City of Walla Walla
Stormwater Pollution Prevention

Operations and Maintenance Plan

City of Walla Walla

15 North 3rd Avenue

Walla Walla, WA 99362

July 6, 2011

ACKNOWLEDGEMENTS

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Operations and Maintenance Plan

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The template for this Stormwater Pollution Prevention Operations and Maintenance Plan was developed by Otak, Inc. for the Wenatchee Valley Stormwater Technical Advisory Committee, consisting of representatives from the City of Wenatchee, the City of East Wenatchee, Chelan County, and Douglas County. Contributions to the project were made by other Eastern Washington communities, including stormwater program managers from the Cities of Kennewick, Moses Lake, Richland, Spokane, and Spokane Valley, Spokane and Walla Walla Counties, and the Eastmont Metropolitan Park District. The Operations and Maintenance Plan Template project was funded by a grant from the Washington State Department of Ecology.

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Glossary

The majority of the definitions below are sourced from the Washington State Department of Ecology (Ecology) Eastern Washington Phase II Municipal Stormwater Permit (Phase II Permit). Definitions not provided from the Phase II Permit were taken from other sources, including Ecology's *Stormwater Management Manual for Eastern Washington* (2004) and EPA's NPDES website glossary.

Best Management Practices (BMPs) The activities, prohibitions of practices, maintenance procedures, and structural and/or managerial practices that, when used singly or in combination, prevent or reduce the release of pollutants and other adverse impacts to downstream or down gradient systems.

Catch Basin A drainage structure which collects water. May be either a structure where water enters from the side or through a grate.

Conveyance System The drainage facilities, both natural and man-made, which collect and carry surface and stormwater flow. Includes gutters, drainage inlets, pipes, catch basins, manholes, channels, swales, ditches, small drainage courses, streams, and rivers.

Drywell A stormwater disposal system designed to disperse water below the land surface. Drywells are regulated by the Washington State Department of Ecology under the Underground Injection Control (UIC) program (Chapter 173-218 WAC).

Erosion and Sediment Control (ESC) Any temporary or permanent measures taken to prevent erosion and sedimentation, such as preserving natural vegetation, seeding, mulching and matting, plastic covering, and sediment traps and ponds. Erosion sediment control BMPs are synonymous with stabilization and structural BMPs.

Groundwater Water in a saturated zone or stratum beneath the land surface.

Hazardous Materials 1) Any material that poses a threat to human health and/or the environment. Typical hazardous substances are toxic, corrosive, ignitable, explosive or chemically reactive. 2) Any substance designated by EPA to be reported if a designated quantity of the substance is spilled in the waters of the United States or is otherwise released into the environment.

Hyperchlorinated Water that contains more than 10 mg/L chlorine. Disinfection of water mains and appurtenances requires a chlorine residual of 10 mg/L at the end of the disinfection period. This level is well above the Maximum Residual Disinfectant Level of an annual average of 4 mg/L chlorine for potable water.

Illicit Discharge Any direct or indirect non-stormwater discharge to the City's storm drain system or surface waters of the State, except as expressly allowed by Chapter 13.15 of the Walla Walla Municipal Code.

Maintenance Activities conducted to extend the life cycle and ensure proper operation of existing facilities. Maintenance should not expand the use or capacity of a facility beyond the existing or designed use and results in no significant adverse hydrologic impact.

Maintenance Standard Describes the condition when cleaning, repair, or other maintenance is required for a given facility.

Manhole An entrance provided to a drainage facility for the purpose of inspection and cleaning. This may consist of a circular manhole shaft, frame, and round cover or an opening into a structure where the top of the structure is at the surface. The opening may be round or rectangular.

Material Storage Facility An uncovered area where bulk materials (liquid, solid, granular, etc.) are stored in piles, barrels, tanks, bins, crates, or other means.

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

Oil/Water Separator A vault, usually underground, designed to provide a quiescent environment to separate oil from water.

Phase II Permit Eastern Washington Phase II Municipal Stormwater Permit, issued by the Washington State Department of Ecology on January 17, 2007 and modified June 17, 2009.

Pollutant A waste material that pollutes wind, water, or soil. A non-stormwater discharge that enters the stormwater collection and conveyance system.

Receiving Waters Any water body receiving stormwater runoff, including surface water, groundwater, and the stormwater collection and conveyance system.

Sediment A naturally occurring material that is broken down by weathering and erosion and transported by wind, water, or other fluids.

Stormwater Rainwater runoff, snowmelt runoff, and surface runoff and drainage.

Swale A shallow drainage conveyance with relatively gentle side slopes, generally manmade.

Water Quality The chemical, physical, and biological characteristics of water, usually with respect to its suitability for a particular purpose.

