

# STORMWATER MANAGEMENT PROGRAM

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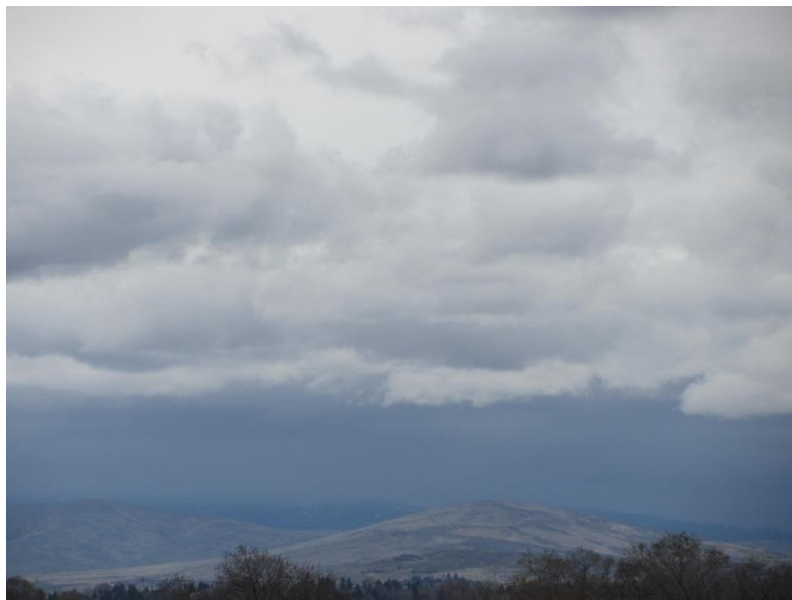
# CITY OF YAKIMA



IN COMPLIANCE WITH THE EASTERN WASHINGTON PHASE II  
MUNICIPAL STORMWATER PERMIT

WAR04-6013, CITY OF YAKIMA

**MAY 2024**





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## **Abbreviations and Acronyms**

AKART – All Known, Available, and Reasonable methods of control and Treatment  
BMP – Best Management Practice  
Co-permittees – Yakima County, City of Yakima, City of Union Gap, City of Sunnyside  
DDD - Dichlorodiphenyldichloroethane  
DDE – Dichlorodiphenyldichloroethylene  
DDT – Dichlorodiphenyltrichloroethane  
Ecology – Washington State Department of Ecology  
ESA – Endangered Species Act  
GIS - IDDE – Illicit Discharge Detection and Elimination  
ILA – Interlocal Agreement or Intergovernmental Local Agreement  
LID – Low Impact Development  
MEP – Maximum Extent Practicable  
MS4 – Municipal Separate Storm Sewer System  
NOI – Notice of Intent  
NPDES – National Pollutant Discharge Elimination System  
O&M – Operation and Maintenance  
PAH – Polyaromatic Hydrocarbon  
POTW – Publicly Owned Treatment Works  
RCW – Revised Code of Washington State  
RSL – Regional Stormwater Lead  
RSPG – Regional Stormwater Policy Group  
RSWG – Regional Stormwater Working Group  
RSWMP – Regional Stormwater Management Program  
SWMP – Stormwater Management Program  
SWPPP – Stormwater Pollution Prevention Plan  
TBD – to be determined  
TMDL – Total Maximum Daily Load  
TSS – Total Suspended Solids  
UA – Urbanized Area  
UGA – Urban Growth Area  
UIC – Underground Injection Control  
USEPA – United States Environmental Protection Agency  
VE – Value Engineering  
WAC – Washington Administrative Code  
YCHD – Yakima County Health District

# **1 Introduction**

The Eastern Washington Phase II Municipal Stormwater Permit issued by the Washington State Department of Ecology (Ecology) requires written documentation of stormwater management programs developed and implemented by permittees. Four permittees (Yakima County, City of Yakima, City of Union Gap, and City of Sunnyside) discharge stormwater from their Municipal Separate Storm Sewer Systems (MS4s) and obtained permit coverage from Ecology as regional co-permittee partners described by an interlocal governmental agreement (ILA) signed July 5, 2007, amended in 2009. The ILA described specific permit compliance activities that each regional partner will implement.

The geographic area for activities described in this plan is the city limits of Yakima, Washington.

Permittees must develop stormwater management programs that contain minimum performance measures in eight required program elements. Descriptions of the performance measures that the regional co-permittees will perform are the core of this document. For context, the regulatory and physical environment as related to stormwater is provided to support the performance measures. Each performance measure identifies whether it was part of the ILA, contains a goal, describes existing or related activities, presents measurable activities to meet the goal, identifies documentation needed for assessment, and describes responsibilities.

The RSWMP was based on the permit requirements, previous work by consultants and an interlocal governmental agreement between the communities for stormwater permit coverage. It builds on those works by specifying actions, setting measurable activities and identifying how to measure the success of the actions. Eventually, full implementation of the City of Yakima stormwater program will be a long-term, iterative process, thus this document is designed as a living document, easily adapted as performance measures are implemented, evaluated, and revised if needed.

## **1.1 Regulatory Environment**

The Clean Water Act, enacted in 1972, contains the legal requirement for protecting the quality of waters of the nation. The Act authorizes the USEPA Administrator to carry out its requirements. USEPA initially focused water quality improvement efforts on reducing discharges of pollutants from pipes (point sources), primarily wastewater from industrial processes and municipal sewer treatment facilities.

Diffuse sources of pollutants (non-point sources) also contribute to water pollution nationwide. Runoff from stormwater can collect pollutants as it flows across the landscape and discharges to surface and ground water. As a result, USEPA has begun to regulate urban stormwater discharges by requiring municipalities to obtain National Pollutant Discharge Elimination System (NPDES) permits for stormwater.

Phase I of the NPDES Stormwater Program began in 1990. Large and medium size municipalities with populations greater than 100,000 were required to develop and implement stormwater management programs. Phase II of the regulations requires small municipalities (<100,000) and contiguous areas with smaller – but still urban – communities to develop and implement stormwater management programs. In February 2007, the Department of Ecology issued the Eastern Washington Phase II Municipal Stormwater Permit, requiring Yakima County and the Cities of Yakima, Union Gap, and Sunnyside to submit a Notice of Intent (NOI) seeking coverage and to comply with the terms of the permit.

Phase II communities must implement performance measures that reduce pollutants in stormwater to the “maximum extent practicable” (MEP). MEP is the technology-based standard

established by Congress in CWA §402(p)(3)(B)(iii). The City of Yakima focuses on performance measures that are technically sound and meet permit requirements.

In 2013, the City of Yakima adopted its first City Strategic Plan. The City priorities include:

- Economic Development
- Public Safety
- Public Trust
- Partnership Development
- Built Environment

Also in 2013, the City completed a draft Stormwater Collection System Master Plan (master plan) that identified and prioritized necessary capital improvements and investments for its MS4. The plan identified \$672 million in needed infrastructure improvements throughout the MS4. The City's stormwater budget has allocated \$600,000 in capital improvement funds for the FY 2015 fiscal year. This is the first time the City has allocated money for stormwater capital improvements. The priorities identified in the master plan, if implemented, will reduce the risk of localized flooding and will help with compliance of the City's municipal stormwater permit.

## **1.2 Transition to City of Yakima Stormwater Program from Regional Stormwater Management Program**

Regional stormwater programs began in 1994 when Yakima County and the City of Yakima completed a Yakima Regional Stormwater Management Plan. Several efforts to regionalize stormwater programs were made over the next 10 years, resulting in the Regional Stormwater Policy Group (RSPG) being formed in 2005. The RSPG consisted of elected officials from the City of Yakima, Union Gap, Sunnyside, and Yakima County whose goal was to review overall program costs and explore mechanisms for further cost savings by regional consolidation.

