Underground Injection Control (UIC) Operation and Maintenance Plan

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Prepared by:

City of Spokane Valley
Stormwater Utility
10210 E. Sprague Ave.
Spokane Valley 99206

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1. BACKGROUND

REGULATORY

The Washington State Department of Ecology (Ecology) administers the statewide Underground Injection Control (UIC) program to protect groundwater by regulating the discharge of stormwater from UIC injection wells. The UIC program authorized by the Safe Drinking Water Act is administered under Title 40 Code of Federal Regulations (CFR) parts 144, 145, 146, and 147. This regulation is codified and adopted by Washington State through Washington Administrative Code (WAC) 173-218.

UIC wells, referred to as wells or drywells, are structures built to allow the fluids to flow into the ground under the force of gravity. The most common are Class V wells also known as drywells. The *Stormwater Management Manual for Eastern Washington* (SWMMEW) classifies the site discharge from these wells as subsurface infiltration.

To prevent redundancy between the UIC program rule and the Phase ll Municipal Separated Storm Sewer System Permit (MS4 permit), jurisdictions have the option of applying a separate and distinct Stormwater Management Plan developed specifically for the municipal UIC wells owned and operated in the jurisdiction. The Stormwater Management Plan includes operation and maintenance requirements.

This plan outlines a schedule of municipal UIC O&M activities. Maintenance of UIC wells and associated facilities prevents clogging and contamination from materials that collect in the well over time. The activities referenced in this UIC O&M are consistent with the standards throughout the *Stormwater Management Manual for Eastern Washington (SMMEW)*. This O&M Plan addresses pollution prevention and good housekeeping procedures for municipal facilities and activities that discharge to UIC wells.

PURPOSE

The UIC O&M Plan serves as a resource for the City of Spokane Valley departments that are responsible for implementing the plan. The UIC O&M Plan provides documentation and scheduling of stormwater Best Management Practices (BMPs) that, when applied to those activities and facilities required, will protect water quality, promote the long-term infiltration capacity, reduce the long-term accumulation of contaminants, and satisfy state all known available and reasonable methods of prevention control and treatment (AKART) requirements.

APPLICABILITY

This O&M plan applies to those sites and facilities regulated by the UIC program. This O&M Plan is applicable to the municipal departments and staff that perform the O&M activities. To maintain continuity with the MS4-regulated O&M plan, this UIC-regulated O&M plan provides O&M standards for the facilities and/or activities listed in the MS4 permit section S5.B.6.a.i.

This O&M Plan includes the following chapters as listed in the Phase II MS4 permit section S5.B.6.a.i:

Ch. 3 Stormwater Collection and Conveyance Systems
Ch. 4 Roads, Highways, and Parking Lots
Ch. 5 Vehicle Fleets
Ch. 6 Municipal Buildings
Ch. 7 Parks and Open Spaces
Ch. 8 Construction Projects
Ch. 9 Industrial Activities
Ch. 10 Material Storage Areas
Ch. 11 Flood Management Projects
Ch. 12 Other Facilities and Activities

All chapters from the MS4 permit were evaluated for applicability to the regulated UIC program. Those chapters evaluated and determined to be applicable to the regulated UIC program include chapters 3 – 8 and 10 - 12.

The UIC-regulated areas are shown in **Figure 1** as green shaded areas and labeled as subbasin type "UIC Program Regulated Area" The City's regulated MS4 catchment areas were identified through a hydraulic analysis using the Type 1A, 100-year, 24-hour, storm event and are shown in red. Brown areas not intercepted by roadway sags, and naturally disperse to areas absent of UIC's. Yellow areas are private or natural draianges that outfall to surface waters.

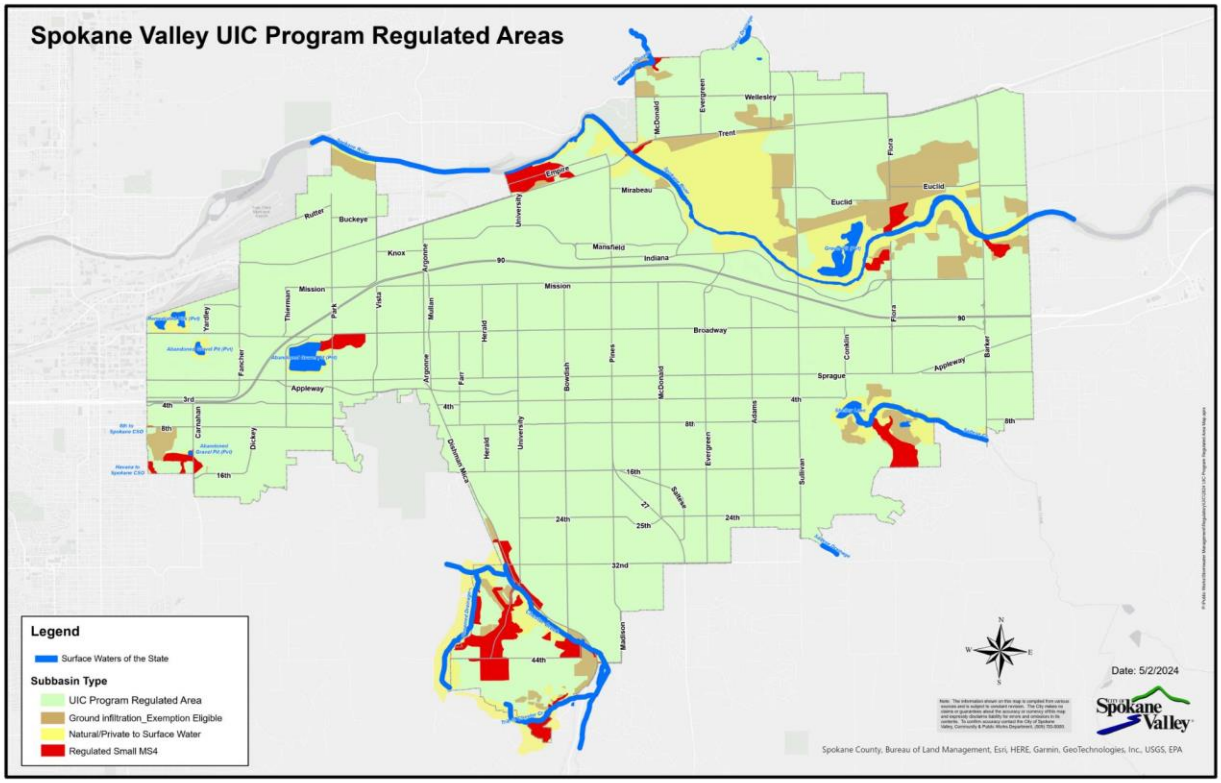


Figure 1. UIC Program Regulated Area within the City of Spokane Valley

STORMWATER POLLUTION

Stormwater runoff contains pollutants that can degrade water quality and impact the sole source aquifer. Typical urban pollutants in those areas regulated by the UIC program include motor oil, petroleum hydrocarbons, heavy metals, deicers, fertilizer, pesticides and herbicides, sediment, and other pollutants that are generated during the daily routines of typical urban residents. Pollutants originate from vehicles, homeowner activities, common municipal practices, among other sources, and become available for stormwater to carry downstream. **Table 1** displays sources of common stormwater pollutants and their potential impacts if left unmitigated. During rain and snowmelt events, stormwater runoff will accumulate pollutants from the ground surface and may transport them to UIC wells.

Table 1. Common Stormwater Pollutants and Potential Impacts

Pollutant	Form	Sources	Potential Impacts
Suspended Sediment	Total suspended solids	Sediment on pavements Bare soils Sparsely vegetated soils Soil/sand stockpiles Eroded drainage channels	Flooding Affects aquatic life respiration, growth, and reproduction Interferes with photosynthesis Disrupts oxygen exchange in water Transports metals, organic chemicals, nutrients, oil & grease
Organic Debris	Grass clippings Leaves, twigs Flowers, Pollen blooms	Residential lawns Gardens	Flooding Fish kills Algal blooms Depleted oxygen Impaired water bodies
Heavy Metals	Lead Zinc Cadmium Copper Chromium Nickel	Galvanized metal structures Roofing materials Painted surfaces Maintenance activities Attached to soils/sediments Automobile tires/exhaust	Toxic to aquatic organisms Bioaccumulates in fish Poisons top of food chain Risks to human health Impaired water bodies
Organic Chemicals	Pesticides, herbicides Misc. organic chemicals	Residential lawns, gardens Right-of-ways O&M activities Soils/sediments	Toxic to aquatic organisms Bioaccumulates in fish/animals Poisons top of food chain Risks to human health Impaired water bodies
Oil & Grease	Petroleum hydrocarbons	Leaky vehicles/equipment Roads, driveways, parking lots Vehicle/equipment maintenance Fueling stations, Soils/sediments	Toxic to aquatic organisms Impaired water bodies
Nutrients	Nitrogen as ammonia and nitrate Phosphorus as phosphate	Fertilizers Pet waste/animal feces Sanitary sewage Organic debris Soils/sediments	Toxic to aquatic life Fish kills Algal blooms Depleted oxygen Impaired water bodies
Pathogens	Bacteria Viruses	Domestic pet waste Wild animal feces Municipal solid waste, Sanitary sewers	Closures of recreation areas Risks to human health Impaired water bodies
Chlorides	Calcium chloride Magnesium chloride	Road salts Deicers Water softeners	Toxic to aquatic organisms Toxic to vegetation
General Pollutants	Varied	Trash, debris Organic debris Pet waste Suspended solids Contaminated materials	Flooding Risk to human health Fish kills Algal blooms Depleted oxygen Impaired water bodies

2. STORMWATER BEST MANAGEMENT PRACTICES (BMPS)

Stormwater BMPs are **structural** and **operational** methods that aim to minimize offsite runoff pollution to avoid impacts to ground water resources.

STRUCTURAL STORMWATER BMPS

Structural stormwater BMPs are engineered, physical controls that minimize the amount of pollution that is in stormwater runoff by either:

- Maintaining separation of stormwater and pollutants by using Structural Source Control BMPs, or
- Removing pollutants from stormwater runoff using Stormwater Treatment BMPs.

Structural Source Control BMPs are engineered physical structures or systems that minimize the contact between pollutants and stormwater runoff. Structural source control BMPs include roofing covering equipment, curbing keeping runoff separated from materials, and grading that is sloped away from pollutant source areas. At this time, there are no structural source control BMPs located in the City's MS4 areas.

Structural Stormwater Treatment BMPs are engineered components or physical systems designed to remove pollutants from stormwater prior to discharge from the MS4. Stormwater treatment BMPs typically include bioinfiltration swales, oil/water separators, modular wetlands, bioretention cells, etc.

OPERATIONAL STORMWATER BMPS

A type of source control BMP, operational BMPs are schedules of activities, prohibition of practices, and other managerial practices to prevent or reduce pollutants from entering stormwater. They include formation of a pollution prevention team, good housekeeping, preventive maintenance procedures, spill prevention and cleanup, employee training, inspections of pollutant sources and BMPs, and record keeping. They can also include process changes, raw material/product changes, and recycling wastes. Operational BMPs can be categorized as follows:

Operational (Nonstructural) Source Control BMPs are administrative approaches that use policy, and management techniques to limit the generation and transport of potential pollutants. Nonstructural source control BMPs include implementing job procedures, employee pollution prevention training, routine inspection programs, good housekeeping policies, and pollution prevention site planning and land uses.

Operational Source Control Stormwater BMPs are routine pollution prevention and/or pollutant recovery actions to maintain structural stormwater BMPs and implement nonstructural source control BMPs. Operational source control stormwater BMPs are a wide array of programmatic pollution prevention activities, which include good housekeeping practices, routine street sweeping and maintenance, proper materials handling and storage techniques, appropriate waste management protocols, etc. Operational source control stormwater BMPS typically supplement recommended maintenance criteria BMPs.

Operational Maintenance Criteria BMPs are conditions for determining if maintenance actions are required as identified by inspection. These criteria originate from the *Stormwater Management Manual*

for Eastern Washington. The applicable maintenance criteria are referenced into the City's O&M Plan. Maintenance criteria is intended to set maintenance standards identified during scheduled inspection events and are not required conditions of the BMP between inspections.

MUNICIPAL OPERATION AND MAINTENANCE BMPS

The BMPs applicable to the facilities and activities operated and maintained by the City are identified in **Table 2**. These represent the applicable BMPs from *the 2019 Stormwater Management Manual for Eastern Washington* associated with the City of Spokane Valley operation and maintenance programs and associated activities. Complete BMP descriptions are included in **Appendix A**. Those BMPs identified herein are grouped to align with the MS4 permit's required categories as listed in sections S5.B.6.a.i (a)-(j).

Table 2. Stormwater BMPs Applicable to City Operation and Maintenance Activities

Chapter Designation	Operational Source Control BMPs	Structural Source Control BMPs	Operational Maintenance Criteria BMPS
Ch. 3 – Stormwater Collection and Conveyance System BMPs (Appendix A-3)	• Recordkeeping • Site Inspection	• Maintenance of Roadside Ditches • Maintenance of Drainage Systems and Runoff Treatment BMPs • Landscaping and Vegetation Management • Irrigation • Decant Facility	• Labeling Storm Drain Inlets • Maintaining Catch Basins • Maintaining Bioinfiltration Facilities • Maintaining Drywells • Correcting Illicit Connections to Storm Drains
Ch. 4 – Roads, Highways, and Parking Lots (Appendix A-4)	• Recordkeeping • Preventative Maintenance/Good Housekeeping	• Spill Response and Cleanup • Urban Streets • Streets and Highways • Repairing Asphalt Pavement • Snow and Ice Removal from Roadways	
Ch. 5 – Vehicle Fleets	Not Applicable		
Ch. 6 – Municipal Buildings			
Ch. 7 – Parks and Open Space			
Ch. 8 – Construction Projects			
Ch. 9 – Industrial Activities			
Ch. 10 – Material Storage Areas			
Ch. 11 – Flood Management Projects			
Ch. 12 – Other Facilities and Activities			

3. STORMWATER COLLECTION AND CONVEYANCE SYSTEM

The UIC program's regulated systems consists of catch basins, storm sewer pipes, ditches, culverts, and runoff treatment BMPs that collect and convey stormwater. This system collectively captures runoff to minimize flooding. The site discharge for these systems is subsurface infiltration (UIC wells).

The City's Stormwater Utility staff, street maintenance, and administered service contracts support the operation and maintenance of its UIC program regulated systems. Tasks include regular inspections, cleaning of system components, and maintenance and/or replacement of the components, as necessary. Historically, paper inspection forms for recording maintenance of the UIC storm sewer system were used, then transferred to electronic related tables in ArcGIS. Currently, inspection and maintenance records of catch basins, drywells, pipes/culverts, and swales are done using Arcgis Fieldmaps. Lists of attributes collected during inspections are provided in **Appendix D**.

See **Table 3** for BMPs to operate and maintain UIC stormwater facilities**.**

Table 3. Storm Collection and Conveyance System Applicable BMPs

Stormwater Collection and Conveyance System BMPs	**Operational Source Control BMPs**	Appendix A-3
	BMPs for Record Keeping	
	BMPs for Site Inspection	
	Structural Source Control BMPs	
	BMPs for Maintenance of Roadside Ditches	
	BMPs for Maintenance of Drainage Systems and Runoff Treatment BMPs	
	BMPs for Landscaping and Vegetation Management	
	BMPs for Irrigation	
	BMPs for Decant Facility	
	Operational Maintenance Criteria BMPs	
	BMPs for Labeling Storm Drain Inlets	
	BMPs for Maintaining Catch Basins	
	BMPs for Maintaining Bioinfiltration Facilities	
	BMPs for Maintaining Drywells	
	BMPs for Correcting Illicit Connections to Storm Drains	

ILLICIT DISCHARGE REPORTING

All employees must report any spills or accidental discharges to the stormwater collection and conveyance system to Stormwater Utility staff at 509-720-5005. Additional information regarding the Illicit Discharge and Elimination can be found in the cities IDDE Program Plan and chapter 22.150 Spokane Valley Municipal Code (SVMC).

STORM SEWER INSPECTIONS

Table 4 displays the anticipated frequencies that the storm sewer components shall be inspected. Inspections identify cleaning, maintenance, repair and/or replacement criteria. Inspections are performed by Stormwater Utility staff and contracted service providers.

Table 4. Stormwater Sewer Inspection and Approximate Total Structures – Regulated UIC

STORMWATER COLLECTION STRUCTURES	INSPECTION/MAINTENANCE FREQUENCY	TOTAL # (APPROX)	INSPECTION RESPONSIBILITY
Catch Basins – hillsides/high loading/bridges	1 year/ 1 year	40	Service Contract
Catch Basin Type 1 – N/S arterial	2 years/ 2 years	700	Service Contract
Catch Basin Type 1 –E/W Arterial	2 years/ 2years	800	Service Contract
Catch Basin Type 1 – Residential Streets	4 years/ 4 years	1050	Service Contract
Catch Basin Type 2 –round/square	5 years/ per inspection	300/150	Stormwater Staff
Concrete inlets (no sump)	2 years/ per inspection	1470	Stormwater Staff
STORMWATER CONVEYANCES			
Storm Sewer Pipes	Varies*	4900	Stormwater Staff
Culverts	5 years/ per inspection	250	Stormwater Staff
Ditches	5 years/ per inspection	30(1.2mi)	Stormwater Staff
STORMWATER RUNOFF TREATMENT FACILITIES			
Bioinfltration/retention Swales – City owned and maintained	1 year/ 1 year	400	Stormwater Staff
Bioinfiltration/retention swales – non-city O&M	5 years/ per inspection	4600	Stormwater Staff
Cartridge Media Filters	2 years/ per inspection	3	Stormwater Staff
Silva Cell Bioretention	1 year/ 1 year	3	Service Contract
CDS Units	2 years/ per inspection	8	Stormwater Staff
STORMWATER SUB-SURFACE INFILTRATION FACILITIES			
Drywells – City O&M w/swales	10 years/per inspection	300	Stormwater Staff
Drywells – noncity O&M w/swales	10 years/per inspection	1550	Stormwater Staff
Drywells – (no pretreatment)	5 years/per inspection	4200	Stormwater Staff
Drywells – (CB type 1 pretreat)	5 years/per inspection	1500	Stormwater Staff
Drywells – (CB type 2 pretreat)	10 years/per inspection	100	Stormwater Staff
Pipe Sumps (UIC)	10 years/per inspection	150	Stormwater Staff
STORMWATER INFILTRATION FACILITIES			
Rock Maintenance Shoulder	5 years/per inspection	245	Stormwater Staff
Porous Pavement	5 years/per inspection	16	Stormwater Staff
STORMWATER FLOW CONTROL FACILITY			
Detention Ponds and Structures	2 years/2 years	55	Stormwater Staff
OTHER STORMWATER FACILITIES			
Inlets - curb	2 years/per inspection**	3200	Stormwater Staff
Inlets - sidewalks	2 years/per inspection**	710	Stormwater Staff
Manholes	10 years/per inspection	170	Stormwater Staff
Vaults	10 year/per inspection	5	Stormwater Staff
Stormwater Lift Stations	1 year/per inspection	4	Stormwater Staff

*Storm Sewer Pipes are generally inspected with associated upstream downstream catch basin or drywell inspections. The condition of a pipe is assumed to be good unless there is evidence at inlet or outlet structures that indicates otherwise such as visible sediment in pipes or standing water due to pipe blockage. Records will be kept with the associated assets' inspection.

**Sidewalk and curb inlets are generally inspected as components of a bioinfiltration/bioretention swale. Records will be kept with associated swales inspections.

Stormwater Utility staff and associated service contracts provide inspection of the above facilities and structures. See **Appendix C** for maps of these facilities and structures. Inspections are currently documented on using ArcGIS Fieldmaps. See **Appendix D**. Inspections and current inspection forms are tailored to apply the maintenance criteria discussed in the following section.

CORRECTIVE MAINTENANCE, REPAIR, AND REPLACE

Corrective maintenance, repair and replacement are triggered by observations made during facility inspections. The City utilizes five tiers (i.e., approaches) to carry out corrective actions:

1. Inspection and Immediate Maintenance
   At time of inspection, staff will provide the necessary corrective maintenance, repair, and/or replacement. If immediate resources are not available, , inspection notes will document the outstanding corrective actions necessary to conform with applicable maintenance criteria. Common corrective actions may include removal trash and debris. Maintenance will then be scheduled for a later date.
2. City Street Maintenance Staff
   City street maintenance staff routinely encounter storm structures in need of common maintenance or repairs. Staff will maintain these structures as needed and practical at a later date.
3. City Service Contracts
   Corrective action by service contractors is most often triggered by inspection reporting. Includes the following contracts:

   - Storm Drain Cleaning: removal of sediment/debris from catch basins, drywells, manholes, pipes, culverts, and ditches.
   - Roadway Landscaping: provides corrective maintenance for the maintenance criteria of bioinfiltration/retention swales.

3. Small Works contracts
   Corrective maintenance, repairs or replacement requiring resources beyond what can be accomplished via tiers 1-3.
4. Capital Improvement contracts
   Corrective maintenance, repairs or replacement requiring additional capital improvements or is determined to be part of a larger capital improvement project, may be delayed coordinating with the Stormwater Capital Improvement program.

VACTOR WASTE

Street debris and other materials recovered from catch basins, storm sewer piping, swales, and drywells from vactoring is considered street waste. Street waste must be managed in accordance with Street Waste Disposal of the Eastern Washington Phase II Municipal Stormwater permit.

Stormwater Utility waste is decanted at the Spokane Regional Decant Facility. This facility is owned and operated by the Washington State Department of Transportation (WSDOT). Maintenance, operation, testing, and disposal of solids at the site is provided by WSDOT. The City of Spokane Valley has an interlocal agreement to decant waste at this site through June 30, 2043.

The site is located at the Washington State Department of Transportation field maintenance yard located at 12102 E. Montgomery Ave. **See Appendix E.**

See Appendix A-3 for BMPs for Decant Facility for proper operations of this facility.

RECORDKEEPING

Stormwater Utility records stormwater inspection and maintenance activities in perpetuity for the following activities:

- Inspection and maintenance records for stormwater treatment and flow control facilities.
- Inspection and maintenance records for catch basins and inlets.
- The number of facilities inspected, and the amount of sediment collected annually.

4. ROADS, HIGHWAYS, AND PARKING LOTS

In UIC regulated areas, the city's roadway system consists of residential streets, collector streets, major and minor arterials, and parking lots. The roadway system accumulates petroleum hydrocarbons, toxic chemicals, heavy metals, salts, sediment and debris, which becomes runoff pollution during a rain event. This requires recovering sediment, debris, and other pollutants before they are collected, conveyed, and discharged to UICs.

The Streets Maintenance Division is responsible for maintaining the city's street network in a safe and clean condition. The city contracts with service providers for the operation and maintenance of parking lots. Tasks include, but are not limited to, periodic maintenance activities, repairs, spill response, clearing obstructions, managing snow removal, and applying sand or deicer. The city manages a contractor for street sweeping to recover accumulated pollutants before they are transported by runoff.

Per current agreement, GM-01339, the Washington State Department of Transportation provides the following maintenance of State routes/highways (27- Pines, 290-Trent) within City jurisdiction:

1. Sweeping pavement and dust control
2. Cleaning catch basins and drains.
3. Litter pick-up and noxious weeds.
4. Snow plowing, sanding, and liquid chemical deicing.
5. Winter sand cleanup, including cleaning sidewalks.

See ***Table 5*** for source control BMPs to operate and maintain roads, highways, and parking lots.

Table 5. Roadway Applicable BMPs

Roads, Highways and parking lots	**Nonstructural Source Control BMPs**	Appendix A-4
	BMPs for Recordkeeping	
	BMPs for Preventive Maintenance/Good Housekeeping	
	Operational Source Control BMPs	
	BMPS for Spill Response and Cleanup	
	BMPs for Urban Streets	
	BMPs for Streets and Highways	
	BMPs for Repairing Asphalt Pavement	
	BMPs for Snow and Ice Removal from Roadways	

GENERAL ROADWAY POLLUTION PREVENTION

Minimizing stormwater runoff pollution by practicing source control pollution prevention keeps pollutants from accumulating on roadways and parking lots. Controlling the source of potential pollutants with good housekeeping practices so that they do not accumulate reduces the potential for stormwater to become contaminated. BMP documents for Preventative Maintenance/Good Housekeeping, and Spill Prevention and Cleanup are in **Appendix A-3**.

Street Sweeping

Streets are pollutant generating impervious surfaces and are routinely cleaned with regenerative air street sweepers to recover accumulated roadway pollutants from the pavement surface.

Sweeping reduces the debris load conveyed through storm events to the City's stormwater system. It is good housekeeping practice and a key part of the City's O&M program. The city maintains and deploys three distinct Sweeping Action Plans for Spring, Arterial Maintenance, and Fall project periods. Each plan identifies specific a sweeping schedule to be completed. The City's Street sweeping contractor is required to comply with the contract's specifications and City maintenance staff inspect the work to maintain quality control/quality assurance. A copy of the street sweeping action plans are included in **Appendix F**. Applicable BMPs are provided in **Appendix A-3.**

Street Waste

Debris collected from street pavements, including the water used for dust control, is deemed "street waste" once it is recovered by equipment (e.g. vactor trucks and street sweepers). Street wastes are managed in accordance with *Appendix 6 – Street Waste Disposal of the Phase ll Municipal Stormwater Permit*. If necessary, any liquids present should be separated from the solids with subsequent discharge to a decant station. Street debris solids are currently disposed of at the permitted solid waste landfill, Waste Management's Graham Road Landfill. Stormwater BMPs for managing street waste are incorporated into the BMP documents for urban streets in **Appendix A-4**.

Deicers

The Street Maintenance Division uses salts and liquid deicers to mitigate the impacts of snow and ice on streets. Proper selection, storage, and application of deicing materials is important to prevent negative environmental impacts to water quality and plants. Deicers and road salts must be applied to pavements in accordance with manufacturer specifications and care must be taken to avoid over application. Liquid deicer (magnesium chloride) is applied to bridges, arterial intersections and on specific hillsides when snow, ice or frost is predicted. When snow begins to accumulate on the roadway, solid granular de-icer (ice-slicer) is applied to bridges, arterial intersections, and hillsides. The BMPs for deicing are detailed in BMPs for streets in **Appendix A-4.**

Snow and Ice Disposal

Snow plowing operations occur on a prioritized basis to ensure specific streets remain open to traffic. Plowed snow from streets contains pollutants like road salts, deicers, and sand and must be staged to melt at a location that will not discharge pollutants to a surface water body. Applicable BMPs are provided **in Appendix A-4.**

Material Storage

Uncovered material storage stockpiles are a major source of pollutants such as sand, cinder, salts, or other road maintenance materials can be discharged to UICs during rain or snow melting events. Deicers, road salts, and others should be stored under cover in a location central to the operational area and managed appropriately to minimize the potential for stormwater to interact with the materials. Material storage for snow and ice removal operations is covered in more detail in chapter 10 of this plan.

5. VEHICLE FLEETS

Motor vehicles are located at most city office buildings and work sites. Spills and/or leaks fluids, fuels, and oil from motor vehicles, and the soap and debris inherently contained in vehicle washwaters, have the potential to discharge into the stormwater collection and conveyance system during rain and/or snow melt events. The owning departments of city vehicles are responsible for operating, fueling, storing, and washing their city vehicles. The Streets Maintenance Division is responsible for maintenance and repair of city vehicles upon request, standard rotation, or as otherwise necessary.

All vehicle and equipment washing, and maintenance should be performed in self-contained, covered buildings, or in designated wash and/or maintenance areas that are operated to keep washwater and stormwater separated, where washwaters are discharged to the sanitary sewer. Vehicle storage and parking lot BMPs are applicable to all city departments who own vehicles and/or parking lots or vehicle storage areas.

See **Table 6** for source control BMPs to operate and maintain vehicle fleets.

Table 6. Vehicle Fleets BMPs

	Operational Source Control BMPs	Appendix A-5
Vehicle Fleets	BMPs for Parking Lots and Storage of Vehicles and Equipment	
	BMPs for Washing and Steam Cleaning Vehicles, Equipment, and Building Structures	
	BMPS for Maintenance and Repair of Vehicles and Heavy Equipment	
	BMPs for Dedicated Fueling Stations	
	BMPs for Mobile Fueling of Vehicles and Heavy Equipment	

ILLICIT DISCHARGE REPORTING

All employees must report any spills or accidental discharges to the stormwater collection and conveyance system to Stormwater Utility staff at 509-720-5005. Additional information regarding Illicit Discharge and Elimination can be found in the cities IDDE Program Plan and chapter 22.150 Spokane Valley Municipal Code (SVMC).

VEHICLE STORAGE

Vehicle storage areas are located at municipal buildings, work sites, and maintenance yards. Parking areas that store vehicles can accumulate pollutants. Stormwater protection includes installation of runoff BMPs (oil/water separators, bioinfiltration swales) and the implementation of source control BMPs. Source control BMPs applicable to storing, washing, fueling, and maintaining city vehicles are provided in **Appendix A-5.**

VEHICLE WASHING

Washing vehicles generates contaminant laden washwater that contains pollutants. Municipal washwater should be conducted and discharged in an enclosure that drains to a municipal wastewater system, a treatment facility, or a dead-end sump. Standard city fleet vehicles conduct vehicle washing at Mister Car Wash. City fleet maintenance vehicles conduct vehicle washing at the City of Spokane Central Services Center. Additionally, stormwater BMPs relevant to vehicle washing are provided in **Appendix A-5.**

Vehicle Maintenance and Repair

Vehicle maintenance activities have a significant potential to impact stormwater and affect water quality. Maintenance and repair of city owned vehicles and equipment is typically performed at the city's maintenance yard. See Chapter 10 for more information regarding the operation and maintenance plan for the maintenance yard. Additionally, stormwater BMPs relative to the maintenance and repair of vehicle and equipment are provided in **Appendix A-5.**

Fueling of Municipal Vehicles

City personnel who operate city vehicles may be expected to refuel vehicles. Both the city's standard and maintenance fleet conduct fueling at Eljay fuel. Secondarily, standard city fleet may also use Chevron and Texaco stations. Stormwater BMPs for dispensing fuel are provided in **Appendix A-5.**

City maintenance may fuel up equipment in the field with mobile refuelers, particularly during winter operations. Operators of mobile refuelers should follow the guidance contained in the BMPs for Mobile Fueling of Vehicles and Heavy Equipment provided in **Appendix A-5.**

6. MUNICIPAL BUILDING

Municipal building maintenance includes tasks such as cleaning, washing, painting, and landscape maintenance. Potential pollutants from these activities include chemical compounds such as polychlorinated biphenyl (PCBs), organic compounds, oil and grease, soap, heavy metals, and particulate matter. City personnel responsible for building maintenance are required to conduct their activities in a manner protective of stormwater by reducing pollutants. The city owns and maintains three municipal buildings (**Appendix B**):

- City Hall
- Centerplace
- Police Precinct

Runoff treatment BMPs are used to control pollutants. Runoff treatment BMPs, such as bioinfiltration swales, are the primary stormwater BMP for municipal buildings and facilities. Parking lot runoff is directed to the bioinfiltration swales for treatment.

See **Table 7** for source control BMPs to operate and maintain municipal buildings.

Table 7. Municipal Buildings BMPs

Municipal Building	**Nonstructural Source Control BMPs**	Appendix A-6
	BMPs for Preventive Maintenance/Good Housekeeping	
	Operational Source Control BMPs	
	BMPs for Waste Management and Disposal	
	BMPS for Washing Vehicles, Equipment, and Building Structures – **See Appendix A-5**	
	BMPs for Building Repair, Remodeling, Painting, and Construction	
	BMPs for Landscaping and Lawn/Vegetation Management – **See Appendix A-3**	
	BMPs for Spill Response and Cleanup – **See Appendix A-4**	
	BMPs for Snow and Ice Removal in Parking Areas	

ILLICIT DISCHARGE REPORTING

All employees must report any spills or accidental discharges to the stormwater collection and conveyance system to Stormwater Utility staff at 509-720-5005. Additional information regarding Illicit Discharge and Elimination can be found in the cities IDDE Program Plan and chapter 22.150 Spokane Valley Municipal Code (SVMC).

GENERAL FACILITY HOUSEKEEPING AND MAINTENANCE ACTIVITIES

The purpose of general facility housekeeping is to keep municipal areas clean and free of debris and other pollutants that could be washed into the stormwater collection and conveyance system during a rainfall event. General facility housekeeping includes routine handling and storage of materials and waste products in a manner that minimizes the risk of stormwater. General housekeeping principles can be carried over into maintenance activities associated with municipal buildings, which include building repair, remodeling, and construction projects. Stormwater BMP documents regarding general housekeeping and typical maintenance activities are provided in **Appendix A-6.**

Building Cleaning and Washing

Interior

Municipal building cleaning and washing activities may include the use of cleaning chemicals and washing of carpet and other interior items. It is the responsibility of all municipal employees to ensure that cleaning materials and washwaters are disposed of properly.

- Used cleaning materials must be disposed of in a closed municipal solid waste container.
- Washwaters generated from interior cleaning activities must be discharged to the sanitary sewer.

Exterior

Washing activities for the exterior of buildings and/or the adjacent paved walkways has the potential to impact stormwater by generating runoff pollution. The BMPs for Washing and Steam Cleaning Vehicles, Equipment, and Building Structures document in **Appendix A-5** provides guidance on washing building exteriors.

Painting

Painting activities associated with interior and exterior municipal buildings include surface preparation and application of paints, stains, finishes, and other coatings. Paints, stains, and finishes contain harsh chemicals and will contaminate stormwater. The BMPs for Applying Surface Coatings document located in **Appendix A-6** provides guidance on minimizing potential impacts from painting.

Vegetation Management

Vegetation management includes maintaining landscaped areas associated with municipal buildings and controlling noxious weeds, pests, and unwanted vegetation growth. Disturbed soil, removed vegetation, and chemicals can all negatively impact stormwater runoff. Municipal activities performed to manage vegetation around municipal buildings need to mitigate the potential for the activity to contaminate stormwater. **Appendix A-6** contains several BMP documents for landscaping and vegetation management.

Winter Activities

Winter activities around municipal building includes deicing, sanding, and snow removal on sidewalks and small parking lots. These activities enhance public safety during inclement weather but have the potential to introduce pollutants to stormwater and snow melt. Stormwater BMPs for deicing and snow removal activities are in **Appendix A-6**.

7. PARKS AND OPEN SPACE

The maintenance of parks and open space areas includes the application of fertilizers, pesticides, and fertilizers, mowing, trimming, and supplemental irrigation. These activities have significant potential to impact stormwater. Potential pollutants from these activities include nutrients (ammonia and phosphorous), chemicals (pesticides), organic debris, and sediment, among others, which must be mitigated with appropriate stormwater BMPs. Stormwater treatment facilities are often incorporated into parks and open spaces to provide multi-use facilities for the public.

The Parks & Recreation Department is responsible for maintaining the city's 11 parks and open spaces:

- Park Road Pool
- Edgecliff Park
- Balfour Park
- Castle Park
- Browns Park
- Terrace View Park/Pool
- Valley Mission Park
- Greenacres Park
- Sullivan Park
- Mirabeau Point Park
- Myrtle Point

See **Appendix B** for an exhibit showing park locations.

See **Table 8** for source control BMPs to operate and maintain parks and open spaces.

Table 8. Parks and Open Space BMPs

Parks and Open Space	**Operational Source Control BMPs**	Appendix A-7
	BMPS for Landscaping and Lawn/Vegetation Management – **See Appendix A-3**	
	BMPs for Irrigation – **See Appendix A-3**	
	BMPs for Fertilizer Application	
	BMPs for the Storage of Dry Pesticides and Fertilizers	
	BMPs for Pesticide Application	
	BMPs for Pet Waste	
	BMPs for Landscaping and Lawn/Vegetation Management – See **Appendix A-3**	
	BMPs for Irrigation – See **Appendix A-3**	
	BMPs for Mulching	
	BMPs for Sodding	
	BMPs for Erosion Nets and Blankets	
	BMPs for Temporary and Permanent Seeding	
	BMPs for Preserving Natural Vegetation	
	BMPs for Waste Management and Disposal – See **Appendix A-6**	
	BMPs for Pools and Fountains	

ILLICIT DISCHARGE AND REPORTING

All employees must report any spills or accidental discharges to the stormwater collection and conveyance system to Stormwater Utility staff at 509-720-5005. Additional information regarding Illicit

Discharge and Elimination can be found in the cities IDDE Program Plan and chapter 22.150 Spokane Valley Municipal Code (SVMC).

Proper Application of Fertilizer

Fertilizers may be necessary to maintain healthy vegetation in parks and open spaces. Fertilizers often consist of phosphorus, nitrogen, and potassium that improve growth and productiveness of plants. Fertilizers enhance the natural fertility of the soil or replace chemical elements taken from the soil. If applied incorrectly fertilizer can impact stormwater runoff. Stormwater BMPs for the application of fertilizers are provided in **Appendix A-7**.

Pesticides and Herbicides

Pesticides and herbicides are very efficient at producing desired results in parks and open spaces. Pesticides and herbicides consist of toxic chemicals that can impact stormwater runoff if applied incorrectly. Stormwater BMPs for the application of pesticides and herbicides are provided in **Appendix A-7.**

Pet Waste BMPs

Pet waste is the primary responsibility of the pet owner, however, clean up of unattended pet waste often become the responsibility of City staff. Pet waste contains nutrients, bacteria, and viruses that may be harmful to human health. Stormwater BMPs for managing pet waste are provided in **Appendix A-7** and serve as guidance to the responsible maintenance department.

