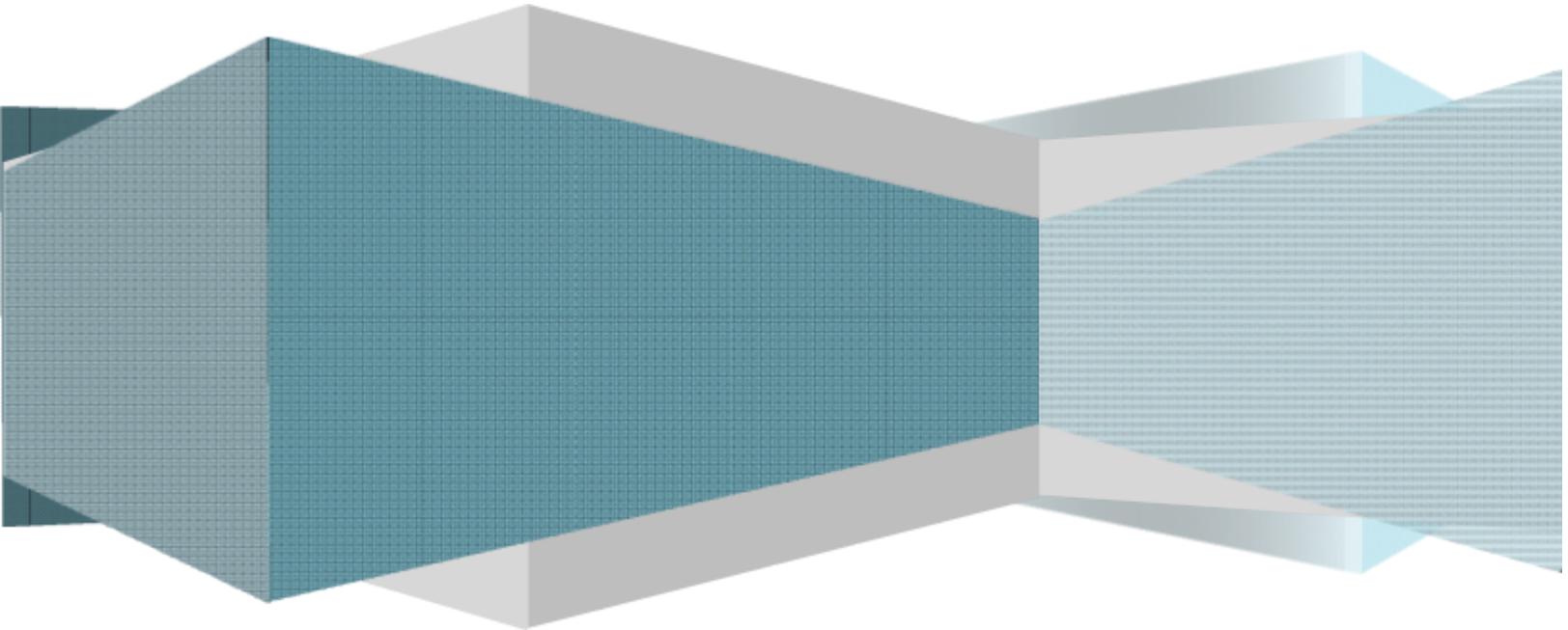


# City of Orem

## Storm Water Management Plan

2021 - 2026



**CITY OF OREM**  
Permit No. UTR090014

**CITY OF OREM**  
**STORM WATER MANAGEMENT PLAN**  
**For the permit period of May 12, 2021 – May 11, 2026**

**Submitted to:**

**State of Utah**  
**Department of Environmental Quality**  
**Division of Water Quality**

**Submitted by:**

**City of Orem, Public Works Department**

**Revised**  
**October 20, 2025**

**Reviewed**  
**October 20, 2025**

**SIGNATORY PAGE**

**Governmental Entity Name:** City of Orem

**Permit number:** UTR090014

**Mailing Address:** 56 North State Street

**City:** Orem **State:** Utah **Zip Code:** 84057

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**Certification**

“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, I certify that the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

Print Name: \_\_\_\_\_

Title: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

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**CITY OF OREM  
STORM WATER MANAGEMENT PLAN**

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## STORM WATER MANAGEMENT PLAN OVERVIEW

### ACKNOWLEDGEMENT

This project would not have been possible without the support of many people. We take this opportunity to express gratitude to the people who have been instrumental in the successful completion of this project. In appreciation for their many hours of hard work and dedication in assembling this Storm Water Management Program Manual, we recognize the following people:

Chris Tschirki	Public Works Director
Reed Price	Assistant Public Works Director
Neal Winterton	Water Resources Division Manager
Sam Kelly	City Engineer
Stan Orme	Streets/Storm Water Section Manager
Cody Steggell	Streets Division Manager
Rick Sabey	Storm Water Division Manager
Ryan Johnson	Storm Water Program Manager
Steve Johnson	Storm Water GIS Lead

And the many others who contributed their time and effort to the contents of this manual, thank you!



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## STORM WATER MANAGEMENT PLAN OVERVIEW

### CITY OF OREM

## STORM WATER MANAGEMENT PLAN OVERVIEW

Last Reviewed: February 20, 2025

### PURPOSE

This document presents the City of Orem's Storm Water Management Plan (SWMP). The City of Orem originally applied for coverage in 2003 and was granted permit number UTR090014. This management plan is a revision meant to satisfy the requirements of the State for the period of 2021-2026. The plan has been updated to limit the discharge of pollutants to the City of Orem's Storm Water System. This Plan was prepared to guide the City in planning, funding, and implementing a comprehensive program for addressing current and future regulatory and policy requirements for managing storm water runoff.

The purpose of the Storm Water Management Plan is to comprehensively address the many different, but related regulations, plans, programs, and policies that affect urban storm water runoff. The goal of the SWMP is to provide the City of Orem the basis for establishing effective rules, regulations, and guidelines that will reduce the potential for storm water damage to the environment, to the citizens of Orem, to public and private property, and to protect human, animal, and aquatic life.

Storm water regulations developed by the Utah Division of Water Quality require the operator of a regulated MS4 community to develop a program that:

- Prevents or reduces the amount of storm water pollution generated by municipal operations and conveyed into receiving waters by identifying and implementing appropriate control measures and setting measurable goals.
- Train employees on how to incorporate pollution prevention and good housekeeping techniques into municipal operations.

### SWMP COORDINATION

Agency: City of Orem, Public Works Department  
Contact: Mr. Christopher R. Tschirki, Public Works Director  
UPDES Number: UTR090014

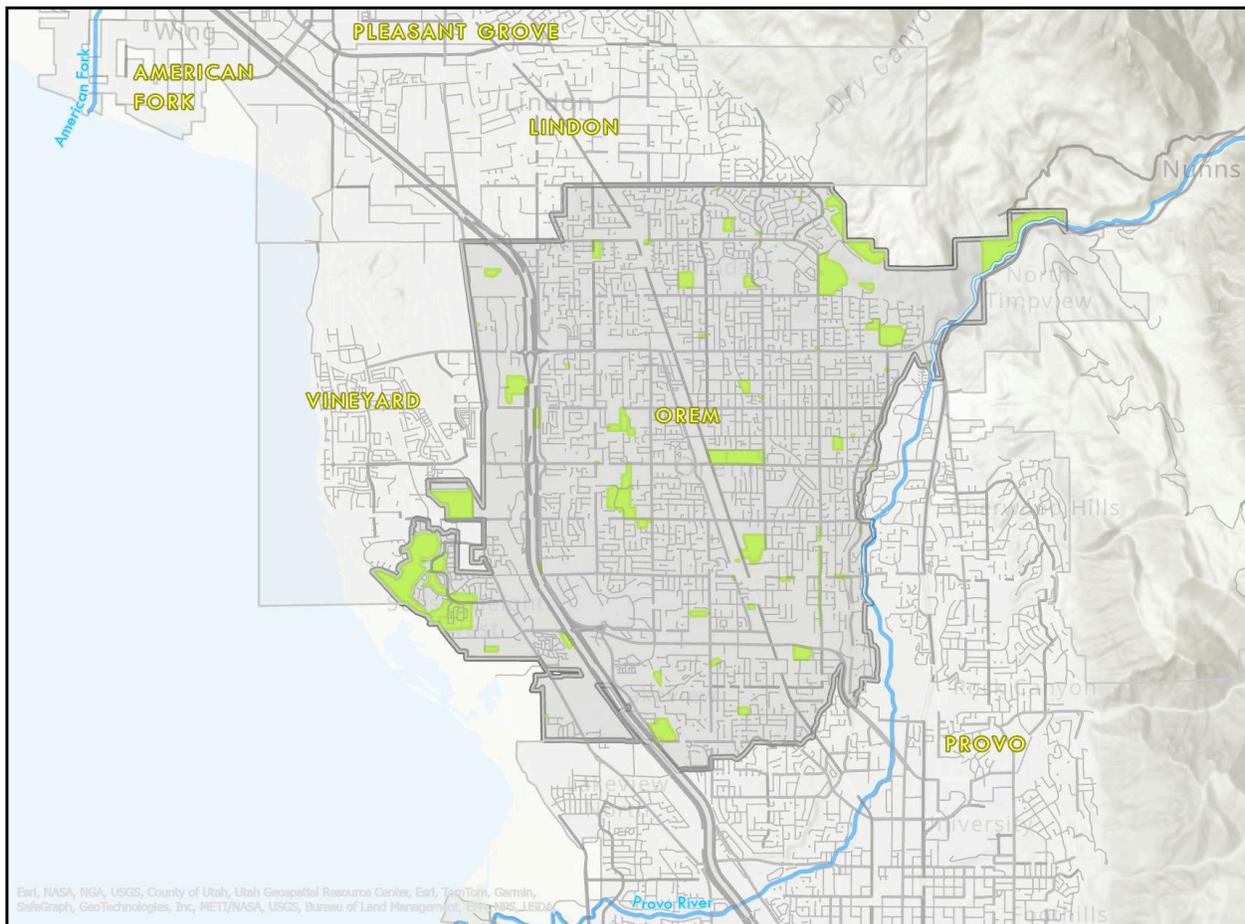
### STAFFING AND RESOURCE ALLOCATIONS

Responsibility for implementation of the storm water management program is divided between different groups and organizations within the City of Orem. The group responsible for each task is stated in each section of this document.

#### ***Permit Requirement 2.3.2.2 MS4 Location Description and Map***

The City of Orem (City) has a population of approximately 96,000 and encompasses approximately 18.5 square miles. The City is located in the center of Utah Valley, 40 miles south of Salt Lake City. It is surrounded by Provo to the south and east, Vineyard to the west, and Lindon to the north (see Figure 1-1). The City is situated between the Wasatch Mountains, the Provo River, and Utah Lake.





*Figure 1-1: Map of Orem's location*

### ***Permit Requirement 2.3.2.3 Water Quality Concerns***

The City operates and maintains a municipal storm water system that consists of thousands of sumps (Class V injection wells), several miles of pipe, and numerous detention basins. With these assets, the City has some unique challenges as it addresses its storm drainage system. Most of the City is located on highly permeable sands and gravels that comprise the Orem bench. The City has taken advantage of the highly permeable soils for management of storm drainage and relies heavily upon sumps.

There are currently more than 3,900 sumps within the City, of which 1,865 are located on public property. Runoff is directed into these sumps, which discharge directly to the underlying soils. Even though the use of sumps is an acceptable method for runoff disposal, untreated storm drainage runoff can eventually reach the underlying groundwater aquifers, which supplies the culinary water to the City and a number of other communities in Northern Utah County.

Concern about the impact of sumps on groundwater quality, long-term maintenance of sumps, and

## STORM WATER MANAGEMENT PLAN OVERVIEW

areas with existing storm drainage problems has motivated the City to evaluate current storm drainage practices and to create a storm water management plan for the City.

## STORM WATER POLLUTANT SOURCES AND ENVIRONMENTAL IMPACTS

The table below outlines the most common potential pollutants that any MS4 could generate. These pollutants can harm human health, degrade water quality, damage aquatic habitat, and seriously impair ecosystem functions.

Pollutant	Common Source	Impacts on Water Quality
<b>Sediment</b>	Construction sites, vehicle/boat washing, agricultural sites	Sediment is a common component of storm water. Sediment can be detrimental to aquatic habitat for fish and plants; it can facilitate transportation of attached oils, nutrients and other chemical contamination; and it can increase flooding. Sediment can transport other pollutants that are attached to it including nutrients, trace metals, and hydrocarbons. Sediment is the primary component of total suspended solids (TSS), a common water quality analytical parameter.
<b>Nutrients (Phosphorus, Nitrogen, Potassium, Ammonia)</b>	Fertilizers from agricultural operations, lawns and gardens, livestock and pet waste, decaying grass and leaves, sewer overflows and leaks	Nutrients are often found in storm water. These nutrients can result in excessive or accelerated growth of harmful algal blooms, reduced oxygen in the water, changes in water chemistry and pH. In addition, un-ionized ammonia (one of the nitrogen forms) can be toxic to fish.
<b>Hydrocarbons (Petroleum Products, Benzene, Toluene, Ethyl benzene, Xylene)</b>	Vehicle and equipment fluid leaks, engine emissions, pesticides, equipment cleaning, leaking fuel storage containers, fuel spills, parking lot runoff	Oil and grease include a wide array of hydrocarbon compounds, some of which are toxic to aquatic organisms at low concentrations. Some of these pollutants are toxic to humans and wildlife at very low levels.
<b>Heavy Metals</b>	Vehicle brake and equipment wear, engine emissions, parking lot runoff, batteries, paint and wood preservatives, fuels and fuel additives, pesticides, cleaning agents	Metals including lead, zinc, cadmium, copper, chromium and nickel are commonly found in storm water. Metals are of concern, as they are toxic to aquatic organisms, can bioaccumulate, and have the potential to contaminate drinking water supplies.
<b>Toxic Chemicals (Chlorides)</b>	Pesticides, herbicides, dioxins, PCBs, industrial chemical spills and leaks, deicers, solvents	Pesticides have been repeatedly detected in storm water at toxic levels, even when pesticides have been applied in accordance with label instructions. As pesticide use has increased, so too have concerns about the adverse effect of pesticides on the environment and human health.