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

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Abbreviations

BMPs	Best Management Practices
CONSTRUCTION PERMIT	General NPDES Permit for Stormwater Discharges Associated with Construction Activities
ECOLOGY	Washington State Department of Ecology
EPA	Environmental Protection Agency
FTE	Full Time Equivalents
INDUSTRIAL PERMIT	General NPDES Permit for Stormwater Discharges Associated with Industrial Activities
NPDES	National Pollutant Discharge Elimination System
O&M	Operation and Maintenance
PHASE II PERMIT	Eastern Washington Phase II Municipal Stormwater Permit
RCRA	Resource Conservation and Recovery Act
SWPPP	Stormwater Pollution Prevention Plan
UIC	Underground Injection Control

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Section 1—Introduction

Purpose

The City of Walla Walla (City) is currently subject to the requirements of both the Eastern Washington Phase II Municipal Stormwater Permit (Phase II Permit) and the Underground Injection Control (UIC) program. Under the Phase II Permit, the City is required to develop and implement a municipal Operations and Maintenance (O&M) Plan to protect water quality and reduce the discharge of pollutants into receiving waters. Receiving waters include surface waters, groundwater, and the stormwater collection and conveyance system.

The City's municipal employees engage in a number of activities that may positively or negatively impact water quality. This O&M Plan includes stormwater pollution prevention and good housekeeping practices that should be utilized during municipal maintenance activities in the following areas:

- Stormwater Collection and Conveyance System;
- Roads, Highways, and Parking Lots;
- Vehicle Fleets;
- Municipal Buildings;
- Parks and Open Space;
- Flood Management Projects; and
- Other Facilities and Activities.

This O&M Plan also addresses stormwater pollution prevention during Construction Projects and Industrial Activities, and at Storage and Maintenance Areas. The Phase II Permit requires all material storage areas, heavy equipment storage areas, and maintenance areas to develop and implement a Stormwater Pollution Prevention Plan (SWPPP) to protect water quality and prevent the discharge of contaminated stormwater to surface or groundwater. As such, a site specific SWPPP has been developed for the Walla Walla City Service Center, located at 55 E. Moore Street, and is included in Appendix D.

O&M Plan Development

This Stormwater Pollution Prevention O&M Plan was prepared based on a Stormwater Pollution Prevention O&M Plan Template developed for the Wenatchee Valley Stormwater Technical Advisory Committee. The inspection schedules, maintenance standards and Best Management Practices (BMPs) included in this plan are based on Ecology's *Stormwater Management Manual for Eastern Washington* (2004) and *Model Municipal Stormwater Program for Eastern Washington* (2003), as well as other guidance documents from Ecology and EPA.

Common Pollutants, Sources, and Impacts

Stormwater runoff contains pollutants that can harm human health, degrade water quality and habitat, and impair ecosystem functions. These pollutants originate from vehicles, businesses, homeowner activities, and municipal activities, and include oil, hydrocarbons,

heavy metals, deicers, sediment, pesticides/herbicides, fertilizer, and bacteria. During rain and snowmelt events, stormwater runoff may accumulate these pollutants which are then washed into receiving waters. Table 1-1 shows the sources of common stormwater pollutants and their potential impacts.

Table 1-1
Common Stormwater Pollutants, Sources, and Impacts

Pollutant	Sources	Impacts
Sediment	Construction sites; eroding stream banks and lakeshores; winter sand and salt application; vehicle/boat washing; agricultural sites.	Destruction of plant and fish habitat; transportation of attached oils, nutrients and other pollutants; increased maintenance costs; plugged conveyance systems; flooding.
Nutrients (phosphorus, nitrogen)	Fertilizers; malfunctioning septic systems; livestock, bird, and pet waste; vehicle/boat washing; grey water; decaying grass and leaves; sewer overflows; leaking trash containers; leaking sewer lines.	Increased potential for nuisance or toxic algal blooms; increased potential for hypoxia/anoxia (low levels of dissolved oxygen which can kill aquatic organisms).
Hydrocarbons (petroleum compounds)	Vehicle and equipment leaks; vehicle and equipment emissions; pesticides; fuel spills; equipment cleaning; improper fuel storage and disposal.	Toxic to humans and aquatic life at low levels.
Heavy Metals	Vehicle brake and tire wear; vehicle/equipment exhaust; batteries; galvanized metal; paint and wood preservatives; fuels; pesticides; cleaners.	Toxic at low levels; drinking water contamination.
Pathogens (bacteria)	Livestock, bird, and pet wastes; malfunctioning septic systems; sewer overflows; damaged sanitary lines.	Risk to human health leading to closure of shellfish areas and swimming areas; drinking water contamination.
Toxic Chemicals	Pesticides; dioxins; Polychlorinated Biphenyls (PCBs); spills, illegal discharges, and leaks.	Toxic to human and aquatic life at low levels.
Debris/Litter	Improper waste disposal and storage; fishing gear; leaking rubbish containers; cigarette butts; littering.	Potential risk to human and aquatic life; aesthetically displeasing; plugged conveyance systems; flooding.