Sediment and Erosion Control

Small construction or repair activities at parks and open spaces include grading, soil transfer, and/or vegetation removal, which have the potential to impact stormwater. Sediment and erosion control practices are paramount to mitigating total suspended solids in stormwater. See **Chapter 8** – *Construction Projects* for guidance on small construction projects.

See **Chapter 8** – *Construction Projects* for guidance on large construction projects that add new impervious surfaces, modify components of the stormwater system, or disturb large areas.

BMPs for Landscape Maintenance and Vegetation Disposal

Vegetated landscape spaces provide an excellent opportunity to infiltrate precipitation and eliminate stormwater from paved surfaces that accumulate pollutants. Landscape maintenance includes vegetation management throughout park and open space areas, which consists of managing ground cover, controlling noxious weeds, eradicating pests, and deterring unwanted plant growth. Landscape maintenance activities involved in landscaping have the potential to impact stormwater with organic debris, sediment, and pesticide pollutants, among others. Stormwater BMPs applicable to landscape activities should be implemented when maintaining landscaping, and include irrigation practices, disposal of debris, replacing ground cover, etc. Stormwater BMPs for irrigation, mulching, erosion protection, sodding, vegetation management, and reseeding are provided in **Appendix A-7**.

Trash and Dumpster Management

Trash and debris collection is important to maintain the cleanliness and appeal of the city's parks and open spaces. Further, trash accumulation in parks and open spaces can create runoff pollution.

Mitigating potential impacts from trash and debris is an important activity in reducing stormwater pollution. Stormwater BMPs for Trash and dumpster management can be found in **Appendix A-7**.

In partnership with Osborne Consulting, the Stormwater Utility conducted a Stormwater Management Program Education and Outreach Campaign Study on dumpster management. This comprehensive study identified that dumpster lid closure and non-employee access to dumpsters as the most significant factor contributing to dumpster pollution. See **Appendix A-7** for *Dumpster Tip Handout* flyer developed from the study. Full details and the Final Dumpster Study Report are available upon request.

BMPs for Building Cleaning and Maintenance

Interior building cleaning and washing activities may include the use of cleaning chemicals and washing of carpet and other interior items. Used cleaning materials from interior building cleaning should be disposed of in an appropriate solid waste container. Washwaters generated from interior cleaning activities should be discharged to sanitary sewer.

Washing activities for the exterior of buildings and/or adjacent paved walkways has the potential to impact stormwater by generating runoff pollution. The BMPs for Washing and Steam Cleaning Vehicles, Equipment, and Building Structures documented in **Appendix A-5** provides detail on washing building exteriors.

Material Storage

Uncovered material storage stockpiles have significant potential to impact stormwater and can be a major source of pollutants such as sand, soil, mulch, and other park maintenance materials. Material stockpiled on site should be managed appropriately to minimize the potential for interaction with stormwater. Stormwater BMPs for material storage can be found in **Appendix A-10**.

Swimming Pools and Fountains

Building maintenance activities at pool facilities should implement the BMPs as discussed in chapter 6 – *Municipal Buildings* of this plan. Chlorinated pool water is a conditional discharge per SVMC 22.150.110.C. Stormwater BMPs for pool water and fountains can be found in **Appendix A-7**.

8. CONSTRUCTION ACTIVITIES

Construction projects have significant potential to impact stormwater. Stormwater pollution prevention BMPs must be implemented for construction activities performed by the city.

LARGE CONSTRUCTION PROJECTS

All public construction projects within the city must comply with the *Spokane Regional Stormwater Manual* (SRSM). The SRSM establishes standards for stormwater design and management to protect water quality. The Manual meets or exceeds applicable criteria from the Stormwater Management Manual for Eastern Washington. All projects include construction and post-construction stormwater controls designed to keep pollutants from reaching UICs and other critical infrastructure.

As an equivalent stormwater manual, the SRSM was last updated in 2022 to meet or exceed applicable criteria from the Stormwater Management Manual for Eastern Washington (SWMMEW). The 2024-2029 permit has significant changes to the thresholds and exemptions for when basic requirements are required for new or redevelopment. Therefore, the SRSM will be updated by July 1, 2026, to meet the updated 2024 SWMMEW along with the requirements documented in this plan. The following requirements reflect the requirements of the 2019-2024 NPDES Permit, Appendix 1.

Construction projects or construction sites that are part of a common plan of development larger than one acre in size, or remove or replaces greater than 5,000 square feet (s.f.) of impervious surface must meet the eight Basic Requirements below:

1. Drainage submittal
2. Geotechnical site characterization
3. Water quality treatment
4. Flow control
5. Natural and constructed conveyance systems
6. Erosion and sediment control
7. Source control
8. Operation and maintenance

The SRSM and basic requirement No. 6, Erosion and Sediment Control, requires development of an Erosion Control Sediment plan that addresses at minimum the following items. BMPs suggested for these items are referenced by their identification code in the *Stormwater Management Manual for Eastern Washington:*

1. Construction sequence
2. Clearing limits
3. Construction access route
4. Install sediment controls
5. Soil stabilization
6. Protection of inlets
7. Runoff from construction sites
8. Washout site for concrete trucks and equipment
9. Material storage/stockpile
10. Cut and fill slopes

11. Stabilization of temporary conveyance channels and outlets
12. Dewatering construction sites
13. Control of pollutants other than sediment on construction sites
14. Permanent BMPs
15. Maintenance of BMPs
16. Protect Low Impact Development BMPs (Infiltration BMPs)

Exemptions

SRSM, section 2.1.4, indicates projects are exempt from the Basic Requirements when falling under any of the following categories:

- Actions by a public utility or other government agency to remove or alleviate an emergency condition.
- Projects, that when completed, will not have physically disturbed the land.
- Road and parking area preservation and maintenance projects such as:
    - Pothole and square cut patching
    - Crack sealing
    - Shoulder grading
    - Reshaping or regrading of drainage systems
    - Vegetation maintenance
- Operation and maintenance or repair of existing facilities

Partial Exemptions

The following activities are exempted from the Basic Requirements except for Basic Requirement No.5, No.6, and No.7.

- Underground utility projects that replace the ground surface with in-kind material or materials with similar runoff characteristics.
- Projects to improve motorized or non-motorized user safety that do not increase the traffic capacity of a roadway. Included are certain safety improvement projects such as sidewalks, bike lanes, bus pullouts and other transit improvements.
- Maintenance projects that do not increase the traffic capacity of a roadway or parking area, such as:
    - Removing and replacing a concrete or asphalt roadway to base course or subgrade or lower without expanding or improving the impervious surfaces.
    - Repairing a roadway base or subgrade.
    - Resurfacing with in-kind material without expanding the area of coverage
    - Overlaying existing asphalt or concrete pavement with BST or chip seal, asphalt, or concrete without expanding the area of coverage.
    - Overlaying existing gravel with BST, asphalt, or concrete without expanding the area of coverage; and surface continues to drain to the existing facilities or structures and if:
        - The ADT (average daily traffic) is less than 7,500.
        - The parking area traffic is less than 40 trip ends per 1,000 s.f. of building area or 100 total trip ends.

Small Construction Projects

Small municipal construction projects are defined as projects adding or replacing less than 2,000 s.f. of impervious surface or clearing less than 7,000 s.f. to prevent the discharge of sediment and other pollutants to the maximum extent practicable. The following pollution prevention BMPs are recommended for small construction projects:

- Keep exposed areas to a minimum and only clear the areas needed
- Correct disturbed and/or compacted soil at the end of construction activity
- Locate excavated soil a reasonable distance behind the curb
- Backfill as soon as possible to eliminate soil mounds and provide temporary cover
- Remove excess soil from the site as soon as possible
- Install trench or berm if soil bank is higher than the curb to reduce gully and rill erosion
- Stabilize construction site entrance
- Provide periodic street cleaning
- Backfill utility trenches that run up and down slopes within 7 days

9. INDUSTRIAL ACTIVITIES

The city has no industrial activities in its UIC regulated areas. This section is not applicable to the UIC O&M Plan.

10. MATERIAL STORAGE AREAS

Municipal areas used to store materials and heavy equipment and/or perform maintenance have significant potential to impact stormwater and generate runoff pollution.

See **Table 9** for source control BMPs for areas used to store materials, heavy equipment, and/or perform maintenance.

Table 9. Material Storage Areas BMPs

	Operational Source Control BMPs Appendix A-10
Material Storage Areas	BMPS for Spill Response and Cleanup – **See Appendix A-4**
	BMPs for Dedicated Fueling Stations – **See Appendix A-5**
	BMPs for Mobile Fueling of Vehicles and Heavy Equipment – **See Appendix A-5**
	BMPs for Maintenance and Repair of Vehicles and Equipment – **See Appendix A-5**
	BMPs for Parking and Storage of Vehicles and Equipment – **See Appendix A-5**
	BMPs for Washing and Steam Cleaning Vehicles, Equipment, and Building Structures – **See Appendix A-6**
	BMPs for Waste Management and Disposal – **See Appendix A-6**
	BMPs for Building Repair, Remodeling, Painting, and Construction – **See Appendix A-6**
	BMPs for the Spill of Oil and Hazardous Substances
	BMPs for Storage of Liquid or Dangerous Waste Containers
	BMPs for Storage of Liquids in Permanent Above Ground Tanks
	BMPs for Outdoor Storage or Transfer of Materials
	BMPs for Loading and Unloading Areas for Liquid or Solid Material

In addition, per UIC program and WAC 173-218-090.2(c), the material storage area must also develop a site-specific Stormwater Pollution Prevention Plan (SWPPP), which is a living document that details the stormwater behavior at the site, the site activities that may contribute to stormwater pollution, and the mitigation strategies that must be implemented at the site to protect water quality. The implementation of the Stormwater Pollution Prevention Plan can be used to meet the non-endangerment standard if applied to the UIC wells to protect the well from posing a threat to groundwater.

The following city departments have developed and are responsible for maintaining SWPPPs for their applicable sites:

- Street Maintenance – Euclid Maintenance Facility

See Appendix J for *Euclid Maintenance Facility Stormwater Pollution Prevention Plan*.

11. FLOOD MANAGEMENT PROJECTS

Since incorporation, the city has not designed or constructed any flood management projects. If flood management projects are considered, whether public or private, these projects will be designed and constructed according to the requirements of the SRSM. The SRSM establishes standards for stormwater design and management to protect water quality. The manual exceeds applicable criteria from the Stormwater Management Manual for Eastern Washington.

12. OTHER SITES OR FACILITIES

The city does not own, operate, or maintain any other sites or facilities that would reasonably be expected to discharge contaminated runoff.

GLOSSARY

40 CFR means Title 40 of the Code of Federal Regulations, which is the codification of the general and permanent rules published in the Federal Register by the executive departments and agencies of the federal government.

Average Daily Traffic means the expected number of vehicles using a roadway is represented by the projected ADT volume considered in designing the roadway. ADT counts must be estimated using the Trip Generation Manual published by the Institute of Transportation Engineers or a traffic study prepared by a licensed engineer in the state of Washington or a transportation specialist with expertise in traffic volume estimation. ADT counts shall be made for the design life of the project. For project sites with seasonal or varied use, the highest period of expected traffic impacts should be evaluated.

AKART is an acronym for "all known available and reasonable methods of prevention, control and treatment." AKART represents the most current methodology that can be reasonably required for preventing, controlling, or abating the pollutants associated with a discharge.

Allowable Discharge means a type of illicit, non-stormwater discharge that does not cause significant contamination of surface water, stormwater, or ground water. They are allowed only when specific conditions are met pursuant to the requirements of the NPDES Permit.

Beneficial Uses those water uses identified in state water quality standards must be achieved and maintained as required under the federal Clean Water Act. "Beneficial use" and "designated use" are often used interchangeably.

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 waters of Washington State.

Bypass means the diversion of stormwater from any portion of a stormwater treatment facility.

Best Management Practices (BMP) means the utilization of methods, techniques or products that have been demonstrated to be the most effective and reliable in minimizing environmental impacts.

CFR means Code of Federal Regulation

Conveyance means the mechanism, including pipes, ditches, and channels, for transporting water from one point to another.

Conveyance System means the drainage facilities, both natural and constructed, that collect, contain, and provide for the flow of surface and stormwater from the highest points on the land down to a receiving water. The natural elements of the conveyance system include swales and small drainage courses, streams, rivers, lakes, and wetlands. Constructed elements of the conveyance system include gutters, ditches, pipes, channels, and most retention/detention facilities.

Discharge Point means the location where a discharge leaves the Permittee's MS4 through the Permittee's MS4 facilities/BMPs designed to infiltrate.

Drainage means the process of removing surplus ground or surface water by artificial means. The manner in which the waters of an area are removed. The area from which waters are drained, a drainage basin.

Discharge means runoff, excluding offsite flows, leaving the area being discussed through overland flow, built conveyance systems, or infiltration facilities.

Discharge Point means the location where a discharge leaves the Permittee's MS4 through the Permittee's MS4 facilities/BMPs designed to infiltrate.

Eastern Washington Phase II Municipal Stormwater Permit means the stormwater permit that regulates stormwater from MS4s in Eastern Washington.

Fully Stabilized means the establishment of a permanent vegetative cover, or equivalent permanent stabilization measures (such as riprap, gabions, or geotextiles) which prevents erosion.

Ground Disturbing Activity means any activity resulting in a change of the existing soil cover (both vegetative and non-vegetative) and/or the existing soil topography. Ground disturbing activities include but are not limited to demolition, construction, clearing, grading, filling, logging, and excavation.

Groundwater means water in a saturated zone or stratum beneath the surface of the land or below a surface water body.

Hazardous Material means any liquid, solid, gas, or sludge, including any material, substance, product, commodity, or waste, regardless of quantity, that exhibits any of the physical, chemical or biological properties described in WAC 173-303-090 or 173-303-100.

Hazardous Substance means any liquid, solid, gas, or sludge, including any material, substance, product, commodity, or waste, regardless of quantity, that exhibits any of the physical, chemical, or biological properties described in WAC 173-303-090 or WAC 173-303-100.

Heavy Equipment Maintenance or Storage Yard means an uncovered area where any heavy equipment, such as mowing equipment, excavators, dump trucks, backhoes, or bulldozers are washed or maintained, or where at least five pieces of heavy equipment are stored on a long-term basis.

High Intensity Parking means lot subject to an expected average daily vehicle traffic (ADT) count equal to or greater than 100 vehicles per 1,000 square feet of gross building area (100 times 33.272 equals 3,327=ADT, etc.). It is also subject to having a fleet of 25 or more diesel vehicles that are over 10 tons gross weight (trucks, heavy equipment, etc.) stored at that location.

Hyperchlorinated Water means water that contains more than 10 mg/Liter chlorine.

Illicit connection means any connection to the MS4 that is not intended, permitted, or used for collection and conveying stormwater or non-stormwater discharges allowed as specified in the permit.

Illicit discharge means all nonstormwater discharges to drainage systems that cause or contribute to a violation of state water quality, sediment quality, or ground water quality standards, including, but not limited to, sanitary sewer connections, industrial process water, interior floor drains, car washing, and greywater systems.

Low Impact Development means a stormwater management and land development strategy that strives to mimic predisturbance hydrologic processes of infiltration, filtration, storage, evaporation, and transpiration by emphasizing conversion, use of on-site natural features, site planning, and distributed stormwater management practices that are integrated into a project design.

Material Storage Areas means and area where bulk materials (e.g. liquid, solid, granular, etc.) are stored in piles, barrels, tanks, bins, crates, etc..

Municipal Separate Storm Sewer System (MS4) means a conveyance, or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains):

- 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 Washington State;

- designed or used for collecting or conveying stormwater;
- which is not a combined sewer; and
- which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2, which is defined as as "large" or "medium" or "small" or otherwise designated by Ecology pursuant to 40 CFR 122.26.

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

New Development means the conversion of previously undeveloped or permeable surfaces to impervious surfaces and managed landscape areas. New development occurs on vacant land or through expansion of partially developed sites.

Non-Pollutant Generating Impervious Surfaces (NPGIS) are considered insignificant sources of pollutants in stormwater runoff. Roofs that are subjected only to atmospheric deposition or normal heating, ventilation, and air conditioning vents are considered NPGIS, unless the roofing material is uncoated metal. The following may also be considered NPGIS: paved bicycle pathways and pedestrian sidewalks that are separated from and not subjected to drainage from roads for motor vehicles, fenced fire lanes, infrequently used maintenance access roads, and "in-slope" areas of roads. Sidewalks that are regularly treated with sand, salt, or other deicing and anti-icing chemicals are not considered NPGIS..

Operational BMPs are a type of source control BMP, operational BMPs are schedules of activities, prohibition of practices, and other managerial practices to prevent or reduce pollutants from entering stormwater. They include formation of a pollution prevention team, good housekeeping, preventive maintenance procedures, spill prevention and cleanup, employee training, inspections of pollutant sources and BMPs, and record keeping. They can also include process changes, raw material/product changes, and recycling waste.

Outfall means an opening with closed perimeter, usually sharp-edged, and of regular form in a plate, wall, or partition through which water may flow; generally used for the purpose of measurement or control of water.

Permanent Erosion and Sediment Control Measures means the combination of plants, mulch, sod, matting, erosion control blankets, and permanent structures that provide long-term soil stabilization.

Permittee means recipient of a Department of Ecology NPDES permit.

Pollutant-Generating Impervious Surfaces (PGIS) are considered significant sources of pollutants in stormwater runoff. Such surfaces include those that are subjected to use by vehicles, industrial activities, or storage of erodible or leachable materials that receive direct rainfall or run-on or blow-in of rainfall. Metal roofs are considered to be PGIS, unless coated with an inert, nonleachable material. Roofs that are subject to venting of manufacturing, commercial (such as restaurants or processing facilities where oils and other solid particles are expected to be expelled), or other indoor pollutants are also considered PGIS. A surface, whether paved or not, shall be considered PGIS if it is regularly used by motor vehicles. The following are considered regularly used surfaces: roads, unvegetated road shoulders, bike lanes within the traveled lane of a roadway, driveways, parking lots, unfenced fire lanes, vehicular equipment storage

yards, and airport runways.

Pollutant means any substance prohibited or limited by federal, state, or local regulations, released or discharged in conjunction with development. Any substance released or discharged, that causes or contributes to violation of water quality standards.

Receiving Waterbody or Receiving Waters means bodies of water or surface water systems to which surface runoff is discharged via a point source of stormwater or via sheet flow.

Replaced Impervious Surfaces means the removal and replacement of any exterior impervious surfaces or foundation; or, for other impervious surfaces, the removal down to bare soil, or base course, and replacement.

Redevelopment means the replacement or improvement of impervious surfaces on a developed site. Redevelopment occurs when existing facilities are demolished and rebuilt or substantially improved through reconstruction.

Responsible Party means the property owner or person authorized to act on the owner's behalf or any person causing or contributing to a violation of this Plan.

Runoff means 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.

Sediment means fragmented material that originates from weathering and erosion of rocks or unconsolidated deposits and is transported by, suspended in, or deposited by water.

Site means the area defined by legal boundaries of a parcel or parcels of land that is (are) subjected to new development or redevelopment. For road projects, the length of the project site and the right of way boundaries define the site.

Soil means naturally occurring surface deposits overlaying bedrock.

Source Control BMPs are a structure or operation intended to prevent pollutants from encountering stormwater through physical separation of areas or careful management of activities that are sources of pollutants. Source control BMPs are separated into two types: structural and operational. Structural source control BMPs are physical, structural, or mechanical devices or facilities that are intended to prevent pollutants from entering stormwater. Operational source control BMPs are nonstructural practices that prevent or reduce pollutants from entering stormwater. See Chapter 8 - Source Control for details.

Stabilization means the processes of establishing and preserving soil cover of vegetation, mulch, or other ground cover. In order to reduce the erosion process and the resultant transport of sediment to the maximum extent practicable.

Stormwater means runoff during and following precipitation and snowmelt events, including surface runoff, drainage, or interflow.

Stormwater Associated with Industrial and Construction Activity means the discharge from any conveyance used for collecting and conveying stormwater directly related to manufacturing, processing, or raw materials storage areas at an industrial plant, or associated with clearing, grading, and/or excavation, and required to have an NPDES permit in accordance with 40 CFR 122.26.

Stormwater Management Manual for Eastern Washington means the technical manual (Publication No. 18-10-044) published by the Department of Ecology in 2019.

Stormwater Management Program means a set of actions and activities designed to reduce the discharge of pollutants from the regulated MS4 to the maximum extent practicable and to apply all known, available, and reasonable methods of prevention, control, and treatment, to protect water

quality.

Stormwater Pollution Prevention Plan means a plan the city must develop and implement to protect water quality at each City-owned or operated facility not required to have coverage under the General NPDES Permit for Stormwater discharges Associated with Industrial Activities or another NPDES permit that covers stormwater discharges associated with the activity.

Surface Waters are all waters defined as "waters of the United States" in 40 CFR 122.2 that are within the boundaries of the state of Washington. This includes lakes, rivers, ponds, streams, inland waters, wetlands, ocean, bays, estuaries, sounds, and inlets. .

Total Maximum Daily Load (TMDL) means a calculation of the maximum amount of a pollutant that a water body can receive and still meet the water quality standards and an allocation of that amount to the sources of the pollutant. A TMDL (also known as a Water Cleanup Plan) is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources. The calculation must include a margin of safety to ensure that the water body can be used for the purposes the state has designated. The calculation must also account for seasonable variation in water quality. Water quality standards are set by states, territories, and tribes. They identify the uses for each water body, for example, drinking water supply, contact recreation (swimming), and aquatic-like support (fishing), and the scientific criteria to support those uses. The Clean Water Act, Section 303, establishes the water quality standards and TMDL programs.

Temporary Erosion and Sediment Control Measures means Erosion and sediment control devices used to provide temporary stabilization of a site—usually during construction or ground-disturbing devices are installed.

Trackout means depositing sediment onto paved surfaces from the wheels of vehicles.

Unlawful discharge means any direct or indirect pollutant discharge into surface water, groundwater, stormwater, or stream channel; or any direct or indirect pollutant discharge into the MS4.

Water Body means water bodies defined as surface waters of the state or waters defined as waters of the state under RCW chapter 90.48.020

Waters of the State means a five-tier classification system of water bodies set up by the state in the Forest Practices Rules and Regulations (WAC 222).

Water Quality Standards means minimum requirements of purity of water for various uses; levels or measures of water quality considered necessary to protect a beneficial use. In Washington State, Ecology establishes water quality standards.

APPENDICES

A-3 STORMWATER COLLECTION AND CONVEYANCE BMPs

A-4 ROADS, HIGHWAYS, AND PARKING LOT BMPs

A-5 VEHICLE FLEETS

A-6 MUNICIPAL BUILDINGS

A-7 PARKS AND OPEN SPACES

A-10 MATERIAL STORAGE AREAS

B REGULATED UIC EXHIBITS

C FACILITY AND STRUCTURE MAP

D INSPECTION FORMS

E DECANT FACILITY

F STREET SWEEPING ACTION PLANS

G SPILL RESPONSE PLAN

H CARTRIDGE FILTER O & M

I SILVA CELL O & M

J CDS UNIT O & M

K SWPPP – Euclid Maintenance Facility

APPENDIX A-3 – STORMWATER COLLECTION AND CONVEYANCE BMPS

- ✓ BMPs for Record Keeping
- ✓ BMPs for Site Inspections
- ✓ BMPs for Maintenance of Roadside Ditches
- ✓ BMPs for Maintenance of Drainage Systems and Runoff Treatment Facilities
- ✓ BMPs for Landscaping and Lawn/Vegetation Management
- ✓ BMPs for Irrigation
- ✓ BMPs for Decant Facility
- ✓ BMPs for Labeling Storm Drain Inlets
- ✓ BMPs for Maintaining Catch Basins
- ✓ BMPs for Maintaining Bioinfiltration Facilities
- ✓ BMPs for Maintaining Drywells
- ✓ BMPs for Correcting Illicit Connections to Storm Drains

BMPs FOR RECORD KEEPING

ADMINISTRATIVE APPROACH

Where inspections, monitoring, or recordkeeping are required, follow record-keeping requirements and retention schedules for the following reports, at a minimum:

Inspection Records (facility/structure specific)

- Inspection forms should include:
    - Time and date of the inspection,
    - Name of person conducting the inspection
    - Associated asset/facility inspected
    - Condition of facility inspected
    - Statement on status of compliance per maintenance BMPs
    - Summary report of any remediation activities required

- Retain inspection records in GIS database for minimum of five years.

Reportable Quantity

- Notifications are required to external government agencies for spills of oil or hazardous substances in greater than the reportable quantities identified in 40 CFR 302.4 and 40 CFR Part 117.
- Report to Ecology (509-329-3400) spills of antifreeze, oil, gasoline, or diesel fuel that may cause:
    - A violation of the Washington State water quality standards,
    - A film or sheen upon or discoloration of the waters of the state or adjoining shorelines, or
    - A sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines.
- Retain inspection records in department files for minimum of five years.
- See the City's IDDE Program Plan for spill response procedures.

ADDITIONAL RECOMMENDED RECORDKEEPING PROCEDURE

- Maintain records of all related pollutant control and pollution-generating activities, such as training, materials purchased, material use and disposal, maintenance performed, etc.
    - Training occurs (and records are updated) as assigned duties amongst staff change, as applicable new personnel are onboarded, and as otherwise required by the Permit.
    - Training refresher courses will be required annually.

BMPs FOR SITE INSPECTIONS

ADMINISTRATIVE APPROACH

City staff should conduct visual site inspections per the inspection schedule for each BMP type. Make and maintain a record of each inspection on-site. The following requirements apply to inspections:

- Site inspections should be conducted by someone familiar with the facility's site, operations, and BMPs.
- The inspector should assess the effectiveness of the existing stormwater facilities and associated BMPs in place. The inspector will evaluate the facilities to ensure compliance with original design intent and that it is operating in an acceptable manner that is compliant with Permit requirements.
- All inspections will be recorded using ArcGIS Fieldmaps in related table inspection records.

BMPs FOR MAINTENANCE OF ROADSIDE DITCHES

DESCRIPTION OF POLLUTANT SOURCES

Common roadway pollutants include eroded soil particles, motor vehicle fluids, heavy metals, microplasticts from tires, and plant debris.

POLLUTANT CONTROL APPROACH

Maintain roadside ditches to the original design conditions and use erosion and sediment control practices to minimize exposed soils and thinly vegetated ground.

Maintenance practices should provide for erosion and sediment control, see BMPs for Landscaping and Lawn/Vegetation Management.

Additional Regulations

Maintenance activities near critical areas may have additional regulatory and/or permit requirements. Consult with City of Spokane Valley planning department to determine if additional conditions apply. Examples include riverbanks, wetlands, steep slopes, or other designated critical areas.

APPLICABLE OPERATIONAL BMPS

Maintenance

- Inspect roadside ditches regularly to identify sediment accumulations and localized erosion.
- Clean ditches on a regular basis to keep them free of sediment accumulation and debris.
- Use temporary erosion and sediment control measures, or revegetate as necessary, when reshaping ditches.
- Maintain diversion ditches on cut slopes to retain their diversion shape and capability.
- Sweep, collect, and dispose of dirt and debris remaining on the pavement at the completion of ditch cleaning operations. Do not leave ditch cleanings on the roadway surfaces.
- Remove vegetation only when flow is blocked, or excess sediments have accumulated.
- If necessary, conduct ditch maintenance (seeding, fertilizer application, harvesting) in late spring and/or early fall to allow vegetative cover to establish by the wet season.
- Routinely examine culvert inlets and outlets for scour or sedimentation and repair as necessary.

Vegetation

- Do not apply fertilizer in ditches unless absolutely necessary for vegetative growth.
- Establish grass cover from edge of the roadway pavement to top of the slope of the ditch.
- Establish grass cover on the ditch slopes if possible.

Waste

- Screen materials recovered during ditch maintenance to separate soils from vegetative materials and litter and debris, if practical.
- Dispose of roadside vegetative matter at the Waste to Energy facility.
- Manage soils determined to be uncontaminated as fill material.
- Dispose of contaminated soils at a permitted solid waste landfill. Contact Waste Management Graham Road Landfill to determine disposal options and requirements.
- Manage sediment and debris contaminated by spills or releases of hazardous materials in accordance with the Dangerous Waste Regulations (Chapter 173-303 WAC).
    - Conduct analyte testing to identify substances.
    - Coordinate with an accredited or permitted waste management broker or facility.

BMPs FOR MAINTENANCE OF DRAINAGE SYSTEMS AND RUNOFF TREATMENT FACILITIES

Description of Pollutant Sources

Roadside catch basins, drainage pipes, vaults, oil and water separators, bioinfiltration swales, settling basins, and infiltration systems, among others, are designed to collect materials that inherently contaminants such as oil and grease, hydrocarbons, heavy metals, sediment and debris.

Pollutant Control Approach

Provide maintenance and cleaning of debris, sediments, and oil from drainage systems and runoff treatment BMPs for efficient pollutant removal.

Applicable Operational BMPs

- Inspect and clean runoff treatment BMPs, drainage systems, and catch basins on a routine frequency of 2 years or less, and assess if maintenance is required.
- Promptly repair any damage that compromises the structural integrity of stormwater treatment components such as catch basins, drywells, spillways, inlets, etc.
- Prevent heavy sediment discharges to the drainage system with upstream basins or that will drop out and retain sediment.
- Pump catch basins empty if the depth of sediment and debris is greater than 18" off the bottom, or greater than ½ the distance to the outlet pipe.
- Clear wood debris in a catch basin as frequently as needed to ensure proper operation of the catch basin.
- Post drain markers adjacent to all storm drain inlets when practical (see).
- Dispose of sediment recovered from the storm sewer system at the Spokane Regional Decant facility. **Note:** Disposal of sediments and liquids from catch basins must comply with Appendix 8-B: Management of Street Waste Solids and Liquids of the SWMMEW.
- Proprietary systems such as CDS, cartridge filter, silva cell, and filtera units follow the manufacturer's recommended operation and maintenance guidance as presented in Appendix G-I.

Additional Applicable BMPs

Depending on the pollutant sources and activities conducted at the facility, the following BMPs may be applicable:

- BMPs for Spill Response and Cleanup
- BMPs for Correcting Illicit Connections to Storm Drains
- BMPs for Urban Streets

BMPs FOR LANDSCAPING AND LAWN/VEGETATION MANAGEMENT

DESCRIPTION OF POLLUTANT SOURCES

Landscaping and lawn/vegetation management operations have the potential for excess nutrients from fertilizers and pesticides to be present due to weed control activities. Proper management of vegetation can minimize excess nutrients and pesticides, as well as exposed soils that can contribute to suspended solids in runoff.

POLLUTANT CONTROL APPROACH

Maintain appropriate vegetation to control erosion, the discharge of stormwater pollutants, and prevent debris contamination of stormwater. Grow plant species appropriate for the site or adjust the soil properties of the site to grow desired plant species.

APPLICABLE OPERATIONAL BMPS

Soils

- When necessary, amend soil to improve the infiltration and regulation of stormwater in landscaped areas.
- Aerate landscaping regularly when the soil tends to become compacted.
- Conduct aeration while the grasses in the landscape are growing most vigorously. Remove layers of thatch > 0.75 inches deep.
- In areas not designated as runoff treatment surfaces, use 2-4 inches of topsoil with ≥ 8% organic matter to provide a sufficient vegetation-growing medium.

Vegetation

- Maintain vegetative cover to prevent soil erosion. When vegetation is removed, apply mulch or other cover measures to prevent soil erosion.
- Select the right plants for the planting location based on soil conditions, sun exposure, water availability, height, sight factors, and space available.
- Select the appropriate turfgrass mixture for the climate and soil type.
- Certain tall fescues and rye grasses resist insect attack because the symbiotic endophytic fungi found naturally in their tissues repel or kill common leaf and stem- eating lawn insects.
- The fungus causes no known adverse effects on the host plant or humans.
- Tall fescues and rye grasses do not repel root-feeding lawn pests such as crane fly larvae.
- Dispose of vegetated waste (clippings, leaves, large branches) at a properly permitted waste management site; landscape material should not be disposed of in streams or stormdrains.
- Use the following seeding and planting BMPs in Chapter 7 - Construction Stormwater Pollution Prevention of the SWMMEW, or equivalent BMPs, to obtain information on grass mixtures, temporary and permanent seeding procedures, maintenance of a recently planted area, and fertilizer and pesticide application rates:
    - BMP for Temporary and Permanent Seeding
    - BMP for Mulching
    - BMP for Using Covering as Erosion Protection

- BMP for Sodding
- BMP for Fertilizer Applications
- BMP for Pesticide Applications

- Allow natural revegetation in suitable areas.
- Use manual and/or mechanical methods of vegetation removal rather than applying herbicides, where practical.
- Avoid loosening the soil during weed control.
- Do not blow waste into streets, storm drains, or ditches.
- Do not dispose of collected vegetation into receiving water or drainage systems.
- Use mulching type mowers or dispose of lawn clippings appropriately.
- Dispose of collected vegetation such as grass clippings, leaves, sticks by composting, or take it to a permitted waste disposal site.
- Return natural plant debris and mulch to the soil, to continue recycling nutrients indefinitely.
- Set the mowing height at the highest acceptable level and mow at times and intervals designed to minimize stress on the turf. Generally mowing only one-third of the grass blade height will prevent stressing the turf.
    - Mowing is a stress-creating activity for turfgrass.
    - The productivity of grass decreases when it is mowed too short and there is less growth of roots and rhizomes. The turf becomes less tolerant of environmental stresses, more disease prone, and more reliant on outside means such as pesticides, fertilizers, and irrigation to remain healthy.

Noxious Weeds

- Ensure that plants selected for planting are not on the Spokane County Noxious Weed List. It is recommended that all landscaping staff are familiar with common class A and B noxious weeds in Spokane County to help prevent and control spread.
- Remove, bag, and dispose of class A and B noxious weeds in the garbage immediately.
- Do not compost noxious weeds as it may lead to spreading through seed or fragment if the composting process is not hot enough.

Recommended Operational BMPs

- Conduct mulch-mowing whenever practicable.
- Use native plants in landscaping. Native plants do not require extensive fertilizer or pesticide applications. Native plants may also require less watering.
- As required, improve the permeability of the soil.

- Reduce the demand for fertilizers and pesticides.
- Prune trees and shrubs in a manner appropriate for each species.
- If specific plants have a high mortality rate, assess the cause, and replace with another more appropriate species.
- When working around and below mature trees, follow the most current American National Standards Institute (ANSI) A300 standards to the extent practicable (e.g., take care to minimize any damage to tree roots and avoid compaction of soil).
- Monitor tree support systems (stakes, guys, etc.) and take the following actions:
    - Repair and adjust as needed to provide support and prevent tree damage.
    - Remove tree supports after one growing season or maximum of 1 year.
    - Backfill stake holes after removal.
- When continued, regular pruning (more than one time during the growing season) is required to maintain visual sight lines for safety or clearance along a walk or drive, consider relocating the plant to a more appropriate location.
- Make reasonable attempts to remove and dispose of class C noxious weeds.
- Reseed bare turf areas until the vegetation fully covers the ground surface.
- Watch for and respond to new occurrences of especially aggressive weeds such as Himalayan blackberry, Japanese knotweed, morning glory, English ivy, and reed canary grass to avoid invasions.
- Plant and protect trees per BMP F6.62: Trees from SWMMEW.

Additional BMP Information

- The International Society of Arboriculture (ISA) is a group that promotes the professional practice of arboriculture and fosters a greater worldwide awareness of the benefits of trees through research, technology, and education. ISA standards used for managing trees, shrubs, and other woody plants are the A300 standards. The ANSI A300 standards are voluntary industry consensus standards developed by the Tree Care Industry Association and written by the Accredited Standards Committee.
- Washington State University's Gardening in Washington State web page (http://gardening.wsu.edu/) contains Washington State specific information about vegetation management based on the type of landscape.
- Washington State University County Extension offices, see the following website: http://extension.wsu.edu/locations/
- See the Pacific Northwest Plant Disease Management Handbook for information on disease recognition and for additional resources.

BMPs FOR IRRIGATION

Description of Pollutant Sources

Improper and excessive watering can lead to discharges of chlorinated water into drainage systems, cause erosion, leach nutrients from soil, boost mosquito populations, create pest problems, impact plant health, and/or make a lawn completely dependent on artificial watering.

Pollutant Control Approach

Limit the amount of water and place irrigation locations strategically to prevent offsite runoff.

Applicable Operational BMPs

- Inspect the irrigation system regularly to minimize excess watering and prevent the runoff of fertilizer.
- Limit irrigating to only mornings or evenings to conserve water.
- Monitor soil for moisture content and adjust irrigation times accordingly.
- Avoid exceeding the infiltration rate of the soil with irrigation and minimize the amount of water used.
- Maintain all irrigation systems so that water is evenly applied where it is needed.
- Minimize over spraying irrigation water so that excessive water does not discharge into the stormwater system.
- Inspect irrigated areas regularly for signs of overwatering, erosion, and/or runoff discharges.
- Strategically place sprinkler systems to minimize water sprayed on impervious surfaces.
- Repair broken or leaking sprinkler nozzles as soon as they are observed or reported.
- Appropriately irrigate lawns based on the species planted, the available water holding capacity of the soil, and the efficiency of the irrigation system.
- Lawns irrigated daily only root in the top 1 inch of soil.
- Lawns irrigated less frequently develop deeper roots and more resilient grass.
- Allow as much time as possible to water after applying fertilizer to minimize fertilizer runoff.
- Allow as much time as possible to water after applying pesticides to minimize pesticide runoff.
- Reduce frequency and/or intensity of watering for the wet season (October 1 to June 30).
- Deliver irrigation water where the plants root systems will receive the water accounting for slope, adjacent vegetation, obstacles, etc.

