: 350
     - Less than One (1) Acre: 57
     - Greater than One (1) Acre: 38
   - Plan Reviews: 445
     - Single-Family Residential: 350
     - Less than One (1) Acre: 57
     - Greater than One (1) Acre: 38
   - Site Inspections: 14 (3.1%)
     - Single-Family Residential: 8
     - Less than One (1) Acre: 0
     - Greater than One (1) Acre: 11
   - Training Classes: 11
     - Attendees: 268
2. 2018 Totals:
   - Construction Projects: 355
     - Single-Family Residential: 276
     - Less than One (1) Acre: 50
     - Greater than One (1) Acre: 29
   - Plan Reviews: 355
     - Single-Family Residential: 276
     - Less than One (1) Acre: 50
     - Greater than One (1) Acre: 29
   - Site Inspections: 72
     - Single-Family Residential: 32
     - Less than One (1) Acre: 17
     - Greater than One (1) Acre: 23
   - High-Priority Sites: 2
     - East Tamarack Reconstruction Project (Knife River)
     - South Tracy Reconstruction Project (Omdahl Construction)
   - Requests for Occupancy: 28
     - Less than One (1) Acre: 20
     - Greater than One (1) Acre: 8
   - Training Classes: 4
     - Attendees: 84

3. 2019 Totals:

- Construction Projects: 372
    - Single-Family Residential: 274
    - Less than One (1) Acre: 64
    - Greater than One (1) Acre: 34
- Plan Reviews: 372
    - Single-Family Residential: 274
    - Less than One (1) Acre: 64
    - Greater than One (1) Acre: 34
- Site Inspections: 59
    - Single-Family Residential: 22
    - Less than One (1) Acre: 16
    - Greater than One (1) Acre: 15
- High-Priority Sites: 2
    - Bozeman Public Safety Facility
    - 16 Wilson Residential Development
- Requests for Occupancy:
    - Less than One (1) Acre: 24
    - Greater than One (1) Acre: 28
- Training Classes: 4 (Martel, SIME, BMP 101, and BMP 201)
    - Attendees: 70



Graphic 5.3.1: Construction site audit score

5.4 Performance Tracking

The MS4 tracks construction site compliance inspections completed across all permit types annually to gauge its workload. The MS4's goal is to inspect 20% of construction sites per year, which does not include return site visits or final occupancy inspections.

1. 2017: 4.2% (19 inspections/450 projects)
    - City: 2.4% (14 inspections/445 projects)
    - MSU: 100% (5 inspections/5 projects)
2. 2018: 21.6% (78 inspections/361 projects)
    - City: 20.3% (72 inspections/355 projects)
    - MSU: 100.0% (6 inspections/6 projects)
3. 2019: 15.9% (59 inspections/372 projects)
    - City: 14.2% (53 inspections/366 projects)
    - MSU: 100.0% (6 inspections/6 projects)

The MS4 completes a Construction Site Compliance Audit in the fall, evaluating 50 random construction sites to determine their compliance with local, state, and federal stormwater regulations. The MS4 evaluates each construction site using the following criteria:

1. Implementation: BMPs present or absent
2. Adequacy: Appropriate type and scale of BMPs for site conditions
3. Installation: Adequate BMP installation per industry standard specifications
4. Maintenance: Sufficient maintenance so that BMPs are in good working order

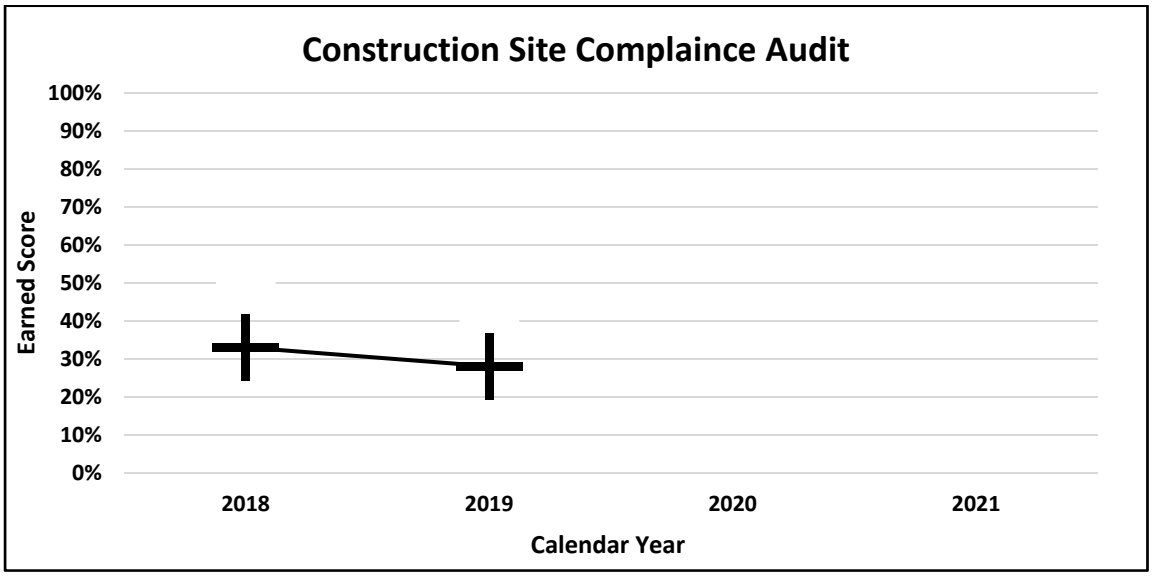
After evaluation, the MS4 grades each construction site using one of the following categories:

1. 0-Points: Not compliant with permit, high risk to infrastructure, public, and environment
2. 1-Point: Partially compliant with permit, moderate risk to infrastructure, public, and environment
3. 2-Points: Compliant with permit, low risk to infrastructure, public, and environment

The MS4 compiles the collected data and updates the following:

1. 2018 Audit Results:
    - Date(s): October 24 - 26
    - Earned Points/Total Points: 33/100
    - Earned Score: 33%
    - Trend: None
    - Discussion:
        - Increased BMP use but many were not adequately maintained
        - Noncompliance was mostly contained within private sites
        - Increased inspection frequency is effective at increasing compliance rates
2. 2019 Audit Results:
    - Date(s): October 14 - 16
    - Earned Points/Total Points: 28/100
    - Earned Score: 28%
    - Trend: Decreasing

- Discussion:
    - Compliance degrades back to pre-inspection levels after Acknowledgement of Corrective Actions
    - Permit applicant does not always communicate the requirements to onsite workers
    - 64% of commercial and infrastructure sites yielded a score with moderate or low risk
    - 44% of residential sites yielded a score with moderate or low risk
    - Only three sites fully complied with regulations
- Recommendations:
    - Increase inspection frequency to ensure compliance throughout project life
    - Inspect sites proportional to development ratios (i.e. residential vs. commercial vs. infrastructure)
    - Apply more emphasis on installation, maintenance, and records during inspections



Graphic 5.4.1: Construction site audit score

5.5 Future Opportunities

The MS4's Construction Site Management Program requires the following to meet established goals:

1. Inspection Optimization Software: Develop a web-based inspection platform that will expedite documentation and communication with contractors.

5.6 Documents

The MS4 utilizes the following documents, which are available upon request:

1. Universal Documents:
    - Bozeman Municipal Code: Article 4 Ch. 40
    - City of Bozeman Best Management Practice (BMP) Manual for Construction Sites
2. Single-Family Residential Construction:
    - Construction Stormwater Permit: Single-Family Residential Projects
    - Construction Stormwater Permit Review Checklist: Single Family Residential Projects

- Construction Stormwater Permit Confirmation
- Construction Stormwater Site Inspection Form: Sites Less than One (1) Acre

3. Multi-Family and Commercial Projects Less than One (1) Acre:

   - Construction Stormwater Permit: Sites Less than One (1) Acre
   - Construction Stormwater Permit Review Checklist: Sites Less than One (1) Acre
   - Construction Stormwater Permit Confirmation
   - Construction Stormwater Site Inspection Form: Sites Less than One (1) Acre
   - Request for Final Occupancy (RFO) Form

4. Projects Greater than One Acre:

   - MDEQ Construction General Permit
   - MDEQ Construction General Permit Notice of Intent (NOI)
   - MDEQ Construction Stormwater Pollution Prevention Plan (SWPPP)
   - MDEQ Construction Stormwater Permit Notice of Termination
   - MDEQ Construction Stormwater Permit Transfer Notification
   - Construction Stormwater Permit Review Checklist: Sites Greater than One (1) Acre
   - Construction Stormwater Site Inspection Form: Sites Greater than One (1) Acre
   - Request for Final Occupancy (RFO) Form

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Section 6.0

Post-Construction Program

Graphic 6.0.1: Overgrown stormwater basin

Graphic 6.0.2: Dredged stormwater basin

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6.1 Introduction

The MS4 strives to improve waterway health, protect public safety, and comply with its MS4 Permit through the regulation and oversight of existing and new stormwater facilities by:

1. Inspecting, educating, and providing maintenance solutions
2. Enforcing development regulations

SWMP Section 6.0 details the following components necessary to administer the MS4's Post-Construction Management Program, including:

- Regulatory Framework
- Oversight Protocol
- Performance Tracking
- Future Opportunities
- Applicable Documents

6.2 Regulatory Framework

The MS4's requires new and redevelopment projects to infiltrate, evapotranspire, and/or capture for reuse the first ½ inch of rainfall and meet volume control requirements, maintaining pre-development conditions post project completion. Project owners use an array of stormwater facilities to meet MS4 standards, including above and below ground stormwater facilities, permeable pavers, and bioretention systems. The documents regulating development include:

1. City of Bozeman Design Standards and Specification Policy
2. City of Bozeman Modifications to Montana Public Works Standard Specifications, 6th Edition
3. Montana Public Works Standard Specifications, 6th Edition
4. Montana Post-Construction Storm Water BMP Design Guidance Manual

Once constructed, the MS4 requires project owners or Home Owner Associations (HOAs) to maintain facilities in perpetuity per their Maintenance Plans submitted at the time of project approval.

6.3 Oversight Protocol

The MS4 oversees maintenance efforts by implementing the following protocol:

1. Application Review: Engineering staff review submitted plan sets, design reports, maintenance plans, and other applicable information to ensure the project complies with the MS4's water quantity and quality requirements using standard processes and documents.
2. Occupancy and Infrastructure Approvals: Engineering staff requires that a licensed professional certifies that the stormwater facility is installed per the approved plans.
3. Inspection: The MS4 completes investigations at the following frequencies:
    - Inspect 20% of stormwater facilities annually (once every five years), ordering based on:
        - Complaints or by request
        - Field observations
        - Compliance history
        - Property ownership and access
    - Inspect all high priority stormwater facilities annually. High priority is based on:
        - Facilities that drain into an impaired waterbody; and

- Facilities that contain an area larger than 1,076 square feet

4. Inspection Report: The MS4, or their consulting representative, documents the condition of stormwater facilities, identifies deficiencies, and provides the following information:
   - Drainage System Map
   - Inspection Findings
   - Maintenance Recommendations
5. Training *(optional)*: Meetings, site tours, and presentations held for owners, HOAs, and property managers after the MS4 has concluded its inspection and provided an inspection report.

The following details the MS4's high-priority stormwater facilities:

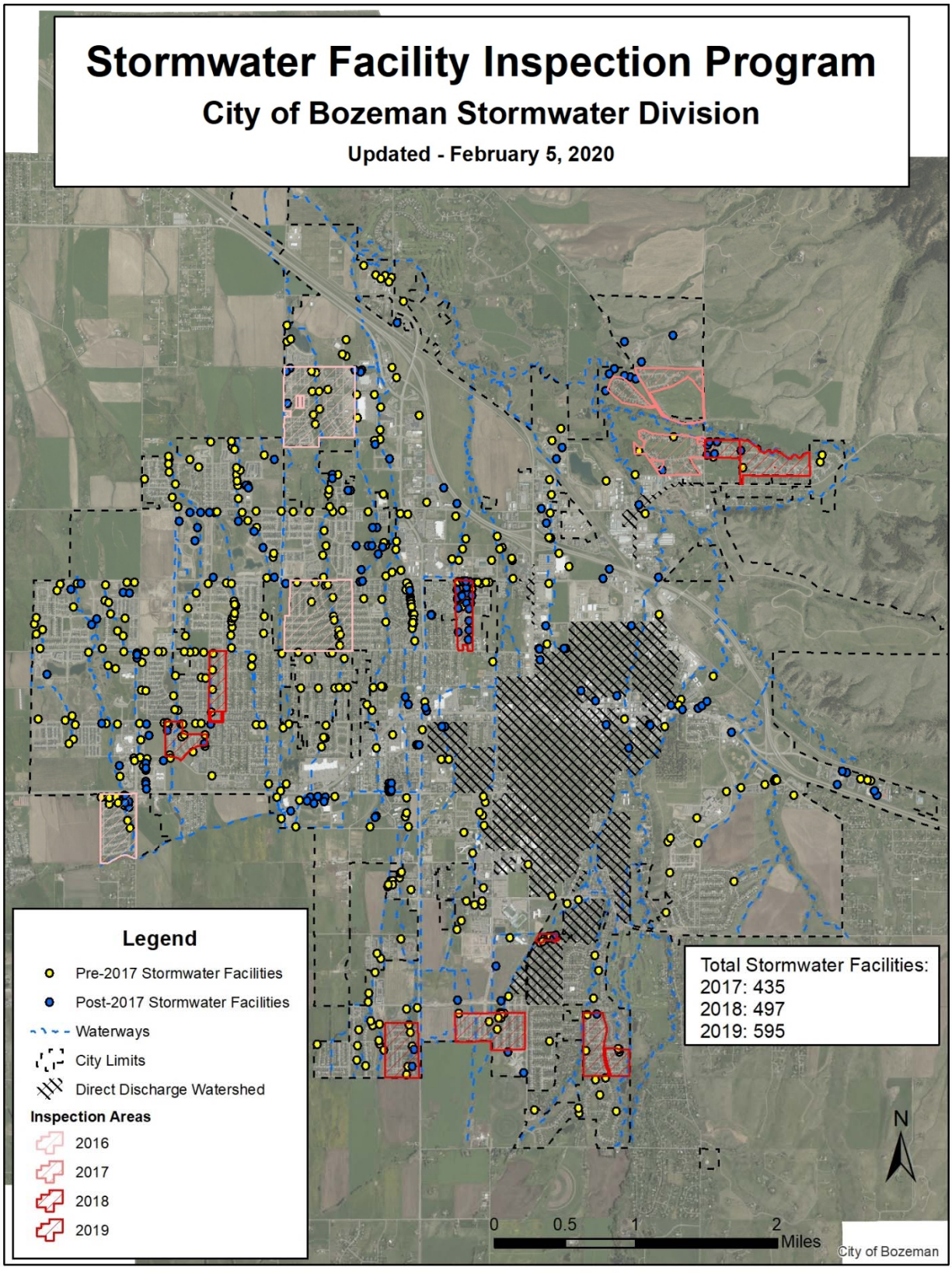
#	Facility ID	Owner	Area (ft^2)	Location	Receiving Waterbody	2019	Criticality Rating	Action
1	DP.H06.00026	Montana State University	3,185	GIS Data	Mandeville Creek	Complete	Low	Report Sent to Owner
2	DP.H06.00400	Montana State University	7,591	GIS Data	Mandeville Creek	Complete	Low	Report Sent to Owner
3	DP.H06.00024	Montana State University	11,829	GIS Data	Mandeville Creek	Complete	Low	Report Sent to Owner
4	DP.H06.00023	Montana State University	4,667	GIS Data	Mandeville Creek	Complete	Low	Report Sent to Owner
5	DP.H06.00028	Montana State University	1,294	GIS Data	Mandeville Creek	Complete	Low	Report Sent to Owner
6	DP.H06.00025	Montana State University	7,231	GIS Data	Mandeville Creek	Complete	n/a	Under Construction
7	DP.I51.00073	City of Bozeman - WRF (#1)	10,744	GIS Data	East Gallatin River	Complete	Low	Report Filed with Owner
8	DP.I51.00075	City of Bozeman - WRF (#2)	1,355	GIS Data	East Gallatin River	Complete	Low	Report Filed with Owner
9	DP.I51.00074	City of Bozeman - WRF (#3)	10,314	GIS Data	East Gallatin River	Complete	Low	Report Filed with Owner
10	DP.E02.00006	City of Bozeman Vehicle Maint.	5,577	GIS Data	East Gallatin River	Complete	Medium	Work Detailed in FSWPPP
11	DP.H04.00006	Bozeman High School - Private	7,188	GIS Data	Mandeville Creek	Complete	Low	Report Sent to Owner
12	DP.E01.00007	Bridger Creek Subdivision - HOA	22,765	GIS Data	East Gallatin River	Complete	Severe	Report Sent to Owner
13	DP.G02.00017	Private	2,245	GIS Data	Mandeville Creek	Incomplete	-	-
14	DP.G02.00048	Private	3,464	GIS Data	Mandeville Creek	Incomplete	-	-
15	DP.H02.00001	Private	5,450	GIS Data	Mandeville Creek	Incomplete	-	-
16	DP.F01.00026	Private	7,354	GIS Data	East Gallatin River	Incomplete	-	-
17	DP.H07.00022	Private	14,775	GIS Data	Mandeville Creek	Incomplete	-	-
18	DP.H07.00023	Private	26,987	GIS Data	Mandeville Creek	Incomplete	-	-
19	DP.B05.00001	Private	3,967	GIS Data	Rocky Creek	Incomplete	-	-

Graphic 6.3.1: High-priority stormwater facilities

6.4 Performance Tracking

The MS4 tracks stormwater facility inspections annually to gauge its workload, with a goal of reviewing 20% per year, which does not include return visits or final occupancy inspections. Totals include:

1. 2017: 8.7% (38 inspected/439 total)
   - City: 2.0% (8 inspected/409 total)
   - MSU: 100% (30 inspected/30 total)
2. 2018: 9.1% (45 inspected/497 total)
   - City: 3.2% (15 inspected/467 total)
   - MSU: 100.0% (30 inspected/30 total)
3. 2019: 12.2% (72 inspected/591 total)
   - City: 7.1% (40 inspected/559 total)
   - MSU: 100.0% (32 inspected/32 total)



Graphic 6.4.1: Stormwater facility map

The MS4 completes a Stormwater Facility Compliance Audit annually, evaluating 50 random stormwater facilities to determine their condition based on the following criteria:

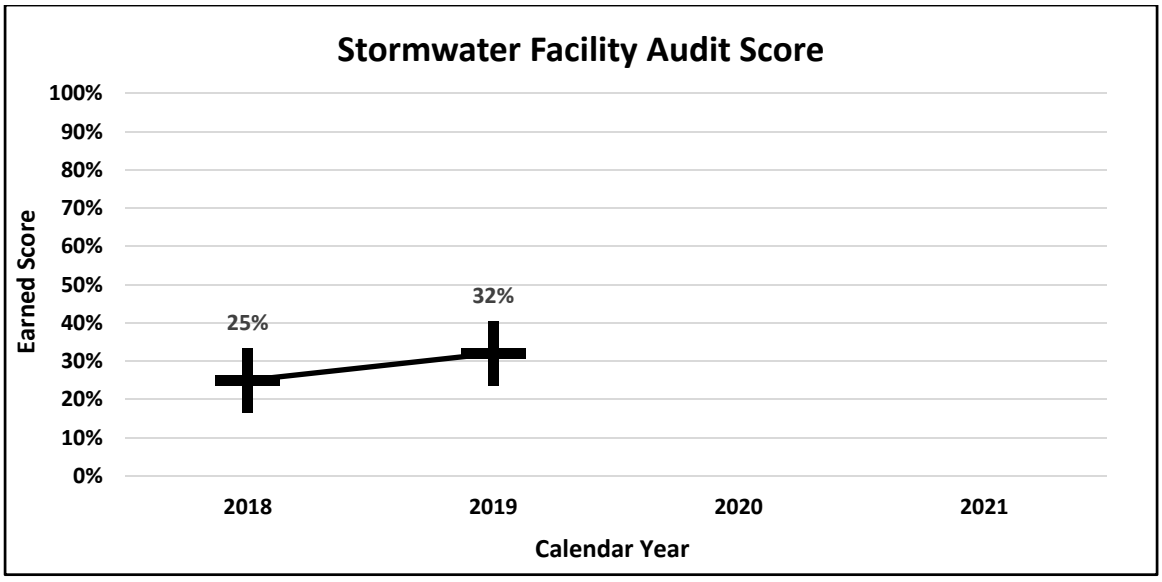
1. Vegetation Management: Evidence of reoccurring cattail, grass, and woody shrub removal
2. Clogged Entry or Exit Points: Pipe openings and outlet structures clear of accumulated debris
3. Sediment Deposition: Facility storage capacities minimally impacted by accumulated debris
4. Ability to Drain: No stagnant water present beyond the 48-hour infiltration period

After evaluation, the MS4 grades each stormwater facility using one of the following categories:

1. 0-Points: Facility is not maintained, high risk to infrastructure, public, and environment
2. 1-Point: Facility is partially maintained, moderate risk to infrastructure, public, and environment
3. 2-Points: Facility is maintained, low risk to the infrastructure, public, and environment

The MS4 compiles the collected data and updates the following:

1. 2018 Audit Results:
    - Date(s): October 17 and 26
    - Earned Points/Total Points: 25/100
    - Earned Score: 25%
    - Trend: None
    - Discussion:
        - Wal-Mart, Safeway, and other private entities maintain their facilities more frequently, yielding an average score six times greater than HOAs.
        - Facilities integrated into landscapes are in better condition than those hidden.
        - The overwhelming majority of HOAs are ignorant of their responsibilities and do not complete maintenance regardless of previous engagement by the City.
        - Current design standards allow for the construction of inadequate systems.
2. 2019 Audit Results:
    - Date(s): November 14 and 15
    - Earned Points/Total Points: 32/100
    - Earned Score: 32%
    - Trend: Increasing
    - Discussion:
        - Facilities integrated into landscapes are in better condition than those hidden.
        - The overwhelming majority of HOAs are ignorant of their responsibilities and do not complete maintenance.
        - Current design standards allow for the construction of inadequate systems.
        - Legal private property access is an issue that requires consideration and resolution
        - Average Scores: Private = 1.0 and HOA = .3



Graph 6.4.2: Stormwater facility audit scores

6.5 Future Opportunities

The MS4's Post-Construction Program requires the following to meet established goals:

1. New Drainage Design Standards: In 2008, the MS4 completed a Facility Plan, which evaluated requirements, identified shortfalls, and provided recommendations for improvement. The MS4 is working to implement the changes proposed in 2008, bringing standards in line with the Facility Plan's recommendations. Most notable changes include:
   - Increasing design storm from 10-year to 25, 50, or 100-year
   - Requiring detention downtown for redevelopment projects that do not exceed one acre
   - Aligning language to work jointly with the content of the Montana Post-Construction Stormwater BMP Guidance Manual
   - Redeveloping rainfall curves to represent modern rainfall intensity and duration
   - Requiring in-depth geotechnical, groundwater, and infiltration testing
   - Categorizing development types and specific standards as applicable
   - Improving maintenance plan development and documentation submittals
2. Enforcement of Stormwater Facility Maintenace and Repair: The MS4 needs an improved policy that results in the consistent operation and maintenance of private stormwater facilities. Specific items include:
   - Development of an enforcement process, including the ability to establish timelines, issue penalties, and complete work at the owner's expense.
   - Legal property access
   - Solution for defunct HOAs that lack maintenance funding

6.6 Documents

The MS4 utilizes the following materials, which are available upon request*:*

1. Stormwater Facility Maintenance:
   - Maintenance Guide
   - Inspection Form

2. Stormwater Facility Design and Construction:
    - City of Bozeman Design Standards and Specification Policy
    - City of Bozeman Modifications to Montana Public Works Standard Specifications, 6th Edition
    - Montana Public Works Standard Specifications, 6th Edition
    - Montana Post-Construction Storm Water BMP Design Guidance Manual
    - Development Review Documents (Plan Review Checklist): Planning Division Staff Report, Engineering Review Letter, and DRC Memo

Section 7.0

Good Housekeeping Program

Graphic 7.0.1: Street sweeping debris pile

Graphic 7.0.2: Sediment management facility

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7.1 Introduction

The MS4 strives to improve waterway health, protect public safety, and comply with its MS4 Permit through the responsible management of its storm sewer system, facilities, and daily work activities by:

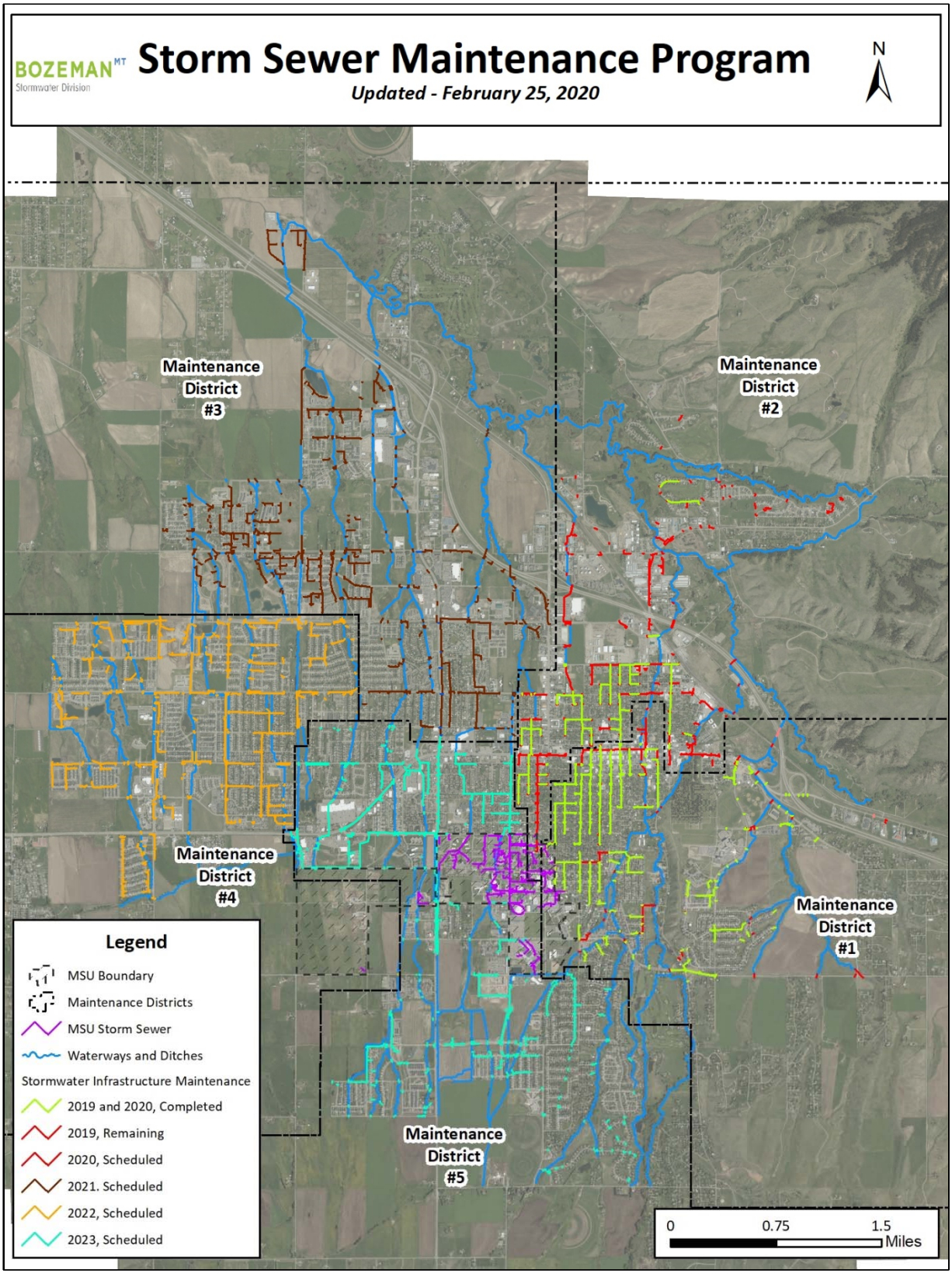
1. Inspecting, maintaining, and repairing public assets
2. Mitigating stormwater pollutants through the development and implementation of Facility and Activity Stormwater Pollution Prevention Plans
3. Maintaining an environmentally conscious workforce through training

SWMP Section 7.0 details the following components necessary to administer the MS4's Good Housekeeping Program, including:

- Infrastructure Operation
- Facility Stormwater Pollution Prevention Program
- Activity Stormwater Pollution Prevention Program
- Training

7.2 Infrastructure Operation

The MS4 inspects, maintains, and repairs its storm sewer system on an annual basis. Four parties complete activities, including the City of Bozeman (City), Montana State University (University), Montana Department of Transportation (MDT), and private owners. SWMP Section 4.0 includes quantity and asset type information broken down for each party. The University maintains infrastructure within its boundary. The City maintains City and MDT infrastructure, completing work on a five-year cycle. To guide the work, the City uses Maintenance Boundaries (MB) that each contains 20% of the storm sewer system per the following schedule: MB 1: 2019, MB 2: 2020, MB 3: 2021, MB 4: 2022, and MB 5: 2023. Progress is shown in Graphic 7.2.1.



Graphic 7.2.1: Storm Sewer Maintenance Program

Multiple Divisions and Departments are responsible for conducting infrastructure operations, including:

1. Stormwater Division Operations
   - Pipe inspection
     - Objective: 20% of the system per year
     - Active Season(s): Winter, Spring, Summer, and Fall
     - Operational Area: Citywide
   - Pipe, inlet, and manhole cleaning
     - Objective: 20% of the system per year
     - Active Season(s): Winter, Spring, Summer, and Fall
     - Operational Area: Citywide
   - Treatment unit maintenance
     - Objective: Clean semi-annually
     - Active Season(s): Spring and Fall
     - Operational Area: Individual unit locations
   - Infiltration facility maintenance
     - Objective: Clean semi-annually
     - Active Season(s): Spring and Fall
     - Operational Area: As required
   - Pipe, inlet, manhole repair
     - Objective: Prioritize based on inspection
     - Active Season(s): Spring, Summer, and Fall
     - Operational Area: Citywide
2. Streets Department Operations
   - Spring debris pickup
     - Objective: Annually
     - Active Season(s): Spring
     - Operational Area: Citywide
   - Fall leaf pickup
     - Objective: Annually
     - Active Season(s): Fall
     - Operational Area: Citywide
   - Street sweeping
     - Objective: Annually
     - Active Season(s): Winter, Spring, Summer, and Fall
     - Operational Area: Citywide
3. Strategic Services Division
   - New or improved private and public infrastructure mapping and attribution
     - Objective: Annually

- Active Season(s): Winter, Spring, Summer, and Fall
- Operational Area: Citywide

- Ownership, life-cycle, and maintainability GIS attribution coordination
  - Objective: Annually
  - Active Season(s): Winter, Spring, Summer, and Fall
  - Operational Area: Citywide
- Development and redevelopment impervious area digitization for rate model
  - Objective: Annually
  - Active Season(s): Winter, Spring, Summer, and Fall
  - Operational Area: Citywide
- Cityworks software management, including event layers, reports, and databases
  - Objective: Annually
  - Active Season(s): Winter, Spring, Summer, and Fall
  - Operational Area: Citywide
- Division performance optimization and database administration
  - Objective: Annually
  - Active Season(s): Winter, Spring, Summer, and Fall
  - Operational Area: Citywide

4. Operation Facilities
   - Sediment Disposal Facility
     - Goal: Test debris, clean bays, and haul waste to landfill annually
     - Operating Seasons: Winter, Spring, Summer, and Fall
   - East Gallatin Street Sweepings Collection Area
     - Goal: Test debris and haul waste to landfill annually
     - Operating Seasons: Winter, Spring, Summer, and Fall

The MS4 uses the following workload metrics to track its performance:

1. Inlets and Manholes Cleaned: Stormwater inlets and manholes serve two purposes: (1) mitigate flood risk by collecting runoff from streets, parking lots, alleyways, and other hard surfaces, and (2) treat stormwater by capturing sediment, trash, and other pollutants in their sumps.
   - Performance Measure: Clean 20% of public inlets and manholes annually
   - Calculation Type: Total assets (includes duplicate effort)
   - Data Source: Stormwater Operations Dashboard
     - 2017: 25.5% (1,051 maintained/4,117 total)
       - City: 20.8% (776 maintained/3,725 total)
       - MSU: 70.2% (275 maintained/392 total)
     - 2018: 24.1% (998 maintained/4,140 total)
       - City: 19.6% (742 maintained/3,778 total)
       - MSU: 70.7% (256 maintained/362 total)

- 2019: 24.8% (1,072 maintained/4,323 total)
    - City: 21.0% (809 maintained/3,962 total)
    - MSU: 72.9% (263 maintained/361 total)

2. Pipes Cleaned: Stormwater pipes serve two purposes: (1) convey stormwater collected by inlets to their point of discharge, and (2) capture sediment, trash, and other pollutants that fall out of suspension, requiring reoccurring maintenance to remain functional.

    - Performance Measure: Clean 20% of pipes annually
    - Calculation Type: Total assets (mains and laterals, includes duplicate effort)
    - Data Source: Stormwater Operations Dashboard
        - 2017: 18.0% (17.0 maintained miles/94.3 total miles)
            - City: 21.6% (16.7 maintained miles/77.4 total miles)
            - MSU: 1.8% (.3 maintained miles/16.9 total miles)
        - 2018: 21.3% (16.8 maintained miles/78.7 total miles)
            - City: 23.7% (16.7 maintained miles/70.4 total miles)
            - MSU: 1.2% (.1 maintained miles/8.3 total miles)
        - 2019: 16.9% (13.7 maintained miles/80.9 total miles)
            - City: 18.7% (13.6 maintained miles/72.6 total miles)
            - MSU: 1.2% (.1 maintained miles/8.3 total miles)

3. Infrastructure Repairs: Infrastructure repairs or "spot repairs" serve two purposes: (1) fix known pipe failures and restrictions to ensure the adequate flow of stormwater, and (2) repair open sections of pipe where scouring of subgrade soils occur, mitigating the chance of a road failure and sediment load contribution.

    - Performance Measure: Pipe integrity indicator
    - Calculation Type: Total repairs
    - Data Source: Stormwater Operations Dashboard
        - 2017: 23 Repairs
            - City: 18 Repairs
            - MSU: 5 Repairs
        - 2018: 18 Repairs
            - City: 16 Repairs
            - MSU: 2 Repairs
        - 2019: 10 Repairs
            - City: 10 Repairs
            - MSU: 0 Repairs

4. Stormwater Pipes Inspected: Pipe inspections serve two purposes: (1) allows staff to identify and prioritize structural and maintenance needs for underground infrastructure and (2) ensure no illicit discharges, cross-connections, or illegal pipe connections exist.

    - Performance Measure: Inspect 20% of stormwater mains annually
    - Calculation Type: Total assets (mains and laterals, includes duplicate effort)

- Data Source: Infrastructure Maintenance Performance Measure
    - 2017: 10.4% (9.8 inspected miles/94.3 total miles)
        - City: 12.0% (9.3 inspected miles/77.4 total miles)
        - MSU: 3.0% (0.5 inspected miles/16.9 total miles)
    - 2018: 19.8% (15.6 inspected miles/78.7 total miles)
        - City: 21.6% (15.2 inspected miles/70.4 total miles)
        - MSU: 4.8% (0.4 inspected miles/8.3 total miles)
    - 2019: 15.2% (11.0 inspected miles/80.9 total miles)
        - City: 15.2% (11.0 inspected miles/72.6 total miles)
        - MSU: 0.2% (0.02 inspected miles/8.3 total miles)

7.3 Facility Stormwater Pollution Prevention Program

The purpose of the MS4's Facility Stormwater Pollution Prevention Program (FSWPPP) is to mitigate stormwater pollutants generated on public facilities. To complete, the MS4 works to ensure all public facilities meet or exceed the following Facility Minimum Standards (FMS):

- Connect wash bays and interior floor drains to the sanitary sewer with pretreatment
- Store chemicals under cover and within secondary containment
- Prevent tracking at entries, exits, and within parking areas
- Stock spill kits with instructions, disposable bags, PPE, and absorbent products
- Perform preventative maintenance on vehicles and equipment
- Wash vehicles and equipment in designated locations
- Contain fuel tanks with secondary containment
- Implement BMPs for pollutants identified to exceed applicable median concentrations detailed in SWMP Section 8.2
- Maintain stormwater facilities per the following frequencies:
    - Stormwater basins, annual vegetation and debris clearing, 10-15 year dredging
    - Mechanical separators, semi-annual vacuuming
    - Infiltration facilities, semi-annual flushing
    - Parking and drive surfaces, as required
    - Inlets, manholes, and pipes, five-year flushing, vacuuming, and inspection cycle
- Stabilize disturbed areas within 14-days
- Update and store FSWPPP onsite to show current conditions

The MS4 uses the following FSWPPP inspection protocol:

1. Sample a minimum of two discharges and analyze the pollutants detailed in SWMP Section 8.3
2. Inspect site and establish baseline compliance with FMSs
3. Review existing documents, including existing Standard Operating Guides (SOGs), safety data sheets, spill documentation, and stormwater facility record drawings
4. Generate inspection report that documents the sampling results, including the comparison to median concentrations detailed in SWMP Section 8.2, site map, and inspection notes
5. Meet with applicable leadership to review the inspection report
6. Develop FSWPPP that includes:

- Overview
- Stormwater Team
- Site Description
- Impaired Waterbodies
- Sampling
- Pollution Identification
- Site Assessment
- Spill Response Plan
- Training
- Inspections
- Infrastructure Improvements
- Record Keeping and Reporting
- Site Map
- Corrective Action Tracking Sheet
- Spill Tracking Sheet

7. Implement FSWPPP
8. Re-inspect and update FSWPPP annually after implementation.

The MS4 will subject the following facilities to the FSWPPP inspection protocol:

1. Operations Staging and Storage Areas

- 1.1: University Shops Facility
    - Use: Staging, storage, and office property supporting numerous MSU divisions
    - Pollutants of Concern: See FSWPPP
    - Responsible Department: MSU Facilities Services
    - Responsible Position: MSU Director of Facilities Services
    - Control Measures: Storm conveyance infrastructure
    - Workflow:
        - ~~Sample: Complete (2019)~~
        - ~~Inspect: Complete (2019)~~
        - ~~Generate Inspection Report: Complete (2019)~~
        - ~~Meet with Facility Leadership: Complete (2019)~~
        - Develop and Implement FSWPPP: Pending (2020)
        - Train: Pending (2020)
        - Follow-Up Inspection: Pending 2020
- 1.2: City Shops Complex
    - Use: Staging, storage, and office property supporting City Public Works divisions
    - Pollutants of Concern: See FSWPPP
    - Responsible Department: Public Works
    - Responsible Position: Public Works Director
    - Control Measures: Hydrodynamic separator, wash bay, underground infiltration gallery, double-walled fuel tank
    - Workflow:
        - ~~Sample: Complete (2019)~~
        - ~~Inspect: Complete (2019)~~
        - ~~Generate Inspection Report: Complete (2019)~~
        - ~~Meet with Facility Leadership: Complete (2019)~~
        - ~~Develop and implement FSWPPP: Complete (2019)~~
        - Train: Pending (2020)
        - Follow-Up Inspection: Pending (2020)
- 1.3: Vehicle Maintenance Facility

- Use: Facility that supports the storage and maintenance of equipment for all municipal operations
- Pollutants of Concern: See FSWPPP
- Responsible Department: Public Works
- Responsible Position: Public Works Director
- Control Measures: Detention basin, sand-oil separator
- Workflow:
  - ~~Sample: Complete (2019)~~
  - ~~Inspect: Complete (2019)~~
  - ~~Generate Inspection Report: Complete (2019)~~
  - ~~Meet with Facility Leadership: Complete (2019)~~
  - ~~Develop and implement FSWPPP: Complete (2019)~~
  - Train: Pending (2020)
  - Follow-Up Inspection: Pending (2020)

➢ 1.4: Laurel Glen Operations Facility

- Use: Facility that supports the storage and maintenance of equipment for Water and Sewer municipal operations
- Pollutants of Concern: TBD
- Responsible Department: Public Works
- Responsible Position: Public Works Director
- Control Measures: TBD
- Workflow:
  - Sample: Pending (2020)
  - Inspect: Pending (2020)
  - Generate Inspection Report: Pending (2020)
  - Meet with Facility Leadership: Pending (2020)
  - Develop and implement FSWPPP: Pending (2020)
  - Train: Pending (2020)
  - Follow-Up Inspection: 2021

2. Material Storage Yards

➢ 2.1: East Gallatin Storage Area

- Use: Storage area for sediment, millings, street sweepings, and other materials used during the daily operation of numerous MS4 divisions
- Pollutants of Concern: TBD
- Responsible Department: Public Works and Parks
- Responsible Position: Public Works and Parks Directors
- Control Measures: TBD
- Workflow:
  - Sample: Pending (2020)
  - Inspect: Pending (2020)
  - Generate Inspection Report: Pending (2020)
  - Meet with Facility Leadership: Pending (2020)
  - Develop and implement FSWPPP: Pending (2020)
  - Train: Pending (2020)

- Confirm: 2021

- 2.2: Solid Waste Operations and Closed Landfill
  - Use: Minor Class IV Landfill Facility housing the Solid Waste Division and is permitted under the MDEQ's Stormwater Industrial Permit
  - Pollutants of Concern: See FSWPPP
  - Responsible Department: Public Works
  - Responsible Position: Public Works Director
  - Control Measures: Detention basins, double walled fuel tank, rock rundown
  - Workflow:
    - ~~Sample: Complete (2019)~~
    - ~~Inspect: Complete (2019)~~
    - ~~Generate Inspection Report: Complete (2019)~~
    - ~~Meet with Facility Leadership: Complete (2019)~~
    - ~~Develop and implement FSWPPP: Complete (2019)~~
    - ~~Train: Complete (2019)~~
    - Follow-Up Inspection: Pending (2020)

- 2.3: Snow Storage Area
  - Use: Location that houses snow throughout winter
  - Pollutants of Concern: See FSWPPP
  - Responsible Department: Public Works
  - Responsible Position: Public Works Director
  - Control Measures: Asphalt storage area
  - Workflow:
    - ~~Sample: Complete (2019)~~
    - ~~Inspect: Complete (2019)~~
    - ~~Generate Inspection Report: Complete (2019)~~
    - ~~Meet with Facility Leadership: Complete (2019)~~
    - ~~Develop and implement FSWPPP: Complete (2019)~~
    - Train: Pending (2020)
    - Follow-Up Inspection: Pending (2020)

- 2.4: University Material Storage Area
  - Use: Location that houses arena dirt
  - Pollutants of Concern: TBD
  - Responsible Department: MSU Facilities Services
  - Responsible Position: MSU Director of Facilities Services
  - Control Measures: TBD
  - Workflow:
    - Sample: Pending (2020)
    - Inspect: Pending (2020)
    - Generate Inspection Report: Pending (2020)
    - Meet with Facility Leadership: Pending (2020)
    - Develop and implement FSWPPP: Pending (2020)
    - Train: Pending (2020)
    - Confirm: 2021

3. Treatment Works
   - 3.1: Water Treatment Plant
     - Use: Potable water treatment plant
     - Pollutants of Concern: TBD
     - Responsible Department: Public Works
     - Responsible Position: Public Works Director
     - Control Measures: TBD
     - Workflow:
       - Sample: Pending (2020)
       - Inspect: Pending (2020)
       - Generate Inspection Report: Pending (2020)
       - Meet with Facility Leadership: Pending (2020)
       - Develop and implement FSWPPP: Pending (2020)
       - Train: Pending (2020)
       - Confirm: 2021
   - 3.2: Water Reclamation Facility
     - Use: Treatment plant regulated under the MDEQ's Stormwater Industrial Permit
     - Pollutants of Concern: See FSWPPP
     - Responsible Department: Public Works
     - Responsible Position: Public Works Director
     - Control Measures: Onsite surface stormwater facilities
     - Workflow:
       - ~~Sample: Complete (2019)~~
       - ~~Inspect: Complete (2019)~~
       - ~~Generate Inspection Report: Complete (2019)~~
       - ~~Meet with Facility Leadership: Complete (2019)~~
       - ~~Develop and implement FSWPPP: Complete (2019)~~
       - ~~Train: Complete (2019)~~
       - Follow-Up Inspection: Pending (2020)
4. Parking Facilities
   - 4.1: Public Parking Garage
     - Use: Vehicle parking
     - Pollutants of Concern: TBD
     - Responsible Department: Parking Division
     - Responsible Position: Parking Manager
     - Control Measures: TBD
     - Workflow:
       - Sample: 2021
       - Inspect: 2021
       - Generate Inspection Report: 2021
       - Meet with Facility Leadership: 2021
       - Develop and implement FSWPPP: 2021
       - Train: Fall/Winter 2021

        - Confirm: Spring 2022

- 4.2: University Parking Garage
    - Use: Vehicle parking
    - Pollutants of Concern: TBD
    - Responsible Department: University Facilities
    - Responsible Position: University Facilities Director
    - Control Measures: TBD
    - Workflow:
        - Sample: 2021
        - Inspect: 2021
        - Generate Inspection Report: 2021
        - Meet with Facility Leadership: 2021
        - Develop and implement FSWPPP: 2021
        - Train: Fall/Winter 2021
        - Confirm: Spring 2022
- 4.3: Public Parking Lots (4)
    - Use: Vehicle parking
    - Pollutants of Concern: TBD
    - Responsible Department: Parking Division
    - Responsible Position: Parking Manager
    - Control Measures: TBD
    - Workflow:
        - Sample: 2021
        - Inspect: 2021
        - Generate Inspection Report: 2021
        - Meet with Facility Leadership: 2021
        - Develop and implement FSWPPP: 2021
        - Train: Fall/Winter 2021
        - Confirm: Spring 2022
- 4.4: University Parking Lots (17)
    - Use: Vehicle parking
    - Pollutants of Concern: TBD
    - Responsible Department: University Facilities
    - Responsible Position: University Facilities Director
    - Control Measures: TBD
    - Workflow:
        - Sample: 2021
        - Inspect: 2021
        - Generate Inspection Report: 2021
        - Meet with Facility Leadership: 2021
        - Develop and implement FSWPPP: 2021
        - Train: Fall/Winter 2021
        - Confirm: Spring 2022

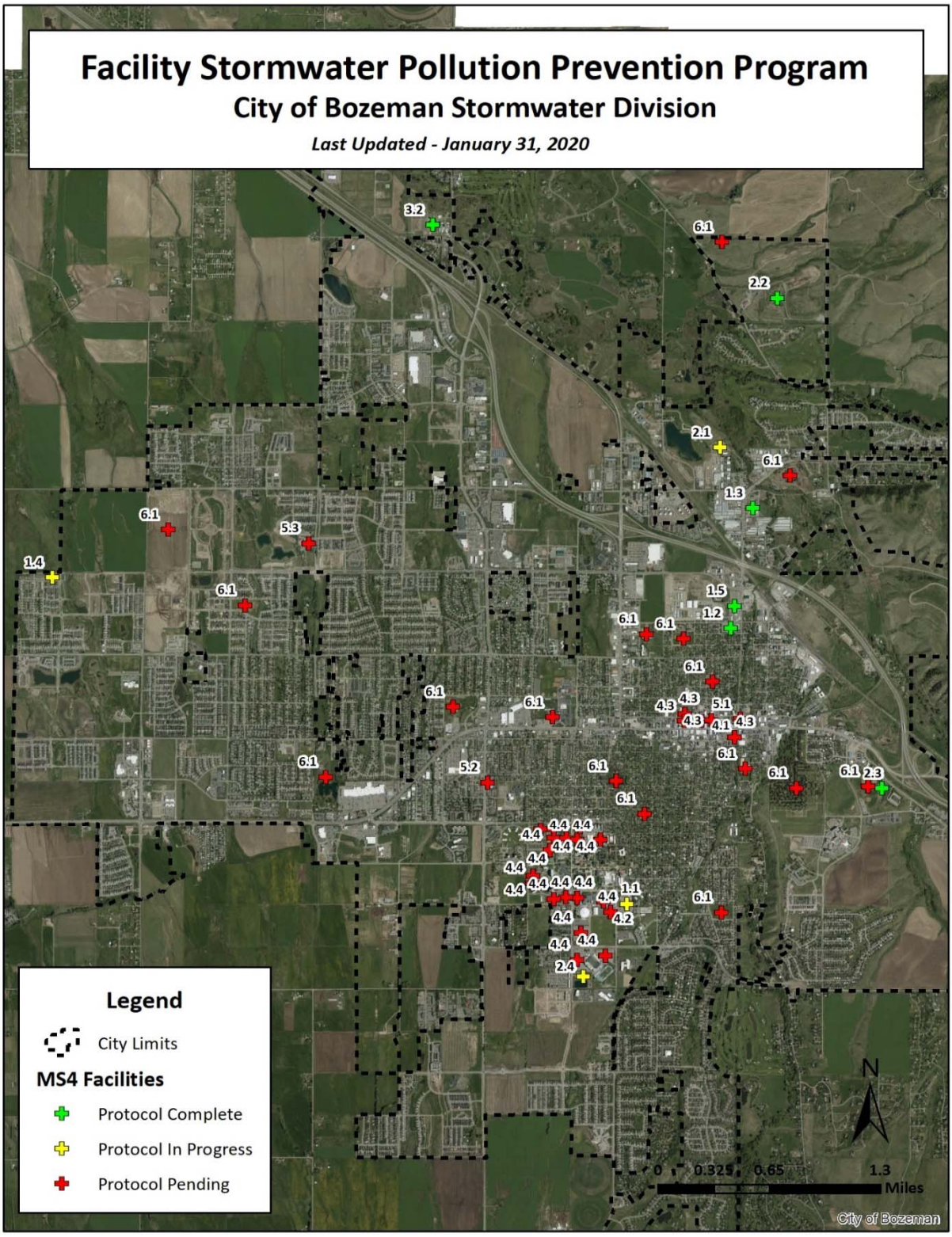
5. Public Safety Facilities

- 5.1: Bozeman Public Safety Facility
    - Use: Future location of the City's Police, Fire, and Legal Divisions
    - Pollutants of Concern: See FSWPPP
    - Responsible Department: City Management
    - Responsible Position: Assistant City Manager
    - Control Measures: Under construction
    - Workflow:
        - ~~Sample: Complete (2019)~~
        - ~~Inspect: Complete (2019)~~
        - ~~Generate Inspection Report: Complete (2019)~~
        - ~~Meet with Facility Leadership: Complete (2019)~~
        - ~~Develop and implement FSWPPP: Complete (2019)~~
        - ~~Train: Complete (2019)~~
        - Follow-Up Inspection: Pending (2020)
- 5.2: Fire Station #1 (34 N Rouse Ave)
    - Use: Emergency services
    - Pollutants of Concern: TBD
    - Responsible Department: Fire Department
    - Responsible Position: Fire Chief
    - Control Measures: TBD
    - Workflow:
        - Sample: 2022
        - Inspect: 2022
        - Generate Inspection Report: 2022
        - Meet with Facility Leadership: 2022
        - Develop and implement FSWPPP: 2022
        - Train: Fall/Winter 2022
        - Confirm: Spring 2023
- 5.3: Fire Station #2 (410 S 19th Ave)
    - Use: Emergency services
    - Pollutants of Concern: TBD
    - Responsible Department: Fire Department
    - Responsible Position: Fire Chief
    - Control Measures: TBD
    - Workflow:
        - Sample: 2022
        - Inspect: 2022
        - Generate Inspection Report: 2022
        - Meet with Facility Leadership: 2022
        - Develop and implement FSWPPP: 2022
        - Train: Fall/Winter 2022
        - Confirm: Spring 2023

- 5.4: Fire Station #3 (1705 Vaquero Pkwy)
    - Use: Emergency services
    - Pollutants of Concern: TBD
    - Responsible Department: Fire Department
    - Responsible Position: Fire Chief
    - Control Measures: TBD
    - Workflow:
        - Sample: 2022
        - Inspect: 2022
        - Generate Inspection Report: 2022
        - Meet with Facility Leadership: 2022
        - Develop and implement FSWPPP: 2022
        - Train: Fall/Winter 2022
        - Confirm: Spring 2023

6. Recreational Facilities

- 6.1: Parks and Recreation (16)
    - Use: Numerous parks and recreation facilities exist citywide
    - Pollutants of Concern: TBD
    - Responsible Department: Parks
    - Responsible Position: Parks Director
    - Control Measures: TBD
    - Workflow:
        - Sample: 2022
        - Inspect: 2022
        - Generate Inspection Report: 2022
        - Meet with Facility Leadership: 2022
        - Develop and implement FSWPPP: 2022
        - Train: Fall/Winter 2022
        - Confirm: Spring 2023



Graphic 7.3.1: Location of MS4 facilities

The MS4 tracks workload by totaling the number of inspected facilities and comparing the total to those still requiring assessment.