Following Ecology's issuance of a final Phase II Municipal Stormwater Permit for Eastern Washington in February 2007, the co-permittees signed a three-year ILA for regional permit compliance on July 5, 2007. The original ILA was amended in 2009 for the remaining two permit years. Delay in permit issuance resulted in a subsequent ILA that extends the agreement until the second permit is in effect. In August 2012 the RSPG decided to reduce oversight of the ILA partnership and delegated staff to continue to work cooperatively, bringing permit updates and issues to the respective boards and councils at least once per year to each jurisdiction.

In February of 2014, the Yakima City Council voted to separate from the RSPG and directed City of Yakima staff to implement all requirements of the Eastern Washington Phase II Municipal Stormwater Permit. A letter was sent from the City of Yakima to the Yakima County Board of Commissioners, the City of Sunnyside and the City of Union Gap. The City of Yakima's 2013 stormwater report was provided by Yakima County with this document supporting it, while the 2014 stormwater report was completed solely by the City of Yakima.

This plan is intended to document the work accomplished by the City of Yakima and to provide assurance that the City will continue to implement each required element of the Eastern Washington Phase II Municipal Stormwater Permit (the permit). This version of the document is intended to be adapted and updated so that the Yakima Stormwater Management Program (YSMP) will be prepared to implement the new permit which took effect August 1, 2014. City staff will continuously update this document as necessary.

### 1.3 Physical and Economic Environment

The City of Yakima is located in Yakima County in the central part of Washington, approximately 60 miles southeast of Mount Rainier in the Yakima Valley. The City is approximately 110 miles southeast of Seattle and 171 miles southwest of Spokane, Washington. Interstate 82 runs in a north-south direction along the eastern side of the City. The City limits currently encompass 28 square miles, with an approximate population of 95,957 residents.

The City is topographically bound to the north by the Naches River and Cowlitz Creek, the east by the Yakima River, the south by Wide Hollow Creek, and the west by the foothills of the Cascade Mountain Range. The general topography of the City slopes from west to east, with sloping to the Yakima River, which flows from Selah, south through Union Gap. Figure 1 displays the city limits, as well as the Urban Growth Boundary of the City and the locations of adjacent communities.

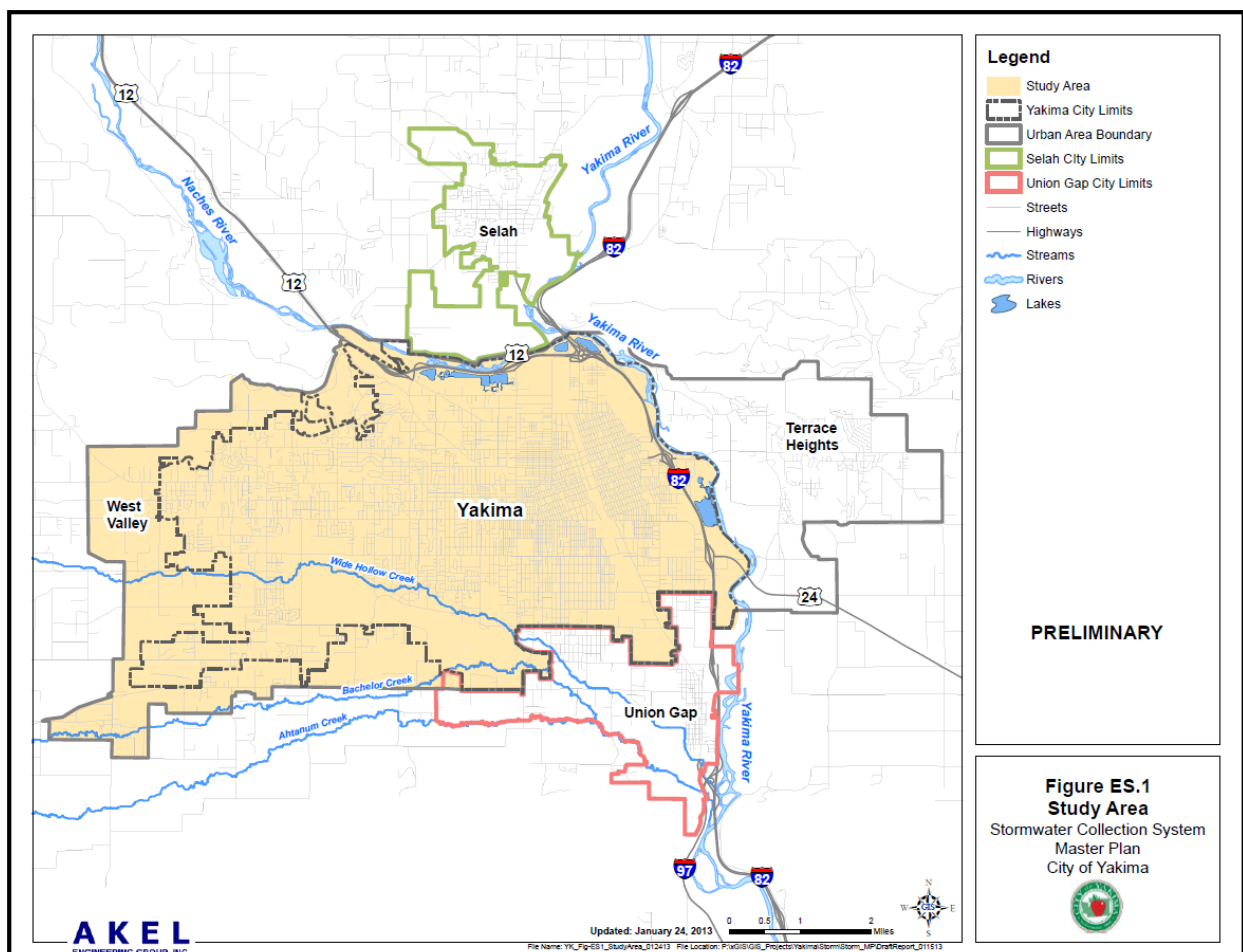


Figure 1: The City of Yakima Stormwater Collection System area (from City of Yakima 2013 Stormwater Collection System Master Plan, Akel Engineering 2013)

Summer weather of the Yakima River basin is hot and dry, typical of a continental climate. Winters are moderately cold and relatively dry due primarily to the maritime influence of the prevailing westerly circulation from the Pacific Ocean and a rain shadow effect by the Cascade Mountains. Approximately 75 percent of the annual precipitation occurs from October through

March. Annual precipitation varies from more than 100 inches in the Cascade Range to less than 10 inches in the lower elevations. Snowfall in excess of 400 inches falls on the higher slopes of the Cascade Range, and the lower valleys receive from 15 to 20 inches. Stormwater runoff typically occurs under rapid warming events that melt accumulated snow or during localized early summer thunderstorms. Winter temperatures normally range from approximately 20°F at night to approximately 30°F during the day. Temperatures of 0°F or below can be expected in January or February. Normal summer temperatures reach 90°F during the day but cool rapidly to near 60°F at night. Temperatures exceeding 100°F are unusual; however, a few readings over 110°F have been recorded.

#### **1.4 Regional Receiving Waters and Water Quality Standards**

Stormwater from the City of Yakima MS4 is discharged to the following receiving waters: Naches and Yakima Rivers, Spring, Ahtanum, Bachelor, and Wide Hollow Creeks. Washington Department of Ecology assigns designated uses to these waters that determine water quality standards. Numeric criteria promulgated at Chapter 173-201A WAC protect designated uses. Regional receiving waters have a range of designated uses including salmonid spawning, domestic consumption, primary contact recreation, and aesthetics.