Recommended Operational BMPs

- Add a tree bag or slow-release watering device to newly installed trees instead of irrigation lines.
- Water infrequently and sufficiently focusing on wetting the top 6 to 12 inches of the root zone.
- Deliver water in pulses to enhance soil absorption.

- Use soaker hoses or spot water with a shower-type wand if an irrigation system cannot be installed.
- Water in stages with a light first pass to premoisten soil, followed by subsequent passes for deeper watering to increase soil absorption and allow more water to infiltrate.
- Identify drought-stresses of planted vegetation and water immediately after initial signs of stress appear (e.g., leaf wilt, leaf ageing, etc.).
- Water during drought conditions, if necessary, to maintain plant cover.
- Reduce irrigation frequency/intensity as appropriate after plant establishment and monitor and adjust watering as appropriate.
- Annually inspect irrigation systems to ensure the following:
    - Sprayer nozzles are rotating as appropriate.
    - Sprayer systems are still aligned with the plant locations and root zones.
    - There are no blockages of sprayer nozzles.
- Consult with the local water utility, conservation district, or Washington State University Extension office to help determine optimum irrigation practices.
- Do not use chemigation and fertigation in irrigation systems. This will help avoid overapplication of pesticides and fertilizers.

BMPs FOR DECANT FACILITY

Description of Pollutant Sources

Debris captured in roadway catchments becomes vactor waste when it is pumped by a vactor truck into a tank. Vactor waste typically contains stormwater pollutants similar to those found in street debris such as oil and grease, petroleum hydrocarbons, suspended solids, and heavy metals, etc. as is a potential source of stormwater contamination.

Pollutant Control Approach

Street debris is by design captured in roadway catchments, recovered by vactor trucks, dewatered at the decant facility, and landfilled when dry. See maps in Appendix E – Decant Facility for a site layout.

Applicable BMPs

Note: The Spokane Valley Regional Decant Facility is owned, operated, and maintained by the Washington State Department of Transportation.

Prohibited Discharges

Wastes specifically prohibited from being discharged at this Facility include, but are not limited to, waste collected from:

- Suspected of obviously contaminated sources
- Solid waste transfer stations
- Sites associated with the production of solvents, fuels, PCBs pesticides, or radioactive materials.
- Car wash processed water vaults.
- Non-authorized decant stations.
- Water treatment systems (filters, filter media, etc.)
- Concrete slurries
- Stormwater drainage systems with known or historic contamination
- Sewage or industrial lift stations
- Grease traps
- Sanitary sewer or septic systems

Features

- Automated gate access with vehicle tracking through radio-frequency identification
- Elevated dump wall to a lower tipping floor allows operators to quickly discharge liquids and solid debris, while keeping truck tires cleaner and tire tracking free of debris.
- Warming floors (Bays 1 & 2) allow loads to be dumped and dried during freezing weather.
- Water filling station – with frost free bib (Red valve located west of Bay 10)
- Suspect bay allows a load that is suspect to be quarantined until testing and proper disposal can be accomplished (Bay 1)
- Multiple stage treatment system for effective liquid and solids separation and disposal

Characterization of Materials in field

- Only debris from municipal and government storm drain systems are allowed at the Facility currently. No other debris is allowed.
- Operators shall not intentionally collect debris that have the following characteristics:
    - Obvious odors or heavy sheen of gasoline, solvents, or other petroleum products

- The presence of extremely acidic or alkaline materials and/or signs of chemical reaction.
- Material that does not look like or smell like typical liquids, sediment, or organic loading found in stormwater structures.

- If operators inadvertently collect non-stormwater materials or debris as outlined above, the operator shall immediately quit collecting the material and notify the inspector and supervisor of the situation and wait for instructions. Suspect debris may be taken to the Decant Facility's suspect load bay; however, this requires WSDOT approval.

Access

- See Appendix D for Facility Access and Traffic Flow Map
- All Eductor trucks are required to access the facility from the Montgomery Dr. automated gate.
- All vehicles accessing the facility must have a vehicle mounted "Radio-frequency identification" tag (RFID) from WSDOT facility personnel. The RFID opens the gate remotely and tracks use for billing purposes.
- Vehicles accessing the facility stop to the right side of the 24-foot-wide access gate and wait for the RFID system to recognize the vehicle's assigned RFID tag.
- Gate should start beeping and open within 5-10 seconds of stopping outside the gate. If it doesn't, contact the supervisor to report the problem. Facility personnel will be notified to assist with access issues.
- All eductor trucks are required to be inspected by facility personnel prior to receiving RFID.

Disposal

- After access, proceed south and back up the eductor truck into bays that do not have traffic cones placed.
- Ensure that the back end of eductor truck will clear wheel stops at top of dumping wall.
- Back truck such that tires are as close to wheel stops as possible.
- Dump debris onto the tipping floor.
- Use truck water to clean eductor vessel and seals.
- Ensure that cleaning water goes to tipping floor, not to facility storm drains in parking area.

Exit

- Proceed to Montgomery Drive access gate, stopping about 30 feet from gate (stop behind the West man-gate access).
- Sensors should automatically detect trucks and open the gate. Since the gate opens into the facility, if a vehicle is too close to the gate, sensors will not allow the gate to swing open.
- Gate will close after vehicle enters traffic on Montgomery Drive.

In the Event of:

- **Life threatening injury: Dial 911, facility location is 12116 E. Montgomery Drive.**
- Suspect load – Contact Inspector
  - Name – Russ Humphries (WSDOT)
  - Phone – 509-953-6566 (cell)

  and Contact City of Spokane Valley
  - Name – Chad Phillips (COSV)
  - Phone – 509-720-5013 (office)

  Note: only WSDOT authorized personnel allow the use of suspect load bay.
- **Vehicle Spill:** Utilize contents of spill kit to contain spill and keep from entering site storm drain system. Contact the Inspector for further instructions.
- **Other issues or concerns,** contact inspector as listed above.

BMPs FOR MAINTAINING CATCH BASINS

Description of Pollutant Sources

Catch basins act to trap roadway pollutants (oil and grease, petroleum hydrocarbons, suspended solids, and heavy metals, etc.) as stormwater enters the storm sewer system. Pollutants are removed when vactored and cleaning maintenance occurs.

Pollutant Control Approach

Routinely inspect and maintain catch basins to ensure catch basins maintain functionality and remove pollutants from the storm sewer system.

Applicable BMPs

Catch Basins

- Clear debris from top of cover and place into a bucket or remove with a vactor truck.
- Check condition of ring and cover for safety considerations and look for missing grates, unusual wear, cracks, chips ect. See *Table for Catch Basin Maintenance Criteria Inspections* on the next page for criteria.
- Inspect the catch basin infrastructure to ensure it is functioning properly. See *Table for Catch Basin Maintenance Criteria Inspections* on the next page for criteria.
- Inspect catch basin for signs of illicit discharges (i.e., pipes/hoses from business, oil, paints or color, smell, etc.)
    - Do not vactor if hazardous material is suspected and notify supervisor.
    - Conduct analyte testing to identify the substance of the material. Eurofins is a permitted service provider.
    - Wait for results from the permitted service provider before recovering the material.
- Dispose of the material appropriately depending on the analyte test results.
    - Non-hazardous – Vactor OF dispose in municipal solid waste dumpster.
    - Hazardous – coordinate with an accredited or permitted waste management broker or facility.
- Measure the amount of debris in basin. If depth of debris is 18" and greater or greater than ½ the distance to the outlet pipe, vactoring will be required. Vactoring can be done with debris depths less than 18" if decided by City stormwater staff.

Piping

- Inspect both incoming & outgoing pipes for debris and pipe condition.
    - If pipes need cleaned, indicate on inspection the inspection record in ArcGIS Fieldmaps.
    - Include issues/repairs needed for each basin
- Stormwater Staff with schedule pipes that need cleaning or repair.

Debris Disposal

- Drive to the decant facility when the vactor truck tank is full of debris and follow the BMPs for Decant Facility.

Table for Catch Basin Maintenance Criteria Inspections (Ecology)

Component	Issue	Maintenance Criteria	Maintenance Action
Catch Basin	Trash and Debris	Trash or debris that is located in front of the catch basin opening or is blocking flow to the basin	Remove the trash or debris located from in front of the catch basin or on grate opening
		Trash or debris is >18 inches deep, or greater than ½ the distance to the outlet pipe	Vactor the trash or debris from the catch basin
		Trash or debris is creating blockage in inlet/outlet pipe(s)	Remove trash or debris from Inlet/outlet pipe(s)
		Odorous organic matter, dead animals, etc. in the catch basin	Remove dead organic matter or dead animals from the catch basin.
	Sediment	Sediment and debris is >18 inches deep, or greater than ½ the distance to the outlet pipe.	Vactor the sediment and debris from the catch basin
	Structure Damage to frame or top slab	Top slab has large holes or cracks	Repair top slab holes and cracks with mortar, or replace
		Frame is significantly separated top slab, not flush or frame not securely attached	Adjust the frame so it is sitting flush on the riser rings or top slab and firmly attached. Replace if necessary
	Fractures or Cracks in Basin Walls/Bottom	Catchment structure is unsound/unsafe.	Repair the catch basin to design standards or replace
		Grout fillet has significantly separated or cracked at any joint, and/or soil is entering through the joints	Regrout the pipe and secure at basin wall
	Settlement/ Misalignment	Catchment structure is unsound/unsafe	Repair the catch basin to design standards or replace
	Vegetation	Vegetation is blocking the basin opening	Remove vegetation and unblock opening to basin
		Vegetation is growing in pipe joints	Remove vegetation or root growth from pipe joints
	Contamination and Pollution	There is evidence of oil, gasoline, contaminants or other pollutants	Recover any phase pollutants, and any impacted soil and dispose of properly
Catch Basin Cover	Cover Not in Place	Cover is missing or only partially in place	Adjust or replace catch basin cover so it is closed
	Locking Mechanism Not Working	Mechanism cannot be opened individually with proper tools	Repair or replace the mechanism so it opens with proper tools.
	Cover Difficult to Remove	Lid cannot individually be opened with normal lifting force	Repair or replace the lid so it can be removed by one maintenance person.

BMPs FOR MAINTAINING BIOINFILTRATION FACILITIES

Description of Pollutant Sources

Bioinfiltration/retention swales (swales) act to retain and treat stormwater pollutants (oil and grease, petroleum hydrocarbons, suspended solids, and heavy metals, etc.) as stormwater enters the facility and infiltrates into the subsurface.

Pollutant Control Approach

Routinely inspect and maintain swales to ensure they are functioning as designed and perform maintenance when required. One the following page, the *Table for Bioinfiltration Maintenance Criteria Inspections* contains the items that need to be inspected and maintained.

Applicable BMPs

General

- Inspect the components of the bioretention facility (inlets/outlets, piping, swale, drywell overflow, etc.) to assess if it is functioning as designed. See *Table for Bioinfiltration Maintenance Criteria Inspections* for inspection criteria.
- Inspect the components for signs of illicit discharges (i.e. oil sheen, discoloration, odor, dead grass, etc.).
    - Do not remove accumulated debris if hazardous material is suspected.
    - Notify supervisor.
    - Conduct analyte testing to identify the substance of the material. Eurofins is a permitted service provider.
    - Wait for results from permitted service provider before recovering the material.
    - Dispose of material appropriately, dependent on analyte testing.
        - Non-hazardous – dispose of in municipal solid waste dumpster.
        - Hazardous – coordinate with an accredited or permitted waste management broker or facility.
- Indicate on inspection form if any component of the bioretention facility needs maintenance.
    - Identify issues/repairs needed for each component.
    - Turn into supervisor for scheduling.

Inlets/outlets

- Inspect inlets/outlets to the bioinfiltration facility to include curb cuts, inlet pipes, outlet pipes, spillways, etc. for structural damage and debris accumulation.
    - If structural damage is present, indicate on inspection form to initiate schedule repair.
- Remove any built-up debris or overgrown vegetation from the inlets/outlets to include, ends of piping, concrete aprons, and sections of gutter immediately adjacent to inlets/outlets.
- Indicate on inspection form any structural damage that needs repair or pipes that need cleaning.

Swale Integrity

- Inspect swale area and assess if the swale is functioning by confirming the absence of signs of bypasses, flow channeling, erosion rills, sinkholes, standing water, etc.)
- Assess swale vegetation for the following:
    - Plant health
    - Vegetation is being mowed/trimmed regularly and not overgrown
    - Noxious weeds are absent
    - Minimal areas with thin vegetation or bare soil
- Remove any built-up debris from bottom of the swale.
- Trim/mow any overgrown vegetation inside the swale.
- Indicate on inspection form to have the swale repaired/modified if there are indications that the swale may not be draining properly.

Drywell Overflow

- Inspect drywell to determine if structurally sound and functioning:
    - No large cracks or significant separation from grate
    - No significant cracks or separation of grate from ring
    - Free of standing water
- Indicate on inspection form to have the drywell repaired/modified if there is significant structural damage.
- Measure amount of sediment and debris in drywell.
    - If sediment is >18" deep, vactor the sediment from the drywell.
    - Vactoring can be done with debris depths less than 18" if decided by City stormwater staff.

Record Keeping

- Complete inspection record in ArcGIS Fieldmaps
    - Include issues/repairs needed for each component of a facility.
    - Stormwater Staff will schedule for maintenance if needed.

Table for Bioinfiltration Maintenance Criteria Inspections (Ecology)

Components	Issue	Maintenance Criteria	Maintenance Actions
Inlets/Outlets	Clogs/Blockages	Inlets/outlets clogged with sediment and/or debris	Remove material so that there is no clogging or blockage in the inlets and outlets.
	Sediment Accumulation	Sediment depth > 1 inch	Remove sediment deposits from in front of inlet and from the apron.
	Vegetation Overgrowth	Grass or weeds blocking inlets/outlets	Remove blocking vegetation form in front of inlet or from apron so that water can enter the swale.
Swale	Sediment Accumulation	Sediment depth > 2 inches	Remove sediment deposits from the swale including the apron, toe of apron, and grassy bottom.
	Standing Water	Standing water between storms	Remove sediment, buildup, improve grade of swale bottom, and/or add underdrains.
	Constant Flow	Continuous stream of water flowing into swale	Add a pea-gravel drain the length of the swale, or by-pass the base flow around the swale.
	Poor Vegetation Coverage	Sparse grass, or bare or eroded patches in the bottom of swale	Determine why grass growth is poor and correct that condition. Prepare soil and reseed, lay sod, or plant other vegetation.
	Vegetation	Grass/vegetation excessively tall, nuisance vegetation/weeds	Mow/trim vegetation and remove nuisance weeds. Grass should be mowed to a height of 3 to 4 inches, and vegetation trimmed.
	Excessive Shading	Poor vegetation growth and/or bare areas	Trim back overhanging limbs if allowable, remove shade causing vegetation, and/or replant with shade tolerant vegetation.
	Trash/Debris	Trash and debris accumulation	Remove trash and debris from biofiltration swale.
	Erosion/ Scouring	Eroded or scoured swale bottom, or flow channeling from high flows	Fill in with crushed gravel or engineered soil, or regrade and reseed the swale, if significant.
Drywell	Plugged drywell	Standing water 24 hours after storm	Remove sediment, rehab drywell, or replace drywell
	Sediment Accumulation	Sediment in the basin > 18 inches deep	Remove sediment deposits from in front of inlet and from the apron.
	Vegetation Overgrowth	Grass or weeds blocking drywell grate	Remove blocking vegetation.
	Structural Damage	Large cracks in top ring of drywell barrel allowing soil to enter	Repair cracks with mortar or replace drywell
		Large cracks on the walls or floor of barrel allowing soil to enter	Repair cracks with mortar or replace drywell
	Separated Grate	Metal grate separated from drywell ring > 1 inch	Repair or replace metal grate

BMPs FOR MAINTAINING DRYWELLS

Description of Pollutant Sources

Drywells assist with flow control of stormwater and have the potential to be impacted by stormwater pollutants (oil and grease, petroleum hydrocarbons, suspended solids, and heavy metals, etc.) as stormwater enters the drywell and infiltrates into the subsurface.

Pollutant Control Approach

Routinely inspect and maintain drywells to ensure they are functioning as designed and perform maintenance when required. The Table for Bioinfiltration Facility Inspections contains the items that need to be inspected and maintained.

Applicable BMPs

Inspection

- Inspect drywell to determine if structurally sound and functioning:
    - No large cracks or significant separation from grate.
    - No significant separation of grate from ring.
    - Free of standing water.
    - Submit a work order to supervisor to have the drywell repaired/modified if there is significant structural damage.
- Inspect the components for signs of illicit discharges (i.e. oil sheen, discoloration, odor, dead grass, etc.):
    - Do not remove accumulated debris if hazardous material is suspected, notify supervisor.
    - Conduct analyte testing to identify the substance of the material. Eurofins is a permitted service provider.
    - Wait for results from permitted service provider before recovering the material.
    - Dispose of the material appropriately, dependent on the results of the analyte testing.
        - Non-hazardous – dispose in municipal solid waste dumpster.
        - Hazardous – coordinate with an accredited or permitted waste management broker or facility.

Maintenance

- Measure amount of sediment and debris in drywell.
    - If sediment is >18” deep, vactor the sediment from the drywell.
    -

Record Keeping

- Complete an inspection record using ArcGIS FieldMaps
    - Include issues/repairs needed for each component of a facility.
- Inspection records will be reviewed annually and scheduled for maintenance with the following storm drain cleaning contract or with other repair schedules depending on the type of work/repairs required.

BMPs FOR CORRECTING ILLICIT CONNECTIONS TO STORM DRAINS

See the city's IDDE Program Plan for the city-wide plan for correcting illicit connections to storm drains.

DESCRIPTION OF POLLUTANT SOURCES

Illicit connections are unpermitted sanitary or process wastewater discharges to a storm drain or to surface water, rather than to a sanitary sewer, municipal process wastewater, or other appropriate facilities. They can also include swimming pool water, filter backwash, cleaning solutions and/or washwaters, cooling water, etc.

POLLUTANT CONTROL APPROACH

Identify and eliminate unallowable discharges per the Eastern Washington Phase II Municipal Stormwater permit and chapter 22.150.110 SVMC.

APPLICABLE OPERATIONAL BMPS

- Eliminate unpermitted wastewater discharges to storm drains, ground water, or surface water.
- Convey unpermitted discharges to a sanitary sewer if allowed by the local sewer authority, or to other approved treatment.
    - Obtain appropriate state and local permits for these discharges.

RECOMMENDED OPERATIONAL BMPS

At facilities with commercial and/or municipal operations activities, conduct a survey of wastewater discharge connections to storm drains and to surface water as follows:

- Generate a map of the area showing the known location of:
    - Storm drains
    - Sanitary Sewers
    - Non-stormwater discharges
    - Known side sewer connections.
- Conduct a field survey of the site to locate storm drains from buildings and paved surfaces, noting where these join the public storm drain(s).
    - Inspect each storm drain for non-stormwater discharges when in dry weather and record the locations of all non-stormwater discharges.
    - Use Closed Circuit Television (CCTV) inspections, dye tests, or chemical analysis to detect connections between two conveyance systems (e.g., process water and stormwater).
- Confirm the connections from the field survey with the map and revise accordingly.
- Identify all connections to storm drains or to surface water and take the actions specified above as applicable BMPs.

APPENDIX A-4 – ROAD, HIGHWAYS, AND PARKING LOTS BMPS

- ✓ BMPS for Recordkeeping
- ✓ BMPS for Preventive Maintenance/Good Housekeeping
- ✓ BMPs for Spill Response and Cleanup
- ✓ BMPs for Urban Streets
- ✓ BMPs for Streets and Highways
- ✓ BMPs for Repairing Asphalt Pavement
- ✓ BMPs for Snow and Ice Removal from Roadways

BMPs FOR RECORDKEEPING

ADMINISTRATIVE APPROACH

Where inspections, monitoring, or recordkeeping are required, follow record-keeping requirements and retention schedules for the following reports, at a minimum:

Maintenance and Repair

- Maintenance Reports should include:
    - Time and date of the maintenance.
    - Location of maintenance.
    - Condition of facility inspected,
    - Statement on status of compliance per maintenance BMPs,
    - Summary report of any remediation activities required, and
    - Name of person conducting the work.

- Retain maintenance and repair records in department files for a minimum of five years.

Sweeping

- Sweeping report should include:
    - Time and date of sweeping,
    - Location/limits of sweeping,
    - Type of sweeper used.

Reportable Quantity

- Notifications are required to external government agencies for spills of oil or hazardous substances in greater than the reportable quantities identified in 40 CFR 302.4 and 40 CFR Part 117.
- Report to Ecology (509-329-3400) spills of antifreeze, oil, gasoline, or diesel fuel that may cause:
    - A violation of the Washington State water quality standards,
    - A film or sheen upon or discoloration of the waters of the state or adjoining shorelines, or
    - A sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines.
- Retain inspection records in department files for a minimum of five years.
- See Appendix F for spill response documents.

ADDITIONAL RECOMMENDED RECORD-KEEPING PROCEDURE

- Maintain records of all related pollutant control and pollution-generating activities, such as training, materials purchased, material use and disposal, maintenance performed, etc.
    - Training occurs (and records are updated) as assigned duties amongst staff change, as applicable new personnel are onboarded, and as otherwise required by the Permit.

BMPs FOR PREVENTIVE MAINTENANCE/GOOD HOUSEKEEPING

DESCRIPTION

Preventive maintenance and good housekeeping practices reduce the potential for stormwater to come into contact with pollutants and can reduce maintenance intervals for the drainage system.

APPLICABLE BMPS

- Prevent the discharge of unpermitted liquid or solid wastes, process wastewater, and sewage to ground water or, or to storm drains that discharge to the ground.
- Schedule use of wet materials that have a drying time requirement on days when it is unlikely to rain.
- Promptly contain and clean up solid and liquid pollutant leaks and spills, including oils, solvents, fuels, and dust from manufacturing operations on any publicly owned, operated, or maintained exposed soil, vegetation, or paved area. **See BMPs for Spill Response and Cleanup.**
- Parking lot washwater should be discharged per the following (prioritized) methods:
    1. Discharge to sanitary sewer with approval from Spokane County.
    2. Contain and collect washwater for off-site disposal at an appropriate facility.
    3. Discharge to a runoff treatment BMP (bio-inflitration and/or if applicable oil separator).
    4. Discharge to a landscaped, grassy ground surface, or dirt area where the washwater can soak into the ground or evaporate.
- Do not pave over contaminated soil unless it has been determined that ground water has not been and will not be contaminated by the soil. Call the Washington State Department of Ecology Eastern Regional Office for assistance at 509-329-3400.
- Construct impervious areas that are compatible with the materials handled. Portland cement concrete, asphalt, or equivalent material should be considered.

BMPs FOR SPILL RESPONSE AND CLEANUP

See for information on both hazardous and non-hazardous spill response and cleanup plans.

BMPs FOR URBAN STREETS

Description of Pollutant Sources

Urban streets collect vegetative debris, paper, fine dust, petroleum hydrocarbons, tire and break wear residues, heavy metals (lead and zinc), sand, soil particles, ice control salts, domestic wastes, lawn chemicals, and vehicle combustion products, among others, that contaminate stormwater and are a result of human activities, including vehicle traffic.

Pollutant Control Approach

Regenerative and mechanical street sweepers are regularly used to recover the variety of roadway pollutants from city arterials and residential streets in order to minimize the discharges of runoff pollution. Do not directly wash street debris into storm drains.

Recommended BMPs

Street Sweepers

- Conduct street sweeping operations per sweeping action plans in **Appendix F – Street Sweeping Action Plans**.
- Use regenerative air sweepers and mechanical sweepers to recover street debris from curbed streets operated in series behind water trucks that are used to control fugitive dust.
- Limit the amount of water applied to the roadway to only what is necessary to manage fugitive dust to minimize discharges of street debris laden water into catch basins.
- Reduce the amount of dust control water applied to the roadway if a significant amount of water is observed entering catch basin inlets.
- When practical, use tandem sweeping operations with a mechanical sweeper followed by a regenerative sweeper for moderate increases in stormwater pollutant recoveries.
- Coordinate with event planners to promptly sweep streets after large or special events that will generate higher than normal amounts of roadway pollutants.

Disposal of Street Wastes

"Street wastes" are the street debris recovered from roadways and parking lots via sweeping. Street waste is generated upon recovery of street debris by street sweepers to include the associated dust control water.

Street Sweeper Street Waste

- Transport and temporarily store sweeping debris at approved transfer station location (11202 E. Mission Ave.).
- Allow sufficient time for the street debris solids to dry.
- Once dried, dispose of street debris solids at approved and permitted Waste Management – Graham Road Landfill located at 1820 S. Graham Road, Medical Lake, WA 99022.
- Contact Waste Management – Graham Road Landfill if the street waste generated is suspected of having higher than normal levels of contaminants to determine the appropriate management approach for the materials.

Note: Additional information and details on the disposal of street wastes is contained in the Stormwater Management Manual for Eastern Washington Appendix 8-B: Management of Street Waste Solids and Liquids.

BMPs FOR STREETS AND HIGHWAYS

Description of Pollutant Sources

This section is only applicable to the maintenance and deicing/anti-icing of streets and highways. Overuse, leaks, and spills of deicing products provides the potential for them to be conveyed to inlets/catch basins or receiving waters during storm events. Equipment and processes used during maintenance operations can contribute pollutants such as oil and grease, suspended solids, turbidity, high pH, and metals.

Pollutant Control Approach

Apply good housekeeping practices, perform preventive maintenance, properly train employees, and use materials that cause less adverse effects on the environment.

Applicable BMPs

Deicing And Anti-Icing Operations

- Select deicing and anti-icing chemicals that cause the least adverse environmental impact. Apply only as needed using minimum quantities.
- Where feasible and practicable, use roadway deicing chemicals that cause the least adverse environmental impact.
- Adhere to manufacturer's guidelines and industry standards of use and application.
- Store and transfer deicing/anti-icing materials on an impervious containment pad in accordance with BMPs for Outdoor Storage or Transfer of Materials.
- Sweep/clean up accumulated deicing/anti-icing materials and grit from roads as soon as practicable after the road surface clears.
- Minimize use in areas where runoff or spray from the roadway immediately enters sensitive areas, such as fish-bearing streams.

Recommended BMPs

- Intensify roadway cleaning in early spring to help remove particulates from road surfaces.
- Include limits on toxic metals in the specifications for deicing/anti-icing chemicals.
- Research admixtures (e.g., corrosion inhibitors and surfactants) to determine what additional pollutants may be an issue. Verify with the local jurisdiction if there are any restrictions on admixtures.
- Install catch basin inserts to collect excess sediment and debris as necessary.
- Inspect and maintain catch basin inserts to ensure they are working correctly.

BMPs FOR REPAIRING ASPHALT PAVEMENT

Description of Pollutant Sources

Asphalt and asphalt repair materials have toxic chemicals and petroleum hydrocarbons that have the potential to impact stormwater before drying or curing.

Pollutant Control Approach

Make asphalt repairs adhering to the below stormwater BMPs.

Applicable BMPs

Crack Sealant

- Avoid applying crack sealant to street pavements during wet weather events.
- Use as little oil flow as possible when cleaning machinery.
- Dispose of dirty rags in the dumpster or flammable material waste container, as appropriate.
- Pump material into source bucket when clearing hoses, or directly into dumpsters.
- Use care to keep crack sealant out of storm drains.
- Recycle cardboard tar containers.

Asphalt Repair, Paving, and Bridge Maintenance

- Use care to keep asphalt materials and waste from storm drains during grind and overlay projects and utility cuts, including on bridges.
- Minimize the area of soils left exposed or graded and stabilize soils when finished. See Chapter 8 - CONSTRUCTION ACTIVITIES -Small Construction Projects.
- Collect any loose sand, gravel, asphalt, or other material as soon as possible after construction activities.
- Mix road stabilization materials during periods of calm, dry weather, and seal as soon as possible after dressing.
- Fill and compact soil, gravel, and asphalt in layers.
- Reuse road spoil in repairs if possible and sweep up and dispose of properly.
- Eliminate 'edge break' by fully sealing road shoulders.
- Dispose of all residual materials appropriately.

BMPs FOR SNOW AND ICE REMOVAL FROM ROADWAYS

DESCRIPTION OF POLLUTANT SOURCES

Urban streets collect petroleum hydrocarbons, tire and break wear residues, heavy metals (lead and zinc), sand, soil particles, ice control salts, domestic wastes, and vehicle combustion products, among others, and snow and ice removed from roadways contains these pollutants and has the potential to contaminate stormwater.

POLLUTANT CONTROL APPROACH

Plows are regularly used to remove snow from city streets, and deicers are routinely used to minimize the formation of ice on roadways. This requires careful consideration when siting snow disposal locations and responsible use of deicers to avoid overapplication.

APPLICABLE BMPS

Snow removal

- Remove accumulated roadway pollutants (i.e. sediments, sand, trash and road salts) from snow storage areas when the snow has melted. **See BMPs for Urban Streets**
- Snow storage areas should be maintained prior to snow season to minimize the erosion potential.
- Do not dispose of snow & ice in wetlands, creeks, and other waterways.
- In parking lots, most protective to choose grassy areas without drywells to dispose of snow.
- In parking lots, avoid storing snow on top of storm drains and drywells.

Deicers and Sands

- Apply deicers and sands to roadways in the winter carefully to ensure that the materials are placed on the pavements where they are intended to perform, and they remain in place.
- Avoid overapplication of road salts, liquid deicers, and sand.
- Limit the use of deicers and sand to only locations where they are necessary to create safer driving conditions.
- Recover deicer salts and sands from the roadway after winter and manage as a waste material.
- Include a cover and containment with bulk storage of deicer salts and sands and follow the BMPs for the Outdoor Storage or Transfer of Materials document.
- Periodically inspect bulk storage areas for signs of failure.
- Use deicers without phosphorus as a chemical component.
- Ensure that all equipment is calibrated to optimum levels according to manufacturer's instruction.

APPENDIX A-5 – VEHICLE FLEETS

- ✓ BMPs for Parking and Storage of Vehicles and Equipment
- ✓ BMPs for Washing and Steam Cleaning Vehicles, Equipment, and Building Structures
- ✓ BMPs for Maintenance and Repair of Vehicles and Heavy Equipment
- ✓ BMPs for Dedicated Fueling Stations
- ✓ BMPs for Mobile Fueling of Vehicles and Heavy Equipment

BMPS FOR PARKING LOTS AND STORAGE OF VEHICLES AND EQUIPMENT

DESCRIPTION OF POLLUTANT SOURCES

Toxic hydrocarbons and other organic compounds, including oil and grease, metals, and suspended solids can collect on parking lots that store vehicles.

POLLUTANT CONTROL APPROACH

Implement appropriate oil management techniques and oil removal structure and/or facilities for stormwater runoff from parking areas that are high-use sites as defined in the *Spokane Regional Stormwater Manual.*

APPLICABLE BMPS

- Park vehicles and equipment indoors if possible.
- Sweep parking lots, storage areas, and driveway periodically to collect dirt, waste, and debris.
- Clean up vehicle and equipment fluid drips and spills immediately.
- Place drip pans below inoperative or leaking vehicles and equipment in a manner that catches leaks or spills.
- Parking lot washwater should be discharged per the following (prioritized) methods:
    1. Discharge to sanitary sewer with approval from Spokane County.
    2. Contain and collect washwater for off-site disposal at an appropriate facility.
    3. Discharge to a runoff treatment BMP (bio-inflitration and/or if applicable oil separator).
    4. Discharge to a landscaped, grassy ground surface, or dirt area where the washwater can soak into the ground or evaporate. Use cold, low-pressure water containing no soaps, emulsifiers, or detergents.
- Do not hose down a parking lot to a storm drain.
- Remove liquids from vehicles before retiring for scrap.

RECOMMENDED OPERATIONAL BMPS

- Encourage repair of leaking personal vehicles.
- Encourage carpooling or use public transit through incentives.
- Install catch basin inserts to collect excess sediment and oil if necessary. Inspect and maintain basin inserts to ensure they are working correctly.

APPLICABLE RUNOFF TREATMENT BMPS

- Install oil control BMPs at high-use sites if:
    - Non-employee parking areas of commercial or industrial sites with trip ends greater than 100 vehicles per 1,000 s.f. gross building area or greater than 300 total trip ends.
    - Any parking area with an expected ADT counts equal to or greater than 30,000.

For the above sites, oil separator is defined as removing the oil from stormwater inflow in a step separate from any other pollutant removal via BMPs such as a coalescing plate or baffle-type oil control mechanism.

BMPS FOR WASHING AND STEAM CLEANING VEHICLES, EQUIPMENT, AND BUILDING STRUCTURES

DESCRIPTION OF POLLUTANT SOURCES

Washwater generated during cleaning of vehicles, equipment, buildings, etc. contains the pollutants that have been removed from being cleaned, in addition to any additives added to the water to aid in cleaning (i.e. detergents), and it has the potential to contaminate stormwater with oil and grease, suspended solids, heavy metals, soluble organic chemicals, soaps, and detergents, among others.

POLLUTANT CONTROL APPROACH

Washwater that contains stormwater contaminants and/or detergents should be managed via containment, recovery, and discharge into sanitary sewer system, while minimizing discharges to the ground, to a storm drain, or directly to surface water. Washwater that does not contain detergents that is used to clean non-pollution generating surfaces may be conditionally allowed to be discharged to ground.

REGULATORY CONDITIONS

Discharges to the sanitary sewer will require approval from Spokane County.

Facilities that are unable to discharge to the sanitary sewer system may discharge washwater to the ground under limited circumstances with approval from Stormwater Utility.

The quality of any discharge to ground must comply with the Washington State Department of Ecology Water Quality Standards for Ground, Chapter 173-200 WAC, and may require treatment.

Appropriate treatment methods and thresholds are presented in the *Vehicle and Equipment Washwater Discharges/Best Management Practices Manual.*

Stormwater that commingles with processed wastewater (contaminated washwater) is regulated as a wastewater.

APPLICABLE STRUCTURAL SOURCE CONTROL BMPS

Vehicle/equipment Washing Location

- Conduct vehicle/equipment washing on one of the following locations:
    - At a commercial washing facility in which the washing occurs in an enclosure and drains to sanitary sewer,
    - In a building constructed specifically for washing vehicles and equipment, which drains to a sanitary sewer or other approved facility.

Outdoor Washing Station Design

- Conduct outdoor washing in a designated and controlled wash area as detailed in the below conditions:
    - Construct a containment pad with sidewalls or other structural barriers to contain the washwater and prevent stormwater run-on to the area.
    - Slope the containment pad floor so that washwater drains to a collection system of perimeter drains, trench drains, catchment drains, or similar.

- Size the containment pad to extend out roughly 4 feet on all sides of the items to be washed.
- Install an inlet valve on the containment's discharge pipe, and keep it closed when washing is not occurring to prevent non-washwaters from entering sanitary sewers.
- Clean the washwater from the containment pad to a sump or grit separator that discharges to the sanitary sewer with prior approval from Spokane County.
    - Install a positive control outlet valve on the containment sump for spill control with live containment volume and oil and water separation.
    - Size the minimum live storage volume to contain the maximum expected daily washwater flow plus volume below the outlet pipe for sludge and sediment.
    - Keep the outlet valve closed during the washing cycle to collect the washwater in the sump. The valve should remain shut for > 2 hours following the washing operation to allow the oil and solids to separate before discharge to the sanitary sewer.

Building Washing

- Collect the washwater from building structures and convey it to appropriate treatment, such as a sanitary sewer system if it contains oils, soaps, or detergents.
- Low-pressure, clean, cold washwater rinses may drain to ground with established vegetation.
- Isolate roof drains or drainage systems when cleaning roof equipment and/or hood vents to ensure that no washwater or process water is discharged to stormwater system.
- Label all mobile cleaning equipment: "Do not discharge washwater to an inlet/catch basin, ditch, stream, or on the ground."

Recommended BMPs

- Mark the wash area where equipment and/or vehicles are typically washed.
- Minimize the use of water and detergents in washing operations when practical.
- Use phosphate-free biodegradable detergents.
- Use the least hazardous cleaning products available.
- Recycle the washwater when feasible.
- Use a treatment technology appropriate for emulsified and water-soluble detergents, other than oil water separators, if detergents are in the washwater.

BMPS FOR MAINTENANCE AND REPAIR OF VEHICLES AND EQUIPMENT

APPLICABLE RUNOFF TREATMENT BMPS

- Convey contaminated stormwater runoff from vehicle staging and maintenance areas to a sanitary sewer with prior approval from Spokane County.
- Alternatively, convey contaminated stormwater to a coalescing plate oil and water separator followed by a basic treatment structural BMP, applicable filter, or other equivalent oil treatment system. See Chapter 6 – Water Quality Treatment Design of the *SRSM* or Chapter 5 – Runoff Treatment BMP Design of the *SWMMEW* for detailed guidance information on basic treatment.

RECOMMENDED OPERATIONAL BMPS

- Store damaged vehicles inside a building or other covered containment, until successfully removing all liquids.
- Clean parts with aqueous detergent-based solutions on non-chlorinated solvents such as kerosene or high-flash mineral spirits, and/or use wire brushing or sand blasting whenever practical.
- Choose cleaning agents that can be recycled.
- Avoid using toxic liquid cleaners such as methylene chloride, 1,1,1-trichloroethane, trichloroethylene, or similar chlorinated solvents.
- Inspect all BMPs regularly, particularly after a significant storm. Identify and correct deficiencies to ensure that the BMPs are functioning as intended.
- Avoid hosing down work areas. Use dry methods for cleaning leaked fluids.
- Recycle grease, used oil, oil filters, antifreeze, cleaning solutions, automotive batteries, hydraulic fluids, transmission fluids, and engine oils at a certified Solid Waste recycling facility.
- Do not mix dissimilar or incompatible waste liquids stored for recycling.
- See the Washington State Department of Ecology's Hazardous Waste and Toxics Reduction Program for additional information on recycling or disposal of vehicle waste liquids and other waste materials.