- 2019: 32% (6/19)
- 2020: TBD
- 2012: TBD

7.4 Activity Stormwater Pollution Prevention Program

The purpose of the MS4's Activity Stormwater Pollution Prevention Program (ASWPPP) is to mitigate stormwater pollutants generated from municipal operations. To complete, the MS4 works to ensure all operations meet or exceed the following Activity Minimum Standards (AMS):

- Protect street surfaces and inlets by deploying controls that capture, contain, and allow the collection and disposal of generated pollutants
- Cover or contain material stockpiles, and control run-on
- Stabilize disturbed areas within 14-days of activities
- Prevent tracking and the off-site migration of debris
- Capture and dispose concrete waste
- Manage dewatering flows to remove sediment to the maximum extent practicable before entering the storm sewer system or waterways

The MS4 uses the following ASWPPP inspection protocol:

1. Inspect activity and establish baseline compliance with AMSs
2. Review existing documents, including SOGs and safety data sheets
3. Generate inspection report that includes inspection notes
4. Meet with applicable leadership to review the inspection report
5. Develop ASWPPP that includes:
    - Overview
    - Leadership
    - Activity Description
    - AMS and Pollution Assessment
    - Deployed BMPs and SOGs
    - High-Priority Areas (if applicable)
    - Training Program
    - Inspection Frequency
    - Record Keeping and Reporting
    - Site Map (if applicable)
    - Corrective Action Tracking Sheet
6. Implement ASWPPP
7. Re-inspect and compare compliance with AMSs and update ASWPPP one year after implementation and on a three-year interval moving forward

The MS4 will subject the following activities to the ASWPPP inspection protocol:

8. Water and Sewer Operations
    - 1.1: Water main breaks
        - Pollutants of Concern: See ASWPPP
        - Responsible Department: Public Works
        - Responsible Position: Public Works Director
        - Location: Citywide
        - Workflow:

- ~~Investigate: Complete (2019)~~
- ~~Develop ASWPPP: Complete (2019)~~
- Train: Pending (2020)
- Confirm: Pending (2020)

- 1.2: Sanitary sewer overflows
  - Pollutants of Concern: See ASWPPP
  - Responsible Department: Public Works
  - Responsible Position: Public Works Director
  - Location: Citywide
  - Workflow:
    - ~~Investigate: Complete (2019)~~
    - ~~Develop ASWPPP: Complete (2019)~~
    - Train: Pending (2020)
    - Confirm: Pending (2020)
- 1.3: Trenching and excavation
  - Pollutants of Concern: TBD
  - Responsible Department: Public Works
  - Responsible Position: Public Works Director
  - Location: Citywide
  - Workflow:
    - Investigate: Pending (2020)
    - Develop ASWPPP: Pending (2020)
    - Train: Pending (2020)
    - Confirm: Pending (2020)

9. Streets, Water, and Sewer Operations
   - 2.1: Sidewalk and curb construction
     - Pollutants of Concern: TBD
     - Responsible Department: Public Works
     - Responsible Position: Public Works Director
     - Location: Citywide
     - Workflow:
       - Investigate: Pending (2020)
       - Develop ASWPPP: Pending (2020)
       - Train: Pending (2020)
       - Confirm: 2021
   - 2.2: Curb-cut slurry capture, collection, and disposal
     - Pollutants of Concern: TBD
     - Responsible Department: Public Works
     - Responsible Position: Public Works Director
     - Location: Citywide
     - Workflow:
       - Investigate: Pending (2020)

- Develop ASWPPP: Pending (2020)
- Train: Pending (2020)
- Confirm: 2021

10. Streets Operations

- 3.1: Roadway traction sand and chemical application rates and techniques
  - Pollutants of Concern: TBD
  - Responsible Department: Public Works
  - Responsible Position: Public Works Director
  - Location: Citywide
  - Workflow:
    - Investigate: Pending (2020)
    - Develop ASWPPP: Pending (2020)
    - Train: Pending (2020)
    - Confirm: 2021

11. Solid Waste Operations

- 4.1: Solid waste collection and disposal
  - Pollutants of Concern: TBD
  - Responsible Department: Public Works
  - Responsible Position: Public Works Director
  - Location: Citywide
  - Workflow:
    - Investigate: Pending (2020)
    - Develop ASWPPP: Pending (2020)
    - Train: Pending (2020)
    - Confirm: 2021

12. University Operations

- 5.1: Arena construction
  - Pollutants of Concern: TBD
  - Responsible Department: University
  - Responsible Position: University Facilities Director
  - Location: University Stadium Complex
  - Workflow:
    - Investigate: Pending (2020)
    - Develop ASWPPP: Pending (2020)
    - Train: Pending (2020)
    - Confirm: 2021

The MS4 tracks workload by totaling activities deemed complete and comparing the total to those still requiring assessment.

- 2019: 25% (2/8)
- 2020: TBD
- 2012: TBD

7.5 Training

The MS4 participates in local, state, and national trainings, conferences, and certification programs. The following lists completed efforts:

1. Comprehensive Stormwater Training
    - Stormwater Program Coordinator (Kyle Mehrens)
        - 2017: Weekly meeting, Montana Water Environment Association Conference (April 19-20), Bellevue StormCon Conference (August 29-31)
        - 2018: Weekly meeting, Montana Stormwater Conference (May 1-3), Denver StormCon Conference (August 13-15)
        - 2019: Weekly meeting, bimonthly meeting
    - Stormwater Program Specialist (Frank Greenhill)
        - 2017: Weekly meeting, Montana Water Environment Association Conference (April 19-20),
        - 2018: Weekly meeting, International Erosion Control Association Conference (February 12-14), Montana Stormwater Conference (May 1-3)
        - 2019: Weekly meeting, bimonthly meeting, BMP 101 Introduction to Stormwater Management (April 2), BMP 201 Certified SWPPP Administrator/Preparer (April 3 and 4), WQM 130 Stormwater Management for Industrial Operations (October 7)
    - Stormwater Program Technician (~~Cody Flammond - 1/1/2020~~)
        - 2018: Weekly meeting, International Erosion Control Association Conference (February 12-14), Montana Stormwater Conference (May 1-3), Phase 1 Leadership Training (October 15-17), Hazardous Waste Training (February 6)
        - 2019: Weekly meeting, bimonthly meeting, Weftech Chicago (September 21-25), WQM 130 Stormwater Management for Industrial Operations (October 7)
    - Stormwater Operations Foreman (Mike Dilbeck)
        - 2017: Monthly meeting
        - 2018: Monthly meeting, Montana Stormwater Conference (May 1-3)
        - 2019: Weekly Operation Meeting, Bimonthly meeting, Weftech Chicago (September 21-25)
    - MSU Director, Facilities Services (EJ Hook)
        - 2017: Monthly meeting
        - 2018: Monthly meeting, Montana Stormwater Conference (May 1-3)
        - 2019: Monthly meeting
2. Stormwater Awareness Training: The MS4 trains employees to increase awareness and reduce stormwater pollutants generated from internal operations. Employees receive training every three years and new hires within the first 90 days of employment. The MS4 utilizes an online-based application (Proprofs) to hold interactive training for field supervisors and employees that includes the following content:
    - Stormwater Division Overview (7 minutes) - “Stormwater in Bozeman: The Big Picture.”
        - A broad view of Bozeman’s stormwater system
        - Information about the importance of mitigating stormwater pollution

- Facility Operations Training Videos: “Rain Check”
    - Notes and FYIs
    - Quiz questions
    - Detailed Best Management Practices related to the following activities:
        - Good Housekeeping and Spill Prevention
        - Spill Control and Response
        - Vehicle Fueling
        - Vehicle and Equipment Maintenance
        - Vehicle and Equipment Washing
        - Materials Management
        - Waste Management
        - Landscaping
- Participant Totals:
    - Stormwater Division
        - 2017: 2 (1.5 hours)
        - 2018: 1 (.6 hours)
        - 2019: 0 (0)
    - Water, Sewer, and Storm Division
        - 2017: 18 (11.2 hours)
        - 2018: 7 (2.5 hours)
        - 2019: 2 (1.4 hours)
    - Water Reclamation Division (annual requirement)
        - 2017: 13 (13 hours)
        - 2018: 15 (8.5 hours)
        - 2019: 14 (9.1 hours)
    - Streets Division
        - 2017: 0 (0 hours)
        - 2018: 19 (12 hours)
        - 2019: 9 (7.3 hours)
    - Solid Waste Division (annual requirement)
        - 2017: 14 (8.6 hours)
        - 2018: 17 (11.7 hours)
        - 2019: 16 (10.9 hours)
    - Water Treatment Division
        - 2017: 0 (0 hours)
        - 2018: 10 (8.9 hours)
        - 2019: 1 (.8 hours)
    - Parks Division
        - 2017: 0 (0 hours)
        - 2018: 0 (0 hours)

- ❖ 2019: 14 (13.9 hours)

- Fire Division
  - ❖ 2017: 0 (0 hours)
  - ❖ 2018: 0 (0 hours)
  - ❖ 2019: 0 (0 hours)
- Forestry Division
  - ❖ 2017: 0 (0 hours)
  - ❖ 2018: 0 (0 hours)
  - ❖ 2019: 0 (0 hours)
- MSU Operations
  - ❖ 2017: 0 (0 hours)
  - ❖ 2018: 1 (.8 hours)
  - ❖ 2019: 2 (1.8 hours)

3. Construction Site Management Program

- Stormwater Program Specialist (Frank Greenhill)
  - 2017: BMP 101 Introduction to Stormwater Management Training (February 13), BMP 201 SWPPP Administrator Training (February 14-15), BMP 202 SWPPP Preparer Training (February 22), BMP 101 Introduction to Stormwater Management Training (September 19), BMP 102 Field Academy (May 31 and June 1), BMP 201 SWPPP Administrator Training (September 20-21), BMP 202 SWPPP Preparer Training (September 22), BMP 301 Compliance Evaluation Inspection Training (October 17 and 18)
  - 2018: International Erosion Control Association Conference (February 12-14), BMP 101 Introduction to Stormwater Management Training (March 27), 201/202 SWPPP Administrator and Preparer Training (March 28-29), BMP 100 Construction Dewatering Training (March 30), 102 BMP Field Academy (June 12)
  - 2019: BMP 101 Introduction to Stormwater Management (April 2), BMP 201 Certified SWPPP Administrator/Preparer (April 3 and 4),
- Stormwater Program Technician (~~Cody Flammond – 1/1/2020~~)
  - 2018: International Erosion Control Association Conference (February 12-14), 101 Introduction to Stormwater Management Training (March 27), 201/202 SWPPP Administrator and Preparer Training (March 28-29), 100 Construction Dewatering Training (March 30), 102 BMP Field Academy (June 12)
  - 2019: n/a
- MSU Director of Facilities Services (EJ Hook)
  - 2017: BMP 301 Compliance Evaluation Inspection Training (October 17 and 18)
  - 2018: n/a
  - 2019: n/a

4. Post-Construction Program

- Stormwater Program Coordinator (Kyle Mehrens):

- 2017: Montana Water Environment Association Conference (April 19-20), Bellevue StormCon Conference (August 29-31)
- 2018: Montana Stormwater Conference (May 1-3), Denver StormCon Conference (August 13-15)
- 2019: n/a

➢ Development Review Engineer (Anna Russell P.E.):

- 2018: Onboarding with Stormwater Coordinator, engineering certification credits
- 2019: Engineering certification credits

➢ Development Review Engineer (Griffin Nielsen E.I):

- 2017: Onboarding with Stormwater Coordinator, engineering certification credits
- 2018: Engineering certification credits
- 2019: Engineering certification credits

➢ Development Review Manager (Lance Lehigh P.E.):

- 2019: Onboarding with Stormwater Coordinator, engineering certification credits

5. FSWPPP and ASWPPP Training

➢ See SWMP Sections 7.3 and 7.4

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Section 8.0

Sampling and Evaluation Program

Graphic: 8.0.1: In-stream sampling equipment

Graphic 8.0.2: Stormwater runoff nutrient analysis

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8.1 Introduction

The MS4 strives to improve waterway health, protect public safety, and comply with its MS4 Permit through the collection of stormwater and waterway data points that:

- Monitor stormwater and surface water quality over time
- Evaluate the effectiveness of infrastructure and administrative program investments
- Generate data that advises policy, capital, and operational decisions
- Provide a data-driven performance metric easily communicated to the public

SWMP Section 8.0 details the following components necessary to administer the MS4's Sampling and Evaluation Program, including:

- Targeted Waterways
- Regulatory Requirements
- Urban Runoff Monitoring
- In-stream Wet Weather Monitoring
- Sediment Reduction Monitoring
- Long-term Trend Monitoring
- Evaluation
- Discussion

8.2 Targeted Waterways

Bozeman Creek, a.k.a. Sourdough Creek, originates in the Gallatin Mountains south of the MS4. Flowing north, Bozeman Creek enters the MS4 at E. Kagy Boulevard and continues until its confluence with the E. Gallatin River at E. Griffin Dr. The Montana DEQ determined that Bozeman Creek contained impairments from natural and anthropogenic sources when preparing the 2013 Lower Gallatin Planning Area TMDL.

Bozeman Creek Impairment Information			
Probable Cause	**Probable Sources**	**Associated Uses**	**TMDL**
Alteration in stream-side or littoral vegetative cover	Agricultural grazing, crop production	Aquatic Life	No
Chlorophyll-a	Agricultural grazing and crop production, residential districts, municipal area	Primary Contact and Recreation	No
E.coli	Septic tanks, urban runoff, storm sewers, pet waste, livestock	Primary Contact and Recreation	Yes
Nitrogen (Total)	Agricultural grazing and crop production, residential districts, municipal area	Aquatic Life, Primary Contact, and Recreation	Yes
Sediment	Natural sources, unpaved roads/trails, urban runoff, storm sewers, municipal area	Aquatic Life	Yes

Graphic 8.2.1: Bozeman Creek Impairment Information

Mandeville Creek, a small spring feed watercourse, originates south of Bozeman. Flowing north, Mandeville Creek enters the MS4 at Alder Creek Dr. and continues until its confluence with the E. Gallatin River. The Montana DEQ determined Mandeville Creek contained impairments from anthropogenic sources when preparing the 2013 Lower Gallatin Planning Area TMDL.

Mandeville Creek Impairment Information			
Probable Cause	**Probable Sources**	**Associated Uses**	**TMDL**
Nitrogen (Total)	Municipal point source discharges, residential districts, municipal area	Aquatic Life, Primary Contact, and Recreation	Yes
Phosphorous (Total)	Municipal point source discharges, residential districts, municipal area	Aquatic Life, Primary Contact, and Recreation	Yes

Graphic 8.2.2: Mandeville Creek Impairment Information

8.3 Regulatory Requirements

The MS4 General Permit requires that the MS4 perform sampling, testing, and reporting of stormwater discharges annually, including:

1. Monitor stormwater discharges based on residential and industrial land-use types
   - See SWMP Section 8.4 Urban Runoff Monitoring
2. Assess in-stream water quality impacts of stormwater discharges to Bozeman and Mandeville Creeks (Self-Monitoring Requirements: Monitoring Option 2)
   - See SWMP Section 8.5 In-Stream Wet-Weather Monitoring and SWMP Section 8.7 Long-Term Trend Monitoring.
3. Conduct TMDL-related monitoring to evaluate the effectiveness of best management practices (BMPs) implemented to reduce pollutant loading from the MS4 to impaired waters (TMDL Related Monitoring: Monitoring Option 2)
   - See SWMP Section 8.6 Sediment Reduction Monitoring
4. Self-evaluate results relative to long-term medians
   - See SWMP Section 8.8 Evaluation

For each of the monitoring requirements above, the MS4 conducts sampling, testing, and reporting of the following parameters:

1. Total Suspended Solids (TSS), mg/L
2. Chemical Oxygen Demand (COD), mg/L
3. Total Nitrogen (TN), mg/L
4. Total Phosphorus (TP), mg/L
5. Copper (Cu), mg/L
6. Lead (Pb), mg/L
7. Zinc (Zn), mg/L
8. Oils and Greases, mg/L
9. pH, standard units
10. Estimated Flow

8.4 Urban Runoff Monitoring

Introduction: The MS4 collects urban runoff samples from representative watersheds to characterize pollutant loading occurring from various land-use types before system treatment, such as stormwater basins, sumps, infiltration galleries, and mechanical separation. In general, urban runoff pollutant

concentrations are variable and dependent on numerous environmental conditions, such as precipitation cycles, wind, tree cover, and human activities.

Sites: The MS4 has a network of four monitoring locations: two within residential drainage basins and two within commercial/industrial drainage basins, including:

1. Site: RES_01
   - Location: Near the intersection of S. Bozeman Ave. and E. Garfield St.
   - Land-use: Residential
   - Drainage Basin: Seven acres
   - Inlet ID: I.F06.00082
     - Latitude: 45.667143
     - Longitude: -111.034474
   - Inlet ID: I.F06.00083
     - Latitude: 45.667143
     - Longitude: -111.034724
   - Parameters: TSS, COD, TP, TN, pH, Copper, Lead, Zinc, Oils and Greases, and Flow
   - Frequency: Two samples per year
2. Site: IND_01
   - Location: Near Commercial Dr. cul-de-sac (west)
   - Land-use: Commercial and Industrial
   - Drainage Basin: 10 acres
   - Inlet ID: I.E01.00184
     - Latitude: 45.703061
     - Longitude: -111.030112
   - Inlet ID: I.E01.00185
     - Latitude: 45.703164
     - Longitude: -111.030428
   - Parameters: TSS, COD, TP, TN, pH, Copper, Lead, Zinc, Oils and Greases, and Flow
   - Frequency: Two samples per year
3. Site: RES_02
   - Location: MSU Campus near the intersection of S. 12th Ave. and W. Garfield St.
   - Land-use: Residential
   - Drainage Basin: Four acres
   - Inlet ID: I.H06.00329
     - Latitude: 45.666911
     - Longitude: -111.054301
   - Inlet ID: I.H06.00259
     - Latitude: 45.666970
     - Longitude: -111.054226
   - Parameters: TSS, COD, TP, TN, pH, Copper, Lead, Zinc, Oils and Greases, and Flow

- Frequency: Two samples per year

4. Site: IND_02
   - Location: MSU Campus near the intersection of S. 6th Ave. and W Garfield St.
   - Land-use: Industrial
   - Drainage Basin: Two acres
   - Inlet ID: I.G06.00603
     - Latitude: 45.664409
     - Longitude: -111.044957
   - Inlet ID: I.G06.00630
     - Latitude: 45.664409
     - Longitude: -111.044942
   - Parameters: TSS, COD, TP, TN, pH, Copper, Lead, Zinc, Oils and Greases, and Flow
   - Frequency: Two samples per year

Methods: The MS4 collects urban runoff samples from storm sewer inlets at each site using Thermo-Scientific Nalgene Samplers (Samplers). Before runoff events, Staff installs each Sampler at the selected inlet grate and positions it to collect the first flush of urban runoff. Once full, the Sampler closes itself prohibiting additional collection or dilution of the original sample.

Analysis: The MS4 collects, transfers, packages, and ships samples to a certified laboratory, which analyzes the following parameters:

5. Total Suspended Solids (TSS), mg/L
6. Chemical Oxygen Demand (COD), mg/L
7. Total Nitrogen (TN), mg/L
8. Total Phosphorus (TP), mg/L
9. Copper (Cu), mg/L
10. Lead (Pb), mg/L
11. Zinc (Zn), mg/L
12. Oils and Greases, mg/L
13. pH, standard units
14. Estimated Flow

The MS4 estimates flow, in gallons per minute (gpm), using the Rational Formula where:

$Q = CiA$ *Equation 1*

1. Q is peak runoff rate (cfs converted to gpm)
2. C is the runoff coefficient (C-Factor, Bozeman Engineering Standards)
3. i is rainfall intensity (in./hr., MSU Rain Gage)
4. A is the drainage area (acres)

Sampling Location Runoff Coefficients (C-Factors)		
Location Name	**Primary Land Use**	**Runoff Coefficient (C-Factor)**
RES_01	Low to Medium Density Residential	0.35
RES_02	Dense Residential	0.50
IND_01	Industrial	0.80
IND_02	Industrial	0.80

Graphic 8.4.1: Sampling location runoff coefficients C-factors

	Monitoring Results									
	TSS (mg/L)	Oil & Grease (mg/L)	Total Nitro. (mg/L)	Phosp. (mg/L)	Zinc (mg/L)	Lead (mg/L)	Copper (mg/L)	COD (mg/L)	pH	Flow (gpm)
RES_01: 2017 (1)	203.0	2.00	6.20	0.908	0.1160	0.0052	0.0220	251.00	6.7	N/A
RES_01: 2017 (2)	368.0	5.10 RL	12.00	1.230	0.1790	0.0073	0.0300	175.00	7.0	N/A
RES_01: 2018 (1)	460.0	4.00	14.00	1.920	0.2720	0.0092	0.0290	708.00	6.4	55.0
RES_01: 2018 (2)	113.0	1.00 RL	2.30	0.544	0.1220	0.0033	0.0130	129.00	6.5	22.0
RES_01: 2019 (1)	5890.0	6.00	28.80	8.400	2.0200	0.1750	0.3380	3330.00	7.4	49.5
RES_01: 2019 (2)	206.0	1.00 RL	5.50	0.6800	0.2100	0.0060	0.0240	258.00	6.9	14.3
RES_01: 2020 (1)										
RES_01: 2020 (2)										
RES_01: 2021 (1)										
RES_01: 2021 (2)										
RES_01 Median	**287.0**	**3.0**	**9.10**	**1.069**	**0.1945**	**0.0067**	**0.0265**	**254.50**	**6.8**	**35.7**
RES_02: 2017 (1)	-	-	-	-	-	-	-	-	-	-
RES_02: 2017 (2)	-	-	-	-	-	-	-	-	-	-
RES_02: 2018 (1)	1430.0	15.00	8.40	2.030	0.6520	0.0367	0.0840	605.00	7.0	18.0
RES_02: 2018 (2)	199.0	3.00	3.40	0.457	0.2610	0.0081	0.0220	234.00	6.8	18.0
RES_02: 2019 (1)	806.0	9.00	8.60	1.930	0.5000	0.0410	0.0820	579.00	7.5	40.39
RES_02: 2019 (2)	568.0	8.00	17.50	2.060	0.7500	0.0220	0.0810	1100.00	6.8	11.7
RES_02: 2020 (1)										
RES_02: 2020 (2)										
RES_02: 2021 (1)										
RES_02: 2021 (2)										
RES_02 Median	**687.0**	**8.50**	**8.50**	**1.980**	**0.5760**	**0.0294**	**0.0815**	**592.00**	**6.9**	**18.0**
IND_01: 2017 (1)	149.0	4.00	17.30	1.380	0.5780	0.0160	0.0440	292.00	7.0	-
IND_01: 2017 (2)	1820.0	5.10 RL	11.68	1.320	33.3500	0.0371	0.0867	151.00	6.9	-
IND_01: 2018 (1)	602.0	15.00	8.50	1.890	4.7100	0.0371	0.0620	606.00	7.3	179.5
IND_01: 2018 (2)	293.0	4.00	3.40	0.588	0.1910	0.0081	0.0270	195.00	7.0	71.8
IND_01: 2019 (1)	1470.0	4.00	4.90	1.960	1.5600	0.1020	0.1620	647.00	7.6	161.6
IND_01: 2019 (2)	333.0	2.00	10.70	0.940	0.8800	0.0250	0.0700	651.00	7.2	46.7
IND_01: 2020 (1)										
IND_01: 2020 (2)										
IND_01: 2021 (1)										
IND_01: 2021 (2)										
IND_01 Median	**467.5**	**4.00**	**9.60**	**1.350**	**1.2200**	**0.0311**	**0.0660**	**449.00**	**7.1**	**116.7**
IND_02: 2017 (1)	-	-	-	-	-	-	-	-	-	-
IND_02: 2017 (2)	-	-	-	-	-	-	-	-	-	-
IND_02: 2018 (1)	899.0	4.00	8.80	1.600	0.5600	0.0158	0.0570	592.00	6.7	14.4
IND_02: 2018 (2)	380.0	5.00	4.40	0.737	0.2450	0.0099	0.0320	271.00	3.4	14.4
IND_02: 2019 (1)	2570.0	10.00	2.00	4.440	1.3500	0.0780	0.1760	1420.00	7.6	32.3
IND_02: 2019 (2)	301.0	3.00	10.20	1.440	0.8200	0.0260	0.1000	634.00	6.8	9.3
IND_02: 2020 (1)										
IND_02: 2020 (2)										
IND_02: 2021 (1)										
IND_02: 2021 (2)										
IND_02 Median	**639.5**	**4.50**	**6.60**	**1.520**	**0.6900**	**0.0209**	**0.0785**	**613.00**	**6.8**	**14.4**

Graphic 8.4.2: Monitoring Results. RL is the minimum Reporting Limit.

Evaluation: The MS4 enters monitoring results into a local spreadsheet, stores analysis reports for safe record, and analyzes the data using the following Scoring Matrix (Matrix) and protocol to interpret, evaluate, and communicate the results. The Matrix includes scores ranging from 0 to 4-points, representing a set increase from EPA benchmarks provided in previous MS4 General Permits.

For example, the TSS Benchmark is 125 mg/L. As such, the 3-Point range is two times that amount (250), the 2-Point range is three times that amount (375), etc.

Urban Runoff Monitoring: Scoring Matrix					
	4-Points	**3-Points**	**2-Points**	**1-Point**	**0-Points**
TSS (mg/L)	0 – 125	126 - 250	251 - 375	376 - 500	> 500
Oil and Grease (mg/L)	0 - 10	11 - 20	21 - 30	31 - 40	> 41
Total Nitrogen (mg/L)	0 - 2.0	2.1 - 4.0	4.1 - 6.0	6.1 - 8.0	> 8.0
Phosphorus (mg/L)	0 - .41	.42 - .82	.83 - 1.23	1.24 - 1.65	> 1.65
Zinc (mg/L)	0 - .20	.21 - .40	.41 - .60	.61 - .80	> .80
Lead (mg/L)	0 - .10	.11 - .20	.21-.30	.31 - .40	> .40
Copper(mg/L)	0 - .04	.041 - .08	.081 - .12	.121 - .160	> .160
COD	0 - 80	81 - 160	161 - 240	241 – 320	> 320
PH (High End)	7.6 - 9.0	9.1 - 10.0	10.1 - 11.0	11.1 -12.0	12.1 - 14.0
PH (Low End)	6.0 - 7.5	5.0 - 5.9	4.0 - 4.9	3.0 - 3.9	1.0 - 3.0

Graphic 8.4.3: Urban Runoff Monitoring: Scoring Matrix

The MS4 relates results to the Matrix and then populate the appropriate Urban Runoff Monitoring charts with the corresponding point totals.

For example, a 2018 RES_01 sample contained 135 mg/L of TSS. The MS4 assigns and populates the Urban Runoff Monitoring: RES_01 chart TSS box with 3-points. The same approach applies to all sites and parameters.

Urban Runoff Monitoring: RES_01								
	2018		**2019**		**2020**		**2021**	
	(1)	**(2)**	**(1)**	**(2)**	**(1)**	**(2)**	**(1)**	**(2)**
TSS	1	4	0	3				
Oil and Grease	4	4	4	4				
Total Nitrogen	0	3	0	2				
Phosphorus	0	3	0	3				
Zinc	3	4	0	3				
Lead	4	4	3	4				
Copper	4	4	0	4				
COD	0	3	0	1				
PH	4	4	4	4				
Event Points:	**20**	**33**	**11**	**28**				
Annual Points:	**53**		**39**					

Graphic 8.4.4: Urban Runoff Monitoring: RES_01

Urban Runoff Monitoring: IND_01								
	2018		2019		2021		2022	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
TSS	0	2	0	2				
Oil and Grease	3	4	4	4				
Total Nitrogen	0	3	2	0				
Phosphorus	0	3	0	2				
Zinc	0	4	0	0				
Lead	4	4	4	4				
Copper	3	4	0	3				
COD	0	2	0	0				
PH	4	4	4	4				
Event Points:	14	30	14	19				
Annual Points:	44		33					

Graphic 8.4.5: Urban Runoff Monitoring: IND_01

Urban Runoff Monitoring: RES_02								
	2018		2019		2021		2022	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
TSS	0	3	0	0				
Oil and Grease	3	4	4	4				
Total Nitrogen	0	3	0	0				
Phosphorus	0	3	0	0				
Zinc	1	3	2	1				
Lead	1	4	4	4				
Copper	2	4	2	2				
COD	0	2	0	0				
PH	4	4	4	4				
Event Points:	11	30	16	15				
Annual Points:	41		31					

Graphic 8.4.6: Urban Runoff Monitoring: RES_02

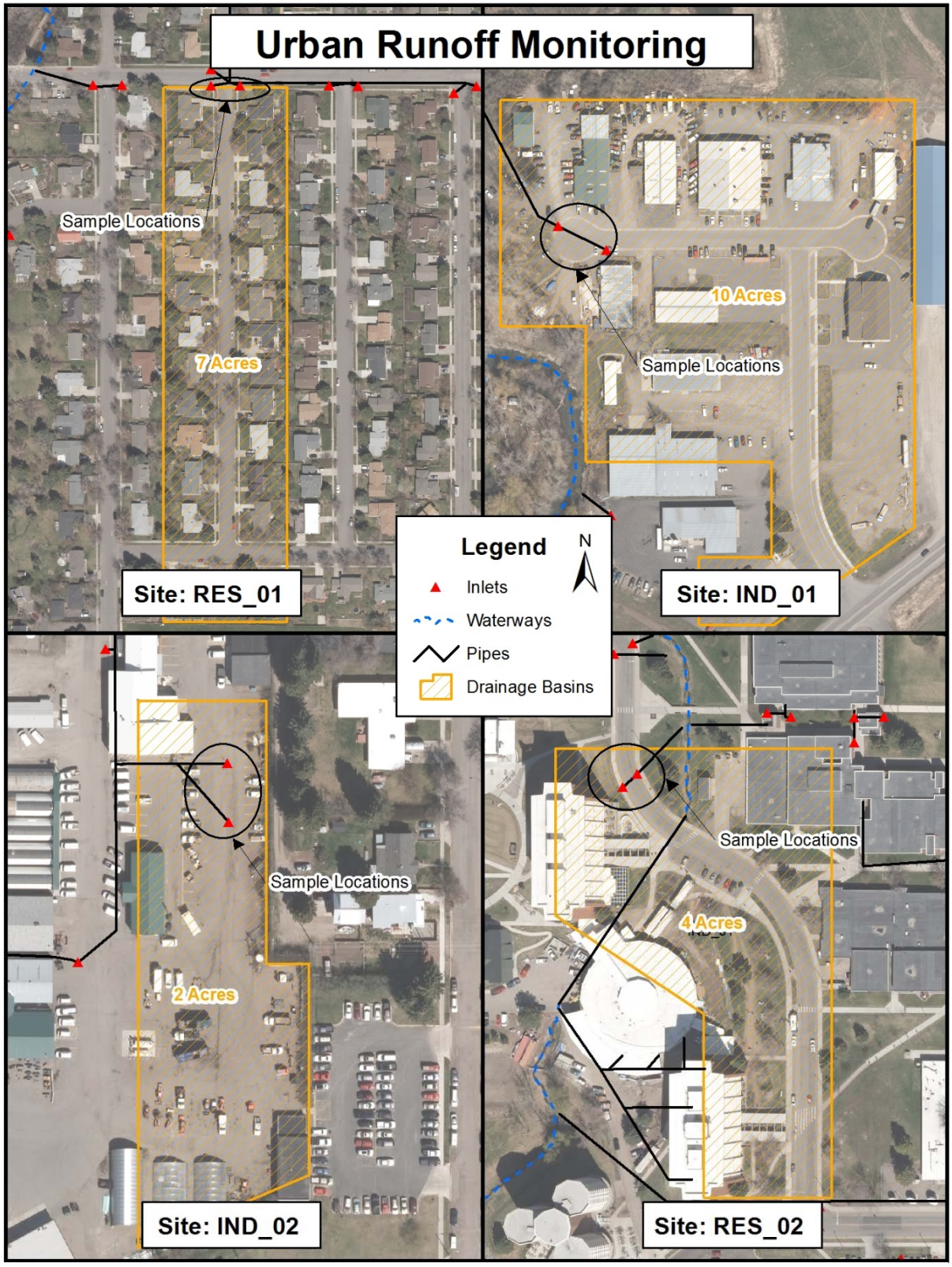
Urban Runoff Monitoring: IND_02								
	2018		2019		2021		2022	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
TSS	0	1	0	2				
Oil and Grease	4	4	4	4				
Total Nitrogen	0	2	4	0				
Phosphorus	1	3	0	1				
Zinc	2	3	0	0				
Lead	4	4	4	4				
Copper	3	4	0	2				
COD	0	1	0	0				
PH	4	1	4	4				
Event Points:	18	23	16	17				
Annual Points:	41		33					

Graphic 8.4.7: Urban Runoff Monitoring: IND_02

The MS4 sums the individual scores to obtain an Event Point Total, sums both Event Scores to obtain an Annual Point Total, and calculates a Final Score by transferring and summing the Annual Points in the Urban Runoff Monitoring: Results chart. Finally, the MS4 divides the Total Points by the Possible Points to calculate the Final Score and transfers the Final Score to SWMP Section 8.8.

Urban Runoff Monitoring: Results				
	2018	**2019**	**2021**	**2022**
RES_01 Annual Points	53	39		
IND_01 Annual Points	44	33		
RES_02 Annual Points	41	31		
IND_02 Annual Points	41	33		
Total Points:	**179**	**136**		
Possible Points:	**288**	**288**	**288**	**288**
Final Score (decimal):	**.62**	**.47**		

Graphic 8.4.8: Urban Runoff Monitoring: Results



Graphic 8.4.9: Urban Runoff Monitoring

8.5 In-Stream Wet-Weather Monitoring

Introduction: The MS4 conducts In-Stream Wet-Weather Monitoring to analyze the impacts of urban runoff to Bozeman and Mandeville Creeks during wet weather. Combined, the Creeks receive urban runoff from over 1,700 acres of dense development at over 100 individual discharge points or outfalls. Non-point source pollution sources exist upstream of the MS4 as identified in the Lower Gallatin Planning Area TMDL. This approach allows the MS4 to take sole responsibility for and mitigate the impacts stemming from urban runoff.

Sites: The MS4 monitors two (2) locations on Bozeman Creek and two (2) locations on Mandeville Creek. Each Creek has one (1) station upstream and one (1) downstream of the MS4 boundary. Sample sites include:

1. Site: UPS_01
   - Location: Bozeman Creek upstream of MS4, near Kagy Blvd.
   - Latitude: 45.657248
   - Longitude: -111.028584
   - Parameters: TSS, COD, TP, TN, pH, Copper, Lead, Zinc, Oils and Greases, and Flow
   - Frequency: Two (2) samples per year
2. Site: DWS_01
   - Location: Bozeman Creek downstream of MS4, near Gold Ave.
   - Latitude: 45.699668
   - Longitude: -111.027347
   - Parameters: TSS, COD, TP, TN, pH, Copper, Lead, Zinc, Oils and Greases, and Flow
   - Frequency: Two (2) samples per year
3. Site: UPS_02
   - Location: Mandeville Creek upstream of MS4, near Campus Blvd.
   - Latitude: 45.656506
   - Longitude: -111.05803
   - Parameters: TSS, COD, TP, TN, pH, Copper, Lead, Zinc, Oils and Greases, and Flow
   - Frequency: Two (2) samples per year
4. Site: DWS_02
   - Location: Mandeville Creek downstream of MS4, near E. Baxter Ln.
   - Latitude: 45.697742
   - Longitude: -111.051959
   - Parameters: TSS, COD, TP, TN, pH, Copper, Lead, Zinc, Oils and Greases, and Flow
   - Frequency: Two (2) samples per year

Methods: The MS4 collects in-stream samples using Thermo-Scientific Nalgene Samplers (Sampler). Before rain events, Staff mounts each Sampler to a metal post driven into the creek bed and positions it to collect a sample as soon as the water levels rise one-half to three-quarters of an inch. The Sampler closes itself and does not allow additional collection or dilution of the original sample once full.

Analysis: The MS4 collects, transfers, packages, and ships samples to a certified laboratory, which analyzes the following parameters:

1. Total Suspended Solids, mg/L

2. Chemical Oxygen Demand, mg/L
3. Total Nitrogen, mg/L
4. Total Phosphorus, mg/L
5. Copper, mg/L
6. Lead, mg/L
7. Zinc, mg/L
8. Oils and Greases, mg/L
9. pH, standard units

The MS4 determines Bozeman Creek's stream-flow using real-time data collected from the Bozeman Creek gaging station. The MS4 estimates flow for Mandeville Creek using historical data collected by Gallatin Local Water Quality District, since no permanent gauging station exists.

	Monitoring Results								
	TSS (mg/L)	Oil & Grease (mg/L)	Total Nitro. (mg/L)	Phosp. (mg/L)	Zinc (mg/L)	Lead (mg/L)	Copper (mg/L)	COD (mg/L)	pH
UPS_01: 2017 (1)	7.0	5.80 RL	0.41	0.085	0.0054	0.0005	0.0036	11.6	8.2
UPS_01: 2017 (2)	14.0	1.00 RL	0.50 RL	0.022	0.0100 RL	0.0010 RL	0.0050 RL	15.0	8.1
UPS_01: 2018 (1)	14.0	1.00 RL	0.50 RL	0.052	0.0100 RL	0.0010 RL	0.0050 RL	10.0	8.1
UPS_01: 2018 (2)	10.0 RL	1.00 RL	0.60	0.028	0.0090	0.003 RL	0.0020 RL	5.0	8.3
UPS_01: 2019 (1)	30.0	7.60 RL	2.79	0.147	0.0505	0.0010 RL	0.0017	9.0	7.7
UPS_01: 2019 (2)	72.0	1.00 RL	1.60	0.160	0.0300	0.0010 RL	0.0050 RL	5.0 RL	8.2
UPS_01: 2020 (1)									
UPS_01: 2020 (2)									
UPS_01: 2021 (1)									
UPS_01: 2021 (2)									
UPS_01 Median	**14.0**	**1.00**	**0.55**	**0.068**	**0.0100**	**0.0010**	**0.0043**	**9.5**	**8.1**
UPS_02: 2017 (1)	-	-	-	-	-	-	-	-	-
UPS_02: 2017 (2)	-	-	-	-	-	-	-	-	-
UPS_02: 2018 (1)	185.0	1.00 RL	3.10	0.430	0.0330	0.0027	0.0060	49.0	8.2
UPS_02: 2018 (2)	53.0	1.00 RL	0.50 RL	0.081	0.0180	0.0004	0.0020	16.0	8.1
UPS_02: 2019 (1)	10.0	6.8 RL	0.74	0.153	0.0422	0.0010 RL	0.0034	6.0	7.9
UPS_02: 2019 (2)	30.0	1.00 RL	0.80	0.144	0.0300	0.0010 RL	0.0050 RL	5.0	8.1
UPS_02: 2020 (1)									
UPS_02: 2020 (2)									
UPS_02: 2021 (1)									
UPS_02: 2021 (2)									
UPS_02: Median	**41.5**	**1.00**	**0.77**	**0.149**	**0.0315**	**0.0010**	**0.0042**	**11.0**	**8.1**
DWS_01: 2017 (1)	10.0	5.40 RL	0.55	0.088	0.0070	0.0006	0.0036	15.3	8.2
DWS_01: 2017 (2)	134.0	1.00 RL	1.80	0.264	0.0300	0.0060	0.0060	42.0	8.1
DWS_01: 2018 (1)	34.0	1.00 RL	0.50 RL	0.082	0.0100 RL	0.0010 RL	0.0005 RL	18.0	8.1
DWS_01: 2018 (2)	17.0	1.00 RL	0.70	0.057	0.0220	0.0007	0.0002 RL	14.0	8.3
DWS_01: 2019 (1)	100.0	7.00	3.00	0.238	0.1100	0.0021	0.0045	13.0	7.9
DWS_01: 2019 (2)	350.0	1.00 RL	3.40	0.645	0.1400	0.0140	0.0210	94.0	8.2
DWS_01: 2020 (1)									
DWS_01: 2020 (2)									
DWS_01: 2021 (1)									
DWS_01: 2021 (2)									
DWS_01: Median	**67.0**	**1.00**	**1.25**	**0.163**	**0.0260**	**0.0016**	**0.0048**	**16.65**	**8.2**
DWS_02: 2017 (1)	-	-	-	-	-	-	-	-	-
DWS_02: 2017 (2)	-	-	-	-	-	-	-	-	-
DWS_02: 2018 (1)	297.0	1.00 RL	2.80	0.368	0.0700	0.0168	0.0150	53.0	8.2
DWS_02: 2018 (2)	43.0	1.00 RL	0.80	0.102	0.0280	0.0026	0.0030	18.0	8.2
DWS_02: 2019 (1)	1180.0	6.80	3.38	1.340	0.1240	0.0222	0.0173	123.0	8.0
DWS_02: 2019 (2)	84.0	1.00 RL	2.00	0.235	0.0500	0.0040	0.0050 RL	7.0	8.3
DWS_02: 2020 (1)									
DWS_02: 2020 (2)									
DWS_02: 2021 (1)									
DWS_02: 2021 (2)									
DWS_02 Median	**297.0**	**1.00**	**2.8**	**0.368**	**0.0700**	**0.0168**	**0.0150**	**53.0**	**8.2**

Graphic *8.5.1: Monitoring Results. RL is the minimum Reporting Limit.*

Evaluation: The MS4 enters data into a local spreadsheet and stores analysis reports for a safe record upon receipt. Further, the MS4 analyzes the data using the following Scoring Matrix (Matrix) and protocol to interpret, evaluate, and communicate the results. The Matrix includes points ranging from 0 to 4-points, which relate to the percent change of pollutants between the upstream and downstream sites.