## STORM WATER MANAGEMENT PLAN OVERVIEW

<b>Debris/Litter/Trash</b>	Improper solid waste storage and disposal, abandoned equipment, human negligence	Typically resulting from an urban environment, industrial sites and construction sites, trash and floatables create an aesthetic eye sore in waterways. Risk of toxicity from product decay. Risk of aquatic animal entrapment or ingestion and death.
<b>Pathogens (Bacteria)</b>	Livestock, human, and pet waste, sewer overflows and leaks, septic systems	Bacteria and viruses are common contaminants of storm water. There are human health risks due to disease and the pathogens can be toxic to aquatic life.

The following table lists some lesser-known pollutants that can be found in most urban storm water runoff, yet are harmful to the environment.

<b>Pollutant</b>	<b>Risk to the Environment</b>	<b>Source</b>
<b>Chlorine</b>	Skin and eye irritant, respiratory risk	Used as an additive to water to control microbes. Used in swimming pools, drinking water disinfection, etc.
<b>Arsenic</b>	Skin damage or problems with circulatory systems, and may have increased risk of cancer	Erosion of natural deposits; runoff from orchards, runoff from glass and electronics production wastes.
<b>Beryllium</b>	Lung disease and increased risk of cancer	Discharge from metal refineries and coal-burning factories; discharge from electrical, aerospace, and defense industries.
<b>Cadmium</b>	Kidney damage	Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries and paint.
<b>2, 4-D</b>	Kidney, liver, or adrenal gland problems	Runoff from herbicide used on row crops.
<b>PAHs (Polycyclic Aromatic Hydrocarbons)</b>	Potential risk to aquatic life	Sources of PAHs are numerous and include municipal and industrial effluents and discharges. Combustion products from transportation, power generation, and cooking processes are significant man made sources. Other potential sources include manufactured gas plants, wood treatment facilities, and smelters as well as from coal-tar- based pavement sealants.



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## STORM WATER MANAGEMENT PLAN OVERVIEW

To reduce these pollutants the following six minimum control measures are used: (1) public education and outreach, (2) public participation and involvement, (3) illicit discharge detection and elimination, (4) construction site runoff control, (5) long-term storm water management in new development and redevelopment (post-construction storm water management), and (6) pollution prevention and good housekeeping. Implementation of these 6 control measures is presented in subsequent chapters and includes Standard Operating Procedures (SOPs) and Best Management Practices (BMPs). The SOPs and BMPs are intended to meet the current needs of the City and will be changed as needed.

### ***Permit Requirement 2.3.2.5 Modifications to City Ordinance***

The City of Orem tracks changes to the City's ordinance. The date of the enactment of each ordinance along with dates associated with amendments to each ordinance can be found in the [City's code](#).

### ***Permit Requirement 3.1.1.1- 3.1.1.2 does the City Discharge to a 303(d) Waterbody?***

Under Section 3.1 of the Small MS4 General UPDES Permit, Permit Number UTR090000, it states, "Permittees must determine whether storm water discharge from any part of the MS4 contributes to a 303(d) listed waterbody."

The City of Orem currently discharges into three water bodies that are listed in the Utah 303(d) list.

- Utah Lake is listed as impaired for E. coli, Harmful Algal Blooms, Eutrophication, Total Dissolved Solids (TDS), Total Phosphorus, and PCB in fish tissue. A draft TMDL was published in 2007, however the TMDL has not been adopted. Once adopted, the City would implement regulations necessary to be in compliance with these standards.
- Provo River has been designated as impaired for Benthic Invertebrate Assessment, Dissolved Oxygen, and Temperature. This is a condition that requires the monitoring of the health data of benthic macroinvertebrates, fish and periphyton. The State has not determined a cause for concern in the bioassessment, but the City will implement any required measures if a TMDL is published for this stretch of the Provo River.
- Powell Slough, has been designated as impaired for Dissolved Oxygen. This condition would be improved by measures that encourage water movement and lessens stagnation. There is no TMDL that has been adopted for this water body.

### ***Permit Requirement 3.2.1 Nitrogen and Phosphorus Reduction***

Developers must design BMPs to treat storm water with a goal of reducing pollutants in the receiving water bodies. BMPs must address removal of nitrogen and phosphorus. Proposed BMPs will be evaluated by City staff to verify selected BMPs are addressing targeted pollutant removal.



## STORM WATER MANAGEMENT PLAN OVERVIEW

 <b>Storm Water Management Plan Measurable Goals Matrix</b>	
Year Originally Executed: 2019	
Last Reviewed: August 27, 2025	
Permit Part 4.1.3.1. The measurable goals for each of the BMPs shall include, as appropriate, the months and years in which the permittee will undertake required actions, including interim milestones and the frequency of the actions.	
Description: The City of Orem's Storm Water Program BMPs are fully implemented and operating according to the language found in our Storm Water Management Plan (SWMP). The following list contains the goals and frequency of evaluation in order to ensure effectivity.	
Goal:	Frequency of Evaluation:
City Ordinance Evaluation	Every time the permit is renewed or changed
Review of MCM 1 & 2 and All Measurable Goals, Practices, Procedures and Forms within those sections	Annually: from January 1 - March 1
Review of MCM 3 & 4 and All Measurable Goals, Practices, Procedures and Forms within those sections	Annually: from March 1 - May 1
Review of MCM 5 & 6 and All Measurable Goals, Practices, Procedures and Forms within those sections	Annually: from May 1 - August 1
Review of the Appendices and All Measurable Goals, Practices, Procedures and Forms within them	Annually: from August 1- September 1
Annual Storm Water Program Report	Annually: Send to the state by October 1
Inspect Priority IDDE Areas	Annually: inspections recorded by October 1
Gather and File All Biennial Inspection Reports	Annually: These shall be collected by September 29
Complete City Employee Storm Water Training	Annually: from January 1 - March 1

## Chapter 1

### MCM 1: Public Education and Outreach on Storm Water

The permit requirements for Public Education and Outreach on Storm Water can be found in Section 4.2.1 of the permit. This section also incorporates tasks intended to meet the Nitrogen and Phosphorus Reduction section of the permit found in Section 3.3. A copy of the General Permit for Discharges from Small MS4s can be found at [DWO's Website](#). The permit outlines in general the following requirements:

1. The MS4 must promote behavior change of the public to reduce water quality impacts associated with pollutants in storm water runoff and illicit discharges. This is a multimedia approach targeted to specific audiences. The four audiences are: (1) residents, (2) institutions, industrial and commercial facilities, (3) developers and contractors (construction), and (4) MS4-owned or operated facilities. (4.2.1)
2. Target pollutants and pollutant sources and their potential impacts relating to storm water quality. (4.2.1.1)
3. Provide and document information given to the four focus audiences.
4. Provide documentation or rationale as to why particular programs were chosen for its public education and outreach program.

The City of Orem has implemented tasks to meet the requirements of this MCM, which are summarized in this section:

[PEO-1: Education and Outreach for General Public](#)

[PEO-2: Education and Outreach for Institutions, and Industrial and Commercial Facilities](#)

[PEO-3: Education and Outreach for Engineers, Construction Contractors, Developers, Development Review Staff and Land Use Planners](#)

[PEO-4: Education and Outreach for City Employees](#)

**PEO-1: Education and Outreach for General Public****Year Originally Executed:** 2000**Last Reviewed:** February 20, 2025**Reference Regulation:** 3.3; 4.2.1; 4.2.1.1; 4.2.1.2; 4.2.1.7; 4.2.1.8; 4.2.3.6; 4.2.3.7; 4.2.3.8**Target Pollutants:** Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash, Debris; Pathogens**Audiences:** General Public**Description:** The City uses several outlets to provide education and outreach to the general public. Among these are:

- *[WaterWatch Webpage](#)*: This informational webpage features articles that are generally targeted at residents living in the City of Orem. Article topics include target pollutant reduction and potential impacts the public can have on storm water quality. New articles as well as past publications are available online as well as a link provided in resident's paperless utility bill email notification. Additionally, WaterWatch is publicized on the City's social media pages.
- *Information Booths at Community Events*: The City has participated in several community events and plans to do so in the future. Most notably, the City has set up a booth at its annual Oremfest. Booths at these events have included two storm water education models. We also distribute literature and promotional items that discuss storm water quality issues and feature our storm water hotline number.
- *Storm Drain Markers*: The City has completed a program to mark all public storm drain inlets with curb markers. During routine storm water facilities inspection, storm drain inlets will be re-marked as necessary by stenciling or by replacement of storm drain markers. This maintenance may be accomplished by City employees or by community volunteers. Many existing markers read, "Do not dump, drains to drinking water".
- *Social Media*: The City often uses Facebook, Instagram, X, and YouTube to maintain a presence in social media. We use these outlets to publicize Utah County's household hazardous waste collection days and publish a post once a month related to storm water pollution prevention aimed at City residents. The monthly posts also direct them to the full version of the education topic on the WaterWatch webpage.
- *Utah County Storm Water Coalition (UCSC) School Education Program*: The UCSC has three instructors who educate elementary school students in Utah County on storm water quality and management. As a participating member of the Coalition, we use this resource to educate students in our city. The City supports this effort by providing financial support and oversight in the form of membership on the Coalition's Education Subcommittee.
- *Storm Water Hotline*: This telephone number (801-229-7577) is publicized in most storm water educational materials and on City vehicles. This resource is used as an opportunity

to educate both those that report problems and those that are investigated because of reports. Further details can be found in MCM 3.

- *Door Hangers:* When residents are reported as having engaged in behaviors that are potentially harmful to water quality, staff use informational door hangers to inform residents of the issue and the solution to the issue. These can lead to actions under the IDDE program if not addressed.
- *City Website:* Many water quality topics are covered on the website.

These outlets are selected to reach a large number of people with messages that are meant to educate and inform the public about the potential for detrimental impacts of contaminated storm water discharges into public waters.

**Purpose and Benefit:** These outlets allow for discussion of many common activities that affect the amount of target pollutants potentially contaminating storm water throughout the City. These common activities include at a minimum:

- maintenance of septic systems
- outdoor activities such as lawn care including use of pesticides, herbicides, and fertilizers (spring of each year)
- on-site infiltration of storm water
- automotive repairs
- residential car-washing
- disposal of swimming pool water (summer of each year)
- management of pet waste
- building and equipment maintenance
- use of salt and de-icing materials (fall of each year)
- proper storage of materials
- proper solid waste management (dumpsters)
- Stockpile management, especially as it relates to landscaping activities (spring of each year)
- Emphasis will be given to the hazards of illicit discharges (in April to coincide with County collection day)

**Measure of Success:** The city tracks phone calls, emails and social media interactions received related to topics discussed in outreach efforts. The City keeps a record of general public outreach efforts.

This task will be evaluated annually according to the Storm Water Management Plan Measurable Goals Matrix to ensure that messages are focused and effective for the general public. It will also be reviewed to see how well it is helping to achieve behavioral changes that lead to better water quality.

**Responsible Staff:** Storm Water Coordinator

**Funding:** Storm Water Utility

**Standard Operating Procedures:** Public Education Program SOP

**Supporting Documents:**

The Record of Public Outreach Efforts google sheets log is available upon request

Public media postings can be found on the City's [X](#), [Instagram](#), and [Facebook](#) accounts. The city's website hosts [WaterWatch](#) and other educational resources.

Sample publications such as door hangers and brochures are available upon request.

**PEO-2: Education and Outreach for Institutions, Industrial, and Commercial Facilities****Year Originally Executed:** 1996**Last Reviewed:** February 20, 2025**Reference Regulation:** 3.3; 4.2.1; 4.2.1.1; 4.2.1.3; 4.2.1.7; 4.2.1.8; 4.2.3.6; 4.2.3.7**Target Pollutants:** Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash; Debris; Pathogens**Audiences:** Institutions, Industrial, and Commercial Facilities**Description:** The City uses three main activities to promote awareness of water quality issues related to storm water.

*Online and Printed Media:* The City has utilized educational materials provided by the EPA that target specific pollutants from specific industries and has posted those onto the City's website. The specific topics were chosen based on common pollutants found in Orem that have significant potential for harmful effects to storm water quality. This educational material is accessible on the City website on the Economic Development page, Business Licensing page, and/or the Storm Water page. Additionally, the City plans to send out printed media with relevant storm water education directed at specific industries when a business license is granted.

The following topics will be reviewed for inclusion in publications and presentations to commercial and industrial entities. This list is not all-inclusive:

- Proper lawn maintenance including proper use of pesticides, herbicides and fertilizer (spring of each year)
- Benefits of appropriate on-site infiltration of storm water
- Building and equipment maintenance including proper management of waste water
- Proper use and maintenance of grease traps
- Use and storage of salt or other deicing materials (fall of each year)
- Proper storage of materials to emphasize pollution prevention
- Proper management of waste materials and dumpsters
- Proper management of parking lot surfaces
- Proper reporting of spills
- Emphasis will be given to the hazards of illicit discharges
- Provide/Promote services for collection of household hazardous waste (April of each year to coincide with County collection day)

*Social Media:* The City will use social media outlets such as Facebook, X, and YouTube to interact with Institutions, Industrial, and Commercial Facilities in order to encourage protection of storm water quality.