In addition to water quality standards, municipal stormwater permits must comply with pollutant discharge load allocations established in water quality improvement projects (also known as Total Maximum Daily Loads, or TMDLs) prepared by Ecology when stream segments do not meet water quality standards. Yakima currently has one TMDL that became active in December 2021:

Mid Yakima River Basin Fecal Coliform Bacteria TMDL

The City of Yakima will work with the Department of Ecology to ensure that pollutant sources are accurately identified and that additional required stormwater BMPs will be effective in reducing the pollutants of concern. There will be additional requirements in the next NPDES Phase II Eastern Washington Stormwater Permit.

There is one other water quality improvement project that is “under development” for receiving waters:

Yakima River for toxics

This project has not been completed and submitted to EPA, so the local permittees have no additional requirements beyond the permit. The City of Yakima and other permittees will continue to participate in technical review discussions with Ecology.

#### **1.5 Potential Stormwater Pollutants and Impacts on Water Quality**

The permit does not focus on specific pollutants. The permit assumes that required activities will reduce stormwater pollution, unless a water quality impairment has been identified by Ecology and a specific pollutant reduction is required under the Total Maximum Daily Load (TMDL) program.

Pollutants typically found in urban runoff include sediments, nutrients, pathogens, oxygen-demanding substances, petroleum hydrocarbons, heavy metals, floatables, polycyclic aromatic hydrocarbons (PAHs), trash, and pesticides and herbicides. To date, no comprehensive analysis of stormwater runoff from the regional MS4 has been conducted to determine relative magnitude of these potential pollutants in regional stormwater; however, specific pollutants have been identified in some regional receiving waters.



The following is a description of typical stormwater pollutants that may occur in the regional stormwater discharge and their impacts.

Sediment is a common component of stormwater and can be a pollutant when it is detrimental to aquatic life (primary producers, benthic invertebrates, and fish). Sediment can interfere with photosynthesis, respiration, growth, reproduction, and oxygen exchange between aquatic organisms and the surrounding water. In addition, sediment can transport other pollutants that attach to it including nutrients, trace metals, and hydrocarbons. Sediment is the primary component of total suspended solids (TSS), a common water quality analytical parameter. Ecology conducted a total maximum daily load (TMDL) evaluation of the lower Yakima River basin in 1994-1995. Historical and TMDL data indicated significant correlations between TSS and turbidity, and between TSS and total DDT.

Nutrients (typically nitrogen and phosphorous) are the major plant nutrients used for fertilizing and are often found in stormwater. Nutrients can accelerate growth of vegetation, particularly algae, resulting in excessive concentrations that impair use of water in lakes and other sources of water supply. In addition, un-ionized ammonia (one of the nitrogen forms) can be toxic to fish. A study by USGS and the South Yakima Conservation District on nutrient enrichment processes in the lower Yakima River was published in 2009. The study showed that low stream flow, high nutrient loading and habitat degradation resulted in violations of dissolved oxygen and pH standards.

Pathogens (bacteria and viruses) are common contaminants of stormwater. Sources of these contaminants include animal excrement, sanitary sewer overflow or cross connection, and soil.

Oil and grease includes a wide array of petroleum hydrocarbons, some of which are toxic to aquatic organisms at low concentrations. The main sources of oil and grease are leakage from engines, spills at fueling stations, overfilled tanks, restaurant waste or illegal oil disposal. No TMDL studies for oil and grease are currently underway in the Yakima River basin.

Metals (including lead, zinc, cadmium, copper, chromium and nickel) are commonly found in stormwater. Many of the artificial surfaces of the urban environment (e.g., galvanized metal, paint, automobiles or preserved wood) contain metals, which enter stormwater as the surfaces corrode, flake, dissolve, decay, or leach. Metals are of concern because they are toxic to aquatic organisms, can bio-accumulate (accumulate to toxic levels in aquatic animals such as fish), and have the potential to contaminate drinking water supplies. In 2000 Ecology reported low concentrations of copper, cadmium, mercury, silver, zinc and lead in the Upper Yakima River (Kittitas County).

Organic compounds (including toxic synthetic compounds such as adhesives, cleaners, sealants and solvents) are widely applied and may be improperly stored and disposed. In addition, deliberate dumping of these chemicals into storm drains and inlets causes environmental harm to waterways.

Pesticides (including herbicides, fungicides, rodenticides and insecticides) have been repeatedly detected in urban stormwater around the country. As use of pesticides has increased, so too have concerns about the potential adverse effects of pesticides on the environment and human health. Accumulation of these compounds in simple aquatic organisms, such as plankton, provides an avenue for bio-magnification through the food web, potentially resulting in elevated levels of toxins in those organisms that feed on them, such as fish and birds. DDT, associated with sediment in irrigation return water to the lower Yakima River basin is currently improving under a TMDL management plan. Additionally, the Yakima River, Moxee Drain, Wide Hollow and Spring Creeks are under study for DDT, DDD, DDE, chlorpyrifos, dieldrin and endosulfan due to past monitoring that indicated the water bodies don't meet water

quality standards for those pollutants. Most of these pollutants are associated with agricultural chemicals that are no longer used and are entering streams through sediments eroding off farmland. In 2009 Ecology reported results for twelve samples collected during six rain storms for runoff in the Cities of Yakima and Union Gap. Stormwater exceeded human health criteria for DDE and PCBs in almost all samples and for DDT, DDD and dieldrin in almost half the samples. However, due to the low number of samples collected and wide range of concentrations found, conclusions about the absolute levels of legacy pesticides in Yakima and Union Gap stormwater are inappropriate without greatly increasing the number of samples. The presence of legacy pesticides suggests that the agricultural history of the area is having an impact on urban stormwater discharges.

Gross Pollutants (trash, debris, and floatables) are common to urban environments and industrial sites and may create an aesthetic “eye sore” in waterways. Gross pollutants also include plant debris (such as leaves and lawn-clippings from landscape maintenance), animal excrement, street litter, and other organic matter. When these substances decay in streams, lakes, and estuaries dissolved oxygen levels are depressed, sometimes causing fish kills. No TMDL studies for aesthetics are currently underway in the Yakima River basin.

## **2 PROGRAM ELEMENTS AND PERFORMANCE MEASURES**

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This section describes the eight program elements contained in the permit:

- 1) Public Outreach and Education
- 2) Public Involvement and Participation
- 3) Illicit Discharge Detection and Elimination
- 4) Construction Stormwater
- 5) Post-Construction Stormwater
- 6) Pollution Prevention and Good Housekeeping
- 7) Monitoring and Program Evaluation
- 8) Reporting and Record Keeping.

The program elements are organized consistent with the permit structure in Sections S5, S7 and S8. Each program element contains an introductory statement that generally discusses permit requirements and identifies other program elements related to the current program element, called supporting program elements. Fact sheets then describe the performance measures within the program element, state goals, identify existing activities, provide measurable activities, and identify assessment documents.

## **2.1 Public Education and Outreach Program Element**

Permit requirements for the permit include targeting three general audiences with multi-media messaging about local waterways, stormwater affects to water quality and actions that can be taken to improve stormwater quality.

The three general audiences are:

### **General Public**

### **Business**

**Engineers, construction contractors, developers and, development review staff and land use planners.**

### **General Public:**

The City of Yakima partnered with the RSPG on public education and outreach. The City has participated in the Central Washington State Fair booth and will continue to do so in partnership with the RSPG in the future.

The City of Yakima posts stormwater education materials in public places for general audiences. This includes distributing videos in the lobby of City Hall and on Y-PAC TV. The City will continue to distribute information in this manner.

The City provides a “Stormwater” page within the City of Yakima website that provides information about stormwater ordinances in the Yakima Municipal Code, UIC wells, illicit discharges, Best Management Practices and recent submittals. In addition, the web site will provide resources for the general public to learn about how to reduce stormwater pollution.