Source: Rabasca and Rinehart, 2006

What are Best Management Practices (BMPs)?

BMPs are the activities, actions, procedures, prohibitions of practices, structural facilities, and/or managerial practices that, when used singly or in combination, prevent or reduce the release of pollutants into receiving waters.

There are three broad categories of BMPs:

- Operational BMPs are those activities and actions that municipal staff should perform on a regular basis to prevent the release of pollutants into the stormwater system. For example, street sweeping is an operational BMP. Placing a tarp over material stockpiles at the end of each day is an operational BMP.
- Structural BMPs are permanent facilities or structures that are constructed to prevent pollutants from coming into contact with stormwater. For example, constructing a roof over a material storage area or vehicle fueling area are structural BMPs.
- Treatment BMPs are the facilities that are used to remove pollutants from stormwater before it is released downstream into surface waters or groundwaters. For example, oil/water separators and vegetated swales are treatment BMPs.

This O&M Plan is focused on operational and structural BMPs that will be utilized to protect the City's receiving waters. Section 3 also describes the maintenance of the City's existing stormwater treatment BMPs, as regular maintenance is required to keep treatment BMPs functioning as they were designed.

Management Considerations

Preventing stormwater pollution during maintenance activities is a significant responsibility that impacts the activities of nearly every department in the City. Maintenance activities must be carefully planned, coordinated, and documented to meet the requirements of the Phase II Permit, avoid duplication, and make best use of limited staff time and resources. Section 13 of this O&M Plan describes the planning, budgeting, and recordkeeping activities associated with stormwater pollution prevention and good housekeeping during municipal maintenance activities.

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Section 2—Program Overview

Organization/Structure

The Streets Division is primarily responsible for the maintenance of the City's stormwater infrastructure. This includes inspecting and cleaning catch basins and manholes, clearing roadside ditches, and maintaining stormwater treatment and disposal facilities.

In addition, many other City departments conduct municipal activities that have the potential to introduce pollutants into stormwater. To protect receiving waters from stormwater pollution, the following City departments are covered under this Stormwater Pollution Prevention O&M Plan:

- Streets Division
- Fleet Services
- Facility Maintenance
- Parks and Recreation (including Cemetery)
- Sanitation and Landfill

Stormwater Infrastructure Inventory

Maps of the publically operated stormwater system are included as Figure 2-1 (index and map sheets). The inventory is continually updated as new structures and facilities are added to the system. As of March 2011, the City's stormwater system was comprised of approximately:

- 2,629 catch basins and inlets
- 120 BubleUps
- 842 manholes
- 54 miles of storm drain pipe
- 4,877 feet of conveyance ditches/open channels
- 367 drywells
- 16 stormwater management facilities (see Table 2-1)
- 215 surface or piped outfalls including:

In addition to the stormwater system owned and operated by the City, there are a number of private stormwater management facilities that are owned and operated by commercial/industrial businesses or residential homeowners associations. The City's program related to private facility maintenance is discussed in Section 3.

Table 2-1 Summary of Major Stormwater Management Facilities		
Facility Type	Location/Address	Year Constructed
Bio-infiltration Swale	East and West side of NE Myra Rd. between Mill Creek and W Pine St.	2008
	East side of NE Myra Rd. between Princess St. and Drumheller St.	2008
	East and West side of 13th Ave. between Pine St. and Rees Ave. (8 total)	2010
	North and South side of 1150 Abadie St.	2010
Dry Pond	SW corner of Rose St. and Myra Rd.	2009
	NE corner of 13th Ave. and Pine St.	2010
	NW corner of 13th Ave. and Abadie St.	2010
Oil/Water Separator	City Service Center 55 E. Moore St. (3 total discharge to sanitary sewer)	Unknown

Facilities, Equipment, and Storage Areas

The City is responsible for the operation and maintenance of a number of municipal facilities as shown in Figures 2-2, 2-3, and 2-4. These facilities include:

- City Hall
- City Library
- Fire Stations
- City Landfill
- City Service Center
- Water and Wastewater Treatment Plants
- Parks and Cemeteries
- City owned Parking Lots > 5,000 square feet.

Contracted Activities

Private contractors performing work on behalf of the City are also subject to the provisions protecting stormwater runoff. This O&M Plan should be referenced when preparing contract documents.