For example, a percent change of 0-20% equals 4-points, 21-40% equals 3-points, 41-60% equals 2-points, 61-80% equals 1-point, and 81- >100% equals 0-points.

Percent change is determined using the following formula:

$$\% \triangle = ((Y_2 - Y_1) / Y_1) * 100 \qquad \text{Equation 2}$$

For example, TSS: ((200-150)/150) x 100 = 33.3%, resulting in a score of 3-points.

In-Stream Wet-Weather Monitoring: Scoring Matrix					
	4-Points	**3-Points**	**2-Points**	**1-Point**	**0-Points**
TSS (% △)	(<0) – (20)	(21) – (40)	(41) – (60)	(61) – (80)	(81) – (>100)
Oil/Grease (% △)	(<0) – (20)	(21) – (40)	(41) – (60)	(61) – (80)	(81) – (>100)
Total Nitrogen (% △)	(<0) – (20)	(21) – (40)	(41) – (60)	(61) – (80)	(81) – (>100)
Phosphorus (% △)	(<0) – (20)	(21) – (40)	(41) – (60)	(61) – (80)	(81) – (>100)
Zinc (% △)	(<0) – (20)	(21) – (40)	(41) – (60)	(61) – (80)	(81) – (>100)
Lead (% △)	(<0) – (20)	(21) – (40)	(41) – (60)	(61) – (80)	(81) – (>100)
Copper (% △)	(<0) – (20)	(21) – (40)	(41) – (60)	(61) – (80)	(81) – (>100)
COD (% △)	(<0) – (20)	(21) – (40)	(41) – (60)	(61) – (80)	(81) – (>100)
PH (% △)	(<0) – (20)	(21) – (40)	(41) – (60)	(61) – (80)	(81) – (>100)

Graphic 8.5.2: In-Stream Wet-Weather Monitoring Scoring Matrix

The MS4 relates results to the Matrix and then populates the appropriate Urban Runoff Monitoring charts with the corresponding scores.

For example, a 2018 Bozeman Creek UPS_01 and DWS_01 TSS percent change equaled 35%. The MS4 assigns and populates the In-Stream Wet-Weather Monitoring: Bozeman Creek UPS_01 and DWS_01 chart TSS box with 3-points. The same approach applies to all sites and parameters.

In-Stream Wet-Weather Monitoring: Bozeman Creek UPS_01 and DWS_01								
	2018		**2019**		**2021**		**2022**	
	(1)	**(2)**	**(1)**	**(2)**	**(1)**	**(2)**	**(1)**	**(2)**
TSS	0	1	0	0				
Oil and Grease	4	4	4	4				
Total Nitrogen	4	4	4	0				
Phosphorus	2	0	1	0				
Zinc	4	0	0	0				
Lead	4	0	0	0				
Copper	4	4	0	0				
COD	2	0	2	0				
PH	4	4	4	4				
Event Points:	**28**	**17**	**15**	**8**				
Annual Points:	**45**		**23**					

Graphic 8.5.3: In-Stream Wet-Weather Monitoring: Bozeman Creek UPS_01 and DWS_01.

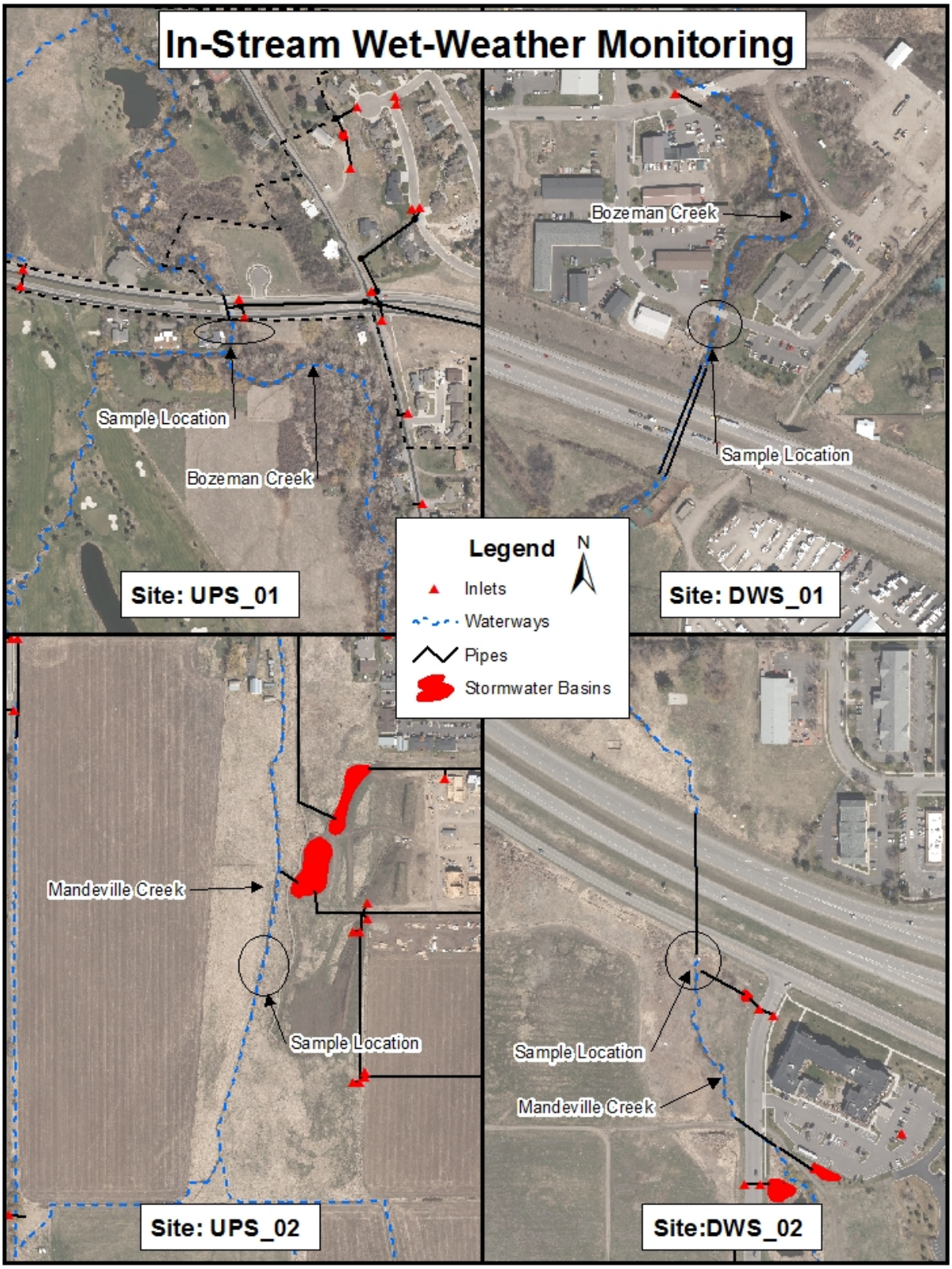
In-Stream Wet-Weather Monitoring: Mandeville Creek UPS_02 and DWS_02								
	2018		2019		2021		2022	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
TSS	1	4	0	0				
Oil and Grease	4	4	4	4				
Total Nitrogen	4	2	0	0				
Phosphorus	4	3	0	1				
Zinc	0	2	0	1				
Lead	0	0	0	0				
Copper	0	2	0	0				
COD	4	4	0	3				
PH	4	4	4	4				
Event Points:	**21**	**25**	8	13				
Annual Points:	**46**		**21**					

Graphic 8.5.4: In-Stream Wet-Weather Monitoring: Mandeville Creek UPS_02 and DWS_02.

The MS4 sums the individual scores to obtain an Event Point Total, sums both Event Scores to obtain an Annual Point Total, and calculates a Final Score by transferring and summing the Annual Points in the In-Stream Wet-Weather Monitoring: Results chart. Finally, the MS4 divides the Total Points by the Possible Points. The MS4 transfers the Final Score to SWMP Section 8.8.

In-Stream Wet-Weather Monitoring: Results				
	2018	2019	2021	2022
Bozeman Creek Annual Points	45	23		
Mandeville Creek Annual Points	46	21		
Total Points:	**91**	44		
Possible Points:	**144**	**144**	**144**	**144**
Final Score (decimal):	**.63**	**.31**		

Graphic 8.5.5: In-Stream Wet-Weather Monitoring: Results



Graphic 8.5.6: In-Stream Wet-Weather Monitoring

8.6 Sediment Reduction Monitoring

Introduction: The MS4 conducts Sediment Reduction Monitoring to comply with the Montana DEQ's sediment load reduction requirements detailed in the 2013 Lower Gallatin Planning Area TMDL. The MS4 tracks tons captured in BMPs detailed in SWMP Section 2.3 and SWMP Section 2.4.

Bozeman Creek Sediment Waste Load Reduction				
Sediment Source	**Estimated Load**	**Waste Load Allocation**	**Required Load Reduction**	**Required Load Reduction**
Municipal Storm Sewer	218 tons/year	137 tons/year	37%	81 tons/year **DEQ Imposed**

Graphic 8.6.1: 2013 Lower Gallatin Planning Area TMDL - Bozeman Creek Sediment Waste Load Reduction

Mandeville Creek Sediment Waste Load Reduction				
Sediment Source	**Estimated Load**	**Waste Load Allocation**	**Required Load Reduction**	**Load Reduction Goal**
Municipal Storm Sewer	None	None	None	10 tons/year **Self Imposed**

Graphic 8.6.2: 2013 Lower Gallatin Planning Area TMDL Mandeville Creek Sediment Waste Load Reduction

Sites: Stormwater treatment units described in SWMP Section 2.5.

Methods: Measurement process described in SWMP Section 2.5.

Analysis: The MS4 analyzes the following parameter:

- Total Sediment Captured (tons)

Evaluation: The MS4 enters data into a local spreadsheet for safe record upon receipt. Further, the MS4 incorporates the data into the following Scoring Matrix (Matrix) to interpret, evaluate, and communicate the results. The Matrix includes scores ranging from 0 to 4-points, which relate to total annual sediment capture. For example, a load reduction for Bozeman Creek of ≥ 81 tons equals 4-points, 60 – 80 tons equals 3-points, 40 – 59 tons equals 2-points, 20 – 39 tons equals 1-point, and 0 – 19 equals 0-points.

Sediment Reduction Monitoring: Scoring Matrix (Bozeman Creek)					
	4-Points	**3-Points**	**2-Points**	**1-Point**	**0-Points**
Sediment Captured (tons)	≥81	60 – 80	40 – 59	20 – 39	0 – 19

Graphic 8.6.3: Sediment Reduction Monitoring: Scoring Matrix (Bozeman Creek)

Sediment Reduction Monitoring: Scoring Matrix (Mandeville Creek)					
	4-Points	**3-Points**	**2-Points**	**1-Point**	**0-Points**
Sediment Captured (tons)	≥10	7.5 – 9.9	5.0 – 7.4	2.5 – 4.9	0 – 2.4

Graphic 8.6.4: Sediment Reduction Monitoring: Scoring Matrix (Mandeville Creek)

Results: The MS4 relates results to the Matrix and then populate the Sediment Reduction Monitoring: Results chart with the corresponding scores. The MS4 weighs Bozeman Creek more heavily than Mandeville Creek because of DEQ's imposed reduction requirements.

- 2018 Totals:
  - Bozeman Creek: 45.7 tons
  - Mandeville Creek: 1.0 tons
- 2019 Totals:

- Bozeman Creek: 44.8 tons
- Mandeville Creek: 5.8 tons

The MS4 calculates a Final Score by summing the weighted Annual Points in the Sediment Reduction Monitoring: Results chart and dividing by the Possible Points to calculate the Final Score. Finally, the MS4 transfers the Final Score to SWMP Section 8.8.

Sediment Reduction Monitoring: Results				
	2018	**2019**	**2021**	**2022**
Bozeman Creek Annual Points	(2) x (1.5) = 3	(2) x (1.5) = 3		
Mandeville Creek Annual Points	(0) x (.5) = 0	(2) x (.5) = 1		
Total Points:	3	4		
Possible Points:	8	8	8	8
Final Score (decimal):	.38	.5		

Graphic 8.6.5: Sediment Reduction Monitoring: Results.

8.7 Long-Term Trend Monitoring

Introduction: Aquatic macroinvertebrate assemblages respond predictably to sedimentation by shifting from sediment-intolerant to sediment-tolerant taxa. Changes in macroinvertebrate assemblages are quantified using the Observed:Expected (O:E) ratio biological index model, which compares the observed taxa at a site with the expected taxa that would be present at a site under a variety of environmental conditions. Using the percent difference in O:E ratios between upstream and downstream sites the MS4 is able to assess stormwater discharge impacts to macroinvertebrate assemblages. A positive percent difference in O:E ratios indicate that stormwater discharges are not negatively impacting macroinvertebrate community assemblages. Conversely, negative percent differences in O:E ratios indicate that stormwater discharges are negatively impacting macroinvertebrate community assemblies. Sedimentation affects macroinvertebrates community assemblages by:

- Filling interstitial voids in gravel substrate
- Reducing gravel attachment sites
- Altering stream morphology
- Increasing stream temperature

Sites: The MS4 monitors benthic macroinvertebrates on Bozeman and Mandeville Creeks at the In-Stream Wet-Weather Monitoring Sites (SWMP Section 8.5).

Methods: Derives macroinvertebrate biological index monitoring protocols from MDEQ Sample Collection, Sorting, and Taxonomic Identification of Benthic Macroinvertebrate Communities Standard Operating Procedures (*one sample taken per location per year*).

Analysis: The MS4 collects and preserves macroinvertebrate samples and then delivers to an accredited lab, which completes the analysis of the following parameters:

- Taxonomic Sorting and Identification
- Species Abundance
- Species Diversity
- Observed / Expected Ratios
- Percentage of Sediment Tolerant Species

Upon receiving macroinvertebrate analysis results, the MS4 enters the calculated O:E ratios in the table below and then calculates the percent change between upstream and downstream sites.

Monitoring Results: UPS_01 & DWS_01			
	O:E Ratio: UPS_01	O:E Ratio: DWS_01	O:E Ratio (% △)
2017	-	-	-
2018	0.20	0.37	+85%
2019	0.33	0.20	-39%
2020			
2021			
Median			

Graphic 8.7.1: UPS_01 & DWS_01 Monitoring Results

Monitoring Results: UPS_02 & DWS_02			
	O:E Ratio: UPS_02	O:E Ratio: DWS_02	O:E Ratio (% △)
2017	-	-	-
2018	0.29	0.16	-45%
2019	0.29	0.25	-14%
2020			
2021			
Median			

Graphic 8.7.2: UPS_01 & DWS_01 Monitoring Results

Evaluation: The MS4 enters data into a local spreadsheet and stores analysis reports for a safe record upon receipt. Further, the MS4 analyzes the data using the following Scoring Matrix and protocol to interpret, evaluate, and communicate the results. The Scoring Matrix includes scores from 0 to 4-points, which relate to percent change in O:E ratios between the upstream and downstream sites for each creek.

For example, an O:E ratio percent change of 0-(-20%) equals 4-points,- 21-(-40%) equals 3-points,- 41-(-60%) equals 2- points, -61-(-80%) equals 1-point, and >-80% equals 0-points.

Percent change is determined using *Equation 2* found in SWMP Section 8.3.

For example, an upstream Bozeman Creek sample has an O:E ratio of 1.1, and the downstream sample has an O:E ratio of 0.8. The MS4 finds the difference and divides by the original to arrive at a percentage ((0.8 - 1.1)/1.1) x 100 = -30%, resulting in a score of 3-points.

Long-Term Trend Monitoring: Scoring Matrix					
	4-Points	3-Points	2-Points	1-Point	0-Points
O:E Ratio (% △)	>0 – (-20)	-21 – (-40)	-41 – (-60)	-61 – (-80)	-81 – (-100)

Graphic 8.7.3: Long-Term Trend Monitoring: Scoring Matrix

The MS4 relates results to the Matrix and then populates the Long-Term Trend Monitoring: Results chart with the corresponding scores, and calculates a Final Score by summing the Event Points in the Long-Term Trend Monitoring: Results chart and dividing by the Possible Points. Finally, the MS4 transfers the Final Score to SWMP Section 8.8.

Long-Term Trend Monitoring: Results				
	2018	2019	2020	2021
Bozeman Creek Event Points	4	3		
Mandeville Creek Event Points	2	4		
Total Points:	6	7		
Possible Points:	**8**	**8**	**8**	**8**
Final Score (decimal):	**.75**	**0.88**		

Graphic 8.7.4: Long-Term Trend Monitoring: Results

8.8 Evaluation

The MS4 calculates a Final Grade to determine the overall effectiveness of its programs and initiatives detailed in SWMP Section 1.0 to 7.0 by transferring scores from each protocol (SWMP Sections 8.4 - 8.7) to the Programmatic Evaluation: Final Points chart, and utilizes a weighted sum calculation to make the four scores comparable.

Programmatic Evaluation: Final Points (2018)				
	Final Scores	**Weight**	**Weighted Total**	**Weighted Total (%)**
Urban Runoff Monitoring	.62	.25	.155	15.5
In-Stream Wet-Weather Monitoring	.63	.25	.16	16.0
Sediment Reduction Monitoring	.38	.25	.10	10.0
Stream Health Monitoring	.75	.25	.19	19.0
			Final Weighted Total (%):	60.5%

Graphic 8.8.1: Programmatic Evaluation: Final Points (2018)

Programmatic Evaluation: Final Points (2019)				
	Final Scores	**Weight**	**Weighted Total**	**Weighted Total (%)**
Urban Runoff Monitoring	0.47	**.25**	0.1175	11.75%
In-Stream Wet-Weather Monitoring	0.31	**.25**	0.0775	7.75%
Sediment Reduction Monitoring	0.50	**.25**	0.1250	12.50%
Stream Health Monitoring	0.88	**.25**	0.2200	22.00%
			Final Weighted Total (%):	54.0%

Graphic 8.8.2: Programmatic Evaluation: Final Points (2019)

Programmatic Evaluation: Final Points (2020)				
	Final Scores	**Weight**	**Weighted Total**	**Weighted Total (%)**
Urban Runoff Monitoring		**.25**		
In-Stream Wet-Weather Monitoring		**.25**		
Sediment Reduction Monitoring		**.25**		
Stream Health Monitoring		**.25**		
			Final Weighted Total (%):	

Graphic 8.8.3: Programmatic Evaluation: Final Points (2020)

Programmatic Evaluation: Final Points (2021)				
	Final Scores	**Weight**	**Weighted Total**	**Weighted Total (%)**
Urban Runoff Monitoring		**.25**		
In-Stream Wet-Weather Monitoring		**.25**		
Sediment Reduction Monitoring		**.25**		
Stream Health Monitoring		**.25**		
			Final Weighted Total (%):	

Graphic 8.8.4: Programmatic Evaluation: Final Points (2021)

The MS4 relates the Final Weighted Total (%) to the following equally distributed ranges (100-percent scale) and their associated Final Grades, and populates the Stream Health Report Card with a Final Grade for the corresponding year.

1. Final Grade A: 90% - 100%
2. Final Grade B: 80% - 89%
3. Final Grade C: 70% - 79%
4. Final Grade D: 60% - 69%
5. Final Grade F: 0% - 59%

Stormwater River Impact Report Card			
2018 Final Grade	**2019 Final Grade**	**2020 Final Grade**	**2021 Final Grade**
D **60.5%**	**F** **54.0%**	**X**	**X**

Graphic 8.8.5: Stormwater River Impact Report Card

The MS4 utilizes its empirical knowledge, performance measures, and data to continually evaluate and optimize its programmatic workloads detailed in this SWMP. Also, the MS4 compares its Final Grades to the criteria below and, as necessary, works to implement the following improvement strategies:

1. Grade = A: No stormwater impact on receiving waters, allowing for a continuation of administrative programs and reduction of TMDL Action Plan investment to maintain grade.
2. Grade = B: Low stormwater impact to receiving waters, requiring continuation of administrative programs and TMDL Action Plan investment to increase grade.
3. Grade = C: Moderate stormwater impact on receiving waters, requiring an expansion of administrative programs and continuation of TMDL Action Plan investment to increase grade.
4. Grade = D: Significant stormwater impact on receiving waters, requiring an expansion of administrative programs and TMDL Action Plan investment to increase grade.
5. Grade = F: Major stormwater impact on receiving waters, reassessment of administrative programs and TMDL Action Plan investment strategy required.

8.9 Discussion

1. 2017 Result: The MS4 did not document sampling efforts using the scoring matrices described above because Staff had not developed the evaluation. Implementation begins with the first sampling event of 2018.

   Preliminary analysis of available 2017 data indicates that the developed evaluation methodology is effective at tracking program performance, and likely would have resulted in an F. The MS4 expects a positive trend over the MS4 Permit Term as Staff implements the content of this SWMP.

2. 2018 Results: The MS4 received a Stormater River Impact Report Card grade of D. The MS4 has analyzed data, compiled point scores, and developed strategies to improve its grade for 2019, including:

   - <u>Residential Urban Runoff Monitoring</u>

- Problem Statement: Residential urban areas generally yield TSS, total nitrogen, phosphorus, and COD levels that result in suboptimal point scores. Conversely, oil, grease, zinc, lead, and copper concentrations generally result in satisfactory levels.
- Hypothesis: Grass clippings are primarily responsible for elevated levels of TSS, total nitrogen, phosphorus, and COD.
- Rationale: Elevated pollutant levels coincide directly with the growing season, providing justification for the MS4's hypothesis. Fall samples traditionally yield optimal point scores due to growing season subsidence. Organic matter in stormwater runoff:
    - Increases TSS concentrations
    - Increases total nitrogen and phosphorus via decomposition
    - Increases COD via organic matter decomposition
- Action Plan: Increase outreach and education program described in SWMP Section 3.0 and complete capital projects described in SWMP Section 2.3.

➢ <u>Industrial Urban Runoff Monitoring</u>

- Problem Statement: Industrial urban areas generally yield TSS, total nitrogen, phosphorus, zinc, lead, copper, and COD levels that result in suboptimal point scores. Conversely, oil and grease concentrations generally result in satisfactory levels.
- Hypothesis: Gravel parking lots, outdoor equipment storage, and heavy commercial traffic are primarily responsible for elevated levels of TSS, total nitrogen, phosphorus, zinc, copper, lead, and COD.
- Rationale: The MS4 documented these pollutant generating activities and site conditions at both industrial monitoring areas, resulting in:
    - Increased offsite TSS migration (TSS adsorbs and transports pollutants)
    - Increased nutrient levels originating from erosive landscapes
    - Increased metal levels from corrosion, combustion, and brake-dust
    - Increase COD levels via organic and inorganic particle decomposition
- Action Plan: Enforce development regulations described in SWMP Section 6.0, construct capital projects described in SWMP Section 2.3, maintain good housekeeping performance levels described in SWMP Section 7.0, and implement the outreach and education program described in SWMP Section 3.0.

➢ <u>Instream Wet-Weather Monitoring</u>

- Problem Statement: Instream wet-weather samples generally yield TSS, total nitrogen, phosphorus, zinc, lead, copper, and COD levels that result in suboptimal point scores. Conversely, oil and grease concentrations generally result in satisfactory levels.
- Hypothesis: Stormwater discharges from urban areas with a direct connection to aquatic systems negatively affect instream water quality.
- Rationale: Documented increases in pollutant levels between all upstream and downstream instream-monitoring locations, resulting from developments constructed pre-1980 lacking on-site stormwater treatment.
- Action Plan: Enforce development regulations described in SWMP Section 6.0, construct capital projects described in SWMP Section 2.3 and implement administrative programs described in SWMP Sections 3.0, 4.0, 5.0, 6.0, and 7.0.

- Sediment Reduction Monitoring
    - Problem Statement: Remove 81 tons/year of sediment from stormwater discharges to Bozeman Creek and 10 tons/year to Mandeville Creek.
    - Hypothesis: Achieve MDEQ and self-imposed sediment reduction requirements by 2023.
    - Rationale: Quantified sediment removal totals by treatment units as detailed in SWMP Section 2.5 and calculated sediment-loading totals of 0.14 tons/acre.
    - Action Plan: Continue TMDL Action Plan described in SWMP Section 2.2, construct capital projects described in SWMP Section 2.3, and maintain utility operations goals described in SWMP Section 7.0.
- Long-Term Trend Monitoring
    - Problem Statement: Macroinvertebrate O:E ratios decreased in Mandeville Creek, resulting in suboptimal point scores. Conversely, macroinvertebrate O:E ratios increased in Bozeman Creek, resulting in optimal point scores.
    - Hypothesis: Physical habitat characteristics and stream origination points impact macroinvertebrate O:E ratios in addition to stormwater discharges.
    - Rationale:
        - 85% improvement in Bozeman Creek O:E ratios between upstream and downstream sites.
        - 45% reduction in Mandeville Creek O:E ratios between upstream and downstream sites.
    - Action Plan: Continue TMDL Action Plan described in SWMP Section 2.2, construct capital projects described in SWMP Section 2.3, maintain utility operation goals described in SWMP Section 7.0, and implement administrative programs described in SWMP Sections 3.0, 4.0, 5.0, 6.0, and 7.0.

3. 2019 Results: The MS4 received a grade of F (54.0%), which is 6.5% lower than the 2018 grade. Various factors influenced this score and are further described below:
    - Residential Urban Runoff Monitoring
        - Analysis:
            - Spring Samples: Collected on April 20, 2019. Record 2019 snowfall resulted in increased traction sand application and delayed street sweeping cycles, yielding pollutant concentrations above long-term medians for TSS, Oil and Grease, Total Nitrogen, Total Phosphorous, Zinc, Lead, Copper, and COD.
            - Fall Samples: Collected on August 22, 2019. Reoccurring street sweeping and implementation of SWMP programs resulted in a reduction in the number of pollutants exceeding long-term medians. Total Nitrogen, Total Phosphorus, Zinc, and COD concentrations were above the long-term medians, likely resulting from organics, such as grass clippings.
        - Action Plan: Increase outreach and education programs described in SWMP Section 3.0, maintain good housekeeping performance levels described in SWMP Section 7.0, and complete capital projects described in SWMP Section 2.3.
    - Industrial Urban Runoff Monitoring

- Analysis:
  - ❖ Spring Samples: Collected on April 20, 2019. Record 2019 snowfall resulted in increased traction sand application and delayed street sweeping cycles, yielding pollutant concentrations above long-term medians for TSS, Oils and Grease, Total Phosphorous, Zinc, Lead, Copper, and COD.
  - ❖ Fall Samples: Collected on August 22, 2019. Reoccurring street sweeping and implementation of SWMP programs resulted in a reduction of the number of pollutants exceeding long-term medians. Total Nitrogen, Zinc, Lead, Copper, and COD concentrations were above the long-term medians, resulting from heavy commercial traffic, equipment storage, and historical development practices.
- Action Plan: Enforce development regulations described in SWMP Section 6.0, construct capital projects described in SWMP Section 2.3, maintain good housekeeping performance levels described in SWMP Section 7.0, and implement the outreach and education program described in SWMP Section 3.0.

➢ <u>Instream Wet-Weather Monitoring</u>

- Analysis:
  - ❖ Spring Samples: Collected on June 13, 2019 during a non-typical high intensity and short duration storm (greater than 1" per hour) that resulted in suboptimal percent change scores for TSS, Total Nitrogen, Total Phosphorous, Zinc, Lead, Copper, and COD. Bozeman Creek flow at the time of collection was 63 cfs (221 cfs max daily flow). Non-typical storms result in increased erosion and mobilization of pollutants.
  - ❖ Fall Samples: Collected on September 6, 2019 during low base-flow conditions that resulted in suboptimal percent change scores for TSS, Total Nitrogen, Total Phosphorous, Zinc, Lead, Copper, and COD. Bozeman Creek flow at the time of collection was 27 cfs (38 cfs max daily flow).
- Action Plan: Enforce development regulations described in SWMP Section 6.0, construct capital projects described in SWMP Section 2.3, and implement administrative programs described in SWMP Sections 3.0, 4.0, 5.0, 6.0, and 7.0.

➢ <u>Sediment Reduction Monitoring</u>

- Analysis: Sediment loading within the various treated urban basins averaged .13 tons/acre, .01 tons/acre less than the previous year. Sediment collection totals increased from 46.7 in 2018 to 50.6 tons in 2019. The MS4 installed five new treatment structures in 2019, resulting in increased sediment collection totals.
- Action Plan: Continue TMDL Action Plan described in SWMP Section 2.2, construct capital projects described in SWMP Section 2.3, and maintain utility operations goals described in SWMP Section 7.0.

➢ <u>Long-Term Trend Monitoring</u>

- Analysis: Data showed a 39% decrease in Bozeman Creek and a 14% decrease in Mandeville Creek O:E ratios. Bozeman Creek's macroinvertebrate community did not show an improvement based on the prior year's data. Mandeville Creek's macroinvertebrate community did improve based on the prior year's data. More

sampling events are required to show a trend in this data set, as two data points for each location are not adequate to assess stream health. O:E ratios for both Creek's upstream sample locations are well below the reference streams benchmark and appear to be impacted by other pollution sources originating outside of MS4 limits.

- Action Plan: Continue TMDL Action Plan described in SWMP Section 2.2, construct capital projects described in SWMP Section 2.3, maintain utility operation goals described in SWMP Section 7.0, and implement administrative programs described in SWMP Sections 3.0, 4.0, 5.0, 6.0, and 7.0.

Section 9.0

Stormwater Management Plan Updates

Graphic: 9.0.1: Permeable Paver Walkway

Graphic 9.0.2: Boulevard Infiltration Gallery

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9.1 Introduction

The MS4 updates the information in this SWMP annually, and tracks change specific to each section. This SWMP requires changes to meet operational, regulatory, and funding adjustments that commonly occur in local government.

9.2 Program Administration (SWMP Section 1.0)

January/February 2020:

- Section 1.1: Updated and simplified MS4 objective language
- Section 1.2: Completed minor grammar updates
- Section 1.3: Removed ERU total of "$3.23" as the fee changes annually with rate increases
- Section 1.3: Updated the description of the utility rate model workflow to improve clarity
- Section 1.3: Updated the 2019 total impervious area and total site plan performance measure
- Section 1.3: Added the FY20 Approved Budget information
- Section 1.3: Added Graphic 1.3.1 to show budget and staffing changes over time
- Section 1.4: Updated project information and staff hours, added FY20 Budget information
- Section 1.5: Added new Stormwater Infrastructure Specialist, clarified organizational structure, added SWMP Support Divisions, removed future positions, and changed meeting frequencies
- Section 1.5: Updated Graphic 1.5.1
- Section 1.5: Updated Graphic 1.5.2 to include 2019 numbers, recalculated totals
- Section 1.6: Added mechanical separation unit, added responsibilities related to the Post Construction Program
- Section 1.7: Updated Gallatin Watershed Council's name
- Section 1.10: Updated 2019 and 2020 SWMP advertisement dates, and added public comments

9.3 Capital Project Program (SWMP Section 2.0)

January/February 2020:

- Section 2.1: Removed language related to specialized equipment, updated subprogram goals
- Section 2.2: Added "over" before $650,000 and updated vitrified clay pipe total
- Section 2.2: Completed numerous grammar updates
- Section 2.3: Updated performance metrics, clarified some language, relocated completed projects and added new projects
- Section 2.4: Updated Ongoing and Completed projects, clarified some names and categories
- Section 2.4.2 and 2.4.3: Updated graphics
- Section 2.5: Updated pollutant reduction totals
- Section 2.6: Updated performance measures

9.3 Public Education Program (SWMP Section 3.0)

January/February 2020:

- Section 3.2: Clarified language under passive and active engagement sections
- Section 3.3: Updated group to include MSU Students
- Section 3.4: Clarified existing activities, added new activities, updated performance measures, added tasks, goal, and notes for each item per year
- Section 3.5: Removed Adopt A Rain Garden and moved it into the ongoing initiatives section

9.4 Illicit Discharge Detection and Elimination Program (SWMP Section 4.0)

January/February 2020:

- Section 4.4: Added 2019 events and updated Graphics 4.4.1 and 4.4.2
- Section 4.6: Updated total outfall numbers per each waterway, updated high priority outfall information and 2019 inspection results, and updated 2019 ORI inspection totals
- Section 4.7: Added 2019 infrastructure totals and updated Graphic 4.7.1

9.5 Construction Site Management Program (SWMP Section 5.0)

January/February 2020:

- Section 5.1: Updated #3 to include the mention of inspection
- Section 5.3: Added final occupancy and infrastructure approval section
- Section 5.3: Added 2019 totals and updated Graphic 5.3.1
- Section 5.4: Added 2019 performance totals and audit results, updated Graphic 5.4.1
- Section 5.5: Removed timeline for item #1

9.6 Post Construction Program (SWMP Section 6.0)

January/February 2020:

- Section 6.3: Updated Graphic 6.3.1
- Section 6.4: Added 2019 performance totals, updated Graphic 6.4.1, added 2019 audit results, and updated Graphic 6.4.2

9.7 Good Housekeeping Program (SWMP Section 7.0)

January/February 2020:

- Section 7.2: Clarified language and added 2019 performance totals
- Section 7.3: Clarified Facility Minimum Standards, updated Facility Stormwater Pollution Prevention Plan protocols, updated Graphic 7.3.1, updated completion performance metric, and removed performance metric related to standard violations
- Section 7.4: Clarified Activity Minimum Standards, updated Activity Stormwater Pollution Prevention Plan protocols, updated completion performance metric, and removed performance metric related to standard violations
- Section 7.5: Updated 2019 training activities and totals

9.8 Sampling and Evaluation Program(SWMP Section 8.0)

January/February 2020:

- Section 8.4: Added 2019 raw data and updated point scores
- Section 8.5: Added 2019 raw data and updated point scores
- Section 8.6: Added 2019 raw data and updated point scores
- Section 8.7: Added 2019 raw data and updated point scores
- Section 8.8: Calculated 2019 score and updated Graphic 8.8.5
- Section 8.9: Added 2019 Results

BOZEMAN MT
Stormwater Division

Attachment A

2019 MS4 Annual Report Additional Information

Annual Report Information in the City's Stormwater Management Plan (SWMP) includes:

1. Stormwater Management Team
    - Organizational Chart: See SWMP Section 1.5
    - Communication Mechanism: See SWMP Section 1.5
2. Permittee's SWMP Resources (1-5)
    - Question 1: See SWMP Section 1.3
    - Question 2: See SWMP Section 1.3
    - Question 3: See SWMP Section 1.3
    - Question 4: See SWMP Section 1.3
    - Question 5: See SWMP Section 1.3
3. Illicit Discharge Detection and Elimination
    - Updated Map: See SWMP Section 4.7
    - Dry Weather Screening: See SWMP Section 4.6
    - List of Outfalls: See Attachment B
4. Construction Site Stormwater Management:
    - Plan Reviews: See SWMP Section 5.3
    - Inspections: See SWMP Section 5.3
5. Pollution Prevention/Good Housekeeping for Permittee Operations
    - Inventory of Facilities: See SWMP Section 7.3
    - Map of Facilities: See SWMP Section 7.3
6. Training
    - New Employee Training: See SWMP Section 7.5
7. Special Conditions: Approved TMDLs
    - Outfalls: See Attachment B
8. Monitoring

- Results, Calculations, and Evaluations: See SWMP Section 8.0

9. Public Education and Outreach
    - Distribution: See SWMP Section 3.4
10. Public Involvement and Participation
    - Feedback: See SWMP Section 1.10
11. Illicit Discharge Detection and Elimination
    - Non-Stormwater Discharge Categories: See SWMP Section 4.5
    - Occasional Non-Stormwater Flows: See SWMP Section 4.5
    - High Priority Outfalls: See SWMP Section 4.6
    - Screening Results: See SWMP Section 4.6
    - Corrective Actions Taken: See SWMP Section 4.4
12. Construction Site Stormwater Management
    - Ordinance: See Attachment C
    - Enforcement Response Plan: See SWMP Section 5.3
13. Post Construction Program
    - High Priority Facility Inspections and Actions: See SWMP Section 6.3
14. Pollution Prevention/Good Housekeeping for Permittee Operations
    - Standard Operating Procedures: See Attachment D
15. SWMP Updates
    - See SWMP Section 9.0

Attachment B - MS4 Outfalls

Updated February 13, 2020

#	Facility ID	Latitude	Longitude	Receiving Waterway	Impaired (Yes or No)	Discharge Type	Diameter (Inches)	Material	Owner	ORI Inspection Date	Flow (No, Trickle, Moderate, Substantial)	Overall Outfall Characterization (Unlikely, Potential, Suspect, Obvious)
Notes: Latitude and Longitude values are in Decimal Degrees. Indirect refers to Outfalls with stormwater facilities upstream. Direct refers to Outfalls with no stormwater facilities upstream. See SWMP Sections 4.0 and 8.0 for waterway impairments. Highlighted rows represent pipe ends that require follow-up and may not be outfalls per State and Federal regulations												
1	OF.B05.00477	45.672700330	110.997293120	Rocky Creek	No	Indirect						
2	OF.B05.00478	45.672624040	110.996907130	Rocky Creek	No	Indirect						
3	OF.B05.00479	45.671410420	110.995779900	Unnamed Tributary	No	Indirect	10	PVC	Private	6/19/2019	No	Unlikely
4	OF.B06.00001	45.671028190	110.995771270	Unnamed Tributary	No	Indirect	8	PVC	Private	6/19/2019	No	Unlikely
5	OF.C05.00001	45.675056530	111.008276530	Tributary SWWW_00065	No	Direct	-	-	MDT	-	-	-
6	OF.C05.00002	45.675063800	111.008944000	Tributary SWWW_00065	No	Direct	-	-	MDT	-	-	-
7	OF.C05.00003	45.675058100	111.009520890	Tributary SWWW_00065	No	Direct	-	-	MDT	-	-	-
8	OF.C05.00329	45.672196570	111.010898870	Tributary SWWW_00065	No	Direct	25	RCP	City of Bozeman	6/19/2019	No	Unlikely
9	OF.C05.00330	45.672486960	111.010789980	Tributary SWWW_00065	No	Indirect	6	PVC	Private	6/19/2019	No	Unlikely
10	OF.C05.00331	45.672519900	111.010780180	Tributary SWWW_00065	No	Indirect	6	PVC	Private	6/19/2019	No	Unlikely
11	OF.C05.00332	45.671917580	111.010403500	Tributary SWWW_00065	No	Indirect	21	RCP	City of Bozeman	6/19/2019	No	Unlikely
12	OF.C05.00333	45.672602170	111.010617420	Tributary SWWW_00065	No	Indirect	6	PVC	Private	6/19/2019	No	Unlikely
13	OF.C05.00334	45.673060920	111.010404890	Tributary SWWW_00065	No	Direct	12	RCP	City of Bozeman	6/18/2019	No	Unlikely
14	OF.C05.00694	45.672644470	111.009429350	Tributary SWWW_00065	No	Indirect	12	HDPE	City of Bozeman	6/18/2019	No	Unlikely
15	OF.C06.00001	45.670366830	111.007432980	SWWW_00065	No	Indirect	24	RCP	City of Bozeman	6/19/2019	No	Unlikely
16	OF.C06.00002	45.670362780	111.007468980	SWWW_00065	No	Indirect	10	HDPE	City of Bozeman	6/19/2019	No	Unlikely
17	OF.C06.00003	45.670999500	111.008011380	SWWW_00065	No	Indirect	18	RCP	City of Bozeman	6/19/2019	No	Unlikely
18	OF.D02.00318	45.694982240	111.019325800	Rocky Creek	No	Direct						
19	OF.D04.00106	45.682954270	111.019583810	Story Ditch	No	Indirect						
20	OF.D04.00107	45.678801410	111.012273710	Tributary SWWW_00065	No	Direct	-	-	MDT	-	-	-
21	OF.D04.00319	45.679196760	111.018256500	Tributary SWWW_00048	No	Indirect						
22	OF.D05.00001	45.676410510	111.014171190	Tributary SWWW_00065	No	Direct	-	-	MDT	-	-	-
23	OF.D05.00002	45.676103060	111.013367890	Tributary SWWW_00065	No	Direct	-	-	MDT	-	-	-
24	OF.D05.00326	45.671622520	111.016589040	Tributary SWWW_00040	No	Both	24	RCP	City of Bozeman	6/27/2019	No	Unlikely
25	OF.D05.00327	45.671908190	111.016106130	Tributary SWWW_00040	No	Direct	21	RCP	City of Bozeman	6/27/2019	No	Unlikely
26	OF.D05.00335	45.673475420	111.011241420	Tributary SWWW_00065	No	Direct	15	RCP	City of Bozeman	6/18/2019	No	Unlikely
27	OF.D05.00336	45.674068590	111.012388210	Tributary SWWW_00065	No	Direct	15	RCP	City of Bozeman	6/18/2019	No	Unlikely
28	OF.D05.00337	45.676558260	111.015659380	Tributary SWWW_00065	No	Direct	15	RCP	City of Bozeman	6/19/2019	No	Unlikely

29	OF.D05.00338	45.677534240	111.016275290	Tributary SWWW_00065	No	Direct	15	-	MDT	-	-	-
30	OF.D05.00339	45.677474180	111.016229220	Tributary SWWW_00065	No	Direct	48	-	MDT	-	-	-
31	OF.D05.00340	45.677459810	111.016333220	SWWW_00065	No	Indirect	24	RCP	City of Bozeman	6/19/2019	Moderate	Unlikely
32	OF.D05.00692	45.673246920	111.017491920	Tributary SWWW_00040	No	Direct	10	RCP	City of Bozeman	6/27/2019	No	Unlikely
33	OF.D05.00693	45.674770830	111.018457860	Tributary SWWW_00040	No	Direct	UNK	UNK	City of Bozeman	6/27/2019	No	Unlikely
34	OF.D06.00491	45.669514340	111.017086830	Tributary SWWW_00040	No	Direct	12	RCP	City of Bozeman	6/27/2019	No	Unlikely
35	OF.D06.00492	45.668176320	111.018580670	Tributary SWWW_00040	No	Direct	UNK	UNK	City of Bozeman	6/27/2019	No	Unlikely
36	OF.D06.00493	45.667692400	111.019950770	Tributary SWWW_00040	No	Direct	UNK	UNK	City of Bozeman	6/27/2019	No	Unlikely
37	OF.D07.00320	45.661488830	111.012886990	Tributary SWWW_00037	No	Direct	15	RCP	City of Bozeman	6/27/2019	No	Unlikely
38	OF.D07.00321	45.663274900	111.012901600	Tributary SWWW_00039	No	Direct	UNK	UNK	City of Bozeman	6/27/2019	No	Unlikely
39	OF.D07.00322	45.662065730	111.016896800	Tributary SWWW_00039	No	Indirect						
40	OF.D07.00323	45.661933920	111.017378880	Tributary SWWW_00039	No	Direct	15	RCP	City of Bozeman	6/27/2019	No	Unlikely
41	OF.D07.00324	45.662377130	111.016673390	Tributary SWWW_00039	No	Direct	18	RCP	City of Bozeman	6/27/2019	No	Unlikely
42	OF.D07.00325	45.662455860	111.016554650	Tributary SWWW_00039	No	Direct	18	RCP	City of Bozeman	6/27/2019	No	Unlikely
43	OF.D07.00328	45.660569590	111.016828230	SWWW_00037	No	Direct						
44	OF.D07.00329	45.660110890	111.017575380	SWWW_00037	No	Direct						
45	OF.E00.00052	45.709489130	111.028224470	Bridger Creek	Yes	Indirect						
46	OF.E00.00054	45.707950070	111.025965220	SWWW_00043	No	Indirect						
47	OF.E00.00706	45.710889350	111.030684820	Tributary SWWW_00014	No	Indirect						
48	OF.E01.00050	45.700164610	111.029674410	East Gallatin River	Yes	Indirect						
49	OF.E01.00051	45.701953570	111.030275980	East Gallatin River	Yes	Indirect						
50	OF.E01.00052	45.700524260	111.030272080	East Gallatin River	Yes	Direct						
51	OF.E01.00053	45.700553230	111.030224240	East Gallatin River	Yes	Direct						
52	OF.E01.00054	45.700613470	111.030111160	East Gallatin River	Yes	Direct						
53	OF.E01.00055	45.700640150	111.030063320	East Gallatin River	Yes	Direct						
54	OF.E01.00056	45.700423710	111.030098010	East Gallatin River	Yes	Direct						
55	OF.E01.00057	45.700452690	111.030049080	East Gallatin River	Yes	Direct						
56	OF.E01.00058	45.700519020	111.029926220	East Gallatin River	Yes	Direct						
57	OF.E01.00059	45.700544940	111.029879470	East Gallatin River	Yes	Direct						
58	OF.E01.00060	45.702647320	111.022715480	East Gallatin River	Yes	Indirect						
59	OF.E01.00062	45.701671050	111.030553000	East Gallatin River	Yes	Direct						
60	OF.E03.00447	45.686649360	111.030671400	Bozeman Creek	Yes	Direct						
61	OF.E03.00448	45.686680400	111.030729960	Bozeman Creek	Yes	Direct						
62	OF.E03.00450	45.688640440	111.029861680	Bozeman Creek	Yes	Direct						
63	OF.E03.00453	45.691563250	111.030031770	Bozeman Creek	Yes	Direct						
64	OF.E03.00454	45.688709540	111.029768040	Bozeman Creek	Yes	Direct						
65	OF.E04.00102	45.680814530	111.024685500	Story Ditch	No	Indirect						
66	OF.E04.00103	45.682412010	111.024155610	Story Ditch	No	Indirect						
67	OF.E04.00104	45.683962210	111.022156530	Story Ditch	No	Indirect						

