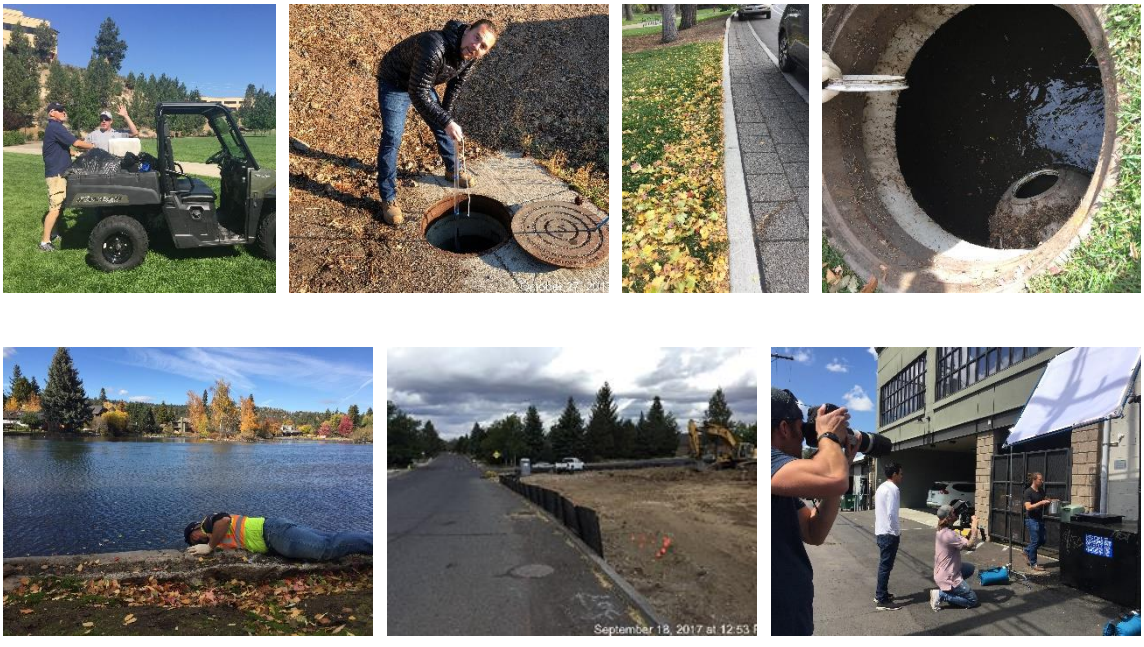
CITY OF BEND

2017-2018 ANNUAL REPORT

STORMWATER NPDES PERMIT NO. 102901
STORMWATER UIC WPCF PERMIT NO. 103052

National Pollutant Discharge Elimination System
Municipal Separate Storm Sewer Annual Report

Underground Injection Control System Annual Report



November 1, 2018

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National Pollutant Discharge Elimination System Municipal Separate Storm Sewer Annual Report

Underground Injection Control System Annual Report

November 1, 2018

Prepared by:

City of Bend
Utility Department
Stormwater Utility

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Accommodation Information for People with Disabilities

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TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

TABLE OF CONTENTS (Continued)

TABLE OF CONTENTS (Continued)

LIST OF FIGURES AND TABLES

ACRONYMS AND ABBREVIATIONS

ACWA	Association of Clean Water Agencies
APWA	Association of Public Works Agencies
ASCE	American Society of Civil Engineers
AWWA	American Water Works Association
BEDAB	Bend Economic Development Advisory Board
BMPs	Best Management Practices
BOPA	Batteries, Oil, latex Paint, and Antifreeze
City	City of Bend, Oregon
CMP	Congestion Management Plan
CPESCL	Certified Professional in Erosion and Sediment Control Lead
COBA	Central Oregon Builders Association
COIC	Central Oregon Intergovernmental Council
COSM	Central Oregon Stormwater Manual
CTF	Stormwater Utility Fee Citizen's Task Force
DEQ	Oregon Department of Environmental Quality
DHS	Oregon Department of Health Services
DWPA	Drinking Water Protection Areas
EPA or US EPA	United States Environmental Protection Agency
ERU	Equivalent Residential Unit
FOG	Fats, Oil, Grease
FTE	Full Time Equivalent
FY	Fiscal Year
GIS	Geographic Information System
GPS	Geographical Positioning System
HHW or HHHW	Household Hazardous Waste
IAC	Utility Infrastructure Advisory Committee
IECA	International Erosion Control Association
IPM	Integrated Pest Management
ISWMP	Integrated Stormwater Management Plan
LID	Low Impact Development
MEP	Maximum Extent Practicable
Monitoring Plan	*City of Bend Water Quality Monitoring Plan*
MS4	Municipal Separate Storm Sewer System
NHD	High-Resolution National Hydrography Data Set
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
O & M	Operation & Maintenance
OEC	Oregon Environmental Council
OLCA	Oregon Landscape Contractors Association
PAG	Stormwater Quality Public Advisory Group
PCBs	Polychlorinated Biphenyls

PCOs	Pest Control Operators
PEO	Professional Engineers of Oregon
PIP	Public Involvement and Participation
PNCWA	Pacific Northwest Clean Water Agencies
POCs	Pollutants of Concern
	City of Bend Ambient Water Quality Monitoring Project
QAPP	Quality Assurance Project Plan
SWAT	Stormwater Action Team
SWMP	Storm Water Management Plan or Program
SWPPP	Storm Water Pollution Prevention Plan
TDM	Transportation Demand Management
TMDL	Total Maximum Daily Load
UDWC	Upper Deschutes Watershed Council
UGB	Urban Growth Boundary
UIC	Underground Injection Control; drywell or drill hole
USGS	United States Geologic Survey
WHPA	Wellhead Protection Area
WPCF	Water Pollution Control Facility

FY2017-2018 Annual Report

Section 1.0 Introduction

Background

The City of Bend is both a National Pollutant Discharge Elimination System (NPDES) designated small Municipal Separate Storm Sewer System (MS4) owner and operator, and a stormwater underground injection control (UIC) owner and operator. As such, the City is required to meet the requirements of NPDES Permit No. 102901 (DEQ File No. 113602) that it received on February 26, 2007 from the Oregon Department of Environmental Quality (DEQ) and of Water Pollution Control Facility-Underground Injection Controls (WPCF-UIC) Permit No. 103052 (DEQ File No. 112361) that it received on May 14, 2013.

NPDES Permit. The NPDES permit requirements are based on the federal Clean Water Act (33.U.S.C. §1342(p)), as amended, along with federal Environmental Protection Agency (EPA) regulations for MS4 discharges. The permit authorizes the discharge of stormwater from all municipal separate storm sewer system outfalls owned and operated by the City. The City has 30 outfalls to the river that serve a portion of the City along the Deschutes River and West Hills. Privately owned and maintained entities, such as the Old Mill District and specific subdivisions in town that do not discharge to the City's MS4 system, are outside of the City's direct jurisdiction with respect to the NPDES permit. The City has applied for renewal of its NPDES permit and is working with DEQ to negotiate the terms for the next five-year permit, which is expected to be a statewide general permit. In the meantime, DEQ has administratively extended the City's NPDES permit coverage, so the City must continue to implement the Integrated Stormwater Management Plan (2006) during this time.

Per item 1 of the NPDES permit's Schedule C, Compliance Conditions and Schedules, initial implementation of the approved stormwater management plan (the City's *Integrated Stormwater Management Plan* (ISWMP)), was required to begin by July 31, 2007. The ISWMP (2006) described the activities the Program would implement during the City's first 5-year NPDES permit period. These activities are divided among the following major components of the Program:

- Overall Program Administration, Planning and Financing;
- Public Education and Outreach;
- Public Involvement and Participation;
- Illicit Discharge Detection and Elimination;

- Construction Site Stormwater Management;
- Post-Construction Stormwater Management in New and Redevelopments;
- Municipal Operations and Maintenance—Pollution Prevention and Good Housekeeping;
- Monitoring;
- Drinking Water Protection Areas: Investigation, Re-Delineation and Management.

WPCF UIC Permit. On May 14, 2013, the City received its first Water Pollution Control Facility Permit (WPCF) for Underground Injection Controls (UIC) under the federal Safe Drinking Water Act and Oregon Administrative Rules. This permit covers the City's drywells and drill holes that inject stormwater into the ground. The WPCF permit allows the City to operate Underground Injection Control systems to manage stormwater. Starting in FY2013-14, the City began implementing the Integrated Stormwater Management Plan 2022 (2012) that was accepted under the City's WPCF-UIC permit and is being considered for the NPDES permit reissuance negotiation.

Contents of the Annual Report

This represents the twelfth Annual Report submitted to the DEQ and describes stormwater quality and pollution prevention activities implemented by the City during Fiscal Year (FY) 2017-2018 (July 2017 through June 2018). As quoted from item 2 of the NPDES permit's Schedule B, Monitoring and Reporting Requirements, the annual report must contain the following:

a) The status of compliance with permit conditions, an assessment of the appropriateness of the identified BMPs, progress towards achieving the statutory goal of reducing the discharge of pollutants to the MEP (maximum extent practicable), and the measurable goals for each of the minimum control measures;

b) Results of information collected and analyzed, if any, during the reporting period, including evaluation criteria used to assess the success of the program at reducing the discharge of pollutants to MEP;

c) A summary of the stormwater activities the permittee plans to undertake during the next reporting cycle, including a schedule for implementation;

d) A description of changes made to the SWMP, including changes to BMPs or measurable goals identified in the SWMP;

e) Information on all new additions or removals of annexed areas that result in an expansion or contraction of the MS4's boundaries;

f) Notice that the permittee is relying on another government entity to satisfy some of the permittee's permit obligations (if applicable); and,

g) Number and nature of enforcement actions taken.

Per subsection 4. of the City WPCF-UIC permit, the annual Underground Injection Control System Report must:

a. Include stormwater monitoring reports conducted in accordance with their Stormwater Monitoring Plan, including a spreadsheet of all data from sampled UICs provided in the analytical laboratory reports;
b. Discuss any action level exceedances (outlined in Permit Table 1) and actions taken to address the exceedances;
c. Describe any actions taken to implement the Underground Injection Control System Management Plan required in Schedule D, condition 5, any proposed modifications to the Underground Injection Control System Management Plan, and any additional actions taken to manage the City's injection systems to ensure groundwater protection;
d. Describe any actions described in your Underground Injection Control System Management Plan that you were not able to complete and why;
e. Identify any injection systems that you closed, retrofitted, or installed during the year;
f. Describe your future (in the next year) known plans to install, modify, convert, or close any underground injection systems; and
g. Provide one hard copy and one electronic copy of the annual Underground Injection Control System Report to DEQ.

The Annual Report contains detailed information on each component required by both permits, including the purpose and general strategy of the component; the tasks completed; an assessment of the effectiveness of activities conducted in reducing or preventing stormwater pollution; and a summary, by individual component, of modifications proposed to the ISWMP per the review conducted this fiscal year. Supporting documents produced under each task are presented in an appendix at the end of each component section. At the end of each task header

throughout the report, a notation is included as to whether the task applies to the City's Municipal Separate Storm Sewer System (MS4), which is the piped system that drains to the Deschutes River or other surface waterbody, or to Underground Injection Controls (UIC) or both. The stormwater quality regulatory requirements are different depending on whether the stormwater discharges through an MS4 or UIC system.

FY2017-2018 Annual Report

Section 2.0 Overall Program Management and Legal Authority

Introduction

This section describes the overall administrative and management support functions that the City provides to operate and manage the stormwater quality program. This section also describes activities to ensure adequate legal authority and to facilitate enforcement of the City's environmental codes related to water quality. In general, the City's stormwater staff are responsible for the overall coordination of the Integrated Stormwater Management Plan (ISWMP) (2006) and ISWMP 2022 (2012). However, several City departments assist the stormwater utility staff with the coordination and implementation of the tasks, taking direct responsibility for some tasks.

Task	Description	Compliance Status	Tasks Completed	Effectiveness
ISWMP 2006 Task II-1	**Administration and Coordination (MS4 and UIC).** The Stormwater Action Team will meet as needed and at least quarterly. A list of team members along with yearly participation rates will be noted in the annual report along with meeting summaries. Participation in other work groups will be tracked and noted.	Fully Compliant	The Stormwater Action Team, long ago renamed Stormwater Coordinators, consist of multiple interdepartmental groups within the City that focus on coordinating on stormwater issues, and are comprised of: (a) Stormwater Liaisons (SL) consisting of representatives from multiple departments that focus on stormwater issues, (b) separately those department heads and in higher management attending a direct reports meeting to the assistant City Manager, Jon Skidmore, discussing topics including stormwater that would previously be covered by the now-defunct Economic Development and Infrastructure Strategic	A large, efficient amount of coordination occurred in FY2017-18. A combination of the larger coordination meetings together with a continued emphasis on more focused meetings for efficiency appears to work well. Together the Stormwater Coordinators met the measurable goals for FY2017-18. In addition, City staff engaged in a remarkable process entitled LEAP to update the City's computer system involving mapping and improving processes as the new system continues to be set up. The cross-departmental aspect of these meetings has

Task	Description	Compliance Status	Tasks Completed	Effectiveness
			Management (EDISM) team, and, (c) Subgroups called ad hoc task groups (AHTG) of these. The City met the requirement of having interdepartmental stormwater coordination meetings at least four times per year in FY2017-18. Meetings occurred on: July 19, 2017 (AHTG), October 2, 2017 (SL), December 4, 2017 (SL), January 23, 2018 (AHTG), February 15, 2018 (SL) June 6, 2018 (SL) (see Appendix A). Jon Skidmore's Department head meetings discussed stormwater topics including a synergy project with Bend Park and Recreation District, and standard items such as budget approval and rate increases. **Annexation Update.** Through the benefits of interdepartmental communication sharing, the Utility can report that approximately 17.83 acres of land at the southeast corner of the OB Riley Road and Cooley Road intersection including the right of way for these and extending to the existing city limits has been annexed into the City as of March 21, 2018 (per Ordinance No. NS 2304).	potential to improve efficiencies, roles and responsibilities understand, and record keeping in the future.

Task	Description	Compliance Status	Tasks Completed	Effectiveness
ISWMP 2006 Task II-2	**Legal Authority (MS4 and UIC).** Evaluate the existing development rules, documents and identify needed updates, and work to resolve conflicts in existing ordinance, policy or code language pertaining to the creation and implementation of a stormwater program. Upon review, a final stormwater ordinance, along with appropriate development code language will be adopted and implemented	Fully Compliant	The goal of this task is to ensure that the City has the legal authority to implement the various elements of the ISWMP. Securing adequate legal authority has been a top priority in developing the stormwater quality program. On December 6, 2006, the Bend City Council adopted the Integrated Stormwater Management Plan. Since the adoption of the ISWMP, the Bend City Council has passed several resolutions establishing the stormwater utility and ensuring adequate funding will be available to the stormwater utility. The City adopted Bend Code Title 16 “Grading, Excavation, and Stormwater Management" on January 4, 2012. In FY2017-18 the City made updates to the Standards and Specifications including the following improvements related to stormwater: • Added a detail for concrete washouts • Added slope stabilization standards including a hydroseed specification for application periods • Limited the size of drainage areas to drywells	The City has met its measurable goals for all subtasks. Over the initial NPDES MS4 permit term, the City successfully passed resolutions and an ordinance to set up the stormwater utility, adopted the improved standards and specifications, and adopted the stormwater ordinance, Bend Code Title 16. The City continues to work towards continual improvement with review and update of its rules and policies. The City examined reducing lot size for affordable housing and density requirements reasons related to UGB expansion this year, the results of which could have an impact on impervious surface area. The City finished a full review and update of the Design Standards, Construction Specifications and the Development Codes. The revised standards and specifications include additional/modified erosion and sediment control details while continuing to include the COSM ESC requirements.

Task	Description	Compliance Status	Tasks Completed	Effectiveness
			• Updated sediment fence detail • Revised inlet protection detail for regular and side inlets (see Appendix A).	
ISWMP 2006 Task II-3	**Financing (MS4 and UIC).** Ensure adequate funding to implement this integrated stormwater management plan, and to complete a Stormwater Master Plan by Permit Year 4.	Fully Compliant	Over the course of the Integrated Stormwater Management Plan (2006) planning period, the City adopted several resolutions and Bend Code Title 16 that established a stormwater utility with enterprise funding through monthly service charges based on impervious surface coverage. The rate in FY2017-18 was increased to $5.30/ equivalent residential unit (ERU), and the City Council passed a rate of $5.46/ ERU for FY2018-19 in June 2018. The increases are in line with the funding needed for the projects outlined in the City's Stormwater Master Plan, adopted by City Council on August 6, 2014. The fee is designed to cover quantity and quality issues.	The City has successfully established a stormwater utility service charge, and began collecting fees of $4/ERU in July 2007. Fees were effectively raised for the first time to $5/ERU starting in July 2015 to meet the needs of the adopted Stormwater Master Plan, and yearly since to $5.15/ERU in July 2016 to $5.30/ERU starting in July 2017, and to $5.46/ERU in July 2018.
ISWMP 2006 Task II-4	**Planning (MS4 and UIC).** Annually review the ISWMP. Results of the review and any changes to the SWMP will be reported on as part of the annual	Fully Compliant	In July 2016, DEQ posted the first public draft and in November 2017 DEQ posted the second public draft of the MS4 Phase II General Permit. In FY2017-18, City stormwater staff distributed the second draft to Stormwater Coordinators	The City has reviewed the ISWMP during the draft NPDES MS4 Phase II permit comment period and feels it is most efficient to perform a thorough update of its ISWMP once the NPDES MS4 Phase II permit

Task	Description	Compliance Status	Tasks Completed	Effectiveness
	report, due by November 1 of each year.		and consolidated comments, which the City submitted on time. City staff reviewed the ISWMP and the draft permit. DEQ began addressing the comments it received. The DEQ tentatively plans to release the final general permit in summer 2018 or soon thereafter. The City plans a thorough update of its ISWMP 2022 once the final permit conditions are known.	conditions are known, especially as the ISWMP is also tied to the WPCF- UIC permit.
ISWMP 2006 Task II-5	**Annual Reporting (MS4 and UIC).** Prepare and submit annually a report of accomplishments achieved in the previous fiscal year (July 1 through June 30) and any continual improvement changes made to the DEQ by November 1.	Fully Compliant	In FY2017-18, the City prepared and submitted the FY2016-17 annual report by the November 1 deadline. This annual report, covering FY2017-18, is the twelfth annual report prepared by the City and serves to cover ISWMP (2006), describing continuing activities and achievements made to meet the water quality requirements of the NPDES MS4 permit and ISWMP 2022, which has been approved by DEQ as the management document for the WPCF-UIC permit. This is the fifth annual report submitted to DEQ for activities required by the WPCF-UIC permit. Descriptions of effectiveness are included under each task. Per the City's stormwater permits, the annual reports are due by November 1 of each year.	The City has worked interdepartmentally and with public advisory group feedback each year to develop and submit each annual report on time. This year to ease review, the City has reformatted the annual report from book form to tabular form.

Task	Description	Compliance Status	Tasks Completed	Effectiveness
ISWMP 2006 Task II-6a	**UIC Registration (UIC).** On a map, show the location of each structure. In addition, show the connections for each system that discharges to the Deschutes River, Assign descriptive ID codes and Upload information to GIS. Make GIS information available on the stormwater web site.	Fully Compliant	The City's GIS geodatabase includes all known City-owned stormwater facilities, an impervious surface area layer and drinking water protection area layers. A copy of the most recent (October 2018) UIC registration list is included in Appendix I. This provides information on new UICs, as well as UICs that have been closed or retrofitted. The City's UIC facilities and wellhead protection areas are included on the City's mapping services website, BOOM, located at: http://www.bendoregon.gov/index.aspx?page=463. Additionally the City has street level imagery that staff can use for internal research purposes. To improve understanding of stormwater outfalls to the river, in November 2017, City staff performed a site reconnaissance along the east side of the river from Galveston Bridge to the Freedom Bridge at Portland street to specify and clarify which pipes belong to the City stormwater system and which are other pipes (e.g., historical irrigation pipes, Bend Park and Recreation District (BPRD, private, or unknown). The results of the study were shared with BPRD staff to assist them with a bank stabilization	This is an ongoing task, and the City continues to update and improve its base map of existing structures and knowledge of its facilities. The City's database in FY2017-2018 includes 6,115 total public UICs, including 5,139 drywells; 971 active drill holes, 4 drain fields, and 1 french drain. Over the past 10 years, the number of drill holes has decreased from 1,017 in FY2008-09 to 971 in FY2017-18. The number of drywells has increased from 4,647 to 5,139 in the same time period. As of this writing 1,045 (14%) of public UICs are either within a two year time of travel or within 500 feet of a private well. As of this writing, the City has 203 public swales, 8,854 catch basins, 6 lynch catch basins, 1,658 curb inlets; 69 up basins, and 517 sediment manholes. The database also includes the location of bioswales, the direction of pipe flows, and dry well test report data.

Task	Description	Compliance Status	Tasks Completed	Effectiveness
			and trail improvement project.	
ISWMP 2006 Task II-6b	**UIC Registration (continued) (UIC).** Develop UIC database that can easily transfer registration and decommissioning data to DEQ database. Enter data for all existing UICs. Develop process for registering new, modified or decommissioned injection systems before they are constructed, modified or decommissioned. Maintain accurate database.		With the WPCF UIC permit, the City submits its database along with the annual report once per year. The database is kept up to date by the Utility Data Service team. A process is in place to collect and provide the information included in the database. For more information, see Chapter 10, UIC.	DEQ has received our databases for updating their database accordingly.
ISWMP 2022 BMP II-1	**Administration and Coordination (MS4 and UIC).** Stormwater coordination staff across divisions and departments will meet as needed and at least four times per year.	Fully Compliant	Task completed. See table below for responsibilities matrix. See Appendix A for organization charts. See ISWMP 2006 Task II.1. for more information.	See ISWMP 2006 Task II.1
ISWMP 2022 BMP II-2	**Legal Authority (MS4 and UIC).** Track Bend Code Title 16 implementation and compliance, through quantifiable measures. Seek as a general goal to reach 60% or	Fully Compliant	See ISWMP 2006 Task II.2 In FY2017-18, 25 Infrastructure permits were applied for; all of them contained an Erosion and Sediment Control, and Drainage Plan.	See ISWMP 2006 Task II.2

Task	Description	Compliance Status	Tasks Completed	Effectiveness
	above permit compliance by start of FY14-15.			
ISWMP 2022 BMP II-3	**Financing (MS4 and UIC).** Ensure adequate funding to implement this integrated stormwater management plan and continue to meet operation and maintenance needs.	Fully Compliant	The City conducts rate reviews periodically and adjusts rates to ensure adequate funding to meet water quality and water quantity needs. See also ISWMP 2006 Task II.3	See ISWMP 2006 Task II.3
ISWMP 2022 BMP II-4	**Planning (MS4 and UIC).** Annually review the *ISWMP 2022* to the degree allowed by permitting requirements, plan specific activities for the coming year, and revise the *ISWMP 2022* as needed.	Fully Compliant	See ISWMP 2006 Task II.4	See ISWMP 2006 Task II.4
ISWMP 2022 BMP II-5	**Annual Reporting (MS4 and UIC).** Report accomplishments achieved in the previous fiscal year (July 1 through June 30) and any continual improvement changes made, as allowed by permitting requirements, will be provided to the DEQ by November 1.	Fully Compliant	See ISWMP 2006 Task II.5	See ISWMP 2006 Task II.5

Table II-1. Responsible Personnel

Permit Area of Responsibility	Specific BMPs	Lead Name[10]	Title (bold designates lead)	Department/ Division	Phone
Overall Interdepartmental Communication	All	**Eric King**	**City Manager**	City Administration	541-388-5505
Program Administration, Planning, and Finance	II-1, II-2, II-3, II-4, II-5	Eric King	City Manager	City Administration	541-388-5505
	II-1, II-2, II-3, II-4, II-5	**Paul Rheault**	**Public Works/ Utility Director**	Utility Department	541-317-3000
	II-1, II-2, II-3, II-4, II-5	**Russell Grayson**	**Community Development Director**	Community Development	541-388-5580
	II-3	Sharon Wojda	Finance Director	Finance Department	541-693-2158
	II-1, II-2, II-3	**Ryan Oster**	**City Engineer**	Community Development	541-388-5580
	II-1, II-2, II-3, II-4, II-5	Wendy Edde	Stormwater Program Manager	Public Works	541-317-3000
Public Education and Outreach	III-1, , III-3, III-4, III-5	**Paul Rheault**	**Public Works/Utilities Director**	Public Works Department	541-317-3000
	III-1, III-3, III-5,	Anne Aurand	Communications Manager	City Administration	541-388-5573
	III-1	Russell Grayson	Community Development Department Director	Community Development Department	541-388-5580
	III-1, III-2, III-3, III-4, III-5	Wendy Edde	Stormwater Program Manager	Public Works	541-317-3000
Public Involvement and Participation	IV-1, IV-2, IV-3, IV-4	**Paul Rheault**	**Public Works/Utilities Director**	Public Works Department	541-317-3000
	IV-2	Russell Grayson	Community Development Department Director	Community Development Department—Code	541-388-5580
	IV-2, IV-3, IV-4	Anne Aurand	Communications Manager	City Administration	541-388-5573
	IV-1, IV-2, IV-3,	Wendy Edde	Stormwater Program	Public Works	541-317-3000