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**PUBLIC EDUCATION AND OUTREACH ON STORM WATER**

*Industrial Facility Inspections:* The City will help monitor those businesses that are or should be subject to a state Multi-Sector General Permit. If a facility appears to be out of compliance with the permit, the business owner will be notified and educated on the requirements that must be met in order to protect storm water quality.

**Purpose and Benefit:** Institutions, Industrial, and Commercial Facilities often have a higher potential risk to water quality because of the chemicals used and stored on-site as well as manufacturing activities that can come in contact with storm water. Reminding business owners and institutional operators about storm water is critical, as it may be low on their list of priorities.

**Measure of Success:** This task will be evaluated annually according to the Storm Water Management Plan Measurable Goals Matrix to ensure that messages are focused and effective for Institutions, Industrial, and Commercial Facilities. It will also be reviewed to see how well it is helping to achieve behavioral changes that lead to better water quality.

**Responsible Staff:** Storm Water Coordinators

**Funding:** Storm Water Utility

**Standard Operating Procedures:** Public Education Program SOP

**Supporting Documents:**

[Business Owner Resources](#)

New business storm water education printed media available upon request.

**PEO-3: Education and Outreach for Engineers, Construction Contractors, Developers, Development Review Staff and Land Use Planners****Year Originally Executed:** 1997**Last Reviewed:** February 20, 2025**Reference Regulation:** 3.3; 4.2.1; 4.2.1.1; 4.2.1.4; 4.2.1.6; 4.2.1.7**Target Pollutants:** Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash, Debris; Pathogens**Audiences:** Engineers, Construction Contractors, Developers, Development Review Staff and Land Use Planners**Description:** The City has held multiple trainings for developers, contractors and homebuilders covering topics like the specifics of developing Storm Water Pollution Prevention Plans (SWPPPs) for construction as well as BMPs relating to the importance of clean storm water and the effects of pollution. Information about the principles of Low Impact Development as well as the development of SWPPPs will be distributed. The Utah County Storm Water Coalition provides most aspects of this function currently, but the City also plans to distribute Orem specific education materials for this group.*Online Education:* The City has posted an education packet on mitigating storm water from roof drains on the storm water page of the City website. Additionally, the City plans to provide online training and information packets available throughout the year that support the goals of the City in storm water design, LID practices, BMP implementation, and SWPPP compliance.**Purpose and Benefit:** Annual training keeps engineers, construction contractors, and developers up to date on critical issues associated with storm water quality. Providing more education specific to Orem's storm water standards will increase efficiency for all parties involved in the development or redevelopment process.**Measure of Success:** Report attendance at training. Analyze infractions to see if there is a lessening of issues.

This task will be evaluated annually to ensure that messages are focused and effective for the Engineers, Construction Contractors, Developers, Development Review Staff and Land Use Planners. It will also be reviewed to see how well it is helping to achieve behavioral changes that lead to better water quality.

**Responsible Staff:** Storm Water Section Manager and Storm Water Program Coordinators**Funding:** Storm Water Utility**Standard Operating Procedures:** None**Supporting Documents:**

Training Attendance Logs (Available upon request)

[Roof Drain Education Document](#)

Education and training packets available online or by request.



## PEO-4: Education and Outreach for City Employees

**Year Originally Executed:** 2001

**Last Reviewed:** February 20, 2025

**Reference Regulation:** 3.3; 4.2.1; 4.2.1.1; 4.2.1.5; 4.2.1.6; 4.2.1.7; 4.2.1.8; 4.2.3.6; 4.2.3.7; 4.2.3.8; 4.2.3.11; 4.2.4.5

**Target Pollutants:** Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash, Debris; Pathogens

**Audiences:** City Employees

**Description:** The City trains its employees about storm water quality. Employees receive different training based on their contact or potential contact with issues that may affect water quality. Here is a summary of City Employees and the topics they receive training on:

*All Employees:*

- Recognizing and reporting IDDE situations

*Public Works:*

- Public Works Facilities SWPPP
- Proper Landscape Maintenance
- Proper Storage, Transport, and Disposal of Chemicals
- Spill and Dumping Response Procedures
- Proper Concrete Disposal
- Proper Snow Removal and Deicing SOPs
- Cleaning, Washing, Painting and Maintenance Activity SOPs
- Vehicle and Equipment Maintenance and Storage SOP

*Fleet:*

- Fleet Operations SOP

*Traffic:*

- Street Marking SOPs

*Water:*

- Sediment and Erosion Control

*Water Reclamation:*

- Training is dictated by separate UPDES permit

*Parks:*

- City Parks and Open Space SOP
- Fertilizer, Pesticide, and Herbicide Application and Storage SOP

- Sediment and Erosion Control, Material Storage SOP
- Pet Waste SOP
- Festival and Event Cleanup

*Streets:*

- Street and Road Maintenance and Repair SOP
- Proper Maintenance of Parking Lot Surfaces
- Festival and Event Cleanup

*Storm Water:*

- Benefits of On-Site Infiltration
- Catch Basin Cleaning and Maintenance SOP
- Detention Cleaning and Maintenance SOP
- Green Infrastructure Practices
- MS4 Maintenance SOP
- Video Inspection SOP
- Low Impact Development (LID) Practices
- Construction Oversight Inspection
- SWPPP Review
- Site Plan Review including preferred BMPs
- Enforcement Procedures
- Long Term Storm Water Management
- Post Construction Inspection
- Soil and Erosion Control
- Street Sweeping Dewatering and Disposal

*Development Services:*

- Low Impact Development (LID) Practices
- Green Infrastructure Practices
- Storm Water Installation Inspections
- SWPPP Review
- Site Plan Review
- Post Construction Review
- Long-Term Storm Water Management

*Fire:*

- Training SOPs
- Spill and Dumping Response Procedures

Storm water staff are trained upon hire and before commencing duties. All of this training is repeated at least annually. Employees are required to participate in this training or a similar training. It will be supplemented for those that have a change of duties relating to storm water related tasks.

**Purpose and Benefit:** Training is the key to an even approach to storm water management. It helps keep everyone on the same page and provides awareness of issues that may not be at the top of the priority list.

**Measure of Success:** Track attendance at training. Training is accomplished in the early part of the year as specified in the Storm Water Management Plan Measurable Goals Matrix.

**Responsible Staff:** Storm Water Section Manager and Storm Water Program Coordinators

**Funding:** Storm Water Utility, Utah County Storm Water Coalition

**Standard Operating Procedures:** None

**Supporting Documents:**

Training Program Matrix (Available upon request)

Attendance Logs (Available upon request)

Training Outlines and Presentation Materials (Available upon request)

## Chapter 2

### MCM 2: Public Involvement/Participation Program

The permit requirements for Public Participation and Involvement on Storm Water Impacts can be found in Section 4.2.2-4.2.2.3 of the permit. A copy of the General Permit for Discharges from Small MS4s can be found at [DWQ's Website](#). The permit outlines in general the following requirements. General Permit for Discharges from Small MS4s—UTR090000

1. Comply with applicable State, and local public notice requirements to involve interested groups and stakeholders for their input on the SWMP.
2. Make available to the public a current version of the SWMP document for review and input for the life of the permit. This should be posted on the City's website.

The City has identified the following target pollutants to be addressed by this Minimum Control Measure: Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash; Debris; Pathogens

The City of Orem has implemented tasks to meet the requirements of this MCM, which are summarized in this section:

[PIP-1: Public Review of this Storm Water Management Plan](#)

[PIP-2: Volunteer Opportunity](#)

[PIP-3: Neighbor Committee Involvement](#)

[PIP-4: Public Notifications](#)

[PIP-5: Public Works Advisory Commission](#)

**PIP-1: Public Review of this Storm Water Management Plan**

**Year Originally Executed:** 2010

**Last Reviewed:** February 20, 2025

**Reference Regulation:** 4.2.2.1, 4.2.2.2, 4.2.2.3

**Audiences:** General Public

**Description:**

In 1995, the City formed a citizens' committee to study and make recommendations to the City Council about the formation of a Storm Water Utility. The formation of the utility was also brought to public hearing before the City Council in 1996. The Council accepted the ordinance establishing the Storm Water Utility shortly thereafter.

A 30-day period was provided for public comment regarding the original Storm Water Management Program (SWMP) before its initial adoption in 2003. During this time, copies of the management program were placed in the City of Orem's Public Library with comment forms. In addition, the City worked with the Utah Valley Home Builder's Association to address concerns before the revised storm water ordinance and this management program was implemented for the 2003 permitting period.

Annual reviews are made of this SWMP by City Staff. Major revisions have been undertaken in 2010, 2016, and 2021 in conjunction with the newly issued MS4 Storm Water permits issued by the State. A current copy of the SWMP is available through the [City's website](#) for the public to view at any time and updated versions will continue to be posted on the City's website throughout the duration of the permit. Notice of the ability to review this revised SWMP will be posted on the City's storm water webpage. City staff will address public comments and make updates to SWMP as part of the annual review.

**Purpose and Benefit:** Local government plans benefit from public and stakeholder buy-in. Allowing for public review will allow diverse opinions to be considered.

**Measure of Success:** Track phone calls, emails, and social media interactions received related to SWMP.

**Responsible Staff:** Storm Water Coordinator

**Funding:** Storm Water Utility

**Standard Operating Procedures:** none

**Supporting Documents:**

[City of Orem Stormwater Management Plan](#)

Orem Public Notice Policy



## PIP-2: Volunteer Opportunity

**Year Originally Executed:** 1998

**Last Reviewed:** February 20, 2025

**Reference Regulation:** 4.2.2

**Audiences:** General Public

**Description:** All storm drain inlets have been marked with a warning that reads “No Dumping: Drains to Drinking Water.” Ninety to ninety-five percent of all inlets were marked as a result of volunteer efforts by community-minded citizens and groups.

The City plans to coordinate volunteer activities to maintain the integrity of the storm drain markers. City staff also inspect storm drain markers as part of routine facility inspections. Markers are replaced if necessary during routine inspections.

**Purpose and Benefit:** This activity allows the public to be involved and increases awareness of storm water issues.

**Measure of Success:** Track the number of markers installed, repaired or replaced versus markers that need to be installed or repaired. This task will be reviewed annually according to the Storm Water Management Plan Measurable Goals Matrix.

**Responsible Staff:** Storm Water Field Supervisor, Storm Water Coordinator, and GIS Analyst

**Funding:** Storm Water Utility

**Standard Operating Procedures:** Storm Drain Marker SOP

**Supporting Documents:**

Volunteer Tracking Sheet (Available upon request)

### PIP-3: Neighborhood Committee Involvement

**Year Originally Executed:** 1998

**Last Reviewed:** February 20, 2025

**Reference Regulation:** 4.2.2

**Audiences:** General Public

**Description:** The City coordinates volunteer activities with neighborhood communities and includes storm water activities in neighborhood cleanup programs.

Storm Water Staff are available to speak with neighborhood chairs about the importance of keeping gutters clear, reporting illegal dumping and proper disposal of household hazardous waste.

**Purpose and Benefit:** This activity allows the public to be involved and increases awareness of storm water issues.

**Measure of Success:** Track neighborhood cleanup activities by reporting the number of dumpster loads taken to transfer stations in the annual report to the State.

**Responsible Staff:** Storm Water Coordinators

**Funding:** Storm Water Utility

**Standard Operating Procedures:** None

**Supporting Documents:**

Neighborhood Committee Reports (Available upon request)

**PIP-4: Public Notifications**

**Year Originally Executed:** 2003

**Last Reviewed:** February 20, 2025

**Reference Regulation:** 4.2.2; 4.2.2.1; 4.2.2.2; 4.2.2.3

**Audiences:** General Public

**Description:** The City follows all local public notice requirements.

**Purpose and Benefit:** This activity allows the public to be involved and increases awareness of storm water issues.

**Measure of Success:** Public notices are kept according to the Public Notice Policy and can be found on the [Utah Public Notice website](#).

**Responsible Staff:** Storm Water Coordinator and City Recorder

**Funding:** Storm Water Utility

**Standard Operating Procedures:** None

**Supporting Documents:**

Public Notice Policy

**PIP-5: Public Works Advisory Commission**

**Year Originally Executed:** 2014

**Last Reviewed:** February 20, 2025

**Reference Regulation:** 4.2.2

**Audiences:** General Public, Institutional, Commercial Representatives

**Description:** On February 11, 2014, the Public Works Director recommended that the City Council, by ordinance, create a Public Works Advisory Commission (Commission) made up of citizens to assist the City in addressing Public Works issues. The Commission was officially formed on that date and has been functioning ever since. The Commission meets monthly and representatives attend City Council meetings and work sessions on a regular basis. The Commission consists of seven members appointed by the Mayor with the advice and consent of the City Council to act in an advisory capacity to the City Council and City Manager. Some of the primary responsibilities include:

1. Review and make recommendations to the City Council on Public Works issues brought to the Commission by the City Manager;
2. Review and make recommendations to the City Council on master plans. The recommendations may include a Capital Facilities Plan, a Financial Plan, supporting utility rates, and other relevant recommendations;
3. Meet, discuss, and review any other relevant issues associated with Water Supply and Distribution, Wastewater Collections and Treatment, Traffic Operations (i.e., signals, lighting, fiber optics, signs, striping, etc.), GIS, Streets (i.e., asphalt, curb, gutter, sidewalk, etc.), Storm Water (i.e., piping, detention, injection, treatment, etc.), Parks, Cemetery, Urban Forestry, Volunteer Coordination, Fleet, etc.;
4. Work toward the continuing education of citizens regarding Public Works issues in the community;
5. Plan and arrange for neighborhood meetings/open houses and attend such meetings to receive and review public input.