68	OF.E04.00105	45.683976890	111.021992790	Story Ditch	No	Indirect						
69	OF.E04.00108	45.679358270	111.025238590	Story Ditch	No	Indirect						
70	OF.E04.00109	45.679371150	111.025279680	Story Ditch	No	Indirect						
71	OF.E04.00225	45.681227990	111.024779100	Story Ditch	No	Indirect						
72	OF.E04.00226	45.680338240	111.025133290	Story Ditch	No	Indirect						
73	OF.E04.00442	45.685322160	111.031031970	Bozeman Creek	Yes	Direct						
74	OF.E05.00101	45.678174270	111.026817920	Story Ditch	No	Indirect						
75	OF.E06.00409	45.671048390	111.030385550	Bozeman Creek	Yes	Direct	1.25	PVC	Private	7/23/2019	No	Unlikely
76	OF.E06.00410	45.671052350	111.030434530	Bozeman Creek	Yes	Direct	4	PVC	Private	7/23/2019	No	Unlikely
77	OF.E06.00411	45.671055460	111.030451870	Bozeman Creek	Yes	Direct	4	PVC	Private	7/23/2019	No	Unlikely
78	OF.E06.00494	45.666931460	111.021226160	Tributary SWWW_00040	No	Direct	UNK	RCP	City of Bozeman	6/27/2019	No	Unlikely
79	OF.E06.00495	45.666256690	111.021502070	Tributary SWWW_00040	No	Direct	24	RCP	City of Bozeman	6/27/2019	No	Unlikely
80	OF.E06.00496	45.665580780	111.021514070	Tributary SWWW_00040	No	Direct	15	RCP	City of Bozeman	6/27/2019	No	Unlikely
81	OF.E06.00621	45.666627090	111.026262750	Bozeman Creek	Yes	Indirect	12	CMP	Private	6/27/2019	No	Unlikely
82	OF.E06.00630	45.666415450	111.026721190	Bozeman Creek	Yes	Indirect	18	RCP	City of Bozeman	6/27/2019	No	Unlikely
83	OF.E07.00097	45.657064900	111.028491530	Bozeman Creek	Yes	Direct	15	RCP	City of Bozeman	7/11/2019	No	Unlikely
84	OF.E07.00407	45.659683650	111.029989440	Bozeman Creek	Yes	Direct						
85	OF.E07.00408	45.662697850	111.030651480	Bozeman Creek	Yes	Direct						
86	OF.E07.00632	45.663033640	111.026250160	Bozeman Creek	Yes	Indirect	8	PVC	Private	7/11/2019	No	Unlikely
87	OF.E08.00406	45.655940660	111.025953540	Bozeman Creek	Yes	Direct	18	CMP	City of Bozeman	7/11/2019	No	Unlikely
88	OF.E15.00001	45.599566880	111.026409420	Bozeman Creek	Yes	Indirect						
89	OF.E15.00002	45.600524560	111.024806260	Bozeman Creek	Yes	Direct						
90	OF.F01.00500	45.706005950	111.031062120	East Gallatin River	Yes	Indirect						
91	OF.F01.00636	45.704001270	111.031329510	East Gallatin River	Yes	Indirect						
92	OF.F01.00637	45.702855520	111.036166200	East Gallatin River	Yes	Indirect						
93	OF.F02.00001	45.699997920	111.030431410	East Gallatin River	Yes	Direct						
94	OF.F02.00002	45.700011830	111.030475110	East Gallatin River	Yes	Direct						
95	OF.F03.00443	45.685606410	111.031224550	Bozeman Creek	Yes	Direct						
96	OF.F03.00444	45.685608790	111.031159160	Bozeman Creek	Yes	Direct						
97	OF.F03.00445	45.685682830	111.031116980	Bozeman Creek	Yes	Direct						
98	OF.F03.00446	45.685749850	111.031169600	Bozeman Creek	Yes	Direct						
99	OF.F03.00447	45.685952590	111.031096210	Bozeman Creek	Yes	Direct						
100	OF.F03.00448	45.685518430	111.031149660	Bozeman Creek	Yes	Direct						
101	OF.F03.00449	45.692697430	111.031210720	Bozeman Creek	Yes	Indirect						
102	OF.F04.00426	45.678692340	111.032759790	Bozeman Creek	Yes	Indirect	12	PVC	City of Bozeman	8/21/2019	No	Unlikely
103	OF.F04.00427	45.678824410	111.032681170	Bozeman Creek	Yes	Direct	15	RCP	City of Bozeman	8/21/2019	No	Unlikely
104	OF.F04.00428	45.678857540	111.032684560	Bozeman Creek	Yes	Direct	15	CMP	City of Bozeman	8/21/2019	Moderate	Unlikely
105	OF.F04.00429	45.679257950	111.032661630	Bozeman Creek	Yes	Direct	6	-	MDT	-	-	
106	OF.F04.00430	45.679746510	111.032659800	Bozeman Creek	Yes	Direct	4	Steel	City of Bozeman	8/30/2019	No	Potential

107	OF.F04.00431	45.679416430	111.032651410	Bozeman Creek	Yes	Direct	10	-	MDT	-	-	
108	OF.F04.00432	45.679893220	111.032737400	Bozeman Creek	Yes	Direct	12	PVC	City of Bozeman	8/30/2019	No	Unlikely
109	OF.F04.00433	45.679891000	111.032681610	Bozeman Creek	Yes	Direct	4	PVC	City of Bozeman	8/30/2019	No	Unlikely
110	OF.F04.00434	45.680370830	111.032706970	Bozeman Creek	Yes	Direct	6	PVC	City of Bozeman	8/30/2019	No	Unlikely
111	OF.F04.00435	45.680469470	111.032722330	Bozeman Creek	Yes	Direct	10	VCP	City of Bozeman	8/30/2019	No	Unlikely
112	OF.F04.00436	45.680858040	111.032728050	Bozeman Creek	Yes	Direct	4	Steel	City of Bozeman	8/6/2019	No	Unlikely
113	OF.F04.00437	45.680913390	111.032719450	Bozeman Creek	Yes	Direct	8	PVC	City of Bozeman	8/6/2019	No	Unlikely
114	OF.F04.00438	45.681900640	111.032139400	Bozeman Creek	Yes	Direct	12	Steel	City of Bozeman	8/6/2019	No	Unlikely
115	OF.F04.00439	45.681941260	111.032143500	Bozeman Creek	Yes	Direct	15	RCP	City of Bozeman	8/6/2019	No	Unlikely
116	OF.F04.00440	45.681980880	111.032136400	Bozeman Creek	Yes	Direct	6	Steel	City of Bozeman	8/6/2019	No	Unlikely
117	OF.F04.00441	45.683084900	111.031997400	Bozeman Creek	Yes	Direct	42	CMP	City of Bozeman	8/6/2019	No	Unlikely
118	OF.F04.00442	45.680375770	111.032782060	Bozeman Creek	Yes	Direct	8	PVC	City of Bozeman	8/30/2019	No	Unlikely
119	OF.F04.00644	45.678828340	111.032704740	Bozeman Creek	Yes	Direct						
120	OF.F04.00697	45.684045750	111.031679610	Bozeman Creek	Yes	Direct	-	-	MDT	-	-	
121	OF.F04.00698	45.684050450	111.031629140	Bozeman Creek	Yes	Direct	4	PVC	Private	8/6/2019	No	Unlikely
122	OF.F04.00699	45.679722300	111.032661000	Bozeman Creek	Yes	Direct	6	Steel	Private	8/30/2019	No	Unlikely
123	OF.F05.00095	45.672607570	111.032255170	Bozeman Creek	Yes	Direct	Open	RCP	City of Bozeman	7/24/2019	No	Unlikely
124	OF.F05.00097	45.673955510	111.032144570	Bozeman Creek	Yes	Direct	18	Steel	City of Bozeman	7/24/2019	No	Unlikely
125	OF.F05.00110	45.676456020	111.031947220	Bozeman Creek	Yes	Direct	4	PVC	City of Bozeman	7/24/2019	No	Suspect
126	OF.F05.00412	45.673951750	111.032091960	Bozeman Creek	Yes	Direct	8	Clay	City of Bozeman	7/24/2019	No	Unlikely
127	OF.F05.00413	45.674139850	111.032147090	Bozeman Creek	Yes	Direct	4	PVC	Private	7/24/2019	No	Unlikely
128	OF.F05.00414	45.674652580	111.032111070	Bozeman Creek	Yes	Direct	12	CMP	City of Bozeman	7/24/2019	No	Unlikely
129	OF.F05.00415	45.675576430	111.031962630	Bozeman Creek	Yes	Direct						
130	OF.F05.00416	45.677312750	111.031935360	Bozeman Creek	Yes	Direct						
131	OF.F05.00417	45.677318160	111.032014840	Bozeman Creek	Yes	Direct						
132	OF.F05.00418	45.677274850	111.032001740	Bozeman Creek	Yes	Direct						
133	OF.F05.00419	45.677365820	111.032029260	Bozeman Creek	Yes	Direct						
134	OF.F05.00420	45.678284610	111.032664770	Bozeman Creek	Yes	Direct	8	VCP	City of Bozeman	8/30/2019	No	Unlikely
135	OF.F05.00421	45.678349160	111.032730180	Bozeman Creek	Yes	Direct	8	VCP	City of Bozeman	8/21/2019	No	Unlikely
136	OF.F05.00422	45.678323910	111.032704590	Bozeman Creek	Yes	Direct						
137	OF.F05.00423	45.678268690	111.032648640	Bozeman Creek	Yes	Direct	4	PVC	City of Bozeman	8/30/2019	No	Unlikely
138	OF.F05.00424	45.678302630	111.032683020	Bozeman Creek	Yes	Direct	8	VCP	City of Bozeman	8/30/2019	No	Unlikely
139	OF.F05.00426	45.677300130	111.032032130	Bozeman Creek	Yes	Direct	15	PCV	City of Bozeman	8/21/2019	No	Unlikely
140	OF.F06.00087	45.666294200	111.036850350	Mathew Bird Creek	No	Direct	15	RCP	City of Bozeman	7/19/2019	No	Unlikely
141	OF.F06.00088	45.667232360	111.036238850	Mathew Bird Creek	No	Direct	40	CMP	City of Bozeman	7/19/2019	No	Unlikely
142	OF.F06.00089	45.669277250	111.034906240	Mathew Bird Creek	No	Direct	18	RCP	City of Bozeman	7/19/2019	No	Unlikely
143	OF.F06.00090	45.669111830	111.034972130	Mathew Bird Creek	No	Direct	20	Steel	City of Bozeman	7/19/2019	No	Unlikely
144	OF.F06.00091	45.668060400	111.035896580	Mathew Bird Creek	No	Direct	12	RCP	City of Bozeman	7/19/2019	No	Unlikely
145	OF.F06.00092	45.671243930	111.034072550	Mathew Bird Creek	No	Direct	10	HDPE	City of Bozeman	7/19/2019	No	Unlikely

146	OF.F06.00093	45.671264020	111.034006530	Mathew Bird Creek	No	Direct	8	PVC	City of Bozeman	7/19/2019	Trickle	Unlikely
147	OF.F06.00094	45.671171600	111.032423220	Mathew Bird Creek	No	Direct	UNK	UNK	City of Bozeman	7/24/2019	No	Unlikely
148	OF.F06.00100	45.671061180	111.032853240	Mathew Bird Creek	No	Direct	6	Plastic	Private	7/23/2019	Moderate	Unlikely
149	OF.F06.00101	45.668959450	111.035113710	Mathew Bird Creek	No	Direct	2	PVC	Private	7/19/2019	No	Unlikely
150	OF.F06.00683	45.667274440	111.036519400	Mathew Bird Creek	No	Direct	24	CMP	City of Bozeman	7/19/2019	Moderate	Unlikely
151	OF.F07.00041	45.660036050	111.039406410	Figgins Creek	No	Indirect	12	HDPE	Private	7/12/2019	No	Unlikely
152	OF.F07.00042	45.660902010	111.040227640	Tributary SWWW_00046	No	Direct	24	CMP	City of Bozeman	7/19/2019	No	Unlikely
153	OF.F07.00043	45.660937220	111.036570400	Figgins Creek	No	Direct	4	PVC	Private	7/12/2019	No	Unlikely
154	OF.F07.00075	45.660249880	111.038242410	Figgins Creek	No	Direct	12	RCP	City of Bozeman	7/19/2019	No	Unlikely
155	OF.F07.00076	45.660399890	111.037912640	Figgins Creek	No	Direct	12	UNK	City of Bozeman	7/12/2019	UNK	UNK
156	OF.F07.00078	45.659080240	111.041138300	Figgins Creek	No	Direct	15	RCP	City of Bozeman	7/18/2019	No	Unlikely
157	OF.F07.00079	45.659815190	111.039217720	Figgins Creek	No	Direct	15	RCP	City of Bozeman	7/12/2019	No	Unlikely
158	OF.F07.00080	45.660399890	111.037912640	Figgins Creek	No	Direct	16	UNK	City of Bozeman	7/12/2019	UNK	UNK
159	OF.F07.00081	45.661135780	111.035784950	Mathew Bird Creek	No	Direct	12	RCP	Private	7/12/2019	No	Unlikely
160	OF.F07.00082	45.662145280	111.036622030	Mathew Bird Creek	No	Direct						
161	OF.F07.00083	45.663251450	111.037152060	Mathew Bird Creek	No	Direct	12	RCP	City of Bozeman	7/12/2019	No	Unlikely
162	OF.F07.00084	45.663267420	111.037127310	Mathew Bird Creek	No	Direct	15	RCP	City of Bozeman	7/12/2019	No	Unlikely
163	OF.F07.00084	45.664049880	111.054955080	Mathew Bird Creek	No	Direct	15	RCP	City of Bozeman	7/12/2019	No	Unlikely
164	OF.F07.00085	45.663939200	111.037953420	Tributary SWWW_00046	No	Direct	15	RCP	City of Bozeman	7/12/2019	No	Unlikely
165	OF.F07.00098	45.657534090	111.031474590	Tributary SWWW_00064	No	Direct	24	RCP	City of Bozeman	7/11/2019	No	Unlikely
166	OF.F07.00637	45.660495920	111.037697490	Figgins Creek	No	Direct	8	Steel	City of Bozeman	7/12/2019	No	Unlikely
167	OF.F07.00646	45.658320350	111.033873930	Flat Creek	No	Direct	Inlet	RCP	City of Bozeman	7/11/2019	No	Unlikely
168	OF.F07.00647	45.658630760	111.033830600	Flat Creek	No	Direct	Inlet	RCP	City of Bozeman	7/11/2019	No	Unlikely
169	OF.F07.00667	45.660913790	111.033176240	Flat Creek	No	Direct	15	RCP	City of Bozeman	7/18/2019	No	Unlikely
170	OF.F07.00668	45.660911560	111.032497300	Flat Creek	No	Direct	12	RCP	City of Bozeman	7/18/2019	No	Unlikely
171	OF.F07.00669	45.660912320	111.032494830	Flat Creek	No	Direct	12	RCP	City of Bozeman	7/18/2019	No	Unlikely
172	OF.F07.00670	45.661847770	111.032498460	Flat Creek	No	Direct	12	RCP	City of Bozeman	7/18/2019	No	Unlikely
173	OF.F07.00672	45.662609380	111.032501070	Flat Creek	No	Direct	12	RCP	City of Bozeman	7/18/2019	No	Unlikely
174	OF.F07.00675	45.663761620	111.032507180	Flat Creek	No	Direct	12	RCP	City of Bozeman	7/18/2019	No	Unlikely
175	OF.F07.00695	45.659960280	111.035097520	Mathew Bird Creek	No	Direct	6	Steel	City of Bozeman	7/12/2019	No	Unlikely
176	OF.F08.00063	45.650154660	111.037538440	Mathew Bird Creek	No	Indirect						
177	OF.F08.00067	45.652429900	111.037998160	Mathew Bird Creek	No	Direct						
178	OF.F08.00068	45.655114350	111.037296010	Mathew Bird Creek	No	Direct						
179	OF.F08.00069	45.652981950	111.037462150	Mathew Bird Creek	No	Direct						
180	OF.F08.00070	45.654574820	111.037193700	Mathew Bird Creek	No	Direct						
181	OF.F08.00071	45.655742160	111.036818160	Mathew Bird Creek	No	Direct						
182	OF.F08.00072	45.655725230	111.036947670	Mathew Bird Creek	No	Direct						
183	OF.F08.00073	45.656584090	111.036483040	Mathew Bird Creek	No	Direct	12	CMP	Private	7/12/2019	Moderate	Unlikely
184	OF.F09.00060	45.643694190	111.039409430	Mathew Bird Creek	No	Direct						

185	OF.F09.00061	45.644382290	111.039271990	Mathew Bird Creek	No	Direct						
186	OF.F09.00062	45.648569870	111.038706480	Mathew Bird Creek	No	Indirect	12	PVC	Private	4/18/2019	Moderate	Unlikely
187	OF.F09.00064	45.647484210	111.039230340	Mathew Bird Creek	No	Direct						
188	OF.F09.00065	45.646503260	111.039541220	Mathew Bird Creek	No	Indirect						
189	OF.F09.00479	45.644905710	111.033714410	Flat Creek	No	Indirect	12	PVC	Private	4/18/2019	No	Unlikely
190	OF.F09.00480	45.644910170	111.033724470	Flat Creek	No	Indirect						
191	OF.F09.00481	45.644905990	111.033685330	Flat Creek	No	Indirect						
192	OF.F09.00633	45.644978520	111.038218330	Mathew Bird Creek	No	Indirect	10	PVC	Private	4/18/2019	No	Unlikely
193	OF.F10.00044	45.638704500	111.033630360	Nash Spring Creek	No	Indirect						
194	OF.F10.00475	45.638376960	111.039241460	Tributary SWWW_00030	No	Indirect						
195	OF.F10.00476	45.638930030	111.039386710	Tributary SWWW_00030	No	Indirect						
196	OF.F10.00639	45.641926460	111.037127600	Middle Creek Ditch	No	Indirect						
197	OF.F10.00640	45.641985430	111.036011390	Middle Creek Ditch	No	Indirect						
198	OF.G00.00472	45.708539940	111.042305030	Tributary SWWW_00034	No	Indirect						
199	OF.G01.00316	45.701753620	111.043613430	Tributary SWWW_00034	No	Direct						
200	OF.G01.00317	45.702035490	111.043010600	Tributary SWWW_00034	No	Direct						
201	OF.G01.00707	45.703327820	111.042605620	Tributary SWWW_00034	No	Direct						
202	OF.G02.00047	45.696202140	111.051110840	Mandeville Creek	Yes	Indirect						
203	OF.G02.00048	45.696441540	111.051156760	Mandeville Creek	Yes	Indirect						
204	OF.G02.00049	45.697602250	111.051336000	Mandeville Creek	Yes	Direct						
205	OF.G02.00309	45.695910620	111.043055920	Tributary SWWW_00034	No	Indirect						
206	OF.G02.00310	45.697493020	111.043444640	Tributary SWWW_00034	No	Direct						
207	OF.G02.00311	45.697833940	111.043626580	Tributary SWWW_00034	No	Direct						
208	OF.G02.00312	45.697934710	111.043627500	Tributary SWWW_00034	No	Direct						
209	OF.G02.00313	45.699148440	111.043648260	Tributary SWWW_00034	No	Direct						
210	OF.G02.00314	45.699955930	111.042977520	Mandeville Creek	Yes	Direct						
211	OF.G02.00320	45.697564280	111.051511640	Mandeville Creek	Yes	Indirect						
212	OF.G02.00321	45.694557720	111.046524090	Mandeville Creek	Yes	Indirect						
213	OF.G03.00046	45.685714230	111.051246500	Mandeville Creek	Yes	Direct						
214	OF.G03.00303	45.690517610	111.043797670	Tributary SWWW_00034	No	Direct						
215	OF.G03.00306	45.690510880	111.043144300	Tributary SWWW_00034	No	Direct						
216	OF.G03.00307	45.691656800	111.043160870	Tributary SWWW_00034	No	Direct						
217	OF.G03.00308	45.692830130	111.043139550	Tributary SWWW_00034	No	Direct						
218	OF.G03.00400	45.688587790	111.043790060	Tributary SWWW_00034	No	Direct						
219	OF.G03.00401	45.688561950	111.043789570	Tributary SWWW_00034	No	Direct						
220	OF.G03.00676	45.685623100	111.048346270	Tributary SWWW_00053	No	Direct						
221	OF.G03.00677	45.685522890	111.048286050	Tributary SWWW_00053	No	Direct						
222	OF.G03.00687	45.692432230	111.049333910	Mandeville Creek	Yes	Direct						
223	OF.G04.00045	45.684682070	111.051608540	Mandeville Creek	Yes	Direct						

224	OF.G04.00398	45.683090220	111.048235990	Tributary SWWW_00053	No	Direct						
225	OF.G08.00033	45.650374030	111.049940900	Figgins Creek	No	Indirect						
226	OF.G08.00034	45.655969180	111.044876550	Figgins Creek	No	Indirect						
227	OF.G08.00035	45.656784910	111.043536780	Middle Creek Ditch	No	Direct						
228	OF.G08.00036	45.656216200	111.044054480	Figgins Creek	No	Indirect						
229	OF.G08.00037	45.656432030	111.044001200	Figgins Creek	No	Indirect	3	PVC	Private	7/18/2019	No	Unlikely
230	OF.G08.00038	45.656192690	111.044404700	Figgins Creek	No	Indirect						
231	OF.G08.00039	45.656463140	111.043728450	Figgins Creek	No	Indirect						
232	OF.G08.00040	45.656269280	111.044038470	Figgins Creek	No	Indirect	3	PVC	Private	7/18/2019	No	Unlikely
233	OF.G08.00066	45.700063090	111.057602010	Farmers Canal	No	Indirect						
234	OF.G08.00068	45.656600250	111.042960670	Figgins Creek	No	Indirect						
235	OF.G08.00451	45.656564520	111.049441550	Middle Creek Ditch	No	Indirect						
236	OF.G08.00684	45.655733960	111.045160780	Figgins Creek	No	Indirect						
237	OF.G09.00029	45.647334690	111.051519470	Figgins Creek	No	Indirect						
238	OF.G09.00030	45.648057820	111.051135940	Figgins Creek	No	Indirect						
239	OF.G09.00031	45.648134700	111.051040280	Figgins Creek	No	Indirect						
240	OF.G09.00032	45.648568760	111.050749320	Figgins Creek	No	Indirect						
241	OF.G09.00033	45.648696930	111.050753680	Figgins Creek	No	Indirect						
242	OF.G10.00452	45.636951800	111.044288730	Middle Creek Ditch	No	Indirect						
243	OF.H01.00679	45.703019910	111.059701970	Catron Creek	No	Indirect						
244	OF.H02.00049	45.697650480	111.051926930	Mandeville Creek	Yes	Indirect						
245	OF.H02.00050	45.698368990	111.051974390	Mandeville Creek	Yes	Direct						
246	OF.H02.00054	45.696534480	111.056890350	Farmers Canal	No	Indirect						
247	OF.H02.00055	45.697474710	111.056094600	Farmers Canal	No	Indirect						
248	OF.H02.00056	45.699478590	111.056751450	Farmers Canal	No	Indirect						
249	OF.H02.00060	45.698122260	111.052975490	Mandeville Creek	Yes	Indirect						
250	OF.H02.00061	45.698371450	111.052844030	Mandeville Creek	Yes	Indirect						
251	OF.H02.00062	45.699125510	111.054574580	Farmers Canal	No	Indirect						
252	OF.H02.00063	45.698907730	111.054778910	Farmers Canal	No	Indirect						
253	OF.H02.00064	45.699097720	111.055227950	Farmers Canal	No	Indirect						
254	OF.H02.00065	45.699655030	111.055616540	Farmers Canal	No	Indirect						
255	OF.H02.00066	45.699454980	111.055813020	Farmers Canal	No	Indirect						
256	OF.H02.00072	45.698206150	111.053223080	Mandeville Creek	Yes	Indirect						
257	OF.H02.00369	45.693227780	111.057878050	Farmers Canal	No	Direct						
258	OF.H02.00490	45.695085670	111.057141990	Farmers Canal	No	Indirect						
259	OF.H02.00641	45.695962330	111.051586550	Mandeville Creek	Yes	Indirect						
260	OF.H02.00708	45.693260510	111.057829560	Farmers Canal	No	Direct						
261	OF.H03.00643	45.692075830	111.057423780	Farmers Canal	No	Direct						
262	OF.H03.00644	45.692161120	111.057402290	Farmers Canal	No	Indirect						

263	OF.H03.00645	45.692830710	111.057443440	Farmers Canal	No	Indirect						
264	OF.H04.00001	45.678541780	111.059921790	Middle Creek Ditch	No	Direct						
265	OF.H04.00002	45.679373290	111.059924660	Middle Creek Ditch	No	Direct						
266	OF.H04.00057	45.682709790	111.051671100	Mandeville Creek	Yes	Direct						
267	OF.H04.00058	45.681564630	111.051686380	Mandeville Creek	Yes	Direct						
268	OF.H04.00060	45.679207500	111.051789120	Mandeville Creek	Yes	Direct						
269	OF.H04.00454	45.682029870	111.051689010	Mandeville Creek	Yes	Direct						
270	OF.H04.00455	45.679539050	111.051805190	Mandeville Creek	Yes	Direct						
271	OF.H04.00696	45.681473070	111.051668170	Mandeville Creek	Yes	Direct						
272	OF.H05.00001	45.678449760	111.051813960	Mandeville Creek	Yes	Direct						
273	OF.H05.00002	45.674769240	111.057562310	Middle Creek Ditch	No	Indirect						
274	OF.H05.00003	45.675280670	111.058739090	Middle Creek Ditch	No	Direct						
275	OF.H05.00005	45.677273080	111.059418920	Middle Creek Ditch	No	Direct						
276	OF.H05.00006	45.678398840	111.059392310	Middle Creek Ditch	No	Direct						
277	OF.H05.00370	45.671869460	111.052014310	Mandeville Creek	Yes	Direct						
278	OF.H05.00371	45.672374170	111.052005700	Mandeville Creek	Yes	Direct						
279	OF.H05.00377	45.673308160	111.051963240	Mandeville Creek	Yes	Direct						
280	OF.H05.00378	45.673308160	111.051963240	Mandeville Creek	Yes	Direct						
281	OF.H05.00381	45.674295020	111.051924860	Mandeville Creek	Yes	Direct						
282	OF.H05.00384	45.675281840	111.051887810	Mandeville Creek	Yes	Direct						
283	OF.H05.00386	45.676266760	111.051852750	Mandeville Creek	Yes	Direct						
284	OF.H05.00387	45.676403290	111.051881460	Mandeville Creek	Yes	Direct						
285	OF.H05.00388	45.677187510	111.051880180	Mandeville Creek	Yes	Direct						
286	OF.H05.00390	45.678338170	111.051835660	Mandeville Creek	Yes	Direct						
287	OF.H05.00391	45.678338170	111.051835660	Mandeville Creek	Yes	Direct						
288	OF.H06.00015	45.665572200	111.054669820	Mandeville Creek	Yes	Direct						
289	OF.H06.00016	45.665605150	111.054675260	Mandeville Creek	Yes	Direct						
290	OF.H06.00018	45.667149470	111.053978870	Mandeville Creek	Yes	Direct						
291	OF.H06.00019	45.667163230	111.053922320	Mandeville Creek	Yes	Direct						
292	OF.H06.00020	45.667438750	111.054068390	Mandeville Creek	Yes	Direct						
293	OF.H06.00021	45.667959150	111.054127990	Mandeville Creek	Yes	Direct						
294	OF.H06.00022	45.668660670	111.054112630	Mandeville Creek	Yes	Direct						
295	OF.H06.00023	45.669053810	111.053761360	Mandeville Creek	Yes	Indirect						
296	OF.H06.00024	45.670086610	111.053494070	Mandeville Creek	Yes	Indirect						
297	OF.H06.00025	45.670150730	111.053506490	Mandeville Creek	Yes	Indirect						
298	OF.H06.00026	45.670289090	111.053445170	Mandeville Creek	Yes	Indirect						
299	OF.H06.00027	45.670459550	111.053413590	Mandeville Creek	Yes	Indirect						
300	OF.H06.00028	45.670904360	111.053140720	Mandeville Creek	Yes	Indirect						
301	OF.H06.00029	45.669366710	111.059528740	Middle Creek Ditch	No	Direct						

302	OF.H06.00189	45.665102780	111.055267850	Mandeville Creek	Yes	Direct						
303	OF.H06.00189	45.664050250	111.054929530	Mandeville Creek	Yes	Direct						
304	OF.H07.00187	45.662589520	111.054733430	Mandeville Creek	Yes	Direct						
305	OF.H07.00188	45.662844420	111.054732430	Mandeville Creek	Yes	Direct						
306	OF.H07.00190	45.664050250	111.054929530	Mandeville Creek	Yes	Direct						
307	OF.H07.00191	45.661414600	111.053501870	Mandeville Creek	Yes	Direct						
308	OF.H07.00192	45.661427770	111.053490400	Mandeville Creek	Yes	Direct						
309	OF.H09.00459	45.647732370	111.052300230	Middle Creek Ditch	No	Indirect						
310	OF.I00.00130	45.707774620	111.068686820	Catron Creek	No	Indirect						
311	OF.I00.00131	45.708382330	111.068708560	Catron Creek	No	Indirect						
312	OF.I00.00132	45.714082420	111.068859880	Catron Creek	No	Indirect						
313	OF.I00.00155	45.710671010	111.068701500	Catron Creek	No	Indirect						
314	OF.I01.00128	45.707536130	111.068718500	Catron Creek	No	Indirect						
315	OF.I01.00129	45.707546380	111.068944720	Catron Creek	No	Indirect						
316	OF.I01.00135	45.705364590	111.067644420	Catron Creek	No	Indirect						
317	OF.I01.00624	45.700237800	111.069553130	Tributary SWWW_00014	No	Indirect						
318	OF.I02.00124	45.693639390	111.067847600	West Fork Catron Creek	No	Indirect						
319	OF.I02.00125	45.694142040	111.067514770	West Fork Catron Creek	No	Indirect						
320	OF.I02.00126	45.696374370	111.066641670	Catron Creek	No	Indirect						
321	OF.I02.00127	45.697781130	111.066248680	Catron Creek	No	Indirect						
322	OF.I02.00128	45.696333110	111.068040440	SWWW_00017	No	Indirect						
323	OF.I02.00137	45.694112460	111.065382980	East Fork Catron Creek	No	Indirect						
324	OF.I02.00301	45.700078230	111.066054820	Catron Creek	No	Indirect						
325	OF.I02.00368	45.693239330	111.062204510	Farmers Canal	No	Direct						
326	OF.I03.00118	45.685818080	111.067189180	West Fork Catron Creek	No	Direct						
327	OF.I03.00119	45.685817740	111.067211020	West Fork Catron Creek	No	Direct						
328	OF.I03.00120	45.688880270	111.067652170	West Fork Catron Creek	No	Indirect						
329	OF.I03.00121	45.688998350	111.067645410	West Fork Catron Creek	No	Indirect						
330	OF.I03.00122	45.689098650	111.067653830	West Fork Catron Creek	No	Indirect						
331	OF.I03.00123	45.691157920	111.068079090	West Fork Catron Creek	No	Indirect						
332	OF.I03.00138	45.692625770	111.064657820	East Fork Catron Creek	No	Indirect						
333	OF.I03.00139	45.692873140	111.064752640	East Fork Catron Creek	No	Indirect						
334	OF.I03.00141	45.692335140	111.064582550	East Fork Catron Creek	No	Indirect						
335	OF.I03.00141	45.691941760	111.064564890	East Fork Catron Creek	No	Indirect						
336	OF.I03.00142	45.690993670	111.064281840	East Fork Catron Creek	No	Indirect						
337	OF.I03.00143	45.690817400	111.064235240	East Fork Catron Creek	No	Indirect						
338	OF.I03.00144	45.690498930	111.064166120	East Fork Catron Creek	No	Indirect						
339	OF.I03.00145	45.690276710	111.064096860	East Fork Catron Creek	No	Indirect						
340	OF.I03.00146	45.689429440	111.063818540	East Fork Catron Creek	No	Indirect						

341	OF.I03.00147	45.689700750	111.063950320	East Fork Catron Creek	No	Indirect						
342	OF.I03.00148	45.689017550	111.063783660	East Fork Catron Creek	No	Indirect						
343	OF.I03.00149	45.688682120	111.063826860	East Fork Catron Creek	No	Indirect						
344	OF.I03.00150	45.688514870	111.063834390	East Fork Catron Creek	No	Indirect						
345	OF.I03.00151	45.688427000	111.063791140	East Fork Catron Creek	No	Indirect						
346	OF.I03.00152	45.687968630	111.063805090	East Fork Catron Creek	No	Indirect						
347	OF.I03.00153	45.686687680	111.063439170	East Fork Catron Creek	No	Indirect						
348	OF.I03.00154	45.685955210	111.063450180	East Fork Catron Creek	No	Direct						
349	OF.I03.00362	45.688231530	111.062002230	Farmers Canal	No	Direct						
350	OF.I03.00363	45.688714290	111.062032650	Farmers Canal	No	Direct						
351	OF.I03.00364	45.689856140	111.062088750	Farmers Canal	No	Direct						
352	OF.I03.00365	45.690084480	111.062101080	Farmers Canal	No	Direct						
353	OF.I03.00366	45.692896900	111.062222970	Farmers Canal	No	Direct						
354	OF.I03.00367	45.692896900	111.062222970	Farmers Canal	No	Direct						
355	OF.I03.00484	45.691231050	111.064299280	East Fork Catron Creek	No	Indirect						
356	OF.I03.00620	45.691250840	111.070899080	TributarySWWW_00017	No	Indirect						
357	OF.I03.00635	45.685957410	111.063419810	East Fork Catron Creek	No	Direct						
358	OF.I03.00636	45.691912300	111.064487270	East Fork Catron Creek	No	Indirect						
359	OF.I04.00001	45.680092410	111.062329290	Farmers Canal	No	Direct						
360	OF.I04.00002	45.682105270	111.062184140	Farmers Canal	No	Direct						
361	OF.I04.00003	45.685546840	111.061945220	Farmers Canal	No	Direct						
362	OF.I04.00005	45.681100010	111.065114130	East Fork Catron Creek	No	Indirect						
363	OF.I04.00115	45.679912560	111.070057360	West Fork Catron Creek	No	Direct						
364	OF.I04.00117	45.682286280	111.069305000	West Fork Catron Creek	No	Indirect						
365	OF.I04.00169	45.679102370	111.065765710	East Fork Catron Creek	No	Direct						
366	OF.I04.00473	45.682042690	111.069719030	West Fork Catron Creek	No	Indirect						
367	OF.I04.00661	45.682279660	111.064743150	East Fork Catron Creek	No	Direct						
368	OF.I04.00686	45.680630270	111.070145110	West Fork Catron Creek	No	Direct						
369	OF.I04.00688	45.680238150	111.070292890	West Fork Catron Creek	No	Direct						
370	OF.I04.00690	45.679088410	111.062473730	Farmers Canal	No	Direct						
371	OF.I04.00701	45.681298190	111.062232800	Farmers Canal	No	Direct						
372	OF.I04.00709	45.682833660	111.065102290	East Fork Catron Creek	No	Direct						
373	OF.I05.00111	45.678364710	111.069965490	West Fork Catron Creek	No	Direct						
374	OF.I05.00112	45.678364710	111.069965490	West Fork Catron Creek	No	Direct						
375	OF.I05.00113	45.678481430	111.069967260	West Fork Catron Creek	No	Direct						
376	OF.I05.00114	45.678382970	111.069939550	West Fork Catron Creek	No	Direct						
377	OF.I05.00156	45.675746430	111.068991840	West Fork Catron Creek	No	Direct						
378	OF.I05.00157	45.674483640	111.068888110	West Fork Catron Creek	No	Direct						
379	OF.I05.00158	45.671821970	111.068910830	West Fork Catron Creek	No	Direct						

380	OF.I05.00159	45.671752700	111.068915540	West Fork Catron Creek	No	Direct						
381	OF.I05.00170	45.678510640	111.065185280	East Fork Catron Creek	No	Direct						
382	OF.I05.00171	45.677186080	111.064729060	East Fork Catron Creek	No	Direct						
383	OF.I05.00172	45.675371300	111.064744260	East Fork Catron Creek	No	Direct						
384	OF.I05.00173	45.675276810	111.064744470	East Fork Catron Creek	No	Direct						
385	OF.I05.00174	45.674326460	111.064750610	East Fork Catron Creek	No	Direct						
386	OF.I05.00340	45.672492770	111.062504670	Farmers Canal	No	Direct						
387	OF.I05.00341	45.672492770	111.062504670	Farmers Canal	No	Direct						
388	OF.I05.00342	45.672492770	111.062504670	Farmers Canal	No	Direct						
389	OF.I05.00343	45.672917330	111.062502270	Farmers Canal	No	Direct						
390	OF.I05.00344	45.672917330	111.062502270	Farmers Canal	No	Direct						
391	OF.I05.00345	45.673182350	111.062500070	Farmers Canal	No	Direct						
392	OF.I05.00346	45.673182350	111.062500070	Farmers Canal	No	Direct						
393	OF.I05.00347	45.673182350	111.062500070	Farmers Canal	No	Direct						
394	OF.I05.00348	45.674428540	111.062491490	Farmers Canal	No	Direct						
395	OF.I05.00349	45.674428540	111.062491490	Farmers Canal	No	Direct						
396	OF.I05.00350	45.675144930	111.062485860	Farmers Canal	No	Direct						
397	OF.I05.00351	45.675144930	111.062485860	Farmers Canal	No	Direct						
398	OF.I05.00352	45.676274900	111.062477830	Farmers Canal	No	Direct						
399	OF.I05.00353	45.676274900	111.062477830	Farmers Canal	No	Direct						
400	OF.I05.00354	45.677172860	111.062472110	Farmers Canal	No	Direct						
401	OF.I05.00355	45.677172860	111.062472110	Farmers Canal	No	Direct						
402	OF.I05.00356	45.677376050	111.062475890	Farmers Canal	No	Direct						
403	OF.I05.00357	45.677695630	111.062469320	Farmers Canal	No	Direct						
404	OF.I05.00358	45.677695630	111.062469320	Farmers Canal	No	Direct						
405	OF.I05.00359	45.677695630	111.062469320	Farmers Canal	No	Direct						
406	OF.I05.00360	45.678353300	111.062478940	Farmers Canal	No	Direct						
407	OF.I05.00361	45.678353300	111.062478940	Farmers Canal	No	Direct						
408	OF.I05.00678	45.678510640	111.065185280	East Fork Catron Creek	No	Direct						
409	OF.I05.00685	45.676546170	111.069065230	West Fork Catron Creek	No	Direct						
410	OF.I06.00160	45.668721700	111.064615470	East Fork Catron Creek	No	Indirect						
411	OF.I06.00161	45.669113170	111.064555180	East Fork Catron Creek	No	Indirect						
412	OF.I06.00162	45.670787800	111.064596350	East Fork Catron Creek	No	Direct						
413	OF.I06.00163	45.671258850	111.064707060	Farmers Canal	No	Direct						
414	OF.I06.00164	45.671256740	111.063898450	Farmers Canal	No	Direct						
415	OF.I06.00199	45.667731500	111.064523620	East Fork Catron Creek	No	Indirect						
416	OF.I06.00200	45.667897280	111.070023610	West Fork Catron Creek	No	Indirect						
417	OF.I06.00698	45.669162570	111.064544550	East Fork Catron Creek	No	Indirect						
418	OF.I07.00175	45.662556600	111.065556260	East Fork Catron Creek	No	Indirect						

419	OF.I07.00176	45.662871930	111.065541040	East Fork Catron Creek	No	Indirect						
420	OF.I07.00177	45.662997750	111.065552160	East Fork Catron Creek	No	Indirect						
421	OF.I08.00178	45.656263280	111.065257360	East Fork Catron Creek	No	Indirect						
422	OF.I08.00179	45.654665340	111.068559220	Middle Creek Ditch	No	Indirect						
423	OF.I08.00180	45.654214430	111.068433070	Middle Creek Ditch	No	Indirect						
424	OF.I08.00181	45.652885500	111.069023090	Middle Creek Ditch	No	Indirect						
425	OF.I08.00182	45.650995210	111.069707630	Middle Creek Ditch	No	Indirect						
426	OF.I09.00001	45.646994280	111.071563240	Middle Creek Ditch	No	Indirect						
427	OF.I09.00183	45.645942770	111.068509000	Middle Creek Ditch	No	Indirect						
428	OF.I09.00184	45.645491920	111.068387940	Middle Creek Ditch	No	Indirect						
429	OF.I09.00185	45.647448320	111.068991470	Middle Creek Ditch	No	Indirect						
430	OF.I09.00186	45.643569560	111.071079840	Middle Creek Ditch	No	Indirect						
431	OF.I09.00191	45.648961860	111.064195210	East Fork Catron Creek	No	Indirect						
432	OF.I09.00192	45.642383910	111.064444570	East Fork Catron Creek	No	Indirect						
433	OF.I09.00193	45.645078330	111.068087490	Middle Creek Ditch	No	Indirect						
434	OF.I09.00194	45.645552470	111.063779430	East Fork Catron Creek	No	Indirect						
435	OF.I09.00195	45.645054190	111.063565120	East Fork Catron Creek	No	Indirect						
436	OF.I09.00196	45.643146620	111.064148370	East Fork Catron Creek	No	Indirect						
437	OF.I09.00197	45.646743720	111.063978160	East Fork Catron Creek	No	Indirect						
438	OF.I09.00198	45.647511870	111.064149810	East Fork Catron Creek	No	Indirect						
439	OF.I09.00200	45.643326890	111.064210290	East Fork Catron Creek	No	Indirect						
440	OF.I09.00470	45.648009800	111.070015980	Middle Creek Ditch	No	Indirect						
441	OF.I09.00471	45.647403380	111.069389360	Middle Creek Ditch	No	Indirect						
442	OF.I50.00002	45.714657670	111.071328420	SWWW_00014	No	Indirect						
443	OF.I51.00053	45.722225680	111.061692730	East Gallatin River	Yes	Direct						
444	OF.I51.00054	45.723509210	111.072248930	Catron Creek	No	Direct						
445	OF.I51.00497	45.724044330	111.066924900	East Gallatin River	Yes	Indirect						
446	OF.I51.00498	45.724338040	111.068390190	East Gallatin River	Yes	Indirect						
447	OF.I51.00499	45.724420630	111.069371900	East Gallatin River	Yes	Indirect						
448	OF.I51.00500	45.725351390	111.070946200	East Gallatin River	Yes	Indirect						
449	OF.J00.00133	45.712028520	111.072135560	Tributary SWWW_00014	No	Indirect						
450	OF.J00.00235	45.710110690	111.078041810	Cattail Creek	No	Indirect						
451	OF.J00.00236	45.710503440	111.077642160	Cattail Creek	No	Indirect						
452	OF.J00.00237	45.712451400	111.077892960	Cattail Creek	No	Indirect						
453	OF.J00.00238	45.712482150	111.078111520	Cattail Creek	No	Indirect						
454	OF.J00.00466	45.709098410	111.078023770	Cattail Creek	No	Indirect						
455	OF.J00.00619	45.709665990	111.071943850	Tributary SWWW_00014	No	Indirect						
456	OF.J01.00233	45.700556560	111.076089110	Cattail Creek	No	Indirect						
457	OF.J01.00234	45.701699960	111.076229070	Cattail Creek	No	Indirect						

458	OF.J02.00227	45.693371680	111.076678830	Cattail Creek	No	Indirect						
459	OF.J02.00228	45.695594580	111.076841510	Cattail Creek	No	Indirect						
460	OF.J02.00230	45.696577200	111.076819300	Cattail Creek	No	Indirect						
461	OF.J02.00231	45.698419330	111.077148820	Cattail Creek	No	Indirect						
462	OF.J02.00232	45.700094630	111.075988370	Cattail Creek	No	Indirect						
463	OF.J02.00648	45.700056990	111.076122020	Cattail Creek	No	Indirect						
464	OF.J03.00215	45.686162470	111.074527870	Cattail Creek	No	Indirect						
465	OF.J03.00216	45.687273790	111.074583350	Cattail Creek	No	Indirect						
466	OF.J03.00217	45.687878370	111.074687340	Cattail Creek	No	Indirect						
467	OF.J03.00218	45.688944860	111.075167030	Cattail Creek	No	Indirect						
468	OF.J03.00219	45.689273820	111.075372910	Cattail Creek	No	Indirect						
469	OF.J03.00220	45.691151570	111.075753770	Cattail Creek	No	Indirect						
470	OF.J03.00221	45.691176750	111.076104070	Cattail Creek	No	Indirect						
471	OF.J03.00222	45.691246170	111.076301920	Cattail Creek	No	Indirect						
472	OF.J03.00223	45.692692480	111.076369470	Cattail Creek	No	Indirect						
473	OF.J03.00224	45.692738380	111.076385800	Cattail Creek	No	Indirect						
474	OF.J03.00691	45.692995630	111.076299110	Cattail Creek	No	Indirect						
475	OF.J04.00214	45.685199170	111.073918590	Cattail Creek	No	Indirect						
476	OF.J05.00206	45.674712870	111.077829420	Cattail Creek	No	Indirect						
477	OF.J05.00207	45.674715990	111.077843870	Cattail Creek	No	Indirect						
478	OF.J05.00208	45.676060850	111.077123880	Cattail Creek	No	Indirect						
479	OF.J05.00209	45.676965190	111.076638160	Cattail Creek	No	Indirect						
480	OF.J05.00210	45.676875180	111.076712180	Cattail Creek	No	Indirect						
481	OF.J05.00211	45.678160060	111.076439110	Cattail Creek	No	Indirect						
482	OF.J05.00212	45.678464290	111.075794570	Cattail Creek	No	Direct						
483	OF.J05.00213	45.678513710	111.075650200	Cattail Creek	No	Direct						
484	OF.J05.00395	45.678308200	111.081838530	Tributary SWWW_00050	No	Indirect						
485	OF.J05.00626	45.678486910	111.081930990	Tributary SWWW_00050	No	Indirect						
486	OF.J05.00658	45.678440130	111.081939610	Tributary SWWW_00050	No	Indirect						
487	OF.J05.00659	45.678269230	111.075841270	Cattail Creek	No	Direct						
488	OF.J05.00660	45.678440460	111.075800270	Cattail Creek	No	Direct						
489	OF.J06.00201	45.667838880	111.080950450	Cattail Creek	No	Indirect						
490	OF.J06.00203	45.670399150	111.080251020	Cattail Creek	No	Indirect						
491	OF.J06.00204	45.670490540	111.080257840	Cattail Creek	No	Indirect						
492	OF.J06.00205	45.670658700	111.079744460	Cattail Creek	No	Indirect						
493	OF.J06.00206	45.669185860	111.080794650	Cattail Creek	No	Indirect						
494	OF.J06.00207	45.670671340	111.079695650	Cattail Creek	No	Indirect						
495	OF.J50.00239	45.714597480	111.078194870	Cattail Creek	No	Indirect						
496	OF.J50.00240	45.714581940	111.078383920	Cattail Creek	No	Indirect						