Permit Area of Responsibility	Specific BMPs	Lead Name[10]	Title (bold designates lead)	Department/ Division	Phone
	IV-4		Manager		
	IV-3	Cheryl Howard	Volunteer Coordinator	City Administration	541-388-5579
Illicit Discharge Detection and Elimination	V-1, V-2, V-3, V-5,V-6	**Paul Rheault**	**Public Works/Utilities Director**	Public Works Department	541-317-3000
	V-5,V-6	Russell Grayson	Community Development Department Director	Community Development Department—Code Enforcement	541-388-5580
	V-3	Ryan Oster	City Engineer	Public Works	541-317-3000
	V-3	Charles Swann	Streets Division Manager	Public Works	541-317-3000
	V-2, V-4	Anne Aurand	Communication s Manager	City Administration	541-388-5573
	V-3	Cheryl Howard	Volunteer Coordinator	City Administration	541-815-5559
	V-1, V-2, V-3	Wendy Edde	Stormwater Program Manager	Public Works	541-317-3000
Construction Site Stormwater Activities	VI-1, VI-2	**Russell Grayson**	**Community Development Director**	Community Development Department	541-388-5580
	VI-1, VI-2	**Paul Rheault**	**Public Works/Utilities Director**	Public Works Department	541-317-3000
	VI-1, VI-2	**Ryan Oster**	**City Engineer**	City Manager's Office	541-317-3000
	VI-2	Wendy Edde	Stormwater Program Manager	Public Works	541-317-3000
Post Construction Stormwater Management In New and Redevelopment	VII-1, VII-2	**Russell Grayson**	**Community Development Director**	Community Development Department	541-388-5580
	VII-1, VII-2	**Paul Rheault**	**Public Works/Utilities**	Public Works Department	541-317-3000
	VII-1, VII-2	**Ryan Oster**	**City Engineer**	City Manager's Office	541-317-3000
	VII-2	Wendy Edde	Stormwater Program Manager	Public Works	541-317-3000
Pollution Prevention/Good Housekeeping for Municipal Operations	VIII-1, VIII-2, VIII-3, VIII-4	**Paul Rheault**	**Public Works/Utilities Director**	Public Works Department	541-317-3000
	VIII-5	**Russell Grayson**	**Community Development Director**	Community Development Department	541-388-5580
	VIII-1, VIII-2,	Charles Swann	Streets Division	Public Works	541-317-3000

Permit Area of Responsibility	Specific BMPs	Lead Name[10]	Title (bold designates lead)	Department/ Division	Phone
	VIII-3, VIII-4		Manager		
Monitoring	IX-1, IX-2, IX-3	**Paul Rheault**	**Public Works/Utilities**	Public Works Department	541-317-3000
	IX-1, IX-2, IX-3	Steve Prazak	Water Quality Manager	Public Works	541-317-3000
	IX-1, IX-2, IX-3	Wendy Edde	Stormwater Program Manager	Public Works	541-317-3000
Underground Injection Controls (City-owned)	X-1, X-2, X-3	**Paul Rheault**	**Public Works/Utilities**	Public Works Department	541-317-3000
	X-3	**Ryan Oster**	**City Engineer**	Public Works	541-317-3000
	X-2	Charles Swann	Streets Division Manager	Public Works	541-317-3000
	X-1, X-2, X-3	Wendy Edde	Stormwater Program Manager	Public Works	541-317-3000
	X-2, X-3	Spencer Sanvitale	Utility Data Systems Program Manager	Public Works	541-317-3000

10 Lead Responsible Person in **Bold** with assistance from personnel in regular-type text.

Summary of Effectiveness

Since the adoption of the ISWMP (2006), the City has (a) formed a stormwater utility, (b) obtained reliable funding for that utility, (c) staffed the utility, currently with a program manager, a program analyst, a compliance specialist, 4 dedicated stormwater field staff (1 vacancy due to a retirement for part of this year), 3 FTE sweeper staff, 1/2 FTE management/administration staff, support to Engineering and Infrastructure Planning Department for stormwater capital projects, and additional temporary staff as needed, such as the private database technician in FY2017-18. The City is actively coordinating internally, as well as with the public through the Stormwater Quality Public Advisory Group and stormwater quality staff participate on other city planning task groups as invited. Additionally, the City is also actively coordinating with other municipalities in the state (through the Oregon Association of Clean Water Agencies (ACWA), Pacific Northwest Clean Water Association (PNCWA), and American Public Works Association (APWA), to improve effectiveness, knowledge and efficiencies.

FY2017-2018 Annual Report
Section 3.0 Public Education and Outreach

Introduction

The purpose of this component is to implement a program to distribute educational materials to the community or conduct equivalent outreach activities about stormwater discharge impacts on water resources, including both surface waters and groundwater, and the steps that the public can take to reduce such pollutants in stormwater runoff. The City is committed to providing a strong public outreach component for this program to provide the public a basic understanding of what stormwater is and why using best management practices (BMPs) matter.

Task	Description	Compliance Status	Tasks Completed	Effectiveness
ISWMP 2006 Task III-1	**Utility Bill Inserts, Brochures or Posters (MS4 and UIC).** Develop and distribute at least two stormwater information pieces to area residents per permit year on average. Distribute at least 4 information pieces.	Fully Compliant	If FY2018-19 staff developed and printed: • Street Cleaning Door Hanger • Restaurant poster • Kid's Video Contest flyer Additionally, staff submitted, and Communications Department staff included, several stormwater messages in their City Newsletter (last issue was distributed with bills in July 2017), and the new BendCurrent e-newsletter. The following articles were included: • July 2017 City of Bend Newsletter "Keeping Our Streets and Waters Clean" together with articles on rate increases and the availability of the annual water quality report (that includes a	The City is getting a strong stormwater pollution prevention message out in a positive manner appropriate for Bend. The BendCurrent e-newsletter is a sign-up only, and so the reach is not the same as if it were to go to every customer as the City Newsletter did in with the bills. But no study has been done locally as to effectiveness in reach, because those who have self selected to receive the e-newsletter are more likely to read it. The numbers of actual readers may be similar, in which case retiring the hard-copy version to all may have saved paper resources without significant loss of readership. The City Newsletter was distributed to all

Task	Description	Compliance Status	Tasks Completed	Effectiveness
			stormwater section, see Appendix B). • November 2017 Bend Current enews, "Ever Wonder What the City Does to Protect the River and Our Underground Drinking Water Supplies from Pollution?" together with articles on Fats, Oils, and Grease that mention overflows to the streets. • February 2018 "Fun Film Contest for Kids Who Care" and "Bend Is a Tree City USA" • March 2018 "Earth Day" (see Appendix B). Staff also prepared a Utility Annual Report with a stormwater section, and continued to distribute educational pieces as part of the Clean Water Works campaign (e.g., slides at BendFilm, advertisements in the Bend Park and Recreation guide) (see Appendix B).	stormwater account holders; the BendCurrent e-newsletter by comparison has risen from just over 3,000 subscribers at the start to 6,718 subscribers, but all of those subscribers are actively interested in reading the newsletter by their virtue of having to have signed up for it. Therefore, although fewer in number, overall effectiveness may not have dropped significantly given efficiency increases and paper use has gone done. Staff are looking at other avenues such as Next Door to help spread stormwater messages in a cost- and resource-effective manner.
ISWMP 2006 Task III-2	**Stormwater Pollution Prevention Website (MS4 and UIC).** Update the	Fully Compliant	The City's stormwater utility website is available at www.bendoregon.gov/stormwater. Recently we have	The stormwater pages had a total of 7,637 page views in FY2017-18, with the Clean Water Works main

Task	Description	Compliance Status	Tasks Completed	Effectiveness
	website with a stormwater message in Permit Year 2, and to keep the website updated with new information in future years.		been advertising the www.bendoregon.gov/cleanwaterworks pages of the website to focus on the stormwater quality aspects of the utility. Modifications to the website to meet Americans with Disabilities Act (ADA) requirements are currently in process. New information has been added in FY2017-18 including new videos and partners.	page seeing 1,266 of those views. The average time spent on a stormwater page was 1 minute 56 seconds, with the Clean Water Works "Partners and Discounts" page having the most time at 4 minutes 25 seconds. The "Kids" page also saw strong use with 749 page views, with the Kid's Video Contest vote getting 502 page views. This year, the City only allowed one vote per computer so there were fewer overall votes, but voters were directed to the main Clean Water Works page after voting this year. The City is working through the balance between updating the website so that all materials are meeting ADA requirements. Some older documents may need to be archived and made available upon request given the resource requirements to modify technical documents accordingly. The City plans a thorough update in FY2018-19.
ISWMP 2006 Task III-3	**City News Broadcast, Stormwater Quality Messages, and Press Releases (MS4).** Post at least one	Fully Compliant	In September the City News cable television show included a segment on the Deschutes River Cleanup and interviewed stormwater staff as part of the product. The City	The "Lucy" Clean Water Works public service announcement won best in show at the 2018 AWWA Pacific Northwest Section "Excellence in

Task	Description	Compliance Status	Tasks Completed	Effectiveness
	stormwater quality-related message per year during each permit year.		developed, aired, and posted on our you-tube channel a public service announcement based on our 2017 Poetry Contest winners, Lucy Wittwer's, poem that debuted at the BendFilm Future Filmmakers event in October, and was released in February as a media spot. https://www.youtube.com/watch?v=XHLqJSRajZ4 The Stormwater Program Manager, as a result of and to promote the Clean Water Works program, conducted a live radio interview on December 18 and recorded a 20 minute radio talk show interview that aired across Horizon Radio on December 24, 2017. Additionally, the City released the Clean Water Works Partner public service announcement that recognized partners actively keeping our waters clean and including a pollution prevention message and a focus to push people towards our Clean Water Works website where they can get detailed pollution prevention materials per their interests. https://www.youtube.com/watch?v=bpwNKP5bFx8 Our Industrial Pretreatment Program also created and released in November	Communications" Awards Contest (see Appendix B).

Task	Description	Compliance Status	Tasks Completed	Effectiveness
			2016 for the holidays outreach to prevent fats, oil, and grease sewer clogs that can then backup into streets. Such backups can pollute stormwater drains, so although indirect, this is also an important outreach message for pollution prevention of our waterways. https://www.youtube.com/watch?v=g5JVrT10ooA	
ISWMP 2006 Task III-4	**Stormwater/ Watershed Diorama (MS4).** Purchase and make available the Stormwater/ Watershed diorama for educational opportunities.	Fully Compliant	The City has two educational dioramas -- a watershed plastic model; and a groundwater one showing how underground injection controls work. On February 3, 2018, stormwater program staff used the UIC diorama at a pop up Children's Museum event. The City used both with Pine Ridge Elementary School students in June 2018. The City promoted them for use at Teacher's Night Out at the High Desert Museum in September as well. Staff run a program to lend them out. City staff purchased additional materials for the dioramas including new felts swales and a high rise building and new animals for the watershed diorama; together with a new street sweeper and vactor truck for the UIC diorama.	Our educational program contractor had a staff change and did not used them in the school program this year. The results showed in the evaluation of knowledge in their year-end report. Therefore the City is already working with the contractor to make adjustments to incorporate their use in future years as they are effective. In using them separately with the Pine Ridge students, we received several thank you notes form the kids indicating how much they enjoyed those and the CCTV camera we use for inspecting pipes.
ISWMP 2006 Task III.5	**Performance Standards.** Prepared draft performance	Fully Compliant	The City prepared the performance standards in the original five-year permit term and are currently	Staff are effectively meeting the performance standards.

Task	Description	Compliance Status	Tasks Completed	Effectiveness
	standards starting in Year 4 to obtain internal review, and finishing by midyear in Year 5 for inclusion in the permit package.		implementing them (see section below).	
ISWMP 2022 BMP III-1	**Develop and Implement Strategic Outreach Plan Targeting Pollutants of Focus for the Public and City Employees (MS4 and UIC).** Develop and distribute at least one stormwater information piece to area residents per permit year. Existing outreach pieces will be made available as well. Provide Council and at least one to two targeted employee groups per year information on the stormwater program typically in areas needing coordination improvement.	Fully Compliant	See also ISWMP (2006) BMP III-1 The City is implementing its Strategic Outreach Plan for targeting pollutants of focus. The City is targeting sediment reduction and illicit discharge reduction especially around metals such as lead. Much of the work is integrated under the Clean Water Works Partnership umbrella, and involves reaching out to targeted industry segments to ask them to review and train their staff on best management practices outreach and be rewarded with the partnership benefits in return. In FY2017-18, the City completed a 6-minute training video for food-service workers. The City staff announces the availability of the stormwater annual report to City Council every year in a Council memorandum. Additionally, City staff provided background and updates on the Clean Water Works program via Council memorandums, and presented the Kid's	The City has been implementing its Strategic Outreach Plan. Pollution Prevention Training Fact Sheets are included in the City's Utility Department training program; and public versions are included in the Business Resources section of the City's website. These are sent to businesses targeted for the Clean Water Works Partnership Program. General education of stormwater pollution prevention including diorama's, outreach at events including banners, kid's film contests and print advertising in the BPRD and Smart Shopper guides continues, although the focuses is now on Clean Water Works. The Public Advisory Group has focused on linkages between land use and stormwater, but all existing materials are available on the website. The Clean Water Works Partnership has been

Task	Description	Compliance Status	Tasks Completed	Effectiveness
			Video Contest Award at a City Council Meeting in June 2018. (Please see Appendix B for examples). City staff included articles about stormwater in the Utility newsletter (see Appendix B) on the Clean Water Works partnership program and on the Deschutes River Cleanup. City staff drafted a stormwater section to a new customer brochure that included information about why swales are important and the importance of not filling them in. These will be printed in summer 2018 for initial distribution. The City has purchased "Only Rain in the Storm Drain" DAS markers available to private users on a first come first serve basis.	the umbrella for incentive programs.
ISWMP 2022 BMP III-2	**Stormwater Pollution Prevention Website (MS4 and UIC).** Update the website with revised stormwater messages starting in FY2012-13, and to keep the website updated with new information in future years.	Fully Compliant	See ISWMP (2006) BMP III-2	Additional improvements to the website are needed and are underway, but altogether the City maintains a very thorough stormwater website.
ISWMP 2022 BMP III-3	**Media Relations: City News Broadcast, Stormwater**	Fully Compliant	The City maintains several of its stormwater videos on the City's you tube website:	This requirement is being exceeded.

Task	Description	Compliance Status	Tasks Completed	Effectiveness
	Quality Messages and Press Releases (MS4 and UIC). Post on average at least one stormwater quality-related messages per year during each permit year.		https://www.youtube.com/user/CityofBendOregon/search?query=stormwater The Vactor truck operations video now has over 11,000 views. The City had a City News broadcast regarding the Deschutes River Cleanup, radio interviews in December, the release of the new Lucy aka Flow River public service announcement together with an update to the Clean Water Works partner psa that played, and the creation of the food service training video.	
ISWMP 2022 BMP III-4	**School/ Enrichment Activity Outreach: Stormwater/ Watershed Diorama (MS4 and UIC).** Make available the Stormwater/ Watershed diorama and videos for educational opportunities.	Fully Compliant	Please see ISWMP (2006) BMP III-4. This year, the City used the dioramas to reach out to over 100 5th grade students at Pine Ridge Elementary School. The outreach included a presentation at the school by the Stormwater Program Manager, and the field trip to Drake Park where both dioramas and the CCTV van were on display for the City, while the kids also conducted water quality monitoring with Upper Deschutes Watershed Council, and learned about a new project to protect the river that Bend Park and Recreation District is leading. Additionally several students engaged in a	City staff have purchased additional materials to make these models even more effective with increasing density. This year's school outreach evaluation report suggested that use of the diorama's in the schools would help children understand the concepts better than without their use.

Task	Description	Compliance Status	Tasks Completed	Effectiveness
			Stormwater Quest as part of the City's outreach efforts through its schools program.	
ISWMP 2022 BMP III-5	**Implement Performance Standards (MS4 and UIC).** This task will be deemed complied with if the City has substantially met the performance standards per the ramp-up schedule included in Appendix B of the ISWMP 2022.	Fully Compliant	Please see below for a summary of performance standard implementation.	Having performance standards and separate strategic education outreach campaign together with an original ISWMP (2006) and an ISWMP 2022 makes tracking tasks more challenging than one consolidated plan. This could be improved by streamlining into one ISWMP if the two permits get on complimentary timelines and extraneous plans are minimized.

Performance Standards Implementation Status

Please see Section 4 for the combined Public Information and Participation Performance Standards Implementation Status table. The City is fully implementing the performance standards.

Summary of Effectiveness

The City exceeded the measurable goals for implementation of required permit activities. The focus this year was continuation of the Clean Water Works Partnership program to determine if such level of effort could be effectively performed at a single mid-size city given that the other locations it has been tried have been major metropolitan areas with several municipalities participating. One goal here is to determine if conducting an established program is sustainable given the resources of a mid-size City. The City will prepare a summary evaluation of the three-year pilot program in FY2017-18. See the FY2015-16 Annual Report for an initial summary focusing on the overview and effectiveness of this effort after the first year's effort.

Evaluation results suggest that citizens tend to remember more often messages that have been used over time (several years). Public Advisory Group members felt the program should be continued, but for a year in length before making long-term decisions. Thus, the City is following that guidance with the 2017 effort. The initial effort took a substantial amount of staff time, and much was incorporated in house because the Utility Department fortunately happens to have a communication technician who once owned her own marketing firm in town. This greatly saved on costs, although the program cost levels did face scrutiny and cutbacks at the highest management levels given overall City priorities, needs, and perceptions. Long-term viability at these levels are unclear, although with several outreach materials already developed. The 2017 level of effort needed has been reduced. While partners seemed willing to participate again based on survey results, very few repeats occurred, but more partners did sign up including from the newly targeted landscape community. None from the newly targeted pressure washer community or car washes accepted the invite in 2017. Giving car wash discounts is challenging though because many are self-serve using tokens, and not easily set up for offering a discount.

Because City staff understand the importance of effective outreach and education for stormwater quality, stormwater education and outreach will continue to be a priority in the upcoming years. But these will be weighed against capital funding needs as well.

FY2017-2018 Annual Report

Section 4.0 Public Involvement and Participation

Introduction

The goal of the public involvement and participation (PIP) component is to work with City residents, public employees, businesses, and government officials concerning the importance of and methods for controlling pollutants in urban runoff. Ultimately, community involvement in implementing pollution prevention practices and in evaluating and documenting conditions within the watershed is the only hope of achieving meaningful change in the quality of urban runoff.

Task	Description	Compliance Status	Tasks Completed	Effectiveness
ISWMP (2006) Task IV.1	**Public Advisory Committee (MS4).** Conduct at least semiannual meetings of the Public Advisory Committee.	Fully Compliant	The Public Advisory Group (PAG) met roughly bimonthly throughout the year, focusing on how to address potential drainage impacts resulting from increasing density.	The Public Advisory Group has been very active this year, focused on exploring and future shaping drainage policy. the shared perspectives from different vantage points are very helpful in finding the best path forward for the community with increasing density.
ISWMP (2006) Task IV.2	**Public Meeting (MS4).** Hold a Public Meeting in Permit Year 1. A similar meeting will be held in Year 4 prior to submittal of the permit application for the second permit period.	Fully Compliant	Public meetings were held for the Stormwater Master Plan. PAG meetings are open to the public.	The City has met these tasks in the years prescribed. Additional public meetings are held as appropriate.
ISWMP (2006) Task IV.3	**Stormwater Quality Volunteer Opportunities (MS4).** Provide support materials to interested volunteers for the	Fully Compliant	The City again invited targeted businesses and a general invite to the third year of the pilot Clean Water Works Partner Program, where participants make a public pledge to commit to	In FY2017-18 over 100 storm drains were marked, including by volunteers. (See attachment for map of storm drains marked).

Task	Description	Compliance Status	Tasks Completed	Effectiveness
	identified opportunities.		training their employees with best management practices or otherwise taking concrete action to protect water quality. In turn they are recognized as partners and can provide the public discounts. The City continues to provide stormwater markers to volunteers interested in marking storm drains. Stormwater staff also assisted Lego Robotics students with their questions about stormwater in December 2017. Clean Water Works Partners agreed to mark their private storm drains this year as well, and City provided markers for those needing them.	
ISWMP (2006) Task IV.4	**Performance Standards (MS4).** Prepare draft performance standards starting in Year 3 to obtain internal review, and finishing in Year 4 for inclusion in the permit package.	Fully Compliant	Performance standards have been prepared and are being implemented (see table below),	The performance standards have been effective in proving measurable standards to meet.
ISWMP 2022 BMP IV-1	**Public Advisory Group (MS4).** Conduct at least semiannual meetings of the Public Advisory Group.	Fully Compliant	See ISWMP (2006) Task IV.1. The Public Advisory Group met bimonthly this fiscal year. (See Appendix C)	Exceeded requirements. Field trips and guest speakers were very educational. Progress is being made.
ISWMP 2022 BMP IV-2	**Public Meeting (MS4).** Hold a Public Meeting by Permit Year 4 or 5 for the mid-period revision, and again	Fully Compliant	Public meetings are held as needed, the most recent for the Stormwater Master Plan. City Councilors take public comment routinely; and the	The City incorporates the public through open invite to stormwater public advisory group meetings, and several meetings were held by

Task	Description	Compliance Status	Tasks Completed	Effectiveness
	in FY20-21 or FY22-23 in time for the next permit period submittal.		Stormwater Public Advisory Group meetings are open to the public.	EIPD on CIP projects containing a stormwater component such as 14th Street and Galveston, the latter of which was developed as a results of a grass roots public effort. City Council allows for a public comment period at the start of each Council meeting as well, and the City provides multiple avenues to provide input. A formal public meeting on the ISWMP would not have been appropriate this year as the City is awaiting finalization of the NPDES Phase II MS4 permit prior to making major adjustments to the ISWMP 2022. Once those come, the City will have a public meeting on the topic.
ISWMP 2022 BMP IV-3	**Stormwater Quality Volunteer Opportunities (MS4).** Provide support materials to interested volunteers for the identified opportunities.	Fully Compliant	See ISWMP (2006) Task IV.3 The City has a volunteer coordinator that helps organize storm drain marking. Additionally, the City operates a voluntary partnership program called the Clean Water Works Partner program. This voluntary program rewards those who commit in writing to helping keep our waters clean through their pledged active participation. The rewards	The City is getting active volunteers through the Clean Water Works Partnership program to help keep our waters clean. This year 49 businesses and non-profits participated. We were also effective in marking the storm drains of our Clean Water Works Partners. The Kid's Film contest was a success with winners in the middle school, high school, people's choice, and

Task	Description	Compliance Status	Tasks Completed	Effectiveness
			include recognition as a Clean Water Works Partner. In turn they can provide a discount of their choosing to the general public in the Clean Water Works Discount cards. This forms a triple incentive program based on community based social marketing concepts. (See Appendix C). Additionally the City worked with BendFilm and Zolo Media to hold the film contest and attempted a poetry contest (See Appendix C). The City also continues to support as a title sponsor the Upper Deschutes Watershed Council's Deschutes River Cleanup held in late July.	grand prize areas. No poems were submitted for the poetry contest this year.
ISWMP 2022 BMP IV-4	**Performance Standards (MS4).** Implement the performance standards per the ISWMP 2022 schedule in Appendix B.	Fully Compliant	See ISWMP (2006) BMP IV.1	The City has been effective in fully meeting the performance standards (see next subsection).

Public Information and Participation Performance Standards

Coordination with Existing Opportunities/ Activities

Task	Description	Compliance Status	Tasks Comments
1	Stay sufficiently informed about the programs and materials being developed by Oregon Association of Clean Water Agencies (ACWA) and/or other suitable programs and groups by regularly attending or tracking ACWA or other appropriate stormwater, groundwater and public outreach committees.	Fully Compliant	Staff participated actively on The Groundwater Committee (Program Manager was co-chair through July 2017) and the Stormwater Committee, and the City's Program Manager is the project manager for the ACWA Illicit Discharge outreach project.
2	Distribute and/or make readily available outreach and educational materials to appropriate audiences within the City. This includes, but is not limited to schools, volunteer committees, neighborhood associations, community groups, business groups and /or other environmental groups.	Fully Compliant	See task descriptions above.

City Staff and Officials

Task	Description	Compliance Status	Tasks Comments
1	Identify, develop, and communicate at least annually, information about the City's stormwater quality program to city management and elected officials so that they are well informed about the requirements, their role in implementing the local stormwater program, and the City's progress.	Fully Compliant	See task descriptions above.
2	Train new employees involved with stormwater pollution prevention activities on their role in implementing the local stormwater program.	Fully Compliant	We use Target Solutions and supervisors provide training as appropriate.

Procedures and Training for Handling Telephone Calls from the Public About Stormwater Pollution Prevention

Task		Compliance Status	Tasks Comments
1	Establish procedures for answering, tracking, and efficiently routing stormwater- related telephone calls to the appropriate staff for handling.	Fully Compliant	See Chapter 5 for additional information.
2	Train staff assigned to answering or responding to telephone calls on the established procedures.	Fully Compliant	See Chapter 5 for additional information.
3	Promote the use of a City telephone number to facilitate public reporting of illicit discharges.	Fully Compliant	See Chapter 5 for additional information.