**Purpose and Benefit:** This commission provides advice for the storm water program from stakeholders outside of City staff.

**Measure of Success:** Minutes of meetings where storm water issues are discussed.

**Responsible Staff:** Public Works Director, Assistant Public Works Director, and City Recorder

**Funding:** Public Works Department

**Standard Operating Procedures:** None

**Supporting Documents:**

Agendas and minutes of meetings, with Storm Water Discussions, can be found on the [Utah Public Notice website](#).



## Chapter 3

### MCM 3: Illicit Discharge Detection and Elimination (IDDE)

The permit requirements for Illicit Discharge Detection and Elimination on Storm Water Impacts can be found in Section 4.2.3 of the permit.

This Section also incorporates the requirements of 5.3 and 5.4 analytical and non-analytical storm water monitoring.

A copy of the General Permit for Discharges from Small MS4s can be found at [DWO's Website](#). The permit outlines in general the following requirements:

1. Maintain a storm water system map of the MS4, showing the location of all outfalls and the names and locations of all state waters that receive discharges from those outfalls.
2. Through an ordinance, or other regulatory mechanism, a prohibition (to the extent allowable under state or local law) on non-storm water discharges into the MS4, and appropriate enforcement procedures and actions.
3. Implement a plan to detect and address non-storm water discharges, including spills, illicit connections/discharges, and illegal dumping to the MS4.
4. Implement Standard Operating Procedures (SOPs) for:
  - a. Tracing the source(s) of an illicit discharge.
  - b. Characterizing the nature of, and the potential public or environmental threat posed by, any illicit discharges found or reported.
  - c. Ceasing the illicit discharge, including notification of appropriate authorities, property owners, and technical assistance for removing the source and follow-up inspections.
5. Inform public employees, businesses, and the general public about the hazards associated with illicit discharges and improper disposal of waste.
6. Promote or provide services for the collection of household hazardous waste.
7. Publicly list and publicize a hotline or other local number for public reporting of spills or other illicit discharges.
8. Implement a written spill/dumping response procedure, and a flowchart for internal use, including various responsible agencies and their contacts.
9. Implement procedures for program evaluation and assessment.
10. Train employees, at a minimum, annually on the IDDE program.
11. Analytical and non-analytical monitoring.
12. Notify DEQ of dischargers to the MS4 that need a separate General Permitting Section for Construction. (e.g., Industrial Storm Water Permit, Construction Storm Water Permit, or Dewatering Permit).
13. Additionally a 30-day deadline for a Permittee to report to the Director that a discharger may need a separate UPDES Permit.

The city has identified the following target pollutants to be addressed by this Minimum Control Measure: Nutrients, Hydrocarbons, Heavy Metals, Sediment, Toxic Chemicals, Litter/Trash, Debris, and Pathogens.



The City of Orem has implemented tasks to meet the requirements of this MCM, which are summarized in this section.

[IDDE-1: Maintain a Current Map of MS4](#)

[IDDE-2: Administrative Prohibition of Illicit Discharges](#)

[IDDE-3: Designation and Inspection of Priority IDDE Areas](#)

[IDDE-4: Outfall Verification and Screening](#)

[IDDE-5: Field Response to IDDE Events](#)

[IDDE-6: Compliance Assistance and Enforcement](#)

[IDDE-7: Employee Training about Illicit Discharges, Spills, Illicit Connections and Improper Disposal](#)

[IDDE-8: Publicize a Hotline for Public Reporting of Spills and Other Illicit Discharges](#)

[IDDE-9: Promote and Provide Services for the Collection of Household Hazardous Waste](#)

**IDDE-1: Maintain a Current Map of MS4**

**Year Originally Executed:** 1996

**Last Reviewed:** March 25, 2025

**Reference Regulation:** 4.2.3.1

**Audiences:** MS4 Staff, General Public, Contractors, Developers, Planners

**Description:**

The Storm Water Utility has surveyed and mapped the current storm water system, which identifies the location of all MS4 and drainage areas contributing to those outfalls that discharge from the City’s jurisdiction to a receiving water. The names and location of all state waters that receive discharges from those outfalls have been mapped and given an individual alphanumeric identifier. All mapping is done by GPS surveying. The MS4 map is available on the City’s Map Portal and can be accessed internally. Public requests can be made to access the map as well.

**Purpose and Benefit:** Knowing the locations of storm water systems and the type of development near them is the first step in protecting it from pollution sources.

**Measure of Success:** The MS4 map is reviewed at least annually.

**Responsible Staff:** Storm Water GIS Analyst

**Funding:** Storm Water Utility

**Standard Operating Procedures:** None

**Supporting Documents:**

MS4 Map (Available upon request)

## IDDE-2: Administrative Prohibition of Illicit Discharges

**Year Originally Executed:** 1996, revised and amended 2008, 2015

**Last Reviewed:** March 25, 2025

**Reference Regulation:** 4.2.3.2, 4.2.3.2.1

**Audiences:** MS4 Staff, Residents, Developers, Contractors, Engineers and Planners

### **Description:**

The City enacted Chapter 23 of the City code in 1996. This ordinance was updated in 2002, 2008, 2015, 2017, and 2020 to come into greater compliance with the General Permit for Discharges from Small MS4s. Beyond this chapter, there are numerous City Codes that prohibit activities that have a negative impact on storm water quality. A summary of City Ordinances which impact storm water quality can be found in Appendix A.

**Purpose and Benefit:** Codifying the requirements of the Permit and the SWMP allows for effective enforcement of necessary prohibitions to ensure storm water quality.

**Measure of Success:** Maintain a log of ordinance revisions. Reviewed with each permit renewal or change in the permit according to the Storm Water Management Plan Measurable Goals Matrix

**Responsible Staff:** City Attorney in coordination with Assistant Public Works Director, Storm Water Division Manager and Storm Water Field Supervisor

**Funding:** Storm Water Utility

**Standard Operating Procedures:** None

### **Supporting Documents:**

[City Code](#)

City Storm Water Ordinance Summary (Appendix A)

**IDDE-3: Designation and Inspection of Priority IDDE Areas**

**Year Originally Executed:** 2011

**Last Reviewed:** August 27, 2025

**Reference Regulation:** 4.2.3.3; 4.2.3.3.1; 4.2.3.10

**Audiences:** MS4 Staff, Commercial, Industrial

**Description:**

The Storm Water Utility staff have analyzed IDDE events and identified priority areas likely to have illicit discharges. The areas focused on are areas with older infrastructure, industrial or commercial use, areas with a history of illicit discharges or illegal dumping in addition to areas upstream of sensitive water bodies. These priority areas will be reviewed annually and a new Priority IDDE Area map produced that reflects changing priorities.

**Purpose and Benefit:** Focused monitoring efforts will allow for better use of limited resources.

**Measure of Success:** Report and properly record all illicit discharge or illegal dumping events. As outlined in Appendix B, annually update the priority IDDE Areas map and perform the necessary inspections.

**Responsible Staff:** GIS Analyst, Storm Water Field Supervisor, and Storm Water Coordinators

**Funding:** Storm Water Utility

**Standard Operating Procedures:** Illicit Discharge Priority Area Identification and Inspection SOP

**Supporting Documents:**

IDDE Priority Area Questionnaire

### **IDDE-4: Outfall Verification and Screening**

**Year Originally Executed:** 2011

**Last Reviewed:** July 8, 2025

**Reference Regulation:** 4.2.3.3.2-4.2.3.3.4

**Audiences:** MS4 Staff, General Public, Commercial, Institutional, Industrial

**Description:**

Field screening is necessary to identify the source(s) of the actual illicit discharge(s). The list of outfalls is the basis of screening and assessment activities. All outfalls shall be inspected at least once every five years. At least once every permit cycle, the system shall be evaluated to ensure the outfall list is current. Every outfall that is in a Priority IDDE Area will be screened at least once a year. Using the IDDE Priority Area Questionnaire, the staff designated to conduct field screening will go out into the priority areas and collect visual data. The screening will be conducted at least 72 hours after the last precipitation event.

**Purpose and Benefit:** To establish procedures for eliminating illicit discharges and direct sources of pollution in the MS4.

**Measure of Success:** Track reports of illicit discharges and the actions taken to remedy the discharges. This will be reviewed annually according to the Storm Water Management Plan Measurable Goals Matrix.

**Responsible Staff:** Storm Water Division Manager and Storm Water Field Supervisor

**Funding:** Storm Water Utility

**Standard Operating Procedures:** Reporting Illicit Discharges, Dry Weather Outfall Screening

**Supporting Documents:**

Facilities Map includes outfalls. (Available upon request)

### **IDDE-5: Field Response to IDDE Events**

**Year Originally Executed:** 2011

**Last Reviewed:** March 25, 2025

**Reference Regulation:** 4.2.3.4; 4.2.3.5; 4.2.3.5.1; 4.2.3.9.1; 4.2.3.12

**Audiences:** MS4 Staff, General Public, Commercial, Institutional, Industrial

**Description:**

There are several items addressed by the City’s Storm Water Staff in connection with illicit connections and illicit discharges and spills. The City has implemented SOPs to address items such as characterizing illicit discharges, tracing the sources of illicit discharges and connections, removing illicit connections, eliminating illicit discharges, and proper maintenance of the MS4. The implementation of these practices is found in the SOPs listed below. Additionally, there is a 30-day deadline for a Permittee to report to the Director that a discharger may need a separate UPDES Permit.

**Purpose and Benefit:** To establish procedures for eliminating illicit discharges and direct sources of pollution in the MS4.

**Measure of Success:** Reports of tracing activities. Reporting to the DEQ as necessary. Report to the County Health Department as necessary. This will be reviewed annually according to the Storm Water Management Plan Measurable Goals Matrix.

**Responsible Staff:** Storm Water Field Supervisor and Storm Water Coordinators

**Funding:** Storm Water Utility

**Standard Operating Procedures:** IDDE Response SOP, Sump-Separator-Manhole Inspections, Video Inspections (TV Camera), and Dye Testing

**IDDE-6: Compliance Assistance and Enforcement**

**Year Originally Executed:** 2011

**Last Reviewed:** March 25, 2025

**Reference Regulation:** 4.2.3.2.1; 4.2.3.6; 4.2.3.6.1; 4.2.3.9.1

**Audiences:** General Public, Commercial, Institutional, Industrial

**Description:** Enforcement measures are spelled out in City ordinances and City staff will use their own judgment about what mix of compliance assistance and enforcement action is appropriate in a given situation. The City will respond to the discovery of an illicit connection in a graduated manner, beginning with efforts to obtain voluntary compliance and escalating to increasingly severe enforcement actions if compliance is not obtained.

**Purpose and Benefit:** Assistance and enforcement are powerful tools in helping residents, businesses, institutions and industrial facilities eliminate sources of illicit discharges.

**Measure of Success:** Tracking of illicit discharges and follow up activities. This will be reviewed annually according to the Storm Water Management Plan Measurable Goals Matrix.

**Responsible Staff:** Storm Water Coordinators

**Funding:** Storm Water Utility

**Standard Operating Procedures:** Ceasing Illicit Discharges, Spill/Dumping Response and Flow Chart

**IDDE-7: Employee Training about Illicit Discharges, Spills, Illicit Connections and Improper Disposal**

**Year Originally Executed:** 1998

**Last Reviewed:** March 25, 2025

**Reference Regulation:** 4.2.3.7; 4.2.3.11

**Audiences:** MS4 Staff

**Description:** Many city employees can play an important role as partners in the detection and/or prevention of illicit discharges. For example, storm water staff who maintain catch basins can look for signs of illicit discharges. Municipal building inspectors/project managers can help ensure that illicit connections to the storm water system do not take place in construction and renovation projects. Public Safety officers, public works employees, and other municipal staff whose jobs keep them outside and mobile can help spot illicit discharges or illegal dumping. Public Safety personnel who respond to hazardous material spills can help keep these spills out of the storm water system and adjacent water bodies.

**Purpose and Benefit:** Annual training keeps staff up to date on critical issues associated with storm water quality.

**Measure of Success:** Training logs, Illicit Discharge Reports submitted by employees. These will be reviewed annually according to the Storm Water Management Plan Measurable Goals Matrix.

**Responsible Staff:** Storm Water Coordinators and Storm Water Field Supervisor

**Funding:** Storm Water Utility

**Standard Operating Procedures:** Reporting an IDDE

**Supporting Documents:**

Employee Training Materials (Available upon request)

**IDDE-8: Publicize a Hotline for Public Reporting of Spills and Other Illicit Discharges**

**Year Originally Executed:** 2011

**Last Reviewed:** March 25, 2025

**Reference Regulation:** 4.2.3.9; 4.3.9.1, 4.2.3.10

**Audiences:** General Public, Businesses and Institutions

**Description:** The City has established a hotline number (801-229-7577) for reporting illicit discharges. This number is publicized in WaterWatch on the City website, social media, City vehicles, etc. Recorded messages received at this number are forwarded to storm water personnel with a goal to respond to calls in a timely fashion.