497	OF.J50.00241	45.717321820	111.081197390	Cattail Creek	No	Indirect						
498	OF.K01.00263	45.701437910	111.089545640	Tributary SWWW_00012	No	Indirect						
499	OF.K01.00264	45.703289680	111.089713200	Tributary SWWW_00012	No	Indirect						
500	OF.K01.00265	45.704416500	111.089286260	Tributary SWWW_00012	No	Indirect						
501	OF.K01.00266	45.704569640	111.089390360	Tributary SWWW_00012	No	Indirect						
502	OF.K01.00267	45.707234540	111.090303330	Tributary SWWW_00012	No	Indirect						
503	OF.K01.00268	45.706873700	111.088978220	Tributary SWWW_00012	No	Indirect						
504	OF.K01.00269	45.706364520	111.089487540	Tributary SWWW_00012	No	Indirect						
505	OF.K01.00462	45.706134420	111.085647230	Tributary SWWW_00060	No	Indirect						
506	OF.K02.00261	45.699978990	111.092690620	West Gallatin Canal	No	Indirect						
507	OF.K02.00262	45.699196140	111.088016690	Tributary SWWW_00012	No	Indirect						
508	OF.K02.00270	45.695746190	111.084565680	Tributary SWWW_00012	No	Indirect						
509	OF.K02.00271	45.698044350	111.086940150	Tributary SWWW_00012	No	Indirect						
510	OF.K02.00272	45.696352710	111.085526080	SWWW_00012	No	Indirect						
511	OF.K02.00273	45.699259400	111.089414220	SWWW_00012	No	Indirect						
512	OF.K02.00465	45.700001040	111.089417310	Tributary SWWW_00012	No	Indirect						
513	OF.K03.00249	45.686152750	111.090430910	West Gallatin Canal	No	Indirect						
514	OF.K03.00250	45.687682750	111.090406190	West Gallatin Canal	No	Indirect						
515	OF.K03.00251	45.688388170	111.090286680	West Gallatin Canal	No	Indirect						
516	OF.K03.00252	45.688702140	111.090228430	West Gallatin Canal	No	Indirect						
517	OF.K03.00253	45.689105110	111.090132200	West Gallatin Canal	No	Indirect						
518	OF.K03.00254	45.689431080	111.090031850	West Gallatin Canal	No	Indirect						
519	OF.K03.00255	45.689810430	111.089925450	West Gallatin Canal	No	Indirect						
520	OF.K03.00256	45.690446520	111.089766000	West Gallatin Canal	No	Indirect						
521	OF.K03.00257	45.690449490	111.089802270	West Gallatin Canal	No	Indirect						
522	OF.K03.00258	45.690826150	111.089889880	West Gallatin Canal	No	Indirect						
523	OF.K03.00259	45.692704490	111.090812750	West Gallatin Canal	No	Indirect						
524	OF.K03.00260	45.692640690	111.090984890	West Gallatin Canal	No	Indirect						
525	OF.K03.00616	45.689297030	111.085237050	Tributary SWWW_00011	No	Indirect						
526	OF.K03.00699	45.685881410	111.082920080	Tributary SWWW_00011	No	Indirect						
527	OF.K03.00700	45.693218510	111.090795250	West Gallatin Canal	No	Indirect						
528	OF.K04.00248	45.685636000	111.087698660	West Gallatin Canal	No	Direct						
529	OF.K04.00271	45.678659650	111.093444000	Tributary SWWW_00007	No	Indirect						
530	OF.K04.00272	45.681747240	111.093331810	Tributary SWWW_00007	No	Indirect						
531	OF.K04.00273	45.683747850	111.093303780	Tributary SWWW_00007	No	Indirect						
532	OF.K04.00274	45.683806410	111.093299830	Tributary SWWW_00007	No	Indirect						
533	OF.K04.00275	45.685470830	111.093280420	Tributary SWWW_00007	No	Indirect						
534	OF.K04.00396	45.683005030	111.083242140	Tributary SWWW_00050	No	Indirect						
535	OF.K04.00397	45.683995630	111.087713360	West Gallatin Canal	No	Indirect						

536	OF.K04.00457	45.679421020	111.093406010	Tributary SWWW_00007	No	Indirect						
537	OF.K04.00650	45.685636990	111.088327400	West Gallatin Canal	No	Direct						
538	OF.K04.00651	45.685641330	111.089402940	West Gallatin Canal	No	Direct						
539	OF.K04.00653	45.685636290	111.090398810	West Gallatin Canal	No	Direct						
540	OF.K04.00654	45.685636290	111.090398810	West Gallatin Canal	No	Direct						
541	OF.K05.00244	45.672046420	111.085163170	West Gallatin Canal	No	Indirect						
542	OF.K05.00245	45.678099370	111.085870990	West Gallatin Canal	No	Indirect						
543	OF.K05.00246	45.678144340	111.086179070	West Gallatin Canal	No	Indirect						
544	OF.K05.00482	45.671727530	111.083243190	Unnamed Tributary	No	Indirect						
545	OF.K05.00655	45.678325300	111.086179990	West Gallatin Canal	No	Indirect						
546	OF.K05.00656	45.678442140	111.086210930	West Gallatin Canal	No	Indirect						
547	OF.K06.00202	45.668614090	111.083115200	West Gallatin Canal	No	Indirect						
548	OF.K06.00242	45.670821280	111.083793670	West Gallatin Canal	No	Indirect						
549	OF.K06.00243	45.670846110	111.083775180	West Gallatin Canal	No	Indirect						
550	OF.K50.00483	45.719126680	111.082206270	Tributary SWWW_00011	No	Indirect						
551	OF.L01.00001	45.702972120	111.098728100	Maynard Border Ditch	No	Indirect						
552	OF.L01.00002	45.701436080	111.098596800	Maynard Border Ditch	No	Indirect						
553	OF.L01.00003	45.704747920	111.099213200	Maynard Border Ditch	No	Indirect						
554	OF.L01.00004	45.704068360	111.099120820	Maynard Border Ditch	No	Indirect						
555	OF.L01.00269	45.704730470	111.095806110	Tributary SWWW_00047	No	Indirect						
556	OF.L01.00456	45.705293170	111.096776190	Tributary SWWW_00047	No	Indirect						
557	OF.L01.00463	45.707351710	111.093612460	Tributary SWWW_00062	No	Indirect						
558	OF.L01.00615	45.700443200	111.098386040	Maynard Border Ditch	No	Indirect						
559	OF.L01.00634	45.700414810	111.098438940	Maynard Border Ditch	No	Indirect						
560	OF.L01.00664	45.705146670	111.099143940	Maynard Border Ditch	No	Indirect						
561	OF.L02.00001	45.699985740	111.093791980	West Gallatin Canal	No	Indirect						
562	OF.L02.00010	45.696174420	111.094923880	SWWW_00007	No	Indirect						
563	OF.L02.00011	45.697082210	111.094954640	SWWW_00007	No	Indirect						
564	OF.L02.00013	45.699999920	111.094717690	West Gallatin Canal	No	Indirect						
565	OF.L02.00014	45.699961860	111.096098840	SWWW_00007	No	Indirect						
566	OF.L02.00015	45.698678450	111.095287780	SWWW_00007	No	Indirect						
567	OF.L02.00016	45.699504380	111.098446430	Maynard Border Ditch	No	Indirect						
568	OF.L03.00001	45.690345230	111.096707300	Tributary SWWW_00007	No	Indirect						
569	OF.L03.00002	45.691784130	111.095610580	Tributary SWWW_00007	No	Indirect						
570	OF.L03.00005	45.692534450	111.098195780	Surface Pond	No	Indirect						
571	OF.L03.00280	45.687400850	111.096887630	Tributary SWWW_00007	No	Indirect						
572	OF.L04.00003	45.681204920	111.098379790	Maynard Border Ditch	No	Indirect						
573	OF.L04.00004	45.685571570	111.104174640	Tributary SWWW_00006	No	Indirect						
574	OF.L04.00005	45.685603550	111.104156620	Tributary SWWW_00006	No	Indirect						

575	OF.L04.00008	45.685475220	111.104200840	SWWW_00006	No	Indirect						
576	OF.L04.00009	45.685586350	111.104166900	SWWW_00006	No	Indirect						
577	OF.L04.00276	45.685389340	111.093783480	Tributary SWWW_00007	No	Indirect						
578	OF.L04.00277	45.685454940	111.094847170	Tributary SWWW_00007	No	Indirect						
579	OF.L04.00278	45.685511630	111.095952250	Tributary SWWW_00007	No	Indirect						
580	OF.L04.00279	45.685567890	111.096313030	Tributary SWWW_00007	No	Indirect						
581	OF.L04.00283	45.683854590	111.104186930	Tributary SWWW_00006	No	Indirect						
582	OF.L04.00460	45.679770630	111.098148160	Maynard Border Ditch	No	Indirect						
583	OF.L04.00461	45.679729400	111.098497400	Maynard Border Ditch	No	Indirect						
584	OF.L04.00469	45.683221120	111.098750830	Maynard Border Ditch	No	Indirect						
585	OF.L05.00485	45.674785150	111.103511420	Tributary SWWW_00006	No	Indirect						
586	OF.L05.00487	45.678033450	111.103836780	Tributary SWWW_00006	No	Indirect						
587	OF.L05.00488	45.673891550	111.103052560	Tributary SWWW_00006	No	Indirect						
588	OF.L05.00489	45.675045090	111.098933770	Maynard Border Ditch	No	Indirect						
589	OF.L05.00490	45.675050720	111.103838490	Tributary SWWW_00006	No	Indirect						
590	OF.L05.00622	45.677280890	111.093858730	Tributary SWWW_00007	No	Indirect						
591	OF.M03.00007	45.690355200	111.112962200	Baxter Creek	No	Indirect						
592	OF.M03.00008	45.692686500	111.108770600	Tributary SWWW_00006	No	Indirect						
593	OF.M03.00012	45.692695590	111.112731330	Baxter Creek	No	Indirect						
594	OF.M03.00013	45.692685830	111.112494280	Baxter Creek	No	Indirect						
595	OF.M03.00014	45.688502610	111.110462630	Baxter Creek	No	Indirect						
596	OF.M03.00020	45.690988200	111.112447680	Baxter Creek	No	Indirect						
597	OF.M03.00291	45.688688350	111.107112050	Tributary SWWW_00006	No	Indirect						
598	OF.M03.00292	45.689747600	111.108037250	Tributary SWWW_00006	No	Indirect						
599	OF.M03.00293	45.690855700	111.108548260	Tributary SWWW_00006	No	Indirect						
600	OF.M03.00294	45.690848990	111.108557910	Tributary SWWW_00006	No	Indirect						
601	OF.M03.00464	45.688004870	111.106866350	Tributary SWWW_00006	No	Indirect						
602	OF.M03.00465	45.693013960	111.108890780	SWWW_00006	No	Indirect						
603	OF.M04.00284	45.683819660	111.108034230	Tributary SWWW_00005	No	Indirect						
604	OF.M04.00285	45.684292000	111.108518310	Tributary SWWW_00005	No	Indirect						
605	OF.M04.00286	45.681397200	111.104287450	Tributary SWWW_00006	No	Indirect						
606	OF.M04.00287	45.678650570	111.104345710	Tributary SWWW_00006	No	Indirect						
607	OF.M04.00290	45.679233960	111.114099190	Tributary SWWW_00054	No	Indirect						
608	OF.M04.00291	45.685609550	111.109478990	Tributary SWWW_00005	No	Indirect						
609	OF.M04.00292	45.685599560	111.105913100	Tributary SWWW_00006	No	Indirect						
610	OF.M04.00293	45.685516400	111.111008980	Baxter Creek	No	Indirect						
611	OF.M04.00467	45.684541830	111.104210760	Tributary SWWW_00006	No	Indirect						
612	OF.M04.00468	45.681682600	111.104306400	Tributary SWWW_00006	No	Indirect						
613	OF.M05.00004	45.678281500	111.107909230	Baxter Creek	No	Indirect						

614	OF.M05.00005	45.678274980	111.108125930	Baxter Creek	No	Indirect						
615	OF.M05.00006	45.675086060	111.107706850	Baxter Creek	No	Indirect						
616	OF.M05.00008	45.672852810	111.106834290	Baxter Creek	No	Indirect						
617	OF.M05.00009	45.678680400	111.114839030	Tributary SWWW_00054	No	Indirect						
618	OF.M05.00010	45.676530670	111.113999690	Tributary SWWW_00054	No	Indirect						
619	OF.M05.00289	45.678319020	111.104426020	Tributary SWWW_00006	No	Indirect						
620	OF.M05.00474	45.678208530	111.113571610	Tributary SWWW_00054	No	Indirect						
621	OF.M05.00614	45.677046710	111.113604810	Tributary SWWW_00054	No	Indirect						
622	OF.M05.00617	45.674785430	111.105489280	Baxter Creek	No	Indirect						
623	OF.M05.00618	45.674428790	111.106750960	Baxter Creek	No	Indirect						
624	OF.M06.00009	45.670924230	111.106155180	Baxter Creek	No	Indirect						
625	OF.M06.00011	45.670380760	111.106115070	Baxter Creek	No	Indirect						
626	OF.M06.00012	45.670389700	111.106145460	Baxter Creek	No	Indirect						
627	OF.M06.00013	45.668531690	111.105400970	Baxter Creek	No	Indirect						
628	OF.M06.00014	45.667702710	111.105069830	Baxter Creek	No	Indirect						
629	OF.N03.00296	45.686017770	111.118149140	Tributary SWWW_00054	No	Indirect						
630	OF.N03.00297	45.687593350	111.118663090	Tributary SWWW_00054	No	Indirect						
631	OF.N03.00298	45.689102700	111.119085680	Tributary SWWW_00054	No	Indirect						
632	OF.N03.00299	45.688552790	111.119114010	Tributary SWWW_00054	No	Indirect						
633	OF.N03.00300	45.692885440	111.115735980	Baxter Creek	No	Indirect						
634	OF.N04.00001	45.683434890	111.117169650	Surface Pond	No	Indirect						

ARTICLE 4. - STORMWATER

DIVISION 1. - GENERALLY

Sec. 40.04.010. - Purpose and intent.

A. The purpose and intent of this article is to:

1. Protect and enhance the water quality of Bozeman Creek, the East Gallatin River, water bodies, groundwater and wetlands in a manner pursuant to and consistent with the Clean Water Act of 1972 and the US EPA Phase II Stormwater Regulations.
2. Minimize non-stormwater discharges to storm drains and minimize pollutants in stormwater discharges.
3. Provide design, construction, operation, and maintenance criteria for permanent and temporary on-site stormwater management facilities to control stormwater runoff.
4. Establish legal authority to conduct inspections, surveillance, monitoring, and enforcement procedures necessary to ensure compliance with this article.
5. Establish legal authority to develop, implement, and enforce a program to reduce pollutants in stormwater runoff from construction activities.
6. Establish legal authority to develop, implement, and enforce a program to address stormwater runoff from new developments and redevelopment projects and provide for the issuance of penalties for violations of this article.
7. Provide an equitable distribution of cost for the program including but not limited to the fee schedule in accordance with "Rates for Storm Sewers" as hereafter established by commission resolution.
8. Provide for the issuance of a permit system for construction activities occurring within the city to meet the purposes and intents of this article.

B. Discharges into the municipal separate storm sewer system (MS4) may be subject to further regulation by the U.S. Environmental Protection Agency, Montana Department of Environmental Quality and local agencies owning and operating an MS4. Local agencies owning and operating portions of the MS4 in Bozeman include, but are not limited to, Gallatin County, Montana State University (Bozeman), and the Montana Department of Transportation.

C. This article provides for the regulation of contributors or dischargers to the city's stormwater collection system through the development of a stormwater management program, including issuance and enforcement of private and public construction Stormwater Pollution Prevention Plans (SWPPP) to address construction site stormwater, enforcement of adopted Best Management Practice (BMP) construction standards, enforcement of post-construction stormwater BMP maintenance, and the detection and elimination of illicit discharges. This article authorizes monitoring and enforcement activities, requires user reporting, protects the state and receiving waters, and establishes penalties and remedies for violations of this article.

(Ord. No. 1763, § 1(14.02.010), 3-22-2010; Ord. No. 2002 , § 6, 3-26-2018)

Sec. 40.04.020. - Policy.

It is the policy of the city to protect the health and welfare of its citizens and environment by monitoring, reducing, and regulating discharges that may cause pollution to the environment.

(Ord. No. 1763, § 1(14.02.020), 3-22-2010)

Sec. 40.04.030. - Applicability.

This article shall apply to all construction and maintenance activities for industrial, commercial, institutional, single household and multi-household residential developments, as well as subdivision projects with private access which may introduce pollutants into any private or public storm drain, or any body of water within the city's MS4 jurisdiction. Exceptions include activities that are contained entirely on Federal, State, or County lands and do not impact adjacent jurisdictions or MS4s. Additionally, permanent and temporary stormwater management controls and facilities, constructed as part of any activities listed in this article, which are located within the city's MS4 jurisdiction, are also subject to this article.

(Ord. No. 1763, § 1(14.02.030), 3-22-2010)

Sec. 40.04.040. - Regulatory consistency.

This article shall be construed to ensure consistency with the requirements of the Federal Clean Water Act and acts amendatory thereof or supplementary thereto, applicable implementing regulations, and the Montana Pollutant Discharge Elimination System Permit and any amendments, revisions or re-issuance thereof. Activities regulated by this article may be subject to further regulation by the specific public entity owning and operating an MS4. No permit or approval issued pursuant to this article shall relieve a person of the responsibility to secure permits and approvals required for activities regulated by any other applicable rule, code, act, permit or ordinance.

(Ord. No. 1763, § 1(14.02.040), 3-22-2010)

Sec. 40.04.050. - City stormwater master plan.

The city's Stormwater Master Plan provides additional policy, criteria and information including specifications and standards for the proper implementation of the requirements of this article and is incorporated by reference herein. Design and construction of stormwater facilities shall meet minimum water quality performance standards that are outlined in the city's design standards that are separate from the Stormwater Master Plan.

(Ord. No. 1763, § 1(14.02.050), 3-22-2010)

Sec. 40.04.060. - Ultimate responsibility of discharger.

The standards set forth in and promulgated pursuant to this article are minimum standards. This article does not intend nor imply that compliance by any person will ensure that there will be no contamination, pollution or unauthorized discharge of pollutants into waters of the state caused by that person. This article shall not create liability on the part of the city, or any city agent or employee for any damages that result from any discharger's reliance on this article or any administrative decision lawfully made pursuant to this article.

(Ord. No. 1763, § 1(14.02.060), 3-22-2010)

Sec. 40.04.070. - Definitions.

A. The following words, terms and phrases, when used in this article, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

   1. "Authorized enforcement agent" means the director or any individual designated by the director as an authorized enforcement agent.

2. "Best management practices" (BMPs) means schedule of activities, prohibition of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of state waters. BMPs also include treatment requirements, operating procedures, and practices to control site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

3. "Non-stormwater disposal best management practices" means best management practices adopted by reference by this article for non-stormwater disposal.

4. "CFR" means the Code of Federal Regulations.

5. "Clean Water Act (CWA)" means the Federal Water Pollution Control Act enacted by Public Law 92-500 as amended by Public Laws 95-217, 95-576, 96-483, and 97-117; and 33 USC 1251 et seq.

6. "Comprehensive drainage plan" means a stormwater management plan that covers all current and anticipated development on a site greater than five acres and sites planned for phased development, including the impact on existing off-site infrastructure.

7. "Concentrated flow" means the parameters exceed the median concentration in Table 2 of the general permit for MS4s and the flow exceeds dry weather flow conditions.

8. "Construction activity" means any work that results in land disturbance of any nature.

9. "Control measure" means any best management practices or other methods used to prevent or reduce the discharge of pollutants to state waters.

10. "Design Standards" means the city Design Standards and Specifications Policy prepared and updated by the city engineering department.

11. "Development" means any construction, reconstruction, conversion, structural alteration, relocation, or enlargement of any structure within the jurisdiction of the city as well as any manmade change or alteration to the landscape, including but not limited to mining, drilling, dredging, grading, paving, excavating and filling.

11.1. "Director" shall mean the director of the city's public works department.

12. "Discharge" means any introduction or addition of any pollutant, stormwater, or any other substance into the municipal storm sewer system (MS4), waters of the state, or into waters of the United States by a person.

13. "Discharger" means any person who causes, allows, permits, or is otherwise responsible for a discharge, including, without limitation, any operator of a construction site or industrial facility.

14. "Firefighting water" means any water, and any substance or materials contained therein, used in an emergency to control or extinguish a fire.

15. "Illicit connection" means:

    a. Any drain or conveyance, whether on the surface or subsurface, which allows an illicit discharge to enter the MS4 including, but not limited to, any conveyances which allow any stormwater discharge including sewage, process wastewater and wash water to enter the storm drain system and any connections to the storm drain system from indoor drains and sinks, regardless of whether the drain or connection had been previously allowed, permitted or approved by a government agency; or

    b. Any drain or conveyance connected from a commercial or industrial land use to the MS4 which has not been documented in plans, maps or equivalent records and approved or permitted by the city.

16. "Illicit discharge" means any discharge to an MS4 that is not composed entirely of stormwater except the following: discharges not identified as significant contributors of pollutants listed in the general permit and allowable under the city's MS4 program.

17. "Impervious surface" means a surface which prevents or retards the penetration of water into the ground including, but not limited to, roofs, sidewalks, patios, driveways, parking lots, concrete and asphalt paving, gravel, compacted native surfaces and earthen materials, and oiled, macadam, or other surfaces which similarly impede the natural infiltration of stormwater.

18. "Maximum extent practicable" (MEP) means the technology-based discharge standard for municipal separate storm sewer systems to reduce pollutants in the stormwater discharges that was established by the Clean Water Act, §402(p). A discussion of MEP as it applies to MS4s is found in ARM 17.30.1111(5).

19. "MDEQ" means the Montana Department of Environmental Quality, a state regulating agency.

20. "MPDES permit" means the Montana Pollution Discharge Elimination System, an area-wide MPDES permit that is issued to a government agency or agencies for the discharge of pollutants from any point source into the waters of the state or United States.

21. "MS4" means the municipal separate storm sewer system.

22. "Municipal separate storm sewer system (or MS4)" means a conveyance or system of conveyance (including roads with drainage systems, municipal streets, catchbasins, curbs, gutters, ditches, manmade channels, or storm drains) owned or operated by a public body (created under state law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under state law such as sewer district, irrigation district, flood control district or drainage district, or similar entity that discharges to the waters of the United States and which are not part of a publicly owned treatment works (POTW) as defined in ARM title 17, chapter 30, subchapter 13.

23. "National Pollutant Discharge Elimination System Permit" (NPDES) means a permit issued by MDEQ, in compliance with the Federal Clean Water Act for the discharge of pollutants from any point source into the waters of the state or United States.

24. "NOI" means notice of intent.

25. "NOT" means notice of termination.

26. "Notice of intent (or NOI)" means submittal required by the state under the general permit for stormwater discharges associated with construction activity.

27. "Notice of termination (or NOT)" means submittal required by the state under the general permit for stormwater discharges associated with construction activity. The construction site has been finally stabilized and the operator desires to be relieved of responsibility on the general permit coverage period.

28. "Non-stormwater discharge" means any discharge that is not entirely composed of stormwater.

29. "Off-site stormwater" means any runoff crossing property lines that discharges to public right-of-way, property not included in the SWPPP, or property owned by others.

30. "Owner or operator" means

    a. A person who owns, leases, operates, controls, or supervises a point source;

    b. For the purpose of permitting "stormwater discharge associated with construction activity" means any "owner or operator" associated with a construction project, who is a person designated as an eligible signatory, who has operational control over the construction plans and specifications and has day-to-day operational control at the project to ensure compliance with the SWPPP.

31. "Plan" pertains to the stormwater master plan.

32. "Point source" means any discernible, confined, and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft, from which pollutants are or may be discharged.

33. "Pollutant" means dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials [except those regulated under the Atomic Energy Act of 1954, as amended (42 USC 2011 et seq.)], heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water, and as otherwise defined in 40 CFR 122.2.

34. "Premises" means any building, lot, parcel of land, or portion of land whether improved or unimproved, including adjacent sidewalks and parking strips.

35. "Redevelopment" means a project that proposes to add, replace and/or alter impervious surfaces affecting an existing drainage system, other than routine maintenance, resurfacing, or repair. A project which meets the criteria of a major modification as defined in this section shall be considered a redevelopment.

36. "State waters" means any body of water, irrigation system, or drainage system, either surface or underground.

37. "Stormwater" means stormwater runoff, snow melt runoff, and surface runoff and drainage.

38. "Stormwater management" means the process of collection, conveyance, storage, treatment, and disposal of stormwater to ensure control of the magnitude and frequency of runoff and to minimize the hazards associated with flooding. Also includes implementing controls to reduce the discharge of pollutants including management practices, control techniques and systems, design and engineering methods.

39. "Stormwater design standards" means the design standards manual prepared by the city engineering office which provides design, performance, and review criteria for stormwater management practices.

40. "Stormwater management plan" means details of the on-site drainage system, structures, BMPs, concepts and techniques that will be used to control stormwater, including drawings, engineering calculations, computer analyses, maintenance and operations procedures, and all other supporting documentation for developments equal to or less than five acres.

41. "Stormwater pollution prevention plan" (SWPPP) means under the state's general permit for stormwater discharges associated with construction activities which characterizes the construction activity, potential sources of pollutants, and best management practices (BMPs) to help ensure pollutants do not reach surface waters.

42. "Stormwater system" means the physical facilities, both private and public, temporary or permanent, designed to treat, collect and transport stormwater which includes, but is not limited to: curbs, inlets, pipe, box culverts, swales, ditches, ponds, French drains, boulder pits, wattles, and silt fences.

43. "Stormwater utility" means a funding mechanism for planning for, maintenance and operation of, as well as capital improvements to, the stormwater system. The utility is a user fee charged to all property within the service area which benefit from the utility.

44. "Total maximum daily load" (TMDL) means the sum of the individual waste load allocations for point sources and load allocations for both nonpoint sources and natural background sources established at a level necessary to achieve compliance with applicable surface water quality standards, as defined in Montana Code Annotated (MCA) 75-5-103.

45. "U.S. EPA" means the United States Environmental Protection Agency.

46. "Unified development ordinance" (UDO) means the entire chapter 38 of the Bozeman Municipal Code.

47. "Variance" means a modification of the requirements of this article.

48. "Watercourse" means any body of water including, but not limited to, lakes, ponds, rivers, streams, and bodies of water delineated by the city or state.

49. "Wetland" means an area that is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support and that, under normal circumstances, does support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas (also includes any area meeting the definition of wetland under chapter 38).

(Ord. No. 1763, § 1(14.02.080), 3-22-2010; Ord. No. 1831, § 2, 7-25-2012; Ord. No. 2002 , §§ 4, 5, 3-26-2018)

Secs. 40.04.080—40.04.190. - Reserved.

DIVISION 2. - DISCHARGE PROHIBITIONS

Sec. 40.04.200. - Prohibitions of illicit discharges.

A. It shall be unlawful to discharge or cause to be discharged into the MS4 any materials, including, but not limited to, pollutants or waters containing any pollutants that cause or contribute to a violation of applicable water quality standards or that could cause the city to be in violation of its MPDES. It shall be unlawful to store, handle or apply any pollutant in a manner that will cause exposure to rainfall or runoff and discharge to the MS4 and to state waters or waters of the United States.

B. The commencement, conduct, or continuance of any discharge not composed entirely of stormwater to the MS4 is prohibited except as follows:

1. Discharges pursuant to an MPDES General Permit for MS4s permit and discharges due to firefighting activities.

2. Discharges from the following activities shall not be considered a source of pollutants to the MS4 and to state waters when properly managed, and shall not be considered illicit discharges unless determined by the city to be significant contributors of pollutants to the MS4, concentration of pollutants, proximity to a watercourse, or condition of a receiving water:

a. Irrigation water;

b. Irrigation ditch return flows;

c. Landscape irrigation;

d. Permitted diverted stream flows;

e. Rising groundwaters;

f. Rising natural floodwaters;

g. Uncontaminated groundwater infiltration to separate storm sewers;

h. Uncontaminated pumped groundwater;

i. Discharges from potable water sources;

j. Foundation drains;

k. Air conditioning condensation;

l. Springs;

m. Water from crawl space pumps;

n. Footing drains;

o. Lawn watering (excluding over watering);

p. Individual residential car washing;

q. Individual residential dechlorinated swimming pool and hot tub discharges;

r. Individual residential street washing;

s. Fire hydrant flushing;

t. Water line flushing;

u. Flows from riparian habitats and wetlands;

v. Uncontaminated water from irrigation system meter pits (and flows from emergency firefighting activities).

Before applying the listed exceptions, the city shall make a determination on a case-by-case basis as to what is considered significant contributors of pollutants. In addition, the following non-stormwater discharges need not be prohibited from entering the MS4, provided approved control measures to minimize the impacts from the sources are implemented: Municipally owned dechlorinated swimming pool discharges; Municipal water tank draining and water from street washing (including sidewalks and medians) that is conducted by city staff or under contract with the city.

3. The city may exempt, in writing, other non-stormwater discharges which are not a significant source of pollutants to the city's MS4 or state waters.

(Ord. No. 1763, § 1(14.04.010), 3-22-2010)

Sec. 40.04.210. - Prohibitions of illicit connections.

A. The construction, use, maintenance or continued existence of illicit connections to the MS4 is prohibited.

B. This prohibition expressly includes, without limitation, illicit connections made in the past regardless of whether the connection was permissible under law or practices applicable or prevailing at the time of connection.

C. A person is in violation of this article if the person connects a line conveying sewage or other pollutant to the MS4, or allows an existing connection to continue.

D. Illicit connections must be disconnected at the owner's expense.

E. Any drain or conveyance that has not been documented in plans, maps or equivalent, and which may be connected to the storm sewer system, shall be located by the owner or occupant of that property upon receipt of written notice from the city. The notice will specify a reasonable time period to locate the drain or conveyance, that the drain or conveyance be identified as storm sewer, sanitary sewer or other, and that the outfall location or point of connection to the storm sewer system, sanitary sewer system or other discharge point be identified. Results of these investigations shall be documented and provided to the city engineering office.

F. No person shall throw, deposit, leave, maintain, wash or rinse, keep any substance that may cause or contribute to pollution, or permit any such substance to be thrown, deposited, left, maintained, washed or rinsed, in or upon any public or private property, driveway, parking area, street, alley, sidewalk, catchbasin, manhole, ditch, channel, pond or any other component of the MS4, or state waters. Pollutants for this purpose include but are not limited to oil, solvents, anti-freeze, flammables, septage, poisonous or infectious substances, garbage, soaps, acids, bases and sediment. Wastes deposited in streets in a manner allowed by the city for the purpose of collection are exempted from this prohibition.

(Ord. No. 1763, § 1(14.04.020), 3-22-2010)

Sec. 40.04.220. - Parking lots and similar structures.

A. Persons owning or operating a paved parking lot, gas station pavement, paved private street, road, alley, or similar structure or persons conducting routine building wash downs, shall clean and maintain those structures or areas prior to discharging to a storm drain.

B. Newly constructed and/or significantly remodeled covered parking garages or other covered structures shall be drained into a stormwater system in accordance with this article and other city ordinances or design standards. The owner and operator of a private stormwater collection system may be required to construct control structures to ensure the pre-treatment of such discharges prior to entry into the stormwater system. Existing structures are exempt unless deemed by the city to be a significant contributor of pollution to the stormwater system.

(Ord. No. 1763, § 1(14.04.030), 3-22-2010)

Sec. 40.04.230. - Outdoor storage areas; commercial and industrial facilities.

In outdoor areas, no person shall store grease, oil or other pollutants including restaurant grease bins in a manner that will or may result in such substances entering a stormwater system. In outdoor areas, no person shall store motor vehicles, machine parts, or other objects in a manner that may leak grease, oil, or other hazardous substances to a storm drain. To prevent the discharge of hazardous substances to the MS4, the city may require the installation of a spill containment system. Spill containment systems may consist of a system of dikes, walls, barriers, berms, or other devices as required. No person shall operate a spill containment system such that it allows incompatible liquids to mix and thereby create a hazardous condition.

(Ord. No. 1763, § 1(14.04.040), 3-22-2010)

Secs. 40.04.240—40.04.340. - Reserved.

DIVISION 3. - CONSTRUCTION ACTIVITY

Sec. 40.04.350. - Required construction submittals/permits/fees.

A. Any construction activity within the city must comply with the provisions of this article, the city's Stormwater Management Plan, the currently adopted State of Montana's General Permit for Stormwater Discharges Associated with Construction Activities, MCA 75-5-101, and the Administrative Rules of Montana (ARM 17.30.1101; 17.30.1301 et seq. and ARM 17.30.601 et seq.).

B. The city may require any person performing support activities related to a construction site (e.g., concrete or asphalt batch plants, equipment staging yards, material storage areas, etc.) within the city to provide the following: NOI, SWPPP, NOT, similar to the requirements of construction activity provided that:

1. The support activity is not a commercial operation serving multiple unrelated construction projects and does not operate beyond the completion of the construction activity;

2. Appropriate controls and measures are identified in the SWPPP for discharge from support activity;

3. The support activity disturbs an area that is one acre or greater in size or is within 50 feet of any watercourse

C. In accordance with the state's reporting requirements the property owner shall also notify the city when there is any facility contact change, any spill or release, any finding that there has been noncompliance with the SWPPP.

D. The city shall conduct all inspections of any construction activities requiring a SWPPP and for city permits required under this article.

E. The city will enforce the requirements under the state's general permit for stormwater discharges associated with construction activity in whole or in part determined by the city's enforcement agent.

F. As required by the director, the owner shall retain completed and signed copies of the NOI, MDEQ's confirmation letter for receipt of the NOI package, and a SWPPP at the construction activity project site at all times during the coverage period. If the operator does not maintain a permanent office or building at the project site, copies of these documents shall be retained at the operator's office and shall be brought to the project site by the operator responsible for implementation of the SWPPP.

G. Upon failure of the owner to take corrective actions on, or prior to, a required date of a reported or observed spill or the potential to release pollutants, including sediment, into the stormwater system, public right-of-way, private infrastructure, or state waters, the city may either perform the corrective work or employ contractors to do the same. The owner shall reimburse the city for all expenditures pertaining to the corrective action.

H. The city's enforcement agent and an official of the city's building division has the authority to issue a stop work order pursuant to the remediation of a current violation or the potential of a violation of this article.

I. Permission to enter. The city's enforcement agent and an official of the city's building division may conduct such investigations, examinations and site evaluations as they deem necessary to verify the information supplied or the execution of approved work. The submission of material for review and for a required permit shall constitute a grant of permission to enter the subject property. The grant of permission shall continue until all final actions required by the permit process have been completed including any follow up monitoring. The permission to enter extends to contractors working on the city's behalf.

J. All construction activities within the city must comply with the following and obtain a permit from the director prior to the commencement of any construction activities on the site or issuance of a building permit, whichever is earlier, by submitting any application materials required by the director as follows:

1. Sites where construction activities will disturb one acre or greater: All construction activities where construction activities will disturb one acre or greater must comply with the requirements of this article and the permit issued by the director. The owner of property where such work will be commenced must obtain a permit for such work from the director by providing materials required by the director, an executed copy of the state's NOI, the SWPPP, other documents such as but not limited to a state issued dewatering permit and, upon completion, a NOT.

2. Sites less than one acre where multi-household, commercial, or industrial development is occurring: All construction activities on sites less than one acre in size for the development of multi-household, commercial, or industrial development must submit the permit application materials required by the director and comply with the requirements of this article and the requirements of the permit issued by the director. The director may authorize construction activities for multi-household, commercial, or industrial development disturbing less than 10,000 square feet to submit a permit under section 40.04.350.J.3.

3. Sites less than one acre where single-household development is occurring: All construction activities on sites less than one acre for the construction of single-household structures must submit the permit application materials required by the director and comply with the requirements of this article and the requirements of the permit issued by the director.

K. The city may charge a fee for permits issued under this article pursuant to a fee schedule adopted by resolution of the commission.

L. By applying for a permit as required by this article, a property owner consents to the city filing a lien for non-payment of abatement costs and withholding the issuance of a certificate of occupancy for a building permit pursuant to section 10.02.010.D, or issuing a stop work order for a building permit under the authority of this article or pursuant to section 10.02.010.E for any violation of this article or a permit issued under this article.

(Ord. No. 1763, § 1(14.06.010), 3-22-2010; Ord. No. 2002 , § 7, 3-26-2018)

Editor's note— Ord. No. 2002 , § 7, adopted March 26, 2018, amended the title of § 40.04.350 to read as herein set out. The former § 40.04.350 title pertained to required construction submittals.

Sec. 40.04.360. - Stormwater management.

A. *Erosion control.* Owner/operator shall:

1. Stabilize disturbed soil using recommended methods described in the city's Stormwater Master Plan;
2. Stabilize or cover soil stockpiles to prevent sediment runoff or blowing of dust or sediment from the site;
3. Prevent upland runoff that may erode disturbed slopes.

B. *Sediment control.* Owner/operator shall:

1. Provide sediment controls in the form of settling basins or traps, temporary seeding, perimeter controls or other BMP described in the city's Stormwater Master Plan;
2. Where possible, design settling basins in a manner that allows adaption to provide long-term stormwater management;
3. Protect adjacent properties by the use of a vegetative buffer, silt fence, fiber roles, or other appropriate BMP as outlined in the city's Stormwater Master Plan.

C. *Construction site access.* Owner/operator shall:

1. Limit the number of temporary access entrances onto a construction site;
2. Implement BMP's to ensure that sediment is not tracked onto public streets or alleys by construction vehicles, or washed into storm drains.

D. *Removal of temporary erosion control devices.* Owner/operator shall remove all temporary erosion control devices upon establishing 70 percent or greater permanent ground cover on a lot.

E. *Emergency construction.* Owner/operator shall clean up or contain sediment or debris resulting from the emergency construction activity in response to emergencies where services are being restored by a franchised utility company or contractor which are not subject to the requirements of a SWPPP.

F. *Construction waste management.* Owner/operator shall at a minimum, control waste such as discarded building materials, concrete truck washout water, chemicals, litter, and sanitary waste at the construction site that may adversely impact adjoining property, public rights-of-way, or the stormwater collection system. Failure to maintain good housekeeping practices at the construction site is a violation of this article.

G. *Site inspection.*

1. An authorized enforcement agent shall establish the appropriate frequencies for inspection of construction stormwater pollution prevention measures or BMPs at all active construction sites.
2. The permittee or the permittee's agent will be required to perform regularly scheduled site inspections, at least every 14 calendar days, and within 24 hours after major storm events to ensure all BMPs have been constructed and are functioning properly. The purpose of such inspections will be to determine the overall effectiveness of the control plan and the need for additional control measures. The permittee shall document all inspections in writing and make inspection records available for review by the city.

(Ord. No. 1763, § 1(14.06.020), 3-22-2010)

Sec. 40.04.370. - Construction activity on less than one acre.

The provisions of this article and the permit required pursuant to section 40.04.350 apply to all construction activities occurring on sites less than one acre.

(Ord. No. 1763, § 1(14.06.030), 3-22-2010; Ord. No. 2002 , § 8, 3-26-2018)

Sec. 40.04.380. - Construction activity on lots within a master plan development.

Individual lot development, regardless of the lot size, or part of a master plan development, must follow good housekeeping practices and best management practices as outlined in the SWPPP for the development.

(Ord. No. 1763, § 1(14.06.040), 3-22-2010)

Secs. 40.04.390—40.04.490. - Reserved.

DIVISION 4. - REGULATIONS AND REQUIREMENTS

Sec. 40.04.500. - Requirement to control and reduce stormwater pollutants.

A. *New development and redevelopment.* The city's stormwater master plan, UDO, and Design Standards outline appropriate BMPs to control the volume, rate, and the potential of pollutants in stormwater runoff from new development and redevelopment projects as may be appropriate to minimize the generation, transport and discharge of pollutants.

B. *Responsibility to implement BMPs.* Any person or entity engaged in activities or operations, or owning facilities or property which will or may result in pollutants entering stormwater, the MS4 or state waters, shall implement BMPs to the maximum extent practicable to provide protection from discharge into the MS4. BMPs shall be provided and maintained at the owner's or operator's expense. The city engineer shall have the authority to require the installation, operation and/or maintenance of BMPs. The director shall also have the authority to require the removal of temporary BMPs.

(Ord. No. 1763, § 1(14.08.010), 3-22-2010; Ord. No. 2002 , § 4, 3-26-2018)

Sec. 40.04.510. - Requirement to eliminate illicit discharges.

The city may require, by written notice, that a person or entity responsible for an illicit discharge immediately, or by a specified date, discontinue the discharge and, if necessary, take measures to eliminate the source of the discharge to prevent the occurrence of future illicit discharges at violator's expense.

(Ord. No. 1763, § 1(14.08.020), 3-22-2010)

Sec. 40.04.520. - Requirement to eliminate or secure approval for illicit connections.

A person responsible for an illicit connection to the MS4 shall comply with the requirements of this article and shall eliminate or secure approval for the connection, whether the connection or discharges to it had been established or approved prior to or after the effective date of the ordinance from which this article is derived. An application seeking approval for the connection shall be submitted in writing to the city engineering department.

(Ord. No. 1763, § 1(14.080.030), 3-22-2010)

Sec. 40.04.530. - Watercourse protection.

Any person owning property through which a watercourse passes, or that person's lessee, shall keep and maintain all parts of the watercourse within that property reasonably free of trash, debris, excessive vegetation and other obstacles that would pollute, or significantly restrict the flow of water through the watercourse. The owner or lessee shall maintain any existing privately owned structures within or adjacent to that watercourse, so that those structures will not become a hazard to the use, function or physical integrity of the watercourse. The owner or lessee shall not remove healthy bank vegetation unless it is reasonably necessary for maintenance. The owner or lessee shall not remove vegetation if it will increase the vulnerability of the watercourse to erosion. The property owner shall maintain and stabilize the watercourse within the property owner's property boundaries in a manner that will protect against any erosion and degradation of the watercourse origination on or flowing through their property. Actions to protect a watercourse shall be coordinated and consistent with the city's watercourse setbacks as described in section 38.23.100.

(Ord. No. 1763, § 1(14.080.040), 3-22-2010)

Sec. 40.04.540. - Requirement to remediate.

A. Whenever the city finds that a discharge of pollutants, within the MS4 area, is taking place or has occurred which will result in or has resulted in pollution of stormwater, the MS4 or state waters, the city will notify the responsible person or entity in writing and give them a reasonable opportunity to remediate the affected property in accordance with the provisions of this article using a remediation plan pre-approved by the director or designee. The city, or a designated contractor, may remediate the affected property at the owner's or responsible person's or entity's expense if the owner or responsible person does not take corrective actions within a reasonable time. Remediation plans shall be submitted to the city by the owner or responsible person and approved prior to the start of the remediation. The plan shall include, but may not be limited to, a remediation schedule, a course of action, a list of personnel performing remediation work and a list of equipment to be used.

B. Whenever a violation of this article constitutes an emergency presenting imminent danger of serious injury to persons or property, the city may remediate the conditions giving rise to the violation through an available public agency or by contract or arrangement with private persons, and the cost of such abatement shall be paid by the owner of the property.

(Ord. No. 1763, § 1(14.080.050), 3-22-2010; Ord. No. 2002 , § 4, 3-26-2018)

Sec. 40.04.550. - Requirement to monitor and analyze.

The city may require any person engaged in any activity or owning or operating any facility which may cause or contribute to stormwater pollution, illicit discharges or non-stormwater discharges to the MS4 or state waters to undertake, at the person's or owner's expense, monitoring and analysis by a state-certified laboratory pursuant to the provisions of this article, and furnish reports to the city engineering department as deemed necessary to determine compliance with this article.

(Ord. No. 1763, § 1(14.080.060), 3-22-2010; Ord. No. 2002 , § 4, 3-26-2018)

Sec. 40.04.560. - Notification of spills.

Notwithstanding other requirements of law, as soon as any owner of or any person responsible for a facility or operation has information of any known or suspected release of pollutants discharging into

stormwater, the MS4, or state waters from that facility, that person shall take all necessary steps to ensure the discovery, containment and cleanup of the release. In the event of a release of a pollutant, the person shall immediately notify emergency response officials of the occurrence via emergency dispatch services (911). In the event of a release not requiring an emergency response, that person shall notify the city by calling the city's engineering department within 24 hours, and providing a written notice thereto within five business days. If the discharge of prohibited materials emanates from a commercial or industrial establishment, the owner or responsible person must make and keep an onsite written record of the circumstances of the discharge and the actions taken to prevent its recurrence. These records shall be retained for not less than five years.

(Ord. No. 1763, § 1(14.08.070), 3-22-2010)

Sec. 40.04.570. - Discharge pursuant to MPDES permit.

The prohibition of discharges shall not apply to any discharge regulated under an MPDES permit issued and administered by DEQ, provided that the discharger is in full compliance with all requirements of the permit and other applicable laws or regulations. Compliance with an applicable MPDES permit governing discharges into the MS4 shall be considered compliance with this article.

(Ord. No. 1763, § 1(14.080.080), 3-22-2010)

Sec. 40.04.580. - Noncompliance with MPDES permits.

Any discharge that would constitute a violation of an MPDES permit and any amendments, revisions or re-issuance thereto, when either separately considered or when combined with other discharges, is prohibited. Liability for any such discharge shall be the responsibility of the person causing or responsible for the discharge, the permittee shall defend, indemnify and hold harmless the city in any administrative or judicial enforcement action against the permit holder relating to such discharge as provided by applicable rules of law. All persons in charge of a facility are to comply with applicable federal and state laws including facility personnel, training, training record maintenance, training records, maintenance of notification procedures, and implementation of notification requirements for spill response to ensure containment, cleanup, and immediate notification to the owner and operator of the MS4. Individuals responsible for spills are to comply with applicable state and federal notification requirements to ensure containment, clean up, and immediate notification to the owner and operator of the MS4.

(Ord. No. 1763, § 1(14.080.090), 3-22-2010)

Secs. 40.04.590—40.04.690. - Reserved.

DIVISION 5. - STORMWATER MANAGEMENT PLANS AND COMPREHENSIVE DRAINAGE PLANS

Sec. 40.04.700. - Requirements.