SEE OTHER BMPS

- BMPs for Washing and Steam Cleaning Vehicles/Equipment/Building Structures
- BMPs for Storage of Liquids in Permanent Above Ground Tanks
- BMPs for Storage or Transfer (Outside) of Solid Raw Materials, By-Products, or Finished Products

BMPS FOR DEDICATED FUELING STATIONS

DESCRIPTION OF POLLUTANTS

A fueling station is a facility dedicated to the transfer of fuels from a stationary pumping station to mobile vehicles or equipment. It includes aboveground or underground fuel storage facilities. City vehicles typically fuel at general service gas stations.

Typical causes of stormwater contamination at fueling stations include leaks/spills of fuels, lubrication oils, radiator coolants, and vehicle washwater.

POLLUTANT CONTROL APPROACH

New or substantially remodeled fueling stations must be constructed on an impervious concrete pad under a roof to keep out rainfall and stormwater run-on. The facility must use a runoff treatment BMP for contaminated stormwater and wastewaters in the fueling containment area.

APPLICABLE OPERATIONAL BMPS

Dispensing Fuel

- Understand the fueling system prior to dispensing fuel.
- Avoid “topping off” of fuel tanks.
- Do not leave vehicles or equipment unattended while fueling.
- Use a funnel when fueling containers.

BMPS FOR MOBILE FUELING OF VEHICLES AND HEAVY EQUIPMENT

DESCRIPTION OF POLLUTANT SOURCES

Pollutants of concern from the practice of fueling equipment and/or vehicles on the job site from a mobile fueling truck (e.g. mobile fueling, fleet fueling, wet fueling, or wet hosing) are the fuels that are being transferred (i.e. gasoline, diesel, etc.) Diesel fuel is categorized as a Class ll combustible liquid, whereas gasoline is categorized as a flammable liquid (49 CFR 173.2).

POLLUTANT CONTROL APPROACH

Train fueling operators on the spill/drip control and fuel transfer procedures and require the use of spill control procedures.

APPLICABLE OPERATIONAL BMPS

Regulatory

- Contact the Spokane Valley Fire Department to ensure the mobile fueling operations complies with local and Washington State fire codes.

Operations

- Located the point of fueling > 25 feet from the nearest storm drain or inside an impervious containment with a volumetric holding capacity of > 110% of the fueling tank volume. Surfaces that are meant to convey spills/releases must be impervious and in good repair.
- Cover the storm drain to ensure no inflow of spilled or leaked fuel. Covers are not required for storm drains plumbed to a spill control separator.
- Place a drip pan or an absorbent pad under each fueling location prior to, and during, all dispensing operations. The pan and absorbent pad must have a capacity of > 5 gallons. There is no need to report spills retained in the drip pan or the pad.
- Handle and operate fuel transfer hoses and nozzles, drip pans, and absorbent pads to prevent spills/leaks of fuel from reaching the ground and storm drains.
- Avoid extending the fueling hoses across a traffic lane without fluorescent traffic cones, or equivalent devices, conspicuously placed to prevent all traffic from crossing the fuel hose.
- Remove the fill nozzle and cease filling the tank when the automatic shutoff valve engages.
- Do not “top off” the fuel receiving equipment.
- Use automatic shutoff nozzles for dispensing fuel.
- Maintain and replace equipment on fueling vehicles, particularly hoses and nozzles, at established intervals to prevent failures.
- Provide the driver/operator of the fueling vehicle with the following:
    - Adequate flashlights or other mobile lighting to view fuel fill openings with poor accessibility. Consult with the local fire department for additional lighting requirements.
    - Two-way communication with home base.

Procedures

- Train the driver/operator annually in spill prevention and cleanup measures and emergency procedures, to include awareness of the significant liability associated with fuel spills.

- Seek signature from the responsible manager for mobile refueling operations.
- Distribute operations to the operators, retain them in the organization files, and make them available in the event an authorized government agency requests a review.

Response

- In all fueling vehicles, maintain a minimum of the following spill cleanup materials:
    - Non-water-absorbents capable of absorbing > 15 gallons of fuel.
    - A storm drain plug or cover kit.
    - A non-water-absorbent containment boom of a minimum 10 feet in length with a 12-gallon minimum absorbent capacity.
    - A non-spark generating shovel.
    - Two 5-gallon buckets with lids.
- Establish a “call down list” with contact numbers for city leadership, government agencies for significant unplanned events, and keep the list in a protected but readily accessible location in the fueling truck.
- Identify spill response contractors available in the area to ensure quick response and recovery of spill.
- Immediately notify the local fire department (911) and the Washington State Department of Ecology Eastern Regional Office in the event of any spill entering surface of ground waters.
- Do not use dispersants to clean up spills or sheens.
- Immediately remove and properly dispose of soils with visible surface contamination to prevent the spread of chemicals to ground water or receiving water via stormwater runoff.

APPENDIX A-6 - MUNICIPAL BUILDINGS

- ✓ BMPs for Preventive Maintenance/Good Housekeeping
- ✓ BMPs for Waste Management and Disposal
- ✓ BMPs for Washing Vehicles, Equipment, and Building Structures – **See Appendix A-5**
- ✓ BMPs for Building Repair, Remodeling, Painting, and Construction
- ✓ BMPs for Landscaping and Lawn/Vegetation Management – **See Appendix A-3**
- ✓ BMPs for Spill Response and Cleanup – **See Appendix A-4**
- ✓ BMPs for Snow and Ice Removal in Parking Areas

BMPS FOR PREVENTIVE MAINTENANCE/GOOD HOUSEKEEPING

DESCRIPTION

Preventive maintenance and good housekeeping practices reduce the potential for stormwater to come into contact with pollutants and can reduce maintenance intervals for the drainage system.

APPLICABLE BMPS

- Prevent the discharge of unpermitted liquid or solid wastes, process wastewater, and sewage to ground water or to storm drains that discharge to the ground.
- Schedule use of wet materials that have a drying time requirement on days when it is unlikely to rain.
- If a contaminated surface must be pressure washed, contain, collect, and discharge per the following (prioritized) methods:
    1. Discharge to sanitary sewer with approval from Spokane County.
    2. Contain and collect washwater for off-site disposal at an appropriate facility.
    3. Discharge to a runoff treatment BMP (bio-inflitration and/or if applicable oil separator).
    4. Discharge to a landscaped, grassy ground surface, or dirt area where the washwater can soak into the ground or evaporate.
- Sweep all appropriate surfaces (i.e. paved material handling and storage areas) with vacuum sweepers, as needed, for the collection and disposal of dust and debris that could contaminate stormwater.
- Construct impervious areas that are compatible with the materials handled. Portland cement concrete, asphalt, or equivalent should be considered.
- Pollutant sources should be stored in containers that are rigid and durable, corrosion resistant to the weather and fluid content, nonabsorbent, watertight, rodent-proof, and equipped with a close-fitting cover to store liquids.
- For the temporary storage of solid wastes contaminated with liquids or other potential polluted materials use dumpsters, garbage cans, drums, and comparable containers, which are durable, corrosion resistant, nonabsorbent, nonleaking, and equipped with either a solid cover or screen cover to prevent littering. If covered with a screen, the container must be stored under a roof or other form of adequate.
- Clean oils, debris, sludge, etc., from all stormwater treatment facilities regularly, including catch basins, infiltration treatment facilities, and conveyance systems, to prevent the contamination of stormwater.
- Promptly repair or replace all substantially cracked or otherwise damaged impervious surfaces of, high intensity parking, and any other contributing areas, subjected to pollutant material leaks or spills.
- Promptly repair or replace all leaking connections, pipes, hoses, valves, etc., that can contaminate stormwater.
- Do not connect floor drains in potential pollutant source areas to storm drains or the ground.

RECOMMENDED BMPS

- Where feasible, store potential stormwater pollutant materials inside a building or under a cover and/or containment.
- Minimize use of toxic cleaning solvents, such as chlorinated solvents, and other toxic chemicals.

- Recycle waste materials such as solvents, coolants, oils, degreasers, and batteries to the maximum extent feasible. Contact Ecology's *Hazardous Waste and Toxics Reduction Program* or local Solid Waste program for recommendations on recycling or disposal of waste liquids.
- Use solid absorbents, e.g., clay and peat absorbents and rags for cleanup of liquid spills/leaks where practical.
- Promptly repair/replace/reseal damage paved areas at municipal facilities.
- Recycle materials such as oils, solvents, and wood waste, to the maximum extent practical.

BMPS FOR WASTE MANAGEMENT AND DISPOSAL

DESCRIPTION OF POLLUTANT SOURCES

Trash and garbage consisting of everyday urban items that are thrown away and placed in waste containers contain toxic compounds, oils and greases, heavy metals, nutrients, suspended solids, and other pollutants that have potential to impact stormwater if handled inappropriately.

POLLUTANT CONTROL APPROACH

Proper storage, handling, and management of waste and regular emptying of waste containers minimizes or prevents the release of pollutants to stormwater.

APPLICABLE BMPS

- Train all current employees and contractors whose work outdoors generates waste, scrap, debris, or trash on this BMP.
- Keep all trash container lids always closed unless adding or removing material.
- All waste receptacles (dumpsters or cans) should have tight-fitting lids or covers. Plastic liners can be used to ensure leak tightness. Repair leaking dumpsters.
- Never place liquids or liquid-containing wastes in a dumpster or trash receptacle.
- Avoid placing outdoor waste receptacles near storm drains.
- Place waste receptacles indoors or under a roof or roof overhang whenever possible.
- Locate dumpsters on a flat, concrete surface that does not slope or drain into the storm drain system and install berms or curbs around the storage area to prevent run-on and run-off.
- Sweep up around outdoor waste containers regularly and immediately before any expected storm event.
- Arrange for waste to be picked up regularly and disposed of at approved disposal facilities.
- Wash water from dumpster cleaning should go to sanitary sewer if possible.
- If possible, design new or renovated facilities with waste or trash accumulation area indoors or under cover and bermed to contain run-off.
- Properly dispose of hazardous waste, gasoline, oil, and other chemical liquids. Never dispose of hazardous waste in park dumpsters or garbage containers.

BMPS FOR BUILDING REPAIR, REMODELING, PAINTING, AND CONSTUCTION

DESCRIPTION OF POLLUTANT SOURCES

Suspended solids, organic chemicals, petroleum hydrocarbons, heavy metals, low and high pH liquids, and oils and greases can impact stormwater if managed improperly and result in pollution runoff for construction, remodeling, or exterior repairs of buildings.

POLLUTANT CONTROL APPROACH

Control, leaks, spills, new materials and waste debris with good housekeeping practices and regular cleanup activities to avoid dirty runoff and loose particles that contribute to stormwater contamination.

APPLICABLE OPERATIONAL BMPS

- Identify, remove, and properly dispose of hazardous substances from the building before beginning repairing or remodeling activities, to include materials that contain PCBs, asbestos, lead paint, mercury switches, and electronic waste, among others.
- Perform housekeeping rounds regularly for trash and debris.
- Sweep the area regularly to collect loose litter, paint chips, grit, and dirt.
- Move job materials indoors or undercover at the end of each day and secure access to them.
- Always have site spill cleanup kits onsite for the chemicals used on the job.
- Do not dump any substance on the ground, pavement, in the storm drain, or anywhere else regardless of its content.
- Place a drop cloth before beginning wood treating activities and use drip pans where drips are likely to occur.
- Use ground or drop cloths underneath scraping or sandblasting work.
- Use ground cloths or containment where work materials are staged.
- Clean paint brushes and other tools used with water-based coating materials in sinks connected to sanitary sewers, or in portable containers that will be poured into sanitary sewer drains.
- Clean brushes and tools covered with oil-based coating materials in a container that adequately contains the cleaning solvent and dispose of used solvent appropriately. Do not discharge oil-based finishes, paints or used solvents into stormdrains or the sanitary sewer.
- Place inlet protection (e.g., drain covers) over stormwater drains prior to beginning work to prevent dust, grit, washwater, or other pollutants from entering the stormwater system. Collect and properly dispose of accumulated dirty runoff and solids before removing the cover or device at the end of each workday.
- Refer to BMPs (**Appendix A-5**) for Washing and Steam Cleaning Vehicles, Equipment, and Building Structures for information associated with power washing buildings.

RECOMMENDED OPERATIONAL BMPS

- Do not use oils for dust control.
- Clean tools over a ground cloth or within a containment device such as a tub. Dispose of cleaning materials and debris appropriately.

BMPS FOR SNOW AND ICE REMOVAL FROM PARKING AREAS

DESCRIPTION OF POLLUTANT SOURCES

Parking areas collect petroleum hydrocarbons, tire and break wear residues, heavy metals (lead and zinc), sand, soil particles, ice control salts, vehicle combustion products, among others, and snow and ice removed from parking areas contains these pollutants and has the potential to contaminate stormwater.

POLLUTANT CONTROL APPROACH

Plows are regularly used to remove snow from parking areas, and deicers are routinely used to minimize the formation of ice. Siting snow disposal locations and responsible application of deicers is important to reduce excess pollutant runoff to unwanted locations.

APPLICABLE BMPS

Snow Removal

- Choose grassy areas that do not contain drywells to dispose of snow.
- Avoid storing snow on top of storm drains and drywells. Locate snow disposal areas as far away from any stormwater facility as possible.
- Remove accumulated pollutants (i.e., sediments, sand, trash) from the snow storage areas when the snow has melted.

Deicers and Sands

- Apply deicers and sand to parking areas carefully to ensure that the materials are placed on the pavements where they are intended to perform and remain in place.
- Avoid overapplication of salts, liquid deicers, and sand.
- Limit the use of deicers and sand to only locations where they are necessary to create safer conditions for the facility users.
- Recover deicer salts and sands from the parking areas after winter and manage as waste material.
- Bulk storage of deicer salts and sands should be contained under cover.
- Periodically inspect bulk storage areas for signs of failure.
- Use deicers without phosphorus as a chemical component.
- Ensure deicing equipment is calibrated according to manufacturer’s instruction.

APPENDIX A-7 – PARKS AND OPEN SPACES

- ✓ BMPs for Landscaping and Lawn/Vegetation Management – See **Appendix A-3**
- ✓ BMPs for Irrigation – See **Appendix A-3**
- ✓ BMPs for Fertilizer Application
- ✓ BMPs for the Storage of Dry Pesticides and Fertilizers
- ✓ BMPs for Pesticide Applications
- ✓ BMPs for Pet Waste
- ✓ BMPs for Landscaping and Lawn/Vegetation Management – See **Appendix A-3**
- ✓ BMPs for Irrigation – See **Appendix A-3**
- ✓ BMPs for Mulching
- ✓ BMPs for Sodding
- ✓ BMPs for Erosion Nets and Blankets
- ✓ BMPs for Temporary and Permanent Seeding
- ✓ BMPs for Preserving Natural Vegetation
- ✓ BMPs for Waste Management and Disposal – See **Appendix A-6**
- ✓ BMPs for Pools and Fountains

BMPS FOR FERTILIZER APPLICATION

DESCRIPTION OF POLLUTANT SOURCES

Stormwater has the potential to be impacted from the overuse of phosphorous, nitrogen and potassium containing fertilizers, which act as pollutants that contribute to algae blooms, increase biological oxygen demand, and oxygen depleted waters.

POLLUTANT CONTROL APPROACH

Control the application of fertilizer and minimize the amount used to maintain vegetation to only what is necessary for growth.

APPLICABLE OPERATIONAL BMPS

- Apply the minimum amount of slow-release fertilizer necessary to achieve successful plan establishment.
- Never apply fertilizer within 5 feet of pavement, 25 feet of a storm drain inlet, or 50' of a stream or water body.
- Avoid fertilizer applications in stormwater ditches, stormwater facilities, and drainage systems.
- Avoid fertilizer areas within 100 feet of water bodies including wetlands, ponds, and streams, and in areas that drain to sensitive water bodies, grass swales, filter strips, or buffer areas. This does not include grass swales, filter strips, etc. where the site discharge is subsurface infiltration, i.e. UICs (drywells).
- Apply fertilizer when the soil is moist and not in drought conditions.
- Apply fertilizer when it is not raining, nor about to rain.
- Determine the proper fertilizer application rate for the types of soil and vegetation being fertilized.
- Follow the manufacturer's recommendations and fertilizer label instructions.
- Use slow-release or resin-coated fertilizers in areas with sandy and gravelly soils.
- Apply fertilizers in amounts appropriate for the target vegetation and at the time of year that minimizes losses to surface and ground waters.
- Time the fertilizer application to fall and spring periods when plant uptake is at its maximum.
- Minimize the use of chemical fertilizers and calibrate the distributor to avoid excess application.

For more information about restrictions on turf fertilizers containing phosphorus, see the *Washington State Department of Agriculture Restrictions on Turf Fertilizers Containing Phosphorus* web page.

- Store fertilizers in enclosed areas or in covered impervious containment.
- Keep fertilizer granules off impervious surfaces and clean up any spills immediately.
- Do not hose residual fertilizers down to a storm drain, conveyance ditch, or water body.
- Store and maintain appropriate spill cleanup materials in a location known near the storage area.

RECOMMENDED OPERATIONAL BMPS

- Apply fertilizer when there is a minimum of 3 days before the next rainfall is forecast to keep offsite migration of nutrients to a minimum.

- Avoid using fertilizers containing phosphorus unless a soil sample analysis taken within the past 36 months indicates the soil is deficient in phosphorus.
- Test soils to determine the correct fertilizer rates.
- Evaluate the soil nutrient levels with regular testing to ensure the best possible efficiency and economy of fertilization.
- Vary fertilization needs by site accounting for plant, soil, and climate conditions.
- Use organic fertilizers when possible.
- For details on soils testing, contact the *Spokane Conservation District* or the *Washington State University Extension Spokane* office.

Note: Turfgrass is most responsive to nitrogen fertilization, followed by potassium and phosphorus.

BMPS FOR THE STORAGE OF DRY PESTICIDE AND FERTILIZERS

DESCRIPTION OF POLLUTANT SOURCES

Pentachlorophenol, carbonates, land organometallic pesticides, among others, are very toxic and phosphorus and nitrogen have a high potential to impact stormwater since they are easily mobilized by runoff.

POLLUTANT CONTROL APPROACH

Storage of pesticides and fertilizers in secure containers in sheltered locations that stormwater cannot reach eliminates the ability for runoff to interact with pesticides and fertilizers and transport them offsite.

APPLICABLE STRUCTURAL BMPS

Store pesticides and fertilizers in an enclosed or curbed and covered impervious containment area.

APPLICABLE OPERATIONAL BMPS

- Keep containers and bags intact and stored.
- Store all pesticides and fertilizers off the ground and under cover so that they cannot come in contact with water.
- Store materials that have been in designated locations that are covered and contained.
- Sweep pavements of storage areas as needed. Do not hose down the area.
- Keep a spill kit that has the appropriate cleanup tools near pesticide and fertilizer storage.
- Immediately clean up any spilled fertilizers or pesticides.
- Collect and dispose of the spilled materials properly in a closed waste container.
- Do not wash pesticide or fertilizer residue or pellets into storm drains.
- Comply with *WAC 16-228-1220* and *Chapter 16-229 WAC*.

BMPS FOR PESTICIDE APPLICATION

Description of Pollutant Sources

Residual pesticides, herbicides, rodenticides, insecticides, and fungicides used for weed control, lumber protection, moss removal, and rodent control, among others, have the potential to contaminate stormwater with toxic organic chemicals and heavy metals that can cause appreciable unintended consequences to many non-target plants and animals, and can significantly damage the environment.

Pollutant Control Approach

Actively control pesticide applications to prevent contamination of stormwater by developing and implementing an integrated pest management (IPM) plan that requires deliberate application of pesticides in accordance with manufacturer's recommendations.

Applicable Operational BMPs

Pesticide Program

- Develop and implement an Integrated Pest Management program.
- Implement a pesticide-use plan and include the following at a minimum:
    - A list of selected pesticides and their specific uses
    - Brands and formulations of the pesticides
    - Application methods and quantities to be used.
    - Equipment use and maintenance procedures.
    - Safety, storage, and disposal methods
    - Monitoring, record keeping, and public notice procedure. All procedures shall conform with the requirements of *Chapter 17.21 RCW* and *Chapter 16-228 WAC*
- Train employees in proper application of pesticides and disposal practices.

Pesticide Choice

- Use pesticides only as a final option.
- Use pesticides only if there is an actual pest problem (not as a regularly scheduled preventative maintenance measure).
- Use the least toxic pesticide available that can reduce the infestation to acceptable levels and consider minimum risk pesticides for application. Avoid copper-based pesticides.
- Choose pesticides categorized by U.S. Environmental Protection Agency as reduced risk pesticides.

Application

- Flag all sensitive areas including wells, creeks, and wetlands prior to spraying.
- Post notices and delineate the spray area prior to the application.
- Follow manufacturer's application guidelines and label requirements.
- Avoid excessive application of pesticides and do not exceed the application limits on the Federal Insecticide, fungicide, and rodenticide (FIFRA) label.
- Apply pesticides during appropriate weather conditions, avoiding spray application in the rain or right before it is about to rain.

- Apply pesticides during the dry season so that the pesticide residue is degraded prior to the next rain event.
- Avoid spraying pesticides within 100 feet of water bodies and drainages or channels that lead to water bodies unless designed for application near water.
- Pesticides designed to be sprayed near water bodies may require:
    - Obtaining a discharge permit from the Washington State Department of Ecology
    - Using an aquatic labeled pesticide and adjuvant.
- Conduct any pest control activity at the life stage when the pest is most vulnerable. Any method used should be site-specific and not used wholesale over a wide area.
- See **Appendix A-3** *BMPs for Landscaping and Lawn/Vegetation Management*.

Spills

- Clean up any spilled pesticides immediately.
- Do not hose down pesticide residues to a storm drain, conveyance ditch, or water body.
- Mix pesticides and clean the application equipment under cover in a contained area where accidental spills will not enter surface or ground waters and will not contaminate the soil.

Recommended Operational BMPs

- Use manual and mechanical pest control approaches (e.g. physically scraping moss, weeding with hand tools, rodent traps, etc).
- Consider alternatives to pesticides (e.g. mechanical removal, using animals that target pests, separation barriers, etc.)
- Use of soil amendments that are known to control some common diseases and pests in plants like Pythium root rot, ashy stem blight, and parasitic nematodes.
- Once a pesticide is applied, evaluate its effectiveness, keep records of the effectiveness of the application, and adjust application accordingly.
- Follow the chemical product label requirements for disposal.
  If the label does not have disposal information, the rinsate from equipment cleaning and container rinsing should be used as product or recycled into product.
- Develop an adaptive management plan and annual evaluation procedure that includes the following:
    - A review of the effectiveness of pesticide applications.
    - Impact on buffers and sensitive areas, including potable wells.
        - Determine if additional pesticide application control measures are necessary if water wells are located near the application area.
    - Consider public concerns.
    - Monitor EPA website for recent information on pesticides.

Additional Information

Washington state requires municipal employees to obtain a Public Operator license to spray restricted use pesticides, or any pesticide by power equipment. Information on licensing is available on the *Washington State Department of Agriculture* webite.

BMPS FOR PET WASTE

Description of Pollutant Sources

Stormwater has the potential to be impacted by the nutrients, viruses, and bacteria found in pet waste, which can contribute to human health risks.

Pollutant Control Approach

Provide the materials and dedicated trash receptacles to encourage pet owners to pick up after their pets with plastic bag or pooper scooper and properly dispose of the waste.

Applicable BMPs

Waste

- Regularly pick up and dispose of pet waste deposited on sidewalks.
- Put pet waste in a securely closed bag and deposit it in the trash.
- Do not place pet waste in yard waste containers because pet waste may carry diseases, and composting may not kill disease-causing organisms.
- Do not compost or use pet waste as fertilizer. Harmful bacteria, worms, and parasites can transmit disease and stay in the soil for extended periods even after the solid portion of the pet waste has dissolved.

Structural

- Post signs that remind visitors to pick up after their pets.
- Place pet waste stations at locations convenient for dog walkers to pick up a bag at the start of their walk and locations for them to dispose of it at mid-walk or at the end of their walk.
- Check pet waste stations on a regular basis to keep pet waste bags stocked and disposal stations empty.
- Include signage to keep regular trash out of pet waste disposal stations to avoid filling them too quickly.
- Make sure pet waste disposal stations have a cover to keep out water.
- Ensure that stormwater from areas where dogs concentrate is not discharged to the stormwater system.

BMPS FOR MULCHING

PURPOSE

The purpose of mulching soil is to provide immediate temporary protection from erosion. Mulch also enhances plant establishment by conserving moisture; holding fertilizer, seed, and topsoil in place; and moderating soil temperatures. There are a variety of mulches available for use. Only the most common types are discussed in this section.

APPLICABLE OPERATIONS BMPS

- Mulch should be used as a temporary cover measure:
    - For < 30 days on disturbed areas that require cover,
    - At all times for seeded areas, especially during the wet season and during the hot summer months; and
    - During the wet season on slopes steeper than 3H:1V with more than 10 feet of vertical relief.
- Mulch may be applied at any time of the year but must be refreshed periodically.
- For seeded areas, mulch may consist of 100% of the following:
    - Cottonseed meal
    - Fibers made of wood, recycled cellulose, hemp, or kenaf.
    - Compost
    - A blend of these three materials
- Apply tackifiers in accordance with manufacturer's instructions for plant based tackifiers (e.g. guar, Alpha Plantago, etc.) and chemical-based tackifiers (e.g. polyacrylamide (PAM), polymers, etc.)
- Install seed, fertilizers, and tackifiers during the same application event.

DESIGN AND INSTALLATION SPECIFICATIONS

- Use a minimum thickness of 2 inches, increasing thickness until the ground is not visible under the mulch layer. See Table of Mulch Standards and Guidelines for mulch materials application rates, and specification.
- Increase mulch thickness in highly susceptible areas to erosion such as disturbed areas, or near sensitive areas.
- For mulch application rates see *BMP C121E: Mulching* located in *Chapter 7 – Construction Stormwater Pollution Prevention of the SWMMEW.*

MAINTENANCE STANDARDS

- The thickness of mulch cover must be maintained.
- Remulch and/or protect areas that experience erosion with a net or blanket. Improving the drainage to eliminate erosion is drainage related and reseed and remulch.

BMPS FOR SODDING

DESCRIPTION OF POLLUTANT SOURCES

Municipal activities on soil areas, exposed and disturbed soils, steep grading, etc., can be sources of sediments that can contaminate stormwater runoff.

POLLUTANT CONTROL APPROACH

- Limit the exposure of erodible soil, stabilize, or cover erodible soil where necessary to prevent erosion, and/or provide treatment for stormwater contaminated with total suspended solids caused by eroded soil.

APPLICABLE OPERATIONS BMPS

Maintenance Standards

- Use sodding in disturbed areas that require immediate vegetative cover and waterways that require a vegetative lining for short-term or long-term ground cover.
- Waterways may also be seeded rather than sodded and protected with a net or blanket.

Design and Installation

- Use sod that is free of weeds, has a uniform thickness (approximately 1 inch), and has a dense root mat for mechanical strength.
- Install sod following the below steps:
    1) Shape and smooth surface to final grade in accordance with the approved grading plan. Consider any areas (such as swales) that need to be over excavated below design elevation to allow room for placing soil amendment and sod.
    2) Amend 4 inches (minimum) of compost into the top 8 inches of the soil if the organic content of the soil is less than 10% or the permeability is less than 0.6 inches per hour. See the Washington State Department of Ecology's *Compost web page* for further information.
    3) Fertilize according to the sod supplier's recommendations.
    4) Work lime and fertilizer 1 to 2 inches into the soil and smooth the surface.
    5) Lay strips of sod beginning at the lowest area to be sodded and perpendicular to the direction of water flow. Wedge strips securely into place. Square the ends of each strip to provide for a close, tight fit. Stagger joints > 12 inches. Staple on slopes steeper than 3H:1V. Staple the upstream edge of each sod strip.
    6) Roll the sodded area and irrigate.
    7) When sodding is carried out in alternating strip or other patterns, seed the areas between sod immediately after sodding.

Maintenance Standards

- Replace unhealthy sod with fresh sod if unable to establish healthy ground.
- Remove the sod and see the area with an appropriate seed mix and cover with a nest blanket.

BMPS FOR EROSION NETS AND BLANKETS

DESCRIPTION OF POLLUTANT SOURCES

Municipal activities on soil areas, exposed and disturbed soils, steep grading, etc., can be sources of sediments that can contaminate stormwater runoff.

POLLUTANT CONTROL APPROACH

Limit the exposure of erodible soils by using nets and blankets to cover bare soils.

APPLICABLE OPERATIONS BMPS

General

- Use erosion control nets and blankets to aid permanent vegetated stabilization of slopes 2H:1V or greater and with more than 10 feet of vertical relief.
- Use erosion control nets and blankets for drainage ditches and swales on bare soil until vegetation is established.

Design and Installation Specifications

- See Figure 7.5 Channel Installation and Figure 7.6 Slope Installation in the *SWMMEW* for typical orientation and installation of nets and blankets used in channels and as slope protection.
  Note: install nets and blankets per manufacturer's installation instructions.
- Install nets and blankets on slopes according to the following procedure:
  1) Complete final grade and track walk up and down the slope. Soil should be raked in uniform prior to installing nets or blankets. Ensure nets and blankets have good adhesion to the soil.
  2) Install hydromulch with seed and fertilizer.
  3) Dig a small trench, approximately 12 inches wide by 6 inches deep along the top of the slope.
  4) Install the leading edge of the net/blanket into the small trench and staple approximately every 18 inches.
     Note: Staples are metal, U-shaped, and a minimum of 6 inches long. Longer staples are used in sandy soils. Biodegradable stakes are also available.
  5) Roll the net/blanket slowly down the slope as you walk backward.
     Note: The net/blanket rests against installer's legs. Staples are installed as the net/blanket is unrolled. It is critical that the proper staple pattern is used for the net/blanket being installed.
- If the net/blanket is not long enough to cover the entire slope length allow the trailing edge of the upper net/blanket to overlap the leading edge of the lower net/blanket and staple it. On steeper slopes, this overlap should be installed in a small trench, stapled, and covered with soil.
- Follow the manufacturer's recommendation when installing nets and blankets.
  Note: Information is also available in the lates version of the Washington State Department of Transportation *Standard Specifications for Road, Bridge, and Municipal Construction*.
- Use mulch when using jute matting. See BMPs for Mulching.
- Use synthetic blankets on steep slopes and high energy environments (riverbanks). If synthetic blankets are used, the soil should be hydromulched.

Maintenance Standards

- Maintain good contact with the ground. Erosion must not occur beneath the net or blanket.
- Repair and staple any areas of the net or blanket that are damaged or not in close contact with the ground.
- Fix and protect eroded areas if erosion occurs due to poorly controlled drainage.

BMPS FOR TEMPORARY AND PERMANENT SEEDING

DESCRIPTION OF POLLUTANT SOURCES

Municipal activities on soil areas, exposed and disturbed soils, steep grading, etc., can be sources of sediments that can contaminate stormwater runoff.

POLLUTANT CONTROL APPROACH

- Limit the exposure of erodible soil, stabilize, or cover erodible soil where necessary to prevent erosion, and/or provide treatment for stormwater contaminated with total suspend solids caused by eroded soil.

APPLICABLE OPERATIONS BMPS

Seeding

- Use seeding throughout the project on disturbed areas that have reached final grade or that will remain unworked for > 30 days. See Item #5 Soil Stabilization in Chapter 9 of the *Spokane Regional Stormwater Manual* for more information.
- The optimum permanent seeding window for Eastern Washington is October 1 through November 15.
- The acceptable permanent seeding window for Eastern Washington is September 1 through April 30.
- Seeding permanent species is not recommended for Eastern Washington from May 1 through August 31, unless irrigation is conducted.
- Review all disturbed areas in late August to early September and complete all seeding by the end of April. Otherwise, vegetation will not establish itself well enough to provide more than average protection.
- Mulch is always required for seeding because it protects seeds from heat, moisture loss, and seed loss due to runoff. Mulch can be applied on top of the seed or simultaneously by hydroseeding. See BMPs for Mulching for specification.
- Seed and mulch all disturbed areas not otherwise vegetated at the completion of all soild disturbing activities at the site to establish permanent ground cover or equivalent permanent stabilization measures (e.g. pavement, riprap, gabions, geotextiles, etc.). See BMP F6.61 Amending Construction Site Soils of the *SWMMEW* for more detail.

Design and Installation

- Hydroseed applications shall include a minimum of 1,500 pounds per acre (lb/acre) of mulch with 3% tackifier.
- Always apply mulch on top of the seed, or with the hydroseed.
- Reinstall native topsoil on the disturbed soil surface before application of hydroseed.
- Areas that will not be landscaped may need compost or meal-based mulch included in the hydroseed to establish vegetation. See *BMP F6.61 Amending Construction Site Soils*.
- To ensure that hydroseed will be established, consider increasing seed quantities by up to 50% over minimum design to ensure see contact with the soil surface.
- Vegetation establishment can be enhanced by one of the following two approaches:

- Approach 1: Enhance vegetation establishment by dividing the hydromulch operation into two phases:
    - Phase 1 – Install all seed and fertilizer with 25% to 30% mulch and tackifier onto the soil in the first lift.
    - Phase 2 – Install the remaining mulch and tackifier over the first lift.

- Approach 2: Vegetation can also be enhanced by:
    - Installing the mulch, seed, fertilizer, and tackifier in one lift.
    - Spreading or blowing straw over the top of the hydromulch at a rate of about 800 to 1,000 lb/acre; or
    - Holding straw in place with a standard tackifier.

  Note: Approach 1 and 2 can use standard hydromulch at 1,500 lb/acre minimum, or Mechanically Bonded Fiber Matrix (MBFM) at 3,000 lb/acre minimum.

- Approach 1 and 2 will increase cost moderately but will greatly improve and enhance vegetative establishment. The increased cost may be offset by the reduced need for:
    - Irrigation
    - Reapplication of mulch, and
    - Repair of failed slope surfaces.

- Seed may be installed by hand if it is:
    - Temporary and covered by straw, mulch, or topsoil, or
    - Permanent in small areas (usually < 1 acre) and covered with mulch, topsoil, or erosion blankets.

See BMP C120 E of the *SWMMEW* for seed mixes that recommends mixes for both temporary and permanent seeding. Alternative seed mixes are allowed.

- The project should consult local suppliers or the *Spokane Conservation District* for appropriate seed mixes and application rates based on location, exposure, soil type, slope, expected foot traffic, etc.
- Provide vegetation diversity to the greatest extent possible, and plan for a succession of flowering times to improve pollinator habitat, to promote long-lived growth vegetation that can compete against weeds and grow with minimal maintenance after plant establishment.

Roughening and Rototilling

- Roughen all soil so the seedbed is firm and rough, regardless of slope.
- Track walk slopes before seeding if engineering purposes require compaction.
- Do not back blade or smooth slopes > 4H:1V if they are to be seeded.
- When practical, rip the subgrade to improve long-term permeability, infiltration, and water inflow qualities.
- Complete the rototilling process in multiple lifts when soil profile design is deeper than 8 inches or prepare the soil amendments to achieve the specified depth.
- Restoration-based landscape practices require deeper incorporation than that provided by a simple single-pass rototilling treatment. At a minimum, permanent areas shall receive soil

amendments to achieve organic matter and permeability performance defined in amended soil/landscape systems.

Fertilizers

- Conduct soil tests to determine the appropriate fertilizer and recommended application rate to prevent the overapplication.
- Organic matter the preferred fertilizer because it provides nutrients in the least water-soluble form (e.g. nitrogen, phosphorus, and potassium), however chemical fertilizers that have been formulated to simulate organic matter may be used.
- Use slow-release fertilizers because they are more efficient and have fewer environmental impacts.
- Do not add fertilizer to the hydromulch machine.
- Do not agitate fertilizer mixes for more than 20 minutes before use to ensure slow-release coating stays intact.
- Consider the use of alternative to chemical fertilizers such as seaweed extracts, or mulching hydroseed with 100% cottonseed meal.

Bonded Fiber Matrix and Mechanically Bonded Fiber Matrix

- Use BFM or MBFM products on steep slopes and apply at a minimum rate of 3,000 lb per acre of mulch with approximately 10% tackifier to achieve a minimum of 95% soil application coverage.
- Install products per manufacturer's instructions, which may require application up to 36 hours to cure prior to a rainfall and avoiding installation on wet or saturated soils.
- Consider BFMs and MBFMs as alternatives to blankets.
  BFMs and MBFMs have the following advantages:
    - BFM and MBFMs do not require surface preparation.
    - Helicopters can assist in installing BFM and MBFMs in remote areas.
    - On slopes steeper than 2.5H:1V, blanket installers may require ropes and harnesses for safety.
    - Installing BFM and MBFMs can save at least $1,000 per acre compared to blankets.
- Provide healthy topsoil or amend the existing soil for permanently landscaped areas to reduce the need for fertilizers, improve overall topsoil quality, provide for better plant health and vitality, improve hydrologic characteristics, and reduce the need for irrigation.
- Areas that already have good topsoil, such as undisturbed areas, do not require soil amendments.