**Purpose and Benefit:** The hotline allows City residents and business owners to become the eyes and ears of the Storm Water Utility in its efforts to eliminate illicit discharges.

**Measure of Success:** Track the number of phone calls received with the City's telephone system. These will be reviewed annually according to the Storm Water Management Plan Measurable Goals Matrix.

**Responsible Staff:** Storm Water Coordinators, Storm Water Field Supervisor or Storm Water Division Manager

**Funding:** Storm Water Utility

**Standard Operating Procedures:** IDDE Response and Flow Chart, Reporting an IDDE

**IDDE-9: Promote and Provide Services for the Collection of Household Hazardous Waste**

**Year Originally Executed:** 1997

**Last Reviewed:** March 25, 2025

**Reference Regulation:** 4.2.3.8

**Audiences:** General Public, Commercial, Institutional, Industrial

**Description:** The City has established an oil and antifreeze recycling station as part of its Fleet Services Section. The City promotes the oil and antifreeze-recycling program in newsletters and on its website.

The City also has publicized the efforts of the Utah County Health Department and its Household Hazardous Waste collection events. It has done this through its website and through its social media outlets.

**Purpose and Benefit:** Eliminating the storage of unused or leftover chemicals and household hazardous waste lessens the potential for IDDE events.

**Measure of Success:** Oil and Antifreeze Recycling Tracking logs. This is reported annually to the State according to the Storm Water Management Plan Measurable Goals Matrix.

**Responsible Staff:** Fleet Services Division Manager and Storm Water Coordinators

**Funding:** Storm Water Utility and Fleet Services

**Standard Operating Procedures:** Fleet Operations SOP (available upon request)

## Chapter 4

### MCM 4: Construction Site Storm Water Runoff Control

The permit requirements for Construction Site Storm Water Runoff Control can be found in Section 4.2.4 of the permit.

A copy of the General Permit for Discharges from Small MS4s can be found at [DWQ's Website](#). The permit outlines in general the following requirements:

1. Compliance with the General Permit Section for Construction through an ordinance or other regulations.
2. Documentation of enforcement activities including a written enforcement strategy and Standard Operating Procedures (SOPs) related to ceasing violations.
3. Develop and implement a plan for the pre-construction review of Storm Water Pollution Prevention Plans (SWPPPs).
  - a. Review BMPs
  - b. Include a checklist to evaluate water quality impacts as explained in the drainage design manual
  - c. Encourage the use of low impact design (LID) and green infrastructure
  - d. Identify priority construction sites, especially those that directly discharge impaired waters to high quality waters as identified by the State
  - e. Receive and consider information and comments submitted by the public on proposed projects
4. Develop and implement procedures for construction site inspection and enforcement of SWPPP control measures.
5. Track the preconstruction review, regular inspections, permit violations, and permit termination of construction sites with land disturbance of greater than or equal to one acre. This includes projects less than one acre that are part of a larger common plan of development or sale which collectively disturbs land greater than or equal to one acre.
6. Train employees and maintain records of training.

## **MCM 4**

### **CONSTRUCTION SITE STORM WATER RUNOFF CONTROL**

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The City of Orem has implemented tasks to meet the requirements of this MCM, which are summarized in this section.

[CSR-1: City of Orem Ordinances](#)

[CSR-2: SWPPP Review Procedures](#)

[CSR-3: Construction Site Inspection Procedures](#)

[CSR-4: Documentation, Enforcement Strategies and Procedures to respond to Violation of Ordinance](#)

[CSR-5: Tracking of Preconstruction and Construction Storm Water Activities](#)

Tasks in other Minimum Control Measures

PEO-1: Education and Outreach for General Public

PEO-4: Education and Outreach for City Employees



### CSR-1: City of Orem Ordinances

**Year Originally Executed:** 1996, revised and amended 2008, 2015, 2022

**Last Reviewed:** May 12, 2025

**Reference Regulation:** 4.2.4.1; 4.2.4.1.1; 4.2.4.1.2; 4.2.4.1.3

**Target Pollutants:** Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash, Debris; Pathogens

**Audiences:** MS4 Staff, General Public, Engineers, Construction Contractors, Developers and Planners

**Description:**

City of Orem ordinances include code about the use of erosion and sediment control practices at construction sites disturbing greater than or equal to one acre and to construction projects of less than one acre that are part of a larger common plan of development or sale. These projects are governed by the State’s General Construction Storm Water Permit. Sites that are smaller than this are governed by the City’s Land Disturbance Permit.

City ordinances require construction operators to prepare a Storm Water Pollution Prevention Plan (SWPPP) and apply sediment and erosion control BMPs as necessary to protect water quality, reduce the discharge of pollutants, and control waste in accordance with the SWPPP requirements set forth in the General Permit for Storm Water Discharges from Construction Activities.

Additionally, the ordinances address compliance with the UPDES General Permit for Storm Water Discharges from Construction Activities connected with single lot housing projects. The ordinance includes a provision allowing access by qualified personnel to inspect construction storm water BMPs on private properties that discharge to the MS4 when required.

**Purpose and Benefit:** Ordinances supporting the City’s storm water programs are vital to ensure the success of programs that govern and protect the public.

**Measure of Success:** Evaluate storm water ordinances and draw connections to positive outcomes. This will be reviewed every time the permit is renewed or changed.

**Responsible Staff:** Storm Water Coordinator, Division Manager and City Attorney

**Funding:** Storm Water Utility

**Standard Operating Procedures:** None

**City Ordinance References**

Storm Water Ordinances available online are linked below.

[Chapter 17](#)

[Chapter 23](#)

City Storm Water Ordinance Summary (See Appendix A)



**Supporting Documents**

[UPDES Construction General Permit Number UTRC00000](#)

[UPDES Common Plan Permit UTRH00000](#)

City of Orem [Land Disturbance Permit](#) Application

**CSR-2: SWPPP Review Procedures****Year Originally Executed:** 1996**Last Reviewed:** May 12, 2025**Reference Regulation:** 4.2.4.3, 4.2.4.3.1-4.2.4.3.3**Target Pollutants:** Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash, Debris; Pathogens**Audiences:** MS4 Staff, Engineers, Construction Contractors, Developers and Planners**Description:**

The City has developed and implemented procedures for pre-construction Storm Water Pollution Prevention Plan (SWPPP) review and for keeping records for construction sites that disturb greater than or equal to one acre including projects less than one acre that are part of a larger common plan of development or sale. This is to ensure plans are complete and in compliance with State and Local regulations. The City also has procedures in place for sites that are smaller than one acre through its Land Disturbance Permit.

The City conducts pre-construction SWPPP reviews, which include a review of the site design, the planned operations at the construction site, planned BMPs during the construction phase, and the planned BMPs to be used to manage runoff created after development. The city also reviews and considers information and comments submitted by the public on proposed projects.

These procedures consider potential water quality impacts and use a checklist. Priority construction sites shall consider soil erosion potential, site slope, project size and type, sensitivity of receiving water bodies, proximity to receiving water bodies, non-storm water discharges and past record of non-compliance by the operators of the construction site. The review also identifies priority construction sites that discharge directly into or immediately upstream of waters that the State recognizes as impaired or as high-quality.

**Purpose and Benefit:** Creating procedures and checklists allow for uniform review of sites based on agreed upon objective criteria. This consistency should lead to better compliance as contractors, developers and engineers are able to recognize patterns applicable to sites throughout the City.

**Measure of Success:** Maintain a file of reviewed and approved SWPPPs on the Orem server for every applicable construction project. Reviewed annually according to the Storm Water Management Plan Measurable Goals Matrix.

**Responsible Staff:** Storm Water Coordinator, Storm Water Field Supervisor and City Planner

**Funding:** Storm Water Utility

**Standard Operating Procedures:** Preconstruction SWPPP Review (Available upon request)

**Other References**

[Development Review Application](#)

[SWPPP Review Checklist](#)



[BMP Preferred List](#)



### CSR-3: Construction Site Inspection Procedures

**Year Originally Executed:** 2003

**Last Reviewed:** May 12, 2025

**Reference Regulation:** 4.2.4.4-4.2.4.4.4

**Target Pollutants:** Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash, Debris; Pathogens

**Audiences:** MS4 Staff

**Description:**

The City has developed and implemented a program for inspecting construction sites for compliance with storm water regulations. Those sites that disturb greater than or equal to one acre including projects less than one acre that are part of a larger common plan of development or sale are governed by procedures that are defined by the MS4 Permit. Activities are carried out using the State's Oversight Construction Inspection Form.

**Purpose and Benefit:** Creating procedures and checklists allow for uniform review of sites based on agreed upon objective criteria. This consistency should lead to better compliance as contractors, developers, and engineers are able to recognize patterns applicable to sites throughout the City.

**Measure of Success:** Maintain a file of SWPPP inspections on the Orem server. Include a record of deficiencies during these inspections and the actions taken to remedy these deficiencies. Reviewed annually according to the Storm Water Management Plan Measurable Goals Matrix.

**Responsible Staff:** Storm Water Coordinator

**Funding:** Storm Water Utility

**Standard Operating Procedures:** Inspections of Permitted Construction Sites SOP

**CSR-4: Documentation, Enforcement Strategies, and Procedures to respond to Violation of Ordinance****Year Originally Executed:** 2003**Last Reviewed:** May 12, 2025**Reference Regulation:** 4.2.4.2; 4.2.4.2.1; 4.2.4.2.2; 4.2.4.4.5;**Target Pollutants:** Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash, Debris; Pathogens**Audiences:** MS4 Staff**Description:**

The City has a program to track oversight enforcement actions related to compliance with regulations governing storm water discharges from construction sites. This includes a series of escalating actions that are meant to increase the probability of compliance. The system is identified in the Enforcement for Construction Sites SOP and includes actions ranging from written mandates to civil fines and stop work orders. The city may also pursue criminal prosecution according to City Code.

A key component of this effort is the Storm Water Pollution Prevention Plan tracking program developed by the City's IT Staff. The Storm Water Coordinator uses this program to track inspections and enforcement actions related to construction activities.

**Purpose and Benefit:** Creating procedures and checklists allow for consistent enforcement and documentation of deficiencies. This should lead to better compliance as contractors, developers and engineers are able to recognize consistent enforcement of deficiencies at sites throughout the City.

**Measure of Success:** Enforcement actions lead the operator to come into compliance with their SWPPP. Annual review of enforcement actions and remedies according to the Storm Water Management Plan Measurable Goals Matrix.

**Responsible Staff:** Storm Water Coordinator and Storm Water Field Supervisor

**Funding:** Storm Water Utility

**Standard Operating Procedures:** Enforcement for Construction Sites SOP

**City Ordinance References**

Storm Water Ordinances available online are linked below.

[Chapter 23](#)

City Storm Water Ordinance Summary (See Appendix A)

## CSR-5: Tracking of Preconstruction and Construction Storm Water Activities

**Year Originally Executed:** 2003

**Last Reviewed:** May 12, 2025

**Reference Regulation:** 4.2.4.6

**Target Pollutants:** Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash, Debris; Pathogens

**Audiences:** MS4 Staff, Engineers, Construction Contractors, Developers and Planners

### **Description:**

The City has developed programs to track preconstruction and construction storm water activities. The Development Tracking program developed by the City's IT Department tracks site plan reviews. The Storm Water Pollution Prevention Plan tracking program developed by the City's IT Department tracks SWPPP inspections and enforcement. The city also reviews and considers information and comments submitted by the public on proposed projects.

The Storm Water Coordinator uses these programs to track inspections and enforcement actions related to construction activities.

**Purpose and Benefit:** Tracking preconstruction and construction storm water activities allows for consistent enforcement of storm water regulations.

**Measure of Success:** Annual review of data collected compared to previous years according to the Storm Water Management Plan Measurable Goals Matrix.

**Responsible Staff:** Storm Water Coordinator, Storm Water Field Supervisor and City Planner

**Funding:** Storm Water Utility

**Standard Operating Procedures:** Record Keeping in Orem's SWPPP IT Program (Available upon request)

## Chapter 5

### **MCM 5: Long-Term Storm Water Management in New Development and Redevelopment (Post-Construction Storm Water Management)**

The permit requirements for Long-Term Storm Water Management in New Development and Redevelopment (Post-Construction Storm Water Management) can be found in Section 4.2.5 of the permit.

A copy of the General Permit for Discharges from Small MS4s can be found at [DWQ's Website](#). The permit outlines in general the following requirements:

1. Develop and adopt an ordinance that requires long-term post-construction storm water controls at new development and redevelopment sites that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale. The ordinance or other regulatory mechanism shall require BMP selection, design, installation, operation and maintenance standards necessary to protect water quality and reduce the discharge of pollutants to the MS4.
2. Document enforcement activities including a written enforcement strategy and Standard Operating Procedures (SOPs) related to ceasing violations, which is covered in MCM 4.
3. Documentation on how the requirements of the ordinance or other regulatory mechanism will protect water quality and reduce the discharge of pollutants to the MS4. Documentation shall include:
  - a. How long-term storm water BMPs were selected
  - b. The pollutant removal expected from the selected BMPs
  - c. The technical basis that supports the performance claims for the selected BMPs.
4. Develop and implement standards to ensure that any storm water controls or management practices for new development and redevelopment will prevent or minimize impacts to water quality. This should include the use of non-structural BMPs.
5. Require the evaluation of Low Impact Development (LID) to encourage infiltration, evapotranspiration, and storm water harvesting and green infrastructure controls. Require documentation of why LID was selected on a case-by-case basis.
6. Track the preconstruction review, regular inspections, permit violations, and permit termination of construction sites of one acre or larger and those sites smaller than one acre that are part of a common plan of development or sale.
7. Specify a hydrologic method to be used in calculation of runoff values.
8. Implement procedures for site plan review that includes preferred design specifications tailored to different development types. These design specifications should be made available to design professionals on a regular basis.
9. Conduct site inspections during construction and site owner shall submit an inspection report biennially after site completion.
10. Maintain a database of long-term storm water management structures and maintain a catalog of inspections done on these structures.