A. To control the quality, volume and rate of stormwater runoff to storm drains and prevent the deterioration of water quality, all new developments and redevelopment projects will be required to submit a stormwater management plan or a comprehensive drainage plan to the city engineering department for approval. The stormwater master plan and city Design Standards establish standards and guidelines for implementing BMPs and stormwater management is incorporated by reference and made part of this article.

   1. A comprehensive drainage plan is required for all development larger than five acres.

2. A stormwater management plan is required for all developments equal to or less than five acres and are designated as a sketch plan or larger in accordance to chapter 38, article 19, or are within 50 feet of a watercourse.

3. Redevelopment projects will be required to submit stormwater management plans or operation and maintenance plans if they meet the criteria found in the stormwater master plan, Design Standards, chapter 38, article 19, or this article.

4. Stormwater management plans and comprehensive drainage plans shall:

   a. Prevent any off-site direct discharge of untreated stormwater and non-stormwater from development or redevelopment improvements.

   b. Minimize increased post-development discharge rates or volumes.

   c. Provide for the removal of total suspended solids or other constituents so as to meet the median concentration of the state general permit for MS4s generated from development or redevelopment runoff prior to any off-site discharge.

   d. Continue BMPs for appropriate periods of time.

   e. Protect groundwater from development runoff infiltration.

   f. Implement accepted BMPs to minimize impact of a development on existing offsite infrastructure and stormwater facilities.

   g. Address other stormwater issues identified by the city.

   h. Comply with section II of the city Design Standards, and chapter 38, article 23.

5. All drainage system reports, peak flow rates and runoff volume calculations, safety requirements, and grading plans shall be certified by a licensed professional authorized by the state to perform such functions.

6. The city reserves the right to amend, modify and/or add requirements to the stormwater master plan.

(Ord. No. 1763, § 1(14.10.010), 3-22-2010)

Sec. 40.04.710. - Submission and review process.

A. Stormwater management plans and comprehensive drainage plans shall be submitted as part of the development application process at the time a subdivision or a site development application is submitted. The plans shall be submitted to the city engineering department with a permit fee in an amount provided for in a fee schedule adopted by the city commission. No plan shall be approved if it:

   1. Increases the peak level of stormwater runoff from impervious surfaces above a level from the site if left in its natural, undeveloped condition.

   2. Does not address items required by the stormwater pollution prevention plan, comprehensive drainage plan or stormwater management plan deemed necessary by the city.

B. No final plat, final site plan, or building permit shall be issued without an approved stormwater management plan or comprehensive drainage plan as required under this section.

C. The city shall be notified of the commencement of any development covered by a comprehensive drainage plan and the owner or responsible person shall provide certification by a licensed professional authorized by the state that the development conforms with the previously approved plan.

D. Major modifications to an approved comprehensive drainage plan or stormwater management plan shall be submitted to the city's engineering department for approval.

E. Approval of a plan does not relieve the owner or responsible party from the duty to ensure the systems and their safety measures function as designed.

F. Approved may be suspended or revoked at any time if conditions are not as stated or shown in the approved plan or implementation of the plan is not proceeding as approved.

G. Approval of a stormwater management plan or a comprehensive drainage plan may be revoked or suspended if the project is not completed within two years after it is approved or development has ceased for a period of more than two years; however, a one-year extension may be granted upon a written request which provides the reason for the delay or cessation of development and specifies a timeframe for completion or commencement of development. Revocation or suspension shall be coordinated with the revocation or suspension of other relevant development approvals by the city.

H. The owner will receive written notice the revocation of any plan setting forth the reasons for the revocation. The owner may appeal a revocation to the city board of appeals within ten business days from the effective date of the suspension or revocation.

I. If a stormwater management plan or a comprehensive drainage plan is revoked, the owner shall submit a new plan for approval, with the requisite fee, prior to starting or continuing the planned project or development.

J. If strict application of the requirements of this article would result in undue hardship, the owner may request in writing an engineering variance detailing the reason for the request and provide supporting documentation. The cost associated with implementing minimum BMPs will not be considered an undue hardship.

(Ord. No. 1763, § 1(14.10.020), 3-22-2010)

Sec. 40.04.720. - Maintenance of stormwater facilities.

A. Stormwater facilities shall be maintained by the owner or other responsible party in a condition so that the facilities will function as designed.

B. Waste shall be disposed of from maintenance of facilities in accordance with applicable federal, state and local laws and regulations.

C. The owner or other responsible party shall create and maintain records of installation and maintenance and repair for the life of the development and shall be made available to the engineering department upon request.

D. Any failure to maintain facilities or to correct deficiencies at facilities within a reasonable time after receiving written notice from the enforcement agent may result in criminal or civil penalties. The city may perform corrective or maintenance work the owner or responsible person fails or refuses to perform within a reasonable time at the owner's expense.

(Ord. No. 1763, § 1(14.10.030), 3-22-2010)

Secs. 40.04.730—40.04.840. - Reserved.

DIVISION 6. - INSPECTION AND ENFORCEMENT

Sec. 40.04.850. - Inspections.

A. The owner or other responsible party shall conduct annual inspections of the facilities and shall maintain records of such inspections for the life of the development.

B. Whenever necessary to make an inspection to enforce any of the provisions of this article, or whenever an authorized enforcement agent has reasonable cause to believe that there exists any

condition which may constitute a violation of the provisions of this article in any building or upon any premises, the authorized enforcement agent may enter such building or premises at all reasonable times to inspect the same or perform any duty imposed upon the authorized enforcement agent by this article; provided that:

1. If such building or premises is occupied, the authorized enforcement agent first shall present proper credentials and request entry; and
2. If such building or premises is unoccupied, the authorized enforcement agent first shall make a reasonable effort to locate the owner or other persons having charge or control of the building or premises and request entry.

C. If permission is refused or denied, or if it is not possible to locate the owner or responsible person and no emergency exists, the authorized enforcement agent shall obtain a warrant before entering the premises. If an emergency exists presenting imminent danger of serious injury to persons or property, the authorized enforcement agent may immediately enter into any building or upon any premises within the jurisdiction of the city for purposes of inspection or abatement.

D. The city may conduct routine inspections as deemed necessary to carry out the objectives of this article, including but not limited to, random sampling and/or sampling in areas with evidence of stormwater pollution, illicit discharges, or similar factors.

E. Unreasonable delays in allowing the city access to a permitted facility is a violation of a stormwater discharge permit and of this article.

(Ord. No. 1763, § 1(14.12.010), 3-22-2010)

Sec. 40.04.860. - Enforcement.

Any deviation from what is declared in this article constitutes a violation.

(Ord. No. 1763, § 1(14.12.020), 3-22-2010)

Sec. 40.04.870. - Sampling.

With the consent of the owner or occupant or with authorization from a court of competent jurisdiction, any city enforcement agent may establish on any property such devices as are necessary to conduct sampling or metering operations. During all inspections as provided herein, the city enforcement agent may take any samples deemed necessary to aid in the pursuit of the inquiry or to record the on-site activities, provided that owners or occupants shall be entitled to split samples. Samples shall be collected, stored and transported in conformance with accepted sampling and testing standards, including chain-of-custody.

(Ord. No. 1763, § 1(14.12.030), 3-22-2010)

Sec. 40.04.880. - Testing and monitoring.

A. Whenever the director, or designee, determines that any person engaged in any activity or owning or operating any facility that may cause or contribute to an illicit discharge to the stormwater system, the director, or designee, may, by written notice, order that such person undertake such monitoring activities and/or analysis and furnish such reports as the director, or designee, may recommend. The written notice shall be served either in person or by certified or registered mail, return receipt requested, and shall set forth the basis for such order and shall describe the monitoring activities and/or analysis and reports required. The owner or operator shall perform the actions ordered by the director and shall pay for all costs of these activities, analysis and reports. The recipient of such

order shall undertake and provide the monitoring, analysis and reports within the timeframes set forth in the order.

B. In the event the owner or operator of a facility fails to conduct the monitoring and/or analysis and furnish the reports required by the order in the timeframes set forth therein, the city may cause such monitoring and/or analysis to occur and assess all costs incurred, including reasonable administrative costs and attorney's fees, to the facility owner or operator. The city may pursue judicial action to enforce the order and recover all costs incurred.

(Ord. No. 1763, § 1(14.12.040), 3-22-2010; Ord. No. 2002 , § 4, 3-26-2018)

Sec. 40.04.890. - Notice of violation.

A. Whenever the city finds that a person has violated a prohibition or failed to meet a requirement of this article, the city may order compliance by written notice of violation to the responsible person. The notice of violation shall contain:

1. The name and address of the alleged violator;
2. The address when available or a description of the building, structure or land upon which the violation is occurring, or has occurred;
3. A statement setting forth the facts which constitute the violation;
4. A description of the remedial measures necessary to restore compliance with this article and a time schedule for the completion of such remedial action;
5. A statement of the penalty or penalties that may be assessed against the person to whom the notice of violation is directed;
6. A statement that the determination of violation may be appealed to the city board of appeals by filing a written notice of appeal within ten calendar days of service of notice of violation; and
7. A statement specifying that, should the violator fail to restore compliance within the established time schedule, the work will be done by a designated governmental agency or a contractor and the expense thereof shall be charged to the violator.

B. Such notice may require, without limitation:

1. Monitoring, analysis, and reporting;
2. Elimination of illicit connections or discharges;
3. That discharges, practices, or operations in violation of this article shall cease and desist;
4. Abatement or remediation of stormwater pollution or contamination hazards and the restoration of any affected property;
5. Payment of a civil fine to cover administrative and remediation costs; and
6. Implementation of source control or treatment BMPs.

(Ord. No. 1763, § 1(14.12.050), 3-22-2010)

Sec. 40.04.900. - Continuing violations.

Unless otherwise provided, a person shall be deemed guilty of a separate offense for each and every day during any portion of which a violation of this article is committed, continued or permitted by the person and shall be punishable accordingly, as herein provided.

(Ord. No. 1763, § 1(14.12.060), 3-22-2010)

Sec. 40.04.910. - Violations constituting misdemeanors.

Any person, firm or corporation, their agents or servants who violates any provision or requirement of this article or of a permit issued pursuant to this article shall be guilty of a misdemeanor and, upon conviction thereof, shall be punished by a fine not exceeding $500.00 and in addition shall pay all costs and expenses of the case. A separate offense shall be deemed committed upon each day during or on which a violation occurs or continues.

(Ord. No. 1763, § 1(14.12.070), 3-22-2010; Ord. No. 2002 , § 9, 3-26-2018)

Sec. 40.04.920. - Concealment.

Causing, permitting, aiding, abetting or concealing a violation of any provision of this article shall constitute a violation of this article.

(Ord. No. 1763, § 1(14.12.080), 3-22-2010)

Sec. 40.04.930. - Violations deemed a public nuisance.

A. In addition to the penalties herein provided, any condition caused or permitted to exist in violation of any of the provisions of this article may be considered a threat to the public health, safety, welfare and the environment, may be declared and deemed a nuisance by the director, or designee, and may be summarily abated and/or restored by the city and/or civil action taken to abate, enjoin or otherwise compel the cessation of such nuisance.

B. The cost of such abatement and restoration shall be borne by the owner of the property and the cost thereof shall be a lien upon and against the property and such lien shall continue in existence until the same shall be paid.

C. In any administrative or civil proceeding under this article in which the city prevails, the city may be awarded all costs of investigation, administrative overhead, out-of-pocket expenses, costs of administrative hearings, costs of suit and reasonable attorney's fees.

(Ord. No. 1763, § 1(14.12.090), 3-22-2010; Ord. No. 2002 , § 4, 3-26-2018)

Sec. 40.04.940. - Civil actions.

A. In addition to any other remedies provided in this article, any violation of this article may be enforced by civil action brought by the city. In any such action, the city may seek, and the court shall grant, as appropriate, any or all of the following remedies:

1. A temporary and/or permanent injunction.
2. Assessment of the violator for the costs of any investigation, inspection, or monitoring survey which led to the establishment of the violation, and for the reasonable costs of preparing and bringing legal action under this section.
3. Costs incurred in removing, correcting, or terminating the adverse effects resulting from the violation.
4. Compensatory damages for loss or destruction to water quality, wildlife, fish and aquatic life. Assessments under this section shall be paid to the city to be used exclusively for costs associated with monitoring and establishing stormwater discharge control systems and/or implementing or enforcing the provisions of this article.
5. Fines to the city for MPDES permit violations.

(Ord. No. 1763, § 1(14.12.100), 3-22-2010)

Sec. 40.04.950. - Administrative enforcement powers.

A. In addition to the other enforcement powers and remedies established by this article, any city enforcement agent has the authority to utilize the following administrative remedies:

1. *Cease and desist orders/stop work orders.* When a city enforcement agent finds that a violation has taken place or is likely to take place, the agent may issue an order to cease and desist such violation, or practice, or operation likely to cause such violation and direct that those persons not complying must:

   a. Comply with the requirements of the enforcement agent, the provisions of this article and a permit issued pursuant to this article;

   b. Comply with a time schedule for compliance as required by the enforcement agent;

   c. Take appropriate remedial, corrective, or preventive action as required by the enforcement agent to prevent the violation from continuing or recurring; and

   d. Order a property owner, contractor, or any other person responsible for or appearing to conduct work or that may have conducted work that may be in violation of the provisions of this article to immediately stop all work related to any violation until any such violation has been corrected or abated or until any costs of abatement borne by the city have been paid to the city.

2. *Abatement order.* Whenever a city enforcement agent finds any construction debris, pollutants, oil, earth, dirt, grass, weeds, dead trees, tin cans, rubbish, refuse, waste or any other material of any kind, in or upon the sidewalk abutting or adjoining any parcel of land, or upon any parcel of land or grounds, within a public or private right-of-way or street, alley, parking lot, located on neighboring parcels, or in close proximity to any open drain or ditch channel, which may result in an increase in pollutants or any of the items listed herein entering the storm drain or a non-stormwater discharge to the storm drain, such agent may issue an order to abate, remove and lawfully dispose of such material in any manner that the agent reasonably may provide. The recipient of such notice shall undertake the activities as described in the notice within the timeframes set forth therein.

3. *Invoice; notice of intent to file nuisance abatement lien.* In the event the owner or operator of a facility fails to conduct the activities as described in the abatement order, the enforcement agent may cause such required activities as described in the order to be performed, and the cost thereof shall be assessed and invoiced to the owner of the property with a notice that failure to pay the costs assessed and invoiced within 30 calendar days will result in a nuisance abatement lien being recorded against the property. The notice must be served on the owner according to the procedures set out in section 16.02.080.

4. *Statement of costs.* The enforcement agent must, after completing the abatement, file a statement of costs with the department of finance. Assessment of the costs must follow the procedures in 16.02.120.

5. *Recording of lien; lien release.*

   a. After notice of nuisance abatement lien has been served on the property owner, the city may file a lien against the property for the costs assessed and invoice the owner of the property pursuant to sections 40.04.930 and 40.04.950 if the owner or the owner's agents fail to pay costs assessed and invoiced within 30 calendar days of the date the city mailed the invoice to the owner of the property.

   b. The nuisance abatement lien must specify the amount of the lien, that the lien is imposed on behalf of the city, the date of the abatement order, the street address and legal

description of the property on which the lien is imposed, and the name and address of the recorded owner of the parcel.

c. The city may file such lien in the records of the Gallatin County Clerk and Recorder.

d. Pursuant to section 40.04.350.L, the owner of property subject to submittal of a permit required by this article consents to filing of such a lien.

e. The city must file a document evidencing the satisfaction of such lien within 30 days after the date the lien is satisfied.

(Ord. No. 1763, § 1(14.12.110), 3-22-2010; Ord. No. 2002 , §§ 4, 10, 3-26-2018)

Sec. 40.04.960. - Nonexclusivity of remedies.

Remedies under this article are in addition to and do not supersede or limit any and all other remedies, civil or criminal. The remedies provided for herein shall be cumulative and not exclusive.

(Ord. No. 1763, § 1(14.12.120), 3-22-2010)

Sec. 40.04.970. - Appeal.

Any person notified of non-compliance with this article or required to perform monitoring, analysis, reporting and/or corrective action, who is aggrieved by the decision of the city enforcement agent, may appeal such decision in writing to the board of appeals within ten business days following the effective date of the decision or written notice. Upon receipt of such request, the director shall request a report and recommendation from the city enforcement agent and shall set the matter for administrative hearing at the earliest practical date. At said hearing, the director may hear additional evidence, and may revoke, affirm or modify the city enforcement agent's decision. Such decision shall be final.

(Ord. No. 1763, § 1(14.12.130), 3-22-2010; Ord. No. 2002 , § 4, 3-26-2018)

Sec. 40.04.980. - Disclaimer of liability.

The degree of protection required by this article is considered reasonable for regulatory purposes and is based on scientific, engineering and other relevant technical considerations. The standards set forth herein are minimum standards and this article does not imply that compliance will ensure that there will be no unauthorized discharge of pollutants into the waters of the United States. This article shall not create liability on the part of the city, any agent or employee thereof for any damages that result from reliance on this article or any administrative decision lawfully made thereunder.

(Ord. No. 1763, § 1(14.12.140), 3-22-2010)

Sec. 40.04.990. - Reserved.

DIVISION 7. - STORMWATER UTILITY RATES AND CHARGES

Sec. 40.04.1000. - Costs and purpose.

The purpose of the rates and charges shall be to generate sufficient revenue to pay all costs for the operation, maintenance, administration, permitting, and routine functions of the existing city stormwater system and the planning, engineering, construction, operation, maintenance, and administration of such future stormwater systems as may be established within, or without, the stormwater utility service area

and to pay for the review of drainage plans, and the design, right-of-way acquisition and construction or reconstruction of stormwater systems. All proceeds are deemed to be in payment for use of the city stormwater systems.

(Ord. No. 1831, § 3, 7-25-2012)

Sec. 40.04.1010. - Stormwater utility service area.

The stormwater utility service area is inclusive of all lands annexed to the city and bounded by the incorporated city limits as the same may be adjusted by the city commission. The city reserves the right to plan for stormwater system improvements outside the service area. The city may also construct stormwater system improvements outside the service area when needed as an integral part of the stormwater system located within the stormwater utility service area.

(Ord. No. 1831, § 3, 7-25-2012)

Sec. 40.04.1020. - Operation cost determination.

The city manager shall periodically determine the total annual cost of operation and maintenance of the stormwater systems and the director shall periodically develop operating plans for the systems. The total annual cost of operation and maintenance of the stormwater systems shall be include, but is not limited to all costs related to the city's activities under this article such as but not limited to planning and analysis, labor and personnel costs, repairs, capital improvements, equipment and equipment replacement, maintenance, necessary modifications, power, permitting, sampling, laboratory tests, hardware and software, overhead and administration, and a reasonable contingency amount.

(Ord. No. 1831, § 3, 7-25-2012; Ord. No. 2002 , § 4, 3-26-2018)

Sec. 40.04.1030. - Monthly stormwater service charge.

A monthly stormwater service charge is imposed and made applicable to all developed property within the stormwater service area. The stormwater service charge is to be assessed for the following purposes and for any other purpose incidental to or necessary to fulfill the purpose and intent of this article: The acquisition by gift, purchase or condemnation of real and personal property, and interests therein, necessary to manage stormwater or to construct, operate, and maintain stormwater systems; all costs of administration and implementation of the stormwater management program, including the establishment of reasonable operating and capital reserves to meet unanticipated or emergency stormwater management requirements; costs related to planning, engineering and design, debt service and related financing expenses, and construction costs for new stormwater systems, and enlargement or improvement of existing stormwater systems; operation and maintenance of the stormwater system; monitoring, surveillance, and inspection of stormwater systems; water quality monitoring and water quality programs; retrofitting developed areas for pollution control; inspection and enforcement activities; billing and administrative costs; and permitting. The charge shall be assessed to each parcel in the utility service area upon a methodology and at a rate to be established by commission resolution. Nonpayment constitutes a lien on the property, as are taxes and assessments, in accordance with state law.

(Ord. No. 1831, § 3, 7-25-2012)

Sec. 40.04.1040. - Coordination with the state department of transportation.

The city shall solicit the Montana Department of Transportation's financial participation in all stormwater system improvements constructed on or impacted by federal aid routes within the city limits. This solicitation shall be in accordance with any then-existing city-state stormwater agreement, if any.

(Ord. No. 1831, § 3, 7-25-2012)

Sec. 40.04.1050. - Billing of charges; penalties for late payment and procedure to collect.

Stormwater service charges authorized by section 40.04.1030 shall be included with the monthly water and wastewater utility billing. Should any user fail to pay the stormwater service charge and penalty within two months of the due date, the city may terminate water service to the property. The city may also follow the collection procedure outlined in MCA 7-13-4903.

(Ord. No. 1831, § 3, 7-25-2012)

Sec. 40.04.1060. - Establishment of stormwater utility fund.

All stormwater service charges shall be collected as provided in this division and credited to a fund to be known as the "stormwater utility fund," which shall be at all times segregated and maintained as a separate enterprise fund. All revenues collected pursuant to section 40.04.1030 and all grants, permit fees, and other charges collected related to stormwater management shall be deposited to the fund. The commission may make additional appropriations to the fund. Disbursements from the fund shall be for the purposes described in section 40.04.1030.

(Ord. No. 1831, § 3, 7-25-2012)

Sec. 40.04.1070. - Appeal and adjustment.

A. The charges, fees, and costs established under this article are deemed prima facie fair, reasonable, and equitable. Any party who considers the charges applicable to their premises unfair, inequitable, or unreasonable may apply to the director for adjustment thereof, stating the facts and grounds of supporting the adjustment. In such case, the director shall cause appropriate investigation and report to be made.

B. The director shall consider each and all of such complaints and reports and communicate findings to the party seeking adjustment. The director shall accept the request for adjustment, reject the request for adjustment, or make other such equitable determination as the director determines necessary. The party seeking adjustment may appeal such determination to the city commission within 30 days of the director's decision. In such a case, the appeal shall be conducted as a public hearing and, if convinced that an adjustment of the charges for such premises is necessary to provide reasonable equality with those charged to others, the city commission shall so provide by resolution fixing special charges for individual premises during the period of continuance of special circumstances which make the standard charges unfair, inequitable, unreasonable, or inadequate.

C. The director may notify the owner of any premises as to which the city engineer considers the rates and charges to be inadequate and the date upon which such increase in the stormwater service charge shall commence which date may not be less than 60 days from the date of such notice. The party noticed of an increase in stormwater service charge may appeal to the city commission within 30 days of such notice. The commission shall uphold the director's determination, reverse, or make other such equitable determination it finds necessary.

(Ord. No. 1831, § 3, 7-25-2012; Ord. No. 2002 , § 4, 3-26-2018)

Attachment D

Good Housekeeping Program

See SWMP Section 7.0 for more information related to the MS4's Good Housekeeping Program. The following Facility Stormwater Pollution Prevention Plans (FSWPPP) and Activity Stormwater Pollution Prevention Plans (ASWPPP) are attached:

1. City Shops Facility FSWPPP
2. Vehicle Maintenance Facility FSWPPP
3. Bozeman Public Safety Facility FSWPPP
4. Snow Storage Facility FSWPPP
5. Water Reclamation Facility FSWPPP
6. Solid Waste Landfill FSWPPP
7. Emergency Main Break ASWPPP
8. Sanitary Sewer Overflows ASWPPP

Facility Stormwater Pollution Prevention Plan

City Shops Facility

814 North Bozeman Avenue
Bozeman, Montana 59715

Last updated on February 4, 2020

1.0 OVERVIEW

This Facility Stormwater Pollution Prevention Plan (FSWPPP) includes Standard Operating Guidelines (SOG) developed to mitigate pollutants generated at the City Shops Facility (Facility).

2.0 STORMWATER TEAM

The following Staff members are responsible for the FSWPPP's implementation:

a. Leader: John Alston, Water, Sewer, and Storm Superintendent
b. Leader: John Vandelinder, Streets Superintendent
c. Leader: Thom White, Parks Superintendent
d. Leader: Mike Gray, Facilities Superintendent
e. Offsite Coordinator: Kyle Mehrens, Stormwater Program Coordinator

3.0 SITE DESCRIPTION

The Facility includes buildings, parking lots, and staging areas that support the Streets, Parks, Facility, and Water/Sewer/Storm Divisions (see Appendix B). The Facility has three distinct drainage basins, including:

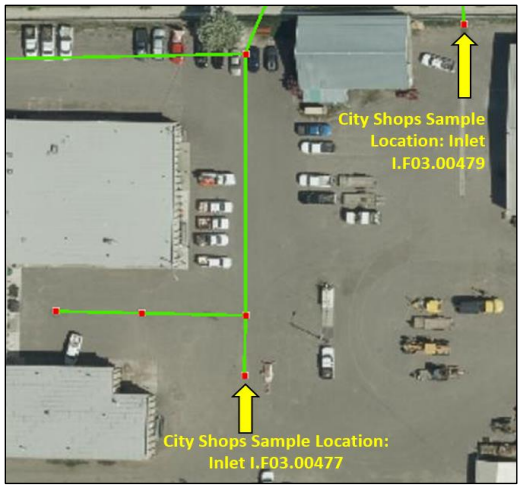
a. Drainage Basin #1: 2.52 acres with 89% impervious cover. Drainage system components include six inlets, 550 feet of storm sewer, and a four-foot diameter Contech CDS mechanical separation unit. Basin #1 discharges into a storm sewer beneath Tamarack St. to the north, which dumps into Bozeman Creek at Outfall OF.E03.00450.
b. Drainage Basin #2: 0.56 acres with 98% impervious cover. Drainage system components include a valley gutter, inlet, and 20 feet of storm sewer. Basin #2 discharges into a storm sewer beneath Tamarack St. to the north, which dumps into Bozeman Creek at Outfall OF.E03.00450.
c. Drainage Basin #3: 0.82 acres with 90% impervious cover. Drainage system components include four inlets, 144 feet of storm sewer, and an underground infiltration facility. Basin #3 discharges to to an underground infiltration facility.

4.0 IMPAIRED WATERBODIES

The Facility discharges to Sourdough Creek, aka Bozeman Creek, at Outfall OF.E03.00450. The Montana Department of Environmental Quality classifies Bozeman Creek as a 303(d) listed impaired waterbody because it does not fully support aquatic life and primary contact/recreation beneficial uses. Bozeman Creek's impairments include: Alterations in stream-side or littoral vegetative covers, Chlorophyll-a, E Coli, Nitrogen (Total), and Sedimentation-Siltation.

5.0 SAMPLING

Staff conducted baseline sampling on April 20 and 26, 2019, at the following locations:



Graphic 5.0: Sampling Location Map.

Staff analyzed the following parameters and compiled the results:

a. Total Suspended Solids (TSS), mg/L
b. Chemical Oxygen Demand (COD), mg/L
c. Total Nitrogen (TN), mg/L
d. Total Phosphorus (TP), mg/L
e. Copper (Cu), mg/L
f. Lead (Pb), mg/L
g. Zinc (Zn), mg/L
h. Oils and Greases, mg/L
i. pH, standard units

Sampling Date	TSS (mg/L)	Oil & Grease (mg/L)	Total Nitro. (mg/L)	Phosp. (mg/L)	Zinc (mg/L)	Lead (mg/L)	Copper (mg/L)	COD (mg/L)	pH
April 20, 2019	1,930	11.0	5.56	3.07	1.560	0.122	0.245	1350	7.5
April 26, 2019	14,100	5.0	8.70	4.28	1.940	0.153	0.352	548	8.0
Median	**8,015**	**8.0**	**7.13**	**3.68**	**1.750**	**0.138**	**0.299**	**1450**	**7.8**

Graphic 5.1: Facility sampling results.

Graphic 5.2 shows the Facility and reference sites' median concentrations, and their percent change.

Sampling Location	TSS (mg/L)	Oil & Grease (mg/L)	Total Nitro. (mg/L)	Phosp. (mg/L)	Zinc (mg/L)	Lead (mg/L)	Copper (mg/L)	COD (mg/L)	pH
Facility	8,015	8.0	7.1	3.68	1.750	0.138	0.299	1450	7.8
Reference Sites	554	6.5	8.1	1.44	0.955	0.026	0.072	531	7.0
% Change	**+1,346%**	**+23%**	**-12%**	**+156%**	**+83%**	**+431%**	**+315%**	**+173%**	**+11%**

Graphic 5.2: Percent change in median pollutant concentration between Facility and industrial reference sites.

The data shows the Facility yields higher median concentrations of TSS, oils and grease, phosphorous, zinc, lead, copper, and COD when compared to stormwater runoff from similar industrial land-use reference sites. Staff found median concentrations of total nitrogen median concentrations to be lower.

6.0 POLLUTION IDENTIFICATION

Following is a list of identified pollutants and an assessment of likely sources at the Facility:

a. Total Suspended Sediment (TSS): Uncontained vehicle and equipment washing, organics
b. Oil and Grease: Fueling, vehicle leaks, uncontained vehicle and equipment washing
c. Total Nitrogen: Fertilizer transfers, uncontained vehicle and equipment washing, organics
d. Phosphorus: Fertilizer transfers, uncontained vehicle and equipment washing, organics

e. Zinc: Steel surfaces, brake dust, uncontained vehicle and equipment washing
f. Lead: Brake dust, uncontained vehicle and equipment washing
g. Copper: Brake dust, uncontained vehicle and equipment washing
h. COD: Vehicle and equipment leaks, uncontained vehicle and equipment washing
i. CRF: Stored chemical

7.0 SITE ASSESSMENT

Section 7.0 outlines the City's Facility Minimum Standards (Standards) applicable to this Facility. All Standards are listed in the City's Stormwater Management Plan (SWMP).

7.1 Standard: Wash bays and interior floor drains connected to the sanitary sewer with pretreatment.

a. Site Components and Compliance Assessment:
    - North Complex Building Floor Drains
        - Compliant: Connected to the sanitary sewer with P-trap
    - South Complex Building Floor Drains
        - Compliant: Connected to the sanitary sewer with sand-oil separator
    - Green Shed Floor Drains
        - Not Compliant: Connected to infiltration drain system without pretreatment
    - Wash Bay #1 Drain System
        - Not Compliant: Connected to storm sewer (infiltration facility downline)
    - Wash Bay #2 Drain System
        - Not Compliant: Connected to storm sewer (mechanical separation downline)
b. Standard Operating Guidelines:
    - Annual inspection (condition, debris depth, accumulated pollutants)
    - Schedule maintenance as needed to maintain the intended function
c. Corrective Action(s):
    - Retrofit Green Shed floor drains, or provide enhanced spill kit materials.
    - Retrofit Wash Bay #1 drain system
    - Retrofit or relocate Wash Bay #2 drain system

7.2 Standard: Chemicals stored under cover and within secondary containment.

a. Site Components and Compliance Assessment:
    - CRF storage tank
        - Not Compliant: Stored outside without secondary containment
b. Standard Operating Guidelines:
    - Inspect storage containers weekly for leaks
    - If a leak is detected, implement Spill Response Plan provided in Section 8.0
c. Corrective Action(s):
    - Install secondary containment for CRF tank

7.3 Standard: Fuel tanks protected by secondary containment.

a. Site Components and Compliance Assessment:
    - 500-gallon fuel tank
        - Compliant: Double-walled tank
b. Standard Operating Guidelines:
    - Insert nozzle securely into the vehicle fuel tank before engaging the pump
    - Stay with vehicle or equipment during fueling to reduce the chance of tank overflows
    - Shut off pump before removing nozzle from vehicle fuel tank

- Securely place nozzle back into fuel tank cradle
- Clean up spills immediately using SOGs provided in Section 8.0
- Inspect secondary containment annually per manufacturer's recommendation

c. Corrective Action(s):
   - None

7.4 Standard: Tracking prevented at all entries, exits, and within parking areas.

a. Site Components and Compliance Assessment:
   - Parking Areas, East Entrance, West Entrance, and South Entrance
     - Compliant: Asphalt surfaces
   - Wash Bays #1 and #2
     - Not Compliant: Prolonged debris accumulation

b. Standard Operating Guidelines:
   - Inspect paved surfaces for debris accumulation, sweep once present

c. Corrective Action(s):
   - Improve operational controls and increased street sweeping

7.5 Standard: Spill kits stocked with instructions, disposal bags, PPE, absorbents, and inlet barriers.

a. Site Components and Compliance Assessment
   - Green Shed Spill Kit
     - Not Compliant: No instructions, disposal bags, PPE, or inlet barrier
   - South Complex Building Spill Kit and North Complex Building Spill Kit
     - Not Compliant: No response plan, disposal bags, or PPE
   - Fuel Tank Spill Kit
     - Not Compliant: No response plan or inlet barrier

b. Standard Operating Guidelines:
   - Inspect and purchase missing items annually.

c. Corrective Action(s):
   - Purchase inlet barrier mats for Green Shed and Fuel Tank spill kits
   - Place a copy of the spill response plan with each spill kit
   - Provide disposal bags and PPE for the spill kits in the Green Shed, South Complex Building, and North Complex Buildings
   - ~~Purchase spill kit for the fuel tank~~

7.6 Standard: Preventative maintenance performed on equipment and vehicles.

a. Site Components and Compliance Assessment
   - Water/Sewer/Storm, Street, Parks, and Facility's Equipment and Vehicles
     - Compliant: Vehicles and equipment inspected and maintained regularly, preventative maintenance documentation filed in CityWorks

b. Standard Operating Guidelines:
   - Visual inspection of all vehicles and equipment before use
   - Complete maintenance and repairs at the Vehicle Maintenance Facility
   - Document inspections, maintenance, and repair per Division specific guidelines

c. Corrective Action(s):
   - None

7.7 Standard: Vehicles and equipment washed in designated locations.

a. Site Components and Compliance Assessment

- Wash Bay #1
  - Compliant: Designated wash location
- Wash Bay #2
  - Not Compliant: See Section 7.1

b. Standard Operating Guidelines:
   - Wash vehicles and equipment in Wash Bay #1

c. Corrective Action(s):
   - Switch degreasers and soaps to EPA approved Safer Choice Products.

7.8 Standard: Maintain above and below ground stormwater infrastructure.

a. Site Components and Compliance Assessment:
   - 11 Inlets and 714 Feet of Storm Sewer
     - Compliant: Maintained once every five years
   - Mechanical Separator Treatment Unit
     - Compliant: Maintained semiannually
   - Underground Infiltration Facility
     - Not Compliant: Unmaintainable due to design and installation flaw

b. Standard Operating Guidelines:
   - Maintenance schedules include:
     - Maintain treatment storm infrastructure biannually
     - Maintain conveyance storm infrastructure once every five years

c. Corrective Action(s):
   - See Section 11.0

8.0 SPILL RESPONSE PLAN

The following is the City's spill response plan, including response, mitigation, and reporting protocols.

8.1 Small and Medium Spills: Typically, major dimension is less than 6' and can be contained, cleaned, and eliminated using onsite personnel, spill kits or the Public Works vehicle.

a. Locate spill kit and put on PPE.
b. In necessary, deploy Public Works spill response vehicle.
c. Control spill by stopping or securing the source.
d. Protect all storm drain inlets near the spill using absorbent booms or inlet barrier.
e. Identify spilled material.
f. Clean spill using appropriate absorbents or other methods. *Never wash spills down the drain!*
g. Place spill material and absorbents in secure containers.
h. Consult with Stormwater Team Leader and the SDS for spill and waste disposal procedures.
i. Dispose of spilled material and the absorbent in compliance with state and federal regulations.
j. Consult with Stormwater Team Leader for appropriate reporting procedures.

8.2 Large and Continuous Spills: Typically, major dimension is greater than 6', continuous flow, and cannot be contained, cleaned, and eliminated using onsite personnel.

a. Leave the area and notify Emergency Responders (911).
b. Give the operator the spill location, chemical name, and approximate amount.
c. If safe, protect nearby storm drain inlets using absorbent booms or inlet barrier.
d. Provide SDS information for the spilled chemical to emergency responders.
e. Advise responders of any absorbents, containers, or spill control equipment that is available.
f. Consult with Stormwater Team Leader for appropriate reporting procedures.

8.3 Spill Reporting

a. Report all chemical spills, regardless of size, to a Stormwater Team Leader.
b. Record spilled materials and cleanup procedures in Appendix A.

9.0 TRAINING

Staff receives training related to this Facility per the requirements within the Citys MS4 Permit and maintains training documentation in the SWMP.

10.0 INSPECTIONS

The Offsite Coordinator completes an annual inspection at the Facility to determine compliance with the City's Facility Minimum Standards listed in the SWMP. Updates to this FSWPPP occur based on the results.

c. 2019: Completed on March 21

11.0 INFRASTRUCTURE IMPROVEMENTS

Staff identified the following project needs and plans to propose to the City Commission during the development of future Capital Improvement Plans (CIP):

a. Facility Space and Needs Assessment
    - Cost: ~$180,000
    - Timeline: 2020
b. Wash Bay #2 Drain System Retrofit or Relocation
    - Cost: $25,000
    - Timeline: Propose in 2022-2026 CIP
c. Basin #2 Inlet Treatment Installation
    - Cost: $1,000
    - Timeline: 2020 Completion
d. Infiltration Facility Maintenance Access Modification
    - Cost: $15,000
    - Timeline: Propose in 2022-2026 CIP
~~e. Facility Surfacing and Stormwater Upgrades (CDS Unit, ADS Infiltration System, and Wash Pad)~~
    - ~~Cost: $250,000~~
    - ~~Timeline: Completed in 2016~~

12.0 RECORD KEEPING AND REPORTING

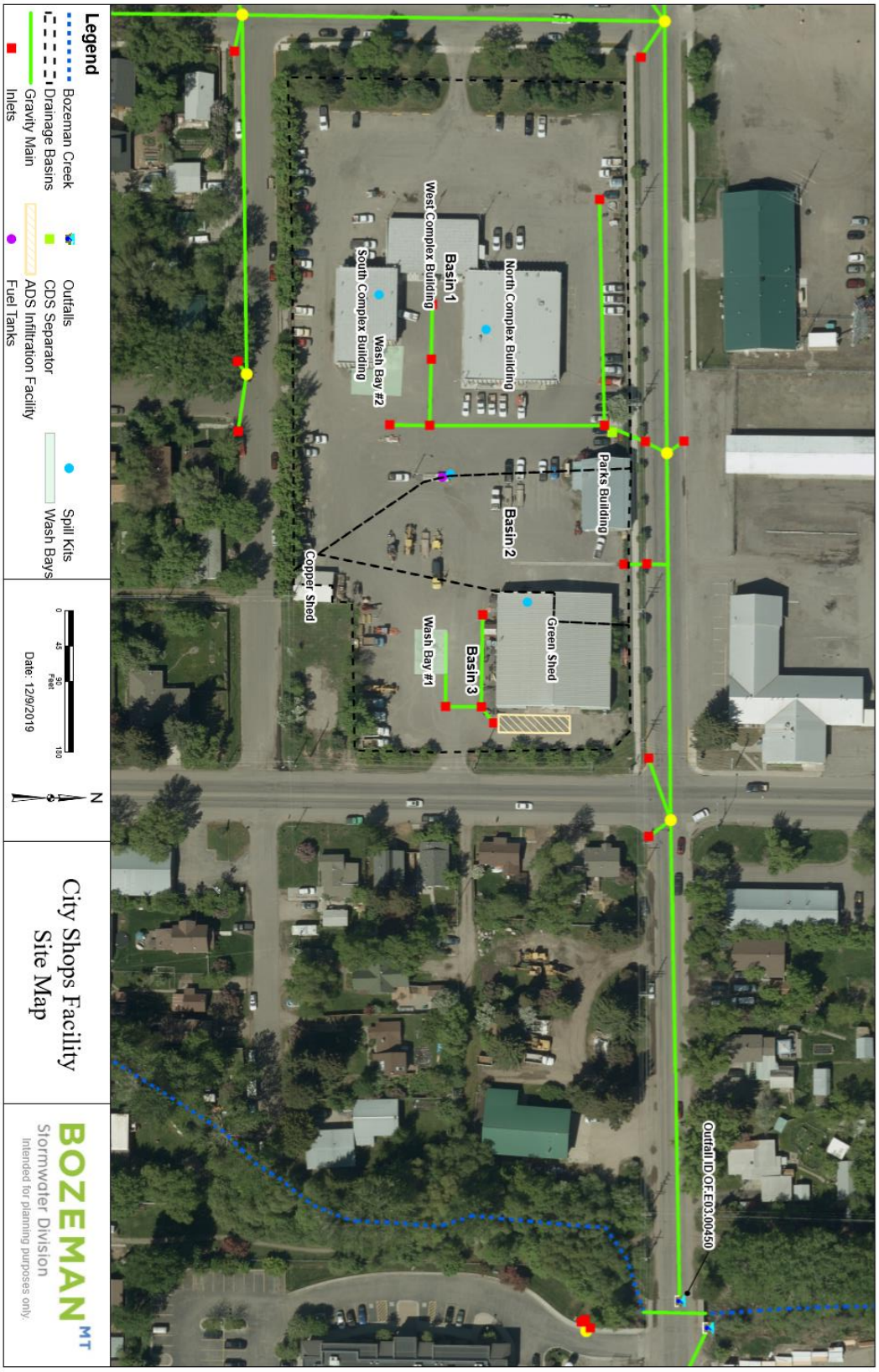
Staff maintains copies of this FSWPPP at the Facility and the Professional Building.

Appendix A - Tracking Sheets

Corrective Action Tracking Sheet				
No.	**Identified Issue**	**Date**	**Corrective Action**	**Date**

Spill Tracking Sheet				
No.	**Spill Description**	**Date**	**Spill Response**	**Date**

Appendix B – Site Map



Facility Stormwater Pollution Prevention Plan

Vehicle Maintenance Facility

1812 North Rouse Avenue
Bozeman, Montana 59715

Updated on February 4, 2020

1.0 OVERVIEW

This Facility Stormwater Pollution Prevention Plan (FSWPPP) includes Standard Operating Guidelines (SOG) developed to mitigate pollutants generated at the Vehicle Maintenace Facility (Facility).

2.0 STORMWATER TEAM

The following Staff members are responsible for the FSWPPP's implementation:

a. Leader: John Vandelinder, Streets Superintendent
b. Leader: Alex Nordquest, Forestry Division Manager
c. Leader: John Alston, Water, Sewer, and Storm Superintendent
d. Leader: Mike Gray, Facility Manager
e. Leader: Josh Waldo, Fire Chief
f. Offsite Coordinator: Kyle Mehrens, Stormwater Program Coordinator

3.0 SITE DESCRIPTION

The Facility includes buildings, parking lots, and staging areas that support the Street, Forestry, Facility, Fire, and Water/Sewer/Storm Divisions (see Appendix B). The Facility has one drainage basin, including:

a. Drainage Basin #1: 8.4 acres with 62.5% impervious cover, including office and equipment storage buildings, parking areas, material storage, and equipment staging. Basin #1's drainage system components include seven inlets, 1,125 feet of storm sewer, and a detention basin. Basin #1 discharges into a storm sewer beneath Griffin Drive, which outlets into the East Gallatin River.

4.0 IMPAIRED WATERBODY

The Vehicle Maintenance Facility discharges to the East Gallatin River at Outfall OF.E01.00050. The Montana Department of Environmental Quality classifies the East Gallatin River as a 303(d) listed impaired waterbody because it does not fully support the aquatic life and primary contact/recreation beneficial uses. East Gallatin River impairments include: Nitrogen (Total) and Phosphorous (Total).

5.0 SAMPLING

Staff conducted baseline sampling on August 22, 2019, at the following location:

Graphic 5.0: Sampling Location Map.

Staff analyzed the following parameters and compiled the results:

a. Total Suspended Solids (TSS), mg/L
b. Chemical Oxygen Demand (COD), mg/L
c. Total Nitrogen (TN), mg/L
d. Total Phosphorus (TP), mg/L
e. Copper (Cu), mg/L
f. Lead (Pb), mg/L
g. Zinc (Zn), mg/L
h. Oils and Greases, mg/L
i. pH, standard units

Sampling Date	TSS (mg/L)	Oil & Grease (mg/L)	Total Nitro. (mg/L)	Phosp. (mg/L)	Zinc (mg/L)	Lead (mg/L)	Copper (mg/L)	COD (mg/L)	pH
August 22, 2019	139	2.0	7.6	0.540	0.260	0.010	0.042	548	6.6

Graphic 5.1: Vehicle Maintenance Facility sampling results.

Graphic 5.2 shows the Facility and reference sites' median concentrations, and their percent change.

Sampling Location	TSS (mg/L)	Oil & Grease (mg/L)	Total Nitro. (mg/L)	Phosp. (mg/L)	Zinc (mg/L)	Lead (mg/L)	Copper (mg/L)	COD (mg/L)	pH
Facility	139	2.0	7.6	0.540	0.260	0.010	0.042	548	6.6
Reference Sites	554	6.5	8.1	1.44	0.955	0.026	0.072	531	7.0
% Change	**-74.9%**	**-69.2%**	**-6.2%**	**-62.5%**	**-72.8%**	**-61.5%**	**-41.7%**	**+3.2%**	**-5.7%**

Graphic 5.2: Percent change in pollutant concentrations between Vehicle Maintenance Facility and industrial reference sites.

The data shows the Facility yields higher median concentrations of COD when compared to stormwater runoff from similar industrial land-use reference sites. Staff found median concentrations of TSS, Oil and Grease, Total Nitrogen, Phosphorous, Zinc, Lead, and Copper to be lower.

6.0 POLLUTION IDENTIFICATION

Following is a list of identified pollutants and an assessment of likely sources at the Facility:

a. Total Suspended Solids (TSS): Traction sand stroage, equipment, unstabilized areas, organics
b. Oil and Grease: Vehicle and equipment leaks, stored chemicals
c. Total Nitrogen: Organics, traction sand
d. Phosphorus: Fertilizer transfers, organics, traction sand
e. Zinc: Steel surfaces, brake dust
f. Lead: Brake dust
g. Copper: Brake dust
h. COD: Vehicle and equipment leaks, traction sand
i. Magnesium Chloride: Stored chemical
j. Spent Antifreeze: Stored chemical

7.0 SITE ASSESSMENT

Section 7.0 outlines the City's Facility Minimum Standards (Standards) applicable to this Facility. The complete list of standards are contained in the City's Stormwater Management Plan (SWMP).