Storm Drain Inlet Stencils and Signs

Task	Description	Compliance Status	Tasks Comments
1	The City will have an active program to install stencils/storm drain markers on publicly owned storm drain inlets. This includes installation by municipal staff, contractors, volunteers, and/or community groups.	Fully Compliant	The City has both DAS storm drain markers for public drains, but also some 'Only Rain in the Storm Drain" markers for private drains on a first come first served basis. These were used on the drains of Clean Water Works partners who did not already have their storm drains marked in 2018. Stormwater manhole lids have a permanent pollution prevention message stamped into them.
2	As a goal, stencils and signs will be maintained sufficiently to be legible.	Fully Compliant	The "Only Rain in the Storm Drain" message on manhole covered lids is stamped in. City staff have scheduled a quality control review of the installed DAS markers for FY2018-19.

Coordination with Public Schools (K-12)

Task	Description	Compliance Status	Tasks Comments
1	The Stormwater Program Manager will either be responsible for distributing, or delegating the distribution of, information about school based outreach and educational materials to public schools within the City. This may include disseminating information on how to obtain copies of materials and providing lending opportunities for the watershed diorama, and may include working with outside groups who work directly with school children providing pollution prevention and water education.	Fully Compliant	The City participated in Teacher's Night Out at the High Desert Museum, and has a contract with the Environmental Center to conduct utility education, including stormwater, to local elementary students.

Local Community Outreach Program

Task	Description	Compliance Status	Tasks Comments
1	The City will participate in community outreach activities from the areas listed below for the purpose of communicating the general stormwater pollution prevention message, complementing regional or statewide coordinated specific messages for target audiences, and facilitating the proper management and disposal of targeted pollutants. The City will participate in at least three activities annually. (a) Distributing local, regional or statewide information through other venues (e.g., local newsletter, local magazine, mailing to target group, computer web site or network, local telephone directories, etc.). (b) Initiating new community events or playing a major role in planning and staging a community or city-wide event. Examples include, but are not limited to, Earth Day, Stream Stewardship Day, or other festival or fair, business mixer, seminar or workshop for a target group, contest, or coordination with businesses to provide pollution prevention discounts (e.g., recycled car wash discount). (c) Developing and raising watershed awareness (d) Coordinating with local volunteer groups to conduct outreach.	Fully Compliant	The City coordinates mainly with Upper Deschutes Watershed Council and the Environmental Center to conduct outreach. City participated in Earth Day, Deschutes River Cleanup (aka Stream Stewardship Day) and Quest at the Fest (July 2017). We distributed stormwater information through both the Bend Park and Recreation District's recreation guide and Smart Shoppers as they tend to have a longer staying power than, say, a daily newspaper.

Summary of Effectiveness

The City exceeded its goals for public participation this year, and as can be seen in reading the individual tasks and effectiveness evaluations, the City is actively improving its programs to become increasingly more efficient and effective. The People's Choice Award contest continued to be effective at leading people to the Clean Water Works website. The partnership with Zolo Media and BendFilm was excellent in helping to get the word out about both clean water and the contest to both students and the public. The film contest entrants have to learn the subject matter well to be able to effectively convey it to the public in a 30-second commercial (see 2018 student film contest winner Marvin professionally shooting part of his winning psa (picture at left). This year with the focus on density pressures, the Stormwater Public Advisory Group is playing a key role for the community, just as it was designed to do.

FY2017-2018 Annual Report

Section 5.0 Illicit Discharge Detection and Elimination

Introduction

The purpose of this component is to eliminate discharges of pollutants from illicit connections and illegal dumping to the storm drainage system. This chapter describes the activities conducted during FY2017-18 to address illicit discharges.

Task	Description	Compliance Status	Tasks Completed	Effectiveness
ISWMP 2006 Task V.1	**Public Education on Illegal Discharges and Improper Disposal.** Develop or acquire public education materials in Year 1 of the permit period and determine an effective means of distribution. As part of this effort, the City will target business categories representing the greatest risk from a stormwater perspective and will research the effectiveness of workshops, self-inspection checklists, business license renewal requirements, and green-program award type programs in determining effective means of distribution. The materials will be	Fully Compliant	The City continues to implement an outreach campaign called Clean Water Works. This year the campaign focuses on three main issues: general illicit discharge information, lead reduction, and sediment reduction. The goal of this program is to provide BMP information in a manner that engages the business by offering incentives such as free TV and radio spots and marketing a discount card. In return, the businesses agree to train staff on stormwater BMPs aimed to reduce illicit discharges or through taking actions to keep our waters clean. The idea was based on concepts from EPA's *Getting In Step* guidance. In February of 2018, the City mailed out partnership invitations and application packets to all businesses in the following classifications: (110) Auto shop, (28) Carpet Cleaners, (561) Contractors,	The City exceeded its goal of conducting outreach to 50% of businesses within a specific segment by distributing the Clean Water Works partnership invites and BMP information to over 1,200 business in 10 separate classifications. The City secured partnership commitments from 49 businesses and non-profits.

Task	Description	Compliance Status	Tasks Completed	Effectiveness
	distributed to all public employees in Year 2 of the permit period. The materials will be distributed to half of the businesses in Year 2 and half in Year 3 of the permit period and yearly thereafter.		(229) Restaurants, (19) Car Washes, (183) Landscapers, (5) RV Dealers, (50) Dental Offices, (10) Stormwater Contractors and (19) Pressure Washers within Bend. The application packet included a letter outlining the program, an applicable BMP fact sheet or guide, and participation form for those interested in becoming a partner (see Appendices C).	
ISWMP 2006 Task V.2	**Illicit Discharge Reporting Mechanism.** Establish a procedure for responding to reports of illicit discharges and advertise an illicit discharge reporting e-mail link on the stormwater pollution prevention web site and reporting telephone hotline.	Fully Compliant	The City continues to use the illicit discharge reporting standard operating procedure (See Appendix D for a copy of the SOP). The City has several ways for the public to report an illicit discharge. The Non-emergency Code Enforcement phone number 541-312-4908, option 5 in the phone tree is for reporting Illicit Discharges. The call is transferred automatically to stormwater staff for follow-up. Another option is the Online Citizen Service Request (CSR). This form is available on the City's webpage and allows the public to report illicit discharges online. The completed form is routed to stormwater program staff for follow-up. The public can also call the	The City continues to improve its reporting mechanisms and targeted public education on illicit discharges. Staff worked with the Public Advisory Group on developing and refining pollution prevention messages. This year the City received 25 IDDE reports, 13 from the public, 10 from City staff, and 2 forwarded from DEQ. The City issued one Notice of Violation for illicit discharges.

Task	Description	Compliance Status	Tasks Completed	Effectiveness
			Utility Department main phone number 541-317-3000, option 2. Customer service staff are trained to enter the information into a CSR that is routed to stormwater for follow-up.	
ISWMP 2006 Task V.3	**Post Warnings About Illicit and Illegal Discharges**. In Year 1 the City will determine whether to use stencils (volunteer friendly but temporary), thermoplastic markers, or other options). Should the City decided to use stencils, the City will provide appropriate storm drain markers for volunteers in Permit Year 2. Bend will require developers to provide storm drain labels in Permit Year 3 (after implementing ordinance and procedure changes).	Fully Compliant	Per the Standards and Specifications (2010), all new and replaced stormwater manhole covers include a permanent imprinted, "Only Rain in the Storm Drain". The City installed 35 new curb inlets catch basins with this permanent imprint in FY2017-18. Additionally, the City has an ongoing volunteer storm drain-marking program, with the installation of round, plastic semi-permanent markers that are affixed to existing catch basins. The marker includes a general "Don't Pollute" message. This year the City installed over 100 markers, exceeding the City's goal of installing 50 markers per year. The City also provides on a first come first serve basis storm drain a limited number of markers for private stormwater facilities in our community.	The City has successfully integrated a method of providing a permanent stormwater quality message on all new manhole lids and curb inlet drainage facilities. Fifty-eight percent of the City's catch basins have either a permanent or a glue-down marker with a stormwater pollution prevention message.
ISWMP 2006 Task V.4	**Post Illicit Discharge Prevention Information on Web Site.** PAC (Now Stormwater Public Advisory	Fully Compliant	Staff continues to coordinate outreach materials with the Stormwater Public Advisory Group and stormwater coordinators. Stormwater related	The City continues to provide information on its website for reporting illicit discharges. The Clean Water Works campaign pages include several

Task	Description	Compliance Status	Tasks Completed	Effectiveness
	Group) to provide input on what to post on web site; SWAT (Now Stormwater Coordinators) to approve and City will post the information online.		materials are located in a central location at: (www.bendoregon.gov/stormwater). The page has five main categories, including "Get Involved" which links to a location to report illicit discharges.	outreach pieces targeting illicit discharge minimization. Staff received 13 calls this year from concerned citizens noting illicit discharges, which suggests that the contact information on the website and other methods is reaching the public.
ISWMP 2006 Task V.5	**Stormwater System Map.** Develop an approach and acquire the tools necessary to map in the first year, and to map 25% of the drainage system per year in the first four years of the permit.	Fully Compliant	The City developed a GIS geodatabase in FY2008-09 for all known stormwater facilities. The geodatabase is updated regularly as appropriate. A public map viewer is available online that includes locations of catch basins, storm drainage pipe and UICs. This viewer is located at: (www.bendoregon.gov/services/mapping-services/interactive-city-map).	The City has successfully conducted an in-field inventory and ongoing maintenance to keep the data map updated. The geodatabase includes directions of pipe flows as well as swales, UICs, and other features.
ISWMP 2006 Task V.6	**Illicit Discharge Ordinance.** Develop a draft ordinance in Year 1 through 3 of the permit period, finalize, and implement the ordinance by Year 5 of the permit period.	Fully Compliant	On January 4, 2012, the Council adopted a stormwater ordinance adopting Bend Code Title 16. Chapter 16.20 of the ordinance covers Illicit Discharge Controls. In FY2012-13, the City finalized the Illicit Discharge Best Management Practices Minimization Manual. Additionally, as part of the ordinance effort, interdepartmental staff worked through roles and responsibilities in 2012. The Stormwater utility takes primary responsibility for illicit discharge	The City has successfully developed a stormwater ordinance, Bend Code Title 16 and the Illicit Discharge Manual. The City continues to implement the code, provide education materials and issue violations when voluntary compliance cannot be reached.

Task	Description	Compliance Status	Tasks Completed	Effectiveness
			inspection, response and follow-up.	
ISWMP 2006 Task V.7	**Program to Detect and Address Illicit Discharges.** Evaluate the existing program and identify additional program requirements and resource and training needs in Year 3. Additional resources and training will be acquired in Year 4. The program implementation will begin in Year 5.	Fully Compliant	The Utility Department works closely with Operations staff, Building Inspectors, Engineering Inspectors and Industrial Pretreatment Program staff to coordinate IDDE efforts. The City Stormwater Analyst is responsible for following up on illicit discharge notifications and complaints. When a spill or illicit discharge is noted, the Stormwater Analyst investigates to attempt to find and properly address the source. The Stormwater Compliance Specialist oversees erosion and sediment control enforcement and post construction site inspections. The City uses a program called Target Solutions to track staff training, exam results and to ensure stormwater performance standard trainings are occurring. In FY2017-18, public works staff were trained in: Concrete Use and Disposal; Winter Road Care; Leaky Equipment and Fueling; Spill Prevention, Control and Cleanup; Utility/Road Repair & Maintenance; Pressure Washing and Surface Cleaning; Vehicle and Equipment Washing; and Paint Use and Disposal. The trainings are	The City continued to use its tracking system, maintaining a spreadsheet of stormwater-specific follow-up actions, tracking 24 events in FY2017-18 (see Appendix D). Construction site IDDE and erosion complaints are tracked in a separate database (See Chapter 6). See Appendix D for a complete list of all staff that received training on the performance standards, including specific training on illicit discharge detection and notification.

Task	Description	Compliance Status	Tasks Completed	Effectiveness
			provided as a series of stormwater-performance standard specific trainings and are implemented throughout the year to appropriate staff. Staff continue to conduct inspections of the City's 15th Street and Boyd Acres Corporation Yards in conjunction with quarterly Safety Inspections.	
ISWMP 2006 Task V.8	**Minimize Landscape Irrigation Runoff.** In Year 1 and Year 2 determine efforts most effective in minimizing irrigation runoff by examining existing water patrol and smart (climatologically-based) controller efforts, and examining review and approval process for proper design and installation of irrigation systems. Funding mechanisms to also be determined. Determine methods to improve. Implementation of approved ideas are scheduled to begin in Year 3 and continue in Year 4.	Fully Compliant	City stormwater staff work closely with water conservation staff to minimize dry weather flows from irrigation runoff. The water conservation group continued its sprinkler inspection program, offering free sprinkler inspections for utility customers. Staff performed over 200 inspections this year, reducing water use and adjusting sprinkler heads to eliminate overspray onto city streets and sidewalks. City staff worked with the OSU extension program to update the *Water-wise Gardening in Central Oregon Guide* (formally called *Xeriscape in the High Desert*). This new guide includes information on stormwater design as well and incorporates plants suitable for stormwater infiltration facilities.	The work of the Water Conservation program has resulted in increased efforts towards improving landscape irrigation efficiency and reducing landscape irrigation runoff.

Task	Description	Compliance Status	Tasks Completed	Effectiveness
			The revised Water-wise Gardening guide was published in February of 2017. A copy of the guide is available online at (https://catalog.extension.oregonstate.edu/em9136/viewfile).	
ISWMP 2006 Task V.10 (Note: Task V.9 was omitted in error.)	**Performance Standards.** Prepare draft performance standards starting in Year 3 for obtaining internal review, and finishing in Year 4 for inclusion in the permit package.	Fully Compliant	Performance standards have been completed and incorporated into the ISWMP 2022. The ISWMP 2022 was approved by DEQ as part of the WPCF-UIC permit issuance but has not yet been accepted as part of the City's NPDES permit reissuance that remains in negotiation. Performance Standards implementation status is available in Illicit Discharge Control Performance Standard tables below.	The City's implementation of the performance standards is in full compliance with the ISWMP 2022.
ISWMP 2022 BMP V-1	**Public Education on Illegal Discharges and Improper Disposal (MS4 and UIC).** Continue to develop or acquire public education materials and determine an effective means of distribution (with prioritization). As part of this effort, the City will target business categories representing the greatest risk from a stormwater perspective and seek to use effective means of	Fully Compliant	ISWMP 2006 Task V.1 completed tasks.	See ISWMP 2006 Task V.1 effectiveness.

Task	Description	Compliance Status	Tasks Completed	Effectiveness
	distribution. The City will work to coordinate with other programs (e.g., Industrial Pretreatment Program and the Water Conservation Program related to landscape irrigation). Progress will be deemed satisfactory if all task deadlines are met.			
ISWMP 2022 BMP V-2	**Illicit Discharge Reporting Mechanism (MS4 and UIC).** Continue to provide and advertise an illicit discharge reporting email and/or phone link on the stormwater pollution prevention web site and outreach.	Fully Compliant	See ISWMP 2006 Task V.2 completed tasks.	See ISWMP 2006 Task V.2 effectiveness.
ISWMP 2022 BMP V-3	**Post Warnings About Illicit and Illegal Discharges (MS4 and UIC).** Include storm drain message permanent marking requirements in standards and specifications. Organize volunteers to paint or post markers, as appropriate. Markers to be posted (at least 50 per year on average)	Fully Compliant	See ISWMP 2006 Task V.3 completed tasks.	See ISWMP 2006 Task V.3 effectiveness.

Task	Description	Compliance Status	Tasks Completed	Effectiveness
ISWMP 2022 BMP V-4	**Post Illicit Discharge Prevention Information on Web Site (MS4 and UIC).** PAG, public or staff to provide input on what to post on web site; SC to approve. City to post information.	Fully Compliant	See ISWMP 2006 Task V.4 completed tasks.	See ISWMP 2006 Task V.4 effectiveness.
ISWMP 2022 BMP V-5	**Implement Illicit Discharge Regulations (MS4 and UIC).** Continue to implement the illicit discharge sections of Bend Code Title 16 per the schedule in the Code.	Fully Compliant	See ISWMP 2006 Task V.6 completed tasks.	See ISWMP 2006 Task V.6 effectiveness.
ISWMP 2022 BMP V-6	**Implement Performance Standards Related to Illicit Discharge Controls (MS4 and UIC).** Implement the performance standards per the ISWMP 2022 schedule.	Fully Compliant	See ISWMP 2006 Task V.10 completed tasks.	See ISWMP 2006 Task V.10 effectiveness.

Illicit Discharge Control Performance Standards

Prepare For Illicit Discharge Screening and Investigations

Task	Description	Compliance Status	Tasks Comments
1	Receive information on non-stormwater discharge reports;	Fully Compliant	See Task V.2
2	Assure that needed follow-up, elimination, and cleanup of illicit discharges are conducted;	Fully Compliant	See Task V.2
3	Provide other staff with information about the status of source identification and elimination. In particular, staff who identify an illicit discharge will be informed about its outcome;	Fully Compliant	See Task V.7
4	Make sure required reporting is completed;	Fully Compliant	See Task V.7
5	Distribute information to the City's management and elected officials, as requested, about the resources needed to implement these performance standards;	Fully Compliant	See Task V.7
6	Facilitate the implementation of these performance standards; and	Fully Compliant	See Task V.6
7	Be responsible for sharing activities and findings with the Stormwater Coordinators	Fully Compliant	Staff attends and shares updates during Roundtable and other discussions at Stormwater Coordinators meetings
8	Train at least biennially City staff who maintain and repair the municipal storm drain conveyance system. Train other municipal staff who conduct field work where illicit discharges are likely to occur, to recognize illicit discharges and the procedures for responding to these discharges. Train all new staff who fill positions as described above, about illicit discharge recognition and response procedures.	Fully Compliant	See Task V.7
9	Keep maps of the completed municipal storm drain system sufficiently accurate to be used for tracing illicit discharges.	Fully Compliant	See Task V.5
10	Train City staff assigned to conduct illicit discharge investigations on the knowledge and skills necessary to be effective. They will be familiar with	Fully Compliant	Fact sheets were developed in previous years and staff are trained on-line through Target

Task	Description	Compliance Status	Tasks Comments
	guidance developed by the City and DEQ staff and these performance standards.		Solutions. Trainings this year included Concrete Use and Disposal, Illicit Discharge Recognition and Reporting, Paint Use and Disposal, Pressure Washing & Surface Cleaning; Spill Prevention Control and Cleanup; Street Sweeping; Utility Road Repair & Maintenance; Vehicle and Equipment Washing (See Appendix D). Two program staff also attended the Center for Watershed Protections Lunch and Learn "IDDE 101" on December 19, 2017 (See Appendix D).

Conduct Field Screening

Task	Description	Compliance Status	Tasks Comments
1	Begin program to identify evidence of illicit discharges to the municipal storm drain conveyance system, using municipal maintenance and other local field staff while they are conducting their routine work. Report any evidence of illicit discharges identified during these field screening activities to the Stormwater Program Manager or designee for follow-up.	Fully Compliant	See Task V.7

Conduct Field Investigations

Task	Description	Compliance Status	Tasks Comments
1	Verify whether an illicit discharge has occurred, using information provided as part of field screening and complaints received from the public or other agencies. The goal will be to initiate follow-up activities within twenty-four	Fully Compliant	See Task V.2

Task	Description	Compliance Status	Tasks Comments
	business hours from the time the Stormwater Program Manager receives the report.		
2	When an illicit discharge has occurred, find the source and eliminate it, as soon as possible. Trace the source(s) of the illicit discharge using storm drain maps, inspecting manholes, and making surface observations. Record and maintain findings, as appropriate.	Fully Compliant	See Task V.2
3	Continue to inspect and follow-up illicit discharges until: a. The source of the illicit discharge is found and eliminated1; or b. The discharge has stopped and cannot be traced to a source"	Fully Compliant	See Task V.2
4	"If the City identifies three or more illicit discharges in a fiscal year within an area served by any major outfall or a UIC within a two year time of travel or wellhead protection area, additional illicit discharge investigations will be conducted in the area(s) served by the major outfall(s)/UIC during the subsequent fiscal year or sooner. These additional investigations will include one or more of the following, as appropriate: a. Periodic above ground surveillance of the area for visual evidence of illicit discharges; b. Additional inspections of businesses, if appropriate; c. Additional periodic investigations of outfalls, UICs, waterbodies, and open channels for evidence of illicit discharges; and/or d. Additional targeted educational outreach in the area."	Fully Compliant	Although no illicit discharges were found or reported in areas draining to the river outfalls this year (see Appendix D), stormwater outfalls were visually inspected on the east side of the river between Galveston Bridge and Freedom Bridge (at Portland) in FY2017-18 as part of a project scoping effort. No illicit discharges were found.

Follow-Up to Field Screening and Investigations

Task	Description	Compliance Status	Tasks Comments
1	"When a party responsible for an illicit discharge is found, provide the responsible party with: a. educational information about the impacts of his or her actions, b. the requirements of the local stormwater ordinance, c. options for proper discharge or disposal, and/or d. educational materials describing BMPs. When the source of an illicit discharge has not been found, distribute educational outreach materials to residents and/or businesses located in the immediate vicinity of the illicit discharge."	Fully Compliant	See standard operating procedure in Appendix D.

Task	Description	Compliance Status	Tasks Comments
2	If the discharge is traced to a business, the Stormwater Program Manager, or delegated staff, will distribute appropriate educational and BMP information.	Fully Compliant	Distribution of educational material is a first step with all IDDE follow-up.
3	The goal of follow-up investigations will be to stop the illicit discharge(s) as soon as practicable and protect water quality to the maximum extent practicable.	Fully Compliant	
4	Begin enforcement procedures, if appropriate, as per the enforcement authorities as set forth in the City's municipal ordinances. a. Investigate and record reported spill reports and/or complaints about incidents within the City. b. Become familiar with existing spill prevention, containment, response, and clean-up programs that cover the city's jurisdiction. c. Coordinate illicit discharge prevention, elimination, and clean-up activities with existing programs. d. Establish a mechanism for obtaining information about spill incidents from other agencies and departments within the municipality so that source identification and follow-up activities can be coordinated.	Fully Compliant	See BMP Task V-6

Document and Report Completion

Task	Description	Compliance Status	Tasks Comments
1	Document the number and types of illicit discharge incidents reported and follow-up investigations conducted within the agency's jurisdiction. (This does not include information from fluid spills from automobile accidents.)	Fully Compliant	See BMP Task V.2
2	Collect information for annual reporting including: a. Number of illicit discharges identified as part of staff investigations;	Fully Compliant	See BMP Task V.2

Task	Description	Compliance Status	Tasks Comments
	b. Number of illicit discharge reported by other city staff and the public; and c. Follow-up activities.		

Summary of Effectiveness

The City has made significant progress including improved legal authority and clarifications through the illicit discharge ordinance section and associated Illicit Discharge Manual that now provides for additional education and enforcement in an effort to reduce illicit discharges. Since FY2010-11, the City has been using its customer service database program (INFOR). This program effectively assists in tracking initial stormwater illicit discharge reports and helps verify that the proper staff are notified of the incident. The City also continues to effectively use the online citizen service request to respond to illicit discharge reports. Stormwater staff are also seeing improvements in spill response notification from fire and water/wastewater utilities.

The City has effectively improved its staff training approach that will help reduce illicit discharges, and notification of spills. Illicit discharge detection and elimination efforts naturally appear to focus on sanitary sewer/septic system cross connections.

FY2017-2018 Annual Report
Section 6.0 Construction Site Stormwater Activities

Introduction

The objective of this component is to control pollutants discharged to municipal storm drains from new and redevelopment construction activities to the maximum extent practicable. Several of the pollutants of concern within the Deschutes River are directly attributed to sediment loading. The City sees it as a priority to reduce stormwater related sediment contributions into the river within its jurisdiction. Sediments are a major pollutant that can come off uncontrolled construction sites and have the potential to clog stormwater facilities (e.g. drywells, drill holes, and swales) and negatively impact the Deschutes River, which is 303(d) listed for sediment and turbidity within the City of Bend.

Construction sites that disturb one or more acres and discharge stormwater directly to a surface water body are already regulated through the state-administered NPDES 1200-C permit program. Many construction sites within the City limits are either smaller than one acre or the stormwater discharges do not drain to a surface water. As part of the Bend Code Title 16 Stormwater Ordinance, approved grading plans are required for all development activities that are adding 5,000 square feet or more of impervious surface or one or more UICs. Additionally, in ordinance with the Bend Code Title 16 Performance Standards, sediment must be prevented from reaching the storm drain system for all construction sites regardless of size.