Maintenance Standards

- Reseed any seeded areas that fail to establish > 50% cover of all seeded areas after 3 months of active growth following germination during the growing season. If reseeding is ineffective, use an alternative method, such as sodding, mulching, ore nets/blankets. If winter weather prevents adequate grass growth, this time limit may be relaxed at the discretion of the local authority when sensitive areas would otherwise be protected.
- Reseed seeded areas that receive sheet or concentrated flows to 100%.
- Reseed and mulch any areas that experience erosion after achieving adequate cover.
- Improve erosion areas if drainage is the issue and reseed and mulch.

- Supply seeded areas with adequate moisture, but do not water to the extent that causes runoff.

Approved as Equivalent

Products that have been deemed Functionally Equivalent Technologies to TAPE approved emergent technologies by Ecology meet the requirements of BMPs for Temporary and Permanent Seeding and are provided on the Emerging Stormwater Treatment Technologies (TAPE) web page. Note that these products have not gone through the TAPE process.

BMPS FOR PRESERVING NATURAL VEGETATION

DESCRIPTION OF POLLUTANT SOURCES

Municipal activities on soil areas, exposed and disturbed soils, steep grading, etc., can be sources of sediments that can contaminate stormwater runoff.

POLLUTANT CONTROL APPROACH

Limit the exposure of erodible soils by preserving natural vegetation.

APPLICABLE OPERATIONS BMPS

General

- Preserve natural vegetation on steep slopes near perennial and intermittent receiving waters or swales, and on building sites in wooded areas.
- Phase construction to preserve natural vegetation on the project site for as long as possible during the construction period.

Design and Installation

- Preserve natural vegetation in natural clumps or as individual trees, shrubs, and vines.
- Fence or clearly mark areas around trees that are to be saved. It is preferrable to keep ground disturbance away from the trees at least as far out as the dripline.
- Protect vegetation from construction equipment by placing a fenced buffer zone around plants to be saved prior to construction can prevent construction equipment injuries.
- Protect trees from grade changes by emplacing 6 inches or less of fill, and less for shrubs and bushes.
- Place a layer of gravel and a tile system over the roots before the fill is made. The tile system should be laid out on the original grade leading from a well around the tree trunk, and cover with small rocks to allow air to circulate over the root area.
- Protect trees and other plants when excavating by trenching around them for drain fields and power, water, and sewer lines. When this is not possible it is best to tunnel under them. If trenching around the plants is not possible:
    - Cut as few roots as possible. When you must cut, cut clean. Paint cut root ends with a wood dressing like asphalt base paint if roots will be exposed for more than 24 hours.
    - Backfill the trench as soon as possible.
    - Tunnel beneath root systems as close to the center of the main trunk to preserve most of the important feeder roots.

Maintenance Standards

- Inspect flagged and/or fenced areas regularly to make sure flagging or fencing has not been removed or damaged.
- Repair or replace flagging that has been removed or damaged.
- If tree roots have been exposed or injured, “prune” cleanly with an appropriate pruning saw or loopers directly above the damaged roots and recover with native soils.

BMPS FOR POOLS AND FOUNTAINS

Description of Pollutant Sources

Water discharges from pools, spas, hot tubs, fountains, and other water features have the potential to contaminate stormwater with bacteria and chemicals (e.g. chlorine, bromine, algaecides, etc.)

Pollutant Control Approach

Terrace View Park Pool and Park Ave Park Pool convey discharges from pools and water features to the sanitary sewer. The Mission Park Pool is dechlorinated, pH adjusted, and thermally adjusted before discharging to a storage vault, then to a drainfield.

Regulatory Conditions

Discharges to the sanitary sewer system will require approval from Spokane County prior to entering the sanitary sewer system.

Discharge to ground must comply with the Washington State Department of Ecology Water Quality Standards for ground, *Chapter 173-200 WAC*.

Comply with the Spokane Regional Health District local health regulations and Washington State Department of Health guidelines.

Applicable Operational BMPs

- Do not discharge water directly from a pool or fountain, or other water features before making it safe first.
- Follow the following conditions to discharge to ground or the stormwater system:
    - Dechlorinated to meet potable drinking water standard (< 4 ppm) and groundwater standards (< 250 ppm).
        - Remove chlorinators from water feature system, and use open air, sunshine, and four days to naturally dechlorinate a swimming pool amount of water; **or**
        - Use a dechlorinating agent (e.g. sodium thiosulphate, ascorbic acid, etc.) following manufacturer's instructions.
        - Confirm dichlorination of water prior to discharge.
- pH-adjusted to circumneutral range of 6.5 – 8.5
        - Use pH neutralizers to reach desired range following manufacturer's instructions.
- Reoxygenate if anaerobic
        - Bubble air into water
- Free of suspended solids
- Free of algae and discoloration
- Free of soap suds and cleaning agents/acids
- At an ambient temperature (not heated)

Applicable Structural Source Control BMPs

- Ensure the pool or fountain system is free of leaks and operates within the design parameters.
- Eliminate connections to drainage system when the draining activities are complete.
- Store water being dechlorinated in an appropriate container for the time it takes to remove chlorine.

APPENDIX A-10 - MATERIAL STORAGE AREAS

- ✓ BMPs for Spill Response and Cleanup – **See Appendix A-4**
- ✓ BMPs for Dedicated Fueling Stations – **See Appendix A-5**
- ✓ BMPs for Mobile Fueling of Vehicles and Heavy Equipment – **See Appendix A-5**
- ✓ BMPs for Maintenance and Repair of Vehicles and Equipment – **See Appendix A-5**
- ✓ BMPs for Parking and Storage of Vehicles and Equipment – **See Appendix A-5**
- ✓ BMPs for Washing and Steam Cleaning Vehicles, Equipment, and Building Structures – **See Appendix A-5**
- ✓ BMPs for Waste Management and Disposal – **See Appendix A-6**
- ✓ BMPs for Building Repair, Remodeling, Painting, and Construction – **See Appendix A-6**
- ✓ BMPs for the Spill of Oil and Hazardous Substances
- ✓ BMPs for Storage of Liquid or Dangerous Waste Containers
- ✓ BMPs for Storage of Liquids in Permanent Above Ground Tanks
- ✓ BMPs for Outdoor Storage or Transfer of Materials
- ✓ BMPs for Loading and Unloading Areas for Liquid or Solid Material

BMPS FOR SPILLS OF OIL AND HAZARDOUS SUBSTANCES

See for information on both hazardous and non-hazardous spill response and cleanup plans.

DESCRIPTION OF POLLUTANT SOURCES

Operations at locations that could reasonably be expected to discharge oil or hazardous substance have the potential to impact stormwater with oils, petroleum products, or other hazardous substances.

POLLUTANT CONTROL APPROACH

Maintain spill kits and implement spill prevention and spill response practices. If applicable, maintain, update, and implement a spill prevention control and countermeasures SPCC plan.

APPLICABLE OPERATIONAL BMPS

Regulatory

- Federal law requires facilities engaged in gathering, storing, transferring, distributing, or consuming oil and/or oil products, that would discharge to surface waters, to have a SPCC plan if the facility has:
    - An aggregate oil container capacity > 1,320 gallons, or
    - A total below ground oil tank capacity > 42,000 gallons.
- Washington State law requires owners/operators that produce dangerous waste to have a SPCC plan. Refer to Chapter 90.56 RCW, Chapter 173-182 WAC, and WAC 173-303-350 for specific contingency planning and emergency procedures.

Procedure

- Locate appropriate emergency spill containment and cleanup kits for the type and quantities of chemical liquids stored at the facility in high-potential spill areas.
- Immediately clean up spills.
    - Do not use emulsifiers for cleanup unless there is an appropriate disposal method for the resulting oily wastewater.
    - Do not wash absorbent material down a floor drain or storm drain.
- Immediately notify Ecology, the local jurisdiction, and the local sewer authority if a spill may reach sanitary or storm drains, ground water, or surface water, in accordance with federal and Ecology spill reporting requirements. **See Appendix A-4**, BMPs for Spill Response and Cleanup.

SPCC Plan

- Develop an SPCC Plan if the site meets the oil capacity thresholds.
- Update the SPCC plan regularly.
- Train key personnel in the implementation of the SPCC plan.
- The SPCC Plan should contain the following:
    - A description of the facility including the owner's name and address.
    - The nature of the activity at the facility.
    - The general types of chemicals used or stored at the facility.

    - A site plan showing the location of storage areas for chemicals, the locations of storm drains, the areas draining to them, and the location and description of any devices to stop spills from leaving the site such as positive control valves.
    - Cleanup procedures
    - Notification procedures to be used in the event of a spill, such as notifying key personnel. Agencies such as the Washington State Department of Ecology, the local fire department, the Washington State Patrol the local jurisdiction, and local sewer authority, shall be notified.
    - The name of the designated person with overall cleanup and notification responsibility.
- Prepare a summary of the plan and post it at appropriate points in the building, identifying the spill cleanup coordinators, location of spill kits, and phone numbers of regulatory agencies to be contacted in the event of a spill. **See Appendix A-4**, BMPs for Spill Response and Cleanup.

Recommended Operational BMP

- Spill kits should include appropriately lined drums, absorbent pads, and granular or powdered materials for neutralizing acids or alkaline liquids, where applicable.
- In fueling areas, package absorbent material in small bags for easy use and make available small drums for storage of absorbent and/or used absorbent.
- Stage spill kits in locations that allow rapid access and use by employees.

Additional Spill Response Information

To report a spill or to determine if a spill is a substance of a reportable quantity, call the Washington State Department of Ecology regional office (509-329-3400) and ask for an oil spill operation or a dangerous waste specialist.

See (Ecology 2013) for detailed information.

BMPS FOR STORAGE OF LIQUID OR DANGEROUS WASTE CONTAINERS

DESCRIPTION OF POLLUTANT SOURCES

Leaks and spills of food wastes, vegetable, or animal grease, used oil, liquid feedstock, cleaning chemicals, or dangerous wastes (liquid or solid) during handling and storage are the primary sources of pollutants of oil and grease, acid/alkali pH, biochemical oxygen demand, and chemical oxygen demand with the potential to impact stormwater near outdoor storage locations.

POLLUTANT CONTROL APPROACH

Store containers in an impervious containment, under cover or roof, in a building, and/or in a temporary secondary containment system.

APPLICABLE OPERATIONAL BMPS

Regulatory

- Follow the container management guidance standards found in the *On-Site Storage, Collection, and Transportation Standards* (WAC 173-350-300).
- Comply with the Dangerous Waste Regulations (Chapter 173-303 WAC) and Ecology's *Step by Step Fact Sheet for Hazardous Waste Generators* if storing dangerous waste.
- Implement the guidance provided in the Uniform Fire Code (UFC), UFC standards, or the National Electric Code when storing flammable, ignitable, and reactive chemicals, and materials.

Drum/Containers

- Place tight-fitting lids on all drums/containers.
- Label all drums/containers with their contents, date material was placed in container, and container owner information.
- Inspect drums/container storage areas regularly for corrosion, structural failure, spills, leaks, overfills, and failure of piping systems.
- Tighten or replace bungs, and/or replace drums/containers, as needed.
- Place drip pans beneath all mounted drums/container taps, and at all potential drip and spill locations during filling and unloading of drums/containers.
- Store drums/containers with no free liquids in a sloped designated area with the drums/containers elevated or otherwise protected from stormwater run-on.
- Drums/containers stored in an area without perimeter control should be secured to prevent accidental spillage, pilferage, or any unauthorized malfeasance.
- Stage spill kits or cleanup materials near containment storage areas.
- Clean up all spills immediately.

Dumpsters

- Replace or repair leaky municipal solid waste dumpsters.
- Drain dumpsters and/or dumpster pads that have collected stormwater to the sanitary sewer if possible. Contact Spokane County.
- Place lids on dumpsters and keep dumpster lids closed.

- Install waterproof liners in the dumpsters or keep them under cover to prevent the entry of stormwater.

Applicable Structural Source Control BMPs

- Keep containers with dangerous waste, food waste, and/or other potential pollutant liquids inside a building.
- Store containers in a designated container storage area that is covered, bermed or diked, paved, and impervious to contain leaks and spills. **See figure of Covered and Bermed Containment area below**.
- Surround the liquid containing drums/containers within a secondary containment with a volume of 10% of the total enclosed container volume, or 110% of the volume contained in the largest container, whichever is greater. **See the figure for Secondary Containment System below**.
- Slope the secondary containment to drain into a dead-end sump for the collection of leaks and small spills.
- Place containers mounted for direct removal of a liquid chemical for use by employees inside a containment area as described above. Use a drip pan during liquid transfer. **See figure for Mounted Container with Drip Pan below**.

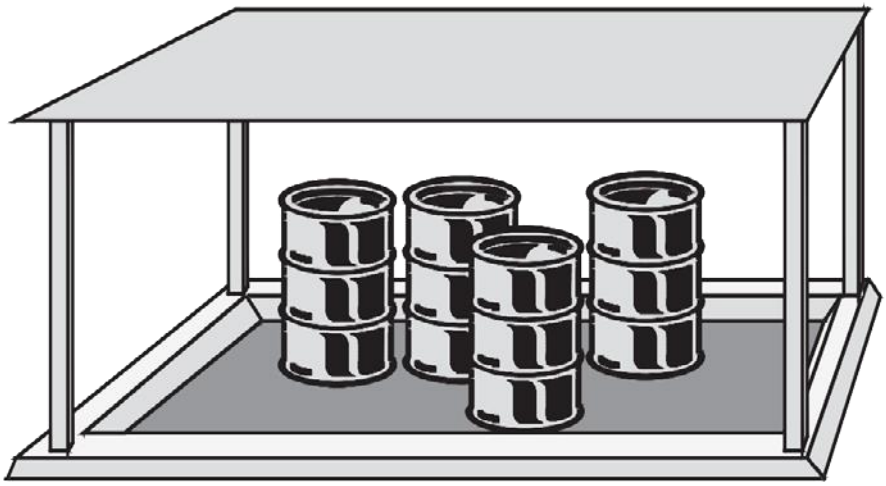


Figure of Covered and Bermed Containment Area

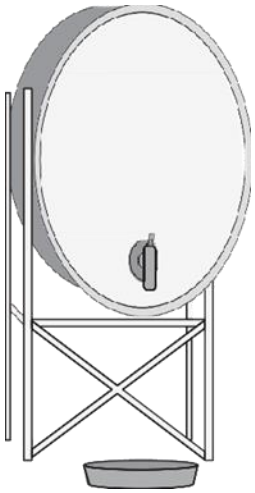


Figure of Mounted Container with Drip Pan

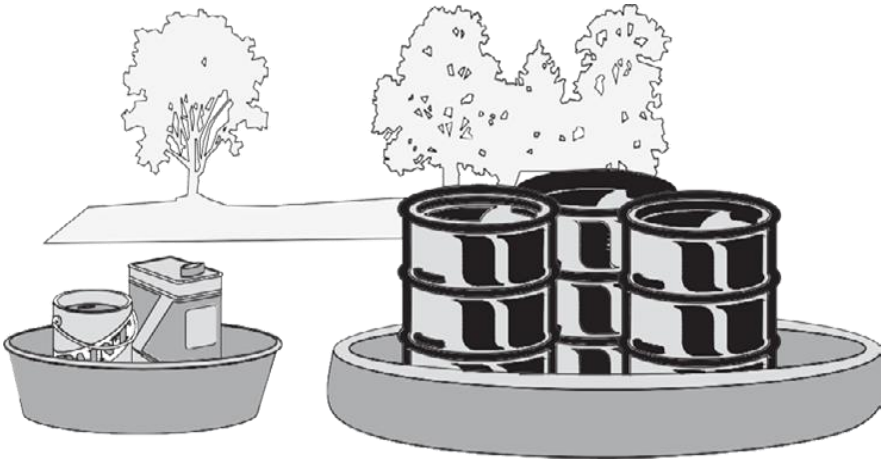


Figure for Secondary Containment System

Applicable Runoff Treatment BMPs

Drum Containment Area

- Connect the sump outlet to a sanitary sewer, with approval from Spokane County, or to appropriate treatment, or to coalescing plate oil and water separator, or other appropriate system. Chapter 5 – Runoff Treatment BMP Design of the SWMMEW identifies appropriate systems.
- Equip the sup outlet with a valve that closes to prevent the release of spilled or leaked liquids and dangerous liquids. Open this valve only for the conveyance of contaminated stormwater to treatment.
- Alternatively, pump contaminated stormwater from a dead-end sump or catchment to a tank truck or other appropriate vehicle for off-site treatment and/or disposal.

BMPS FOR STORAGE OF LIQUIDS IN PERMANENT ABOVEGROUND TANKS

DESCRIPTION OF POLLUTANT SOURCES

Aboveground liquid containing tanks and associated appurtenances (valve, vents, hose connections, steam traps, etc.) have the potential to contaminate stormwater with the tank's contents during releases, spills, and liquid transfers, as well as from condensate drainage for pollutants such as oil and grease, organic chemicals, acids, caustic, and heavy metals, among others.

POLLUTANT CONTROL APPROACH

Secondary containment, double-walled tanks, and collection sumps provide layers of protection from spills and releases of tank contents to the environment. Protective guards around tanks and the practice of tagging valves provide additional safeguards against accidental releases. Stormwater, tank washwater, and condensate collected in tank containments are initially assumed to be impacted by the tank contents, requiring contaminant assessment prior to discharge.

APPLICABLE OPERATIONAL BMPS

- Regularly inspect containment systems for tanks for damage (cracks, corrosion, etc.) and indications of leaks and spills to identify problems with fitings, pipe connections, valves, and other components.
- Place drip pans beneath all mounted taps and known drip/spill locations during tnak loading and unloading activities.
- Sweep and clean the tank storage area regularly, if paved.
- Repair or replace tanks that are leaking, corroded, or otherwise deteriorating as preventative maintenance.
- Comply with the Uniform Fire Code (UFC), UFC standards, or the National Electric Code, as applicable.
- Assess standing water in containment areas for contamination by observing for sheen, odor, and discoloration, or use analytical methods, to determine if it has been impacted prior to discharge.
- If observations indicate that the containment water has been impacted, discharge it to sanitary sewer if possible. Contact Spokane County. Otherwise collect, contain, and dispose of offsite at an approved waste facilty.

APPLICABLE STRUCTURAL SOURCE CONTROL BMPS

- Locate permanent single walled tanks in impervious secondary containment (i.e. Portland cement concrete or equivalent), or use UL-approved double-walled tanks. **See Figure for Aboveground Tank Storage below**.
- Size secondary containment systems with capacity to contain the greater volume of 10% of combined volume of all tanks, or 110% of the volume of the largest tank.
- Slope the secondary containment to drain to a dead-end sump for the collection of small spills.
- Include a tank overfill protection system to minimize the risk of spillage during loading.

APPLICABLE RUNOFF TREATMENT BMPS

- Assess the potential for the tank contents to impact stormwater, determine the appropriate treatment approach.

- Equip the outlet from the spill containment of uncovered containments with a sump that has a shutoff valve. Only open the shutoff valve to discharge contaminated stormwater to an approved treatment or disposal or convey uncontaminated stormwater to a storm drain.
- Assess standing water in containment areas for contamination by observing for sheen, odor, and discoloration, or use analytical methods, to determine if it has been impacted prior to discharge.
- If observations indicate that the containment water has been impacted, discharge it to sanitary sewer with prior approval from Spokane County. Otherwise collect, contain, and dispose of offsite at an approved waste facility.
- Convey stormwater oil and/or debris contaminated containment water to an oil and water separator or other approved treatment technology, prior to discharge to a storm drain or surface water. Appropriate treatment technologies are identified in Chapter 5- Runoff Treatment BMP Design of the SWMMEW.

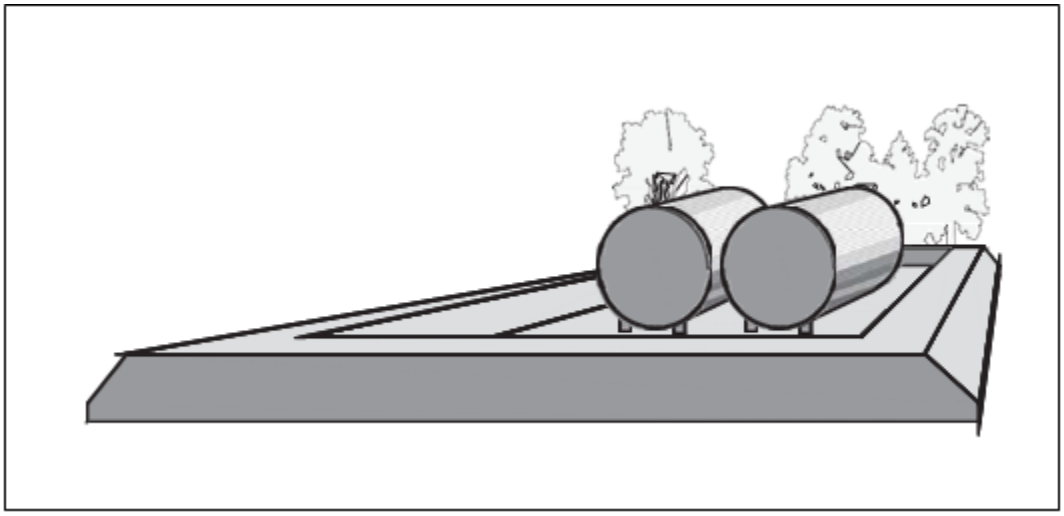


Figure for Aboveground Tank Storage

BMPS FOR OUTDOOR STORAGE OR TRANSFER OF MATERIALS

DESCRIPTION OF POLLUTANT SOURCES

Bulk materials stored outside have the potential to impact stormwater with leachate as biochemical oxygen demand, organic chemicals, dissolved salts (sodium, calcium, and magnesium chloride), heavy metals, high or low pH, etc. as well as Total Suspended Solids by the stored materials.

Pollutant sources commonly stored at facilities outside in large piles include:

- Concrete
- Gravel
- Sand
- Salts
- Topsoil
- Compost
- Logs
- Sawdust
- Wood chips
- Lumber
- Metal products

POLLUTANT CONTROL APPROACH

Provide impervious containment with berms, dikes, etc., and/or cover to prevent erosion of pile and run-on of stormwater with subsequent discharge of leachate and TSS.

APPLICABLE OPERATIONAL BMPS

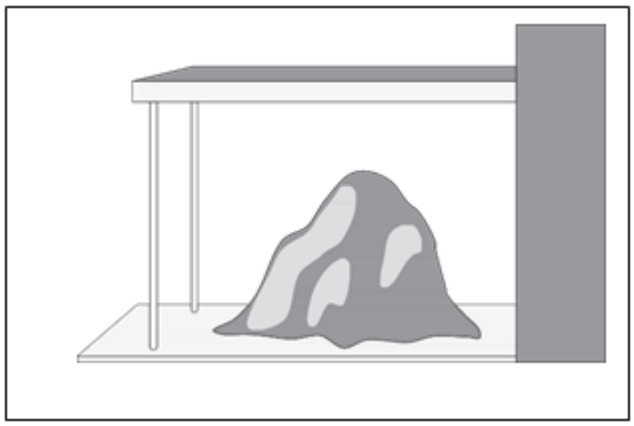
- Actively manage the stockpile and maintain control of berms and/or cover.
- Do not hose down the contained stockpile area to a storm drain, to a conveyance to a storm drain, or to a receiving water.
- Sweep paved storage areas regularly for collection and disposal of loose solid materials.
- Contain and collect stockpile materials that have migrated from the parent pile and return them.
- Stock cleanup materials, such as brooms, dustpans, and vacuum sweepers near the storage area.

APPLICABLE STRUCTURAL SOURCE CONTROL BMPS

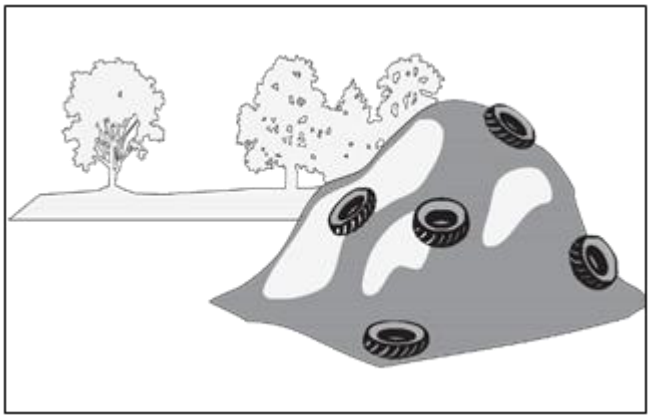
Manage stockpiles of soil, road salts, compost, unwashed sand and gravel, and sawdust that are > 5 cubic yards in size, and outdoor storage areas of logs, bark, lumber, and metals with the following:

- Store stockpiles in a building or a paved containment area that is covered. See the **Figure for Covered Area for Bulk Storage** below.
- Install a drainage system in the paved stockpile area, and place curbs or berms along the perimeter to prevent the run-on of stormwater and to contain stormwater runoff for conveyance to treatment.
- Slope the paved area in a manner that minimizes the contact between stormwater (e.g., pooling) and leachable materials in compost, logs, bark, wood chips, etc.
- Cover stockpiles of soil, road salts, compost, unwashed sand and gravel, and sawdust with a plastic sheeting. Place temporary plastic sheeting (polyethylene, polypropylene, Hypalon, or equivalent) as shown below in the **Figure for Material Covered with Plastic Sheeting**.
- Implement containment structures at the perimeter of large, uncovered stockpiles, and cover catch basins to prevent eroded materials from discharging offsite or into storm drains.

- Eliminate the potential for runoff from large, uncovered stockpile areas to enter catch basins without having first passed through an appropriate runoff treatment BMP.



Covered Storage Area for Bulk Materials



Material Covered with Plastic Sheeting

Applicable Runoff Treatment BMP

- Convey contaminated stormwater from the stockpile area to an appropriate runoff treatment BMP, dependent on contaminant of concern. Details on applicable BMPs are contained in Chapter 5 – Runoff Treatment BMP Design of the SWMMEW.
- Common runoff treatment BMPs for stockpiles include:
    - SWMMEW BMP T5.70: Basic Wetpond
    - SWMMEW BMP T5.71: Large Wetpond
    - SWMMEW BMP T5.72: Wetvaults
    - Settling basins
    - Other appropriate runoff treatment BMP depending on the contaminant.

BMPS FOR LOADING AND UNLOADING AREAS FOR LIQUID OR SOLID MATERIALS

DESCRIPTION OF POLLUTANT SOURCES

Transferring manufactured products, raw materials, waste materials, fuel, scrap metals, etc. can lead to leaks and spills of fuels, oils, powders, organics, heavy metals, salts, acids, alkalis, etc., which have the potential to impact stormwater.

POLLUTANT CONTROL APPROACH

Cover and contain the loading/unloading area where necessary to prevent run-on of stormwater and runoff of contaminated stormwater.

APPLICABLE OPERATIONAL BMPS

Loading and Unloading Areas

- Sweep uncovered loading/unloading areas frequently to remove loose material that could contaminate stormwater.
- Sweep areas temporarily covered after removal of the containers, logs, or other material covering the ground.
- Place drip pans, or other appropriate temporary containment device, at hose connections, hose reels, filler nozzles, and other locations where leaks or spills may occur.
- Use drip pans when making and breaking connections.
- Regularly check valves, pumps, flanges, and connections on loading/unloading equipment regularly for leaks and repair as needed.

Tanker Truck and Rail Transfer Areas to Aboveground/Belowground Storage Tanks

- Prepare an "operation plan" that describes procedures for loading/unloading to minimize risk from large spills.
- Train all employees on the Operations Plan and post it or make it readily available to all employees.
- Prepare and implement a Spill Prevention Control and Countermeasures (SPCC) plan for the facility if applicable. See BMPs for Spills of Oil and Hazardous Substances.
- Ensure that an employee trained in spill containment and cleanup is present during loading/unloading.
- Retain and maintain an appropriate oil spill kit on-site for rapid cleanup of material spills.
- Cleanup of liquid/solid spills in the loading/unloading area immediately.
- Report spills of reportable quantities to Ecology.

APPLICABLE STRUCTURAL SOURCE CONTROL BMPS

Loading and Unloading Areas

- Conduct unloading or loading of solids and liquids in a building or under a roof, lean-to, or other appropriate cover.
- Berm, dike, and/or slope the loading/unloading area to prevent run-on of stormwater and to prevent the runoff or loss of any spilled material from the area.

- Place curbs along the edge of the loading/unloading areas or slope the edge such that the stormwater can flow to an internal drainage system that leads to an approved runoff treatment BMP.
- Avoid draining directly to the surface water from loading/unloading areas.
- Pave and slope loading/unloading areas to prevent the pooling of water.
- Minimize the use of catch basins and drain lines within the interior of the paved area, or place catch basins is designated “alleyways” that are not covered by material, containers, or equipment.
- Retain the necessary materials for rapid cleanup of spills on-site.

Recommended Structural Source Control BMP

- Install an automatic shutoff system for the transfer of pollutant liquids in areas that cannot contain a catastrophic spill.

Loading and Unloading Docks

- Install/maintain overhangs or door skirts that enclose the trailer end to prevent contact with rainwater.
- Design the loading/unloading are with berms, sloping, etc., to prevent the run-on of stormwater.

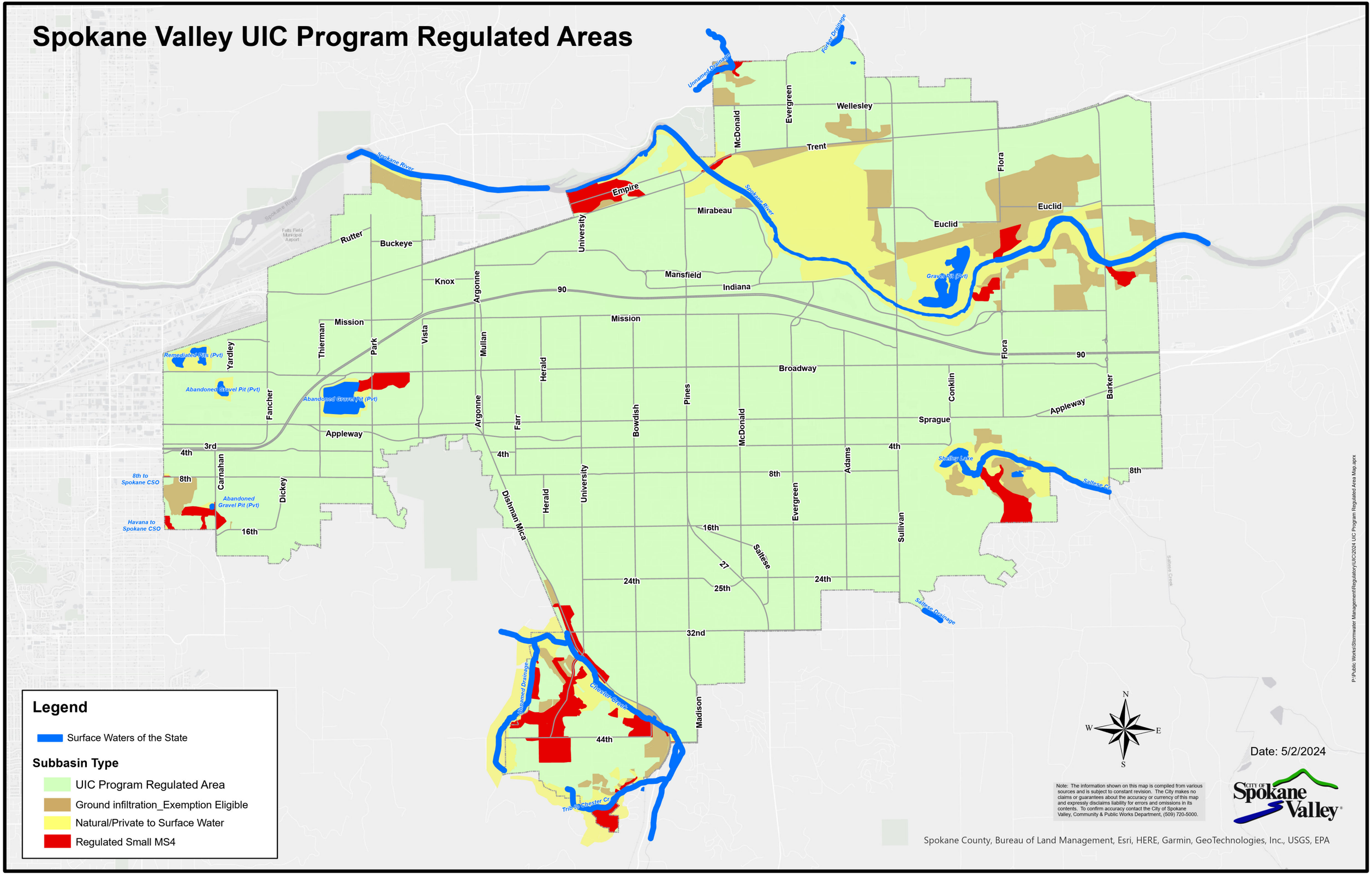
Tanker Truck Transfer Areas to Aboveground/Belowground Storage Tanks

- Pave the area on which the transfer takes place with asphalt or Portland cement concrete.
- Slope, berm, or dike the transfer area to a dead-end sump, spill containment sump, an oil and water separator, or other spill control device. The minimum spill retention time should be the greater of:
    - 15 minutes at the flow rate of the highest fuel dispenser nozzle through-put-rate, or
    - the peak flow rate of the 6-month, 24-hour storm event over the surface of the containment pad.
- The capacity of the spill containment sump should be a minimum of 50 gallons with additional capacity provided for grit sedimentation.