7.1 Standard: Wash bays and interior floor drains connected to the sanitary sewer with pretreatment

a. Site Components and Compliance Assessment:
    - Vehicle Maintenance Building
        - Compliant: Connected to the sanitary sewer with sand-oil separator
    - Vehicle Maintenance Building Wash Bay (east side of HRDC building)
        - Compliant: Connected to the sanitary sewer with sand-oil separator

b. Standard Operating Guidelines:
    - Annual inspection (condition, debris depth, accumulated pollutants)
    - Schedule maintenance as needed to maintain the intended function
c. Corrective Actions:
    - None

7.2 Standard: Chemicals stored under cover and within secondary containment

a. Site Components and Compliance Assessment:
    - 1,000-gallon used oil tank
        - Compliant: Double-walled tank
    - Small metal used oil tank
        - Not Compliant: No secondary containment
    - Spent antifreeze tank
        - Compliant: Double-walled tank
    - Spent antifreeze bottles
        - Not Compliant: No secondary containment
    - 10,000-gallon magnesium chloride tank
        - Not Compliant: No secondary containment
    - SumaGrow Barrel
        - Not Compliant: No secondary containment
b. Standard Operating Guidelines:
    - Inspect storage containers weakly for leaks
    - If a leak is detected, implement Spill Response Plan provided in Section 8.0
c. Corrective Actions:
    - Install secondary containment for small metal used oil tank, spent antifreeze bottles, magnesium chloride tank, and SumaGrow barrel

7.3 Standard: Tracking prevented at all entries, exits, and within parking areas

a. Site Components and Compliance Assessment:
    - South Parking Lot, Fire Department Training Area, North Parking Lot, Forestry Entrance, West Entrance
        - Compliant: Asphalt surface
    - Forestry Parking Lot
        - Not Compliant: Unimproved lot
    - Sand Storage Area
        - Not Compliant: Road mix surface
b. Standard Operating Guidelines:
    - Inspect paved surfaces for debris accumulation, sweep once present
c. Corrective Action:
    - See Section 11.0.a

7.4 Standard: Spill kits stocked with instructions, disposal bags, PPE, absorbents, and inlet barriers

a. Site Components and Compliance Assessment
    - Vehicle Maintenance Building Spill Response Materials
        - Not Compliant: Does not include the instructions or inlet barriers
    - Spill Response Vehicle Spill Kit
        - Not Compliant: Does not include the instructions or inlet barriers
b. Standard Operating Guidelines:
    - Inspect and purchase missing items annually
c. Corrective Actions:
    - Purchase inlet barrier mats for Vehicle Maintenance Building and Spill Response Vehicle

- Place a copy of the Facility FSWPPP with each spill kit
- Purchase spill kit for used oil/spent antifreeze deposition area

7.5 Standard: Preventative maintenance performed on equipment and vehicles

a. Site Components and Compliance Assessment
   - Water/Sewer/Storm, Street, Parks, and Facility's Equipment and Vehicles
     - Compliant: Vehicles and equipment inspected and maintained regularly, preventative maintenance documentation filed in CityWorks

b. Standard Operating Guidelines:
   - Visual inspection of all vehicles and equipment before use
   - Complete maintenance and repairs at the Vehicle Maintenance Facility
   - Document inspections, maintenance, and repair per Division specific guidelines

c. Corrective Action(s):
   - None

7.6 Standard: Vehicles and equipment washed in designated locations

a. Site Components and Compliance Assessment
   - Wash Bay
     - Compliant: Designated wash location

b. Standard Operating Guidelines:
   - Wash vehicles and equipment at the Wash Bay

c. Corrective Actions:
   - None

7.7 Standard: Maintain above and below ground stormwater infrastructure

a. Site Components and Compliance Assessment:
   - Storm Conveyance Infrastructure
     - Not Compliant: Pipes, manholes, and inlets not mapped, or maintained
   - Stormwater Detention Facility
     - Not Compliant: Full of debris, separation from the sand storage is inadequate

b. Standard Operating Guidelines:
   - Maintenance schedules include:
     - Stormwater retention basin vegetation maintained every fall
     - Maintain conveyance storm infrastructure every five years

c. Corrective Actions:
   - Install a barrier on the south edge of the detention facility, dredge deposited materials, remove silt fence
   - Clear inlet pipe and accumulated debris in the detention facility
   - ~~Map storm infrastructure, place on maintenance schedule~~

8.0 SPILL RESPONSE PLAN

The following is the City's spill response plan, including response, mitigation, and reporting protocols.

8.1 Small and Medium Spills: Typically, major dimension is less than 6' and can be contained, cleaned, and eliminated using onsite personnel, spill kits or the Public Works vehicle.

a. Locate spill kit and put on PPE.
b. In necessary, deploy Public Works spill response vehicle.
c. Control spill by stopping or securing the source.
d. Protect all storm drain inlets near the spill using absorbent booms or inlet barrier.
e. Identify spilled material.
f. Clean spill using appropriate absorbents or other methods. *Never wash spills down the drain!*

g. Place spill material and absorbents in secure containers.
h. Consult with Stormwater Team Leader and the SDS for spill and waste disposal procedures.
i. Dispose of spilled material and the absorbent in compliance with state and federal regulations.
j. Consult with Stormwater Team Leader for appropriate reporting procedures.

8.2 Large and Continuous Spills: Typically, major dimension is greater than 6', continuous flow, and cannot be contained, cleaned, and eliminated using onsite personnel.

a. Leave the area and notify Emergency Responders (911).
b. Give the operator the spill location, chemical name, and approximate amount.
c. If safe, protect nearby storm drain inlets using absorbent booms or inlet barrier.
d. Provide SDS information for the spilled chemical to emergency responders.
e. Advise responders of any absorbents, containers, or spill control equipment that is available.
f. Consult with Stormwater Team Leader for appropriate reporting procedures.

8.3 Spill Reporting

a. Report all chemical spills, regardless of size, to a Stormwater Team Leader.
b. Record spilled materials and cleanup procedures in Appendix A.

9.0 TRAINING

Staff receives training related to this Facility per the requirements within the Citys MS4 Permit and maintains training documentation in the SWMP.

10.0 INSPECTIONS

The Offsite Coordinator completes an annual inspection at the Facility to determine compliance with the City's Facility Minimum Standards listed in the SWMP. Updates to this FSWPPP occur based on the results.

a. 2019: Completed on August 6

11.0 INFRASTRUCTURE IMPROVEMENTS

Staff identified the following project needs and plans to propose to the City Commission during the development of future Capital Improvement Plans (CIP):

a. Stabilize Forestry Parking Lot and Sand Storage Area
    - Cost: TBD
    - Timeline: Propose in 2022-2026 CIP
b. Magnesium Chloride Secondary Containment
    - Cost: $75,000
    - Timeline: Propose in 2022-2026 CIP
c. Used Oil Secondary Containment
    - Cost: $15,000
    - Timeline: Propose in 2022-2026 CIP
d. Spent Antifreeze Secondary Containment
    - Cost: $15,000
    - Timeline: Propose in 2022-2026 CIP
e. Suma Grow Secondary Containment
    - Cost: $15,000
    - Timeline: Propose in 2022-2026 CIP

12.0 RECORD KEEPING AND REPORTING

Staff maintains copies of this FSWPPP at the Facility and the Professional Building.

Appendix A - Tracking Sheets

Corrective Action Tracking Sheet				
No.	**Identified Issue**	**Date**	**Corrective Action**	**Date**

Spill Tracking Sheet				
No.	**Identified Issue**	**Date**	**Corrective Action**	**Date**

Appendix B - Site Map

Facility Stormwater Pollution Prevention Plan

Bozeman Public Safety Facility

901 North Rouse Avenue
Bozeman, Montana 59771

Last updated on February 3, 2020

1.0 OVERVIEW

This Facility Stormwater Pollution Prevention Plan (FSWPPP) includes Standard Operating Guidelines (SOG) developed to mitigate pollutants generated at the Bozeman Public Safety Facility (Facility).

2.0 STORMWATER TEAM

The following staff members are responsible for the FSWPPP's implementation:

a. Leader: Chuck Winn, Assistant City Manager
b. Leader: Mike Gray, Facilities Manager
c. Offsite Coordinator: Kyle Mehrens, Stormwater Program Coordinator

3.0 SITE DESCRIPTION

The Facility will include buildings and parking lots that support the Police, Fire, and Legal Divisions (see Appendix B). The entire Facility is currenlty under construction. Staff will update the FSWPPP to address the new site conditions once construction is complete.

4.0 IMPAIRED WATERBODY

The Facility discharges to Sourdough Creek, aka Bozeman Creek, at Outfall OF.E03.00453. The Montana Department of Environmental Quality classifies Bozeman Creek as a 303(d) listed impaired waterbody because it does not fully support aquatic life and primary contact/recreation beneficial uses. Bozeman Creek's impairments include: Alterations in stream-side or littoral vegetative covers, Chlorophyll-a, E Coli, Nitrogen (Total), and Sedimentation-Siltation.

5.0 SAMPLING

Pending

6.0 POLLUTION IDENTIFICATION

Pending

7.0 SITE ASSESSMENT

Pending

8.0 SPILL RESPONSE PLAN

The following is the City's spill response plan, including response, mitigation, and reporting protocols.

8.1 Small and Medium Spills: Typically, major dimension is less than 6' and can be contained, cleaned, and eliminated using onsite personnel, spill kits and/or the Public Works vehicle.

a. Locate spill kit and put on PPE.
a. In necessary, deploy Public Works spill response vehicle.
b. Control spill by stopping or securing the source.
c. Protect all storm drain inlets near the spill using absorbent booms or inlet barrier.
d. Identify spilled material.
e. Clean spill using appropriate absorbents or other methods. *Never wash spills down the drain!*

f. Place spill material and absorbents in secure containers.
g. Consult with Stormwater Team Leader and the SDS for spill and waste disposal procedures.
h. Dispose of spilled material and the absorbent in compliance with state and federal regulations.
i. Consult with Stormwater Team Leader for appropriate reporting procedures.

8.2 Large and Continuous Spills: Typically, major dimension is greater than 6', continuous flow, and cannot be contained, cleaned, and eliminated using onsite personnel.

a. Leave the area and notify Emergency Responders (911).
b. Give the operator the spill location, chemical name, and approximate amount.
c. If safe, protect nearby storm drain inlets using absorbent booms or inlet barrier.
d. Provide SDS information for the spilled chemical to emergency responders.
e. Advise responders of any absorbents, containers, or spill control equipment that is available.
f. Consult with Stormwater Team Leader for appropriate reporting procedures.

8.3 Spill Reporting

a. Report all chemical spills, regardless of size, to a Stormwater Team Leader.
b. Record spilled materials and cleanup procedures in Appendix A.

9.0 TRAINING

Pending

10.0 INSPECTIONS

The Offsite Coordinator completes an annual inspection at the Facility to determine compliance with the City's Facility Minimum Standards listed in the SWMP. Updates to this FSWPPP occur based on the results.

a. 2019: Completed on July 25

11.0 INFRASTRUCTURE IMPROVEMENTS

The new Facility will adhere to current local and state water quality and flood control standards.

12.0 RECORD KEEPING AND REPORTING

Staff store copies of this FSWPPP at the Professional Building.

Appendix A - Tracking Sheets

Corrective Action Tracking Sheet				
No.	**Identified Issue**	**Date**	**Corrective Action**	**Date**

Spill Tracking Sheet				
No.	**Identified Issue**	**Date**	**Corrective Action**	**Date**

Appendix B – Site Map

Facility Stormwater Pollution Prevention Plan

Snow Storage Facility

501 Haggerty Lane
P.O. Box 1230
Bozeman, Montana 59771

Last updated on February 3, 2020

1.0 OVERVIEW

This Facility Stormwater Pollution Prevention Plan (FSWPPP) includes Standard Operating Guidelines (SOG) developed to mitigate pollutants generated at the Snow Storage Facility (Facility).

2.0 STORMWATER TEAM

The following Staff members are responsible for the FSWPPP's implementation:

a. Leader: John Vandelinder, Streets Superintendent
b. Offsite Coordinator: Kyle Mehrens, Stormwater Program Coordinator

3.0 SITE DESCRIPTION

The Facility is an asphalt parking lot used for municipal snow storage during winter and spring (see Appendix B). One drainage basin exists, including:

a. Drainage Basin #1: Four acres with 54% impervious cover, including asphalt parking area.

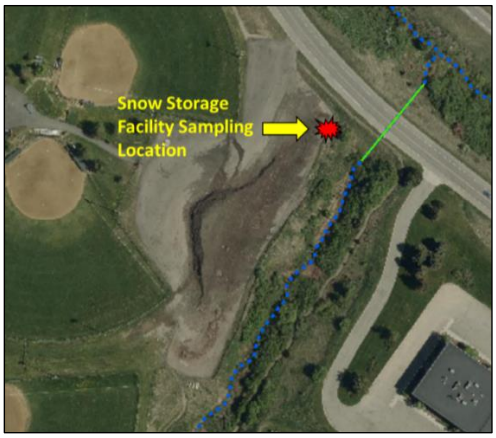
4.0 IMPAIRED WATERBODY

The Facility discharges to Tributary SWWW_00040, which then empties into a second tributary before its confluence with Rocky Creek north of I-90.

The Montana Department of Environmental Quality (MDEQ) classifies Rocky Creek as a 303(d) listed impaired waterbody because it does not fully support the aquatic life beneficial use. Rocky Creek's impairments include: Alteration in Stream-Side or Littoral Cover, Other Anthropogenic Substrate Alterations, Physical Substrate Habitat Alterations, and Sedimentation-Siltation.

5.0 SAMPLING

Staff conducted composite baseline sampling on April 9 and 24, 2019, at the following location:



Graphic 5.0: Sampling Location Map.

Staff analyzed the following parameters and compiled the results:

a. Total Suspended Solids (TSS), mg/L
b. Chemical Oxygen Demand (COD), mg/L
c. Total Nitrogen (TN), mg/L
d. Total Phosphorus (TP), mg/L
e. Copper (Cu), mg/L
f. Lead (Pb), mg/L
g. Zinc (Zn), mg/L
h. Oils and Greases, mg/L
i. pH, standard units

Sampling Date	TSS (mg/L)	Oil & Grease (mg/L)	Total Nitro. (mg/L)	Phosp. (mg/L)	Zinc (mg/L)	Lead (mg/L)	Copper (mg/L)	COD (mg/L)	pH
April 9, 2019	430	4	0.800	0.510	0.100	0.013	0.022	152.0	7.9
April 24, 2019	1,640	5	3.900	1.860	0.380	0.049	0.077	696.0	7.9

Graphic 5.1: Snow Storage Facility sampling results.

Graphic 5.2 shows the Facility and reference sites' median concentrations, and their percent change.

Sampling Location	TSS (mg/L)	Oil & Grease (mg/L)	Total Nitro. (mg/L)	Phosp. (mg/L)	Zinc (mg/L)	Lead (mg/L)	Copper (mg/L)	COD (mg/L)	pH
Facility	1,035	4.5	2.35	1.185	0.240	0.031	0.050	424	7.9
Reference Sites	554	6.5	8.1	1.440	0.955	0.026	0.072	531	7.0
% Difference	**+86.8%**	**-30.8%**	**-71.0%**	**-17.7%**	**-74.9%**	**+19.2%**	**-30.6%**	**-20.2%**	**+12.5%**

Graphic 5.2: Percent change in pollutant concentrations between the Facility and industrial reference sites.

The data shows the Facility yields higher median concentrations of TSS and lead when compared to stormwater runoff from similar industrial land-use reference sites. Staff found median concentrations of oils and greases, total nitrogen, phosphorus, zinc, copper, and COD to be lower.

6.0 POLLUTION IDENTIFICATION

Following is a list of identified pollutants and an assessment of likely sources at the Facility:

a. Total Suspended Solids: Traction sand and organics (ex. Grass clippings)
b. Oil and Grease: Vehicle leaks
c. Total Nitrogen: Organics
d. Phosphorus: Traction sand and organics
e. Zinc: Metal surfaces and brake dust
f. Lead: Brake dust and exhaust
g. Copper: Brake dust and exhaust
h. Floatables: Litter

7.0 SITE ASSESSMENT

Section 7.0 outlines the City's Facility Minimum Standards (Standards) applicable to this Facility. All Standards are listed in the City's Stormwater Management Plan (SWMP).

7.1 Standard: Tracking controlled at all entries, exits, and within parking areas

a. Site Components and Compliance Assessment:
    - Snow storage area
        - Compliant: Asphalt surface
    - Northwest Parking lot
        - Compliant: Asphalt surface
b. Standard Operating Guidelines:
    - Inspect asphalt for debris accumulation, sweep once present
    - Periodically clean around the Facility during melting (handpick and sweep as necessary)
c. Corrective Action:
    - None

7.2 Standard: Preventative maintenance on equipment and vehicles

a. Site Components and Compliance Assessment
    - Street Division Equipment and Vehicles
        - Compliant: Inspected and maintained regularly, documentation in place
b. Standard Operating Guidelines:
    - Visual inspection of all vehicles and equipment before use
    - Maintenance and repairs completed at the Vehicle Maintenance Facility
    - Document inspections, maintenance, and repairs per Division specific guidelines
c. Corrective Actions:
    - None

7.3 Standard: Stabilize disturbed areas

a. Site Components and Compliance Assessment:
    - Gully northeast of the Facility
        - Not Compliant: Eroded slope from concentrated flows
b. Standard Operating Guidelines:
    - See Section 11.0
c. Corrective Actions:
    - See Section 11.0
    - Remove the eastern boundary silt fence

8.0 SPILL RESPONSE PLAN

The following is the City's spill response plan, including response, mitigation, and reporting protocols.

8.1 Small and Medium Spills: Typically, major dimension is less than 6' and can be contained, cleaned, and eliminated using onsite personnel, spill kits and/or the Public Works vehicle.

a. Locate spill kit and put on PPE.
b. In necessary, deploy Public Works spill response vehicle.
c. Control spill by stopping or securing the source.
d. Protect all storm drain inlets near the spill using absorbent booms or inlet barrier.
e. Identify spilled material.
f. Clean spill using appropriate absorbents or other methods. *Never wash spills down the drain!*
g. Place spill material and absorbents in secure containers.
h. Consult with Stormwater Team Leader and the SDS for spill and waste disposal procedures.
i. Dispose of spilled material and the absorbent in compliance with state and federal regulations.
j. Consult with Stormwater Team Leader for appropriate reporting procedures.

8.2 Large and Continuous Spills: Typically, major dimension is greater than 6', continuous flow, and cannot be contained, cleaned, and eliminated using onsite personnel.

a. Leave the area and notify Emergency Responders (911).
b. Give the operator the spill location, chemical name, and approximate amount.
c. If safe, protect nearby storm drain inlets using absorbent booms or inlet barrier.
d. Provide SDS information for the spilled chemical to emergency responders.
e. Advise responders of any absorbents, containers, or spill control equipment that is available.
f. Consult with Stormwater Team Leader for appropriate reporting procedures.

8.3 Spill Reporting

a. Report all chemical spills, regardless of size, to a Stormwater Team Leader.
b. Record spilled materials and cleanup procedures in Appendix A.

9.0 TRAINING

Staff receives training related to this Facility per the requirements within the Citys MS4 Permit and maintains training documentation in the SWMP.

10.0 INSPECTIONS

The Offsite Coordinator completes an annual inspection at the Facility to determine compliance with the City's Facility Minimum Standards listed in the SWMP. Updates to this FSWPPP occur based on the results.

a. 2019: Completed on June 25

11.0 INFRASTRUCTURE IMPROVEMENTS

Staff identified the following project need and plans to propose to the City Commission during the development of future Capital Improvement Plans (CIP):

a. Sediment Basin Construction, Slope Stabilization, and Culvert Maintenance
    - Cost: ~$75,000
    - Timeline: Propose in 2022-2026 CIP

12.0 RECORD KEEPING AND REPORTING

Staff store copies of this FSWPPP at the City Shops Facility and the Professional Building.

Appendix A - Tracking Sheets

Corrective Action Tracking Sheet				
No.	**Identified Issue**	**Date**	**Corrective Action**	**Date**

Spill Tracking Sheet				
No.	**Identified Issue**	**Date**	**Corrective Action**	**Date**

Appendix B – Site Map

Facility Storm Water Pollution Prevention Plan

Wastewater Reclamation Facility

2245 Springhill Rd
P.O. Box 1230
Bozeman, Montana 59771

Updated: January 13, 2020

Mission Statement: Maintain a best in class facility that works to minimize, to the extent feasible, stormwater pollutant transport to adjacent waterbodies using historical knowledge and good engineering design. Operating principles include:

- ***Minimizing pollutant exposure***
- ***Sustaining an orderly and clean facility***
- ***Maintaining installed operational and structural controls***
- ***Reducing risk of leaks, spills, and other releases***
- ***Implementing pollution response and cleanup plans***
- ***Mitigating the transport of sediment during ground disturbing activities***

1.0 OVERVIEW

This Stormwater Pollution Prevention Plan (Plan) outlines roles, responsibilities, and procedures for Staff operating the City of Bozeman's Wastewater Reclamation Facility (WRF).

2.0 STORMWATER TEAM

Leader: Tom Radcliffe
Title: Water Reclamation Facility Superintendent
Office Phone: (406)582-2928
Cell Phone: (406)579-1489
Responsibilities: Oversees and makes decision-related to personnel, operations, and WRF investments.

Onsite Coordinator: Brian Carey
Title: Water Reclamation Facility Assistant Superintendent
Office Phone: (406)582-2935
Cell Phone: (406)570-5837
Responsibilities: Implements Plan, oversees personnel, and implements corrective actions

Offsite Coordinator: Kyle Mehrens
Title: Stormwater Program Coordinator
Office Phone: (406)582-2270
Cell Phone: (406)579-3971
Responsibilities: Provides technical support and updates Plan

Administrator and Site Inspector: Frank Greenhill
Title: Stormwater Program Specialist
Office Phone: (406)582-2917
Cell Phone: (406)600-7928
Responsibilities: Provides technical support and completes inspections.

3.0 SITE DESCRIPTION

The WRF is an 8.5 million gallon per day five-stage bardenpho BNR process plant situated on a 138 acre land tract. The WRF consist of primarily permeable landscape and has eight (8) acres of impervious area, which drains to five (5) stormwater basins prior to discharging to the East Gallatin River (4 outfalls) and

Catron Creek (1 outfall).

The majority of the WRF's associated workflows occur in fully enclosed buildings and tanks. This plan addresses how Staff manages pollutants generated from activities, processes, and operations that have the potential to negatively impact surface waters.

Major components of the WRF include:

1. Screening
2. Primary Settling
3. Biological Treatment
4. Secondary Clarification
5. Ultraviolet Treatment (effluent discharge)
6. Solids Handling and Disposal (loading and transfer to landfill)

4.0 POLLUTION ASSESSMENT

The WRF is a state of the art facility with low risk of stormwater pollution confirmed through a DEQ inspection that took place in February of 2016. All violations issued at that time were the result of inadequate paperwork, which the Stormwater Team has resolved and continues to maintain.

The following information describes the WRF's potential sources of pollution and Best Management Practices (BMPs) implemented to mitigate the pollution risk that exists and meet mission statement goals.

1. Site Drainage and Development Footprint
    a. Pollutant Quantity: Variable
    b. Stormwater Pollution Probability: Low
    c. Pollutant(s) of Concern: Sediment from atmospheric dust deposition, nutrients from lawn fertilizer use, and oils, greases, fuels, and metals from vehicle and equipment movements
    d. Deployed BMPs:

        Low impact development:

        - Vegetated boulevards adjacent to the majority of internal access roads and process equipment which receives and infiltrates sheet flow
        - Five (five) stormwater basins designed to capture, treat, and regulate stormwater discharge flowing from the WRF's connected impervious area
        - Two (2) dry well systems designed to capture and infiltrate stormwater discharge flowing from the WRF's impervious area

        Infrastructure maintenance:

        - Designate the bottom of basins as a "no mow zone" throughout the growing season
        - Eliminate any and all fertilizer use adjacent to or near any stormwater feature
        - Sickle mow basins every fall to 6" and remove all clipped vegetation
        - Inspect basins annually for a buildup of debris and sediment
        - Vacuum out dry wells once infiltration rates noticeably decline

        Street sweeping:

        - Contact Street's Division for sweeping assistance when a noticeable amount of dust or debris is deposited on drive aisles and parking areas

2. Fleet Storage and Management
    a. Pollutant Quantity: Variable
    b. Stormwater Pollution Probability: Low
    c. Pollutant(s) of Concern: Gas, diesel, oil, grease, detergents, wash water, and metals

d. Deployed BMPs:

Preventative fleet maintenance:

- Inspect equipment before every use
- Utilize pans to capture dripping fluids
- Follow preventative maintenance schedules
- Notify supervisor to schedule a repair with City Mechanic if an issue occurs
- Spot clean stained asphalt or concrete using onsite spill kit and procedures

Equipment washing:

- Complete major washing activities (i.e. those that include the use of soaps and degreasers) at the Stormwater Waste Disposal Facility (SWDF), which drains to a lined pond.
- Complete minor washing activities (i.e. those that do not include the use of soaps and degreasers) occur outside the maintenance building, which drains to a permeable area and dry well.

3. Gasoline and Diesel Storage and Fueling

a. Quantity: 1,000 gallons maximum
b. Stormwater Contact Probability: Low
c. Pollutant(s) of Concern: Hydrocarbons, benzene, toluene, xylene, and lead
d. Deployed BMPs:

Double walled fuel tank:

- Inspect semi-annually for leaks into secondary containment per manufacture's recommendation. If leak is found, contact Stormwater Team immediately.

Fueling procedure:

- Inspect hoses, caps, tanks, and nozzles for leaks before fueling
- Watch all fueling activities
- Spot clean drips or noticeable stains on road surface using spill kit, dispose generated waste in dumpster

4. Oil, Grease, and Hydraulic Fluid Storage

a. Quantity: <350 gallons
b. Stormwater Contact Probability: Low
c. Pollutant(s) of Concern: Varied
d. Deployed BMPs:

Inside storage:

- Inspect hoses, caps, oil pans, valves, hoses, tanks, and nozzles for leaks before use
- Watch all filling and draining activities, complete inside
- Spot clean drips or noticeable stains on surfaces using spill kit, dispose generated waste in dumpster

5. Magnesium Hydroxide Delivery, Chemical, Paints, and Solvents Storage

a. Quantity: 4,000 gallons
b. Pollutant(s) of Concern: $Mg(OH)_2$, High PH, others vary on necessity at given time
c. Stormwater Contact Probability: Low
d. Deployed BMPs:

Inside storage:

- Inspect tanks frequently
- Oversee all drop-off and transfer activities

Labels:

- Create and maintain clear schemes for spill kits, pollutants, and disposal bins

6. Sludge and Bar Screening Grit Waste Disposal

   a. Quantity: Varied
   b. Pollutant(s) of Concern: Biosolids and solid waste
   c. Stormwater Contact Probability: Low
   d. Deployed BMPs:

   Inside loading and watertight containers:

   - Inspect trash and roll off bins for leaks and drips daily
   - Keep lids closed
   - Dispose of waste streams at landfill
   - Wash roll-off trucks at the Sediment Disposal Facility if splatter from the loading or dumping process occurs

7. Primary Digester Bio-Solids Removal

   a. Quantity: 500 yards
   b. Pollutant(s) of Concern: Stabilized treated bio-solids accumulated in digester
   c. Stormwater Contact Probability: Low
   d. Deployed BMPs:

   Secured transfer:

   - Hire third party contractor to vacuum out of digester
   - Transport to dumping area west of main facility

   Contained storage:

   - Dump in contained area
   - Let dry prior to disposal at landfill
   - Haul to landfill for use as cover

8. Erosion and Sediment Control

   a. Quantity: Varied dependent on project
   b. Pollutant(s) of Concern: Sediment
   c. Stormwater Contact Probability: Low
   d. Deployed BMPs:

   Stormwater Division Permitting Program:

   - Require contractor to complete proper Erosion, Sediment, and Pollutant Control Permit for all construction activities approved by the Stormwater Division

5.0 SPILL RESPONSE PLAN

Staff adhere to the following procedures in the event of a spill:

1. If possible, shut off or eliminate the source of the spill immediately.
2. Use absorbent materials found in onsite spill kits, such as absorbent pads, floor sweeping compound, or kitty litter to contain spills that are relatively small in nature and where onsite personnel have

properly identified and assessed the pollutant's chemical and hazardous properties.
3. Use proper protective equipment, such as eye protection and gloves, dependent on the spill material.
4. Cover or block any drains or inlets in the spill area to prevent material from entering into the drainage system, sanitary system, or dry wells.
5. Notify Stormwater Team
6. Carefully clean up absorbent material and dispose in a location approved by the Stormwater Team.
7. If the spill is large or otherwise uncontrollable, or possess a potential threat to human or environmental health and safety, call 911.
8. Contact Stormwater Team member to discuss proper reporting to State and Federal Agencies.

6.0 TRAINING

Staff receive training annually using a ProProfs software application that includes the following:

1. Stormwater Division Overview Video (7 minutes) - "Stormwater in Bozeman – The Big Picture"
    a. Broad view of Bozeman's stormwater system
    b. Information about the importance of mitigating stormwater pollution
2. Facility Operations Training Video (30 minutes) – "Rain Check"
    a. Detailed Best Management Practices related to the following activities:
        i. Good Housekeeping and Spill Prevention
        ii. Spill Control and Response
        iii. Vehicle Fueling
        iv. Vehicle and Equipment Maintenance
        v. Vehicle and Equipment Washing
        vi. Materials Management
        vii. Waste Management
        viii. Landscaping
3. Integrated Quiz with Trackable Performance

Staff completed the following training during the applicable permit years:

1. 2017 Permit Year
    - December 13, 2017
        - Type: Group Training Using ProProfs
        - Trainer: Frank Greenhill, Stormwater Program Specialist
        - Attendees: 14 WRF Staff Members
2. 2018 Permit Year
    - Nov. 1, 27, 28, 29, and Dec. 5
        - Type: Individual Online ProProfs Training
        - Trainer: ProProfs
        - Attendees: 9 WRF Staff Members
3. 2019 Permit Year
    - December 11, 2019
        - Type: Group Training Using ProProfs
        - Trainer: Frank Greenhill, Stormwater Program Specialist
        - Attendees: 14 WRF Staff Members

Stormwater Team members participate in reoccurring meetings to cover corrective actions, the content of

the DEQ's Industrial General Permit, site maps, procedures, and this Plan.

7.0 IMPAIRED WATERBODY DISCHARGE

Four of the WRF's five outfalls discharge stormwater to the East Gallatin River. The East Gallatin has the following impairments:

1. Alterations in stream-side or littoral vegetative covers
    i. Source: Grazing in riparian or shoreline zones, irrigated crop production
    ii. TMDL: N/A
    iii. WRF Stormwater Input: None
    iv. Applicable BMPs: None
2. Excess Algae Growth
    i. Source: Grazing in riparian or shoreline zones, municipal point source discharges, yard maintenance
    ii. TMDL: N/A
    iii. WRF Stormwater Input: Minor, landscape maintenance
    iv. Applicable BMPs: Low Impact Site Development and stormwater basins
3. Low Flow Alterations
    i. Source: Irrigated Crop Production
    ii. TMDL: N/A
    iii. WRF Stormwater Input: None
    iv. Applicable BMPs: None
4. Nitrogen (Total)
    i. Source: Yard maintenance, Municipal Point Source Discharges, grazing in riparian or shoreline zones
    ii. TMDL: Yes
    iii. WRF Stormwater Input: Minor, landscape maintenance
    iv. Applicable BMPs: Low Impact Site Development and stormwater basins
5. Phosphorus (Total)
    i. Source: Municipal Point Source Discharges, grazing in riparian or shoreline zones
    ii. TMDL: Yes
    iii. WRF Stormwater Input: Minor, landscape maintenance
    iv. Applicable BMPs: Low Impact Site Development and stormwater basins
6. pH
    i. Source: Municipal Point Source Discharges
    ii. TMDL: Yes
    iii. WRF Stormwater Input: Minor, spills
    iv. Applicable BMPs: Spill prevention procedures

The remaining outfall discharges to Catron Creek, which the DEQ has not identified any impairments.

8.0 SELF MONITORING REQUIREMENTS

The WRF is classified under Sector T, Which does not include industry specific benchmark parameters or require monitoring of stormwater discharges.

9.0 INSPECTIONS

The following information outlines inspection type and frequency timelines:

1. Routine/Quarterly Inspection: Qualified inspector completes four times annually. Inspections occur once during each of the following timespans: January – March, April –June, July – September, and October – December. Inspector compiles report and communicates corrective actions with WRF leadership within 24-hours of the inspection, immediately if there is a significant risk of pollution. Inspection locations include: site perimeter, entry and exit points, high-priority areas detailed in Section 4 of this plan, post-construction control measures, outfalls, areas with historical issues, and obvious concerns identified during site visit.

   One quarterly inspection must be completed during a period of time that a stormwater discharge is occurring, or, in the case of the WRF where discharges happen infrequently, during a time of wet weather.

2. Significant Storm Event: Qualified inspector completes as necessary dependent on rainfall totals. Inspectors conduct site visits within 72 hours after rain events that exceed .5" or more of precipitation or snowmelt events that produce a visible discharge. The inspector tracks rainfall totals using the rain gauge located at the Bozeman Airport - http://w1.weather.gov/obhistory/KBZN.html. Inspector compiles report and communicates corrective actions with WRF leadership within 24-hours of the inspection, immediately if there is a significant risk of pollution. Inspection locations include: site perimeter, entry and exit points, high-priority areas detailed in Section 4 of this plan, post-construction control measures, outfalls, areas with historical issues, and obvious concerns identified during site visit.

3. Dry Weather Screening (ORI): Qualified Inspector conducts and documents annually for five (5) WRF stormwater outfalls.

Staff completed the following inspections during the applicable permit years:

2018 Permit Year

1. March 20, 2018
   - Type: Routine/Quarterly
   - Inspector: Frank Greenhill, Stormwater Program Specialist
   - Weather: Sunny, 55˚F
   - Total Corrective Actions: Six (see Appendix C)
2. April 25, 2018
   - Type: Routine/Quarterly and Significant Storm Event
   - Inspector: Kyle Mehrens, Stormwater Program Coordinator
   - Weather: Sunny, 55˚F
   - Total Corrective Actions: 0
3. September 13, 2018
   - Type: Routine/Quarterly while Raining
   - Inspector: Frank Greenhill, Stormwater Program Specialist
   - Weather: Cloudy, light rain, 60˚F
   - Total Corrective Actions: 0
4. October 30, 2018
   - Type: Routine/Quarterly
   - Inspector: Frank Greenhill, Stormwater Program Specialist

- Weather: Overcast, 35˚F
- Total Corrective Actions: 0

5. June 4, 2018

   - Type: Significant Storm Event
   - Inspector: Frank Greenhill, Stormwater Program Specialist
   - Weather: Rain, 80˚F
   - Total Corrective Actions: 1 (see Appendix C)

6. June 18, 2018

   - Type: Significant Storm Event
   - Inspector: Frank Greenhill, Stormwater Program Specialist
   - Weather: Sunny, 55˚F
   - Total Corrective Actions: 0

7. June 29, 2018

   - Type: Significant Storm Event
   - Inspector: Frank Greenhill, Stormwater Program Specialist
   - Weather: Sunny, 65˚F
   - Total Corrective Actions: 0

8. August 28, 2018

   - Type: Significant Storm Event
   - Inspector: Frank Greenhill, Stormwater Program Specialist
   - Weather: Cloudy, 43˚F
   - Total Corrective Actions: 0

9. May 31, 2018

   - Type: MDEQ Compliance Evaluation Inspection
   - Inspector: Lisa-kay Keen
   - Weather: Cloudy and light rain, 50˚F
   - Total Corrective Actions: 1 (see Appendix C)

2019 Permit Year

1. March 22, 2019

   - Type: Routine/Quarterly
   - Inspector: Frank Greenhill, Stormwater Program Specialist
   - Weather: Sunny, 19˚F
   - Total Corrective Actions: 0

2. April 10, 2019

   - Type: Routine/Quarterly while Raining
   - Inspector: Frank Greenhill, Stormwater Program Specialist
   - Weather: Rain, 36˚F
   - Total Corrective Actions: 0

3. August 19, 2019

   - Type: Routine/Quarterly
   - Inspector: Frank Greenhill, Stormwater Program Specialist
   - Weather: Sunny, 88˚F

- Total Corrective Actions: 0

4. December 13, 2019

   - Type: Routine/Quarterly
   - Inspector: Frank Greenhill, Stormwater Program Specialist
   - Weather: Overcast, 35˚F
   - Total Corrective Actions: 0

5. April 23, 2019

   - Type: Significant Storm Event
   - Inspector: Frank Greenhill, Stormwater Program Specialist
   - Weather: Partly Cloudy, 68˚F
   - Total Corrective Actions: 0

6. May 20, 2019

   - Type: Significant Storm Event
   - Inspector: Frank Greenhill, Stormwater Program Specialist
   - Weather: Partly Cloudy, 45˚F
   - Total Corrective Actions: 0

7. June 11, 2019

   - Type: Significant Storm Event
   - Inspector: Frank Greenhill, Stormwater Program Specialist
   - Weather: Partly Cloudy, 60˚F
   - Total Corrective Actions: 0

8. June 20, 2019

   - Type: Significant Storm Event
   - Inspector: Frank Greenhill, Stormwater Program Specialist
   - Weather: Cloudy, 45˚F
   - Total Corrective 0

9. September 9, 2019

   - Type: Significant Storm Event
   - Inspector: Frank Greenhill, Stormwater Program Specialist
   - Weather: Cloudy, 60˚F
   - Total Corrective Actions: 0

10. September 23, 2019

    - Type: Significant Storm Event
    - Inspector: Kyle Mehrens, Stormwater Program Coordinator
    - Weather: Sunny, 70˚F
    - Total Corrective Actions: 1 (See Appendix C)

10.0 RECORD KEEPING AND REPORTING

Annual Report Forms are prepared and submitted to DEQ for each year of the permit term each calendar year by February 1, including:

1. DEQ Annual Report Form
2. Routine/Quarterly and Significant Storm Event Inspection Forms
3. Corrective Actions Tracking (See Appendix C)
4. Non-Compliance Tracking (See Appendix E)

5. Spills and Leaks Tracking (See Appendix D)
6. Revisions to FSWPPP (See Appendix F)

Staff retains record for a minimum of five (5) years from the date of their creation. Staff updates the Plan annually as the WRF expands its operations, adds personnel, and changes procedures.

11.0 CERTIFICATIONS

The information in this Plan, to the best of my knowledge and the amount feasible, is accurate and will be carried out by Staff at the WRF.