The City of Yakima has partnered with the Franklin Conservation District (FCD). The City and FCD developed a scope of work to provide stormwater education to local school age children through the Wheat Week program. FCD has been transitioning away from Wheat Week since 2018 to a program called “Jr. Drain Rangers”. The goal of Jr. Drain Rangers is to teach students about stormwater pollution and the steps they can take to identify pollution sources and to keep the pollution from getting into the storm drains. In 2023 FCD provided the Wheat Week and Jr. Drain Rangers to 2,057 students and 173 teachers. These numbers were similar to those from 2022 and bounced back nicely from the Covid 19 years, when numbers were down significantly.

The City of Yakima also direct mails homeowners when a complaint about stormwater is received related to residential activity. If the City’s stormwater crew notices material in the City of Yakima MS4, they notify our NPDES permit manager or call the City’s illicit discharge hotline. If applicable, a notice to all homes in the neighborhood is mailed indicating that, for example, grass clippings or motor oil are not acceptable material to place in the storm drainage system.

The City of Yakima and other local municipalities as well as Yakima County will be joining the Adopt-A-Drain program where citizens can adopt a storm drain in their neighborhood and keep it clear of leaves, trash, and other debris to reduce water pollution and help prevent localized flooding. We will be actively trying to sign people up during the 2024 Central Washington State Fair at the Stormwater Booth in the Sundome.

**Businesses:**

The City of Yakima works with businesses on a complaint driven basis and when City staff note illicit discharges to storm systems. If the City receives a complaint or makes an observation about illicit stormwater discharges from one type of business, then the City develops a mailer with stormwater education and pollution prevention material for all of the businesses with similar potential to pollute. For example, carpet cleaning businesses have been targeted with mailers in the past.

In 2024 the City will conduct a mailing to convenience stores with information on dumpster use and grease storage.

**Engineers, construction contractors, developers and, development review staff and land use planners:**

In 2024 construction contractors working on projects in Yakima will receive laminated flip books containing information about stormwater best management practices.

Local engineers will receive a brochure full of information about development of stormwater site and erosion control plans, low impact development, underground injection control, infiltration, municipal stormwater code requirements and technical standards

## **2.2 Public Involvement and Participation Program Element**

The Public Involvement and Participation Program Element provides opportunities for the public to become involved in decisions related to reducing pollutants in stormwater. Through participation, the public provides valuable input and assistance in program development and implementation. Increased public involvement and participation result in increased public acceptance and support of the program, and help to ensure a successful and effective program.

### ***2.2.1 Permit Requirements for Public Involvement and Participation***

1. Continue to provide ongoing opportunities for the public to participate in SWMP decision-making. Post online annual reports and SWMP Plan for current calendar year by May 31 of each year.

### ***2.2.2 Supporting Program Elements***

The City stormwater website (Public Education and Outreach Program Element) will provide an accessible means of disseminating the SWMP information.

The City of Yakima posts a phone number to call in order to report a potential violation or other problem with the MS4. This number will be posted on-line, shared during press releases or press inquiries, and made available through other public education and outreach avenues.

## **PERFORMANCE MEASURE**

### **GOAL**

Promote public participation in the development and review of the City of Yakima Stormwater Management Plan (YSMP) including required ordinances and regulatory mechanisms. The YSMP document provides the blueprint for compliance with the Permit and the ordinances provide the legal framework from which the utility operates the different parameters of the program. Public input will be solicited on this document to ensure all interested parties have a voice in activities that are conducted to comply with the Permit and reduce potential impacts associated with stormwater discharge from the MS4.

### **EXISTING ACTIVITIES**

The City of Yakima complies with existing State and local public notice requirements regarding the adoption of public plans or policies implemented by their respective jurisdictions.

A specific public input opportunity was afforded the public in May of 2024 while the YSMP was being updated. A notice was posted on the City's Stormwater website that the YSMP was being updated and to contact Randy Meloy at 576-6606 for further information.

### **MEASURABLE ACTIVITIES**

1. The City of Yakima will post the YSMP document on the City web page and update at least annually.
2. Modified ordinances are available to all on the City's website.

### **ASSESSMENT**

1. Receive, address and log comments received at any time of the year regarding the YSWMP.
2. Receive, address and log comments received at any time of the year regarding updates to the ordinances.

### **ACCOMPLISHMENTS**

- No program comments were received by the City during the past calendar year.

## **2.3 Illicit Discharge Detection and Elimination (IDDE) Program Element**

Most urban storm drain systems convey flows other than stormwater. These non-stormwater discharges enter the storm drain system from a variety of sources, such as landscape irrigation or car washing, and illicit discharges (sources of pollutants that enter the storm drain system through illicit connections and illegal dumping). Non-stormwater contributions and illicit discharges are potential sources of pollutants discharged from the MS4 that may adversely impact receiving waters. The Eastern Washington Phase II NPDES Stormwater Permit requires permittees to “detect and eliminate” non-stormwater discharges to the storm drain system.

### ***2.3.1 Permit Requirements for Illicit Discharges***

The Eastern Washington Phase II NPDES Stormwater Permit requires the City of Yakima to continue implementing the enforceable mechanism to prohibit illicit discharges, compliance strategy, IDDE and municipal staff training, citizen hotline and IDDE response, and maintain map of MS4.

### ***2.3.2 Supporting Program Elements***

Many City operations such as hazardous waste pickup activities, MS4 maintenance, street sweeping and roadwork, partially address this program element’s intent. The City of Yakima code makes it illegal to pollute the storm drain system. The Public Education and Outreach Program and Municipal Operations/Good Housekeeping Program elements also inform public employees, businesses, and the public of hazards including human and environmental health risks associated with illegal discharges and improper disposal of waste.



## **PERFORMANCE MEASURE**

### **GOAL**

A map of the MS4 is required to effectively identify extent of the storm drain system, identify where pollutants may enter the system and prevent illicit discharges. Ecology requires permittees to maintain a map of their stormwater system and update the map as changes occur.

### **EXISTING ACTIVITIES**

The MS4 has been mapped in the City of Yakima in accordance with the permits since 2007. As new stormwater facilities are being constructed, or our crews find some that are not on the existing maps, we survey the facilities and put this new information into our GIS database.

The Construction Activities and Post-Construction Stormwater Management Program Elements both require knowledge of the MS4 location to determine if proposed activity will discharge to the MS4 and is therefore regulated. A general permit requirement is to conduct spot checks of the MS4 following storms with a return frequency greater than the 10-year event. A knowledge of the system location is critical to this task. In 2023 there were no 10-year events.

The City of Yakima is utilizing GIS based software to inspect and track needs of its MS4. ICOM is an infrastructure program management system that will be used to assign and track work associated with inspections and preventative maintenance of the City's stormwater system. The system is GIS based and will allow the city to increase efficiency in our operations and provide for organized data collection that will provide a more robust reporting system to track costs associated with maintenance and operation of the system. It was specifically designed for collection system operations. ICOM was put in Production mode in late 2015.

### **MEASURABLE ACTIVITIES**

Document changes made to GIS layers that were used to develop the system maps.

### **ASSESSMENT**

1. List of changes made to map layers. GIS metadata is an ideal vehicle to maintain a log or list of changes.

### **ACCOMPLISHMENTS**

- New stormwater structures were surveyed and added to the City's GIS database on many occasions in 2023 and many more will be added in 2024.

### **APPROPRIATENESS**

This Performance Measure is a permit requirement and is included in the SWMP. Mapping, followed by smoke testing to confirm connections, has resulted in removal of illicit and non-stormwater connections from the MS4. Mapping has also identified areas where outfalls can be eliminated, reducing the impact of flow and pollutants to receiving waters. Improvements to water quality should result from removal of illicit connections.

## **PERFORMANCE MEASURE**

### **GOAL**

Enforce ordinances to prohibit illicit discharges to the storm drain system.

### **EXISTING ACTIVITIES**

Yakima County Health District (YCHD) enforces County ordinances for solid waste disposal, sewage disposal and does outreach, inspections, and enforcement particularly as relates to septic tanks and septic tank pumps. YCHD investigates improper sewage disposal practices as reported by the public. These activities reduce the likelihood of stormwater contamination from improperly maintained or sited septic systems.