## **MCM 5**

### **LONG-TERM STORM WATER MANAGEMENT IN NEW DEVELOPMENT AND REDEVELOPMENT (POST-CONSTRUCTION STORM WATER MANAGEMENT)**

11. The City should inspect each applicable property at least once every five years to ensure the property owner is maintaining the storm water facilities on site.

The City of Orem has implemented tasks to meet the requirements of this MCM, which are summarized in this section.

[LTM-1: City of Orem Ordinances](#)

[LTM-2: Water Quality Protection Documentation](#)

[LTM-3: Long-Term Storm Water Management Plan Review](#)

[LTM-4: Hydrologic Method](#)

[LTM-5: Site Plan Review Procedures](#)

[LTM-6: Site Inspection for Post-Construction Storm Water Management Compliance](#)

[LTM-7: Post-Construction Storm Water Management Structure Inventory](#)

Tasks in other Minimum Control Measures

CSR-4: Documentation, Enforcement Strategies and Procedures to respond to Violation of Ordinance (4.2.5.2.1, 4.2.3.6)

PEO-4: Education and Outreach for City Employees (4.2.1.5, 4.2.1.6)



**LONG-TERM STORM WATER MANAGEMENT IN NEW DEVELOPMENT AND REDEVELOPMENT  
(POST-CONSTRUCTION STORM WATER MANAGEMENT)**

**LTM-1: City of Orem Ordinances**

**Year Originally Executed:** 1996, revised and amended 2008, 2015, 2020

**Last Reviewed:** June 17, 2025

**Reference Regulation:** 4.2.5.2.

**Target Pollutants:** Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash; Debris; Pathogens.

**Audiences:** MS4 Staff, General Public, Engineers, Construction Contractors, Developers and Planners

**Description:** City of Orem Code includes ordinances about the use of BMPs needed to protect water quality from all new development and redevelopment sites. These City ordinances govern the selection, design, installation, operation and maintenance of long-term/post-construction BMPs. City code encourages the use of non-structural BMPs by reference to a City approved BMP manual. It also encourages the use of a Low Impact Development (LID) approach for handling storm water. Orem requires documentation of LID and BMPs considered and the reasons for choosing the practices or explanations of what prevents the use of LID for each development or redevelopment project greater than or equal to one acre. City ordinances also require biennial inspection, and maintenance of long-term storm water management structures as needed. In addition, maintenance agreements are required so that property owners can be held accountable for keeping BMPs in good working order.

**Purpose and Benefit:** Ordinances supporting the City’s storm water program are vital to ensure the success of programs that govern and protect the public.

**Measure of Success:** Evaluate the ordinance and draw connections to positive outcomes when the permit is renewed or changed according to the Storm Water Management Plan Measurable Goals Matrix.

**Responsible Staff:** Storm Water Coordinator, Storm Water Division Manager or designee, Maintenance Division Manager and City Attorney

**Funding:** Storm Water Utility

**Standard Operating Procedures:** None

**City Ordinance References:**

Storm Water Ordinances available online are linked below

[Chapter 17](#)

[Chapter 23](#)

City Storm Water Ordinance Summary (See Appendix A)

**Supporting Documents**

Storm Water Maintenance Agreement (Available upon request)

Storm Water Questionnaire (Available upon request or online)



## LTM-2: Water Quality Protection Documentation

**Year Originally Executed:** 2016

**Last Reviewed:** June 17, 2025

**Reference Regulation:** 4.2.5.2.2

**Target Pollutants:** Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash; Debris; Pathogens.

**Audiences:** MS4 Staff, Engineers, Construction Contractors, Developers, Planners

### **Description:**

Selecting specific long-term storm water BMPs for recommendation has been a challenge due to the lack of data on the effectiveness and pollutants removal rates from studies that have been completed in Utah. The City of Orem recommends developers consider Low Impact Development (LID) through the use of the Utah Department of Water Quality's (UDWQ) manual, "[A Guide to Low Impact Development within Utah](#)". Additional resources can be found at the [International Storm Water BMP Database](#) and the [EPA's National Menu of Best Management Practices \(BMPs\) for Storm Water](#). The preceding websites list expected removal rates from a variety of BMPs and the technical basis and studies which support these performance claims. Developers must design BMPs to treat storm water with a goal of reducing pollutants in the receiving water bodies. BMPs should address removal of phosphorus, total suspended solids, and other site specific target pollutants. Proposed BMPs will be evaluated by City staff to verify selected BMPs will target reduction of site specific pollutants.

**Purpose and Benefit:** Creating procedures and checklists allow for uniform review of sites based on agreed upon objective criteria. This consistency should lead to better compliance as contractors, developers and engineers are able to recognize patterns applicable to sites throughout the City.

**Measure of Success:** The number of new and redeveloped sites that implement LID features.

**Responsible Staff:** Storm Water Coordinator, Storm Water Field Supervisor and City Planners

**Funding:** Storm Water Utility

**Standard Operating Procedures:** None

### **Supporting Documents:**

UDWQ's manual "[A Guide to Low Impact Development within Utah](#)"

[International Storm Water BMP Database](#)

[EPA's National Menu of Best Management Practices \(BMPs\) for Storm water](#)



### LTM-3: Long-Term Storm Water Management Plan Review

**Year Originally Executed:** 2003

**Last Reviewed:** June 17, 2025

**Reference Regulation:**4.2.5.3. ; 4.2.5.3.1 ; 4.2.5.3.2.

**Target Pollutants:** Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash; Debris; Pathogens

**Audiences:** MS4 Staff

**Description:**

Development can alter landscapes by increasing imperviousness (i.e. roofs, driveways, parking lots) and changing drainage patterns, thereby increasing the volume and velocity of runoff from the site. Increased volume leads to degradation of receiving waters and increases the occurrence of flooding. Storm water from developed impervious areas can also contain a variety of pollutants that are detrimental to water quality, such as sediment, nutrients, road salts, heavy metals, pathogenic bacteria, and hydrocarbons.

Considering water quality impacts early in the design process can provide long-term water quality benefits. New development projects on undeveloped land offer many opportunities to reduce storm water runoff from the site. Redevelopment projects, which replace an existing development and are typically in more urban areas, usually have less land area available for storm water controls.

The City of Orem as a Phase II regulated municipality, has developed ordinances which require property owners and operators to include a combination of structural and non-structural BMPs. The ordinances also ensure adequate long-term operation and maintenance of BMPs. The City thoroughly reviews development plans and supporting documents for each site to ensure that post-construction storm water controls will have minimal negative impacts to water quality.

The City will regularly review and update design guidance documents written by MS4 staff that are provided to design professionals. These design guidance documents are an additional resource that are specific to storm water design considerations in Orem.

**Purpose and Benefit:** Plan reviews allow for the evaluation of selected BMPs and guidance for developers from planning, to construction, to long-term maintenance.

**Measure of Success:** Review site and subdivision plans, where long-term BMPs selected for use are inadequate, require the engineer to redesign the site according to standards set by the City. These reviewed site plans are stored on Orem’s server.

**Responsible Staff:** Storm Water Coordinator, Storm Water Field Supervisor and City Planner.

**Funding:** Storm Water Utility

**Standard Operating Procedures:** Site Plan Review and Post-Construction Plan Review SOP (Available upon request)



**Supporting Documents:**

UDWQ's manual [“A Guide to Low Impact Development within Utah”](#)

[International Storm Water BMP Database](#)

[EPA's National Menu of Best Management Practices \(BMPs\) for Storm Water](#)



#### LTM-4: Hydrologic Method

**Year Originally Executed:** 2016

**Last Reviewed:** June 17, 2025

**Reference Regulation:** 4.2.5.1.2

**Target Pollutants:** Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash; Debris; Pathogens

**Audiences:** MS4 Staff, Engineers, Construction Contractors, Developers and Planners

#### **Description:**

The use of hydrologic analysis in the design of storm water facilities for new developments and redevelopment sites has been a part of the preconstruction process for many years at the City of Orem. The standards used have been selected by the City Engineer. The hydrologic methods that can be used in calculation of run-off volumes are listed in section 4.3 of Orem's Storm Water System Design And Management Manual.

The Storm Water Staff provide guidance in the process, ensuring that UPDES standards of management/retention are met. Each site design submitted to the City will require technical rationale should retention or pretreatment requirements be infeasible for a given site. Exemptions can be obtained if retention or pretreatment is not feasible due to site constraints such as- poor percolation, high groundwater levels, etc. The City Engineer will use engineering judgment to determine if the exemption request will be accepted or denied on a case-by-case basis. If an exemption is accepted, developers will be required to provide a plan to the City Engineer for approval. The plan should identify the means by which water quality will be protected and volume control standards met.

**Purpose and Benefit:** Reducing runoff from sites and encouraging the infiltration, evapotranspiration and/or reuse of storm water allows for groundwater recharge and minimizes potentially adverse impacts to downstream waters.

**Measure of Success:** Design engineers use our preferred storm water calculation methods and design sites that retain the first 0.5" of storm water where feasible.

**Responsible Staff:** Storm Water Division Manager, Storm Water Coordinator, Storm Water Field Supervisor and City Engineer

**Funding:** Storm Water Utility

**Standard Operating Procedures:** Site Plan Review and Post-Construction Plan Review SOP (Available upon request)

#### **Supporting Documents:**

[City of Orem Storm Drainage Systems Design and Management Manual](#)

## LTM-5: Site Plan Review Procedures

**Year Originally Executed:** 1996

**Last Reviewed:** June 17, 2025

**Reference Regulation:** 4.2.5.3. ; 4.2.5.3.1 ; 4.2.5.3.2

**Target Pollutants:** Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash; Debris; Pathogens

**Audiences:** MS4 Staff, Contractors, Developers, Engineers

**Description:** The City reviews site plans to ensure that any storm water controls or management practices for new development and redevelopment will prevent or minimize negative impacts to water quality. This process involves the technical development review with engineering, public works and public safety. This review promotes non-structural BMPs such as minimizing disturbance areas, preserving areas deemed important for water quality benefits, implementing flood control and protecting natural resources. The review process requires the evaluation of proposed LID that implements infiltration, evapotranspiration, and storm water harvesting in accordance with state regulations. If LID is determined not to be feasible, documentation explaining site limitations must be submitted to the development review committee for review and approval prior to construction. BMPs will be reviewed to ensure that they will address anticipated pollutants from the developed site. Additionally, this process of preconstruction and review meetings is a time to review storm water maintenance agreements.

**Purpose and Benefit:** The best way to integrate long-term storm water quality measures into a site is during planning and review.

**Measure of Success:** Document the number of sites evaluated and the measures used to address the issues with these site plans. This will be reviewed annually according to the Storm Water Management Plan.

**Responsible Staff:** Storm Water Division Manager, Storm Water Coordinator, Storm Water Field Supervisor, City Planner and City Engineer

**Funding:** Storm Water Utility

**Standard Operating Procedures:** Site Plan Review and Post-Construction Plan Review SOP (Available upon request)

### Supporting Documents

[City of Orem Construction Standards](#)

[Full Site Plan Checklist](#)

All documents listed on the [orem.gov/stormwater](http://orem.gov/stormwater) webpage

## LTM-6: Site Inspection for Post-Construction Storm Water Management Compliance

**Year Originally Executed:** 2016

**Last Reviewed:** June 17, 2025

**Reference Regulation:** 4.2.5.2.3 ; 4.2.5.2.4 ; 4.2.5.2.5

**Target Pollutants:** Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash; Debris; Pathogens

**Audiences:** MS4 Staff, Developers, Contractors, Business Owners

### **Description:**

The City has a process to verify the proper installation and maintenance of long-term storm water management controls. Permanent structural BMPs are inspected at least once during installation and upon completion of the project by a City Storm Water Coordinator and/or a City Construction Engineer. Any deficiencies noted in the post-construction inspection must be addressed by the developer before a certificate of occupancy will be granted by the City.

Henceforth, each property owner who has signed the Storm Water Inspection and Maintenance Agreement (SWIMA), shall submit to the City a biennial storm water maintenance inspection report that is completed by a qualified inspector. These biennial reports are recorded by the Storm Water Coordinator to the shared Google Drive. The City will then inspect each site that is bound by a SWIMA a minimum of once every five years.

**Purpose and Benefit:** Properly installed and maintained storm water controls ensure long-term benefits are extended to the full life expectancy of the measures.

**Measure of Success:** Document the number of sites evaluated and the measures used to address any issues with these sites. This will be reviewed annually according to the Storm Water Management Plan Measurable Goals Matrix.