Task	Description	Compliance Status	Tasks Completed	Effectiveness
ISWMP 2006 Task VI.1	**Evaluate and Update Regulatory Authority and Procedures** Evaluate existing legal authority in Permit Year 1. If necessary, the ordinance, or other regulatory mechanism and procedures will be updated and adopted in the second permit year.	Fully Compliant	In FY2017-18, The City finished a full review and update of the Design Standards, Construction Specifications and the Development Codes. The revised standards and specifications include additional/modified erosion and sediment control details while continuing to include the COSM ESC requirements. The revisions can be found here: https://www.bendoregon.gov/government/departments/community-development/private-development-engineering-	The City has successfully improved and updated design standards and specifications while continuing to include the requirements of Bend Code Title 16 and the COSM. The Stormwater Compliance Specialist has continued to take the lead on inspection form revisions, attendance of pre-construction meetings to provide ESC education/expectation, ESC verification inspections, and

Task	Description	Compliance Status	Tasks Completed	Effectiveness
			division/standards-and-specifications The City's stormwater staff continues to work with city inspectors, engineers, contractors and developers to implement Bend Code Title 16 (January 2012). Part of the implementation process is the review of development and construction site plans through E-Plans, an electronic review software along with joint and coordinated inspections. The Stormwater Compliance Specialist continues to be responsible for educating, inspecting, regulating and enforcing construction site stormwater ESC compliance.	enforcement when needed. An ESC Verification Inspection form is attached in Appendix E.
ISWMP 2006 Task VI.2	**Construction Site Educational Materials** Develop or acquire public education materials in Year 1 of the permit period. The materials will be distributed to construction site operators in Year 2 and 3 of the permit period. The plan sheet will be developed in Year 4, and will be distributed and incorporated into standard operating	Fully Compliant	The City sent a Clean Water Works Partnership invite to 561 construction contractors, 10 stormwater maintenance companies, and 183 landscape contractors. The packet sent in February 2018 included an invite cover letter, partnership participation pledge sheet, Clean Water Works window decal, flyer to attend the City of Bend Erosion and Sediment Control Training Course, the 20-page illustrated ACWA Construction Site Stormwater Guide, and a fact sheet entitled "Sediment Prevention for Businesses" that includes	The City has met the schedules for this task in addition to providing additional education materials and incentive programs. Twenty-two construction contractors, landscapers, and stormwater maintenance companies participated in the Clean Water Works Partnership program. The City continues to look for opportunities to partner with groups like ACWA and IECA to produce cost effective high quality outreach materials.

Task	Description	Compliance Status	Tasks Completed	Effectiveness
	procedures in Year 5.		information on both post-construction as well as construction erosion and sediment control. The second page included a segment entitled, “What Can You Do as a Builder/Contractor” with five BMPs and a list of resources for more information. (See Appendix E for fact sheet). The City continued to provide on our website the “Single Family Example Drainage Plan” to project proponents to help with implementation of Bend Code Title 16 (see FY2012-13 Annual Report, Appendix E for copies). This can be used to help calculate stormwater flows and encourages the use of Low Impact Development, along with a “Suggested BMPs for Single Family Construction Sites—Example Erosion and Sediment Control Plan”. City staff have placed several construction site references on its website: www.bendoregon.gov/cleanwaterworks. The references include, in addition to the three named above, the following links: • Sediment Fact Sheet for Businesses • Maintain Construction Site BMPs Poster • Erosion and Sediment Control Fact Sheet • Grading Clearing & Erosion Permit Flow Chart	

Task	Description	Compliance Status	Tasks Completed	Effectiveness
			• Drainage Submittal Flow Chart • Sample Erosion and Sediment Control Plan - Single Family Residential • Stormwater Maintenance Agreement • Central Oregon Stormwater Manual • Construction Stormwater Pollution Prevention (NPDES Webcasts) • Construction Stormwater Pollution Prevention Plan Development	
ISWMP 2006 Task VI.3	**Construction Site Inspections and Violation Hotline** Identify a department to monitor the hotline in the third permit year, set up, and publicize the hotline by the fifth permit year.	Fully Compliant	Grading and ESC questions were routed to the City's Stormwater Compliance Specialist to coordinate compliance, investigate, and follow-up on cases. When ESC deficiencies are discovered on-site, the Stormwater Compliance Specialist in coordination with City inspectors, provides verbal education and warnings. If the ESC deficiencies are not addressed by the time the Stormwater Compliance Specialist returns for the next inspection, a formal Stormwater Violation Letter outlining the compliance deficiencies, inspection history, required corrective actions, and potential enforcement procedures may be issued. Long term compliance deficiencies can be enforced with the issuance of a civil penalty in coordination with City of Bend legal team. An	Both commercial construction activity and single-family home starts have stayed elevated compared to prior years. To meet compliance goals, the Stormwater Compliance Specialist and Engineering/Building Inspectors provided verbal education, warnings, and enforcement measures to meet construction-site stormwater management goals. The Stormwater Compliance Specialist can issue a Stop Work Order until the problem is remedied, which prevents a project from progressing. This procedure proved to be an effective way to encourage contractors to repair erosion control deficiencies in a timely manner. City staff continues to

Task	Description	Compliance Status	Tasks Completed	Effectiveness
			example Stormwater Violation Letter is attached in Appendix E. For a feel for workload levels in FY2017-18, over 53,000 total citywide inspections were requested from the Community Development Department across disciplines. Additionally there was 877 single-family residential starts and 478 approved commercial final inspections. Erosion and sediment controls are required on all city issued construction permits. Engineering inspectors and the Stormwater Compliance Specialist inspected for erosion and sediment controls on these permits, providing guidance and warnings as needed.	review roles and responsibilities through the LEAP process in which we work to upgrade our citywide computer software. With a continued high workload on the Community Development and Engineering departments, the Stormwater Compliance Specialist continues to devote a focus on construction site ESC inspections, therefore increasing compliance effectiveness and helping Inspectors with complaint response. The Stormwater Compliance Specialist along with other Utility staff made 223 construction site visits, attended 36 preconstruction meetings, issued 1 Stormwater Notice of Violation letter, and issued 1 stop work order; these events were recorded in the Inspection Tracking Log Book (see Appendix E).
ISWMP 2006 Task VI.4	**Construction Site Education** The SWAT, with input for the PAC, will determine the best way to set up an education program for staff	Fully Compliant	In April 2018 the City of Bend Utility Department hosted two separate 8-hour Erosion & Sediment Control Workshops geared towards local contractors. The initial announcement flyer was sent out with our Clean Water Works packet	Between the webinars and Erosion & Sediment Control Workshops, the City has exceeded its biennial training requirements for this task.

Task	Description	Compliance Status	Tasks Completed	Effectiveness
	and the public. Provide education and implementation materials to planning and engineering staff. Provide education and implementation materials to inspectors. Provide education and implementation materials to construction industry personnel.		to local construction contractors and engineers. Additionally, the Stormwater Compliance Specialist distributed flyers during preconstruction meetings and site inspections. The City had 43 sign-ups for the class and 33 attendees. All but a few were local contractors and engineers. The City contracted with Nathan Hardebeck of Clean Water Technologies to provide the majority of the training and organize a hands-on erosion control BMP demonstration in the field. To make the class more applicable to our region, several local presentations were included with this training. Krista Ratliff of Oregon DEQ provided an update on the 1200c permit. Kyle Thomas, City of Bend's Construction and Right-of-Way Manager, gave a presentation on the City's construction permitting process. Wendy Edde, City of Bend's Stormwater Program Manager, gave an overview of the City's Stormwater program. Sean Mulderig, City of Bend's Stormwater Compliance Specialist gave an overview of the City's erosion and sediment control regulations and the issues that he encounters in the field during inspections.	Since the City decided to make two separate Erosion & Sediment Control Workshops, people expressed interest in taking the full Certified Erosion and Sediment Control Lead Certification. The City will contemplate the idea to alternate training from year-to-year. A copy of the presentations, sign-in sheets, and a course evaluation summary have been included in Appendix E. Additionally, the City of Bend has hosted several Construction ESC related webinars (see Table 6-1 below). Copies of the webinar announcements, sign-in sheets and evaluations are available in Appendix E. The City's LEAP (Leading Effective Applications and Processes) efforts will continue through FY2017-18. These involve implementing CityView software that will provide better tracking, and an improved customer service portal thus increasing efficiency and customer experience.

Task	Description	Compliance Status	Tasks Completed	Effectiveness
ISWMP 2006 Task VI.5	**Participate in Regional Coordination Activities: Regional Stormwater Control Manual** In Year 1 and possibly 2, City staff will review the draft regional manual sections pertaining to construction activities and provide comment as requested. In Years 2 and 3, City staff will tailor necessary portions of the manual to the specifics within Bend. Implementation will begin in Year 3 and continue through Year 5.	Fully Compliant	The Central Oregon Stormwater Manual (2010) has continued to be incorporated into the City's Design Standards, Construction Specifications, and Bend Code Title 16.	The COSM (2010) is part of the City's development rules, referred to in both the Standards and Specifications and Bend Code Title 16.
ISWMP 2006 Task VI.6	**Performance Standards** Prepare draft performance standards starting in Year 3 to obtain internal review, and finishing in Year 4 for inclusion in the permit package.	Fully Compliant	Performance standards have been completed and incorporated into the ISWMP 2022. The ISWMP 2022 (November 2012) was approved by DEQ as part of the WPCF-UIC permit issuance to begin in FY2013-14 and is being considered by the DEQ as part of the NPDES permit reissuance, expected to be a statewide general permit. A summary of initial implementation status of the New Development, Redevelopment, and Construction Site Controls Performance	The City's implementation of the performance standards is in full compliance with ISWMP 2022. The City will review the performance standards again when the upcoming NPDES permit conditions are known.

Task	Description	Compliance Status	Tasks Completed	Effectiveness
			Standards are available in the table below.	
ISWMP 2022 BMP VI-1	**Implement the Stormwater Regulations (MS4 and UIC)** Implement the illicit discharge, erosion and sediment control and pollution prevention sections of Bend Code Title 16 and the Standards and Specifications.	Fully Compliant	See Task Completed: ISWMP (2006) Task VI. 1 Evaluate and Update Regulatory Authority and Procedures (MS4/UIC).	See Effectiveness: ISWMP (2006) Task VI. 1 Evaluate and Update Regulatory Authority and Procedures (MS4/UIC).
ISWMP 2022 BMP VI-2	**Implement Performance Standards Related to Construction Site Controls (MS4 and UIC)** Implemented the performance standards per the ISWMP 2022 schedule in Appendix B.	Fully Compliant	See Task Completed: ISWMP (2006) Task VI.6 Performance Standards (MS4/UIC).	See Effectiveness: ISWMP (2006) Task VI.6 Performance Standards (MS4/UIC).

New Development, Redevelopment, and Construction Site Controls Performance Standards

Development Plan Review and Permitting

Task	Description	Compliance Status	Tasks Comments
1	Obtain adequate legal authority to implement stormwater quality control measures for development, redevelopment, and construction activities as part of the development plan review and approval process.	Fully Compliant	See Bend Code Title 16, City of Bend Standards and Specifications and Central Oregon Stormwater Manual
2	Require developers and owner/builders of projects that include permanent stormwater facilities to ensure ongoing operation and maintenance of the facilities, as part of project approval documents.	Fully Compliant	See Bend Code Title 16, City of Bend Standards and Specifications and Central Oregon Stormwater Manual
3	Require developers and owner/builders of projects with potential for significant erosion and planned construction activity to plan, prepare for and implement effective erosion and sediment controls.	Fully Compliant	See Bend Code Title 16, City of Bend Standards and Specifications and Central Oregon Stormwater Manual
4	Ensure municipal capital improvement projects also include stormwater quality control measures during and after construction, as appropriate for each project.	Fully Compliant	Stormwater Utility staff review CIP projects to ensure stormwater quality control measures are included.
5	Inform developers and owner/builders of projects that disturb a land area of one acre or more in an area that drains to a surface water body of the state requirement to obtain coverage under the DEQ 1200C permit.	Fully Compliant	City has developed a map showing which locations in the City are in areas that may be subject to DEQ 1200C permits.
6	Require developers and owner/builders to control stormwater quality impacts of their projects by using appropriate BMPs. Encourage projects with significant stormwater pollution potential to mitigate impacts through site planning or design practices and/or post construction controls4. For such projects, the developer and owner/builder will be encouraged to avoid, minimize, and mitigate, in that order, the potential adverse impacts to water quality.	Fully Compliant	City has educational materials available on the stormwater website and Stormwater Coordinators are actively developing ways to improve information flow to the development community.
7	Review and refine, if necessary, the stormwater ordinance requiring site planning or design practices and/or post construction controls to protect water quality.	Fully Compliant	Standards and Specifications were updated this fiscal year (see Section 2.)

Task	Description	Compliance Status	Tasks Comments
8	Review, and as appropriate, incorporate policies and implementation measures into the General Plan and Development Code to help preserve and enhance water quality and protect sensitive areas. General Plan and Development Code amendments will be adopted periodically as part of the City's ongoing General Plan and Development Code updates.	Fully Compliant	General Plan was not updated this year, but existing plan contains protections.

Erosion and Sediment Control

Task	Description	Compliance Status	Tasks Comments
1	Maintain an erosion and sediment control program that includes requirements for minimum performance standards, sufficient enforcement authority, training and tools for inspectors, and information for developers and contractors.	Fully Compliant	See BMP tasks above and Appendix E.
2	As a condition for issuing a grading permit, require developers and owner/builders to prepare, submit for review and approval, and implement effective erosion and sediment control measures as per City regulations.	Fully Compliant	See BMP tasks above.

Construction Inspection

Task	Description	Compliance Status	Tasks Comments
1	For development projects with significant erosion potential, require that erosion and sediment control measures are implemented through a construction inspection process. Measures will be implemented in accordance with local ordinances and project conditions of approval, including the approved erosion and sediment control plan. Measures will also be maintained as needed during construction.	Fully Compliant	See BMP tasks above and Appendix E.
2	Through a construction inspection process, require that construction contractors properly store, use, and dispose of construction materials, chemicals, and wastes from construction sites and prevent illicit discharges to the storm drains and watercourses.	Fully Compliant	See BMP tasks above and Appendix E.
3	As part of normal inspections, municipal inspectors will review construction sites for adequacy of stormwater quality control measures. The municipal	Fully Compliant	Communication between CDD inspectors and Utility

Task	Description	Compliance Status	Tasks Comments
	inspectors will prioritize assistance and guidance to onsite inspectors based on the following criteria: a. Project's potential impact on stormwater quality; b. Size of the project; c. Site topography and soil characteristics; d. Season in which the construction phase occurs; and e. Nature of the construction activity."		Environmental Compliance is strong. The Utility Environmental Compliance specialist is able to prioritize his work with these criteria.
4	Require that each active construction site either be stabilized or have supplies and roll-out plans for immediate stabilization to be deployed prior to a major storm to minimize erosion and discharges of sediment from disturbed areas. As part of normal inspections, municipal inspectors will review to make sure these requirements are being met.	Fully Compliant	Requirements are discussed and preconstruction meetings.
5	Review the inspection of construction sites with erosion and sediment controls following complaints or reports of sediment or pollutants being discharged in the public right of way.	Fully Compliant	Complaints and referrals are prioritized.

Education and Outreach

Task	Description	Compliance Status	Tasks Comments
1	"Distribute appropriate educational and training materials to city staff, contractors, construction site operators, developers, and owner/builders such as: a. Construction BMPs including erosion and sediment controls; b. Available guidance on the DEQ 1200C permit, if applicable; c. Site planning or design measures and post construction controls; and d. Information provided by DEQ staff regarding State and Federal permit and approval requirements for related project activities. Distribute this information and guidance materials to developers and owner/builders early in the application or design review process, or have available on the City's website as appropriate for the type of project."	Fully Compliant	See BMP tasks above and Appendix E. In addition to the workshop, all construction contractors received educational materials as part of their invite to participate in the Clean Water Works Partnership Program.
2	Train, at least biennially, appropriate construction inspection staff on inspection procedures, documentation, and enforcement related to stormwater pollution prevention.	Fully Compliant	See BMP tasks above and Appendix E.

Task	Description	Compliance Status	Tasks Comments
3	Train, at least biennially, staff from planning, building, and public works staff on planning procedures, policies, design guidelines, and BMPs for stormwater pollution prevention and control.	Fully Compliant	City staff along with contractors were invited to and attended the ESC training. City staff also engaged in several meetings as part of the LEAP project aimed at improving our communication software. The meetings walked through the procedures, needs, and policies for the different groups and efforts are being made to improve and increase efficiency with the set up of City View software.
4	Distribute appropriate educational and outreach materials provided by the DEQ to those utility contractors (water supply, cable, phone, electrical, etc.) seeking encroachment and/or grading permits from the municipality.	Fully Compliant	DEQ staff participated in the training.

Enforcement Actions

The City has the ability to provide education, warnings, red tags (stop work orders), and monetary citations to violators. Most often, the Stormwater Compliance Specialist and Building/Engineering inspectors work to educate as part of standard operating procedure and this approach quickly resolves any potential issues. In FY2017-18, one formal notice of violation letter was issued, one stop work order was issued, and multiple verbal warnings resulted in compliance without the need for escalation. These events were recorded in the Inspection Tracking Log Book (see Appendix E).

Summary of Effectiveness

The City has successfully implemented the tasks in this component. Staff has continued to focus on education and coordination efforts, both internally and externally to ensure effective and smooth implementation of Bend Code Title 16, the Standards and Specifications, and the Central Oregon Stormwater Manual. The City has improved the program this year with the continued integration of the Stormwater Compliance Specialist to handle ESC compliance tasks along with inspection needs. The adoption of Bend Code Title 16 provides adequate enforcement authority. Feedback from trainings is used to refine effectiveness and selection of future trainings. The City develops and distributes new education materials as the needs present themselves, and is working towards improving enforcement staffing. In FY2017-18, Utility staff made 223 construction site visits, attended 36 preconstruction meetings, issued one formal notice of violation letter, and issued one stop work order. City staff continues to review roles and responsibilities through the LEAP process in which we work to upgrade our citywide computer software. Additionally, the City is continuing to refine its enforcement plan as roles and responsibilities change due to workload, experience, record-keeping needs, and technological capabilities.

FY2017-2018 Annual Report

Section 7.0 Post-Construction Stormwater Management and Redevelopment

Introduction

The objective of the Post-construction Stormwater Management in New Development and Redevelopment chapter is to minimize the discharge of pollutants in stormwater from new developments and redevelopments within the City limits.

Task	Description	Compliance Status	Tasks Completed	Effectiveness
ISWMP 2006 Task VII-1	**Participate in Regional Stormwater Control Manual and Tailor to Bend (MS4 and UIC).** In Year 1 through 2, City staff will review the draft regional manual sections pertaining to post construction controls and provide comment as requested. In Years 2 and 3, City staff will tailor necessary portions of the manual to the specifics within Bend and distribute via posting the information to the website and providing to planning, engineering and inspection departments for distribution. Implementation will begin in Year 3	Fully Compliant	The Central Oregon Stormwater Manual (2010) has been adopted as part of Bend Code Title 16 and the City's Standards and Specifications. Links to the COSM are available on the City's website. https://coic2.org/community-development/water-resources/	Obtaining a DEQ review of the revised COSM (2010) and adopting the manual as part of the City's Standards and Specifications and Bend Code Title 16 helped encourage its widespread use and provided the City enforcement authority to require it's use. Other municipalities that have adopted the manual include Deschutes County and the City of Redmond, so it is serving as a regional guide. The COSM may need to be reviewed to consider DEQ's current risk-evaluation on stormwater UICs and new post-construction control requirements coming out of the anticipated NPDES Phase II MS4 general permit once finalized. Team members briefly discussed this in FY2016-17 but decided

Task	Description	Compliance Status	Tasks Completed	Effectiveness
	through Year 5 and continue ongoing.			an update at this time is premature especially given the status with the phase II permit.
ISWMP 2006 Task VII-2	**Operation and Maintenance (MS4 and UIC).** In Year 1 City staff will determine responsibility for maintenance of controls by development type, and will begin updating local regulations, ordinances, and guidance to set up a program requiring operation and maintenance. A tracking program will be set up by Year 2. An O&M verification program that may include inspections of a subset of installed controls will begin in Year 4.	Fully Compliant	City staff has determined that, in general, private developments are required to maintain private stormwater facilities and the City maintains City stormwater infrastructure. Maintenance responsibility for regional controls will be considered on a case-by-case basis. City staff has incorporated long-term operation and maintenance considerations within Bend Code Title 16 (See Annual Report FY2011-12 Appendix A), Bend Code Title 16: section 16.15.040). The code requires all new commercial development to submit a signed private maintenance agreement that will be recorded on the title of the property (see Annual Report FY2013-14, Appendix F for an example). For City-owned facilities, field staff used the INFOR asset management software to assist with maintenance tracking and facilities assets management. Field staff also continues to conduct a review of public stormwater facilities to determine which need to be improved/replaced as	Acquiring maintenance agreements are useful for implementing Bend Code Title 16. In the future, additional guidance on proper maintenance, perhaps adding visuals to the maintenance descriptions in the COSM or other guidance, may help improve understanding of proper maintenance. Preventative maintenance routes have been established in the INFOR system, and are being used to schedule and track routine maintenance operations. With the addition of the Stormwater Compliance Specialist, in FY2017-18 70 inspections of public stormwater facilities have been conducted and outstanding maintenance and installation deficiencies have been identified. This shows a marked increase in number of inspections. The finding will help improve future maintenance on installation as program staff share findings with

Task	Description	Compliance Status	Tasks Completed	Effectiveness
			part of their everyday maintenance activities. With the addition of the Stormwater Compliance Specialist, the City has improved its intensive O&M verification program to identify existing deficiencies in public stormwater facilities. This effort included updating inspection sheets (see Task VII.3). The O&M verification program is tracked on Sharepoint. On the private side, the City continues to use E-Plans for project review and electronic record keeping but inspects only on compliant. The city continued an intensive effort in FY2016-17 to better capture private stormwater facilities into their own database for easier retrieval and data analysis. Over 10,162 facilities have been entered into the database by the end of June 2018. The Stormwater Program has copies of both private stormwater plans and private maintenance agreements (90 to date) saved on Sharepoint by tax lot number.	operations and engineering staff.
ISWMP 2006 Task VII-3	**Evaluate and Update Plan Review and Inspection Programs (MS4)** Evaluate existing procedures and	Fully Compliant	**Inspections.** The Stormwater Compliance Specialist has improved inspection documentation of post-construction stormwater controls while also leading the stormwater post-	**Inspection and Plan Review.** The City is continuing to work through implementation of Bend Code Title 16 with respect to fine-tuning inspection and enforcement pathways

Task	Description	Compliance Status	Tasks Completed	Effectiveness
	identify needed changes in Permit Year 1, to make needed changes and draft guidance in Year 2 and to implement the revised programs in Permit Year 3, and continue implementation ongoing.		construction control inspection program. Staff attendance at the Vegetated Private Water Quality Management Training hosted by Clean Water Services and Portland Community College in June 2017 and previously has helped provide guidance in program development. The Stormwater Compliance Specialist has trained and coordinated closely with building and private engineering inspectors. **Plan Review.** Additionally, staff conduct plan reviews of CIP projects and private projects through weekly red line meetings. Stormwater program staff have commented on several internal CIP projects as well to ensure stormwater considerations are being properly met. **Private Database.** In an effort to protect its drinking water resources, the City of Bend Utility Department continued its pursuit to collect location information for all private stormwater facilities. In the dates spanning from July 1, 2017-June 30, 2018, a City of Bend staff member added 1,105 UICs, 458 Swales and 1,829 other stormwater features to its Private Stormwater Geodatabase. The location data was referenced from a number of sources	given the significant reorganizations internally as city growth continues to increase. The City has been monitoring efforts closely and staff have widespread support to work to refine and improve the processes given the changes occurring in the City. With the hire of the Stormwater Compliance Specialist in 2017, the City has developed more effective stormwater facility inspection forms along with an inspection tracking spreadsheet. Copies of inspection forms and an abbreviated copy of the tracking spreadsheet are available in Appendix F. The weekly red line reviews have helped Utility Department staff be more involved in plan review and able to provide comments to ensure proper stormwater requirements are met. **Private Database.** The City has accomplished significant work by reviewing all existing commercial and industrial plans to develop the basis of its new private post-

Task	Description	Compliance Status	Tasks Completed	Effectiveness
			including field crew observations, archived building permits, as-built files, and planning files. These newly created and edited stormwater layers are currently exported once a month into a usable format for the City's map viewer so that it is accessible to and viewable for City stormwater staff. When total examination of all digitized building documents is achieved, additional facilities will continue to be added on the basis of utility staff receiving approved plans to install new stormwater facilities as part of a construction or reconstruction project.	construction control database. This represents about 64% of the commercial and industrial tax lots mapped in the City. Given the currently existing gap between all collected facilities and those that are missing from the new database, creative solutions may need to be drawn up to capture the remaining lots; none of these solutions can be handled in the short-term. One proposed solution can be to wait until all physically archived building files are properly scanned (digitally archived) for easier, more efficient consumption of documents currently stored solely in a physical paper format by the City of Bend. Historical building and planning permits should theoretically contain a lot of the pertinent information, even though the initial examination trial for this part of the project was perhaps the least fruitful. It is also beneficial to consider that when looking farther back in time through these historical documents, plot layout might not have

Task	Description	Compliance Status	Tasks Completed	Effectiveness
				remained static, meaning stormwater facilities might not have been tracked or adjusted accordingly on these documents. Another possible solution can come at a time when the City of Bend Stormwater Division has expanded its reach into commercial and industrial monitoring programs. Location information can be concurrently collected while conducting industrial stormwater or other environmental compliance inspections, with the inspector passing newly observed facilities over to City Staff who can enter the new facility into the Private Stormwater database.
ISWMP 2006 Task VII.4	**Post-Construction Control Education** Educate developers, residential do-it-yourselfers and others involved in development and re-development about acceptable stormwater management and operation and maintenance practices. As part	Fully Compliant	On September 7, 2017, the City of Bend hosted an On-site Stormwater Site Design Tour for the PAG. The group toured multiple commercial and residential sites that exemplify proper on-site stormwater retention and treatment, including The Desert Rain Home, Northwest Crossing, 360 Bond's green roof, and the Vision Plaza Building. (See Appendix B for the Agenda and sign-in sheet, and	City staff successfully met the requirements of this task. Incorporating stormwater design considerations into the Water-wise Gardening in Central Oregon Guide (February 2017) and City of Bend Waterwise Landscape Guide helps users consider stormwater drainage and design earlier in the planning process, allowing for

Task	Description	Compliance Status	Tasks Completed	Effectiveness
	of this effort, the City will participate in a regional grant request for Low Impact Development education through coordination with the COIC. Conduct a biennial workshop and make information available on the website.		Chapter 4 for more details). The City provided several training opportunities associated with post-construction stormwater controls to internal staff and/or the public. • Center for Watershed Protection Webinar, "Bringing Better Site Design Into the 21st Century," October 18, 2017 (1 staff person attended) • ASCE-EWRG & APWA, "2017 Sustainable Stormwater Symposium (2 staff attended representing the Engineering and Utility Departments, the City's Stormwater Program Manager participated in the panel session); • Center for Watershed Protection, "Stream Restoration," November 15, 2017 (3 employees attended); • EPA webinar, "National Stormwater Calculator for Managing Runoff With Green Infrastructure," January 31, 2018 (public and employees attended) • Three City staff members attended ACWA's Stormwater Summit held at Lane	more opportunities to affectively address the issues in a sustainable manner. Coordination with water conservation efforts has proven useful and has increased effectiveness. Having continuing education credits available is an incentive to draw the engineering community to the webinar trainings that provide access to national expertise. The distribution and availability of our outreach guides has provided a convenient and effective way for the public to access stormwater LID information at will. The PAG On-site Site Design Tour provided in person education on stormwater LID at an on-site retention/treatment level. This was an effective means to educate developers, residential do-it-yourselfers and others involved in development and re-development about acceptable stormwater management and operation and maintenance practices.