Garbage service is required in the City of Yakima. The City of Yakima has and enforces ordinances prohibiting illicit connections and discharge to their MS4.

### **MEASURABLE ACTIVITIES**

1. Each jurisdiction will maintain a log of illicit discharge and connection calls, observations and complaints; maintain a record of their notification and follow-up to resolve the discharge or connection.

### **ASSESSMENT**

2. Number and types of cases will be reviewed and used for input into the Public Outreach program as appropriate.

### **APPROPRIATENESS**

This Performance Measure is a permit requirement and is included in the SWMP. Water quality should improve over time as code enforcement personnel contact potential violators, public education messages highlight the new requirement and illicit connections are removed as a result of the ordinance.

## **PERFORMANCE MEASURE**

### **GOAL**

Continue procedures for consistent regional investigations to detect and address non-stormwater discharges to the regulated MS4, including spills, illicit connections, and illegal dumping.

### **EXISTING ACTIVITIES**

The City of Yakima runs a program to address spills and illegal dumping of hazardous materials, including those that may reach the MS4. In the event of a spill, local emergency response agencies within the County are supplemented by a Regional Response Team and Ecology. Illegal dumping of hazardous materials is regulated by State Dangerous Waste requirements (WAC 173-303-145) and the Uniform Fire Code.

The City of Yakima is utilizing ICOM asset management software to evaluate and track necessary repairs or other concerns (such as illicit discharges) in its MS4. ICOM is an infrastructure program management system that is used to assign and track work associated with inspections and preventative maintenance of the City's stormwater system. The system is GIS based and will allow the city to increase efficiency in our operations and provide for organized data collection that will provide a more robust reporting system to track costs associated with maintenance and operation of the system. It was specifically designed for collection system operations. ICOM was put into full production mode in late 2015.

### **MEASURABLE ACTIVITIES**

1. The City of Yakima will continue to implement procedures for the following activities required by the permit:
  - Conduct investigations of the MS4, including field screening to identify potential sources;
  - Locating priority areas;
  - Dry weather field assessments of outfalls or facilities serving priority areas;
  - Field assess the MS4 using a route-based method that will assess at least 12.5% per year;
  - Publicly list and publicize an illicit discharge hotline phone number;
  - Provide training for municipal field staff who might come into contact with or observe an illicit discharge;
  - Inform public employees, business, and the general public of hazards associated with illicit discharges and improper disposal of waste;
  - Characterizing discharges found by or reported to the Permittees;
  - Tracing the source of illicit discharges;
  - Ending the discharge.
  - Provide training for staff who are responsible for identification, investigation, termination, cleanup, and reporting of illicit discharges.

The collection of procedures and their implementation shall constitute the illicit discharge detection and elimination “program” required by §S5.3.c of the permit.

2. The City will report illicit discharge activity in the annual reports.

## **ASSESSMENT**

1. Document activities identified in existing written procedures to identify and eliminate non-stormwater discharges.
2. Record citizen complaints and responses regarding illicit discharges to the storm drain system.
3. Record illicit discharges identified, investigated, including date and location of incident, type and quantity of material dumped or discharged, and municipal response.
4. Document enforcement actions taken to eliminate illicit discharges.
5. Document training activities related to illicit discharges.

## **ACCOMPLISHMENTS**

- The City of Yakima logs all illicit discharge calls and tracks all aspects of the City’s response and cleanup of each discharge.
- Chapter 7.85 Stormwater Illicit Discharge of the Yakima Municipal Code provides the framework for our illicit discharge program.

## **APPROPRIATENESS**

Identification and removal of illicit discharges and connections will improve water quality discharged from the regional MS4s to area water bodies.

## **PERFORMANCE MEASURE**

### **GOAL**

Develop a City of Yakima IDDE Hotline and advertise the hotline number.

### **EXISTING ACTIVITIES**

Related activities include those systems in place to take emergency calls related to hazardous materials or illegal dumping. The Hotline phone number is posted on the City's stormwater website.

### **MEASURABLE ACTIVITIES**

1. The City of Yakima will log all calls to track illicit discharge reports and follow-up actions.

### **ASSESSMENT**

1. Maintain a list of calls received and follow-up actions taken.

## **PERFORMANCE MEASURE**

### **GOAL**

Train staff that 1) receive calls about illicit discharges, 2) may encounter illicit discharges in the course of their work, and 3) will investigate illicit discharges. Training will be tailored to each group of employees and focus on specific procedures developed under other Performance Measures in this Program Element.

### **EXISTING ACTIVITIES**

Most employee groups already conduct some form of regular training on procedures, safety, or trade specific practices. Illicit discharge training will be coordinated with existing training to minimize interruption of staff duties.

### **MEASURABLE ACTIVITIES**

1. The City of Yakima will train employees as needed per the permit.
2. The City will identify appropriate personnel and provide opportunities for staff to be trained.

### **ASSESSMENT**

1. Document training events. Include number of employees, class rosters, locations.
2. Maintain training presentations for each group of employees.

### **APPROPRIATENESS**

It is anticipated that as employee awareness goes up, the number of reported discharges to the MS4 will also increase, and the number of municipal spills will go down.

## Construction Activities Program Element

Stormwater draining from construction sites can be a significant source of sediment and attached pollutants. Failure to implement adequate erosion and sediment performance measures can result in higher contributions of sediment to waters than previously contributed from undisturbed land. Excessive sediment loading can result in impacts to water quality. In addition, erosion and sediment transport are vehicles for other pollutants associated with construction activities (such as solvents, petroleum products, trash, pesticides, fertilizers, concrete and paint). Track-out from construction sites continues to be a common source of illicit discharge complaints.

### *2.3.3 Permit Requirements for Construction Activities*

The Eastern Washington Phase II NPDES Stormwater Permit requires the municipalities to continue implementing and enforcing a program to reduce pollutants from construction activities, including ordinance, providing information to construction operators on training; site plan review and permitting, inspections, and training.

### *2.3.4 Supporting Program Elements*

Local citizens will be more aware of the importance of protecting stormwater quality through public outreach activities. The public participation and IDDE program elements provide mechanisms for the public to notify the City of potential water quality issues.

## **PERFORMANCE MEASURE**

### **GOAL**

Enforce an ordinance to require implementation and maintenance of BMPs for erosion and sediment controls at defined construction sites.

### **EXISTING ACTIVITIES**

Construction Stormwater Permits are required by State regulation for construction sites impacting one acre or more.

Ordinances were adopted in February 2010 as follows:

City of Yakima                      February 16, 2010                      Municipal Code 7.82

### **MEASURABLE ACTIVITIES**

1. The City of Yakima will enforce its own ordinance.

### **ASSESSMENT**

1. The number of ordinance enforcement actions will be reported in the annual report.

### **APPROPRIATENESS**

This Performance Measure is a permit requirement and is included in the SWMP. Water quality should improve over time as code enforcement personnel contact potential violators, public education messages highlight the new requirement and illicit discharges are removed as a result of the ordinance.



## **Performance Measure**

### **GOAL**

Implement procedures for site plan review which incorporate consideration of potential water quality impacts.

### **EXISTING ACTIVITIES**

The City of Yakima reviews construction project plans, temporary erosion and sediment control plans, stormwater pollution prevention plans and drainage reports for all new development projects, where applicable, and for those redevelopment projects that meet certain criteria. Reviews are performed by the Surface Water Engineer, who is a licensed Professional Engineer in the State of Washington. Construction projects must meet the standards found in the *Stormwater Management Manual for Eastern Washington* or the *Yakima County Regional Stormwater Manual*.

### **MEASURABLE ACTIVITIES**

1. The City of Yakima will review and keep records of all construction projects that disturb one acre or more, and all projects of any size that are part of a common plan of development or sale that is one acre or more.
2. Provide training for all staff involved in this review (if needed).