**Responsible Staff:** Storm Water Coordinator, Storm Water Field Supervisor, Construction Engineer and City Engineer

**Funding:** Storm Water Utility

**Standard Operating Procedures:** Post-Construction Maintenance Inspections SOP (Available upon request)

Mid-Construction SW Installation Inspection SOP (Available upon request)

Post-Construction SW Installation Inspection SOP (Available upon request)

**Supporting Documents:** Storm Water Inspection and Maintenance Agreement (Available upon request)

## LTM-7: Post-Construction Storm Water Management Structure Inventory

**Year Originally Executed:** 2016

**Last Reviewed:** June 17, 2025

**Reference Regulation:** 4.2.5.4. ; 4.2.5.4.1 ; 4.2.5.4.2

**Target Pollutants:** Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash; Debris; Pathogens

**Audiences:** MS4 Staff, Developers

### **Description:**

During the development review process, a long-term storm water BMP map is collected from the developer. This BMP map shows the location of all permanent storm water structures. Post-construction, an “as-built” long-term storm water BMP map is requested in digital format. This data is then used to update the City’s storm water structure inventory.

The City will monitor its current inventory of post-construction storm water management structures and collect information on all such existing structures. A GIS map with related databases will track the description, maintenance requirements and inspection information regarding sites that require a Long-term Storm Water Management Plan. This GIS and related database will be reviewed frequently to update necessary information.

**Purpose and Benefit:** A database allows for the proper tracking of the maintenance and inspections of long-term management structures and ensures greater compliance with maintenance expectations.

**Measure of Success:** An accurate storm water structure inventory in Orem’s GIS database with reports on related maintenance and inspection activities. This will be reviewed annually according to the Storm Water Management Plan.

**Responsible Staff:** Storm Water Coordinator, Storm Water Field Supervisor, and Storm Water GIS Analyst

**Funding:** Storm Water Utility

**Standard Operating Procedures:** Post-Construction SW Installation Inspection SOP, Storm Water Inventory for New and Redeveloped Sites SOP

### **Supporting Documents:**

Storm Water Inspection Charts (Shared Google Drive)

SW Construction Inspection Form

## Chapter 6

### MCM 6: Pollution Prevention and Good Housekeeping for Municipal Operations

The permit requirements for Pollution Prevention and Good Housekeeping for Municipal Operations can be found in Section 4.2.6 of the permit.

A copy of the General Permit for Discharges from Small MS4s can be found at [DWO's Website](#). The permit outlines in general the following requirements:

1. Develop and keep a current written inventory of Permittee-owned or operated facilities and storm water controls. Permittees shall assess this written inventory for their potential to discharge typical urban pollutants to storm water. The Permittee must identify "high-priority" facilities or operations that have a high potential to generate storm water pollutants. The Permittee shall develop and implement a Storm Water Pollution Prevention Plan (SWPPP) or similar type document for each "high-priority" facility.
2. Conduct the following inspections at "high priority" facilities:
  - a. Monthly visual inspections
  - b. Semi-annual comprehensive inspections
  - c. Annual visual observation of storm water discharges
3. Develop and implement Standard Operating Procedures to protect water quality at each of the facilities owned or operated by the Permittee and/or activities conducted by the Permittee. They must address:
  - a. Use, storage and disposal of chemicals;
  - b. Storage of salt, sand, gravel, landscaping materials, asphalt and other materials;
  - c. Waste and trash management;
  - d. Cleaning, washing, painting and maintenance activities including: cleaning of maintenance equipment, building exteriors, and trash containers;
  - e. Sweeping roads and parking lots;
  - f. Proper application, storage, and disposal of fertilizer, pesticides, and herbicides and minimizing their use;
  - g. Lawn maintenance and landscaping activities including: proper disposal of lawn clipping and vegetation;
  - h. Proper disposal of pet wastes;
  - i. Vehicle maintenance and repair activities including: use of drip pans and absorbents under or around leaky vehicles and equipment;
  - j. Vehicle/equipment storage including storing indoors where feasible;
  - k. Vehicle fueling including placing fueling areas under cover in order to minimize exposure where feasible;
  - l. Road and parking lot maintenance, including: pothole repair, pavement marking, sealing, and repaving;
  - m. Cold weather operations, including: plowing, sanding, application of deicing compounds, and maintenance of snow disposal areas;
  - n. Right-of-way maintenance, including: mowing, herbicide and pesticide application;

**POLLUTION PREVENTION AND GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS**

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- o. Municipally-sponsored events such as large outdoor festivals, parades, or street fairs and the clean-up following these events;
  - p. Regular inspection, cleaning, and repair of storm water conveyance and structural storm water controls;
  - q. Graffiti removal; and
  - r. Any activities or operations not listed above that would reasonably be expected to discharge contaminated runoff.
4. Implement a retrofit plan for city owned/operated sites that incorporates LID and green infrastructure. Priority Areas should be identified in the plan.
5. Maintain an inventory of all floor drains inside all Permittee-owned or operated buildings. The inventory must be kept current. The Permittee must ensure that all floor drains discharge to appropriate locations.
6. Assess the effectiveness of flood management structural controls for water quality and hydrologic performance. Suggest improvements to these structures when they can provide significant improvements to water quality.
7. Assure that City construction projects follow the requirements of the General UPDES Permits for Storm Water Discharges Associated with Construction Activities.
8. Train City employees responsible for the construction, operation or maintenance of facilities, structures, vehicles or equipment likely to affect storm water quality.

The City of Orem has implemented tasks to meet the requirements of this MCM, which are summarized in this section.

[PPGH-1: City Owned Facility Inventory Assessment](#)

[PPGH-2: High Priority Facility Inspections](#)

[PPGH-3: Standard Operating Procedures for Good Housekeeping and Municipal Operations](#)

[PPGH-4: Floor Drain Inventory](#)

[PPGH-5: Flood Management Control Assessment](#)

[PPGH-6: Public Construction Project Compliance](#)

[PPGH-7: Oversight of Contractors Performing Municipal Maintenance](#)

[PPGH-8: Retrofit Plan](#)

Tasks in other Minimum Control Measures

PEO-4: Education and Outreach for City Employees (4.2.6.10)

**PPGH-1: City Owned Facility Inventory Assessment****Year Originally Executed:** 2002**Last Reviewed:** July 8, 2025**Reference Regulation:** 4.2.6; 4.2.6.1; 4.2.6.2; 4.2.6.3; 4.2.6.4**Target Pollutants:** Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash; Debris; Pathogens**Audiences:** MS4 Staff**Description:**

The City maintains a list of all City owned and operated facilities including city buildings (offices), equipment storage and maintenance facilities, landscape maintenance facilities, parking lots, golf courses, swimming pools, drinking water wells, and sewer lift stations.

Regular assessments are made of the impact of each facility on storm water quality based on the presence of potential pollutants. Through these assessments, the City has determined that its Public Works Complex, Sleepy Ridge Golf Course Maintenance Shed, and SCERA outdoor pool should be considered a “high-priority” facility. Designated City owned maintenance sheds are also considered “high-priority” facilities and are regulated as such. A Storm Water Pollution Prevention Plan has been developed for each high-priority facility to help manage potential impacts on storm water quality.

**Purpose and Benefit:** This inventory will ensure that City facilities are regularly reviewed to minimize adverse impacts of City operations on storm water quality.

**Measure of Success:** Review of City facility inventory will be done annually. IDDE incidents are properly reviewed with follow up, and an up-to-date facility inventory list is kept.

**Responsible Staff:** Storm Water Coordinators, Storm Water Field Supervisor, Storm Water Division Manager and GIS Analyst

**Funding:** Storm Water Utility

**Standard Operating Procedures:** Potential High Priority Area Assessment SOP

**Supporting Documents:**

City of Orem Facility Inventory (available upon request)

High priority facility SWPPPs (available upon request)

**PPGH-2: High Priority Facility Inspections**

**Year Originally Executed:** 2002

**Last Reviewed:** July 8, 2025

**Reference Regulation:** 4.2.6.5; 4.2.6.5.1; 4.2.6.5.2; 4.2.6.5.3

**Target Pollutants:** Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash; Debris; Pathogens

**Audiences:** MS4 Staff

**Description:**

The City conducts the following inspections on High-Priority Facilities, in accordance with the permit:

1. Monthly visual inspections to look for evidence of spills that could come in contact with precipitation runoff.
2. Semi-annual comprehensive inspections to review all storm water controls, waste storage areas, equipment maintenance/fueling areas, material handling areas and similar pollutant generating areas.
3. Annual visual observation of storm water discharges during wet weather, where discharges are observed for irregularities (discoloration, foam, sheen, turbidity) that may indicate polluted runoff.

**Purpose and Benefit:** Regular inspections of areas that have the potential to lead to polluted runoff can minimize the potential of polluted discharges.

**Measure of Success:** Completed and filed inspection reports including follow up actions each time inspections are completed.

**Responsible Staff:** Storm Water Coordinators and GIS Analyst

**Funding:** Storm Water Utility

**Standard Operating Procedures:** High Priority Facility Inspections SOP

**PPGH-3: Standard Operating Procedures for Good Housekeeping and Municipal Operations**

**Year Originally Executed:** 2010

**Last Reviewed:** July 8, 2025

**Reference Regulation:** 4.2.6.6; 4.2.6.6.1; 4.2.6.6.2; 4.2.6.6.3; 4.2.6.6.4; 4.2.6.6.5;

**Target Pollutants:** Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash; Debris; Pathogens

**Audiences:** MS4 Staff

**Description:** The City has developed and implemented Standard Operating Procedures (SOPs) to address storm water concerns related to municipal operations. The following topics are all addressed in the City’s SOPs.

1. City Buildings and Facilities
  - a. Storage and Disposal of Chemicals
  - b. Spill Prevention and Cleanup Plans
  - c. Dumpsters and Waste Management
  - d. Cleaning and Washing Activities
  - e. Painting and Maintenance Activities
2. Material Storage Areas
3. Heavy Equipment storage areas and maintenance areas
4. High Priority Area Maintenance
5. Parks and Open Space
  - a. Application, Storage and Disposal of Fertilizer, Pesticides and Herbicides
  - b. Sediment and Erosion Control
  - c. Lawn Maintenance and Landscaping Activities
    - i. Disposal of Lawn Clippings and Vegetation
    - ii. Selection of Alternative Landscaping Materials
  - d. Waste management
  - e. Building Exterior and Equipment Cleaning
    - i. Graffiti Removal
  - f. Other Pollution Prevention and Good Housekeeping Practices
6. Pet Wastes
7. Vehicle and Equipment



- a. Storage of Vehicles Awaiting Repair
- b. Washing of Vehicles
- 8. Roads, Highways, and Parking Lots
  - a. Street and Parking Lot Sweeping
  - b. Asphalt and Concrete Maintenance
    - i. Pothole Repairs
    - ii. Pavement Marking
    - iii. Sealing and Repaving
  - c. Cold Weather Operations
    - i. Plowing
    - ii. Sanding
    - iii. Deicing Compounds
    - iv. Snow Disposal Area Maintenance
  - d. Right-of-Way Maintenance (see Landscaping Maintenance in Parks Section)
  - e. City Sponsored Event Management (Oremfest, Freedom Festival, etc.)
- 9. Storm Water Collection and Conveyance System
  - a. Video Inspections
  - b. Cleaning, Maintenance, Repairs
  - c. Other Pollution Prevention and Good Housekeeping Practices
  - d. Structural BMPs
    - i. Swales
    - ii. Detention Basins
  - e. Disposal of materials removed from catch basins, detention basins, and by street sweeping operations
- 10. Other Facilities and Operations
  - a. City of Orem Fire Training Activities

**Purpose and Benefit:** SOPs lead to standard applications of policies and procedures.

**Measure of Success:** The MS4 successfully incorporates all SOPs and reviews them annually. SOPs lead to a reduction in pollutant loads found in storm water.

**Responsible Staff:** Storm Water Coordinators, Storm Water Field Supervisor

**Funding:** Storm Water Utility

**Standard Operating Procedures:** SOPs available upon request



**PPGH-4: Floor Drain Inventory**

**Year Originally Executed:** 2010

**Last Reviewed:** July 8, 2025

**Reference Regulation:** 4.2.6.6.6

**Target Pollutants:** Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash; Debris; Pathogens

**Audiences:** MS4 Staff

**Description:** The City maintains an inventory of all interior floor drains. All drains have been tested to make sure that they drain to the sanitary sewer. Those that do not will be re-plumbed to drain to the sanitary sewer wherever possible.

**Purpose and Benefit:** Floor drains could be direct conduits for pollutants to enter storm drain systems if not properly plumbed. Benefits of a floor drain inventory are record of utility layout inside buildings and increased protection of storm water quality.

**Measure of Success:** This inventory will be reviewed and updated each time a new city owned or operated facility is acquired or an existing building is abandoned. An accurate floor drain inventory ensures that no waste waters are plumbed to storm water infrastructures or allowed to percolate into the ground untreated.

**Responsible Staff:** Storm Water Coordinator, Public Works Field Supervisor

**Funding:** Storm Water Utility

**Standard Operating Procedures:** None

**Supporting Documents:**

Floor Drain Inventory (Available upon request)

**PPGH-5: Flood Management Control Assessment****Year Originally Executed:** 2016**Last Reviewed:** July 8, 2025**Reference Regulation:** 4.2.6.8; 4.2.6.8.1**Target Pollutants:** Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash; Debris; Pathogens**Audiences:** MS4 Staff, Engineers, Construction Contractors, Developers and Planners**Description:**

Successful implementation of any BMP is dependent on the following:

- Effective training of municipal employees working in both fixed facilities and field programs.
- Regular inspections of fixed facilities, field programs, and treatment controls.
- Maintenance of treatment controls as needed to ensure proper functioning.
- Periodic evaluation/monitoring of BMP performance consistent with the UPDES permit requirements.
- Correct deficiencies in BMP implementation noted during inspections.
- Keep accurate records of inspections, training, monitoring, and BMP maintenance.