Task	Description	Compliance Status	Tasks Completed	Effectiveness
			County Community College on May 9, 2018. (see Appendix F) In addition the Stormwater Program Manager presented at the OSU's "Green Infrastructure Practices for Cold Weather Climates" workshop held in LaGrande on October 13, 2017. Staff continues to make available the following outreach guides on its website at bendoregon.gov/stormwaterbmp, and several are available through the Permit Center: • Better Site Design Walking Tour Booklet (2013 update) and Points to Ponder • Considering Stormwater at the Conceptual Planning Stage Brochure • Example Drainage Plan—Single Family Residential (2013) • Central Oregon Stormwater Manual (2010) • One Backyard at a Time Video (Bend area examples excerpt) • Oregon Rain Garden Guide • Central Oregon Plants for Stormwater Facilities (May 2013 update) • Stormwater Maintenance Agreement • Links to EPA website low impact development materials	The evaluation responses for the ASCE/APWA panel were generally positive.

Task	Description	Compliance Status	Tasks Completed	Effectiveness
			The City helped distribute "The Oregon Rain Garden Guide" and supplemental plant list for Central Oregon by providing copies at outreach events (i.e., Deschutes River Cleanup and Earth Day). The full color guide includes information specific to Central Oregon. In FY2017-18, City staff continued to promote the OSU Waterwise Gardening in Central Oregon guide (https://catalog.extension.oregonstate.edu/em9136/viewfile). The recent revisions resulted in the incorporation of the Stormwater Management Section of the OSU Waterwise Gardening Guide and the City Infiltration Plant-List developed by PAG members and local experts. The City also promotes the City of Bend Waterwise Landscape Guide, which includes the additions of rain gardens and permeable pavement in the infiltration planting plan figure and a two-page spread on stormwater management (see Appendix F). The City continues to distribute Bend's Better Site Design Walking Tour, which provides an approximately 3-mile walking tour in the Old Mill and Farewell Bend and Riverbend Park areas of better site design features that help improve	

Task	Description	Compliance Status	Tasks Completed	Effectiveness
			water quality by means of low impact development techniques.	
ISWMP 2006 Task VII.5	**Performance Standards** Prepared draft performance standards starting in Year 3 to obtain internal review, and finishing in Year 4 for inclusion in the permit package.	Fully Compliant	Performance standards have been completed and incorporated into the ISWMP 2022. The ISWMP 2022 was approved by DEQ as part of the WPCF-UIC permit issuance with implementation. Implementation efforts are included in the Performance Standards implementation status, available in the table below.	The City is on schedule with implementing the performance standards.
ISWMP 2022 BMP VII-1	**Implement the Stormwater Regulations (MS4 and UIC)** Continue to implement the regulations related to post-construction controls of Bend Code Title 16 and the City Standards and Specifications.	Fully Compliant	The City continues implementation efforts of both the Standards and Specifications and the Bend Code Title 16. Stormwater engineering staff has worked with a landscape architect to ensure success of low impact development into the Reed Market Improvement project. Additionally, the Stormwater Compliance Specialist has worked with the Engineering Department to develop a maintenance plan for vegetated areas in the Right-of-way including bio-swales and planter boxes. Additionally, City stormwater staff continues to participate in the design team to address the stormwater runoff for the 14th Street project and the South Awbrey Butte Drainage Study. Staff	The City continues to implement post construction controls as part of retrofit projects, and was effective in securing budget increases to continue implementing the capital improvement projects outlined in the Stormwater Master Plan, adopted in August 2014. Delays in implementation area result of competing demands. The City is effective at implementing regulations in Bend Code Title 16 as it pertains to post-construction controls by providing plan review and drainage inspections for private development.

Task	Description	Compliance Status	Tasks Completed	Effectiveness
			continued to provide input on other CIP and internal maintenance projects as well. The City is working to tailor its preferred post-construction facilities by area for inclusion in the next Standards and Specifications update. On the private development side, stormwater and engineering staff has continued to regulate post-construction controls through Bend Code Title 16 and the City Standards and Specifications. Plan review and drainage inspections have been implemented into the private development work flow for the Stormwater Compliance Specialist.	See Appendix F for excerpts from an Example Engineering and Infrastructure Department Monthly Report showing status for projects incorporating stormwater improvements.
ISWMP 2022 BMP VII-2	**Implement Performance Standards Related to New Development and Redevelopment Controls (MS4 and UIC)** Implemented the performance standards per the ISWMP 2022 schedule.	Fully Compliant	A summary of the implementation status for the Performance Standards incorporated into ISWMP 2022 and accepted by DEQ under the City's WPCF-UIC permit is included below.	The City has been effective in implementing the performance standards.

Performance Standards

The City engages in a number of performance standards related to post-construction controls. In addition to the performance standards listed below, see also the “Development Plan Review and Permitting” Performance Standards in Section 6.0.

Lifespan Operation and Maintenance Verification Performance Standards

Targeting Inspections to Achieve the Most Benefit

Task	Description	Compliance Status	Tasks Comments
1	"Develop and update as needed, an operation and maintenance review plan or standard operating procedure (SOP) that describes the following: a. The inspecting divisions/department. b. The division/department that will conduct the stormwater follow-up and/or enforcement. c. How information and resources will be coordinated among agencies/departments. d. Priorities for inspecting stormwater facilities. Identify target businesses, if any, with high potential to discharge pollutants to the municipal storm drains or within wellhead protection areas. e. Proper recordkeeping procedures. The O&M review plan or SOP shall be tailored to the amount of staffing and financial resources available given program priorities."	Fully Compliant	Engineering PMs/inspectors inspect municipal facilities through construction and warranty. Storm facilities are then brought into City's Infor database for inspection and ongoing-maintenance by Utility operations staff. See also Tasks VII.2 and VII.3.
2	Educate business owners and operators about stormwater pollution prevention, separate from the inspection program.	Fully Compliant	See Clean Water Works Partnership activities.
3	"Respond to complaints or referrals from others about a facility. The response may include actions such as: a. Interviewing the caller concerning the specific nature of the problem; b. Referring the caller to the DEQ staff for compliance questions concerning the State requirements (i.e., 1200 Z permit, etc.). c. Referring the caller to another agency if the facility is outside the City’s jurisdiction; d. Calling the facility and providing appropriate BMP information. e. For substantive complaints not covered above, schedule a facility inspection or site visit as soon as possible."	Fully Compliant	Complaints are directed to O&M, regulatory for illicit discharge, engineering as appropriate for applicable calls, and to appropriate outside agencies if outside the City's jurisdiction. The City Utilities Department tracks customer service requests through Infor.

Task	Description	Compliance Status	Tasks Comments
4	Inspect and distribute appropriate BMP information to businesses per the operation and maintenance review plan priority. Frequency of inspection should be commensurate to the businesses' potential to flood or discharge pollutants to City facilities and available staffing levels.	Fully Compliant	See Clean Water Works Partnership activities (Sections 3, 4, and 5).
5	Re-evaluate the City's priorities for operation and maintenance of permanent stormwater facilities. Update the operation and maintenance review plan as needed. Coordinate with other city inspectors (e.g., IPP or fire) to coordinate and minimize the number of inspections per business.)	Fully Compliant	

Preparing for Inspections

Task	Description	Compliance Status	Tasks Comments
1	Train appropriate City facility inspectors so that each inspector possesses the knowledge and skill necessary to conduct effective stormwater inspections. This includes identifying potential pollutant sources that may be exposed to stormwater runoff and non-stormwater discharges to the storm drains.	Fully Compliant	See Task VII.4
2	The appropriate City's inspection staff will be responsible with being knowledgeable about the following: a. Stormwater regulations and requirements, including the City's ordinance and applicable state permits; b. Impacts of non-stormwater discharges to the river. surface water and groundwater; c. Inspection techniques and procedures; d. Follow-up and enforcement procedures; and e. Stormwater BMPs. The inspectors and managers will obtain periodic training to support inspection activities and to continue to improve program implementation.	Fully Compliant	See Task VII.4

Conducting Inspections

Task	Description	Compliance Status	Tasks Comments
1	Inspectors will review the facility layout to locate the storm drain system and/or stormwater drainage path.	Fully Compliant	See BMP tasks above and Appendix F materials. Inspectors have been trained through Clean Water Services training.
2	Inspectors will review/inspect the following areas, if access to the area is safe and drains to a stormwater management facility or area from which stormwater flow may ultimately leave the site. a. Outdoor process/manufacturing areas; b. Outdoor material storage areas; c. Outdoor waste storage/disposal areas; d. Outdoor vehicle and heavy equipment storage and maintenance areas; e. Outdoor parking areas and access roads; f. Outdoor wash areas; g. Surface discharge outlets from rooftop equipment; and h. Outdoor drainage from indoor areas. i. The status of onsite stormwater facilities. These areas will be inspected for 1) their need for maintenance; 2) their potential to discharge pollutants from non-stormwater discharges to public facilities, and 3) pollutant exposure to stormwater.	Fully Compliant	See BMP tasks above and Appendix F materials. Inspectors have been trained through Clean Water Services training.
3	Inspectors will notify the Stormwater Program Manager of potential to discharge pollutants from non-stormwater discharges, and pollutant exposure to stormwater from a business.	Fully Compliant	See Appendix F NOV.
4	When a business that impacts stormwater quality is identified, the City ’s Stormwater Program Manager will either be responsible for conducting, or delegating, the following: a. Communicate stormwater requirements. b. Distribute facility representatives with appropriate stormwater BMP5 information, educational materials, and inter/intra-agency referrals as needed. Ask the facility representative whether employees have been trained about how to prevent stormwater pollution. c. Inform the facility representative of any problems or violations found. A schedule for correcting problems identified during the inspection, and a	Fully Compliant	See Appendix F.

Task	Description	Compliance Status	Tasks Comments
	means for verifying their implementation will be discussed with the facility representative. This information will be noted and tracked. d. Document and track inspection activities, follow-up, and enforcement activities for reporting to the DEQ in annual reports.		

Achieving Facility Compliance

Task	Description	Compliance Status	Tasks Comments
1	If a problem is identified during an inspection, the Stormwater Program Manager will either be responsible for performing, or delegating a follow-up site visit or initiating a self-certification process where the facility representative certifies in writing that the problem has been remedied within the time specified by the Stormwater Program Manager.	Fully Compliant	See BMP tasks above and Appendix F materials. Inspectors have been trained through Clean Water Services training.
2	Begin enforcement procedures, if appropriate, as per the enforcement authorities as set forth in the City's municipal ordinances.	Fully Compliant	See BMP tasks above and Appendix F materials. Inspectors have been trained through Clean Water Services training.

Summary of Effectiveness

The City is implementing the tasks in this section. Overall, City staff participated in attending and providing multiple workshops and presentations related to post-construction controls. The City has updated and actively implemented the development rules and legal authority to require and maintain adequate post-construction controls. The Stormwater Compliance Specialist has continued to perform maintenance verification inspections of post-construction stormwater facilities. The City is implementing the performance standards and is meeting or exceeding the approved schedule. Additionally, the City has been successful in securing funding for capital improvement projects described in the Stormwater Master Plan. With over 3,300 new stormwater facilities added this fiscal year to the over 7,000 we have recorded, the private stormwater database has reached substantial completion of available information. While it has been six years since the City has submitted the ISWMP 2022 and the City has reviewed the ISWMP 2022 this year the City is hesitant to update the plan until the final NPDES MS4 Phase II General Permit that DEQ expects to release in FY2018-19 is available.

FY2017-2018 Annual Report

Section 8.0 Municipal Operations and Maintenance

Introduction

The objective of this component is to work with maintenance staff to maximize the removal of pollutants during routine maintenance and minimize the discharge of pollutants to watercourses and injection systems. Routine maintenance activities include street sweeping, inspections and cleaning of storm drainage facilities and litter control. The City public stormwater system has **5,110** drywells, **966** drill holes, **4** drain fields, **203** swales, and **10,537** catch basins in addition to the over **40** miles of storm pipe, **14** miles of which drain to the Deschutes River. This component also includes reviewing corporation yard practices and making recommendations to improve the quality of stormwater runoff from these facilities.

Task	Description	Compliance Status	Tasks Completed	Effectiveness
ISWMP 2006 Task VIII-1	**Street Sweeping (MS4).** Track the amount of materials collected via street sweeping activities, monitoring the build-up of litter and sediment between sweepings in Permit Years 2 and 3 and make a schedule recommendation in Permit Year 4. Starting in Permit Year 4, Bend will implement the recommendation. The cleaning plan will include a monitoring component.	Fully Compliant	The City continues to implement its Sweeping Operations Plan (see Annual Report FY2016-17 Appendix G for a copy of the plan). The City is broken down into eight sweeping areas, each area has four zones and each zone requires approximately 40 hours for a sweeper to complete. Routes are designed based on the street classification and community needs. Sweeper operators review routes for accuracy and update the routes when needed. The Stormwater Utility funds three FTEs sweeper positions out of the stormwater utility fund. Stormwater funds were also used to replace a sweeper, with a new air machine. The City operates 5 sweepers in	This year the City sweeping program collected **12,544** cubic yards of material and traveled **17,986** miles. The removal of this material reduces clogging of stormwater facilities and keeps pollutants out of the Deschutes River. The City is continuing to look for ways to improve sweeping efficiency such as reader boards, door hangers, and the consideration of callout system, and the development of the door hanger has been completed while GPS is being tested. The amount of material removed is also related to the type of winter weather received and the quantity of traction material applied to the

Task	Description	Compliance Status	Tasks Completed	Effectiveness
			total, 2 mechanical brooms, 2 Air Machine and one Pelican. This year the City implemented a GPS trail program to track sweeper routes and included a broom up and down monitoring feature. The City is still working on finalizing what GPS system and software package they would like to purchase, wanting to bring the new Fleet Manager onboard before finalizing the decisions. The City worked with a graphic designer to develop a new door hanger. This new outreach piece will allow field crews to quickly notify residents of trees or other obstacles that prevent both sweepers and stormwater crews from accessing the curb line. A copy of the door hanger has been included in Appendix G.	road. This winter was less severe than in recent years. Sweeping in areas that drain to the river is the highest importance from a stormwater quality perspective because the river is listed for sediment/turbidity. See Figure 8-1 below for a summary of FY08-09 through FY17-18 sweeping data.
ISWMP 2006 Task VIII-2	**Parking Lot Sweeping (MS4 and UIC).** Monitor the build-up of litter and sediment between sweepings of Public-owned parking lots in Permit Years 2 and 3 and make a schedule recommendation in Permit Year 4. Starting in Permit Year 4, Bend will	Fully Compliant	The City owns and is responsible for sweeping five parking lots throughout the City: the downtown parking structure, the Mirror Pond parking lots, the Brandis lot at Greenwood and Bond, and the Troy Field parking lot. The Street department is responsible for sweeping public roads and both corporation yards. Facilities is responsible for sweeping parking lots and the parking structure. In the early years of the	Crews have not noticed excessive litter or sediments within the parking lots. See Task VIII-1 for more on effectiveness. The City continues to improve sweeping efficiency over time.

Task	Description	Compliance Status	Tasks Completed	Effectiveness
	Implement the recommendation. The cleaning plan will include a monitoring Component.		stormwater program, the City formed a Clean Streets and Parking Lots/Litter Task Group within Public Works. This group worked to determine monitoring protocols and examine ways to improve effectiveness of the entire sweeping program. The City Stormwater Program Manager and the Sweeping Supervisor continue to meet and coordinate on sweeping efficiency.	
ISWMP 2006 Task VIII-3	**Litter Collection and Material Disposal (MS4).** Establish a Clean Lots/Litter Task Group within Public Works, identify where improved cleaning needed most and develop cleaning plan and budget. Order additional equipment if necessary.	Fully Compliant	The City provides street-side litter receptacles in the downtown core area that are emptied by the local garbage/recycling company three times per week in the winter and four times per week in the summer. The Downtown Bend Business Association (DBBA) maintains these receptacles with routine cleaning and repair on an as-needed basis per an MOU with the DBBA and the City.	The City assists in the collection and disposal of litter in the Downtown area. City stormwater crews routinely inspect stormwater facilities, removing trash and debris. The City participates in and sponsors The Upper Deschutes Watershed Council's Deschutes River Cleanup event that focuses on trash removal.
ISWMP 2006 Task VIII-4	**Landscape Maintenance Practices (MS4 and UIC).** Establish a Landscaping Task Group within Public Works. Identify opportunities to improve practices and develop landscaping guidance. Host a workshop on	Fully Compliant	In FY2017-18 City staff sent its landscaper fact sheet to all landscapers in the Bend Business License Director with an invite to participate in the Clean Water Works Partnership Program. City staff worked with the OSU extension program to update the water wise landscape guide that was published in February of	The City is installing new stormwater surface controls in the right-of-way to treat stormwater via low impact development, incorporating measures in the Standards and Specifications, and the COSM. At present, the City has **203** swale facilities. The City has implemented practices such as plant species

Task	Description	Compliance Status	Tasks Completed	Effectiveness
	stormwater requirements and BMPs (in FY2010-11). Implement improved practices.		2017. A copy of the guide is available online at https://catalog.extension.oregonstate.edu/em9136/viewfile. This guide includes a section on stormwater facility planning, sizing and shows several low impact development examples. The guide incorporates City's approved plants suitable for bio-retention/infiltration basins. This plant list was created taking into account maintenance considerations.	selection, concave medians and bioretention that incorporate stormwater as a design element.
ISWMP 2006 Task VIII-5	**Improved Catch Basin/ Storm Drain Facilities Cleaning (MS4 and UIC).** Establish a Catch Basin Task Group within Public Works and identify opportunities to improve maintenance practices. Develop improved maintenance procedures and implement those procedures.	Fully Compliant	Staff continue to identify opportunities to improve maintenance practices. Field crews use the INFOR Assets Management system to track work orders and issue preventive maintenance work orders. Four dedicated stormwater operations staff along with two seasonal staff maintained **11,295** catch basins, **6,652** UICs (dry wells and drill holes), **816** Sediment Manholes. Removing **276** yards of material from the stormwater system. In addition to routine cleaning and inspections, field crews completed **30,735** work orders, including tasks such as catch basin cleaning, catch basin replacements and unplugging clogged drill holes. Crews also maintain swales, detention basins,	The City's Stormwater Maintenance Program has met its goal of inspecting and cleaning every catch basin, drill hole and dry well once per year, removing more than 276 yards of material from the system in FY2017-18. Installation of gross pollutant screens on existing drill holes and open topped drywell inserts has helped prevent clogging and increased the efficiency in cleaning UICs. Sending a lead truck to inspect catch basins, sediment manholes, and UICs prior to sending the vactor has increased efficiency as well. See figure 8-2 below for a summary of FY08-09 through FY17-18 Storm Facility Cleaning data..

Task	Description	Compliance Status	Tasks Completed	Effectiveness
			and bio-retention facilities quarterly, performing **1,081** inspections. Additionally, the Utility Department works with a landscape contractor to provide bi-annual maintenance at **47** swale facilities throughout Bend.	
ISWMP 2006 Task VIII-6	**Spill Prevention, Response Materials, and Training (MS4 and UIC).** Identify spill-prone locations and develop and implement improved spill response procedures. Provide spill response kits and training to applicable employees in Permit Year 4 (FY2010-11).	Fully Compliant	In FY2013-14 Stormwater crews began implementing a drill hole shut-off valve installation program. The valves allow stormwater crews to quickly and safely block off the drill hole during a spill event. This program has been temporarily placed on hold, to allow stormwater crews additional time for installing UIC inserts in direct injection drywells (open topped). Additionally crews has experienced some issues with the drill hole shutoff valve clogging; Staff is going to explore other spill prevention options for drill holes. Field crews installed 14 dry well inserts at the Police station, all Fire stations and several in the City right-of-way. The UIC drywell retrofit program has completed installations for all facilities except at the Bend airport in this multi-year phased program. The Street Department keeps one sander loaded year round for spill	Installing drill hole shut-off valves and Drywell-Catch Basin Inserts on high risk UICs helps reduce spill impacts because staff are given the ability to contain the material in a sump or close off the drill holes during a spill incident. The spill trailer allows staff to contain and clean up larger spill events. Training helps staff understand how to respond to spill situations, when to report a spill and the importance of protecting storm drain from spills.

Task	Description	Compliance Status	Tasks Completed	Effectiveness
			response, as the sand can be used to contain spilled material. For larger spills the City maintains two spill containment trailers stocked with absorbents, booms, containment tubs, pipe plugs and other related items. They are located at each corporation yard (15th Street and Boyd Acres). Staff maintain small spill kits in streets and stormwater vehicles. Staff are working to distribute spill kits to all utility vehicles and have distributed over 70 spill kits to utility vehicles this year. Streets and Utility Field Crews receive training annually in spill prevention and response and in illicit discharge prevention (see Appendix D). The City uses integrated pest management (IPM) techniques for weed control but does track its weed control program pesticide use; the reporting information that is provided yearly to the State is available upon request. Stormwater crews carry storm drain plugs and absorbents for spill response.	
ISWMP 2006 Task VIII-7	**Illicit Dumping (MS4 and UIC).** Illicit dumping on City property can cause serious stormwater contamination. This BMP involves	Fully Compliant	Crews sweep the downtown corridor where there is high pedestrian traffic at a more frequent rate than other areas of town. City staff are trained to report illicit discharges to the appropriate	City staff have implemented educational and inspection best management practices to help reduce the number and severity of illicit dumping

Task	Description	Compliance Status	Tasks Completed	Effectiveness
	identifying locations of, and creating and implementing BMPs for City-controlled property where illicit or illegal dumping is likely to occur and contaminate stormwater runoff.		stormwater personnel. This year Staff reported **10** of the **25** reports of illicit discharges reported. The City continues to focus outreach efforts on its "Clean Water Works" campaign and storm drain marking program (see the Public Education and Public Participation chapters of the annual report for more information). The City distributed kids activity guides, highlighters and crayons at public events. The materials include a link to the city website where they can report illicit dumping.	incidences. Every storm drain facility is inspected annually by stormwater crews for evidence of illicit discharges.
ISWMP 2006 Task VIII-8	**City-owned Corporation Yards, Industrial and Commercial Facilities (MS4 and UIC).** Develop checklists of BMPs for City-owned commercial and industrial facilities in Year 2 and provide it to facility managers. Initial reviews to determine the status of BMP implementation (e.g. wash areas, loading areas, garbage area, storage areas, food preparation and use areas) would	Fully Compliant	City staff continued to conduct municipal self-audits to improve water quality on corporation yard sites, performing quarterly inspections at both the Boyd Acres and 15th Street. Staff complete an inspection checklist during the regularly-scheduled safety inspections (see Appendix G for an example inspection). In 2016 the underground fuel tanks and pumps at the Pilot Butte Campus were removed. The fueling pad was previously uncovered, posing a risk to stormwater run-on and spills.	City has been effective in conducting corporation yards quarterly inspections and initiating discussions with appropriate staff to improve practices as needed. The City has also take steps provide basic pre-treatment on open grate UICs at the Boyd Acres facility

Task	Description	Compliance Status	Tasks Completed	Effectiveness
	be held in Year 3 and a meeting to discuss areas of improvement and schedules for improvement to be implemented by Year 5.		Stormwater crews have installed Drywell-Catch Basin Inserts in all of the open toped drywells at the Boyd Acres Corporation Yard. The insert settles out the heavy solids and contain floatables oils.	
ISWMP 2006 Task VIII-9	**Detect and Correct Cross-connections and Leaks (MS4).** Post cross-connection and leak detection and prevention information for sewer connections and septic systems on stormwater pollution prevention web site. Establish cross-connection and leak detection prevention team, determine areas within City where septic systems are still in use. Provide education on septic system maintenance, how to determine and address leaks to septic system owners; and encourage hookup to City sewer. Set up repair program for cross-connections and leaks as identified	Fully Compliant	Stormwater crews are trained to look for illicit connections as part of routine stormwater maintenance. The City purchased field screening test kits that allow staff to quickly evaluate potential cross connections. In FY2017-18 City staff found no illicit connections. City crews collect CCTV inspections data on all new stormwater pipes both when installed and at the end of the warranty period. Crews verify that pipes are installed per the approved plans. This pipe survey data helps provide base line information and will allow for quicker identification of illicit connections in the future. The SE Bend Septic to Sewer project will reduce the potential for cross connections by removing septic systems and connecting residents to the sewer system. This project has the potential to eliminate 1,000 septic systems of the estimated 2,800 septic systems in operating within City limits. See the project website for	Implementing CCTV inspections for stormwater together with smoke test in the sanitary sewer have been effective for ensuring that cross-connections are addressed. The SE Bend Septic to Sewer project will reduce the potential for cross connections by connecting residents to the sewer system.