APPENDIX B – O&M PLAN EXHIBITS

- ✓ UIC Regulated Area, MS4 Outfalls & Catchment Areas, Surface Waters
- ✓ City of Spokane Valley Owned and Maintained Property

Spokane Valley UIC Program Regulated Areas



Legend

- Surface Waters of the State

Subbasin Type

- UIC Program Regulated Area
- Ground infiltration_Exemption Eligible
- Natural/Private to Surface Water
- Regulated Small MS4

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Date: 5/2/2024

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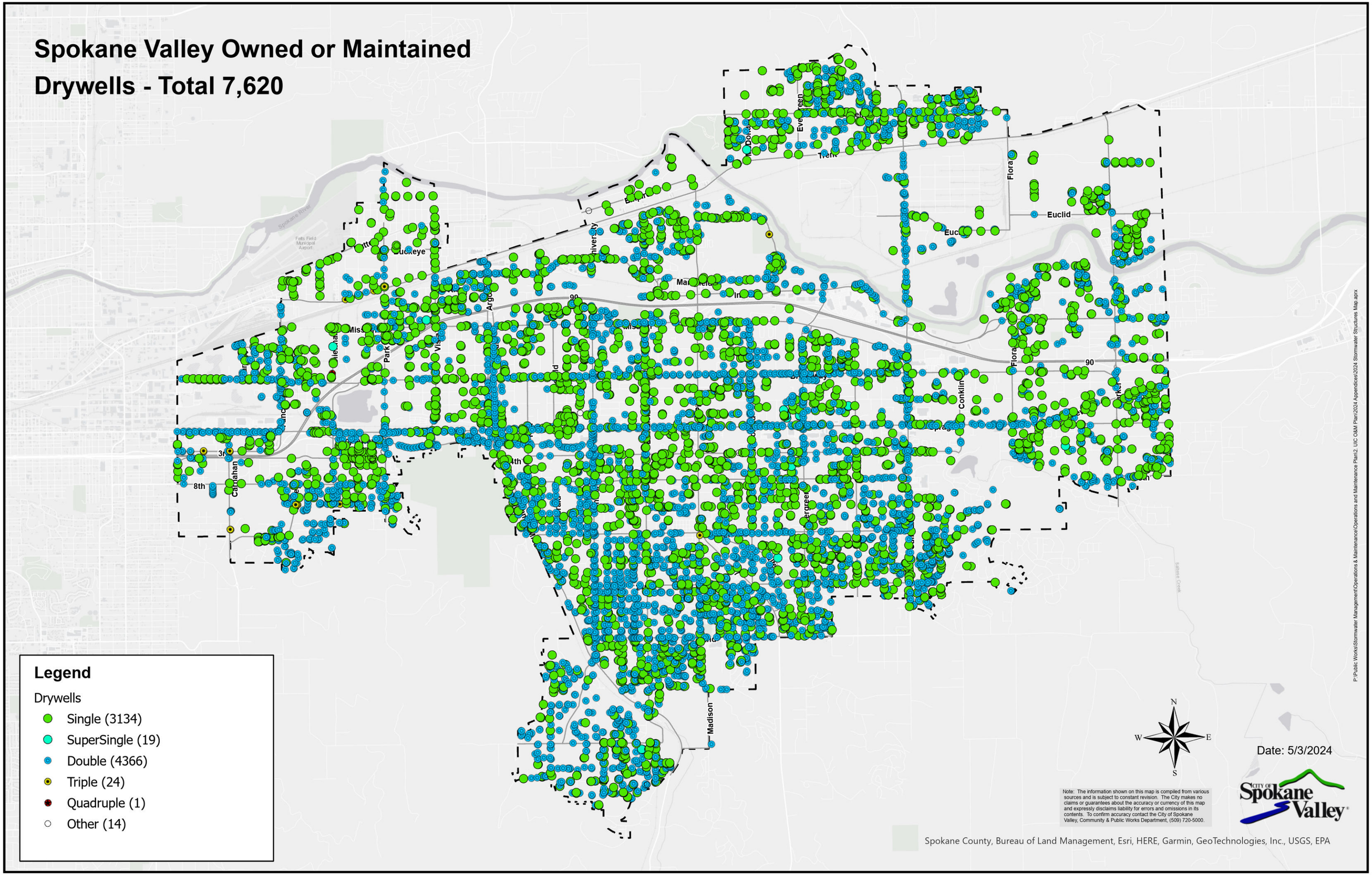
APPENDIX C – FACILITY AND STRUCTURE MAPS

- ✓ Drywells
- ✓ Catch Basins and Concrete Inlets
- ✓ Curb and Sidewalk Inlets
- ✓ Manholes
- ✓ Bridge Drains
- ✓ Pipe Sumps
- ✓ Pre-treatment
- ✓ Pipes and Culverts
- ✓ Swales
- ✓ Rock Maintenance Shoulders

Spokane Valley Owned or Maintained
Drywells - Total 7,620



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Drywells

- Single (3134)
- SuperSingle (19)
- Double (4366)
- Triple (24)
- Quadruple (1)
- Other (14)

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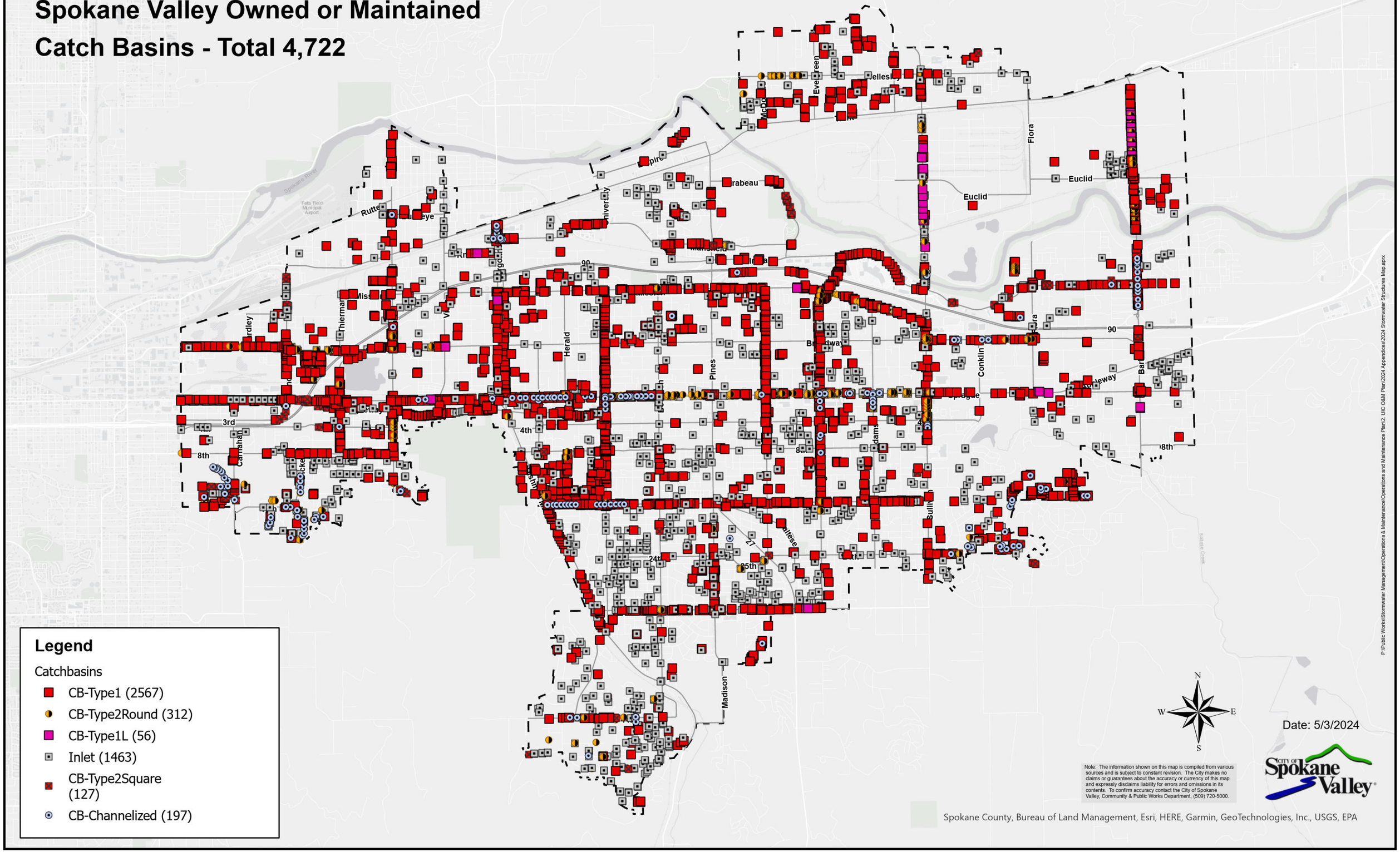
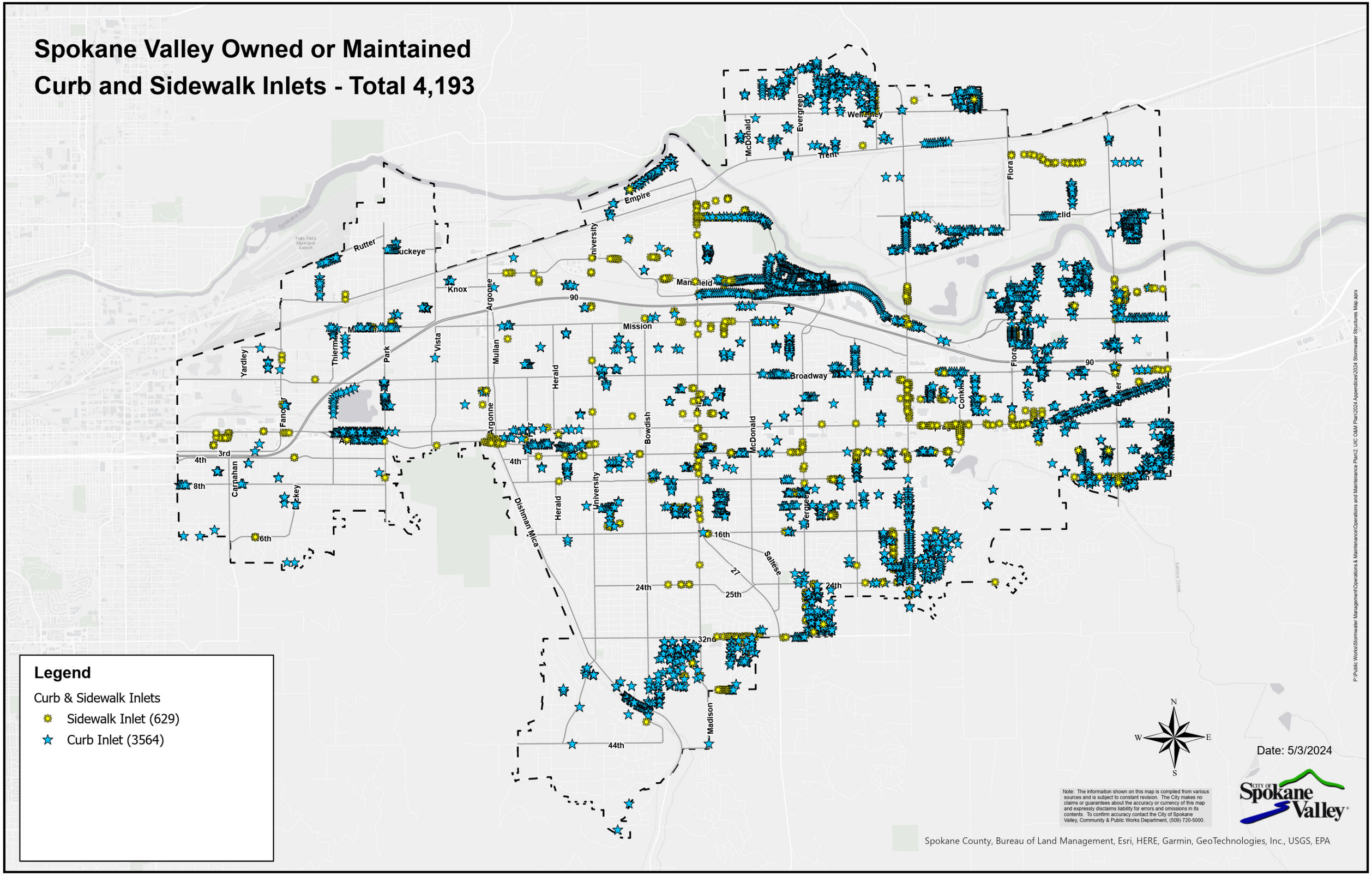
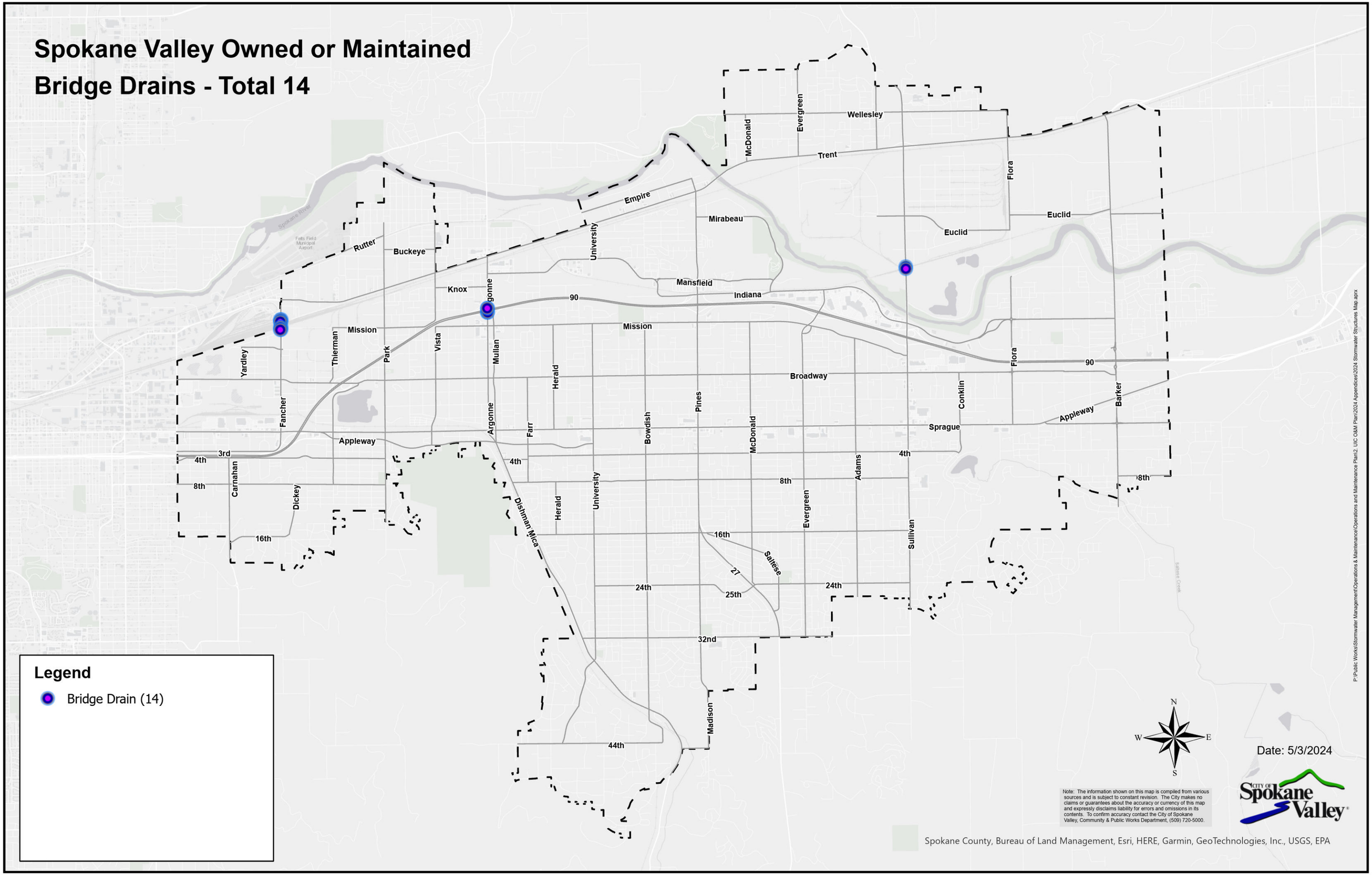
Spokane Valley Owned or Maintained
Catch Basins - Total 4,722



Spokane Valley Owned or Maintained
Curb and Sidewalk Inlets - Total 4,193



Spokane Valley Owned or Maintained Bridge Drains - Total 14



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- Bridge Drain (14)

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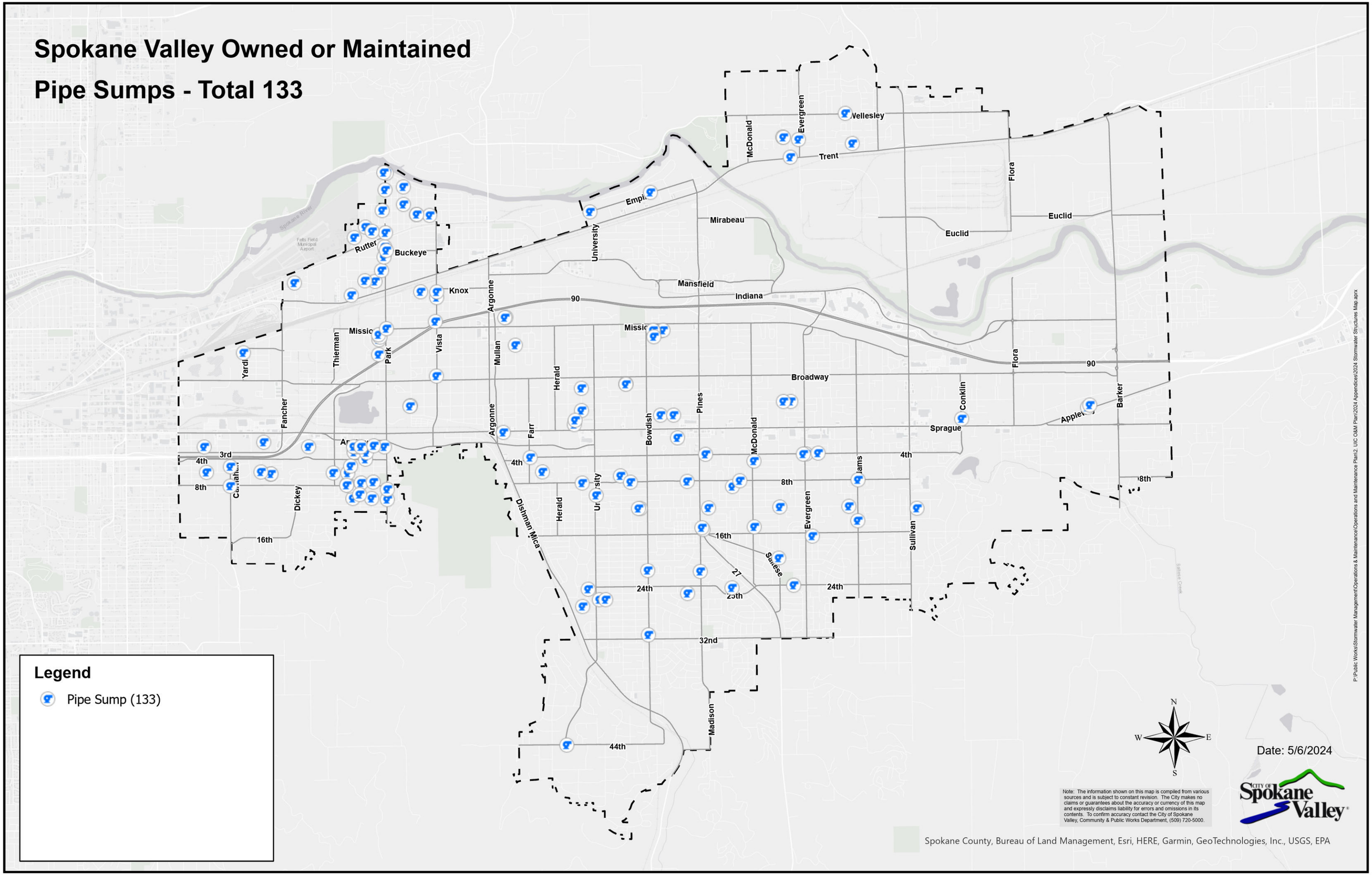
Spokane Valley Owned or Maintained

Pipe Sumps - Total 133



Legend

- Pipe Sump (133)

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Date: 5/6/2024

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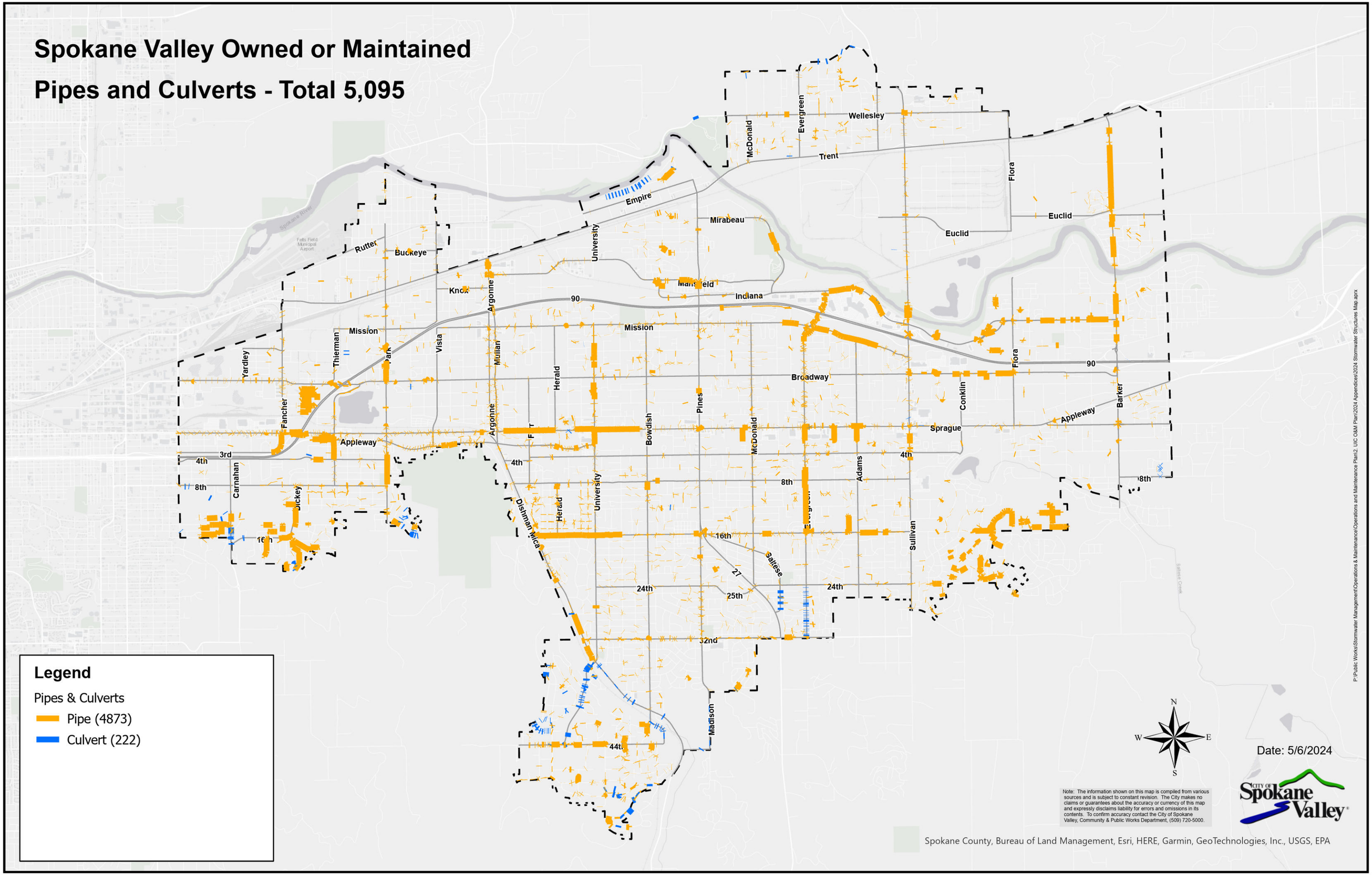
Spokane Valley Owned or Maintained Pipes and Culverts - Total 5,095



Legend

Pipes & Culverts

- Pipe (4873)
- Culvert (222)

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Date: 5/6/2024

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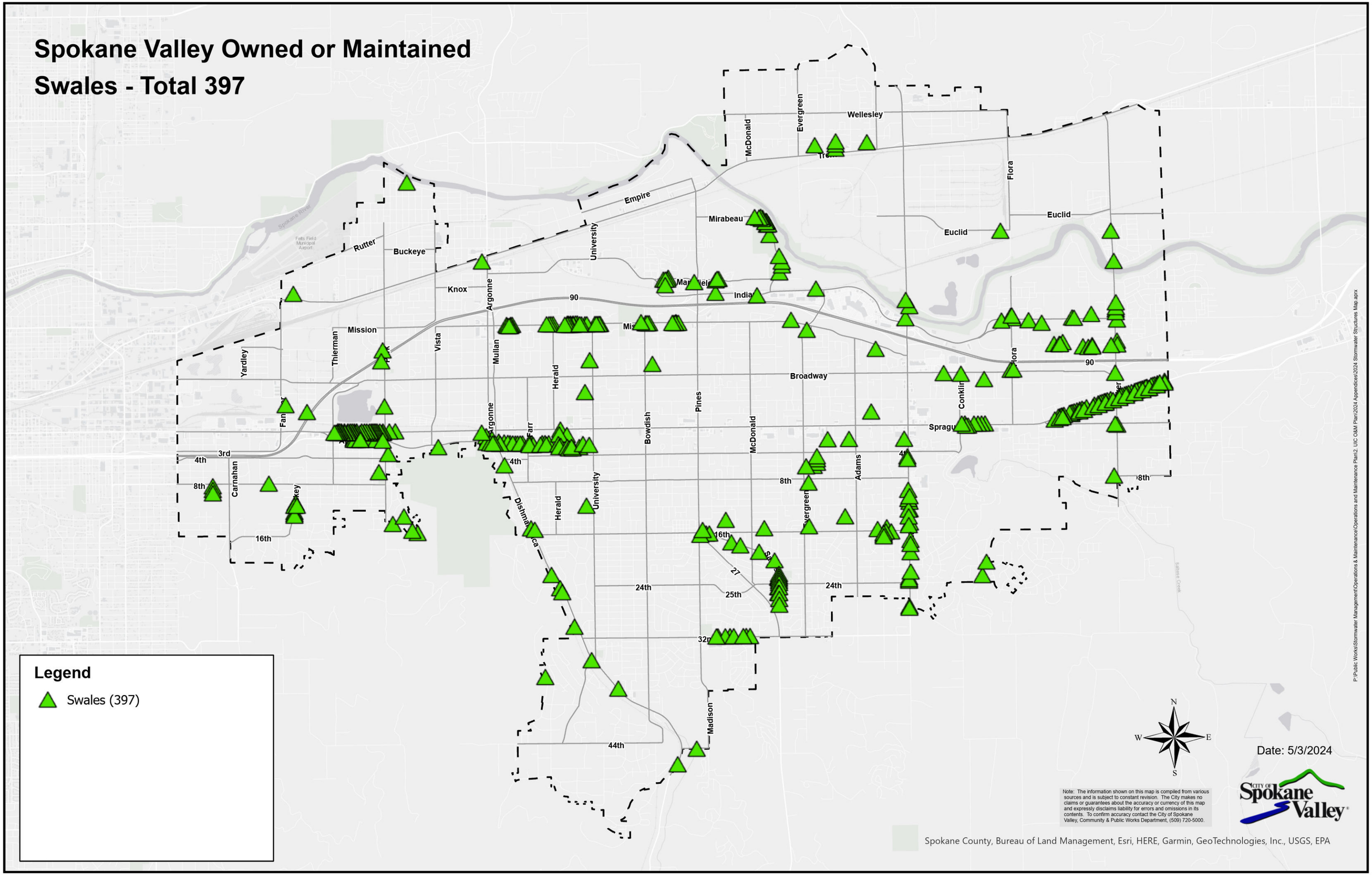
Spokane Valley Owned or Maintained
Swales - Total 397



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- Swales (397)

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Date: 5/3/2024

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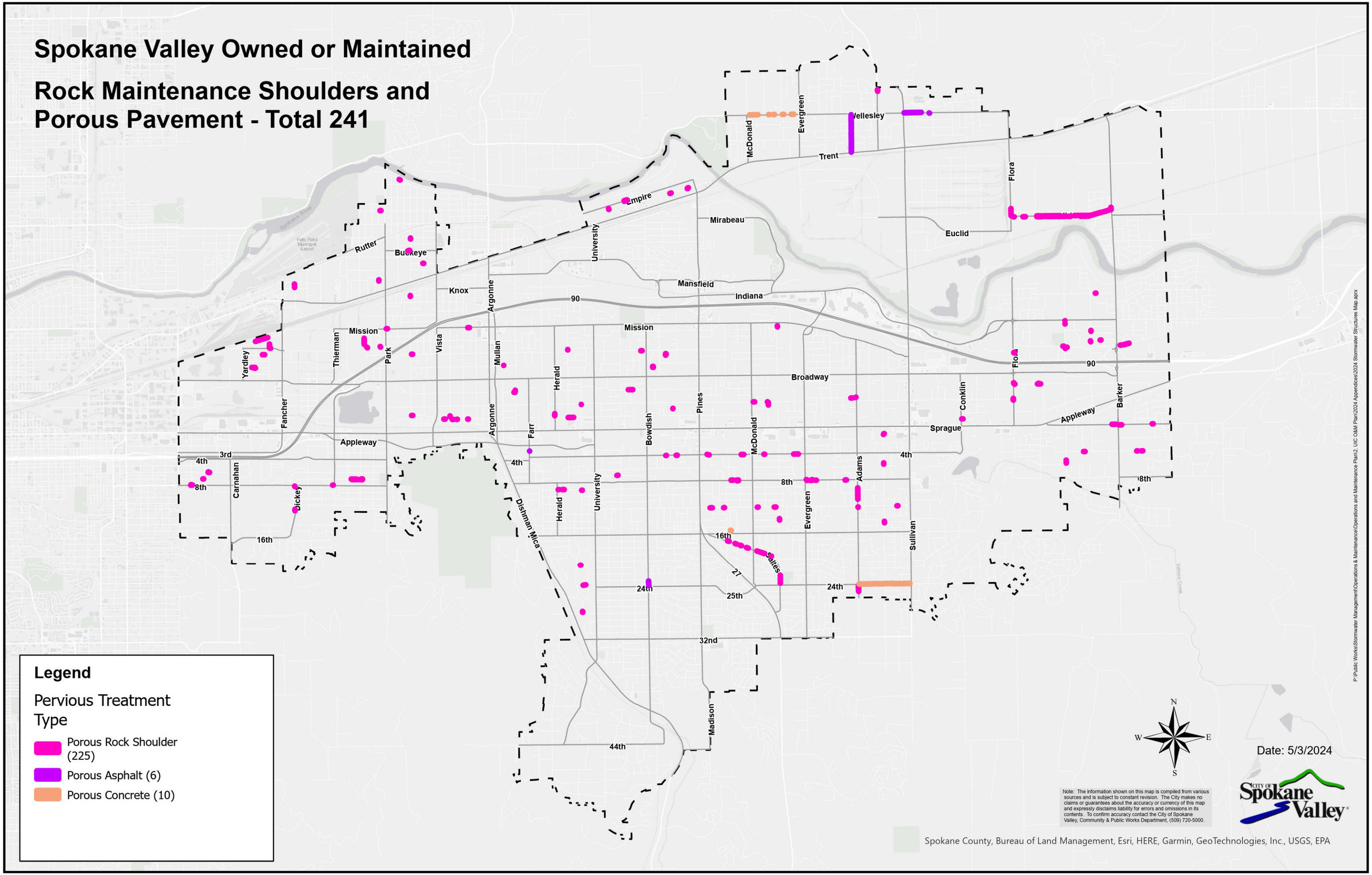
Spokane Valley Owned or Maintained

Rock Maintenance Shoulders and Porous Pavement - Total 241



Legend

Pervious Treatment Type

- Porous Rock Shoulder (225)
- Porous Asphalt (6)
- Porous Concrete (10)

N
W
E
S

Date: 5/3/2024

Note: The information shown on this map is compiled from various sources and is subject to constant revision. The City makes no claims or guarantees about the accuracy or currency of this map and expressly disclaims liability for errors and omissions in its contents. To confirm accuracy contact the City of Spokane Valley, Community & Public Works Department, (509) 720-5000.

Spokane County, Bureau of Land Management, Esri, HERE, Garmin, GeoTechnologies, Inc., USGS, EPA

P:\Public Works\Stormwater Management\Operations & Maintenance\Operations and Maintenance Plan\2. UIC O&M Plan\2024 Appendices\2024 Stormwater Structures Map.aprx

APPENDIX D – INSPECTION FORMS

- ✓ Swale Inspection Form
- ✓ Drywell Inspection Form
- ✓ Catch Basin, Inlet, Manhole Inspection Form

Swale Inspection Fields

Field Name	Field Type	Domain Values	Field Comments
Completed Date	Date	N/A	
Completed By	Domain		
		Aaron Clary Cory Olson Brant Collier AAA Sweeping - Dylan Schab AAA Sweeping - ...	
Pipes Blocked	Domain		Indicates if pipe inlets or outlets of swale are blocked by sediment, sod, or debris.
		No Value Yes No	
Ground Cover	Domain		
		Dryland Grass Sod Dirt/Weeds Rock Bark Wetland Grass	
Swale Operational	Domain		
		No Value Yes No	
Inlets Clear	Domain		
		No Value Yes No	
Traffic Control	Domain		If traffic control is needed this field can be used. Primarily for tracking and payment if inspection is done with a contractor.
		No Value Yes No	
Damage	Domain		
		No Value Yes No	
Damage Comment	Text	N/A	Allows for description of damage, if present.

Drywell Inspection Fields

Field Name	Field Type	Domain Values	Field Comments
Completed Date	Date	N/A	
Completed By	Domain		Staff can be added or deleted to this list as needed.
		Aaron Clary	
		Cory Olson	
		Brant Collier	
		AAA Sweeping - Dylan Schab	
		AAA Sweeping - ...	
Unable to Inspect	Domain		
		No Value	
		Yes	
		No	
Illicit Discharge	Domain		
		No Value	
		Yes	
		No	
Illicit Discharge Comment	Text	N/A	Allows for description of illicit discharge, if present.
Traffic Control	Domain		If traffic control is needed this field can be used. Primarily for tracking and payment if inspection is done with a contractor.
		No Value	
		Yes	
		No	
Damage			
		No Value	
		Yes	
		No	
Damage Comment	Text	N/A	Allows for description of damage, if present.
Depth to Bottom	Numeric	N/A	Measurement from the rim to the bottom sump of the structure.
Depth to Sediment	Numeric	N/A	Measurement from the rim to the average bottom of accumulated sediment, if any.
Depth to Water	Numeric	N/A	Measurement to water in structure. Used to help indicate drywells with poor infiltration.

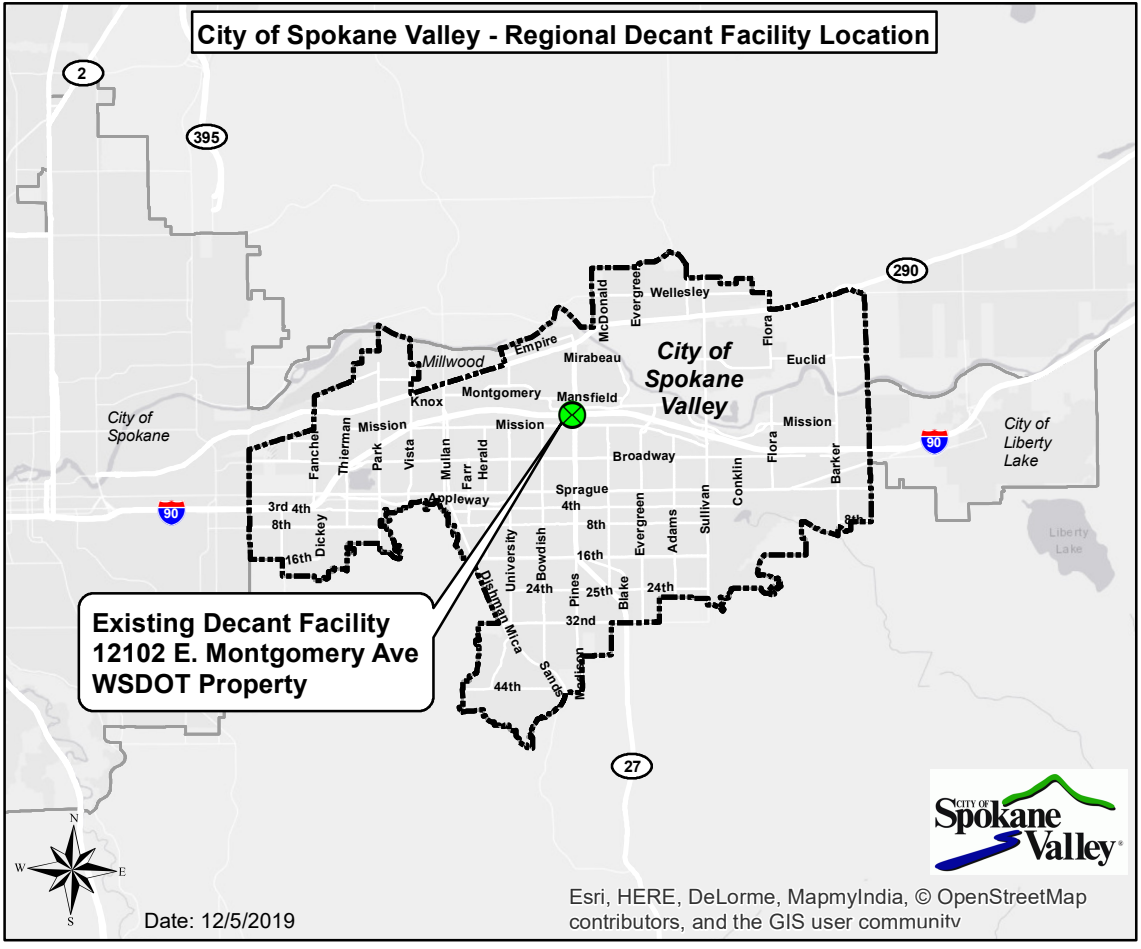
Catch Basin, Catch Basin Inlet, Manhole Inspection Fields

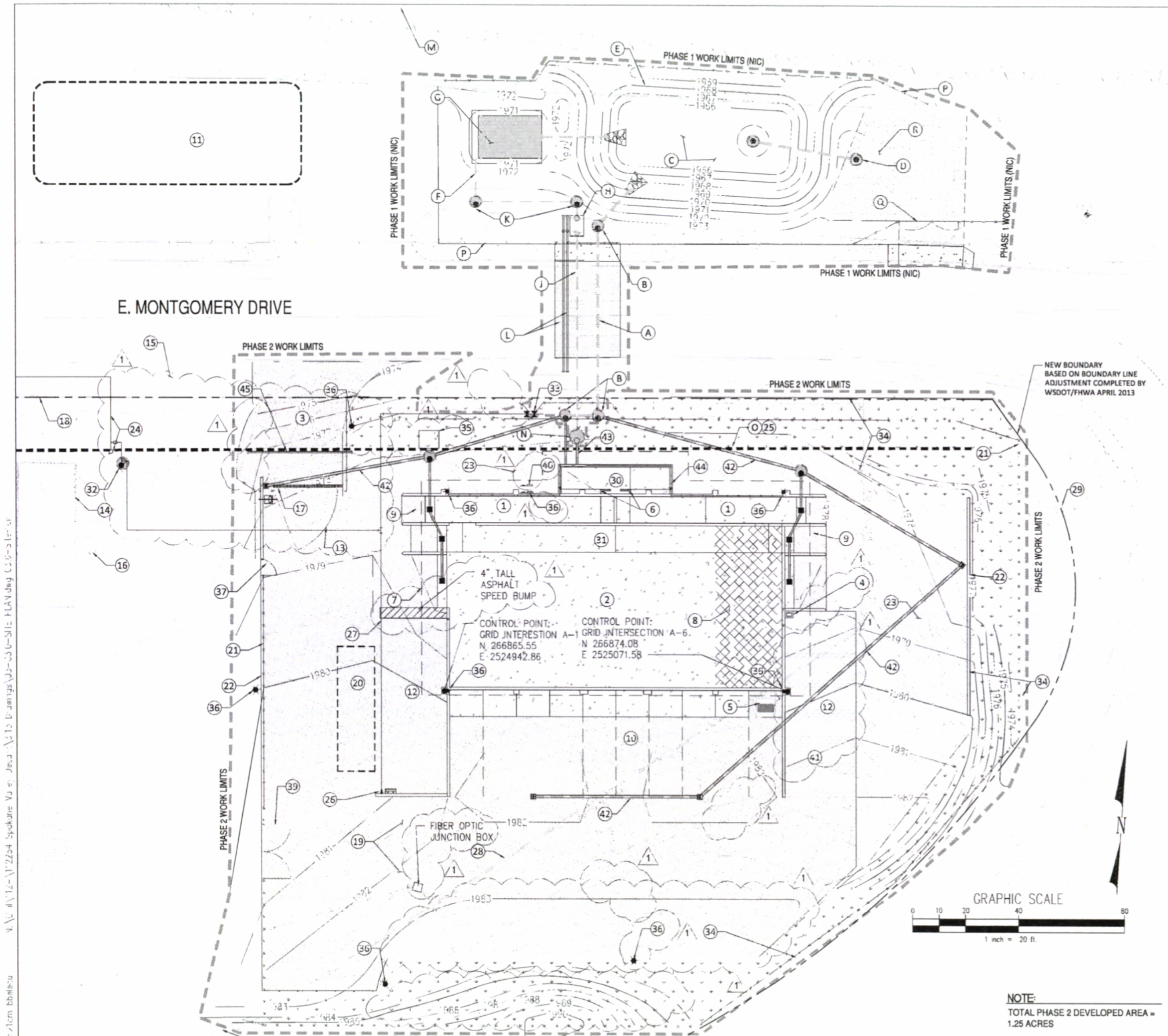
Field Name	Field Type	Domain Values	Field Comments
Completed Date	Date	N/A	
Completed By	Domain		Staff can be added or deleted to this list as needed.
		Aaron Clary	
		Cory Olson	
		Brant Collier	
		AAA Sweeping - Dylan Schab	
		AAA Sweeping - ...	
Unable to Inspect	Domain		
		No Value	
		Yes	
		No	
Frame	Domain		
		No Value	
		Yes	
		No	
Grate or Cover	Domain		
		No Value	
		Yes	
		No	
Offset Under Curb	Domain		Indicates if offset structure will make it difficult to clean with standard vactor hose.
		No Value	
		Yes	
		No	
Illicit Discharge	Domain		
		No Value	
		Yes	
		No	
Illicit Discharge Comment	Text	N/A	Allows for description of illicit discharge, if present.
Traffic Control	Domain		If traffic control is needed this field can be used. Primarily for tracking and payment if inspection is done with a contractor.
		No Value	
		Yes	
		No	
Damage	Domain		
		No Value	
		Yes	
		No	
Damage Comment	Text	N/A	Allows for description of damage if present.
Depth to Bottom	Numeric	N/A	Measurement from the rim to the bottom sump of the structure.
Depth to Sediment	Numeric	N/A	Measurement from the rim to the average bottom of accumulated sediment, if any.
Depth to Pipeout	Numeric	N/A	Measurement from the rim to the invert of the pipe out.