### **ASSESSMENT**

1. Record the number of projects disturbing one acre or more.
2. Document training events. Include number of employees, class rosters, and agendas.

### **APPROPRIATENESS**

This Performance Measure is a permit requirement and is included in the SWMP. The procedure and training should help reviewers assure projects are compliant with the ordinance and minimize construction stormwater runoff and improving water quality.

## **Performance Measure**

### **GOAL**

Inspect construction sites to ensure that BMPs are installed and functioning correctly to prevent discharge to the MS4.

### **EXISTING ACTIVITIES**

The City of Yakima executes construction inspection programs that ensure building code compliance. Inspectors visit each site during active phases of construction to record the activities conducted at the site and to ensure construction is being completed according to plans.

Public complaints for construction activities are routed to local building departments; stormwater construction complaints are routed to stormwater staff. The City requires applicants to obtain an Ecology Construction Stormwater Permit when projects will meet certain thresholds. Construction sites, regardless of size or Ecology permit status, must retain construction sediment on site in all jurisdictions under the illicit discharge ordinances.

### **MEASURABLE ACTIVITIES**

1. The City of Yakima will keep records of inspections and enforcement actions by staff.
2. All new construction sites that disturb one acre or more will be inspected at least 80% of the time.
3. The City of Yakima will provide training to construction site inspection staff including:
  - Erosion and sediment controls and other stormwater quality control requirements for construction activities.
  - Procedures for enforcing code compliance, such as issuance of citations or notices of noncompliance.
  - Jurisdictions may opt to send staff to CESCL training and have staff maintain their certification.
4. The City of Yakima will keep copies of information that is provided to design professionals.

### **ASSESSMENT**

1. Document training events. Include number of employees, class rosters, and agendas.
2. Record the number of inspections and enforcement actions performed by staff.
3. Record information sent to design professionals and track all mailings.

### **APPROPRIATENESS**

This Performance Measure is a permit requirement and is included in the SWMP. The procedure and training should help inspectors assure projects are compliant with the ordinance during inspections. The inspections should help resolve any deficiencies in BMP selection or installation and eliminate or minimize construction stormwater runoff and improving water quality.

## **PERFORMANCE MEASURE**

### **GOAL**

Provide information to construction site operators about training available on how to install and maintain effective erosion and sediment controls.

### **EXISTING ACTIVITIES**

The City of Yakima will provide information to construction site operators during site visits.

### **MEASURABLE ACTIVITIES**

1. The City of Yakima will provide a list of erosion and sediment control BMP training opportunities to construction site operators. Sources will include the world wide web (internet), trade magazines, and product mailings.
2. The City of Yakima will provide information they receive on training opportunities through professional contacts or other sources.
3. Record all construction sites that applied the "Erosivity Waiver".

### **ASSESSMENT**

1. Maintain a record of training opportunities identified and made available. Record the dates and recipient names of those receiving the information.
2. Maintain a record of construction sites applying the "Erosivity Waiver".

### **APPROPRIATENESS**

This Performance Measure is a permit requirement and is included in the SWMP.

## **2.4 Post-Construction Stormwater Management Program Element**

Impacts to water quality caused by development can be minimized through implementing post-construction stormwater quality performance measures. The performance measures and tasks outlined in this section require new development and major redevelopment projects to incorporate post construction stormwater BMPs and to ensure that the measures are operated and maintained once construction is complete.

### ***2.4.1 Permit Requirements for Post-Construction Stormwater Management***

The Eastern Washington Phase II NPDES Stormwater Permit requires the permittees to address post-construction stormwater runoff to the MS4 from new development and redevelopment projects within the permit area. Continue to implement ordinance addressing post-construction runoff controls; site plan review and permitting, requiring long-term maintenance; inspections; staff training; and enforcement.

### ***2.4.2 Supporting Program Elements***

Public education and outreach programs promote awareness of the importance of stormwater quality controls. Public participation in the development and implementation of the SWMP will be critical to the plan's success. The Construction Program works in parallel with this program element as sites are inspected during construction and post-construction.

## **PERFORMANCE MEASURE**

### **GOAL**

Enforce ordinances to require post-construction stormwater runoff controls for discharges to the MS4 from new development or re-development projects discharging to public MS4s.

### **EXISTING ACTIVITIES**

The City of Yakima requires new developments to retain stormwater on site, up to the 25-year design storm. The Surface Water Engineer will review the site plans to ensure the applicant has incorporated consideration of potential water quality impacts by using the latest edition of the Stormwater Management Manual of Eastern Washington, including the minimum technical requirements of Appendix 1, the Yakima Regional Stormwater Manual, or another technical manual approved by the Department of Ecology. The City of Yakima requires all off street parking drainage to be disposed of onsite (Yakima Municipal Code 15.06.110).

Ordinances were adopted in February 2010 as follows:

<u>Jurisdiction</u>	<u>Date Adopted</u>	<u>Ordinance/Resolution Number</u>
City of Yakima	February 16, 2010	Municipal Code 7.83

### **MEASURABLE ACTIVITIES**

1. The City of Yakima will review construction project plans that require post-construction stormwater BMPs identified in the ordinance adopted in §S5.B.5.a of the permit.
2. The City of Yakima will conduct annual training sessions for post-construction plan review staff as needed, depending on staff turnover.

### **ASSESSMENT**

1. Record the number of post-construction stormwater control plans received, reviewed and approved/disapproved by staff.
2. Document training events. Include number of employees, agenda and location.

### **APPROPRIATENESS**

This Performance Measure is a permit requirement and is included in the SWMP. Water quality should improve over time as code enforcement personnel contact potential violators, public education messages highlight the new requirement and that proper BMP facilities are selected and designed correctly as a result of the ordinance.

## **Performance Measure**

### **GOAL**

Inspect sites discharging to the MS4 to ensure appropriate post-construction BMPs are installed and functioning correctly.

### **EXISTING ACTIVITIES**

The City of Yakima has established construction inspection programs. Inspectors visit each construction site during active phases of public improvements and private development to record the activities conducted at the site and to ensure construction is completed according to approved plans. Inspections occurring after final installation will be completed by either City codes compliance, the Surface Water Engineer or City Engineering inspectors.

Public complaints for flooding and water quality are routed to the City of Yakima wastewater department. Response generally consists of a site visit to view the problem and check for physical obstruction, blockage or source control needs to resolve the complaint.

### **MEASURABLE ACTIVITIES**

1. The City of Yakima will inspect post-construction BMP sites that discharge to the MS4 to ensure that BMPs are installed in accordance with approved designs.
2. The City of Yakima will inspect newly constructed and existing BMPs that discharge to the MS4 to ensure they are performing as designed.
3. The City of Yakima will provide training to post-construction site inspectors including BMP types and functions.

### **ASSESSMENT**

1. Record the number of post-construction stormwater control site inspections performed by staff.

### **APPROPRIATENESS**

This Performance Measure is a permit requirement and is included in the SWMP. The procedure and training should help inspectors assure projects are compliant with the ordinance during inspections. The inspections should help resolve any deficiencies in BMP installation improving water quality by providing for adequate treatment and flow control.

## **PERFORMANCE MEASURE**

### **GOAL**

Gather and provide information to design professionals about training available on how to comply with the requirements of Appendix 1 and apply the BMPs described in the Stormwater Management Manual for Eastern Washington or the Yakima County Regional Stormwater Manual.

### **EXISTING ACTIVITIES**

The City of Yakima will continue to make training information available on its website and will keep copies of information that is provided to design professionals.

### **MEASURABLE ACTIVITIES**

1. The City of Yakima will provide a list of post-construction BMP training opportunities on its website. Sources will include the world wide web (internet), trade magazines, and product mailings.
2. The City of Yakima will track and record information sent to design professionals.