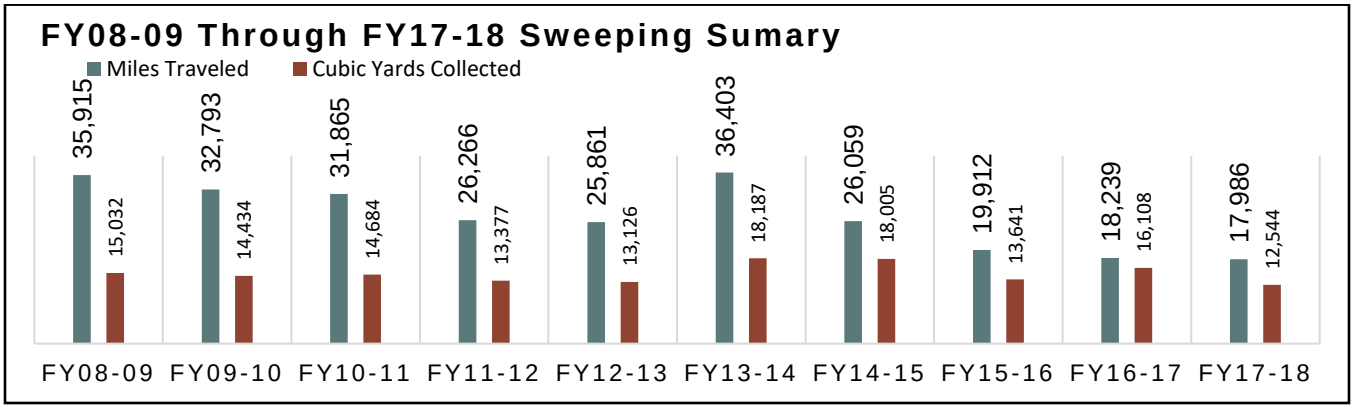
Task	Description	Compliance Status	Tasks Completed	Effectiveness
			additional information www.bendoregon.gov/government/se-bend-septic-to-sewer-advisory-committee.	
ISWMP 2006 Task VIII-10	**Promote Commute Alternatives for Municipal Employees and the Public (MS4).** Implement a transportation demand management program for city staff to encourage alternative modes of transportation and reduce single occupancy vehicle trips. Plan and Implement mass transit service (e.g. bus service (BAT)	Fully Compliant	The City continued its Transportation Demand Management program (TDM) to encourage the use of alternative modes of transportation and to reduce single occupancy vehicle trips. City staff are offered a $60 incentive or the equivalent in time off for every 20 trips logged using alternative transportation. This year **117** staff members participated in the program. The program is coordinated through the Commute Options website. The webpage also provides guidance on setting up carpools, bicycle riding, etc, and has information on how to sign up for the TDM program. The City is also promoting bike boulevards and implementing projects with improved drainage facilities for bike safety.	The City continued to promote the TDM program, and electronic reporting through the Oregon Drive Less Connect website. City staff efforts saved **18,452** trips and reduced the number of miles driven alone by **92,761**.
ISWMP 2006 Task VIII-11	**Performance Standards (MS4 and UIC).** Prepare draft performance standards starting in Year 3 to obtain internal review, and finishing in Year 4 for inclusion in the permit package.	Fully Compliant	Performance standards have been completed and incorporated into the ISWMP 2022. The ISWMP 2022 was approved by DEQ as part of the WPCF-UIC permit issuance in FY2013-14. The City is meeting the scheduled requirements, and a summary of the performance standards	The City has met its goal of completing the performance standards for inclusion in the ISWMP 2022 and implementation efforts are progressing effectively. The City is effectively implementing the performance standards

Task	Description	Compliance Status	Tasks Completed	Effectiveness
			implementation status has been included in Performance Standard Tables provided below. Performance Standard Trainings are uploaded into Target Solutions, a program used to track staff trainings. Streets and Utility staff completed over **600** trainings courses in **10** categories including; Utility / Road Repair and Maintenance, Concrete Use and Disposal, Vehicle and Equipment Washing, Winter Road Care, Leaky Equipment and Fueling, Paint Use and Disposal, Pressure Washing and Surface Cleaning, Spill Prevention Control and Cleanup, Stormwater Pollution Prevention and Illicit Discharge Recognition and Reporting.	as part of the ISWMP 2022.
ISWMP 2022 BMP VIII-1	**Street Sweeping (MS4 and UIC).** Implement a street sweeping program per the Sweeping Plan and meeting the performance standards per their schedule. Meet the street sweeping performance standards per their schedule. Implement Street Sweeping/Water Main Flushing	Fully Compliant	See ISWMP 2006 Task VIII.1 above.	See ISWMP 2006 Task VIII.1 effectiveness.

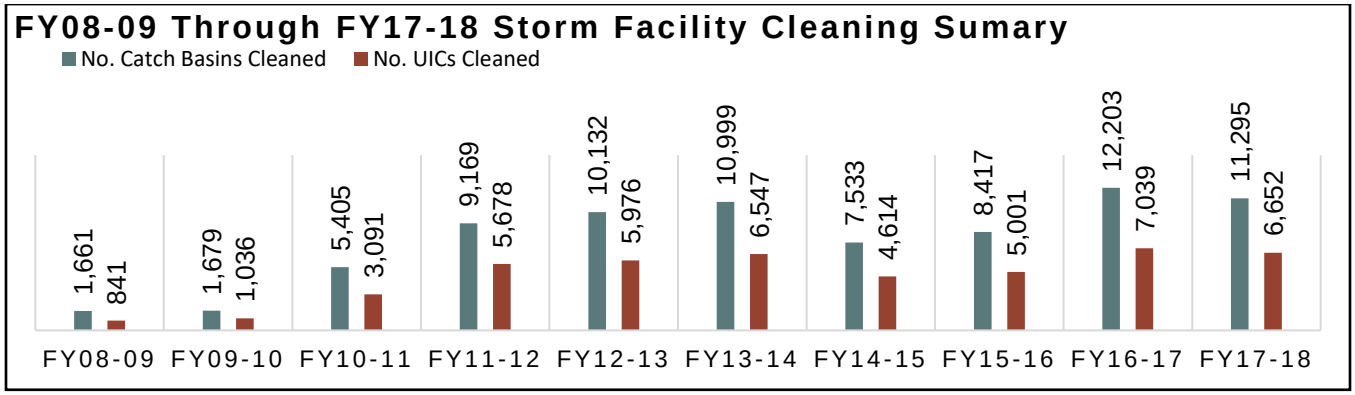
Task	Description	Compliance Status	Tasks Completed	Effectiveness
	Coordination Pilot Program.			
ISWMP 2022 BMP VIII-2	**Implement Performance Standards (MS4 and UIC).** Implemented the performance standards per the ISWMP 2022 schedule in Appendix B.	Fully Compliant	See ISWMP 2006 Task VIII.11	See ISWMP 2006 Task VIII.11 effectiveness
ISWMP 2022 BMP VIII-3	**Landscape Maintenance Practices (MS4 and UIC).** Ensure updated Standards and Specifications are implemented properly. Incorporate at least 5 stormwater surface controls (bioretention, filter strip, etc.) in right of way areas over ISWMP 2022 planning term. Properly maintain.	Fully Compliant	The City of Bend Design Standards and Construction Specifications includes the design criteria and construction standards for all public infrastructures in the City of Bend and apply to both City Capital Improvement Projects (CIP's) and to private development projects where infrastructure will ultimately be owned by the City. The 2018 update was approved by City Council on March 1, 2018. City Waterwise Water Conservation staff also implement an irrigation sprinkler program that helps reduce dry weather flows, and has developed guidance on landscaping that includes stormwater information (see Appendix F)	The City installed **10** new surface controls this year alone, well exceeding the **5** required within the ISWMP 2022 permit planning term.
ISWMP 2022 BMP VIII-4	**Improve Storm Drain Facilities Cleaning (MS4 and UICs).** Collect data through maintenance	Fully Compliant	See ISWMP 2006 Task VIII.5	See ISWMP 2006 Task VIII.5 effect nesses

Task	Description	Compliance Status	Tasks Completed	Effectiveness
	management system. Review and refine maintenance schedule if appropriate. Develop and implement improved maintenance procedures.			
ISWMP 2022 BMP VIII-5	**Promote Commute Alternatives for Municipal Employees (MS4 and UIC).** Implement a Transportation Demand Management Program as separate funding allows city staff to encourage alternative modes of transportation and reduce single occupancy vehicle trips.	Fully Compliant	See ISWMP 2006 Task VIII.10.	See ISWMP 2006 Task VIII.10 effectiveness.

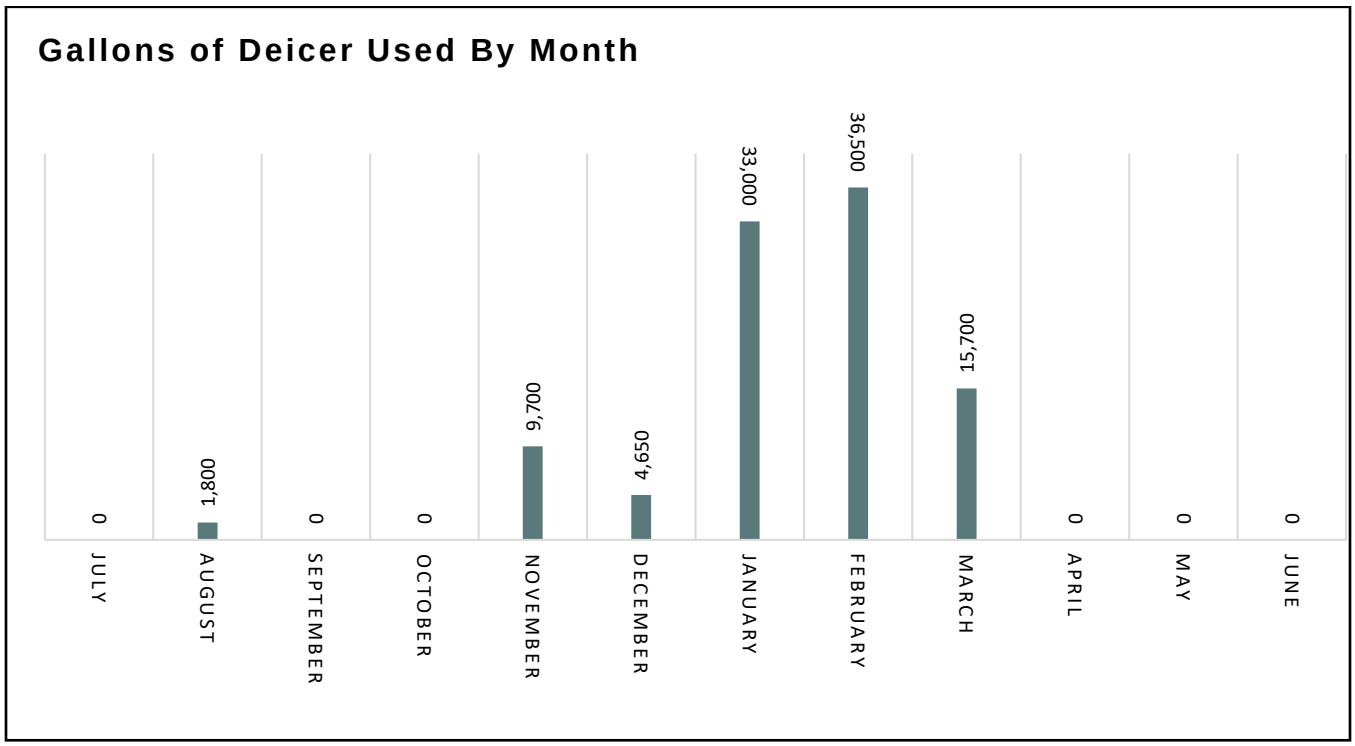
Street Sweeping Summary Figure 8-1



Storm Facility Cleaning Summary Figure 8-2



Gallons of Deicer Used by Month Summary Figure 8-3



Storm Drain Facilities Performance Standards

Routine Inspection and Cleaning

Task	Description	Compliance Status	Tasks Comments
1	When cleaning storm drain inlets and lines, remove the maximum amount of material at the nearest access point to minimize the potential for discharges to watercourses.	Fully Compliant	See Task VIII-5
2	Inspect and clean as necessary, storm drain facilities (catch basins, UICs, inlets, culverts, and v-ditches) at least biennially. The inspections and needed cleaning will preferably occur prior to winter.	Fully Compliant	See Task VIII-5

Record Keeping

Task	Description	Compliance Status	Tasks Comments
1	Report the amount of material removed when cleaning storm drainage facilities in monthly record keeping forms.	Fully Compliant	See Task VIII-5
2	Document and track areas where spills were reported and coordinate with the City's illicit discharge control staff.	Fully Compliant	See Section 5
3	As needed, identify and target areas for: 1) more frequent cleaning throughout the year or just prior to the rainy season; and 2) distribution of public education materials to discourage illegal dumping, etc.	Fully Compliant	See Task VIII-5

Spill Response (Multiple Agencies Involved)

Task	Description	Compliance Status	Tasks Comments
1	If non-hazardous materials are spilled, maintenance staff will contain the spill area immediately and clean when practical to prevent additional release and discharge of pollutants into the storm drain system.	Fully Compliant	See Task VIII-6
2	Maintenance staff will establish a response/removal procedure for non-hazardous materials after work hours (e.g., per spill plan).	Fully Compliant	See Task VIII-6
3	Maintenance staff will coordinate to determine the most appropriate follow-up response (e.g., tracking the source of a spill, identifying product labels, contacting Building and Planning Departments, contacting Stormwater	Fully Compliant	See Task VIII-6

Task	Description	Compliance Status	Tasks Comments
	Program Analyst with records and for educational follow-up, sending a clean-up bill to the responsible party, etc.).		
4	Work with local Fire and Police Departments to obtain summaries or copies of spill reports to the Stormwater Manager or his/her designee.	Fully Compliant	For any spills with the potential to affect Utilities, our Utility Risk Management and Safety Program Manager Ken Vaughan gets advised. As our assigned point person it Utilities, Ken is working with Police and Fire to finalize the update to the Emergency Operations plan. Of note, our Fire (Doug Koellermeier) and Police (Steve Esselstyne) contacts have both retired and Bill Boos (Fire) and Paul Kansky (Police) have taken over the roles as utility liaisons.
5	Maintenance staff will be aware and up to date on the City's around-the-clock immediate response/removal procedure for hazardous or unknown materials.	Fully Compliant	See Task VIII-6

Disposal of Material

Task	Description	Compliance Status	Tasks Comments
1	Store material removed from storm drainage facilities on a concrete pad or other type of impermeable material away from storm drainage facilities. Drain wastewater to the sanitary sewer or allow to evaporate, preventing discharges to the storm drain system. Dispose of the material at an appropriate facility. Contact collections utility's staff prior to any new type of discharge in sanitary sewer.	Fully Compliant	

Municipal Maintenance Performance Standards

Street Sweeping Frequency

Task	Description	Compliance Status	Tasks Comments
1	Clean streets according to the City's Sweeping Plan.	Fully Compliant	See Task VIII.1

Problems Associated With Efficient Street Cleaning

Task	Description	Compliance Status	Tasks Comments
1	Maintain a consistent sweeping schedule.	Fully Compliant	See Task VIII.1
2	Obtain copies of garbage and recycling collection schedules and work with water utility personnel to understand schedules of major water line flushing effort to improve coordination (e.g., to prevent conflicts with sweeping on days when collection barrels are in the road or to sweep pollutants off streets prior to major water line flushing).	Fully Compliant	See Task VIII.1
3	Take appropriate measures to keep curbed areas clear during street cleaning. Measures may include, but are not limited to, developing and distributing newsletters and/or other public education materials notifying residents and businesses of street sweeping schedules; setting out temporary or permanent street signs; sending announcements through neighborhood association chairs, or website postings.	Fully Compliant	See Task VIII.1
4	Provide adequate staff for conveniently reporting trees interfering with street cleaning.	Fully Compliant	See Task VIII.1

Street Cleaning Maintenance to Maximize Pollutant Removal

Task	Description	Compliance Status	Tasks Comments
1	Provide a clean looking street. Conduct tandem driving in areas of heavy load to minimize dirt tracks, trails, or debris to degree practicable given weather and winter road safety measures.	Fully Compliant	See Task VIII.1

Task	Description	Compliance Status	Tasks Comments
2	Check street cleaning equipment for proper adjustment.	Fully Compliant	See Task VIII.1
3	Operate street cleaning equipment at the speed specified by the manufacturer.	Fully Compliant	See Task VIII.1

Street Cleaning Maintenance to Maximize Pollutant Removal

Task	Description	Compliance Status	Tasks Comments
1	Regularly inspect and maintain street cleaning equipment.	Fully Compliant	See Task VIII.1
2	Replace worn components as required to maximize efficiency.	Fully Compliant	See Task VIII.1

Spill Response

Task	Description	Compliance Status	Tasks Comments
1	Report spills observed on streets immediately for quick response by appropriate personnel.	Fully Compliant	See Task VIII.6
2	Respond to spills in accordance with appropriate response procedures. This includes appropriate measures to block storm drain inlets to prevent and minimize discharges from entering storm drainage facilities in the event of an accident, spill, or emergency fire-fighting activity.	Fully Compliant	See Task VIII.6

Record Keeping

Task	Description	Compliance Status	Tasks Comments
1	Track miles swept using a broom odometer or by tracking mileage.	Fully Compliant	See Task VIII.1
2	Track volume or weight of material removed for street cleaning.	Fully Compliant	See Task VIII.1

Task	Description	Compliance Status	Tasks Comments
3	Report summary of sweeping data in annual report.	Fully Compliant	See Task VIII.1
4	Document and track areas where spills were reported and coordinate with the City's illicit discharge control field surveys..	Fully Compliant	See IDDE Chapter V
5	As needed, identify and target areas for: 1) more frequent cleaning throughout the year or just prior to the rainy season; 2) additional efforts to remove vehicles; 3) distribution of public education materials to discourage illegal dumping, etc.	Fully Compliant	See Task VIII.1

Education/Training

Task	Description	Compliance Status	Tasks Comments
1	Train annually, municipal staff, as appropriate, responsible for street sweeping to identify and report illicit discharges, and to comply with the other street sweeping performance standards.	Fully Compliant	See Task VIII.11

Operations and Maintenance of Pump Stations Performance Standards

Visual Inspections

Task	Description	Compliance Status	Tasks Comments
1	Inspect wet wells or forebays once per month for oil spills or other noticeable pollutant discharge.	Fully Compliant	Wet well inspections and cleaning are tracked in INFOR. Given some confusion noted, the City wishes to request adjusting the ISWMP 2022 to clarify an interior inspection of once per year. "Visually inspect wet wells or forebays from exterior once per month and inspect wet well interiors or forebays at least once per year for oil spills or other noticeable pollutant discharge." This meets the original intent of the performance standard and does not preclude IDDE efforts (see Section 5.0).

Maximize Removal of Pollutants Prior to Discharge

Task	Description	Compliance Status	Tasks Comments
1	Conduct at least one comprehensive cleaning of wet wells annually to remove sediment prior to the start of the rainy season to minimize discharge of sediment. Clean wet wells with a vactor, if possible.	Fully Compliant	Wet well inspections and cleaning are tracked in INFOR.
2	If there is a large potential for pollutant discharge, have a spill kit readily available.	Fully Compliant	See Task VIII-6
3	If any spill is reported or observed, try to remove the material at the nearest access point. As practical, shut down the pump station if the material may	Fully Compliant	

Task	Description	Compliance Status	Tasks Comments
	reach it. (A storm event may necessitate operation of the pump station.) As possible, prevent spill from discharging.		
4	Store oil absorbent materials in appropriate maintenance vehicles.	Fully Compliant	See Task VIII-6
5	Track spills upstream to try and locate the source(s) of pollution. Document spill incidents as part of the illicit discharge program. Implement enforcement, as appropriate.	Fully Compliant	See Task V.7.

Disposal

Task	Description	Compliance Status	Tasks Comments
1	Dispose of screenings at a landfill, sediment at a location that will not re-enter the storm drain system or receiving waters through erosion, and oil-absorbed materials at a site licensed to accept hazardous waste.	Fully Compliant	Neither Corp Yard is within the MS4 system; screenings are ultimately deposited at the landfill.

Education/Training

Task	Description	Compliance Status	Tasks Comments
1	Educate all personnel responsible for maintaining stormwater pump stations about these performance standards. City staff will conduct or provide at least one training session annually to educate pump station personnel about these performance standards and illicit discharge identification and reporting.	Fully Compliant	Operators go to school once per year. Moving towards using Target Solutions in FY2018-19.
2	Conduct drills as part of the training, as appropriate.	Fully Compliant	

Litter Control Performance Standards

Services

Task	Description	Compliance Status	Tasks Comments
1	Pick up litter receptacles located on City-owned property on a frequent enough basis to minimize or prevent spillage.	Fully Compliant	See Task VIII-3
2	Provide an adequate number of litter receptacles on City-owned property. The City will make every effort to contain litter in receptacles.	Fully Compliant	See Task VIII-3

Education and Enforcement

Task	Description	Compliance Status	Tasks Comments
1	Encourage participation in and assist with the litter removal activities associated with the Stream Stewardship Day or other similar clean-up event.	Fully Compliant	City staff assisted with Deschutes River Cleanup (formerly Stream Stewardship Day) by using golf cart size rigs to collect materials and provide water to participants. (See Appendix B July 19, 2017 meeting)
2	Encourage public education efforts to include an anti-littering message.	Fully Compliant	See Appendix B (Smart Shopper advertisements)

Winter Road Care Performance Standards

Winter Road Care to Minimize Pollutant Contribution

Task	Description	Compliance Status	Tasks Comments
1	City will consider full long-term social costs and environmental/public safety risks when determining winter road care strategies.	Fully Compliant	City staff together with Public Advisory Group members discussed winter road care materials in FY2017-18.
2	The City will use alternative materials, such as basalt application, as much as possible and appropriate to minimize the use of chemical deicier (e.g., Mag Chloride), especially in sensitive areas.	Fully Compliant	City trains on this using Target Solutions training with standard fact sheets.
3	Chemical deicers will be properly stored and handled per the chemical storage performance standards.	Fully Compliant	These are stored at our 15th street Corporation Yard.
4	Any solid deicers used shall be properly covered to prevent contact with stormwater, and be stored outside of the 100 year floodplain.	Fully Compliant	Both corporation yards are outside of the MS4 area and 100 year floodplain.

Spill Response

Task	Description	Compliance Status	Tasks Comments
1	Report spills observed on streets immediately for quick response by appropriate personnel.	Fully Compliant	
2	Respond to spills in accordance with appropriate response procedures.	Fully Compliant	

Record Keeping

Task	Description	Compliance Status	Tasks Comments
1	Track amount of product used per month (chemical deicer and basalt sanding).	Fully Compliant	See Figure 8-3 for a summary of deicer used by month.

Education/Training

Task	Description	Compliance Status	Tasks Comments
1	Train at least biennially, municipal staff and contractors, as appropriate, responsible for winter road care and chemical deicer (e.g., MgCl2) application to minimize overuse, to vary amounts to reflect site-specific characteristics, such as road width and design, traffic concentration, and proximity to surface waters and sensitive areas; to identify and report illicit discharges, and to comply with the other winter road care performance standards.	Fully Compliant	This is included in the fact sheets used with Target Solutions training.