APPENDIX E – DECANT FACILITY

- ✓ Decant Facility Vicinity Map
- ✓ Decant Facility Site Plan

City of Spokane Valley - Regional Decant Facility Location





AS - BUILT

SITE PLAN KEYNOTES:

PHASE 1-UTILITY/STORMWATER ITEMS (NOT IN CONTRACT):

- (A) SITE STORM SEWER PIPE TO BIO-INFILTRATION POND
- (B) STORM SEWER PIPE ACCESS MANHOLES
- (C) WATER QUALITY TREATMENT BIO-INFILTRATION POND (APPROX. 1,500 SF, INFILTRATION DEPTH = 2.11")
- (D) INFILTRATION DRYWELL
- (E) TOP OF BIO-INFILTRATION POND = 1968.11
- (F) DECANTED STORM SEWER TO SANDFILTER
- (G) DECANTED STORM WATER TREATMENT SANDFILTER
- (H) OIL AND WATER SEPARATOR VAULT
- (J) DECANTED STORM SEWER FROM SETTLING POOL TO TREATMENT TRAIN AND POND
- (K) DECANTED STORM SEWER MANHOLES
- (L) SPARE CONDUITS FOR FUTURE WATER, DATA & POWER
- (M) FUTURE DECANTED STORM SEWER CONNECTION TO EXISTING SANITARY SEWER IF PERMITTED BY THE SPOKANE COUNTY DIVISION OF UTILITIES
- (N) DECANTED STORM SEWER MANHOLE WITH FLOW CONTROL STRUCTURE
- (O) 20' BUILDING SETBACK
- (P) PERIMETER SECURITY FENCE
- (Q) ACCESS GATE
- (R) RECYCLED ASPHALT PAVEMENT

PHASE 2-FACILITY STRUCTURE ITEMS:

1. DECANTED LIQUID SETTLING POOLS (APPROX 1,360 SF)
2. DECANT TIPPING FLOOR & PRELIM DRYING AREA, 0.75% SLOPE (APPROX 6,426 SF)
3. 30' WIDE DRIVEWAY
4. HEATED FLOOR ELECTRICAL JUNCTION BOX
5. SUSPECT LOAD HOLDING SUMP CATCH BASIN WITH SOLID LID
6. DECANTED LIQUID SETTLING POOL OUTLETS
7. FUTURE PHASE CANOPY OUTLINE
8. HEATED CONCRETE PAD AREA
9. LOADER ACCESS RAMP
10. STANDARD STALL: 12'-6" WIDE, 40' LONG
11. CONTRACTOR LAYDOWN AREA
12. SECONDARY STORAGE LOCATION < 300 CY EACH
13. 24' RF ID AUTOMATED SWING ACCESS GATE
14. EXISTING BRINING FACILITY
15. EXISTING DRIVEWAY
16. EXISTING LUMINAIRE
17. STORMWATER TRENCH DRAIN
18. APPROX. RIGHT OF WAY BOUNDARY LINE
19. ASPHALT PAVEMENT (APPROX. 27,212 SF)
20. WATER REFILL PAD
21. PERIMETER SECURITY FENCE
22. EXTRUDED CURB
23. GRAVEL SURFACING (APPROX 8,230 SF)
24. FIRE HYDRANT AND ASSOCIATED WATER LINE (NIC)
25. 20' ROW SETBACK
26. NEW YARD HYDRANT WITH HOSE RACK
27. WATER MAIN
28. EXISTING CHAIN LINK FENCE REMOVED (APPROX 600 LF), FABRIC REUSED
29. EXISTING DRY WELL
30. DECANTED LIQUID TRANSITION POOL (APPROX 410 SF)
31. DECANTED LIQUID DIRECTIONAL TROUGH (APPROX 1,270 SF)
32. BACKFLOW PREVENTER ASSEMBLY
33. IRRIGATION VALVES, SEE LANDSCAPE PLANS
34. LANDSCAPE PLANTING, SEE SHEETS L1.0 THROUGH L1.4
35. TRANSFORMER
36. NEW LIGHT STANDARD
37. 6' SINGLE GATE
38. IRRIGATION CONTROLLERS (WITH 40)
39. MANUALLY OPERATED 20' GATE
40. ELECTRICAL PANEL RACK, SEE ELECTRICAL SHEETS
41. PORTLAND CEMENT CONCRETE (PCC) PAVEMENT (APPROX 1,880 SF)
42. STORM SEWER
43. DECANTED LIQUID SEWER
44. GUARD RAIL
45. 12" Ø PVC CASING PIPE FOR FUTURE UTILITY

LEGEND:

- 1970 — PROPOSED GRADE CONTOUR
- EXISTING GRADE CONTOUR
- CAST-IN-PLACE CONCRETE STRUCTURE, SEE STRUCTURAL SHEETS
- PROPOSED FENCE
- HOT MIX ASPHALT PAVEMENT (HMA)
- GRAVEL SURFACING
- PORTLAND CEMENT CONCRETE (PCC) PAVEMENT
- RECYCLED ASPHALT PAVEMENT

NOTE:
TOTAL PHASE 2 DEVELOPED AREA = 1.25 ACRES

CALL BEFORE YOU DIG 1-800-424-5555

REVISIONS			
NO.	DATE	DESCRIPTION	BY
1	03/20/15	AS-BUILTS	SWR

kpff Consulting Engineers

City of Spokane Valley, Department of Public Works, 11707 East Sprague Avenue, Suite 106, SPOKANE VALLEY, WA. 99206, (509) 921-1000

DRAWING TITLE: SITE PLAN
PHASE 2: FACILITY STRUCTURE
REGIONAL DECANT FACILITY

PROJECT NO.	SCALE:	DATE:	SHEET NO.
112264	AS NOTED	02/11/14	C3.0
DESIGNED BY: RLO	CHECKED BY: SWK		DRAWING NO. 3 of 39
DRAWN BY: RLO	REVIEWED BY: SWK		

APPENDIX F – STREET SWEEPING ACTION PLANS

- ✓ Arterial Sweeping Action Plan
- ✓ Spring Sweeping Action Plan
- ✓ Fall Sweeping Action Plan
- ✓ Arterial Sweeping Map
- ✓ Spring Sweeping Map
- ✓ Fall Sweeping Map

Arterial Sweeping Action Plan

This document addresses the City of Spokane Valley's Arterial Sweeping Action Plan and outlines the purposes, responsibilities, service areas, and approaches to the work. You are welcome to make comments, suggestions, or pose questions regarding this document to the City's Stormwater Utility (SWU).

SWU is responsible for implementing and administering the Sweeping Program. The City contracts to provide street sweeping services. The City's Street Superintendent leads the sweep operation, giving direction to the Contractor, and inspecting the work. Program details and suggested changes are referred to SWU personnel for consideration to incorporate into periodic updates.

Arterial Sweeping Purposes

Arterial sweeping keeps City streets operational, improves air quality, and protects stormwater infrastructure supporting the street system. To the extent possible and practical, the main reasons for a Sweeping Arterials throughout the year include:

1. Meet Air Quality Requirements and Standards by picking up sediments that may have accumulated over the winter months, including traction materials.
2. Reduce street flooding by clearing debris that obstructs stormwater from flowing into City street inlets and grates.
3. Extend life span of stormwater drainage fields by limiting street debris transported to City-owned stormwater systems.
4. Reduce possible pollutants to surface water and groundwater.
5. Sweep Bike Lanes for safety to the bicyclist to encourage bike lane use, and the motoring public.
6. Provide clean surfaces for traffic striping operations.

Arterial Sweeping Service Map

The City has prepared a Service Map which identifies Arterials to be swept and delineates work zones. Prioritization of the Arterial system takes into account the average daily traffic counts, zoning, bike routes, staff observance, and public service requests. A copy of the Map should be attached with this document.

Work Approach

Direction to Start

The direction to start monthly Arterial Sweeping will come through the City's Street Superintendent at the time that the Deputy City Manager concurs with recommendations from Stormwater Utility staff.

Sweep Priority

After receiving authorization to start, the Street Superintendent may indicate a priority and order of which Arterials are to be swept by the Contractor. Arterials take priority over collector or local roads.

Sidewalk Cleaning

During the first cleaning, after winter maintenance operations conclude, in the spring, and prior to sweeping the roadway, the Contractor shall clean non-separated arterial sidewalks and medians as needed or required by the City. In addition, the Contractor shall clean sidewalks at other locations as needed, prior to sweeping the roadway. The Contractor will flush sidewalks with water trucks and do their best to minimize runoff. The Contractor shall have an appropriate number of sweepers behind the truck to collect any debris and runoff to minimize impact to the storm drain system.

Frequency

Winter sweeping of Arterials is infrequent and dependent upon weather conditions and City approval. Typically, winter sweeping will only occur during periods of above freezing temperatures and only along curbs of priority one and two Arterials, or as directed. No wet cleaning of sidewalks will be permitted until average overnight temperatures are above freezing and winter operations have concluded, usually during the latter half of March.

Spring sweeping of Arterial streets will follow the prescribed manner as indicated in the Spring Sweep Action Plan.

Subsequent sweeping of Arterials during the summer and fall months will be along curbs only unless directed otherwise and in the following manner:

- Priority one areas are shown on the map with solid red lines are authorized to be swept twice a month.
- Priority two areas are shown on the map as solid orange lines are authorized to be swept once during the month.
- All other areas will be authorized by the City as determined necessary.

Inclement Weather

Street sweeping shall not be conducted when there are climatic conditions present or forecast that would make such operation ineffectual or dangerous. These conditions include, but are not limited to, heavy rain, wind and gusts greater than 20 mph, snow, sleet and ice, or freezing temperatures.

Night Sweeping

Commercial and Industrial areas shown with a dark shadow around priority lines and are allowed to be swept at night, with advanced notice to the City.

Day Sweeping

The Contractor will only be allowed to sweep near or within residential areas between the hours of 7:00 a.m. and 7:00 p.m.

Equipment

The Contractor will use regenerative air type sweepers for initial sweeping of arterials in the spring. After the initial sweep of arterials is completed, sweeping along curbs is to be accomplished using a high-efficiency vacuum sweeper. Other types of sweeping equipment may be used only with written or email permission from the City.

Equipment Usage

Water Trucks and Pressure Washers are allowed for the following uses:

- On arterials, for jetting debris off sidewalks adjoined to curbing, and at raised medians.
- With prior authorization of the City, the Contractor may, in areas of heavy needle and leaf debris, use a jet to move debris from the center of the road into a windrow for curb-line pass pickup by a sweeper. If allowed by the City to follow this practice, the Contractor shall in all cases keep the jetted debris in the street and collect the windrow with a sweeper within 30 minutes.

Mechanical Sweepers are allowed for the following uses:

- Use of Mechanical Sweepers is with City approval only.
- Mechanical sweepers shall only be utilized for large particle and volume pickup in specific locations where the City deems the debris load high enough to warrant use.

Regenerative Sweepers

- Regenerative Sweepers are to be the main type of equipment for sweeping in the City, with most curbed streets and lane miles being initially swept in the spring with a Regenerative Air Sweeper.
- Areas depicted by the City with permeable surfacing should **not** be swept with a Regenerative Air Sweeper.

High Efficiency Vacuum Sweepers

- Only High Efficiency Vacuum Sweepers are to be used in areas with permeable surfacing. No other form of cleaning the street should be used in these areas.
- In the spring, after street sweeping with other equipment, a High Efficiency Vacuum Sweeper should be used on Principle Arterials, Minor Arterials, and Collectors for cleaning within 36-inches of the curb. The operator should make every effort to keep the vacuum head as close to the curb as possible, if not up against the front face of curb. Using the gutter broom should be minimal.

Order of Operations

Typical order of operations is as follows:

1. Sweep roads per specific City schedule and priority, if any.

2. Clean arterial sidewalks adjoined to curb and gutter, and at raised medians with Water Trucks or pressure washers as authorized.
3. Regenerative Air Sweep all curbs, intersection curb returns, left turn lanes, and flush concrete or paved medians.
4. If debris load is significant in certain areas, a Mechanical Sweeper may be used along curblines with City authorization and then followed with a Regenerative Air Sweeper. Mechanical sweepers should only be employed when it is clear that a Regenerative Air Sweeper would not be able to pick up the load within two or more passes.
5. On arterials after the initial first pass in the spring of a Regenerative Sweeper, use a High Efficiency Vacuum Sweeper along the curb-lines.
6. Only use High Efficiency Vacuum Sweepers over porous asphalt shoulders (starting Fall 2015 on Bowdish near 26th, Adams between Trent and Wellesley, and Wellesley along the East Valley High School frontage).

Street Debris Transfer Stations, Disposal, Water Resupply

The City allows the Contractor to temporarily store collected debris at the southeast corner lot at Mission and Pierce, and at the City's street maintenance yard at 17000 E. Euclid. Storage piles of street debris must be removed within 3 months. The City of Spokane Valley currently has the Contractor permanently dispose of street debris at the Graham Road Landfill by means of loader and dump trucks from the transfer station(s).

Water resupply locations are to be coordinated by the Contractor with their water purveyor(s). All locations should be approved by the City prior to use.

Parked Vehicles

Parking is not restricted for street sweeping purposes; residents are asked to voluntarily not park vehicles on the street on their designated sweeping day. The Contractor shall sweep around any vehicle parked on the street.

Feedback and Review

The City strives to improve response and value it gives to citizens, property owners, and rate payers. Any feedback is appreciated, both positive and/or negative with the overall sweeping program, this plan, implementation, equipment used, weather response, etc. The Stormwater Utility will take all comments and use those to revise and improve future sweeping plans.

Spring Sweeping Action Plan

This document addresses the City of Spokane Valley's Spring Sweeping Action Plan and outlines the purposes, responsibilities, service areas, and approaches to the work. You are welcome to make comments, suggestions, or pose questions regarding this document to the City's Stormwater Utility (SWU).

SWU is responsible for implementing and administering the Spring Sweeping Program. The City contracts to provide street sweeping services. The City's Street Superintendent leads the sweep operation, giving direction to the Contractor, and inspecting the work. Program details and suggested changes are referred to SWU personnel for consideration to incorporate into periodic updates.

Spring Sweeping Purposes

Spring sweeping keeps City streets operational, improves air quality, and protects stormwater infrastructure supporting the street system. To the extent possible and practical, the main reasons for a Spring Sweep include:

1. Meet Air Quality Requirements and Standards by picking up sediments that may have accumulated over the winter months, including traction materials such as sand.
2. Reduce street flooding by clearing debris that obstructs stormwater from flowing into City street inlets and grates.
3. Extend life span of stormwater drainage fields by limiting street debris transported to the stormwater system.
4. Reduce possible pollutants to surface water and groundwater.
5. Provide clean surface for traffic striping operations.

Spring Sweeping Service Area Map

The City has prepared a Service Area Map for the City-wide Spring Sweeping effort which numbers and delineates work zones. A copy of the map should be attached with this document. It is anticipated that the Contractor will sweep all curbed City Streets once during the Spring Sweep.

Work Approach

Direction to Start

The direction to start the City-wide Spring Sweep will come from the City through the City's Street Superintendent at the time that the Deputy City Manager concurs with recommendations from SWU staff. Typically the notice will occur after the last of the winter storms appear to have come through the

area for the season. The last few years this work has commenced in March and proceeded through June.

Sweep Priority

After receiving authorization to start, the Street Superintendent may indicate a priority and order of which Service Areas are to be swept by the Contractor.

Sidewalk Cleaning

Prior to sweeping the roadway, the Contractor shall clean arterial sidewalks as needed or required by the City during the first spring cleanup. In addition, the Contractor shall clean sidewalks at other locations as needed, prior to sweeping the roadway. The Contractor will flush sidewalks with water trucks and minimize the amount of runoff. The Contractor shall have an appropriate number of sweepers behind the truck to collect any debris and runoff to minimize impact to the storm drain system.

Arterial Sweeping as the First Priority

The Contractor will be assigned Arterial Sweeping duties during the Spring Sweep and will be expected to complete that work as well as sweeping in the spring sweep areas. The removal of debris from Arterial roadways is a higher priority than sweeping within the Spring Sweep service areas.

Roadway Sweeping

The entire length of all curbs, intersection curb returns, left turn lanes, and flush concrete or paved medians shall be swept. All remaining areas shall be swept as needed. The Contractor shall not sweep non-curbed streets without first receiving direction from the City.

All streets and intersections shall be swept clean and no piles of debris shall be left anywhere with any street, sidewalk, or public right-of-way. Intersections shall be swept clean, including lane dividers, and around the raised traffic islands.

Equipment Usage

Water Trucks and Pressure Washers are allowed for the following uses:

- On arterials, for jetting debris off sidewalks adjoined to curbing, and at raised medians.
- With prior authorization of the City, the Contractor may, in areas of heavy needle and leaf debris, use a jet to move debris from the center of the road into a windrow for curb-line pass pickup by a sweeper. If allowed by the City to follow this practice, the Contractor shall in all cases keep the jetted debris in the street and collect the windrow with a sweeper within 30 minutes. Windrows in all cases shall not be left overnight.

Mechanical Sweepers are allowed for the following uses:

- Use of Mechanical Sweepers is with City approval only.
- Mechanical sweepers shall only be utilized for large particle and volume pickup in specific locations where the City deems the debris load high enough to warrant use.

Regenerative Sweepers

- Regenerative Sweepers are to be the main type of equipment for sweeping in the City, with most curbed streets and lane miles being initially swept with a Regenerative Air Sweeper.

- Areas depicted by the City with permeable surfacing should not be swept with a Regenerative Air Sweeper.

High Efficiency Vacuum Sweepers

- Only High Efficiency Vacuum Sweepers are to be used in areas with permeable pavement. No other form of cleaning the street should be used in these areas.
- After initial street sweeping with other equipment, a High Efficiency Vacuum Sweeper should be used on Principle Arterials, Minor Arterials, and Collectors for cleaning within 36-inches of the curb. The operator should make every effort to keep the vacuum head as close to the curb as possible, if not up against the front face of curb. Use of the gutter broom should be minimal.

Order of Operations

Typical order of operations is as follows:

1. Sweep roads per specific City schedule and priority, if any.
2. Clean arterial sidewalks adjoined to curb and gutter, and at raised medians with Water Trucks.
3. If debris load is significant in certain areas, a Mechanical Sweeper may be used along curblines with City permission and then followed with a Regenerative Air Sweeper. The Mechanical should only be employed when it is clear that a Regenerative Air Sweeper would not be able to pick up the load within two or more passes.
4. Regenerative Air Sweep all curbs, intersection curb returns, left turn lanes, and flush concrete or paved medians shall be swept. All remaining areas shall be swept as needed.
5. In areas where dust is evident next to the curb, or on permeable surfaced areas, pass with a High Efficiency Vacuum Sweeper along the curb-lines.

Inclement Weather

Street sweeping shall not be conducted when there are climatic conditions present or forecast that would make such operation ineffectual or dangerous. These conditions include, but are not limited to, heavy rain, wind and gusts greater than 20 mph, snow, sleet and ice, or freezing temperatures.

Day Sweeping Only

The Contractor will only be allowed to sweep within the residential service areas between the hours of 7:00 a.m. and 7:00 p.m. Commercial and Industrial areas may be authorized by the Street Superintendent at other times.

Parked Vehicles

Parking is not restricted for street sweeping purposes; residents are asked to voluntarily not park vehicles on the street on their designated sweeping day. The Contractor shall sweep around any vehicle parked on the street.

Obstacles Overhanging Street Curbing

If the Contractor encounters obstacles overhanging the street including branches or basketball hoops in the areas to be swept, the Contractor shall go around the obstacles, unless the sweeping can be maneuvered under the obstacle safely, and without causing damage to the equipment or the obstacle. The Contractor shall notify the City of the location of any and all overhanging branches, which interfere with the Contractor's ability to sweep the designated sweeping areas.

Street Debris Transfer Stations, Disposal, Water Resupply

The City allows the Contractor to temporarily store collected debris at the southeast corner lot at Mission and Pierce, and at the City's street maintenance yard at 17000 E. Euclid. Storage piles of street debris must be removed within 3 months. The City of Spokane Valley currently has the Contractor permanently dispose of street debris at the Graham Road Landfill by means of loader and dump trucks from the transfer station(s).

Water resupply locations are to be coordinated by the Contractor with their water purveyor(s). All locations should be approved by the City prior to use.

Feedback and Review

The City strives to improve response and value it gives to citizens, property owners, and rate payers. Any feedback is appreciated, both positive and/or negative with the overall sweeping program, this plan, implementation, equipment used, weather response, etc. The Stormwater Utility will take all comments and use those to revise and improve future sweeping plans.

Fall Sweeping Action Plan

This document addresses the City of Spokane Valley's Fall Sweeping Action Plan and outlines the purposes, responsibilities, service areas, and approaches to the work. You are welcome to make comments, suggestions, or pose questions regarding this document to the City's Stormwater Utility (SWU).

SWU is responsible for implementing and administering the Fall Sweeping Program. The City contracts to provide street sweeping services during the fall months. The City's Street Superintendent leads the fall sweep operation, giving direction to the Contractor, and inspecting the work. Program details and suggested changes are referred to SWU personnel for consideration to incorporate into periodic updates.

Fall Sweeping Purposes

Fall sweeping keeps City streets operational and protects stormwater infrastructure supporting the street system. To the extent possible and practical, the main reasons for a Fall Sweep include:

1. Reduce street flooding by clearing debris that could obstruct stormwater from flowing into City street inlets and grates.
2. Improve vehicle traction in areas of heavy leaf drop.
3. Extend life span of stormwater drainage fields by limiting street debris transported into the stormwater system.
4. Reduce possible pollutants to air, surface water, and groundwater.

Fall Sweeping Service Area Map

The City has prepared a Service Area Map specifically for the Fall Sweeping effort which delineates work zones. The map shows the sweeping priority for various areas, based on the density of mature pine and mature deciduous type trees. A copy of the map should be attached with this document.

Work Approach

Direction to Start

The direction to start the Fall Sweep will come from the City through the City's Street Superintendent at the time that the Deputy City Manager concurs with recommendations from SWU staff. Starting the sweep too soon could mean not getting more of the leaves and needles on the one first pass, and waiting too long could mean not getting to all areas before freezing weather makes it impossible to

sweep. Therefore it is critical that the Contractor provide as many approved sweeping units as is possible to work within the anticipated short collection window.

First Priority to Complete Arterial Sweeping

The Contractor will be assigned Arterial Sweeping duties during the Fall Sweep and will be expected to complete that work as well as sweeping in the Fall Sweep service areas. The removal of debris from Arterial roadways is a higher priority than sweeping within the Fall Sweep service areas. See the Arterial Sweeping Action Plan.

Order of Operations/Service Area Priorities

After receiving authorization to start, the Street Superintendent will also confirm to the Contractor which Service Areas by number need to be swept in the order of highest priority to lowest.

Sweeping of all curbed areas in Priority 1 and 2 zones is anticipated to be authorized.

Sweeping of Priority 3, Fall Leaf, and other areas will be inspected by City staff during the fall sweep to determine if a whole service area needs sweeping, if non-curbed areas need sweeping due to road traction issues, or if there are specific locations or "hot spots" that need attention but not necessarily the entire service area. The City will direct the Contractor to sweep these lower priority areas as deemed necessary. Specific locations to be swept shall be reviewed and recorded by the City's Stormwater Utility.

Equipment Usage

Water Trucks and Pressure Washers are allowed for the following uses:

- With prior authorization of the City, the Contractor may, in areas of heavy needle and leaf debris, use a water jet to move debris from the center of the road into a windrow for a curb-line pass pickup by a sweeper. If allowed by the City to follow this practice, the Contractor shall in all cases keep the jetted debris in the street and collect the windrow with a sweeper within 30 minutes. Windrows in all cases shall not be left overnight.

Mechanical Sweepers are allowed for the following uses:

- Use of Mechanical Sweepers is with City approval only.
- Mechanical sweepers shall only be utilized for large particle and volume pickup in specific locations where the City deems the debris load high enough to warrant use.

Regenerative Sweepers

- Regenerative Sweepers are to be the main type of equipment for sweeping in the City, with most curbed streets and lane miles being initially swept with a Regenerative Air Sweeper.
- Areas depicted by the City with permeable surfacing should not be swept with a Regenerative Air Sweeper.

High Efficiency Vacuum Sweepers

- Only High Efficiency Vacuum Sweepers are to be used in areas with permeable surfacing. No other form of cleaning the street should be used in these areas.

- A High Efficiency Vacuum Sweeper may be used as part of the Fall Sweeping effort. The use of this type of sweeper should be in the following order: first arterials, then collectors, and last local streets.

Inclement Weather

Street sweeping shall not be conducted when there are climatic conditions present or forecast that would make such operation ineffectual or dangerous. These conditions include, but are not limited to, heavy rain, wind and gusts greater than 20 mph, snow, sleet and ice, or freezing temperatures.

Day Sweeping Only

The Contractor will only be allowed to sweep within the residential service areas between the hours of 7:00 a.m. and 7:00 p.m. Commercial and Industrial areas may be authorized by the Street Superintendent for other times of day.

Parked Vehicles

Parking is not restricted for street sweeping purposes; residents are asked to voluntarily not park vehicles on the street on their designated sweeping day. The Contractor shall sweep around any vehicle parked on the street.

Obstacles Overhanging Street Curbing

If the Contractor encounters obstacles overhanging the street including branches or basketball hoops in the areas to be swept, the Contractor shall go around the obstacles, unless the sweeping can be maneuvered under the obstacle safely, and without causing damage to the equipment or the obstacle. The Contractor shall notify the City of the location of any and all overhanging branches, which interfere with the Contractor's ability to sweep the designated sweeping areas.

Street Debris Transfer Stations, Disposal, Water Resupply

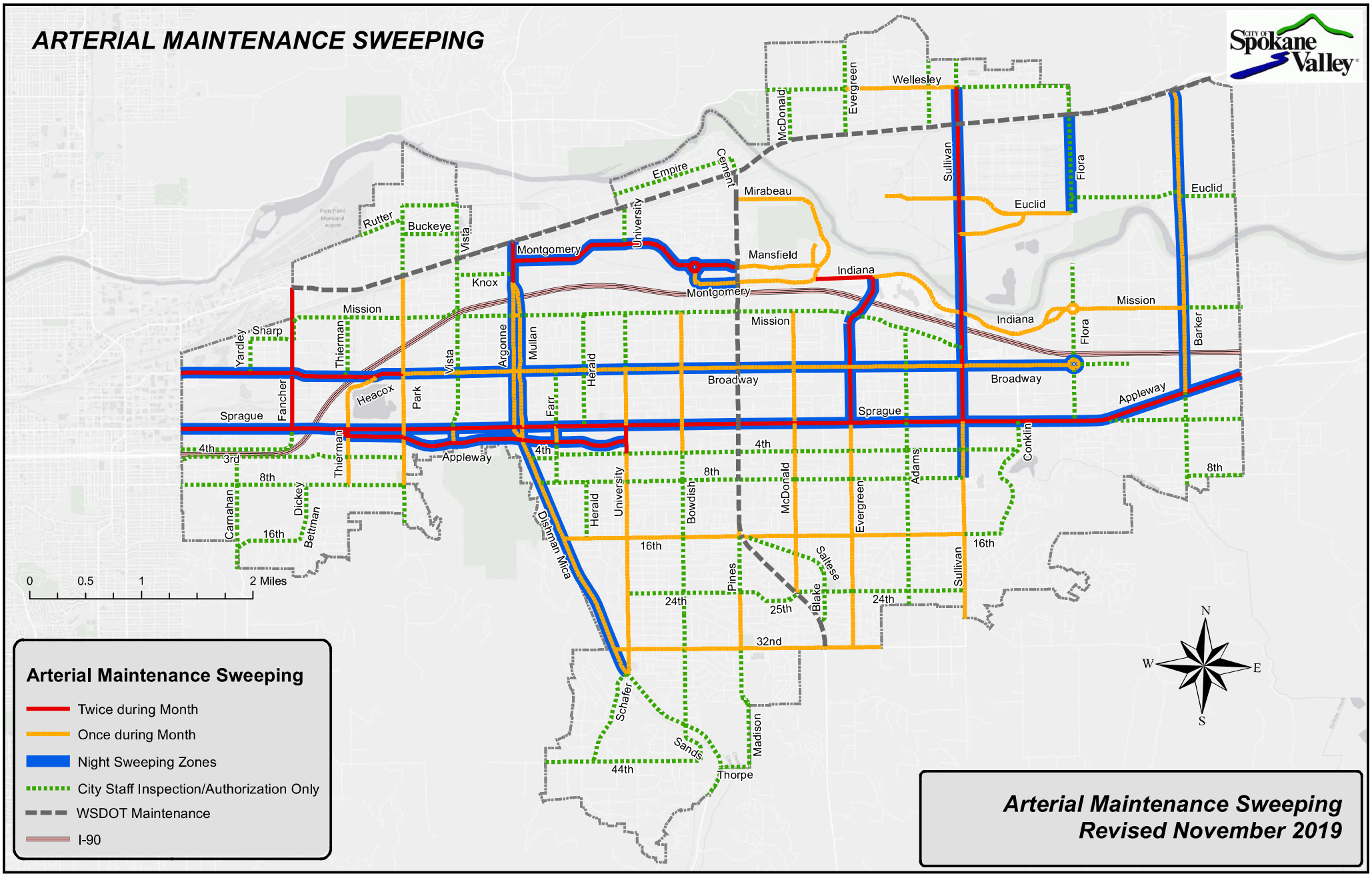
The City allows the Contractor to temporarily store collected debris at the southeast corner lot at Mission and Pierce, and at the City's street maintenance yard at 17000 E. Euclid. Storage piles of street debris must be removed within 3 months. The City of Spokane Valley currently has the Contractor permanently dispose of street debris at the Graham Road Landfill by means of loader and dump trucks from the transfer station(s).

Water resupply locations are to be coordinated by the Contractor with their water purveyor(s). All locations should be approved by the City prior to use.

Feedback and Review

The City strives to improve response and value it gives to citizens, property owners, and rate payers. Any feedback is appreciated, both positive and/or negative with the overall sweeping program, this plan, implementation, equipment used, weather response, etc. The Stormwater Utility will take all comments and use those to revise and improve future sweeping plans.

ARTERIAL MAINTENANCE SWEEPING

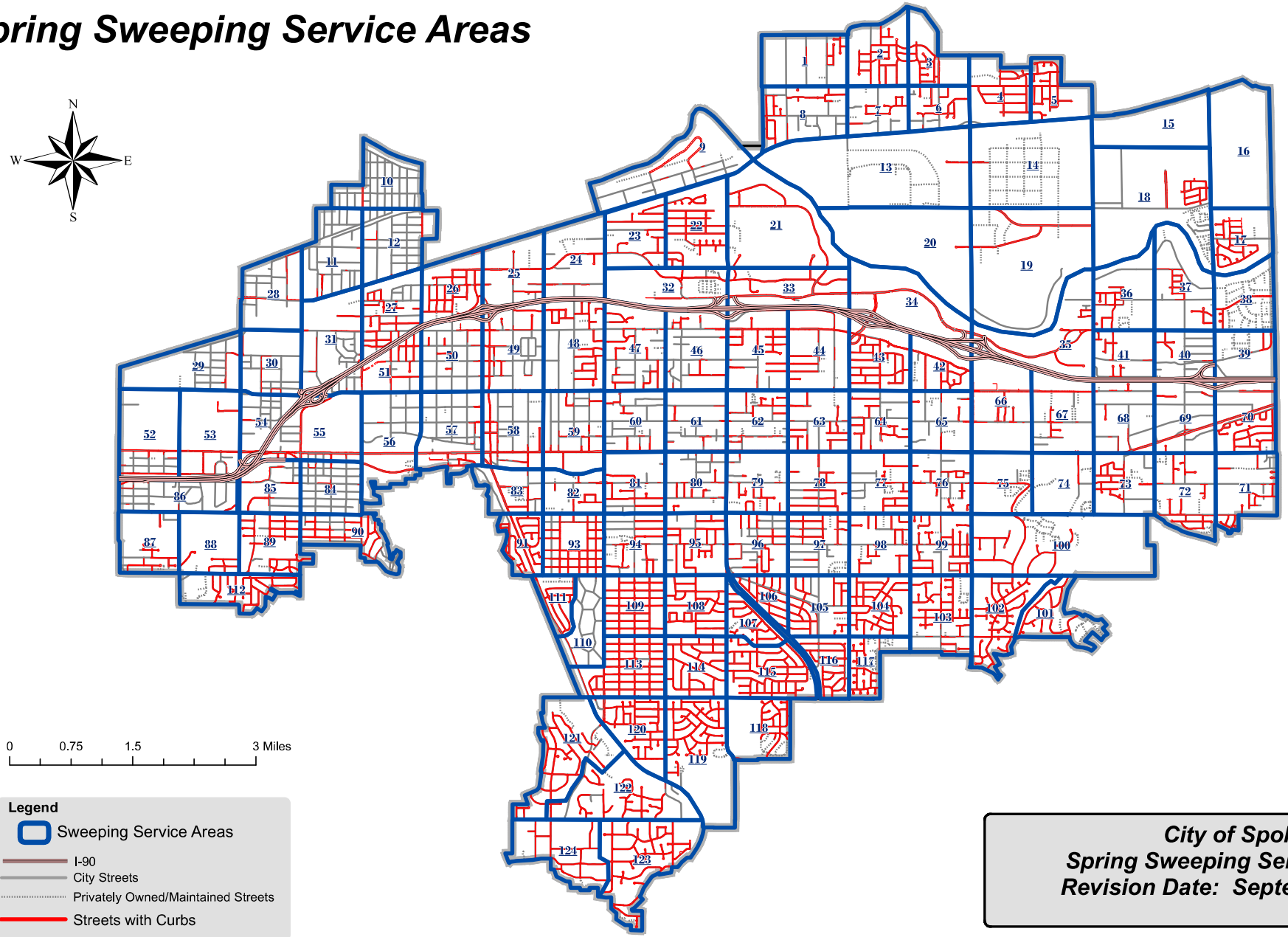


Arterial Maintenance Sweeping

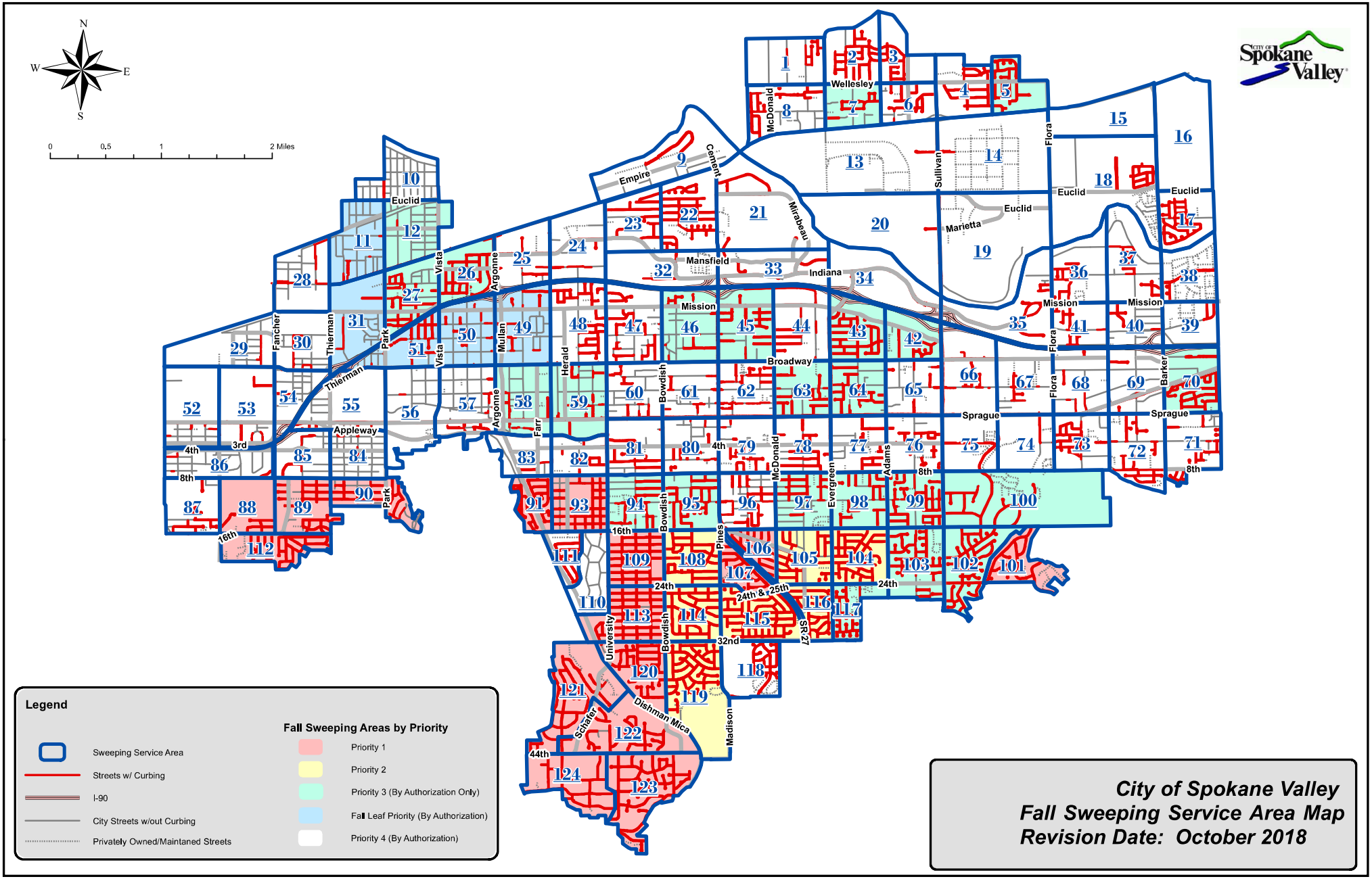
- Twice during Month
- Once during Month
- Night Sweeping Zones
- City Staff Inspection/Authorization Only
- WSDOT Maintenance
- I-90

Arterial Maintenance Sweeping
Revised November 2019

Spring Sweeping Service Areas



City of Spokane Valley
Spring Sweeping Service Areas
Revision Date: September 2017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Empire
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Flora
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Marietta
Mansfield
Indiana
Mission
Broadway
Sprague
Appleway
Thierman
Fancher
Park
Vista
Argonne
Mullan
Herald
Farr
Bowdish
Evergreen
Adams
Barker
3rd
4th
8th
16th
24th
24th & 25th
32nd
44th
University
Pines
SR 27
Schafer
Dishman Mica
Madison
Legend
Sweeping Service Area
Streets w/ Curbing
I-90
City Streets w/out Curbing
Privately Owned/Maintaned Streets
Fall Sweeping Areas by Priority
Priority 1
Priority 2
Priority 3 (By Authorization Only)
Fall Leaf Priority (By Authorization)
Priority 4 (By Authorization)
City of Spokane Valley
Fall Sweeping Service Area Map
Revision Date: October 2018

APPENDIX G – CARTRIDGE FILTER O&M

- ✓ Stormfilter Maintenance Guide can be found at stormfilter-maintenance-guide.pdf (conteches.com)
- ✓ Stormfilter Inspection Form
- ✓ Traffic Control Plan on Broadway

STORMFILTER INSPECTION AND MAINTENANCE FORM

Date: _____ **Inspector(s): _____**

Address/Location:_____

Inspection or Maintenance?