### **3. ASSESSMENT**

1. Maintain a record of training opportunities identified and made available.

### **APPROPRIATENESS**

This Performance Measure is a permit requirement and is included in the SWMP. Training opportunities were regularly visited pages on the Regional Stormwater web site.

## **2.5 Pollution Prevention & Good Housekeeping for Municipal Operations Program Element**

Stormwater discharges from municipal operations conducted by public agencies with permitted MS4's are regulated under the Eastern Washington Phase II NPDES Stormwater Permit.

### ***2.5.1 Permit Requirements for Pollution Prevention and Good Housekeeping***

Regulated communities must continue implementation of MS4 O&M plan; inspect stormwater treatment and flow control facilities every two years; conduct spot checks after storm events; conduct O&M and SWPPP requirements for municipal lands and facilities; and train staff.

### ***2.5.2 Supporting Program Elements***

Additional performance measures that partially address this program element include detecting and eliminating illicit discharges to the storm drain systems described above in Section [2.3](#).

Some key municipal facilities are already required to develop SWPPP plans for compliance with the Washington Department of Ecology Industrial Stormwater General Permit.

### ***2.5.3 Performance Measures***



## **PERFORMANCE MEASURE**

### **GOAL**

Perform activities identified in existing Operation and Maintenance Plans (O&M Plans) for designated City facilities.

### **EXISTING ACTIVITIES**

The City of Yakima operates several properties to facilitate their operations: The City of Yakima operates a golf course, airport and cemetery as well as several parks. Many of these facilities are hazardous waste generators and must already have pollution prevention plans to comply with Ecology hazardous waste regulations. Stormwater Pollution Prevention Plans (SWPPP) are required for many of these same sites under the Ecology Industrial Stormwater Permit.

### **MEASURABLE ACTIVITIES**

1. The City of Yakima will perform activities identified in O&M plans for municipal facilities.

### **ASSESSMENT**

1. Record O&M Plan implementation and monitoring of activities or operations that potentially impact stormwater quality.

### **ACCOMPLISHMENTS**

- O&M plans were followed in accordance with O&M manuals developed for regional municipal facilities.

### **APPROPRIATENESS**

This Performance Measure is a permit requirement and is included in the SWMP. It is anticipated that implementation of the practices identified in the O&M plans will improve water quality discharged from the MS4.

## **PERFORMANCE MEASURE**

### **GOAL**

Conduct infrastructure spot checks following storm runoff events following larger storms that may damage the MS4.

### **EXISTING ACTIVITIES**

The City of Yakima has ongoing responses to major runoff and flood events. The Yakima County Flood Control Zone District has a flood response plan. A GIS data layer of runoff has been developed, based on precipitation and impervious surface. City of Yakima stormwater and collection system crews inspect the City MS4 and respond to complaints during and after large storm events.

### **MEASURABLE ACTIVITIES**

1. The City of Yakima will identify >10 year event conditions.
2. The City of Yakima will spot check the MS4 following events meeting the >10 year event.
3. The City of Yakima will repair, perform needed repair or maintenance as soon as practicable pursuant to the findings of a regular inspection or spot check.
4. The City of Yakima compiles it for the annual permit report.

### **ASSESSMENT**

1. Retain inspection forms.
2. Report results of inspections and repairs made following >10 year events or regular inspections

#### **Appropriateness**

This Performance Measure is a permit requirement and is included in the SWMP. Spot inspections are an effective method to assess any damage to stormwater flow control and treatment facilities after large storm events (10 year 24 hour recurrence interval).

## **PERFORMANCE MEASURE**

### **GOAL**

Provide training for all employees who have primary construction, operations, or maintenance job functions that are likely to impact stormwater quality.

### **EXISTING ACTIVITIES**

Training is required by the permit for staff in the illicit discharge and detection program at Section 2.3. City departments currently train staff on a variety of topics including hazardous materials and safety, which overlaps with pollution prevention and stormwater. Spill prevention plans are already required for hazardous material storage and handling.

### **MEASURABLE ACTIVITIES**

1. The City of Yakima will identify groups of employees and departments that require training.
2. The City of Yakima will develop and provide training programs for groups of employees identified above.

### **ASSESSMENT**

1. List municipal staff groups identified to receive training.
2. Keep a record of training events provided and the training materials presented. Record the date, location and employees in attendance.

### **APPROPRIATENESS**

This Performance Measure is a permit requirement and is included in the SWMP. It is anticipated that as employees learn about and implement stormwater O&M plans, better BMP maintenance and practices will result in improved water quality discharged from the MS4.

## **2.6 Monitoring and Program Evaluation Element**

The Eastern Washington Phase II Municipal Stormwater Permit contains sampling and program evaluation requirements.

### ***2.6.1 Permit Requirements for Monitoring and Program Evaluation***

Ecology does not require permittees to collect water samples during the term of the current permit unless they are characterizing an illicit discharge or complying with a TMDL. Annual reports must include a description of any sampling conducted. The annual report must also include an assessment of the appropriateness of each component of the SWMP and, if changes are anticipated, why those changes are being implemented. Municipalities must prepare for sampling in the next permit cycle by developing a monitoring plan that identifies two monitoring questions, identifies three outfalls, and identifies at least two BMPs for effectiveness monitoring.

## Performance Measure

### GOAL

Stay aware of the TMDL process to reduce stormwater contribution of pollutants in a specific reach of water potentially impacted by MS4 discharges.

### EXISTING ACTIVITIES

A TMDL for bacteria has been established for the Mid-Yakima River Basin. The City will be evaluating its best management practices and working with the Department of Ecology to improve bacteria removal in the MS4.

### MEASURABLE ACTIVITIES

1. The City of Yakima will identify TMDL projects that may involve their MS4 discharges.

### ASSESSMENT

1. List of TMDL projects in proximity to City MS4 boundaries.

### ACCOMPLISHMENTS

- No activities were required during the previous calendar year.
- Status of TMDLs potentially affecting City of Yakima, as of December 2021 on Ecology's [web site](#).

Waterbody	Pollutant(s)	Status
Mid-Yakima River Basin	Bacteria	Active
Yakima River	Toxics	Under Development

### APPROPRIATENESS

This Performance Measure is a permit requirement and is included in the SWMP. The TMDL became active in December 2021.

## **PERFORMANCE MEASURE**

### **GOAL**

Participate in the implementation of effectiveness studies as described in the permit.

### **EXISTING ACTIVITIES**

The City of Yakima will continue to participate with other Eastern Washington (EWA) Phase II permittees in implementation of the eight Ecology-approved studies that were selected in the previous permit cycle.

The new permit requires another effectiveness study.

### **MEASURABLE ACTIVITIES**

1. Coordinate with other Permittees in our urban area to plan and begin an additional Stormwater Management Program effectiveness study and submit to Ecology a brief description of the study with a list of participants by June 30, 2021.
2. Submit a detailed study design proposal to Ecology by September 30, 2022.
3. Submit a completed QAPP by July 31, 2023 and begin conducting the study by December 1, 2023.
4. Lead entities shall follow the reporting requirements and timelines in the approved QAPP.

### **ASSESSMENT**

1. Activities were required in the previous permit and will continue into this permit cycle until the effectiveness studies are completed.