Corporation Yards Performance Standards

General Standards/Training

Task	Description	Compliance Status	Tasks Comments
1	Prepare and maintain a current Corporation Yard Stormwater Pollution Prevention Plan (SWPPP).	Fully Compliant	Developed 3/7/11 review and update scheduled in FY2014-15
2	Prepare spill containment kits and store them in locations that have potential for spills (e.g., fueling areas, etc.). Conduct training annually, or as appropriate, on how to use the kits.	Fully Compliant	See Task VIII.6
3	Mark or stencil inlets to the storm drainage system with a "protect our waters-no dumping"-type message.	Fully Compliant	See Task V.3
4	Survey the facility annually for compliance with the performance standards. Any performance standard that has not been implemented will be identified in the annual report, along with a schedule for implementation.	Fully Compliant	See Task VIII.8
5	Post educational materials about these performance standards and best management practices in appropriate areas.	Fully Compliant	See Task V.7. Using Target Solutions
6	For each corporation yard, assign one person the primary responsibility for ensuring that performance standards are implemented and that all persons using the facility are aware of these performance standards.	Fully Compliant	See Tasks II.1 and VIII.8
7	Describe activities conducted to educate staff regarding the performance standards in the annual report.	Fully Compliant	See Task V.7

General Housekeeping

Task	Description	Compliance Status	Tasks Comments
1	Dispose of often, material removed from streets and storm drainage facilities to eliminate exposure to rainwater and runoff to the storm drain system.	Fully Compliant	Materials are dewatered at 15th Street (dewatering wash water is ultimately directed to sanitary sewer). Materials are screened to recover basalt rock for winter traction reuse and remaining materials are disposed of at Knott Landfill.

Task	Description	Compliance Status	Tasks Comments
2	Keep chemical storage areas neat and orderly	Fully Compliant	See Task VIII.8
3	Inspect the yard at least semiannually to ensure that there are no illicit discharges to the storm drain system. Train employees to report potential pollutant discharges when noticed to ensure pollutant discharges are controlled to the MEP.	Fully Compliant	See Task VIII.8
4	Sweep the corporation yard at least bimonthly	Fully Compliant	Bimonthly sweeping to begin Oct. 2016. Neither corporation yard drains to the MS4/river or is in a time of travel area for UICs. Portions of 15th corp yards drain to surface swales or sheet flows to adjacent landscaping.
5	Stockpile materials away from streets, gutters, storm drain inlets, or water channels when possible.	Fully Compliant	Occurring at 15th Street.

Refuse Holding Areas

Task	Description	Compliance Status	Tasks Comments
1	When materials removed from storm drainage facilities are stored on site, store the materials on a concrete pad or other type of impermeable material away from storm drainage facilities. Use covers or other methods as appropriate to prevent blowing away of debris. Drain wastewater to the sanitary sewer, only upon approval from the local sanitary sewer agency, or allow to evaporate to prevent discharges to the storm drain system. Dispose of the material at an appropriate facility.	Fully Compliant	See Task VIII.8

Auxiliary Storage Areas/Yards

Task	Description	Compliance Status	Tasks Comments
1	Store chemicals in appropriate areas to prevent pollutant discharge to the storm drains.	Fully Compliant	See Task VIII.8

Chemical Storage

Task	Description	Compliance Status	Tasks Comments
1	Keep all containers containing hazardous materials or waste closed when not filling or emptying. Properly label containers using the NFPA or HMIS system (or other appropriate system as approved by City management). Protect the storage area from vandalism	Fully Compliant	See Task VIII.8
2	Review the Spill Prevention Plan and/or other appropriate materials (e.g. MSDS) for hazardous materials storage requirements.	Fully Compliant	City has a service for easy MSDS availability.
3	Store paint and other chemicals in an approved covered containment area. Design the floor so that spilled materials will be contained and easily removed.	Fully Compliant	See Task VIII.8 and Task V.7
4	If any material containers (not limited to hazardous material containers) are stored outside, keep the containers in a contained area that prevents discharge to the storm drain system from spills or exposure to rain. Ensure that all the containers are closed with tight-fitting lids. Design the area to prevent "run-on" of stormwater and runoff of spills.	Fully Compliant	Training occurring. See Task VIII.8 and Task V.7
5	When never-before-used materials are purchased, review the Material Safety Data Sheet (MSDS) to ensure that incompatible materials have the appropriate separation.	Fully Compliant	City has a service for easy MSDS availability and their use is encouraged by Safety and Risk Program Manager regularly at meetings.

Chemical Usage

Task	Description	Compliance Status	Tasks Comments
1	Ensure that necessary safety equipment and spill containment kits are readily accessible in areas where chemicals are used. Inspect safety equipment (e.g., eye wash) regularly to ensure they are operational.	Fully Compliant	See Task VIII.6
2	Review MSDSs.	Fully Compliant	The City subscribes to a MSDS website for quick access.
3	Minimize use of chemicals. Use water-based paints and non-toxic chemicals as much as possible.	Fully Compliant	Training occurring. See Task VIII.8 and Task V.7

Oil Based Paint

Task	Description	Compliance Status	Tasks Comments
1	Wipe paint out of brushes. Filter and reuse thinners or dispose of as hazardous waste. Dispose of the excess paint as hazardous waste or recycle. If there is too much paint to dry, recycle the paint or dispose of properly.	Fully Compliant	Training occurring. See Task VIII.8 and Task V.7

Water Based Paint

Task	Description	Compliance Status	Tasks Comments
1	Rinse paint out of brushes and discharge rinse water to the sanitary sewer. Recycle or dry excess paint in cans and dispose of the cans in the trash. If there is too much paint to dry, recycle the paint or dispose as hazardous waste.	Fully Compliant	Training occurring. See Task VIII.8 and Task V.7

Automotive Fluids

Task	Description	Compliance Status	Tasks Comments
1	Collect used fluids and recycle or dispose at an appropriate facility.	Fully Compliant	Training occurring. See Task VIII.8 and Task V.7

Pesticides

Task	Description	Compliance Status	Tasks Comments
1	Refer to the State of Oregon pesticide applicator requirements for pesticide mixing, application, storage and disposal requirements.	Fully Compliant	Only certified applicators use pesticides.
2	Consider using integrated pest management methods. Given a choice, use the least toxic pesticides and herbicides that will accomplish the job.	Fully Compliant	City landscape crews do this taking in consideration location, workload, and staffing. Only certified applicators use pesticides.

Task	Description	Compliance Status	Tasks Comments
3	Apply pesticides at appropriate times to maximize their effectiveness and minimize their potential to run off.	Fully Compliant	See above. Stormwater Program Manager conducted a ride-along in FY 2015-16 with pesticide applicator for mutual education and to confirm.
4	Mix only as much pesticide as needed. Do not mix or load pesticides next to storm drain inlets or watercourses.		See above. Stormwater Program Manager conducted a ride-along in FY 2015-16 with pesticide applicator for mutual education and to confirm.

Solvent/Cleaning Solutions

Task	Description	Compliance Status	Tasks Comments
1	Properly recycle or dispose of used solvents/chemicals	Fully Compliant	Training occurring. See Task VIII.8 and Task V.7

Washing Vehicles/Equipment

Task	Description	Compliance Status	Tasks Comments
1	Clean all vehicles/equipment on designated wash areas that discharges washwater to landscaping, the sanitary sewer or recycling system. (Wash areas might be off-site to ensure discharge to the sanitary sewer or recycling system.)	Fully Compliant	Training occurring. See Task VIII.8 and Task V.7
2	Ensure wash area and sump (if applicable) are large enough so that all washwater drains to the sanitary sewer or recycling system. If necessary, re-grade area or install dikes to convey the washwater.	Fully Compliant	Most vehicles are washed off site through a contract with a local car wash. Boyd Acres Utility Corp Yard has a designated wash area.
3	Visually monitor the wash area to make sure it is consistently used.	Fully Compliant	See Task VIII.8

Fuel Dispensing Areas

Task	Description	Compliance Status	Tasks Comments
1	Store spill containment kits nearby. If spill occurs, use dry methods to clean and follow procedures in the Hazardous Materials Business Plan and/or Spill Prevention Plan.	Fully Compliant	See Task VIII.6
2	Train employees in proper fueling, cleaning, and spill response procedures.	Fully Compliant	See Task V.7. Using Target Solutions.
3	Discourage mobile fueling. If mobile equipment is fueled with a mobile fuel truck, have spill kits available and choose an area away from storm drain facilities, sanitary sewer systems, and waterbodies for fueling.	Fully Compliant	Fuel station at 15th Street Corp Yard was removed. Employees use commercial-only fill stations within the community.
4	Design new fueling area(s) to prevent "run-on" of stormwater and runoff of spills	Fully Compliant	Stormwater regulations and staff were consulted in design of a small tank at 15th Street in FY2015-16. COSM was consulted. It has not been installed yet.
5	Install signs reminding people not to "top off" tanks.	Fully Compliant	Majority of fueling is conducted off-site now and that is posted at fueling stations. Small engines only and they do not top off.
6	Consider covering fuel-dispensing areas. Prohibit fueling over open ground; ground should be covered by concrete or asphalt protected with a sealant.	Fully Compliant	See comments above. Fueling is not allowed over open ground.

Fleet Maintenance/Vehicle Parking Areas

Task	Description	Compliance Status	Tasks Comments
1	Inspect equipment for leaks on a regular basis. Use drip pans under leaking vehicles. Repair vehicles with significant leaks.	Fully Compliant	Training occurring. See Task VIII.8 and Task V.7
2	Drain and replace motor oil and other fluids in a covered shop area. If fluids are changed outdoors, designate an area where there are no connections to the	Fully Compliant	Training occurring. See Task VIII.8 and Task V.7

Task	Description	Compliance Status	Tasks Comments
	storm drains, watercourses, or the sanitary sewer. Select a designated area where spills can be easily cleaned up or drain to a closed pan and return to shop for proper disposal.		
3	Periodically dry sweep the area.	Fully Compliant	Training occurring. See Task VIII.8 and Task V.7
4	Schedule outdoor repair activities for dry weather, if possible. Prevent repair supplies or work material from entering storm drains or watercourses	Fully Compliant	Training occurring. See Task VIII.8 and Task V.7
5	Clean equipment as it comes in for repairs using proper collection and disposal methods when necessary. Inspect equipment as it comes in for routine maintenance and clean if needed.	Fully Compliant	Training occurring. See Task VIII.8 and Task V.7

Road Repair and Maintenance Performance Standards

General Practices/Training

Task	Description	Compliance Status	Tasks Comments
1	Schedule excavation and road maintenance activities for dry weather, if feasible.	Fully Compliant	Training occurring. See Task V.7.
2	Equipment repairs and fueling or maintaining vehicles and equipment will be conducted in accordance with the Corporation Yard Performance Standards.	Fully Compliant	Training occurring. See Task V.7.
3	Recycle used motor oil, diesel oil, concrete, broken asphalt, etc. whenever possible.	Fully Compliant	Training occurring. See Task V.7.
4	Distribute educational and outreach materials, as appropriate, to those utility contractors (e.g., water supply, sewer, cable, phone, electrical, etc.) seeking encroachment and/or grading permits from the City.	Fully Compliant	Community Development Department distributes materials as appropriate.
5	Train at least biennially municipal staff and contractors conducting road repair and maintenance to comply with these performance standards.	Fully Compliant	Municipal staff are trained. See Task V.7. The City project manager is responsible for making their contractor aware of local requirements.

Asphalt/Concrete Removal

Task	Description	Compliance Status	Tasks Comments
1	After breaking up old pavement, remove and recycle as much as possible to avoid contact with rainfall and stormwater runoff.	Fully Compliant	Training occurring. See Task V.7.
2	Take measures to protect storm drain inlets prior to asphalt breaking or concrete sawing operations (e.g., place sand bags or filtering barrier around inlets). Clean afterwards by sweeping or removing as much material as possible. Do not wash down to the storm drain.	Fully Compliant	Training occurring. See Task V.7.
3	During saw-cutting operations, block or berm around storm drain inlets using sand bags or an equivalent appropriate filter device, or absorbent materials such as pads, pillows, or socks to contain slurry, or wet/dry vacuum the slurry. If slurry enters the storm drain system, remove the material immediately.	Fully Compliant	Training occurring. See Task V.7.
4	Remove saw-cut slurry (e.g., with a shovel or vacuum) before leaving at the end of the day.	Fully Compliant	Training occurring. See Task V.7

Patching and Resurfacing

Task	Description	Compliance Status	Tasks Comments
1	To minimize runoff from patching and resurfacing activities, materials will not be stockpiled in streets, gutter areas, or near storm drain inlets or waterbodies unless these areas are protected (i.e., stockpiled material should be covered to minimize stormwater runoff.)	Fully Compliant	Training occurring. See Task V.7.
2	Cover and seal manholes and storm drain inlets before applying seal coat, slurry seal, etc	Fully Compliant	Training occurring. See Task V.7.
3	Never wash excess material from exposed aggregate concrete or similar treatments into a street or storm drain inlet. Designate an unpaved area for clean up and proper disposal of excess materials.	Fully Compliant	Training occurring. See Task V.7.
4	Use only as much water as necessary for dust control to avoid runoff.	Fully Compliant	Training occurring. See Task V.7.
5	Sweep up as much material as possible and dispose of properly.	Fully Compliant	Training occurring. See Task V.7.
6	Clean up spills and leaks from other equipment and work site areas using “dry” methods (absorbent materials and/or rags). Properly dispose of absorbent materials and rags. If spills occur on dirt areas, the contaminated soil will be removed properly and on a timely basis	Fully Compliant	Training occurring. See Task V.7.
7	After the job is complete, remove stockpiles (asphalt materials, sand, etc.) and other extra materials as soon as possible.	Fully Compliant	Training occurring. See Task V.7.
8	If it rains unexpectedly, take appropriate action to prevent pollution of stormwater runoff (e.g., divert runoff around work areas).	Fully Compliant	Training occurring. See Task V.7.
9	Wash down of streets is only permitted if runoff is controlled or contained, or appropriate best management practices are followed.	Fully Compliant	Training occurring. See Task V.7.

Signing and Striping

Task	Description	Compliance Status	Tasks Comments
1	Have spill kits or store spill absorbent materials on trucks to be used in the event of a spill.	Fully Compliant	Training occurring. See Task V.7.
2	Contain and clean up waste materials and dispose of them properly according to the MSDS.	Fully Compliant	Training occurring. See Task V.7.

Equipment Clean-up/Storage

Task	Description	Compliance Status	Tasks Comments
1	Clean sprayers, patch and paving equipment at the end of the day. Use approved collection methods and dispose or recycle waste materials at an approved facility.	Fully Compliant	Training occurring. See Task V.7.
2	If stored outdoors, cover sprayers, patch and paving equipment, if they contain pollutants, to prevent rainfall from transporting pollutants to the storm drain system.	Fully Compliant	Training occurring. See Task V.7. All are stored indoors.
3	Flush paint sprayer supply lines at the corporation yard. Use approved collection methods and dispose or recycle waste materials at an approved hazardous waste facility	Fully Compliant	Training occurring. See Task V.7. Corporation yard inspections are conducted quarterly.

Summary of Effectiveness

As demonstrated herein, the City has been able to refine its collection and cleaning programs to be more efficient. The City has also been effective in installing several new landscaped drainage controls in the right-of-way. Crews are effectively maintaining the system, and are making improvements to existing UICs to prevent pollutants from entering the UIC as well as to include emergency shut-off devices in the most high-risk areas to help facilitate quick and safe closure in the case of spills. Outreach and coordination to ensure pollution prevention at corporation yards continues and the City is working to be more effective with its staff trainings by incorporating Target Solutions software. The TDM program continues to be a success as well. While it has been six years since the City has submitted the ISWMP 2022 the City is hesitant to update the plan until the draft Phase II General Permit is finalized.

FY2017-2018 Annual Report
Section 9.0 Monitoring

Introduction

As a Phase II NPDES permittee, the City of Bend is not required to monitor stormwater discharges that drain to the river, but is required to monitor stormwater drainages to UICs as part of its WPCF-UIC permit, received in May 2013. In 2004, the City and the Upper Deschutes Watershed Council (UDWC) began a multi-year monitoring program to gather data on the presence or absence of pollutants of concern in the Deschutes River within the Bend Urban Growth Boundary (Deschutes River Miles 172, and 159). This baseline report was completed in FY2009-10. The City has collected data since and periodically reviews it. The baseline data of the Deschutes River monitoring study will be useful to compare results of overall river health over time to help illustrate overarching effectiveness of pollution prevention efforts.

Task	Description	Compliance Status	Tasks Completed	Effectiveness
ISWMP 2006 Task IX-1	**Monitor Stormwater Discharges to Deschutes River (MS4).** Fund and implement the Upper Deschutes Watershed Council monitoring plan. Analyze and report results.	Fully Compliant	In FY2009-10, through a combined effort with the Upper Deschutes Watershed Council, the City completed the City of Bend Ambient Water Quality Monitoring project. This project focused on studying the diurnal, seasonal and annual variations of pollutants of concern in the river and Tumalo Creek. As part of this study, City staff conducted monitoring on the Deschutes River and Tumalo Creek just upstream, within and downstream of the City's UGB. This data will be used as a baseline comparison for the data collected since. Data collected since FY2008-09 is currently being compiled and reviewed. The City	The completion of the multi-year monitoring report in FY2009-10 provides the City a useful document for understanding baseline conditions from which the City can compare with future studies to determine ultimate effectiveness of its MS4 stormwater quality programs.

Task	Description	Compliance Status	Tasks Completed	Effectiveness
			submitted grab data to DEQ as part of the Integrated Plan call for data in June 2018. See Annual Report FY2009-10 for additional information on the initial project.	
ISWMP 2006 Task IX-2	**Enhanced Drinking Water Well Monitoring (UIC).** Form enhanced Monitoring Task Group and develop an enhanced monitoring plan. Obtain funding for enhanced monitoring and prepare annual monitoring reports (write up in section of NPDES annual report may suffice).	Fully Compliant	The City met the initial-year tasks and have an ambient water quality plan together with its program to monitor stormwater in UICs. The City stormwater and water quality laboratory staff are all under the Water Quality Manager, and staff coordinate as needed to address monitoring issues. The City continues to monitor drinking water quality as required under the Safe Drinking Water Act. The results of this monitoring are summarized in the City's yearly drinking water quality annual report, available at www.bend.or.us/index.aspx?page=205, which includes mention of stormwater pollution prevention efforts as well.	The City is meeting the Safe Drinking Water Act groundwater requirements through its regular well monitoring. The City has completed the Water Master Plan, and baseline river monitoring analysis and continues to collect data to help determine water quality changes over time.
ISWMP 2006 Task IX-3	**Stormwater Monitoring for UICs (UIC)**. In the early years (FY2007-08 through FY 2011-12), form UIC monitoring task group and develop monitoring Plan. Obtain funding for UIC	Fully Compliant	City continues to impalement a robust UIC monitoring program. The City included a pesticide screen in FY2017-18. With each sample a lab report is released. The City's plan calls for two samples per site a year. These lab reports form the semi-annual monitoring reports, which are	See ISWMP 2022 BMP IX-2, effectiveness below.

Task	Description	Compliance Status	Tasks Completed	Effectiveness
	monitoring. Implement monitoring and prepare semi-annual monitoring reports.		summarized and incorporated into the annual report. See ISWMP 2022 BMP IX-2 below, for additional information on the UIC monitoring program.	
ISWMP 2006 Task IX-4	**Performance standards (MS4 or UIC).** Prepared draft performance standards starting in Year 3 to obtain internal review, and finishing in Year 4 for inclusion in the permit package.	Fully Compliant	Performance standards have been completed and incorporated into the ISWMP 2022. The new ISWMP was submitted in December of 2012 and approved by DEQ as part of the WPCF-UIC permit issuance.	The City continues to effectively implement the performance standards for monitoring as part of the ISWMP 2022 (see below).
ISWMP 2022 BMP IX-1	**Monitoring the Deschutes River (MS4).** Fund and implement a river water monitoring plan update starting in FY2018-19 through FY2022-23. Analyze and report results.	Fully Compliant	The City has been collecting ambient water quality data for over a decade. In FY2017-18, the City contracted with a consultant to summarize the data collected since the Ambient Water Quality Monitoring Study (UDWC, 2010) was completed. Initial results, a summary of grab data, was provided to DEQ in June 2018 as part of their call for data for the Integrated Report. The consultants continue to analyze continuous data into FY2018-19.	The data analysis is expected to be completed in FY2018-19.
ISWMP 2022 BMP IX-2	**Stormwater Monitoring for UICs (UIC).** Develop monitoring plan by UIC permit due date and Submit to DEQ for review/approval. Sample the stormwater	Fully Compliant	The City has developed and implemented a Stormwater Monitoring Plan. The City reviews this plan yearly and is currently drafting revisions, and anticipates submitting them to DEQ for approval in September of 2018.	This program is continuing to provide the required data needed for the stormwater quality management program for both the river and UIC disposal. All analytes monitored

Task	Description	Compliance Status	Tasks Completed	Effectiveness
	discharge to the underground injection systems at the location specified in the monitoring plan. Comply with the sampling frequency established in the stormwater monitoring plan unless circumstances beyond the City's reasonable control prevent such. Review monitoring results per the action levels in WPCF Permit Schedule A Table 1. In case of exceedance of individual or geometric mean samples, take corrective actions per WPCF Permit Condition A.3., and A.4. Provide monitoring reports results in annual report. Should any action level exceedance occurs, planned and implemented corrective actions will be reported		Stormwater staff records weather forecasts and monitoring activities in a sampling notebook, this notebook has been included in Appendix H. This year the City collected two stormwater samples at five of the six sample locations identified in the Monitoring Plan and; all analytes monitored were within compliance levels (see Appendix H). The City was unable to collect a second sample at the Boyd Acres Site. Staff deployed samplers at the site during eleven storm events but the site did not produce enough runoff to fill the 3-gallon sample container. This was the first year sampling at this location. The site was relocated during the last monitoring plan update, to allow for the installation of new drywell treatment inserts at the old site. Unfortunately, the new location did not consistently receive enough runoff to fill the sample container despite multiple attempts to collect a sample there. The City is in the process of revising the Monitoring Plan and the Boyd Acres sampling location, in an effort to find an accessible UIC (not blocked by a treatment device) that consistently receives enough runoff to fill the sample container.	were within compliance levels. The City has successfully implemented the stormwater monitoring plan, tracked weather forecasts and deployed sampler's base on those forecasts. Circumstances beyond the City's control prevented the collection of one of the two required samples at the Boyd Acres Site. The City has taken steps to correct this, by updating the monitoring plan and relocating the sample collection location. The City is also replacing the sample containers. The City anticipates these changes will reduce the likelihood of missed sample events.

Task	Description	Compliance Status	Tasks Completed	Effectiveness
			As part of the City's WPCF requirement to evaluate pollutants of emerging concern, the City included pesticides monitoring during one sample event. The sampling event was targeted during the growing season; the results of the pesticide monitoring have been included in Appendix H as a supplement to the Emerging Pollutant Report submitted with the annual report last year by November 1, 2017.	
ISWMP 2022 BMP VIIII-3	**Implement Performance Standards MS4 and UIC).** Implemented the performance standards per the ISWMP 2022 schedule in Appendix B.	Fully Compliant	See ISWMP 2006 Task IX.4, tasks completed above.	See ISWMP 2006 Task IX.4, effectiveness above.

Monitoring Control Performance Standards

Facility Procedures

Task	Description	Compliance Status	Tasks Comments
1	Maintain a NELAC accredited facility for stormwater-related laboratory testing.	Fully Compliant	Latest NELAP accreditation certificate for drinking water is dated 8/23/2015. The stormwater testing conducted by the City is for the UIC regulations per the Safe Drinking Water Act, so the Drinking Water NELAP accreditation is appropriate.

Preparing For and Conducting Monitoring Activities

Task	Description	Compliance Status	Tasks Comments
1	Maintain sampling plans and quality assurance plans, as appropriate.	Fully Compliant	Completed. See tasks above.
2	Conduct appropriate recordkeeping and reporting.	Fully Compliant	Completed. See Appendix H.

Summary of Effectiveness

The City has successfully developed and implemented a UIC monitoring plan tailored to Central Oregon climate challenges. The City has increased the effectiveness of its stormwater monitoring efforts through the use of automated grab samplers in conjunction with hand grab samples.

FY2017-2018 Annual Report

Section 10.0 Drinking Water Protection Areas Investigation, Re-Delineation and Management and Underground Injection Control

Introduction

This chapter covers reporting of activities listed under Chapter 10 of the Integrated Stormwater Management Plan 2022 entitled "Underground Injection Controls," and Chapter 10 of the original ISWMP (2006) entitled "Drinking Water Protection Area Investigation, Delineation and Management." One of the highest priorities for the City is protecting its drinking water wells from contamination. To do this, the City needs to know where and how it should focus its protection efforts and to meet Underground Injection Control (UIC) requirements that are protective of groundwater. The purpose of this section is to provide the information the City needs to do this, especially with respect to the City's stormwater underground injection controls (UICs). For this reason, the title of this chapter changes between the Integrated Stormwater Management Plan (2006) and the ISWMP 2022, from "Drinking Water Protection Area Investigation, Delineation and Management," to "Underground Injection Controls," respectively. This chapter of the annual report covers both the ISWMP (2006) and ISWMP 2022 respective chapters.