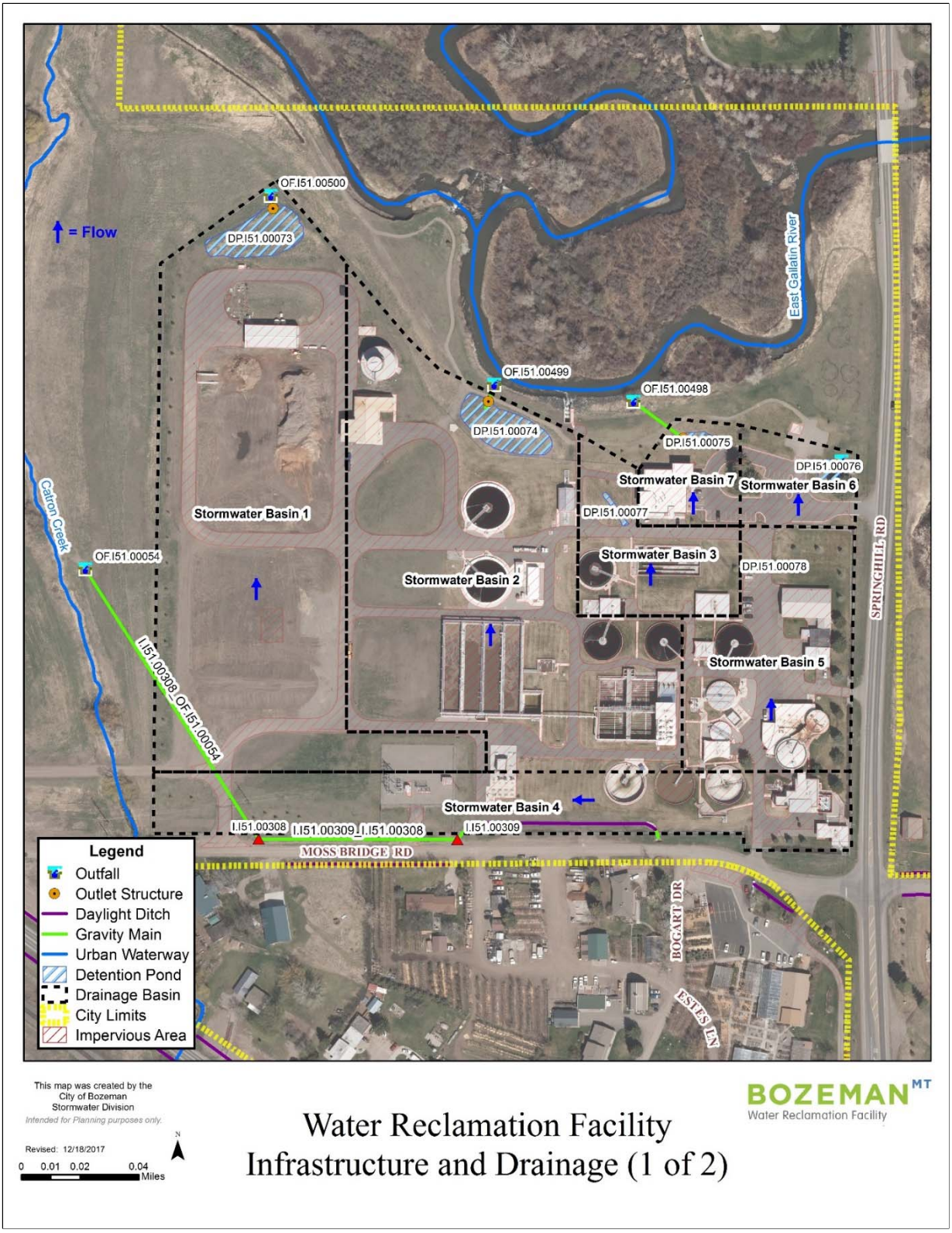
WRF Superintendent

1/22/2020
Date

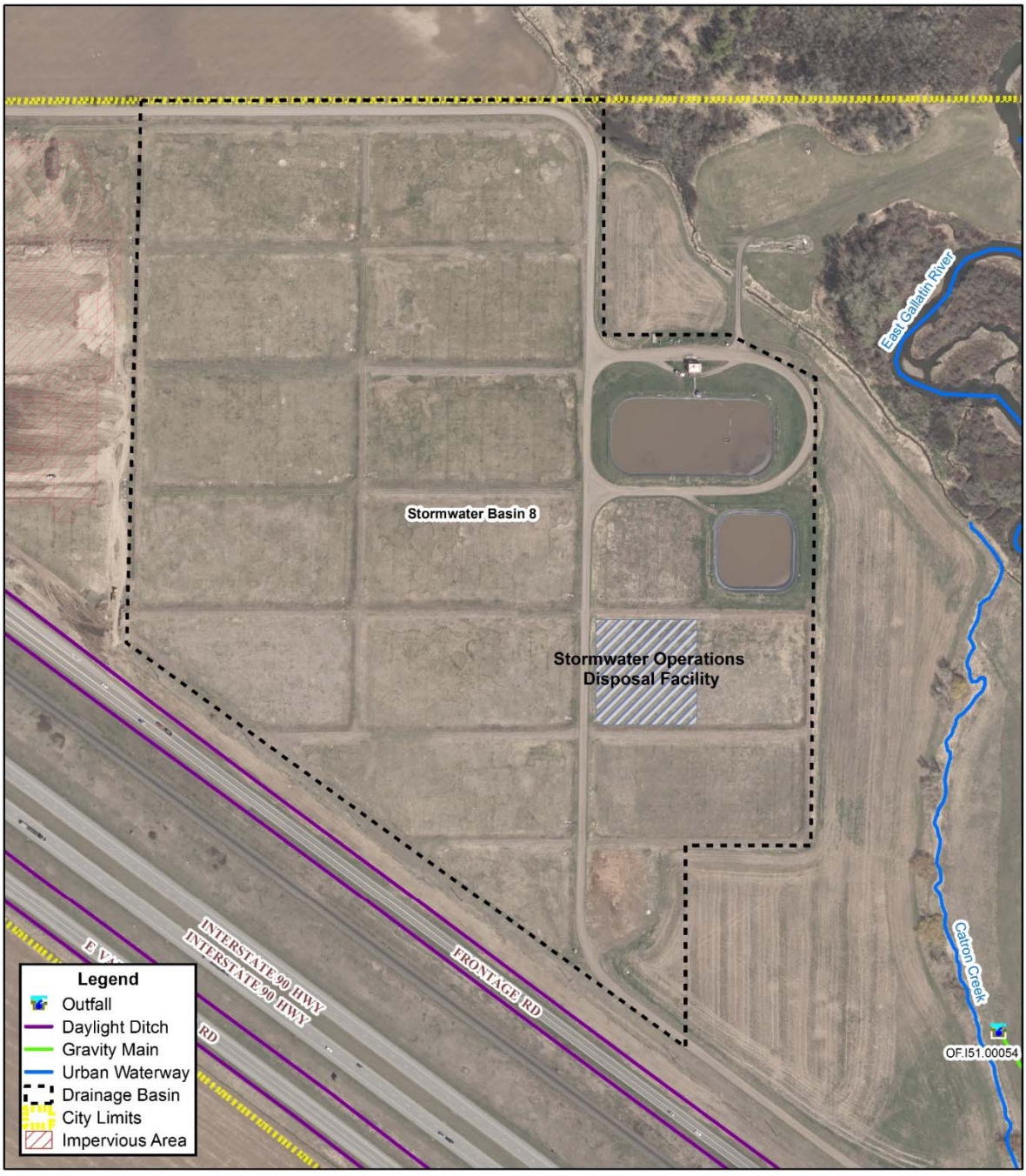
SWPPP Administrator

1/21/20
Date

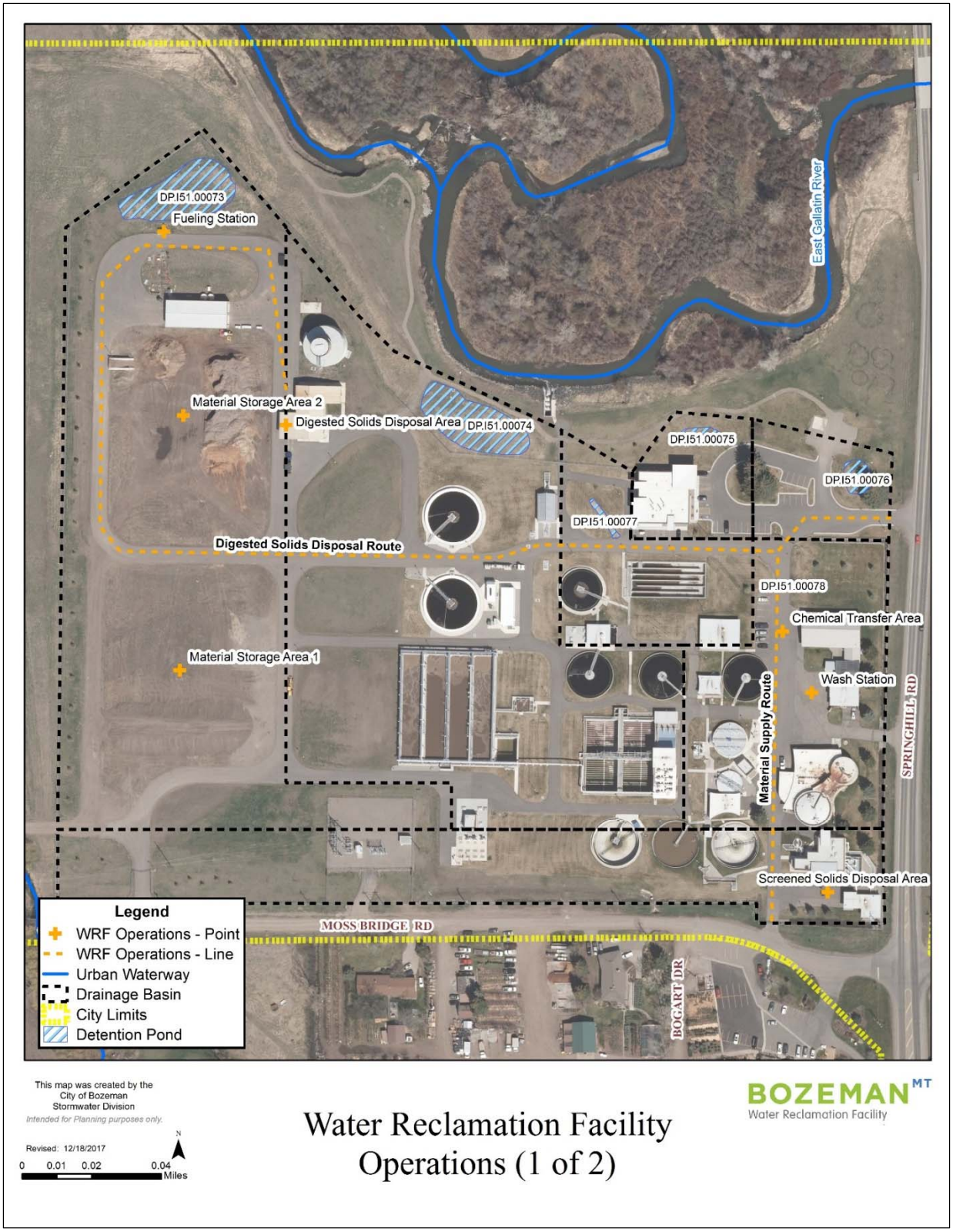
Appendix A – Facility Maps



Appendix A – Facility Maps

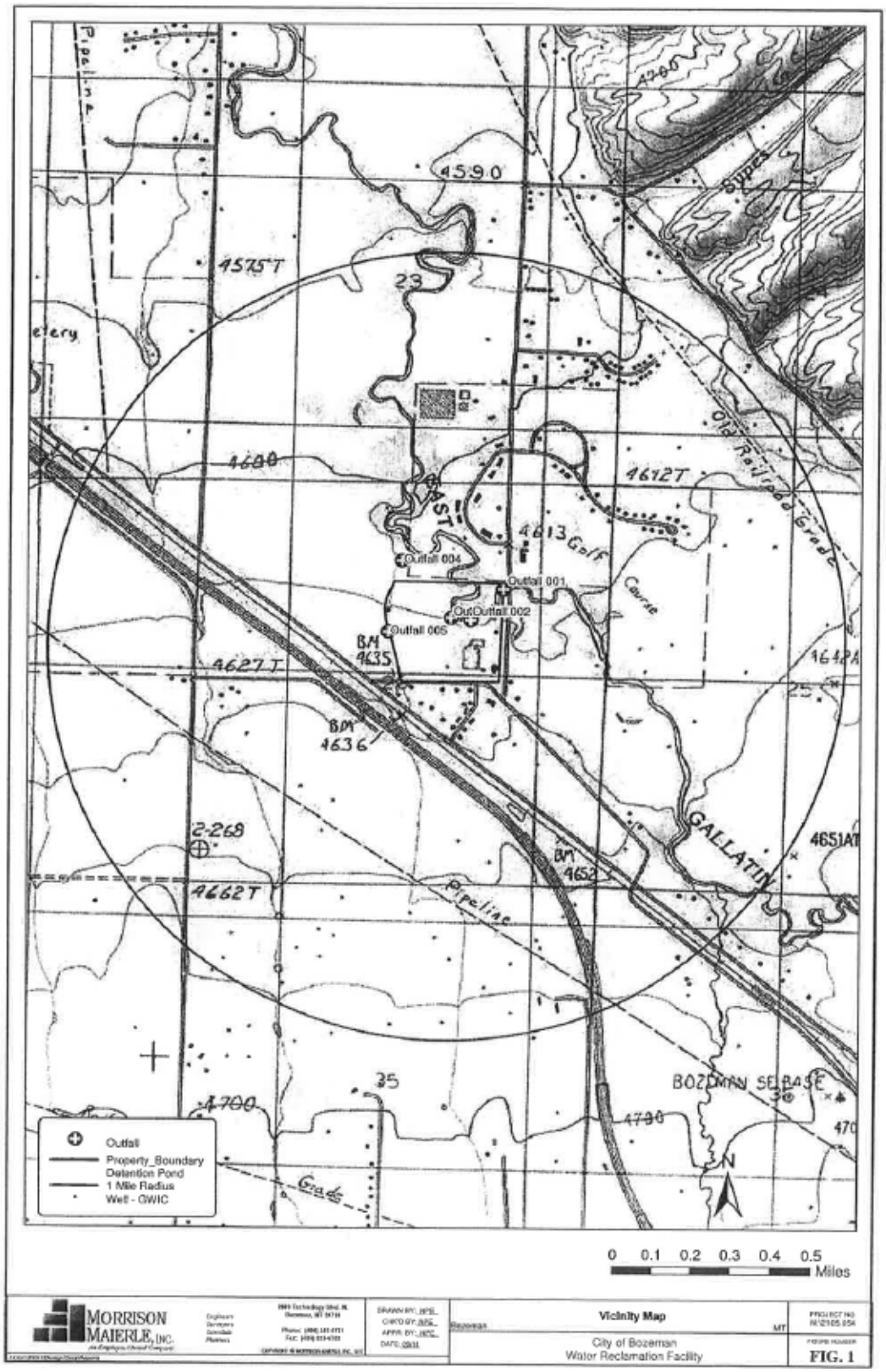


Appendix A – Facility Maps



Appendix A – Facility Maps

Appendix B – Facility Vicinity Map



Appendix C – Corrective Action Tracking Sheet

#	Date	Description of Issue & Required Corrective Action	Responsible Party	Corrective Action Description	Date Completed
1	3/20/2018	Sweep roads around stockpile removal area.	Streets Dept.	Streets Division swept roads with street sweeper after mulch was spread.	3/23/2018
2	3/20/2018	Stabilize disturbed area with remaining mulch.	Kevin Handelin	Solid Waste Division spread remaining mulch.	3/23/2018
3	3/20/2018	Spot clean spills from contractor staging area.	Brian Carey	Contractor cleaned spills.	4/1/2018
4	3/20/2018	Require contractor to contain or cover fuel and chemicals stored outdoors.	Brian Carey	Contractor contained fuel and chemicals.	4/1/2018
5	3/20/2018	Require contractor to prevent leaks and spills from equipment.	Brian Carey	Contractor cleaned spills and removed equipment from facility.	11/1/2018
6	3/20/2018	Label spill kit and provide clean up and disposal instructions.	Brian Carey	Spill kit was labeled and spill response plan was included with spill kit.	5/1/2018
7	6/4/2018	Sweep roads around stockpile storage area.	Brian Carey	Roads were swept after stockpiles were removed.	6/20/2018
8	6/19/2018	Include stormwater basin and rock garden installation details in SWPPP.	Frank Greenhill	All details were added to SWPPP.	7/17/2018
9	9/23/2019	Fall vegetation maintenance for all post-construction facilities is required	Brian Carey	Ponds had vegetation cut and removed.	11/08/2019
10					
11					
12					
13					
14					
15					
16					
17					
18					

Appendix D – Spills and Leak Tracking Sheet

Date	Spill (check one)	Leak (check one)	Source and Location	Description			Response Procedures	Measures Taken to Prevent Reoccurrence
				Type of Material	Quantity	Reason		
5/14/2018	X		Hydraulic hose on skid steer	Hydraulic Fluid	>10 gals.	Hose ruptured	Immediate implementation of spill response plan.	Preventative maintenance on equipment and spill response training

Appendix E – Non-Compliance Tracking Sheet

#	Date	Description of Issue & Required Corrective Action	Responsible Party	Corrective Action Description	Date Completed
1					
2					
3					
4					
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18					

Appendix F – FSWPPP Revisions Tracking Sheet

#	Date	Description of Revision	Responsible Party
1	1/10/2020	Sec. 9.0 Inspections: Added 2018 & 2019 inspection summary	Greenhill
2	1/10/2020	Sec. 10.0 Record Keeping & Reporting: Added Spills and Leak Tracking sheet and clarified inspection frequency language.	Greenhill
3	1/10/2020	Added Corrective Action, Spills and Leaks, Non-Compliance, and FSWPPP Revisions Tracking Sheets	Greenhill
4	1/10/2020	Sec. 6.0 Training: Added 2018 and 2019 training summaries.	Greenhill
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Facility Storm Water Pollution Prevention Plan
City of Bozeman – Solid Waste Landfill

2143 Story Mill Rd
P.O. Box 1230
Bozeman, Montana 59771

Updated – January 17, 2020

Mission Statement: Maintain a best in class facility that works to minimize, to the extent feasible, stormwater pollutant transport to adjacent waterbodies using historical knowledge and good engineering design. Operating principles include:

- ***Minimizing pollutant exposure***
- ***Sustaining an orderly and clean facility***
- ***Maintaining installed operational and structural controls***
- ***Reducing risk of leaks, spills, and other releases***
- ***Implementing pollution response and cleanup plans***
- ***Mitigating the transport of sediment during ground disturbing activities***

1.0 OVERVIEW

This Stormwater Pollution Prevention Plan (Plan) outlines roles, responsibilities, and procedures for Staff operating the City of Bozeman's Solid Waste Landfill.

2.0 STORMWATER TEAM

Leader & Onsite Coordinator: Kevin Handelin
Title: Solid Waste Superintendent
Office Phone: (406)582-3238
Email: khandelin@bozeman.net
Responsibilities: Oversees and makes decision-related to personnel, operations, and Solid Waste Landfill investments. Implements plan, oversees personnel, and implements corrective actions

Offsite Coordinator: Kyle Mehrens
Title: Stormwater Program Coordinator
Office Phone: (406)582-2270
Cell Phone: (406)579-3971
Responsibilities: Provides technical support and updates Plan

FSWPPP Administrator and Site Inspector: Frank Greenhill
Title: Stormwater Program Specialist
Office Phone: (406)582-2917
Cell Phone: (406)600-7928
Responsibilities: Provides technical support and completes inspections.

3.0 SITE DESCRIPTION

The Solid Waste Landfill has been operating as a Class II landfill since the late 1970's. However, as of 2010 the Landfill no longer excepts Class II municipal solid waste for permanent disposal. The Landfill currently operates under a Montana DEQ Minor Class IV permit.

Located on the north end of the City, west of Story Mill Rd., the Landfill covers approximately 200 acres, of which approximately 12 acres is used for solid waste disposal and operations, including a five acre Municipal Compost Area, a one acre Convenience Site, and six acres for operations and staging. Forty acres of the Landfill has been permenantly converted to a City of Bozeman dog park. Customers are

allowed to bring Class II waste to the Convenience Site located at the Story Mill Rd. entrance, where it is stored in dumpsters and then transported to the Logal Landfill in Gallatin County for disposal. The Landfill consist of primarily permeable landscape and has approximately eight acres of impervious area.

The Landfill controls stormwater runoff with three stormwater basins, including two retention basins and one detention basin. One retention basin collects sheet-flow runoff from the Municipal Compost Area, while the other retention basin collect run-off from a portion of the Solid Waste Operations area. The detention basin collects runoff from closed and capped Class I, Class II, and Class IV cells. Stormwater is conveyed to the detention basin via vegetated swales.

Major components of the Landfill include:

1. Convenience Site
2. Municpal Composte Disposal Area
3. Solid Waste Operations

4.0 POLLUTION ASSESSMENT

The Landfill is a closed Class II facility with low risk of stormwater pollution. The following information describes the Landfill's potential sources of pollution and Best Management Practices (BMPs) implemented to mitigate the pollution risk that exists and meet mission statement goals.

1. Site Drainage and Development Footprint
    a. Pollutant Quantity: Variable
    b. Stormwater Pollution Probability: Low
    c. Pollutant(s) of Concern: Sediment from atmospheric dust deposition and gravel roads, oils, greases, fuels, and metals from vehicle and equipment movements, and floatables
    d. Deployed BMPs:

        Low impact development:

        - Vegetated swales and culverts adjacent to internal access roads receive and infiltrate sheet flow, and direct excess runoff to two retention basins and one detention pond.
        - One detention basin designed to capture, treat, and regulate stormwater discharge flowing from the Landfill's connected impervious areas and closed municipal waste cells
        - One retention basin designed to capture and infiltrate runoff from a portion of the Solid Waste Operations area.
        - One retention basin designed to capture and infiltrate runoff from the Municipal Compost Area.

        Infrastructure maintenance:

        - Designate the bottom of basins as a "no mow zone" throughout the growing season
        - Eliminate any and all fertilizer use adjacent to or near any stormwater feature
        - Sickle mow basins every fall to 6" and remove all clipped vegetation
        - Inspect basins annually for a buildup of debris and sediment
        - Remove accumulated debris and vegetation from around all culverts

        Street sweeping:

        - Contact Street's Division for sweeping assistance when a noticeable amount of dust or debris is deposited on drive aisles and parking areas

2. Fleet Storage and Management
    a. Pollutant Quantity: Variable
    b. Stormwater Pollution Probability: Low

c. Pollutant(s) of Concern: Gas, diesel, oil, grease, detergents, wash water, and metals
d. Deployed BMPs:

Preventative fleet maintenance:

- Inspect equipment before every use
- Conduct vehicle maintenance indoors
- Utilize pans to capture dripping fluids
- Follow preventative maintenance schedules
- Notify supervisor to schedule a repair with Vehicle Maintenance if an issue occurs
- Spot clean stained asphalt or concrete using onsite spill kit and procedures

Equipment washing:

- Complete major washing activities (i.e. those that include the use of soaps and degreasers) inside the vehicle and equipment maintenance building ensuring all wash water drains into sanitary system.

3. Waste Transportation

a. Pollutant Quantity: Variable
b. Stormwater Pollution Probability: Low
c. Pollutant(s) of Concern: Oils and greases and floatables
d. Deployed BMPs:

Leak proof transportation vehicles:

- Transportation of municipal solid waste is conducted using leak-proof vehicles preventing the discharge, dumping, spilling, or leaking from the transport vehicle.

Off-Site Spill Response Plan

- Contact Vehicle Maintenance immediately if an oil, grease, hydraulic fluid, etc. spill occurs. Vehicle Maintenance deploys a spill response vehicle and cleans and disposes of spilled material.

4. Gasoline and Diesel Storage and Fueling

a. Quantity: Two, 1,000 gallon fuel tanks (2,000 gallons maximum)
b. Stormwater Contact Probability: Low
c. Pollutant(s) of Concern: Hydrocarbons, benzene, toluene, xylene, and lead
d. Deployed BMPs:

Double walled fuel tanks:

- Inspect semi-annually for leaks into secondary containment per manufacture's recommendation. If leak is found, contact Stormwater Team immediately.

Fueling procedure:

- Inspect hoses, caps, tanks, and nozzles for leaks before fueling
- Watch all fueling activities
- Spot clean drips or noticeable stains on road surface using spill kit, dispose generated waste in dumpster

5. Oil and Grease Storage

a. Quantity: < 25 gallons
b. Stormwater Contact Probability: Low

c. Pollutant(s) of Concern: Oils and Greases
d. Deployed BMPs:

Inside storage:

- Inspect hoses, caps, oil pans, valves, hoses, tanks, and nozzles for leaks before use
- All filling and draining activities are completed indoors at the Vehicle Maintenance facility
- Spot clean drips or noticeable stains on surfaces using spill kit, dispose generated waste in dumpster

6. Erosion and Sediment Control

   a. Quantity: Varied dependent on project
   b. Pollutant(s) of Concern: Sediment
   c. Stormwater Contact Probability: Hi
   d. Deployed BMPs:

   Stormwater Division Permitting Program:

   - Require contractor to complete proper Erosion, Sediment, and Pollutant Control Permit for all construction activities approved by the Stormwater Division

7. Dumpster Storage

   a. Quantity: Varied.
   b. Pollutant(s) of Concern: Oils and greases, floatables
   c. Stormwater Contact Probability: Low
   d. Deployed BMPs:

   - Clean dumpsters and residential totes indoors ensuring all pollutants are removed before storage, with wash water draining into the sanitary system. Store dumpsters with lids closed, preventing contact with stormwater. Dumpsters are leak-proof.

5.0 SPILL RESPONSE PLAN

Staff adhere to the following procedures in the event of a spill:

1. If possible, shut off or eliminate the source of the spill immediately.
2. Use absorbent materials found in onsite spill kits, such as absorbent pads, floor sweeping compound, or kitty litter to contain spills that are relatively small in nature and where onsite personnel have properly identified and assessed the pollutant's chemical and hazardous properties.
3. Use proper protective equipment, such as eye protection and gloves, dependent on the spill material.
4. Prevent spilled material from entering into the drainage system.
5. Notify Stormwater Team
6. Carefully clean up absorbent material and dispose in a location approved by the Stormwater Team.
7. If the spill is large or otherwise uncontrollable, or possess a potential threat to human or environmental health and safety, call 911.
8. Contact Stormwater Team member to discuss proper reporting to State and Federal Agencies.

6.0 TRAINING

Staff receive training annually using a ProProfs software application that includes the following:

1. Stormwater Division Overview Video (7 minutes) - "Stormwater in Bozeman – The Big Picture"

   a. Broad view of Bozeman's stormwater system
   b. Information about the importance of mitigating stormwater pollution

2. Facility Operations Training Video (30 minutes) – "Rain Check"

a. Detailed Best Management Practices related to the following activities:

i. Good Housekeeping and Spill Prevention
ii. Spill Control and Response
iii. Vehicle Fueling
iv. Vehicle and Equipment Maintenance
v. Vehicle and Equipment Washing
vi. Materials Management
vii. Waste Management
viii. Landscaping

3. Integrated Quiz with Trackable Performance

Staff completed the following training during the applicable permit years:

1. 2017 Permit Year
   - Apr. 26, 27, Dec. 18, 20, 21, and 22
     - Type: Individual Online Training
     - Trainer: ProProfs
     - Attendees: 16
2. 2018 Permit Year
   - Nov. 27, 28, 29, 30, Dec. 3, 4, 6, and 7
     - Type: Individual Online Training
     - Trainer: ProProfs
     - Attendees: 17
3. 2019 Permit Year
   - December 20
     - Type: Group Training
     - Trainer: Frank Greenhill, Stormwater Program Specialist
     - Attendees: 16

Stormwater Team members participate in reoccurring meetings to cover corrective actions, the content of the DEQ's Industrial General Permit, site maps, procedures, and this Plan.

7.0 IMPAIRED WATERBODY DISCHARGE

The Landfill's one (1) outfall discharges stormwater to an un-named tributary of the East Gallatin River. The East Gallatin has the following impairments:

1. Alterations in stream-side or littoral vegetative covers
   a. Source: Grazing in riparian or shoreline zones, irrigated crop production
   b. TMDL: N/A
   c. Landfill Stormwater Input: None
   d. Applicable BMPs: None
2. Excess Algae Growth
   a. Source: Grazing in riparian or shoreline zones, municipal point source discharges, yard maintenance
   b. TMDL: N/A
   c. Landfill Stormwater Input: Minor, landscape maintenance
   d. Applicable BMPs: Low Impact Site Development and stormwater basins
3. Low Flow Alterations
   a. Source: Irrigated Crop Production

b. TMDL: N/A
c. Landfill Stormwater Input: None
d. Applicable BMPs: None

4. Nitrogen (Total)

    a. Source: Yard maintenance, Municipal Point Source Discharges, grazing in riparian or shoreline zones
    b. TMDL: Yes
    c. Landfill Stormwater Input: Minor, landscape maintenance
    d. Applicable BMPs: Low Impact Site Development and stormwater basins

5. Phosphorus (Total)

    a. Source: Municipal Point Source Discharges, grazing in riparian or shoreline zones
    b. TMDL: Yes
    c. Landfill Stormwater Input: Minor, landscape maintenance
    d. Applicable BMPs: Low Impact Site Development and stormwater basins

6. pH

    a. Source: Municipal Point Source Discharges
    b. TMDL: Yes
    c. Landfill Stormwater Input: Minor, spills
    d. Applicable BMPs: Spill prevention procedures

8.0 SELF MONITORING REQUIREMENTS

The Solid Waste Landfill is classified under Sector L, which requires monitoring of stormwater discharges and includes the following industry specific benchmark parameters:

a. Total Suspended Solids (TSS)
    - Benchmark monitoring concentration: 100 mg/L

b. Total Iron
    - Benchmark monitoring concentration: 1 mg/L

Onsite personnel have not observed a stormwater discharge since 1991. Since, the detention basin has been enlarged and all active cells have been capped and vegetated. Staff will continue to monitor, but does not expect to see a discharge.

2018 Permit Term Discharge Monitoring Summary

1. Quarter 1
    a. Submittal Date: 4/5/2019
    b. Results: No Discharge
2. Quarter 2
    a. Submittal Date: 7/9/2019
    b. Results: No Discharge
3. Quarter 3
    a. Submittal Date: 10/5/2019
    b. Results: No Discharge
4. Quarter 4
    a. Submittal Date: 1/9/2019
    b. Results: No Discharge

2019 Permit Term Discharge Monitoring Summary

1. Quarter 1

a. Submittal Date: 4/11/2019
b. Results: No Discharge

2. Quarter 2
    a. Submittal Date: 7/11/2019
    b. Results: No Discharge
3. Quarter 3
    a. Submittal Date: 11/5/2019
    b. Results: No Discharge
4. Quarter 4
    a. Submittal Date: 1/7/2020
    b. Results: No Discharge

9.0 INSPECTIONS

The following information outlines inspection type and frequency timelines:

1. Routine/Quarterly Inspection: Qualified inspector completes four times annually. Inspections occur once during each of the following timespans: Jan – March, April –June, July – September, and October – December. Inspector compiles report and communicates corrective actions with the Landfill Leader / Onsite Coordinator within 24-hours of the inspection, immediately if there is a significant risk of pollution. Inspection locations include: site perimeter, entry and exit points, high-priority areas detailed in Section 4 of this plan, post-construction control measures, outfalls, areas with historical issues, and obvious concerns identified during site visit.

   One quarterly inspection must be completed during a period of time that a stormwater discharge is occurring, or, in the case of the Landfill where discharges happen infrequently, during a time of wet weather.

2. Significant Storm Event Inspection: Qualified inspector completes as necessary dependent on rainfall totals. Inspectors conduct site visits within 72 hours after rain events that exceed 0.5" or more of precipitation or snowmelt events that produce a visible discharge. The inspector tracks rainfall totals using the rain gauge located at the Bozeman Airport - http://w1.weather.gov/obhistory/KBZN.html. Inspector compiles report and communicates corrective actions with WRF leadership within 24-hours of the inspection, immediately if there is a significant risk of pollution. Inspection locations include: site perimeter, entry and exit points, high-priority areas detailed in Section 4 of this plan, post-construction control measures, outfalls, areas with historical issues, and obvious concerns identified during site visit.

3. Dry Weather Screening (ORI): Qualified Inspector conducts and documents annually one Landfill stormwater outfall.

Staff completed the following inspections during the applicable permit years:

2018 Permit Year

1. March 20, 2018

    - Type: Routine/Quarterly
    - Inspector: Frank Greenhill, Stormwater Program Specialist
    - Weather: Sunny, 38˚F
    - Total Corrective Actions: 2 (See Appendix C)

2. April 25, 2018

    - Type: Routine/Quarterly and Significant Storm Event
    - Inspector: Frank Greenhill, Stormwater Program Specialist
    - Weather: Sunny, 60˚F

- Total Corrective Actions: 3 (See Appendix C)

3. September 13, 2018
    - Type: Routine/Quarterly while Raining
    - Inspector: Frank Greenhill, Stormwater Program Specialist
    - Weather: Cloudy, Light Rain, 60˚F
    - Total Corrective Actions: 6 (See Appendix C)

4. October 30, 2018
    - Type: Routine/Quarterly
    - Inspector: Frank Greenhill, Stormwater Program Specialist
    - Weather: Overcast, 37˚F
    - Total Corrective Actions: 5 (See Appendix C)

5. June 4, 2018
    - Type: Significant Storm Event
    - Inspector: Frank Greenhill, Stormwater Program Specialist
    - Weather: Cloudy, 80˚F
    - Total Corrective Actions: 4 (See Appendix C)

6. June 19, 2018
    - Type: Significant Storm Event
    - Inspector: Frank Greenhill, Stormwater Program Specialist
    - Weather: Rain, 52˚F
    - Total Corrective Actions: 5 (See Appendix C)

7. June 29, 2018
    - Type: Significant Storm Event
    - Inspector: Frank Greenhill, Stormwater Program Specialist
    - Weather: Sunny, 70˚F
    - Total Corrective Actions: 0

8. August 28, 2018
    - Type: Significant Storm Event
    - Inspector: Frank Greenhill, Stormwater Program Specialist
    - Weather: Cloudy, 52˚F
    - Total Corrective Actions: 6 (See Appendix C)

2019 Permit Year

1. March 22, 2019
    - Type: Routine/Quarterly
    - Inspector: Frank Greenhill, Stormwater Program Specialist
    - Weather: Sunny, 20˚F
    - Total Corrective Actions: 3 (See Appendix C)

2. April 10, 2019
    - Type: Routine/Quarterly with Precipitation and Significant Storm Event

- Inspector: Frank Greenhill, Stormwater Program Specialist
- Weather: Snow, 35˚F
- Total Corrective Actions: 3 (See Appendix C)

3. August 27, 2019

    - Type: Routine/Quarterly
    - Inspector: Frank Greenhill, Stormwater Program Specialist
    - Weather: Sunny, 74˚F
    - Total Corrective Actions: 2 (See Appendix C)

4. December 13, 2019

    - Type: Routine/Quarterly
    - Inspector: Frank Greenhill, Stormwater Program Specialist
    - Weather: Overcast, 35˚F
    - Total Corrective Actions: 2 (See Appendix C)

5. April 23, 2019

    - Type: Significant Storm Event
    - Inspector: Frank Greenhill, Stormwater Program Specialist
    - Weather: Cloudy, 68˚F
    - Total Corrective Actions: 4 (See Appendix C)

6. May 20, 2019

    - Type: Significant Storm Event
    - Inspector: Frank Greenhill, Stormwater Program Specialist
    - Weather: Cloudy, 45˚F
    - Total Corrective Actions: 4 (See Appendix C)

7. June 7, 2019

    - Type: Significant Storm Event
    - Inspector: Frank Greenhill, Stormwater Program Specialist
    - Weather: Cloudy, 60˚F
    - Total Corrective Actions: 5 (See Appendix C)

8. June 20, 2019

    - Type: Significant Storm Event
    - Inspector: Frank Greenhill, Stormwater Program Specialist
    - Weather: Cloudy, 45˚F
    - Total Corrective Actions: 0

9. September 9, 2019

    - Type: Significant Storm Event
    - Inspector: Frank Greenhill, Stormwater Program Specialist
    - Weather: Cloudy, 45˚F
    - Total Corrective Actions: 2 (See Appendix C)

10. September 23, 2019

    - Type: Significant Storm Event

- Inspector: Kyle Mehrens: Stormwater Program Coordinator
- Weather: Sunny, 70°F
- Total Corrective Actions: 0

10.0 RECORD KEEPING AND REPORTING

Annual Report Forms are prepared and submitted to DEQ for each year of the permit term each calendar year by February 1, including:

1. DEQ Annual Report Form
2. Discharge Monitoring Reports
3. Routine/Quarterly and Significant Storm Event Inspection Forms
4. Corrective Actions Tracking (See Appendix C)
5. Non-compliance Tracking (See Appendix E)
6. Spill and Leak Tracking (See Appendix D)
7. FSWPPP Revisions Tracking (See Appendix F)

Staff retains record for a minimum of five (5) years from the date of their creation. Staff updates the Plan annually, adds personnel, and changes procedures.

11.0 CERTIFICATIONS

The information in this Plan, to the best of my knowledge and the amount feasible, is accurate and will be carried out by Staff at the Landfill.

Landfill Superintendent

1-28-2020

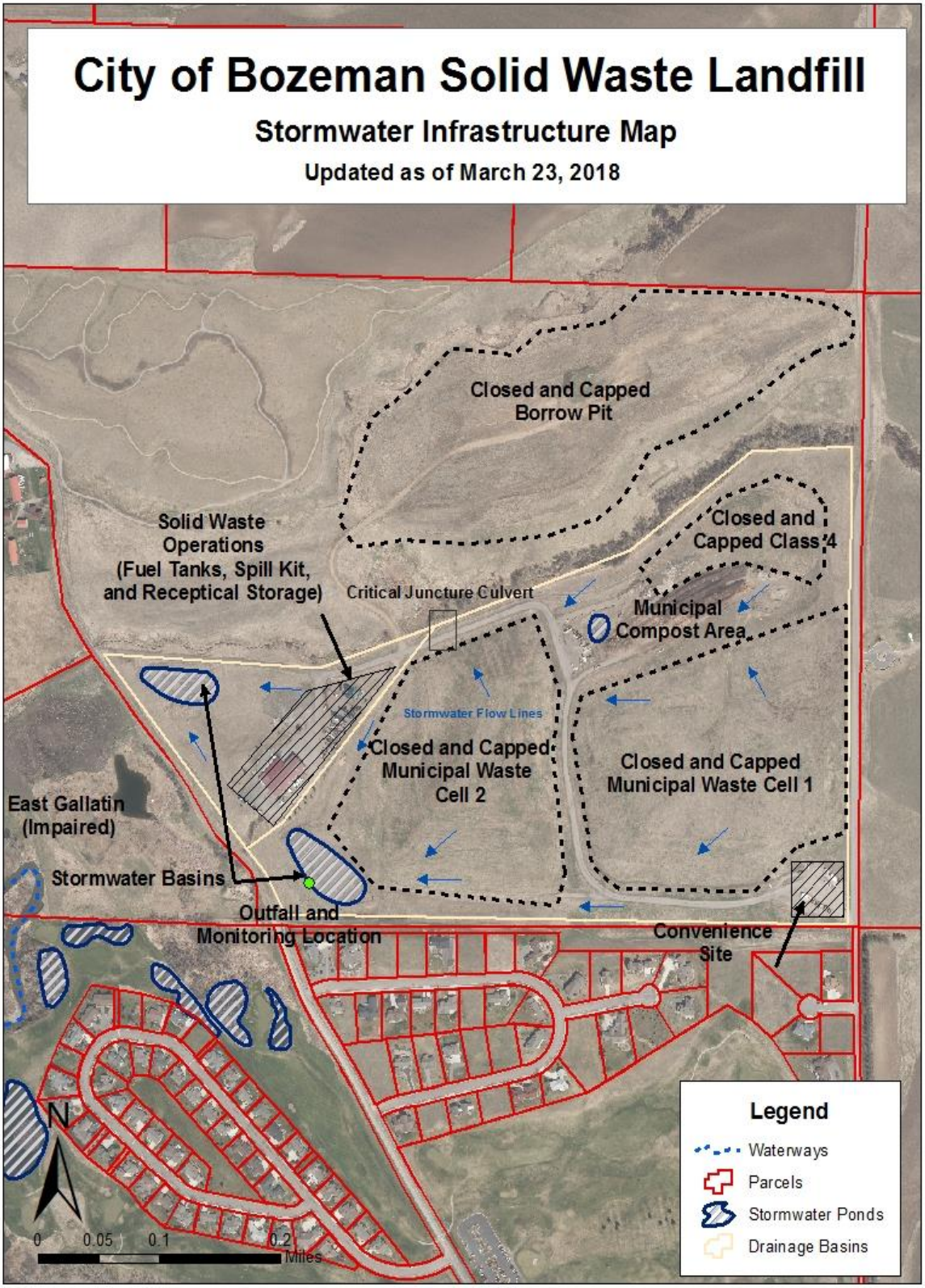
Date

SWPPP Administrator

1/29/2020

Date

Appendix A – Facility Map



Appendix B – Facility Vicinity Map

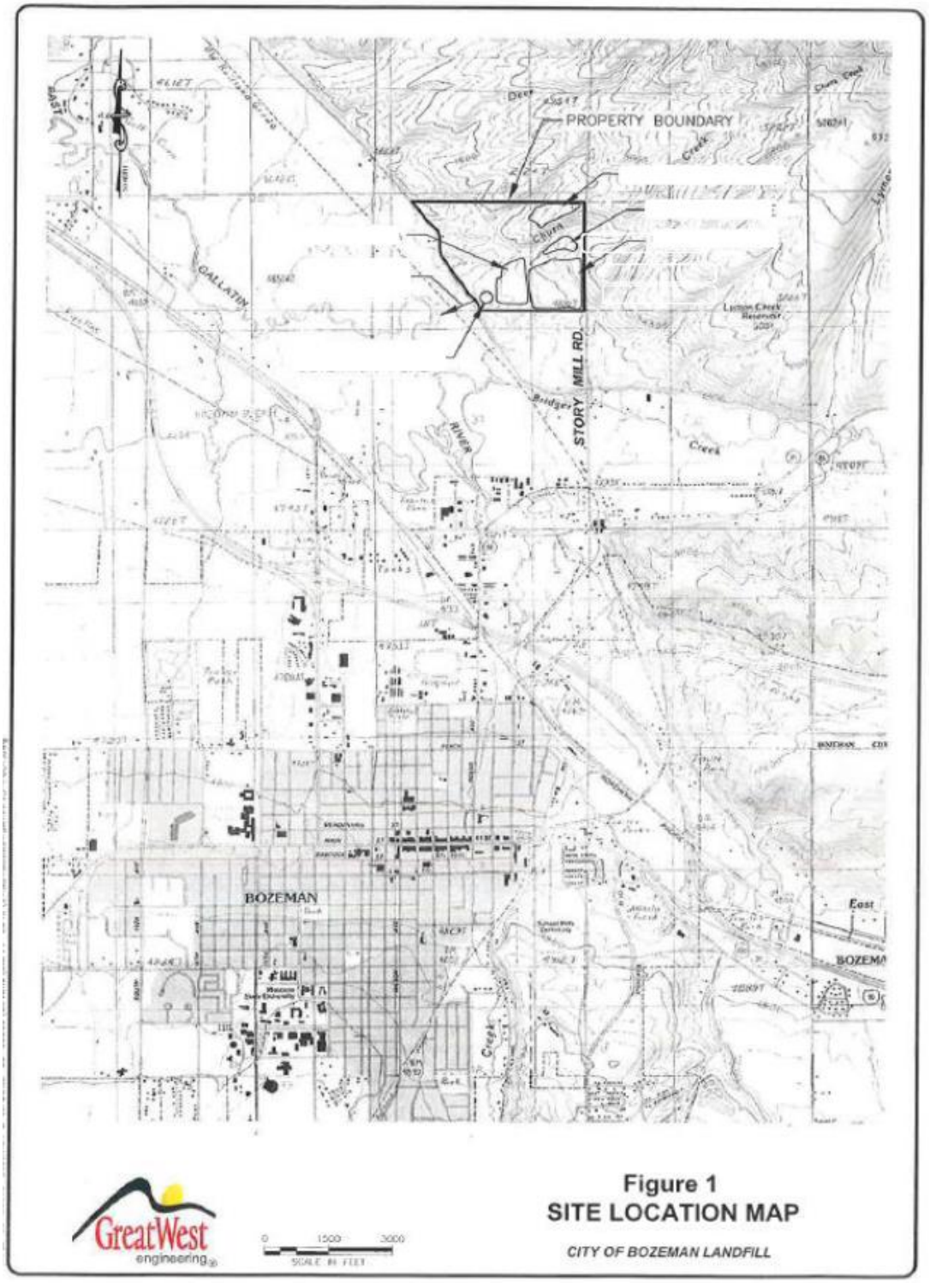


Figure 1
SITE LOCATION MAP

CITY OF BOZEMAN LANDFILL

Appendix C – Corrective Action Tracking Sheet

#	Date	Description of Issue & Required Corrective Action	Responsible Party	Corrective Action Description	Date Completed
~~1~~	~~3/20/2018~~	~~Repair / remove broken detention basin outlet pipe from basin south of the admin. building.~~	~~Russ Ward/Kevin Handelin~~	~~Pipe removed.~~	~~8/15/2019~~
~~2~~	~~3/20/2018~~	~~Remove debris from obstructed culverts along main access road.~~	~~Mike Dilbeck & Jim Tell~~	~~Excavated around culverts and lined with cobble.~~	~~6/12/2018~~
~~3~~	~~4/25/2018~~	~~Maintain silt fence at access road to capped and closed borrow pit.~~	~~Russ Ward~~	~~Silt fence replaced~~	~~8/12/2019~~
~~4~~	6/4/2018	Stabilize access road leading to closed and capped borrow pit.	Russ Ward	KH, RW, KM, & FG met on 7/1/18 to begin corrective action responses.	
5	6/19/2018	Coordinate with Gallatin County to maintain broken secondary containment surrounding oil, grease, battery, and chemical disposal area.	Kevin Handelin	KH, RW, KM, & FG met on 7/1/18 to begin corrective action responses.	
~~6~~	~~6/19/2018~~	~~Cover battery, oil, and grease disposal area.~~	~~Kevin Handelin~~	~~Replaced container with a covered container that also provides secondary containment.~~	~~8/13/2019~~
~~7~~	~~6/19/2018~~	~~Eliminate erosion along access road beginning at transfer site.~~	~~Kevin Handelin~~	~~Road was graded, eliminating erosion~~	~~7/17/2018~~
~~8~~	~~8/28/2018~~	~~Remove and dispose of spent absorbent at battery disposal area.~~	~~Russ Ward~~	~~Absorbent was removed and disposed~~	~~9/13/2018~~
9	~~9/13/2018~~	~~Remove old chemical containers from ponded water adjacent to main fueling station.~~	~~Russ Ward~~	~~Containers moved to dry area that does not pond water~~	~~11/1/2018~~
10	~~4/10/2019~~	~~Eliminate erosion along access road beginning at transfer site.~~	~~Russ Ward~~	~~Road was graded, eliminating erosion~~	~~7/1/2019~~
11	~~6/21/2019~~	~~Spilled diesel fuel not cleaned at fueling station~~	~~Kevin Handelin~~	~~Kevin Handelin was notified and cleaned up immediately.~~	~~6/21/2019~~
12	12/13/2019	Silt fence along access is not properly trenched to required 6” depth.	Russ Ward	Silt fence will be re-installed with proper trenching once ground begins to thaw.	
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Appendix D – Spills and Leak Tracking Sheet

Date	Spill (check one)	Leak (check one)	Source and Location	Description			Response Procedures	Measures Taken to Prevent Reoccurrence
				Type of Material	Quantity	Reason		
5/29/2018	**X**		Ruptured hydraulic hose. W. Beall St. (N. 7th Ave – N. 3rd Ave.)	Hydraulic fluid	70 gals.	Ruptured hose	152 bags of absorbent and street sweeping.	Preventative maintenance
4/10/2019		**X**	Battery / oil disposal containment	Oils & grease	< 0.1 gals	Leaking containment	Immediately fixed leak and used absorbent to clean spill.	Repaired leaking drain plug.
6/21/2019	**X**		Fueling Station	Diesel fuel	< 1 gal	Spilled while fueling	Spilled cleaned with absorbent	Reviewed spill response plane during annual training
2/10/2020	**X**		Over-turned garbage truck on access road north of Admin. Building.	Engine & Hydraulic oils	< 20 gals	Garbage truck slid off snow covered road and spilled oil and hydraulic fluid.	Righted the truck. Collected contaminated snow and contained in a lined dumpster. Disposed of contaminated snow at Disposal Facility.	N/A

Appendix E – Non-Compliance Tracking Sheet

#	Date	Description of Issue & Required Corrective Action	Responsible Party	Corrective Action Description	Date Completed
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Appendix F – FSWPPP Revisions Tracking Sheet

#	Date	Description of Revision	Responsible Party
1	9/13/18	Add rock run-down, adjacent to compost area, installation detail	Greenhill
2	~~1/10/20~~	~~Sec. 9.0 Inspections: Added 2018 & 2019 inspection summary~~	~~Greenhill~~
3	~~1/10/20~~	~~Sec. 10.0 Record Keeping & Reporting: Added spill tracking and updated inspection language.~~	~~Greenhill~~
4	~~1/10/20~~	~~Added corrective action, spill, non-compliance, and FSWPPP revisions tracking sheets~~	~~Greenhill~~
5	~~1/10/20~~	~~Sec. 6.0 Training: Added 2018 and 2019 training summary~~	~~Greenhill~~
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Activity Stormwater Pollution Prevention Plan

Emergency Water Main Break

Updated February 6, 2020

1.0 OVERVIEW

This Activity Stormwater Pollution Prevention Plan (ASWPPP) includes Standard Operating Guidelines (SOGs) to mitigate stormwater pollutants generated during Emergency Water Main Breaks (Activity).

2.0 STORMWATER TEAM

The following Staff member is responsible for this ASWPPP's implementation:

a. Leader: John Alston - Water, Sewer, and Storm Superintendent

3.0 ACTIVITY DESCRIPTION

The Activity includes water main excavation, dewatering, break repair, cleanup, and surface restoration.

4.0 POLLUTION IDENTIFICATION

Following is a list of stormwater pollutants generated during this Activity:

a. Total Suspended Solids (TSS): Sediments from pressurized washout and dewatering

5.0 STANDARDS ASSESSMENT

Section 5.0 outlines the City's Activity Minimum Standards applicable to this operation. All standards are listed in the City's Stormwater Management Plan.

5.1 Standard: Protect street surfaces and inlets by deploying controls that capture, contain, and allow the disposal of generated pollutants, and treat dewatering flows to remove sediment to the maximum extent practicable before entering the storm sewer system or waterways.

a. Standard Operating Guidelines:
   - Reduce flows to water main as soon as possible by operating valves
   - Direct dewatering discharges to permeable area, when available. If not, place multiple weighted wattles in the curb line above impacted inlets
   - Clean affected street surfaces and storm sewer infrastructure once operations are complete

b. 2019 Assessment:
   - Crews managed dewatering discharges by placing rock bags in the curb line and cleaned the affected street surfaces and storm infrastructure after the event
     - ➢ Compliant

c. Corrective Action(s):
   - Replace rock bags with manufactured weighted wattles; e.g. 36" Gator Guard Gutter Wattle

5.2 Standard: Cover or contain material stockpiles

a. Standard Operating Guidelines:
   - Excavate soil and place directly into dump trucks and dispose of the materials offsite
   - Hydro-excavate soils and dispose of the materials offsite

b. 2019 Assessment:
   - Crews placed excavated sediment into dump trucks and hauled offsite for disposal

- Compliant

c. Corrective Action(s):
   - None

5.3 Standard: Temporarily or permanently contain or stabilize disturbed areas within 14 days of activities

a. Standard Operating Guidelines:
   - Various options exist due to event timing. Asphalt surfacing, temporary packed road base, steel plat cover, and low to grade are some approved options.

b. 2019 Assessment:
   - Crews kept the excavated area low to grade, and restored the surface with asphalt.
     - Compliant

c. Corrective Action(s):
   - None

5.4 Standard: Implement tracking controls to prevent the offsite migration of debris

a. Standard Operating Guidelines:
   - Vehicles and equipment shall travel on stabilized surfaces
   - Sweep sediment from all affected impervious areas and dispose of the materials offsite

b. 2019 Assessment:
   - Crews kept vehicles and equipment on stabilized surfaces and they used street sweepers to clean debris in the curb line and around the excavation.
     - Compliant

c. Corrective Action(s):
   - None

5.5 Standard: Capture and dispose concrete waste

a. Standard Operating Guidelines:
   - Capture all concrete washout in an enclosed container or excavation

b. 2019 Assessment
   - Crews directed concrete washout back into the excavation

c. Corrective Action(s):
   - Purchase concrete washout bags and stage in vehicles

6.0 TRAINING

Staff receives training related to this Activity per the requirements within the Citys MS4 Permit and maintains training documentation in the SWMP.

7.0 RECORD KEEPING AND REPORTING

Copies of the plan are stored at the City Shops Facility and the Professional Building.

Activity Stormwater Pollution Prevention Plan

Sanitary Sewer Overflows

Updated February 6, 2020

1.0 OVERVIEW

This Activity Stormwater Pollution Prevention Plan (ASWPPP) includes Standard Operating Guidelines (SOGs) to mitigate stormwater pollutants generated during Sanitary Sewer Overflows (Activity).

2.0 STORMWATER TEAM

The following Staff member is responsible for this ASWPPP's implementation:

a. Leader: John Alston - Water, Sewer, and Storm Superintendent

3.0 ACTIVITY DESCRIPTION

The Activity includes clearing the sewer obstruction and cleaning the infrastructure impacted by the overflow.

4.0 POLLUTION IDENTIFICATION

Following is a list of pollutants generated during this Activity:

a. Sanitary sewage: E. coli, floatables, and nutrients

5.0 STANDARDS ASSESSMENT

Section 5.0 outlines the City's Activity Minimum Standards applicable to this Activity. The complete list of standards are contained in the City's Stormwater Management Plan (SWMP).

5.1 Standard: Protect street surfaces and inlets by deploying controls that capture, contain, and allow the disposal of generated pollutants

a. Standard Operating Guidelines:
   - Continuously clean sewage and wash-waters from any impacted storm infrastructure using Vactor during and after the event
   - Wash sanitary sewage from the street once crews clear blockage
   - Dispose of the collected sewage at the dump station located at the Vehicle Maintenance Facility
   - Contact County Health and MDEQ, use lime or other mitigation measure per their direction

b. 2019 Assessment:
   - Crews cleared the blockage, washed street, and cleaned impacted storm infrastructure.
     - Compliant

c. Corrective Action(s):
   - None

6.0 TRAINING

Staff receives training related to this Activity per the requirements within the Citys MS4 Permit and maintains training documentation in the SWMP.

7.0 RECORD KEEPING AND REPORTING

Copies of the plan are stored at the City Shops Facility and the Professional Building.