### **Accomplishments in 2022 and Upcoming Steps**

- Yakima County's "BMP Inspection and Maintenance Responsibilities" effectiveness study is complete. The City of Yakima attended TAG meetings in March and September of 2021. The final Technical Evaluation Report was completed in early 2022.
- The City of Kennewick's "Elementary School Stormwater Education Effectiveness Study (Drain Rangers Program)" has been granted two time extensions until at least March 22, 2022 for the completion of this study due to COVID-19 and the inability to collect data from classrooms during the pandemic. The City of Yakima is a reviewer and Advisory Board member for this study.
- Spokane County's "Bioretention Soil Media Thickness Study" completed their Technical Evaluation Report in December 2021 and the study is finished. The City of Yakima was a reviewer for this project and reviewed the Technical Evaluation Report.
- The City of Yakima was the lead entity for a "Car Wash Wastewater Management" effectiveness study for the new permit. The purpose of the study was to evaluate the effectiveness of an education program that targets proper car washing to prevent runoff from entering storm drains and discharging to receiving water bodies. The 2021 E&O program was deployed during the dry season, beginning in summer 2021 and completed in fall 2021. The E&O messages were deployed using materials and methods such as social media posts, stickers and towels for car washing provided at the Central Washington State Fair, and door knockers (brochures) delivered to targeted neighborhoods. To determine the performance of the E&O program, baseline (before the

E&O program was implemented) and follow-up (after the E&O program was implemented) data from surveys submitted by Yakima residents were compared as well as observational data collected from neighborhoods and commercial car washes. The data collected was analyzed to determine the effectiveness of the program. A Technical Evaluation Report and QAPP have been completed and submitted to the Department of Ecology.

## APPROPRIATENESS

This Performance Measure is a permit requirement and is included in the SWMP. All of the measurable activities noted on the previous page were completed on time.

## Effectiveness Studies Table

Table 1 shown on the next page contains the eight Effectiveness Studies chosen by the members of the Eastern Washington Stormwater Group that began during the 2015-2019 permit cycle and are continuing into the 2019-2024 permit cycle. There are also five studies listed at the bottom of the spreadsheet that ranked highly but were not chosen by members to be studied.

The spreadsheet shows project titles, participating permittees and the permittee's roles in each study. The City of Yakima has participated in three of the studies:

- Elementary School Stormwater Education
- BMP Inspection and Maintenance Responsibilities
- Bioretention Soil Media Study

Table 1

Eastern Washington Effectiveness Studies Participating Permittees / Roles																						
Study Number	Project Title	Participating Permittee Cities															Participating Permittee Counties					
		Asotin	Clarkston	East Wenatchee	Ellensburg	Kennewick	Moses Lake	Pasco	Pullman	Richland	Spokane	Spokane Valley	Walla Walla	Wenatchee	West Richland	Yakima	Asotin CO	Chelan CO	Douglas CO	Spokane CO	Walla Walla CO	Yakima CO
01-01	Elementary School Stormwater Education	3,7,8	3,7,8			ILE		x	2	1,2,3 6,7,8		3,8*				2,3	3,7,8					2
03-15	Street Sweeping and Catch Basin Cleaning Comparison	2,3,7,8	2,3,7,8		ILE		2,6				2	3,8*	17,2, 3,9	2	3		2,3,7,8					
04-02	Mobile Contractor Illicit Discharge Education			1,2,3	2	2		x	2			2,3, 7,8*	17,2, 3,9	1,2,3, 4,8,9		2		1,2,3	1,2,3			2
05-28	Sand Filter Vault BMP						2		2			3,7*,8*			3					ILE		
06-09	BMP Inspection and Maintenance Responsibilities							x				3,8*				1,3					17,2,3, 6	ILE
11-27	Bioretention Soil Media Study						2	x	2			3,8*			3	2				ILE	17,2,3	17,2,**
12-14	Sharp Avenue Porous Pavement										ILE	2*,3, 7*,8*										
12-24	Garland Storm Gardens with Biochar Amended Soils										ILE	2*,3, 7*,8*										
06-16	Catch Basin Retrofit Device Replacement					x			1,2,3			ILE					ILE					
06-18	Seasonal Differences in Street Sweeping			x	x	x		x				ILE				1,2		2	2		x	
09-07	Stormwater BMP Owner Awareness			x	x	x		x	2					ILE		2,3		x	2,3		x	
10-29	Determine Pollutant contributions MS4 SW in EWA GIS						2					ILE				5,8						
14-12	Long-term PP Sidewalk Infiltration Performance									ILE		ILE										
KEY:																						
x = Participant w/out designated role; ILE = Intended Lead Entity; XX-XX = 2 digit rank from Phase 2 and Sequential Study Idea #;																						
1=Financial Support; 2=Reviewer; 3=Advisory Board Lead / Member; 4=QAPP Author; 5=Lab Services; 6=Data Collector; 7=Auditor; 8=Data Verifiers; 9=Final Report Author																						

## GLOSSARY

**Best Management Practices (BMPs)** – Best management practices are the schedules of activities, prohibitions of practices, maintenance procedures, and structural and/or managerial practices approved by Ecology that, when used singly or in combination, prevent or reduce the release of pollutants and other adverse impacts to receiving waters.

**Maximum Extent Practicable (MEP)** – MEP refers to paragraph 402(p)(3)(B)(iii) of the Federal Clean Water Act, which reads as follows: Permits for discharges from municipal storm sewers shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques, and system, design, and engineering methods, and other such provisions as the Administrator or the State determines appropriate for the control of such pollutants.

**Measurable Goal** – Definable tasks or accomplishments that are associated with a performance measure.

**Municipal Separate Storm Sewer System (MS4)** – A conveyance, or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains): (i) owned or operated by a state, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State Law) having jurisdiction over disposal of wastes, stormwater, or other wastes, including special districts under State Law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the United States; (ii) designed or used for collecting or conveying stormwater; (iii) which is not a combined sewer; and (iv) which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

**National Pollutant Discharge Elimination System (NPDES)** - The national program for issuing, modifying, revoking, and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 402, 318, and 405 of the Federal Clean Water Act, for the discharge of pollutants to surface waters of the state from point sources. These permits are referred to as NPDES permits and, in Washington State, are administered by the Washington State Department of Ecology.

**New Development** – Land disturbing activities, including Class IV general forest practices that are conversions from timber land to other uses; structural development, including construction or installation of a building or other structure; creation of impervious surfaces; and subdivision, short subdivision and binding site plans, as defined and applied in Chapter 58.17 RCW. Projects meeting the definition of redevelopment shall not be considered new development.

**Outfall** – Means point source as defined by 40 CFR 122.2 at the point where a municipal separate storm sewer discharges to waters of the State and does not include open conveyances connecting two municipal separate storm sewers, or pipes, tunnels, or other conveyances which connect segments of the same stream or other waters of the State and are used to convey waters of the State.

**Performance Measure** – An activity performed to implement one of the eight permit program elements.

**Point Source** – Any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other

floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural runoff.

**Program Element** – One of the eight program components included in Sections S5.B.1 through S5.B.6, S7, and S8 of the Eastern Washington Phase II Municipal Stormwater Permit.

**Redevelopment** - The replacement or improvement of impervious surfaces on a developed site.

**Return Frequency or Recurrence Interval** - A statistical term for the average expected time interval between events (e.g., flows, floods, droughts, or rainfall) that equal or exceed given conditions. Recurrence interval can be converted to probability by dividing the return frequency into one year. For example, a 100-year event has a one percent chance of occurring in any given year ( $1/100 = 0.01$ ); a 5-year event has a 20 percent chance ( $1/5 = 0.20$ ) of occurring in any given year.

**Runoff** - Water that travels across the land surface, or laterally through the ground near the land surface, and discharges to water bodies either directly or through a collection and conveyance system. Runoff includes stormwater and water from other sources (e.g. snowmelt) that travels across the land surface.

**Stormwater Pollution Prevention Plan (SWPPP)** – A documented plan to implement measures to identify, prevent, and control the contamination of point source discharges of stormwater.

**Waters of the State** – Those waters as defined as waters of the United States in 40 CFR 122.2 within the geographic boundaries of Washington State and waters of the state as defined in Chapter 90.48 RCW which includes: lakes, rivers, ponds, streams, inland waters, underground waters, salt waters and all other surface waters and water courses within the jurisdiction of the State of Washington.