Task	Description	Compliance Status	Tasks Completed	Effectiveness
ISWMP 2006 Task X.1	**Drinking Water Protection Area Delineation (UIC).** Existing DWPAs need to be confirmed or replaced with new DWPAs that are based on the best available information. In FY2007-08 to FY2008-09, investigate the existing drinking water protection area delineations and if necessary redelineate.	Fully Compliant	Task was completed in past years submitted to OHA and accepted. Information is available on BOOM. In FY2017-18 additional work was performed to find and confirm the location of private wells. Staff used the County's septic permit site plans, together with improved state data, to better locate drinking water wells. The new data was submitted with the Systemwide Assessment update to DEQ in June 2018.	The original redelineation allowed for increased accuracy in as a result of software advances allowing for improved us of the regional groundwater model prepared by the USGS. The efforts to examine county septic permit records for improved location of well heads was inspired, and complimented the data improvements from the state.
ISWMP 2006	**Drinking Water Protection Plan (UIC).** Determine	Fully Compliant	In FY2017-18, the City updated its Systemwide Assessment as part of its	The City has been effective in performing

Task	Description	Compliance Status	Tasks Completed	Effectiveness
Task X.2	how the City will most effectively manage development activities with the drinking water protection areas and provide education to entities that they are in sensitive areas through tasks such as identifying contaminant sources within the drinking water protections areas, developing targeted education materials, working to incorporate more stringent development design standards as appropriate, distribution educational materials and reviewing and refining emergency response SOPs and community partnerships for threats within drinking water protection areas. Continue development of a drinking water protection plan. The focus of this task will be to identify real and potential contaminant sources within the DWPAs, designate which are private and which are public sources, and develop and provide targeted		WPCF UIC permit. More stringent requirements are followed for areas within drinking water protection area, and the City is developing guidance to target treatment by the area (drainage to river, time of travel to a wellhead, etc.).	all required work in this area. The City has prepared a source water assessment including contaminant sources; Worked with ACWA for UIC education; included drinking water protection area locations in the City's mapping system; included more stringent development standards in Bend Code Title XVI and the Standards and Specifications.

Task	Description	Compliance Status	Tasks Completed	Effectiveness
	educational materials on minimizing potential contaminant sources for those agencies, businesses, and residences within existing DWPAs. Work to incorporate more stringent design guidelines, as appropriate, for new or redevelopment within the DWPAs. Review potential threats and work with appropriate agencies to develop or refine emergency response standard operating procedures and communication pathways as appropriate.			
ISWMP 2006 Task X.3	**Groundwater Vulnerability Study (UIC).** Participate with COIC regarding the review and possible pursuit of a United States Geological Survey (USGS) Groundwater Vulnerability Study proposal. The proposal would be for the USGS to assess the aquifer vulnerability and phase would focus on analyzing the intrinsic susceptibility of the aquifer system in the	Fully Compliant	The City participated on the COIC work group and ended up working together with the City of Redmond to complete a Groundwater Protectiveness study that informed the requirements of the City's WPCF UIC permit and other similar permits in the Bend area.	

Task	Description	Compliance Status	Tasks Completed	Effectiveness
	area, including analyzing existing water quality data and examining the geology of the unsaturated zone, and of the age and sources of water to different parts of the system. A second phase of the anticipated proposal would combine the susceptibility knowledge from the first phase with groundwater sampling and analysis for contaminants to better understand the aquifer's vulnerability.			
ISWMP 2022 BMP X-1	**Complete Systemwide Assessment (UIC).** Collect necessary data to refine Systemwide Assessment per permit requirements/ request. Submit to DEQ.	Fully Compliant	The City reviewed and updated the Systemwide Assessment in FY2017-18 and submitted it to DEQ in June 2018. It was submitted separately as significant changes related to locations of private drinking water wells occurred.	The City was effective in improving data quality in its update of the Systemwide Assessment.
ISWMP 2022 BMP X-2	**UIC Registration (UIC).** Continue to update and maintain accuracy of the stormwater geodatabase as needed and provide required updates to DEQ of UIC registration database.	Fully Compliant	The City's mapping system is continually updated. The City is submitting its UIC registration database to DEQ along with the annual report. (See Appendix I). Table 10.1 provides information on new UICs installed in FY2017-18. Table 10.2 summarizes decommissioned UICs. Table 10.3 summarizes	The database is kept up to date. The registration database in Appendix I includes the most complete information, including updates to UIC data, and information on spill and gross pollutant control best management practices installed.

Task	Description	Compliance Status	Tasks Completed	Effectiveness
			anticipated new UICs in FY2018-19 and beyond. Table 10.4 summarizes anticipated UIC decommissioning.	
ISWMP 2022 BMP X-3.1	**UIC Retrofits, Upgrades, or Decommissioning (UIC).** Review results of the approved Systemwide Assessment(s) and WPCF-UIC Permit in light of the Groundwater Protectiveness Model results to determine if any UICs need to be retrofitted or decommissioned to protect water quality.	Fully Compliant	In light of the Groundwater Protectiveness Model results, no additional UICs must be decommissioned or modified at this time to meet permit requirements as a result of the Systemwide Assessment.	
ISWMP 2022 BMP X-3.2	**UIC Retrofits, Upgrades or Decommissioning (UIC) (continued).** If the City deems prudent given the results of subtask 1, the City may engage in upgrades or retrofits to UICs. In cases where decommissioning would be appropriate, the City may decommission a UIC.	Fully Compliant	The City continued implementing its open-grate drywell retrofit plan and is ahead of schedule (see annual report FY14-15, Appendix I). In FY2016-17, City staff purchased 20 UIC inserts with a 36" sump for Police Department, City right-of-ways and the Boyd Acres corporation yard (see installation photo below) at a cost of approximately $1,500 apiece (see Table 10.5). Stormwater staff consulted with Fire and Airport staff to assist them in securing budgets in time for the biennial budget review process for future years work as well. In Table 10.5 the blue text	The City is ahead of schedule with the UIC drywell retrofit project status.

Task	Description	Compliance Status	Tasks Completed	Effectiveness
			represents those inserts purchased in FY16-17 for installation. A list of UICs decommissioned and planned are included in tables below (see Table 10.2). Table 10.5 summarizes the UIC drywell retrofit project status.	
ISWMP 2022 BMP X-3.3	**UIC Retrofits, Upgrades or Decommissioning (UIC) (continued).** Commence with UIC retrofits/upgrades and/or decommissioning as needed on a prioritized risk-based schedule through standard procedures or implementation of the Decommission and Improvement Plan, if applicable, on a timeline per permit or plan requirements.		The City has continued to upgrade open grate drywells to include a catch basin insert with a 3 foot sump. With the efforts this year to complete those UICs within the Fire Department properties, all drywells needing upgrade have been performed except those at the airport, which lie in the County outside of City limits. The airport is working to secure funding for future upgrades in this phased program.	The catch basin inserts installed have been holding up well. One to two of them have seen some wear and tear from winter road care treatments; staff will continue to monitory. For drill holes the GL filters and valves are seeing some clogging issues. An improve solution may be necessary.

UIC Tables

Table 10.1 New City of Bend UIC Installation Summary (those recorded in FY2017-18)

UIC Number	Install Date	Location/Project
DDW010481	2/2/2017	Leehaven Subdivision
DDW010482	2/2/2017	Leehaven Subivision
DDW010483	2/2/2017	Leehaven Subdivision
DDW010484	2/2/2017	Leehaven Subdivision
DDW010485	2/2/2017	Leehaven Subdivision
DDW010486	2/2/2017	Leehaven Subdivision
DDW010487	2/2/2017	Leehaven Subdivision

UIC Number	Install Date	Location/Project
DDW010488	2/2/2017	Leehaven Subdivision
DDW010489	2/2/2017	Leehaven Subdivision
DDW010511	6/9/2016	Rockridge Park
DDW010512	6/9/2016	Rockridge Park
DDW010513	6/9/2016	Rockridge Park
DDW010514	6/9/2016	Rockridge Park
DDW010515	6/9/2016	Rockridge Park
DDW010522	4/17/2017	Northwest Crossing District 2 Lot 2
DDW010523	4/28/2017	Lava Ridges Ph. 6
DDW010524	4/28/2017	Riverwalk Subdivision
DDW010525	4/28/2017	Riverwalk Subdivision
DDW010526	4/28/2017	Riverwalk Subdivision
DDW010535	6/29/2017	Hidden Hills Ph. 3
DDW010536	6/29/2017	Hidden Hills Ph. 3
DDW010537	7/5/2017	Ogden Subdivision
DDW010538	6/20/2017	Northwest Woodlands
DDW010539	6/20/2017	Northwest Woodlands
DDW010540	6/20/2017	Northwest Woodlands
DDW010541	7/24/2015	Shevlin Bluffs Ph. 2
DDW010542	7/24/2015	Shevlin Bluffs Ph. 2
DDW010543	7/24/2015	Shevlin Bluffs Ph. 2
DDW010544	8/1/2017	Shevlin Bluffs Ph. 3 & 4
DDW010545	8/1/2017	Shevlin Bluffs Ph. 3 & 4
DDW010546	8/1/2017	Shevlin Bluffs Ph. 3 & 4
DDW010547	8/1/2017	Shevlin Bluffs Ph. 3 & 4
DDW010548	6/28/2017	Marea Landing Ph. 1 & 2
DDW010549	6/28/2017	Marea Landing Ph. 1 & 2
DDW010550	6/27/2017	Boneyard Brewing Public House
DDW010618	7/19/2017	Blakely Apartments
DDW010552	8/11/2017	Lodges at Bachelor Village Ph. 1
DDW010553	8/11/2017	Lodges at Bachelor Village Ph. 1
DDW010554	8/11/2017	Lodges at Bachelor Village Ph. 1
DDW010555	8/11/2017	Lodges at Bachelor Village Ph. 1
DDW010556	8/11/2017	Lodges at Bachelor Village Ph. 1
DDW010557	8/11/2017	Lodges at Bachelor Village Ph. 1
DDW010558	8/11/2017	Lodges at Bachelor Village Ph. 1
DDW010559	9/1/2017	NW Park Pl
DDW010560	11/28/2017	River Vale Subdivision
DDW010561	11/28/2017	River Vale Subdivision
DDW010562	11/28/2017	River Vale Subdivision

UIC Number	Install Date	Location/Project
DDW010563	11/28/2017	River Vale Subdivision
DDW010564	11/28/2017	River Vale Subdivision
DDW010565	11/28/2017	River Vale Subdivision
DDW010566	11/28/2017	River Vale Subdivision
DDW010567	11/28/2017	River Vale Subdivision
DDW010568	11/28/2017	River Vale Subdivision
DDW010569	11/28/2017	River Vale Subdivision
DDW010570	11/28/2017	River Vale Subdivision
DDW010571	11/28/2017	River Vale Subdivision
DDW010572	11/28/2017	River Vale Subdivision
DDW010573	11/28/2017	River Vale Subdivision
DDW010574	11/28/2017	River Vale Subdivision
DDW010575	11/28/2017	River Vale Subdivision
DDW010576	12/22/2017	Eagle Point Subdivision
DDW010577	12/22/2017	Eagle Point Subdivision
DDW010578	12/22/2017	Eagle Point Subdivision
DDW010579	1/3/2018	Brooksmill Ph. 2
DDW010580	1/3/2018	Brooksmill Ph. 2
DDW010581	1/24/2018	Brookswood Crossing
DDW010582	1/24/2018	Brookswood Crossing
DDW010583	1/24/2018	Brookswood Crossing
DDW010584	1/24/2018	Brookswood Crossing
DDW010585	1/24/2018	Brookswood Crossing
DDW010586	1/24/2018	Brookswood Crossing
DDW010587	1/12/2018	Hidden Hills Ph. 4 & 5
DDW010588	1/12/2018	Hidden Hills Ph. 4 & 5
DDW010589	1/12/2018	Hidden Hills Ph. 4 & 5
DDW010590	1/12/2018	Hidden Hills Ph. 4 & 5
DDW010591	1/12/2018	Hidden Hills Ph. 4 & 5
DDW010592	1/12/2018	Hidden Hills Ph. 4 & 5
DDW010593	1/12/2018	Hidden Hills Ph. 4 & 5
DDW010594	1/12/2018	Hidden Hills Ph. 4 & 5
DDW010595	2/5/2018	McClain Partition
DDW010596	2/5/2018	McClain Partition
DDW010602	1/4/2018	14th Street Reconstruction Ph. 1
DDW010603	1/4/2018	14th Street Reconstruction Ph. 1
DDW010604	1/4/2018	14th Street Reconstruction Ph. 1
DDW010605	1/4/2018	14th Street Reconstruction Ph. 1
DDW010606	1/4/2018	14th Street Reconstruction Ph. 1
DDW010607	1/4/2018	14th Street Reconstruction Ph. 1

UIC Number	Install Date	Location/Project
DDW010608	1/4/2018	14th Street Reconstruction Ph. 1
DDW010609	1/4/2018	14th Street Reconstruction Ph. 1
DDW010610	1/4/2018	14th Street Reconstruction Ph. 1
DDW010611	1/4/2018	14th Street Reconstruction Ph. 1
DDW010612	1/4/2018	14th Street Reconstruction Ph. 1
DDW010613	1/4/2018	14th Street Reconstruction Ph. 1
DDW010614	1/4/2018	14th Street Reconstruction Ph. 1
DDW010615	1/4/2018	14th Street Reconstruction Ph. 1
DDW010616	1/4/2018	14th Street Reconstruction Ph. 1
DDW010617	1/4/2018	14th Street Reconstruction Ph. 1
DDW003549	4/4/2018	Butler Crossing
DDW003550	4/4/2018	Butler Crossing
DDW003551	4/4/2018	Butler Crossing
DDW003552	4/4/2018	Butler Crossing
DDW003553	4/4/2018	Butler Crossing
DDW003554	4/4/2018	Butler Crossing
DDW003555	4/4/2018	Butler Crossing
DDW003556	4/4/2018	Butler Crossing
DDW003557	4/4/2018	Butler Crossing
DDW003558	4/4/2018	Butler Crossing
DDW003559	4/4/2018	Butler Crossing
DDW003560	4/4/2018	Butler Crossing
DDW003561	4/4/2018	Butler Crossing
DDW003562	4/4/2018	Butler Crossing
DDW003563	4/4/2018	Butler Crossing
DDW010642	4/12/2018	Roosevelt Water Main Replacement Ph. 2
DDW010643	4/12/2018	Roosevelt Water Main Replacement Ph. 2

Table 10.2 FY2017-18 Decommissioned City of Bend UICs Summary

UIC Number	Description
DDW003115	DDW003115, 92, N HWY 97
DDW009291	DDW009291, 4319, SPLENDOR LN
DDW003459	DDW003459, 1787, HWY 97 N BOUND/S BOUND RAMP
DDW003458	DDW003458, 1788, HWY 97 N BOUND/S BOUND RAMP
DDW003457	DDW003457, 1789, HWY 97 N BOUND/S BOUND RAMP

UIC Number	Description
DDW001540	DDW001540, 1777, NE 27TH ST
DDW003135	DDW003135, 1805, NE CRETIA CT
DDW003076	DDW003076, 593, NE DELMAS ST
DDW007024	DDW007024, 4984, N HWY 97
DDW007025	DDW007025, 4985, N HWY 97
DDW003142	DDW003142, 68, APRIL ANN CT
DDW010074	DDW010074, 5653, MCCLELLAN LN
DDW010075	DDW010075, 5654, MCCLELLAN LN
DDW010427	Partition of Taxlot 17-12-35CC 800
DDW010428	Partition of Taxlot 17-12-35CC 800

Table 10.3 Anticipated UIC Installation in FY2017-18 and Beyond

UIC Number	Originally Anticipated Install Date	Location/Project	Comments
DDW010599	3/5/2018	Lodges at Bachelor View Ph.2	Under Construction
DDW010598	3/5/2018	Lodges at Bachelor View Ph.2	Under Construction
DDW010507	8/1/2016	Stone Creek Ph. A-3 & F-2	Under Construction
DDW010506	8/1/2016	Stone Creek Ph. A-3 & F-2	Under Construction
DDW010393	11/24/2014	Stone Creek B-1	Under Construction
DDW010528	4/17/2017	OR6 Vail	Under Construction
DDW010503	8/1/2016	Stone Creek Ph. A-3 & F-2	Under Construction
DDW010527	4/17/2017	OR6 Vail	Under Construction
DDW010502	8/1/2016	Stone Creek Ph. A-3 & F-2	Under Construction
DDW010410	9/28/2015	Mission Linen Supply	Under Construction
DDW010501	8/1/2016	Stone Creek Ph. A-3 & F-2	Under Construction
DDW010500	8/1/2016	Stone Creek Ph. A-3 & F-2	Under Construction
DDW010597	3/5/2018	Lodges at Bachelor View Ph.2	Under Construction
DDW010237	7/25/2014	Woodhaven Ph. 1	Under Construction
DDW010236	7/25/2014	Woodhaven Ph. 1	Under Construction

UIC Number	Originally Anticipated Install Date	Location/Project	Comments
DDW010402	11/24/2014	Stone Creek B-1	Under Construction
DDW010235	7/25/2014	Woodhaven Ph. 1	Under Construction
DDW010397	11/24/2014	Stone Creek B-1	Under Construction
DDW010396	11/24/2014	Stone Creek B-1	Under Construction
DDW010395	11/24/2014	Stone Creek B-1	Under Construction
DDW010394	11/24/2014	Stone Creek B-1	Under Construction
DDW010601	4/3/2018	OB Riley Curb	Under Construction
DDW010600	3/5/2018	Lodges at Bachelor View Ph.2	Under Construction
DDW010392	11/24/2014	Stone Creek B-1	Under Construction
DDW010234	7/25/2014	Woodhaven Ph. 1	Under Construction
DDW010505	8/1/2016	Stone Creek Ph. A-3 & F-2	Under Construction
DDW010504	8/1/2016	Stone Creek Ph. A-3 & F-2	Under Construction
DDW010238	7/25/2014	Woodhaven Ph. 1	Under Construction
DDW010401	11/24/2014	Stone Creek B-1	Under Construction
DDW010400	11/24/2014	Stone Creek B-1	Under Construction
DDW010399	11/24/2014	Stone Creek B-1	Under Construction
DDW010398	11/24/2014	Stone Creek B-1	Under Construction
DDW010233	7/25/2014	Woodhaven Ph. 1	Under Construction
DDW010232	7/25/2014	Woodhaven Ph. 1	Under Construction
DDW010231	7/25/2014	Woodhaven Ph. 1	Under Construction
DDW010632	7/23/2018	Purcell Landing	Under Construction
DDW010641	7/23/2018	Purcell Landing	Under Construction
DDW010644	7/16/2018	O.B. Riley School	Under Construction
DDW010620	6/6/2018	Hiatus Cottage	Under Construction
DDW010633	7/23/2018	Purcell Landing	Under Construction
DDW010624	6/2/2018	14th St Reconstruction Ph. 2	Under Construction
DDW010619	6/6/2018	Hiatus Cottage	Under Construction
DDW010640	7/23/2018	Purcell Landing	Under Construction

UIC Number	Originally Anticipated Install Date	Location/Project	Comments
DDW010630	6/2/2018	14th St Reconstruction Ph. 2	Under Construction
DDW010621	6/2/2018	14th St Reconstruction Ph. 2	Under Construction
DDW010645	7/16/2018	O.B. Riley School	Under Construction
DDW010636	7/23/2018	Purcell Landing	Under Construction
DDW010623	6/2/2018	14th St Reconstruction Ph. 2	Under Construction
DDW010627	6/2/2018	14th St Reconstruction Ph. 2	Under Construction
DDW010631	7/23/2018	Purcell Landing	Under Construction
DDW010634	7/23/2018	Purcell Landing	Under Construction
DDW010626	6/2/2018	14th St Reconstruction Ph. 2	Under Construction
DDW010639	7/23/2018	Purcell Landing	Under Construction
DDW010646	7/16/2018	O.B. Riley School	Under Construction
DDW010635	7/23/2018	Purcell Landing	Under Construction
DDW010637	7/23/2018	Purcell Landing	Under Construction
DDW010629	6/2/2018	14th St Reconstruction Ph. 2	Under Construction
DDW010638	7/23/2018	Purcell Landing	Under Construction
DDW010622	6/2/2018	14th St Reconstruction Ph. 2	Under Construction
DDW010625	6/2/2018	14th St Reconstruction Ph. 2	Under Construction
DDW010628	6/2/2018	14th St Reconstruction Ph. 2	Under Construction

Table 10.4 Anticipated Decommissioning in FY2018-19 and Beyond

UIC Number	Planned Activity	Project Timing	Project Name/ Comments
DDW007189	Decommission	FY2019-20	NE VICTOR PL

Table 10.5 Open Top Drywell Retrofit Status

City Facility ID	DEQ UIC #	DEQ Well #	Status
DDW003114	10025	1050	Scheduling for FY18-19-FY20-21
DDW009606	10025	2918	Scheduling for FY18-19-FY20-21
DDW009607	10025	2916	Scheduling for FY18-19-FY20-21

City Facility ID	DEQ UIC #	DEQ Well #	Status
DDW009608	10025	2915	Scheduling for FY18-19-FY20-21
DDW009609	10025	2914	Scheduling for FY18-19-FY20-21
DDW009610	10025	2917	Scheduling for FY18-19-FY20-21
DDW009611	10025	1051	Scheduling for FY18-19-FY20-21
DDW009612	10025	2919	Scheduling for FY18-19-FY20-21
DDW009613	10025	2920	Scheduling for FY18-19-FY20-21
DDW009614	10025	2921	Scheduling for FY18-19-FY20-21
DDW009615	10025	2922	Scheduling for FY18-19-FY20-21
DDW009616	10025	2923	Scheduling for FY18-19-FY20-21
DDW009617	10025	2924	Scheduling for FY18-19-FY20-21
DDW009619	10025	1044	Scheduling for FY18-19-FY20-21
DDW009622	10025	1049	Scheduling for FY18-19-FY20-21
DDW009625	10025	1047	Scheduling for FY18-19-FY20-21
DDW009626	10025	1048	Scheduling for FY18-19-FY20-21
DDW010073	10025	5651	Scheduling for FY18-19-FY20-21
DDW007553	10025	5094	**Installed**
DDW007554	10025	5093	**Installed**
DDW007555	10025	5095	**Installed**
DDW007559	10025	5278	**Installed**
DDW007560	10025	5279	**Installed**
DDW007561	10025	5277	**Installed**
DDW001533	10025	437	**Installed**
DDW001534	10025	438	**Installed**
DDW001610	10025	514	**Installed**
DDW002053	10025	2461	**Installed**
DDW003091	10025	1517	**Installed**
DDW003102	10025	1544	**Installed**
DDW003146	10025	1528	**Installed**
DDW003179	10025	1577	Installed in FY2016-17
DDW003239	10025	2014	**Installed**
DDW003276	10025	560	**Installed**
DDW003360	10025	458	**Installed**
DDW003386	10025	970	Installed in FY2016-17
DDW003444	10025	2059	**Installed**
DDW003489	10025	513	Installed in FY2016-17
DDW003495	10025	656	**Installed**
DDW003496	10025	440	Installed in FY2016-17
DDW003499	10025	88	**Installed**
DDW003500	10025	130	**Installed**
DDW003504	10025	517	**Installed**
DDW003514	10025	540	Installed in FY2016-17
DDW003529	10025	5006	Installed in FY2016-17
DDW007207	10025	5023	Installed in FY2016-17

City Facility ID	DEQ UIC #	DEQ Well #	Status
DDW007303	10025	5539	Installed in FY2016-17
DDW007304	10025	72	Installed in FY2016-17
DDW007536	10025	5365	**Installed**
DDW007567	10025	552	Installed in FY2016-17
DDW007601	10025	5031	Installed in FY2016-17
DDW008151	10025	5311	**Installed**
DDW008166	10025	5489	**Installed**
DDW008934	10025	5316	**Installed**
DDW009247	10025	657	Installed in FY2016-17
DDW009523	10025	658	Installed in FY2016-17
DDW003348	10025	185	**Installed**
DDW003352	10025	190	Installed in FY2016-17
DDW003353	10025	189	Installed in FY2016-17
DDW003354	10025	188	Installed in FY2016-17
DDW003030	10025	538	Removed after further inspection / cleaning revealed not a UIC.
DDW003032	10025	139	Removed after further inspection / cleaning revealed not a UIC.
DDW010063	10025	5641	Installed in FY2017-18
DDW010064	10025	5642	Installed in FY2017-18
DDW010065	10025	5643	Installed in FY2017-18
DDW010066	10025	5644	Installed in FY2017-18
DDW010067	10025	5646	Installed in FY2017-18
DDW010068	10025	5645	Installed in FY2017-18
DDW010071	10025	5649	Installed in FY2017-18
DDW010072	10025	5650	Installed in FY2017-18
DDW003023	10025	631	Installed in FY16-17
DDW003027	10025	629	Installed in FY16-17
DDW003034	10025	630	Installed in FY16-17
DDW003041	10025	627	Installed in FY16-17

Summary of Effectiveness

The City has significantly increased scientific understanding of its system and groundwater aquifer through drinking water protection area delineation and vadose zone analysis, with refining knowledge of the locations and status of its UIC system, and completion of the potential contaminant source identification project and Systemwide Assessment. The City is actively implementing an open-grate drywell retrofit project and is refining its drainage system as it redevelops to include pretreatment while actively conducting selective outreach and field modifications to be more protective within wellhead protection areas. The inserts are working well at capturing contaminants. Their longevity needs to be further considered.