☐ Inspection (steps 1 – 3)
☐ Maintenance (step 4)

1. Inspection Type

☐ Annual Inspection
☐ After Major Storm

2. Pre-Inpsection Checklist

☐ No Rainfall For 24 hrs. Or More
☐ No Upstream Detention Draining Into Unit
☐ Outlet Pipe Is Clear of Obstruction
☐ Construction Bypass is Deactivated
☐ Structure is Online

3. Visual Inspection Indicators

☐ > 4" Sediment on Vault Floor
☐ > ¼ in. Sediment on Top of Cartridge
☐ Water Level Above Cartridge Bottom
☐ Thick Scum Line Above Cap Elevation
☐ Clogged Media (No Space Between Granules)

If Any Checked, Go To Step 4 StormFilter Maintenance Procedures

4. StormFilter Maintenance Procedures

1. Follow all Safety and Confined Space Procedures
2. Remove Cartridge Hoods and Vacuum Collected Solids and Media
3. Dispose at Decant Facility
4. Remove Empty Cartridges
5. Vac Remaining Pollutants, Fore Bay & Outlet Bay
6. Pressure Wash the Interior of the Structure
7. Install New/Pre-orderd Cartridges (No Assembly Needed..Media Inside)
8. Empty Cartridges Are Picked Up by **Contech** and Recycled.

Other Notes:

_____
_____
_____
_____
_____
_____
_____


E Mallon Ave
N
N Yardley St
N Stanley St
UTILITY
WORK
AHEAD
Truck Mounted Flashers
VMS
E Broadway Ave
250'
100'
350'
130
65
0
130 Feet

APPENDIX H – SILVA CELL O&M

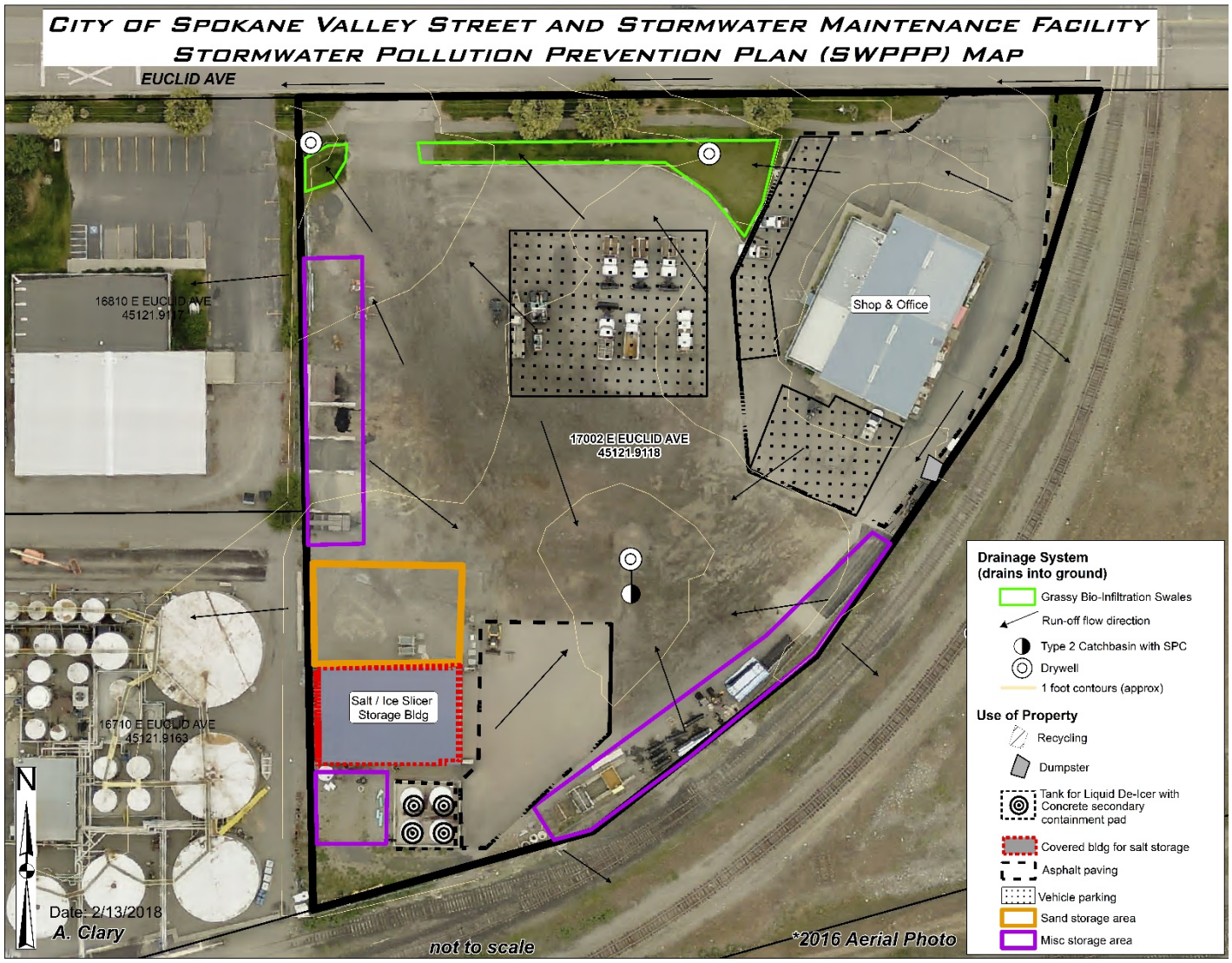
Silva Cell Operation and Maintenance Manual can be found at https://www.deeproot.com/wp-content/uploads/stories/2024/04/silva_cell_1_and_2_operations_and_maintenance_manual.pdf

APPENDIX I – CDS UNIT O&M

CDS Guide for Operation and Maintenance can be found at
https://www.conteches.com/media/3ewim51d/cds-design-guide.pdf

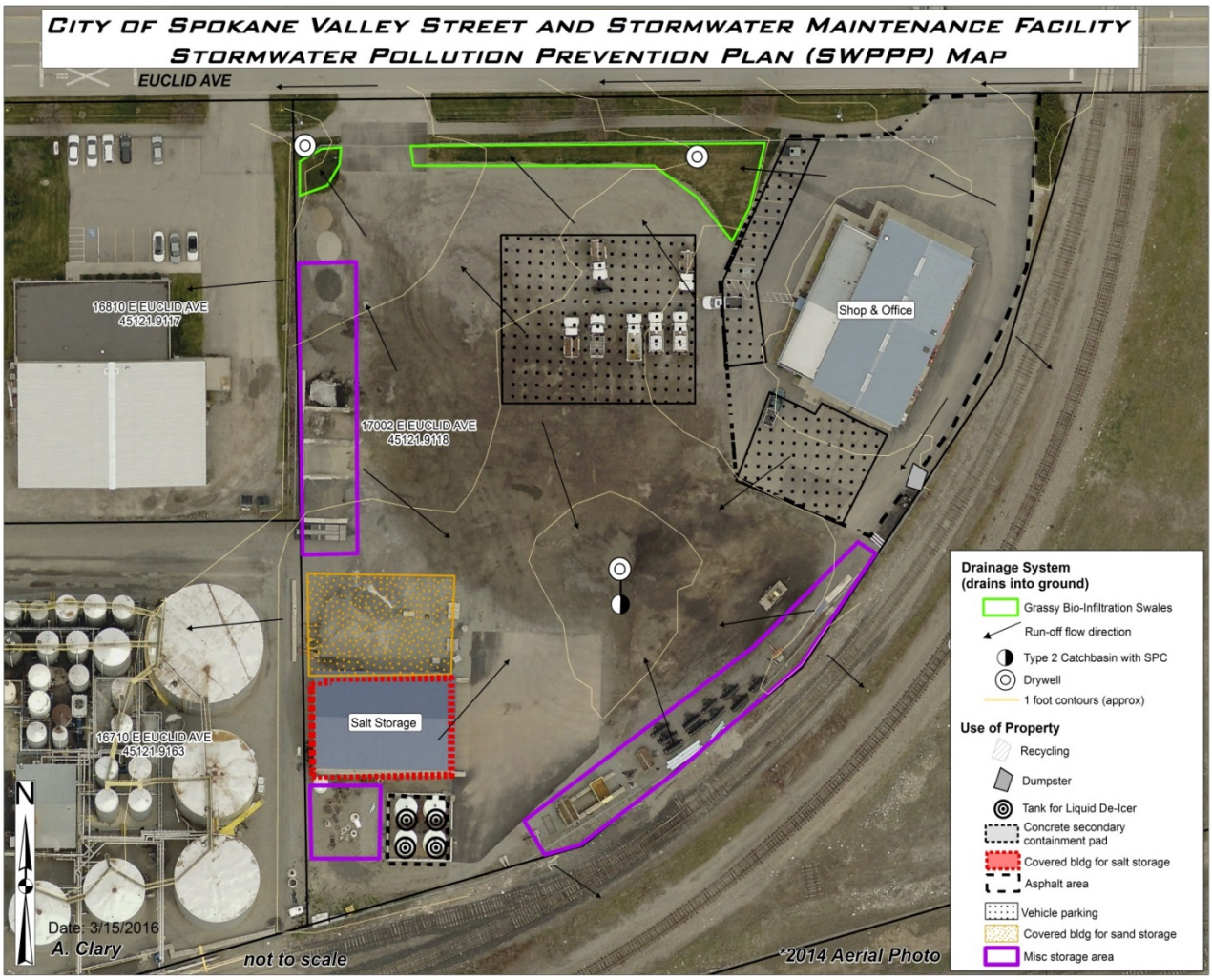
APPENDIX J – SWPPP – EUCLID MAINTENANCE FACILITY

STORMWATER POLLUTION PREVENTION PLAN (SWPPP)



City of Spokane Valley Street & Stormwater Maintenance Facility

NPDES Permit #WAR04-6507
Requirement S5.B6
March 2017



1 Facility Description

This section identifies and describes the location of the municipal facility, contact information for key facility staff, and general site information. Please attach any maps or sketches of the facility, if available.

Facility Name:	**City of Spokane Valley (CSV) Street and Stormwater Maintenance Facility**
Facility Location:	**17002 E. Euclid Ave, just west of Flora Rd.**
Facility Description:	**A street and stormwater vehicle maintenance shop and storage yard.**

Mailing Address: **17002 E. Euclid Ave, Spokane Valley, WA 99216**

Contact Name: **Aaron Clary**

Contact Phone: **509-720-5000**

SIC Code (If Applicable):

Main Site Activities: **Vehicle maintenance shop and storage of stormwater and street equipment and materials.**

Area of Facility (in acres): **3 acres**

Surface Types:

(Check all that apply and fill in approximate area)

☒ Permanent Buildings: 2 number of buildings
6,100 square feet, 3,750 square feet (3 walled storage bldg.)

☐ Temporary Buildings: _____ number of buildings

☒ Pavement: 0.5 acres

☒ Gravel: 2.2 acres

☐ Bare Ground: _____ acres

☒ Vegetation: 0.3 acres

2 Potential Pollutant Sources

This section identifies and describes the activities conducted on site that have the potential to contaminate stormwater. The Spokane-Rathdrum Prairie Aquifer level is approximately 60-80 feet below the site. All stormwater runoff from the property drains into the ground through normal infiltration in the gravel, grassy bio-infiltration swales or drywells with pre-treatment.

2.1 Waste Management

Waste management activities have the potential to contaminate stormwater through improper storage of wastes, spills, leaks, or drips from containers.

☐ No waste management activities are performed on site.

☒ Wastes are managed as follows:

☒ Dumpster, located: Next to shop along asphalt driveway.

☐ Trash compactor, located: _____

☒ Recycling Containers, located: Along eastern edge of property.

☒ Used Oil Container, located: outside, next to the SE corner of the shop. Picked up by a private contractor who recycles it.

☐ Other, describe: _____

2.2 Cleaning and Washing

If not conducted properly, cleaning and washing of vehicles, heavy and light equipment, buildings, tools, or paved surfaces, can contaminate stormwater by washing contaminants such as oil and grease, soap, or dirt into the storm sewer or onto areas exposed to rain.

☐ No cleaning or washing activities are performed on site.

☒ Cleaning and washing is performed as follows:

Location of cleaning or washing activity: Inside of maintenance shop or outside on an asphalt pad. Snow plow trucks are washed at the City of Spokane's indoor wash facility.

Cleaning or washing area / structure:

☒ Self-Contained Building

☐ Covered Pad

☒ Designated Open Area

☐ Other: _____

Surface of cleaning or washing area:

☒ Asphalt

☒ Concrete

☒ Compacted Gravel

☐ Soil

Type(s) of materials cleaned or washed:

☒ Vehicles, describe: Snowplow/dump trucks.

☒ Equipment, describe: Backhoe

☐ Buildings

☐ Paved areas

☐ Other: _____

Chemical(s) used in washing:

☒ Soaps or detergents: _____

☐ Abrasives: _____

☐ Acids: _____

☒ Solvents: _____

☐ Other: _____

Drainage characteristics of wash area(s): Outside area asphalt pad that drains onto the gravel yard, then into a drywell. The drywell has a catchbasin with a spill control separator ahead of it. The catchbasin has a spill control separator inside.

Discharge location for wash water:

☐ Storm Sewer; Treated?

☐ No

☐ Yes, please describe: _____

☐ Sanitary Sewer

☒ Other: Drains onto the gravel yard, then into a drywell. The drywell has a catchbasin ahead of it. The catchbasin has a spill control separator inside.

2.3 Transfer of Liquids or Solids

Loading, unloading, or other transfer of liquid or solid materials has the potential to contaminate stormwater through spills, leaks, or drips of the transferred material or from the equipment performing the transfer.

☐ No transfer of liquids or solids is performed on site.

☒ Transfer of liquids is performed as follows:

Location(s) where transfer occurs:

- ☒ Direct connection to aboveground storage tank
- ☐ Direct connection to underground storage tank
- ☐ Railroad yard
- ☐ Loading dock
- ☐ Permanent fueling station
- ☒ Open area outdoors
- ☒ Indoors
- ☐ Other: _____

Transfer Area Structure(s):

- ☐ Self-Contained Building
- ☐ Covered Pad
- ☒ Designated Open Area outdoors
- ☐ Other: _____

Surface of Transfer Area:

- ☐ Asphalt
- ☐ Concrete
- ☒ Compacted Gravel
- ☐ Soil

Type(s) of liquids transferred:

- ☒ Fuels, oils, or greases: _____
- ☐ Paints: _____
- ☐ Acids: _____
- ☐ Pesticides, Herbicides, Fertilizers: _____
- ☐ Cleaning products: _____
- ☒ Other: Magnesium chloride (liquid de-icer).

Type of transfer:

- ☒ Bulk liquid
- ☐ Mobile fueling
- ☒ Liquid filled container:
  - ☒ Small Containers
  - ☐ Drums
  - ☐ Totes
  - ☐ Bunker
  - ☐ Other: _____

☒ Transfer of solids is performed as follows:

Location(s) where transfer occurs:

- ☐ Railroad yard
- ☐ Loading dock
- ☒ Open area outdoors
- ☒ Indoors
- ☐ Other: _____

Transfer Area Structure:

- ☐ Self-Contained Building
- ☒ Covered Pad
- ☒ Designated Open Area outdoors
- ☐ Other:_____

Surface of Transfer Area:

- ☐ Asphalt
- ☒ Concrete
- ☒ Compacted Gravel
- ☐ Soil

Type(s) of solids transferred:

- ☐ Shipping Containers: _____
- ☐ Equipment: _____
- ☐ Packaged goods: _____

☒ Bulk materials (aggregate, debris, etc.): Road sand, ice-slicer (road salt), gravel, misc dirt.

☐ Other: _____

Equipment involved in transfer:

☐ Top pick

☐ Forklift

☐ Crane

☒ Dump truck (end, side, bottom, etc.): _____

☒ Other: Backhoe.

2.4 History of Spills and Leaks

If there is a history of any spills or leaks on site that discharged to storm sewer system, surface waters, or groundwater please describe: The City purchased the maintenance yard property in 2011. We are not aware of any current spills or leaks. The site has been owned by many previous owners. According to the Phase I Environmental Site Assessment dated March 21, 2011, there have been no major leaks or spills.

2.5 Production and Application Activities

Production or application activities have the potential to contaminate stormwater from debris left behind during production, spills, leaks, or drips from products or equipment used during production, or leaching or erosion from materials involved. Application activities involve the application of product to an object such as painting, coating, spraying, or other treatment.

☐ No production or application activities are performed on site.

☒ Production and/or application activities are performed as follows:

- Location(s) and Description of production and/or application activities: General weedspraying of any noxious weeds and fertilizing of landscaping areas will occasionally occur on the property. Also, liquid magnesium chloride and/or ice slicer (compound chloride granular) may be applied to the site at times during winter months to keep snow and ice clear.

2.6 Storage and Stockpiling

Vehicle and Equipment Storage and Parking

Vehicles and heavy equipment contain hazardous liquids (fuel, hydraulic oils, antifreeze, etc.) or have other parts (tires, brake pads, etc.) that can contaminate stormwater. If vehicles or heavy equipment are stored or parked outdoors on site, please complete the following:

☐ No vehicle or equipment storage or parking is performed on site.

☒ Vehicle and/or equipment storage and/or parking application is performed as follows:

Type and Number of vehicles and equipment that is stored or parked on site:

- ☒ Passenger vehicles: 5 City pickup trucks.
- ☒ Snowplow/Dump trucks: 10.
- ☒ Utility Trucks: 1.
- ☐ Tractor trailer: _____
- ☒ Earthmoving equipment: 1 backhoe.
- ☐ Other: _____

Location of storage or parking area: Gravel yard in central area of property. (see map of site)

Storage or parking area structure:

- ☒ Covered
- ☒ Designated Open Area outdoors
- ☐ Other: _____

Surface of storage or parking area:

- ☒ Asphalt
- ☐ Concrete
- ☒ Compacted Gravel
- ☐ Soil

List potential stormwater contaminants used in the operation or maintenance of heavy equipment on site:

- ☒ Petroleum products (fuel, oils, greases) – source of oil & grease and metals
- ☒ Acids – source of low pH
- ☒ Batteries – source of low pH, and heavy metals (lead, nickel, cadmium, etc.)
- ☒ Antifreeze
- ☒ Solvents
- ☒ Soaps or detergents – source of phosphorus
- ☐ Other: _____

Drainage characteristics of Vehicle and Equipment Storage and Parking: The entire vehicle and equipment storage area currently drains into the ground through either the gravel, bio-

infiltration swales and/or three drywells. One drywell in the graveled northwest corner (grassy swale pre-treatment); one drywell in the graveled central area (catchbasin with SPC pre-treatment); and one drywell on the north side of the property (grassy swale pretreatment). (see attached map of site)

Material Storage

Materials stored outside have the potential to contaminate stormwater through erosion of granular materials, spills or leaks from liquids or equipment containing liquids, and dissolution of soluble materials. If materials are stored outside on site, please complete the following section:

☐ No material storage is performed on site.

☒ Material storage is performed as follows:

Location(s) of where materials are stored: In the gravel yard. (see map of site)

Storage area structure:

☒ Covered

☒ Designated Open Area outdoors

☐ Other: _____

Surface of Storage Area:

☐ Asphalt

☐ Concrete

☒ Compacted Gravel

☐ Soil

Type(s) of Liquids Stored:

☐ Fuels, oils, or greases

☐ Paints

☒ Magnesium Chloride (liquid de-icer, stored in tanks within concrete wall containment)

☐ Pesticides, Herbicides, Fertilizers

☐ Cleaning products

☐ Other: _____

Liquids are stored in:

☐ Small Containers

☐ Drums

☐ Totes

☒ Aboveground Tanks

☐ Other, describe: _____

Type(s) of Solid Materials Stored:

☒ Aggregates (sand, gravel, rock, broken concrete, broken asphalt, etc.)

☒ Ice Slicer (compound chloride granular, stored inside of building)

☒ Wood Products (untreated lumber, logs, wood chips, wood waste, etc.)

☒ Scrap metals

☒ Building Materials (masonry products, metal framing, rebar, etc.)

☐ Treated lumber

☐ Other: _____

Type(s) of Equipment Stored:

☒ Equipment with galvanized metal components

☒ Equipment with fluid filled reservoirs

☒ Equipment with greased joints or other moving parts

☐ Other: _____

Drainage characteristics of material storage area: Currently, the entire material storage area drains into the ground through either the gravel, bio-infiltration swales and/or three drywells. One drywell in the graveled northwest corner (grassy swale pre-treatment); one drywell in the graveled central area (no pre-treatment); and one drywell on the north side of the property (grassy swale pre-treatment). (see attached map of site)

2.7 Vehicle and Equipment Maintenance and Repair

☐ No vehicle or equipment maintenance is performed on site.

☒ Vehicle and/or equipment maintenance is performed on site as follows:

Describe the location(s) and activities performed: Vehicle maintenance is performed inside the shop. The shop has a floor drain system that drains fluids into an oil water separator and then into sanitary sewer. Outdoor run-off does not flow into the floor drain system. Vehicle maintenance activities include everything and anything performed on City owned snowplow/dump trucks, utility trucks, cars and trucks, maintenance equipment, and all earth moving vehicles.

2.8 Dust Control and Soil and Sediment Control

Stormwater can be contaminated from dusts deposited on surfaces exposed to rain, or from erosion of exposed soils.

☐ No dust generating activities are performed on site and no exposed soils are present.

☐ Exposed soils are present on site as follows:

Location of exposed soils: _____

Slope: _____

Reason soils remain exposed: _____

☒ Dust generating activities are performed on site as follows:

Location of dust-generating activity: In the gravel storage yard. _____

Type(s) of dust-generating activity:

☒ Storage of materials (aggregate, sawdust, ash, etc.), describe: Road sand, gravel, misc dirt and sand piles, etc.

☐ Manufacturing process, describe: _____

☒ Vehicle traffic

☐ Soil disturbance/grading

☐ Other: _____

Describe any erosion and sediment control or dust control methods used: Maintenance storage area consists of hard packed gravel. The gravel will be replenished as needed to keep dust down from vehicle traffic. All material piles will be covered as needed to minimize dust.

2.9 Landscape Management

Landscape maintenance (including control of weeds) has the potential to introduce chemical pollutants, sediment, and nutrients into stormwater. If landscape management practices occur on site please complete the following section.

Pesticide, Herbicide, and Fertilizer Application

Check one:

☐ There are no vegetated areas on site. No pesticides, herbicides or fertilizers are used.

☐ Vegetated areas are present on site. However, no pesticides, herbicides or synthetic fertilizers are used on site.

☒ Vegetated areas are present on site. Pesticides, herbicides or fertilizers are used.

Please note any existing training or BMPs related to pesticide, herbicide, and fertilizer application:

All pesticides, herbicides, and fertilizers will be applied to minimize overspray onto non-landscaped areas. All pesticides and herbicides will be applied by a licensed and trained applicator. Any storage of pesticides, herbicides, and fertilizers will be inside the shop and any spills will be cleaned up with absorbent material and disposed of properly.

Mowing / Trimming / Planting

If vegetated areas exist on site please describe their maintenance and waste disposal procedures: ___

All mowing, trimming, and planting will be done with care to minimize clippings from entering the 3 drywells onsite.

2.10 Non-Stormwater Discharges

Please describe any discharge(s) leaving the site and entering any storm drain, surface water, or dry well which is not made up entirely of stormwater: None

2.11 Other Pollution-Generating Activities

This questionnaire does not capture all potential sources of stormwater pollution. Evaluate your site for any additional pollution generating activities not listed above and describe here.

☒ No other pollution-generating activities are performed on site.

☐ Other pollution-generating activities are performed on site as follows: _____

3 Stormwater Drainage System

Please attach any maps or sketches of the facility's stormwater drainage system, if available.

The stormwater drainage system consists of the following components: *Check all that apply*

- ☐ Catchbasins
- ☐ Floor drains
- ☐ Deck drains
- ☒ Roof drains
- ☐ Trench drains
- ☐ Culverts
- ☐ Subsurface Pipes
- ☐ Ditches
- ☒ Drywells

☐ Pump station

☒ General Site Stormwater Treatment:

- ☐ Oil/water separator
- ☐ Catch basin inserts
- ☒ Grassy Bio-Infiltration Swales
- ☐ Pond
- ☐ Filtration System
- ☒ Other: There are 3 drywells located on the property. One in the center of the property with no pre-treatment and the other 2 drywells both have grassy bio-infiltration swales preceding them.

Stormwater from the site discharges to:

☒ Ground

SPILL RESPONSE PLAN

In the event of a hazardous material or waste release, fire, or emergency that is a danger to personnel health and safety immediately call:

911

In the event of a major spill or release to water, soil, or air call:
National Response Center: **1-800-424-8802**
AND
Washington State Emergency Management Division: **1-800-258-5990 OR 1-800-OILS-911**
AND
Washington State Department of Ecology Eastern Region: **1-509-329-3400**

Required Spill Control and Reporting BMPs:

- Stop, contain spill using approved spill control materials. Protect any drywell or drain. Clean up all spills immediately upon discovery. Absorbent material found in the shop should be used. Do not flush absorbent materials or other spill cleanup materials to a drywell, sanitary sewer, or the ground. Collect the contaminated absorbent material as a solid and place in appropriate disposal containers.

- If any spill has reached, or may reach, a sanitary sewer, groundwater, or surface water, notify Ecology and the local sewer authority immediately. Take reasonable steps to correct the problem.

Be Ready to answer the following:

1. Where is the spill?
2. What spilled?
3. How much spilled?
4. How concentrated is the spilled material?
5. Who spilled the material?
6. Is anyone cleaning up the spill?

6Table 1 Loading and Unloading of Materials BMPs	
Issue:	Loading, unloading, or other transfer of liquid or solid materials has the potential to contaminate stormwater through spills, leaks, or drips of the transferred material or from the equipment performing the transfer.
Facility Assessment:	Liquids are transferred indoors at the following locations: • MAINTENANCE SHOP • OUTDOORS IN THE GRAVEL YARD
	Types of liquids transferred: • OILS OR GREASES • CLEANING PRODUCTS, SOLVENTS • VEHICLE FLUIDS • MAGNESIUM CHLORIDE (LIQUID DE-ICER)
	Solids are transferred indoors and outdoors. Types of solids transferred: • SHIPPING CONTAINERS • EQUIPMENT • BULK MATERIALS • ICE SLICER (COMPOUND CHLORIDE GRANULAR) • SAND, DIRT, ETC.
Problem(s) Observed:	NONE AT THIS TIME
Current BMPs:	• TRANSFER OF LIQUIDS OCCURS INSIDE OF SHOP. • LARGE DRIP PANS USED DURING LIQUID TRANSFERS • THE PROPERTY IS GRADED IN A WAY THAT KEEPS STORMWATER RUN-OFF ONSITE. • NEWLY INSTALLED DRYWELL WITH A TYPE 2 CATCHBASIN PRETREATMENT WITH A SPILL/CONTROL SEPARATOR • IN THE EVENT OF SPILL OR LEAK, FOLLOW THE FACILITY'S **SPILL RESPONSE PLAN**.
Possible Improvements:	• CREATE A DESIGNATED AREA OUTDOORS WHERE LIQUIDS WILL BE TRANSFERRED. IN THIS AREA, INSTALL LINERS AND BERMS TO PREVENT SPILLS OR LEAKS FROM ENTERING INTO THE GROUND.

Table 2 Storage of Raw Materials, Liquids, Solid Waste, and Hazardous Materials BMPs	
Issue:	Materials stored outdoors and waste management activities have the potential to contaminate stormwater through erosion of granular materials, spills or leaks from storage containers or equipment containing liquids, improper storage of materials, and dissolution of soluble materials.
Facility Assessment:	Liquids are stored INSIDE THE SHOP. Any liquids stored outside the shop are kept within LARGE POLYTANKS OR CONTAINERS. One trash dumpster is located OUTDOORS ALONG THE ASPHALT DRIVEWAY. Used oils and vehicle fluids are stored INSIDE THE SHOP.
	Types of liquids stored outdoors include: • MAGNESIUM CHLORIDE (LIQUID DE-ICER)
	Types of solid materials stored outdoors include: • SAND, DIRT, ETC. • ICE SLICER (COMPOUND CHLORIDE GRANULAR) • WOOD PRODUCTS • SCRAP METALS • ROAD MATERIALS
Problem(s) Observed:	• NONE AT THIS TIME
Current BMPs:	• MATERIALS ARE STORED AWAY FROM THE EXISTING DRYWELLS. • CONTAINERS WITH DANGEROUS WASTE ARE STORED INSIDE THE SHOP. • THE PROPERTY IS GRADED IN A WAY THAT KEEPS STORMWATER RUN-OFF ONSITE. • SALT DE-ICER AND SAND PILES ARE COVERED • DANGEROUS, HAZARDOUS WASTE IS NOT STORED ONSITE. • IN THE EVENT OF SPILL OR LEAK, FOLLOW THE FACILITY'S **SPILL RESPONSE PLAN**. • LIQUID DE-ICER STORED IN LARGE BINS WITHIN CONCRETE WALL CONTAINMENT
Possible Improvements:	• COVER ALL MATERIAL PILES, AS NEEDED • LABEL ALL TANKS, CONTAINERS, CABINETS, AND STORAGE SHEDS, ETC. CONTAINING HAZARDOUS CHEMICALS WITH PROPER HAZARDOUS MATERIAL SIGNAGE. • MATERIALS SHOULD BE CONTAINED FOR SPILLS AND LEAKS AND COVERED.

Table 3 Vehicle and Equipment Cleaning BMPs	
Issue:	If not conducted properly, cleaning and washing of vehicles, heavy and light equipment, buildings, tools, or paved surfaces can contaminate stormwater by washing contaminants such as oil and grease, soap, or dirt into the ground or existing drywells.
Facility Assessment:	Cleaning and washing is currently performed EITHER INSIDE THE SHOP (DRAINS TO SEWER) OR OUTSIDE ON AN ASPHALT PAD (DRAINS ONTO GRAVEL YARD) OR AT AN OFFSITE FACILITY
	Types of materials cleaned or washed include: • PICKUPS AND TRUCKS • BACKHOE, DUMP TRUCKS, SNOW PLOWS, TRAILER
	The chemicals used during washing include: • CARWASH SOAP
Problem(s) Observed:	• SOME SOAP AND DIRT/OILS/GREASE MAY FALL ONTO THE GRAVEL LOT
Current BMPs:	• WASH MATERIALS INSIDE THE SHOP • WASH TRUCKS AT A CITY OF SPOKANE INDOOR WASH FACILITY • IN THE EVENT OF SPILL OR LEAK, FOLLOW THE FACILITY'S **SPILL RESPONSE PLAN**.
Possible Improvements:	• BUILD AN ON-SITE, COVERED WASHING FACILITY THAT WOULD DRAIN THE WASH AREA RUN-OFF INTO A GRASSY SWALE OR INTO THE SANITARY SEWER, IF ALLOWED

Table 4 Vehicle and Equipment Fueling BMPs	
Issue:	Vehicles and heavy equipment require fueling with hazardous liquids (fuel) that can contaminate stormwater.
Facility Assessment:	Vehicle and heavy equipment refueling is conducted OFFSITE AT A COMMERCIAL REFUELING STATION.
Problem(s) Observed:	NONE AT THIS TIME
Current BMPs:	• N/A
Possible Improvements:	• N/A

Table 5 Vehicle and Equipment Maintenance and Repair BMPs	
Issue:	Vehicles and heavy equipment contain hazardous liquids (fuel, hydraulic oils, antifreeze, etc.) or have other wearable products (tires, brake pads, etc.) that can contaminate stormwater.
Facility Assessment:	Vehicle and equipment maintenance, service, and repair ARE CONDUCTED INSIDE THE MAINTENANCE SHOP. The maintenance shop has a floor drain system that drains into an oil/water separator, then into the sanitary sewer. Outdoor runoff does not enter the floor drain system.
Problem(s) Observed:	NONE AT THIS TIME
Current BMPs:	• N/A
Possible Improvements:	• N/A

Table 6 Vehicle and Equipment Parking and Storage BMPs	
Issue:	Vehicles and heavy equipment contain hazardous liquids (fuel, hydraulic oils, antifreeze, etc.) or have other wearable products (tires, brake pads, etc.) that can contaminate stormwater.
Facility Assessment:	Storage and parking of large vehicles and equipment occurs in UNCOVERED areas on the GRAVEL maintenance yard. Small vehicles and equipment are also stored here.
	Type and number of vehicles and equipment that are stored or parked on-site include: • Passenger vehicle— 5 • Utility vehicle— 1 • Snowplow/Dump truck— 10 • Earthmoving equipment— 1
Problem(s) Observed:	• SMALL DRIPS UNDER TRUCKS
Current BMPs:	• KEEPING THE TRUCKS AND EQUIPMENT LEAK FREE • IN THE EVENT OF SPILL OR LEAK, FOLLOW THE FACILITY'S **SPILL RESPONSE PLAN**.
Possible Improvements:	• ADD DRIP PANS UNDER THE VEHICLES / EQUIPMENT WHEN THEY ARE NOT IN USE. • ADD AN ASPHALT AREA WHERE DRIPS/LEAKS CAN BE CONTAINED AND TREATED BEFORE ENTERING THE GROUND.

Table 7 Vegetation Management BMPs	
Issue:	Fertilizer and pesticides contain nutrients and chemicals that can contaminate stormwater.
Facility Assessment:	The facility has a lawn and landscape swale areas located at the northern section of the property, along Euclid Road.
Problem(s) Observed:	NONE AT THIS TIME
Current BMPs:	• PESTICIDES, HERBICIDES, AND FERTILIZERS WILL BE APPLIED TO MINIMIZE OVERSPRAY ONTO NON-LANDSCAPED AREAS. • ALL PESTICIDES AND HERBICIDES WILL BE APPLIED BY A LICENSED AND TRAINED APPLICATOR.. • PESTICIDES, HERBICIEDES AND FERTILIZERS ARE STORED INSIDE THE SHOP. • IN THE EVENT OF SPILL OR LEAK, FOLLOW THE FACILITY'S **SPILL RESPONSE PLAN**.
Possible Improvements:	• NONE AT THIS TIME.