Maintenance of treatment controls and drainage conveyance systems (e.g. detention basins, sumps, catch basins, etc.) including regular inspections are needed to maintain efficient pollutant reduction. If treatment control BMPs are not properly maintained, BMP effectiveness is reduced and water quality deteriorates. The following are steps to be taken to ensure that new and existing BMPs work properly:

- Special attention will be directed toward ensuring proper maintenance procedures are implemented.
- Regular inspections of facilities or programs including compliance with BMP maintenance requirements.
- Visual monitoring will occur at key outfalls and at selected conveyance system structures to assess long-term BMP effectiveness. Should any observed problems be identified (e.g., color, foam, sheen, turbidity) that can be associated with pollutant sources, then analytical testing will be conducted to determine the cause of the problem and the potential source identified.
- Develop and enforce ordinances, procedures, and mechanisms that maintain the effectiveness of BMPs.

## MCM 6

### POLLUTION PREVENTION AND GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS

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**Purpose and Benefit:** Reducing runoff from sites and encouraging the infiltration, evapotranspiration, and/or reuse of storm water allows for groundwater recharge and minimizes potentially adverse impacts to downstream waters.

**Measure of Success:** Document the sites evaluated and the measures used to address the issues with these sites. This will be reviewed annually.

**Responsible Staff:** Storm Water Division Manager or designee, City Planner and City Engineer

**Funding:** Storm Water Utility

**Standard Operating Procedures:** None

**Supporting Documents:**

[Construction Standards & Specifications](#)

[Construction Standards & Specifications \(Drawings/Details\)](#)



**PPGH-6: Public Construction Project Compliance**

**Year Originally Executed:** 2002

**Last Reviewed:** July 8, 2025

**Reference Regulation:** 4.2.6., 4.2.6.7.

**Target Pollutants:** Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash; Debris; Pathogens

**Audiences:** MS4 Staff

**Description:**

The City ensures that any construction projects that the City manages, controls, or performs, follow the same practices as those undertaken by private entities. See MCM 4 for details and UPDES Permit No. UTR090000 section 4.2.4.

**Purpose and Benefit:** The City seeks to set the proper example for contractors, engineers and developers in their compliance with storm water construction regulations.

**Measure of Success:** All City projects have a SWPPP on file and the plan is executed properly.

**Responsible Staff:** Storm Water Coordinator, Storm Water Field Supervisor, City Planner and City Engineer

**Funding:** Storm Water Utility

**Standard Operating Procedures:** Refer to MCM 4

**PPGH-7: Oversight of Contractors Performing Municipal Maintenance**

**Year Originally Executed:** 2016

**Last Reviewed:** July 8, 2025

**Reference Regulation:** 4.2.6.7; 4.2.6.10

**Target Pollutants:** Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash; Debris; Pathogens

**Audiences:** MS4 Staff, Contractors

**Description:**

The City contracts with private providers for various maintenance needs. The City ensures that its employees are trained on issues relating to their jobs and the potential for exposure of storm water runoff to pollutants. Contractors will be held to the same requirements as the City by staff responsible for overseeing contracted projects.

**Purpose and Benefit:** Contractors working for the City should be held to the same standards as MS4 staff.

**Measure of Success:** Annual contractor training log. This training will be given annually to local contractors.

**Responsible Staff:** Storm Water Field Supervisor, Storm Water Division Manager, Risk Manager

**Funding:** Storm Water Utility

**Standard Operating Procedures:** None

**PPGH-8: Retrofit Plan**

**Year Originally Executed:** 2016

**Last Reviewed:** July 8, 2025

**Reference Regulation:** 4.2.6.9

**Target Pollutants:** Nutrients; Hydrocarbons; Heavy Metals; Sediment; Toxic Chemicals; Litter/Trash; Debris; Pathogens

**Audiences:** MS4 Staff

**Description:**

The City has developed a program to retrofit City owned and/or operated existing developed sites that are adversely impacting water quality on a case-by-case basis. It will emphasize infiltration, evapotranspiration, and harvesting and reuse of storm water. The program will rank the measures based on pollutant removal expectation. The plan will analyze impact to sites based on proximity to water bodies, protection status of water bodies as defined by the DEQ, hydrologic conditions of water bodies, proximity to sensitive ecosystems and the impact of future sites.

**Purpose and Benefit:** Evaluating sites that are already adversely affecting water quality and then reducing polluted discharges will lead to better storm water quality.

**Measure of Success:** Document all City owned sites that have been evaluated and the measures used to address issues with these sites.

**Responsible Staff:** Storm Water Coordinator, Storm Water Field Supervisor and City Planner

**Funding:** Storm Water Utility

**Standard Operating Procedures:** None

**Supporting Documents:**

City Facility Retrofit Plan (See Appendix C)

**APPENDIX A**  
**SUMMARY OF CITY ORDINANCES**

Last Reviewed: July 17, 2025

## City Code Affecting Storm Water Beyond Chapter 23

All of the following impact the storm water system:

Chapter 22 (most of these requirements are found throughout chapter 22 depending on the type of development)

Buffered sidewalks : OCC 22-8-8.B.2

Open space requirements: PRDs OCC Article 22-7 and Article 22-11 through 18

Open space zones: Article 22-10 allows clustered development

40% Landscaping requirement: 22-17-8

Storm Water Runoff Plan:

- 22-7-12.V. All PRDs must have a Storm Water Runoff Plan to accommodate a 25-year storm and a detention system w/ max allowable discharge rate of 60 g.p.m./ac;
- PD zones-11, 21, 22, 23, 29, 30, 31, 33, 34, 37, 38, 39, 40, 41, 43, 47, student housing developments, and ASH zone must each have 25 year storm plan
- Some private development zones, must have a storm water runoff plan designed to accommodate a 50-year storm. Consult the [most current zoning map](#) and requirements specific to each zone.

Landscaped berms: 22-8-9, 22-8-12, 22-11-13 PD Zones, 22-14-19 Residential Zones, 22-17-8.G High Density Apartments

Landscaped islands: Commercial, 22-11-13 PD Zones (found throughout), 22-15-9 Off-street parking [How to improve: maybe do away with the concrete curb so that water can drain]

Setback requirements: found throughout Chapter 22

Limited size of accessory buildings to 8% of the area of the parcel upon which they are located for single-family lots and 12% for multifamily developments in residential zones:  
22-6-8.D Piping irrigation ditches: 22-7-13 PRDs, 22-11 required in various PDs

All areas not covered by buildings must be landscaped in newer PDs Article 22-11

Front yard landscaping requirement: 22-14-7.B.1

No waste or trash accumulation: 22-14-7.B.3

General landscaping requirements on all developed lots: 22-14-13

Site plan landscaping requirements: 22-14-20.H.

Chapter 11  
Nuisance of waste accumulates: 11-1-3

Chapter 15  
Solid waste prohibitions

Chapter 16  
Flooding: 16-1-2  
Obstructing streets and sidewalks: 16-1-3  
Debris, dirt on public street or sidewalk: 16-1-5  
Responsibility of clearing sidewalk, curb, and gutter falls on homeowner: 16-1-6  
Repairing vehicles on the street: 16-1-7

Chapter 17  
Subdivision preliminary plats: 17-4-3.B.13. 25-year storm water drainage plan  
  
Subdivision Regulations & Design Standards: 17-7-6 system must be designed to handle all runoff generated by the subdivision

Chapter 20  
Limit what can be put in public sewers: 20-2-2  
Prohibited connections: 20-2-13

Chapter 21  
Protection of drinking water: 21-2

**APPENDIX B**  
**PRIORITY IDDE**  
**AREAS**

Last Reviewed: August 27, 2025

## **Designation and Inspection of Priority IDDE Areas**

Annually, the City will perform a standard analysis to determine priority IDDE areas.

The GIS Analyst for Storm Water then creates a map displaying IDDE incidents and more particularly the priority areas. The analysis is standardized so that priority areas are not subjective year to year.

The following criteria are used in delineating Priority IDDE Areas:

- Areas with older infrastructure with increased potential for illicit connections
  - Areas of industrial or commercial use
- Areas with a history of illicit discharges or illegal dumping
- Areas adjacent to sensitive bodies of water
  - The Provo River, Utah Lake, and Powell Slough

In Orem, areas with onsite sewage disposal systems are not considered in the analysis of priority IDDE areas because our Illicit Discharge and Detection Elimination (IDDE) program incident reporting already would account for that type of incident. The same situation applies to sewer cross connections and overflow events, they are included in our IDDE reporting.

All Priority IDDE Areas identified on the GIS asset management software will be inspected annually moving forward using an inspection form housed in the City's GIS based asset management software (Elements).

**APPENDIX C**  
**CITY FACILITY RETROFIT PLAN**

Last Reviewed: July 22, 2025

## City Facility Retrofit Plan

**Current Orem City Code 23-4-8(13) will be modified to reflect changes in the UPDES Permit. Where once the permit required retrofit evaluation for all sites within the MS4, now the permit requires the permittee to only consider city owned or operated areas:**

### **4.2.6.9.**

*The Permittee must develop a plan to retrofit existing developed sites that the Permittee owns or operates that are adversely impacting water quality. The retrofit plan must be developed to emphasize controls that infiltrate, have evapotranspiration, or harvest and use storm water discharges. The plan must include a ranking of retrofit sites based on the following criteria:*

- *Proximity to waterbody;*
- *Current assessment of waterbody with the goal to improve impaired waterbodies and protect unimpaired waterbodies;*
- *Hydrologic condition of the receiving waterbody;*
- *Proximity to sensitive ecosystem or protected area; and*
- *Any sites that could be further enhanced by retrofitting storm water controls.*

### **Existing OCC:**

#### **23-4-8(13). Retrofitting Plan**

The City has a plan to retrofit existing developed sites that fall within the applicability criteria described in Section 23-4-8(2) that are adversely impacting water quality. The plan emphasizes controls that infiltrate, have evapotranspiration, or harvest and use storm water discharges. The City recommends control measures that are best suited for the existing site and identifies controls that may be considered for future retrofitting.

The retrofitting plan will include the following criteria:

1. Proximity to waterbody;
1. Current assessment of waterbody with the goal to improve impaired waterbodies and protect unimpaired waterbodies;
2. Hydrologic condition of the receiving waterbody;
3. Proximity to sensitive ecosystem or protected area; and
4. Any existing site included in Section 23-4-8-(2) that could be further enhanced by retrofitting storm water controls.

**(Ord. No. O-2022-0010, Enacted 06/28/2022)**

### **Proposed OCC:**

#### **23-4-8(13). Retrofit Plan**

The City has a plan to retrofit existing developed city owned or operated sites that could adversely impact water quality. The plan emphasizes the use of controls that infiltrate, have evapotranspiration, or harvest and use storm water discharges. Priority for retrofitting existing storm water systems of city owned or operated sites is determined by the following criteria:

1. Proximity to waterbody, sensitive ecosystem or protected area;
2. Hydrological condition of the receiving water body with the goal to improve impaired waterbodies and protect unimpaired waterbodies;
3. Cost efficiency when area is redeveloped for capital improvement projects;

4. Storm water quality regulations at time of storm water system installation (Age); and
5. Any sites that could be further enhanced by retrofitting storm water controls.

### **Implementation of Retrofit Plan:**

- **Step One:** The City shall identify all city owned or operated sites that need to be evaluated for storm water system retrofitting based on the criteria listed in Orem City Code. The City shall perform assessments in order of greatest probable risk to water quality. Sites that are closest to water bodies, sensitive ecosystems, or protected areas will be evaluated first. Sites that were installed prior to 1996 before the City of Orem had an MS4 permit in place will be evaluated second. The remaining city owned or operated sites will be assessed at the time of capital improvement evaluation or redevelopment. The same storm water quality standards for private development are used for city redevelopment projects.
- **Step Two:** In performing the more immediate risk assessments, the City shall use a ranking system one to five, five being the most urgent, considering the following:
  1. Proximity to waterbody, sensitive ecosystem or protected area;
  2. Hydrological condition of the receiving water body with the goal to improve impaired waterbodies and protect unimpaired waterbodies;
  3. Cost efficiency when area is redeveloped for capital improvement projects;
  4. Storm water quality regulations at time of storm water system installation (Age); and
  5. Any sites that could be further enhanced by retrofitting storm water controls.If the site receives a score of a five in any of the categories examined, the site will be evaluated for retrofitting the existing storm water controls and a concept storm water plan sheet created within one year of the assessment.
- **Step Three:** If the site is required to be retrofitted to improve water quality, the plan to retrofit the facility must be prioritized for inclusion in the next revision of the Storm Water Master Plan capital improvement section.

### **Methods of Storm Water Control Retrofitting:**

The City has ranked control measures, with the highest probability of success to prevent storm water pollution, as listed below in this prioritized list.

- Retrofit existing sumps by adding pretreatment manholes to treat storm water prior to infiltration/injection.
- Require current Orem City storm water retention standards for each city redevelopment project as required in current Orem City Municipal Code.
- Require pretreatment of any storm water before it leaves the site or infiltrates into the ground.
- Require roof drainage on redevelopment projects to be directed to landscaping and infiltrated where technically feasible.
- Encourage curb cuts to utilize pervious areas for retention and infiltration of storm water and to help meet LID requirements.

- Encourage vegetative areas in detention/retention areas to aid in infiltration and evapotranspiration of storm water and to help meet LID requirements.
- Expanded use of vegetative swales
- Use of Green Roofs when feasible

Storm water harvesting and use is not practical or useful in improving water quality in our semi-arid area. The focus for retrofitting is on controls that utilize infiltration and evapotranspiration.