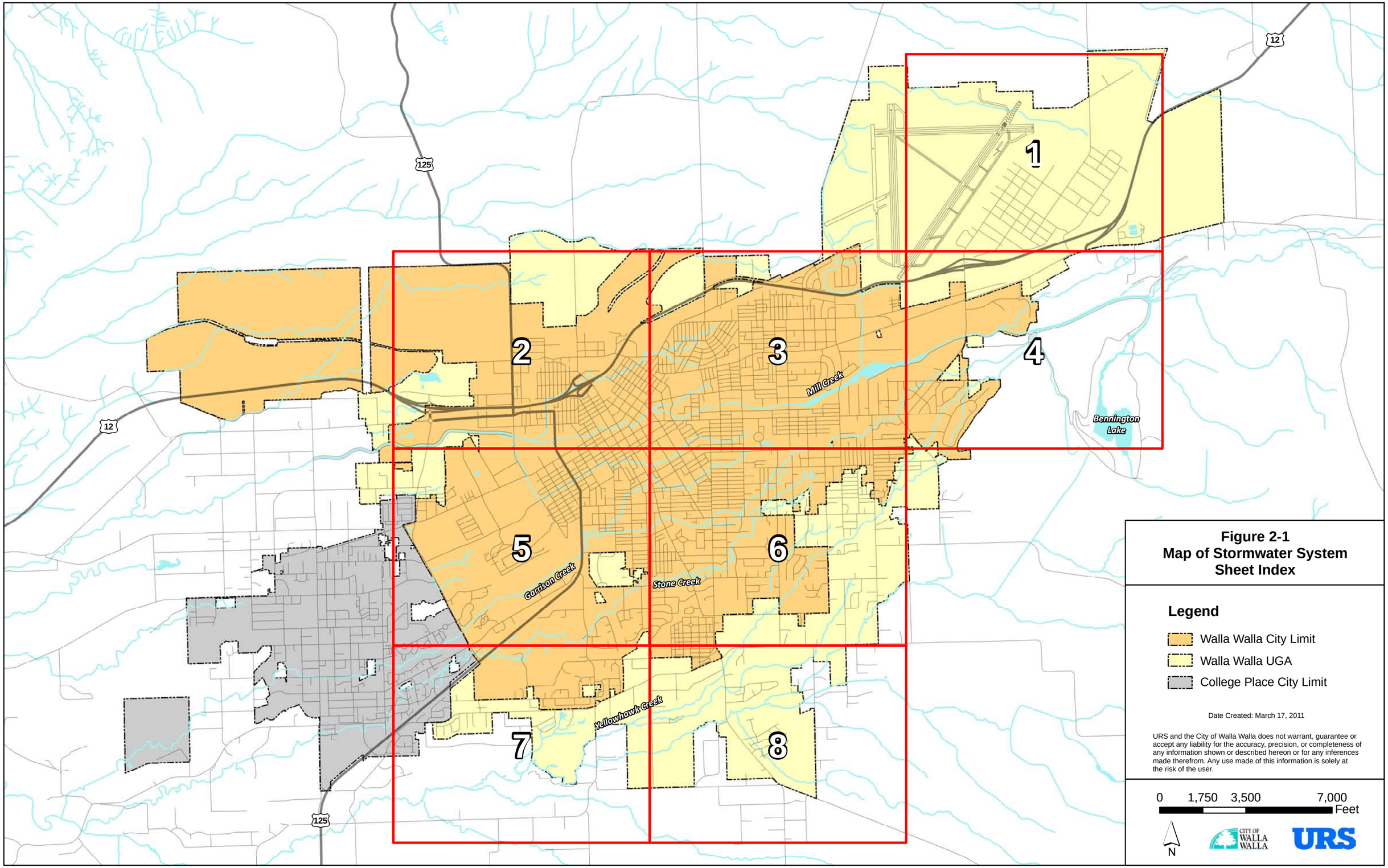
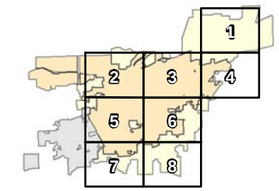


Figure 2-1
Map of Stormwater System
Sheet Index

Figure 2-1-1
Map of Stormwater System
Sheet 1



Legend

- BubbleUp
- CatchBasin
- Cleanout
- Down Spout
- Illicit Catch Basin
- Illicit Drain
- Inlet
- Outfall
- Outflow
- Barrel Bubble Up
- DiversionBox
- DryWell
- Manhole
- Unknown
- Stormwater Conveyance Network
- Creek
- Bodies of Water
- Stormwater Facility
- Walla Walla City Limit
- Walla Walla UGA
- College Place City Limit

Date Created: April 15, 2011

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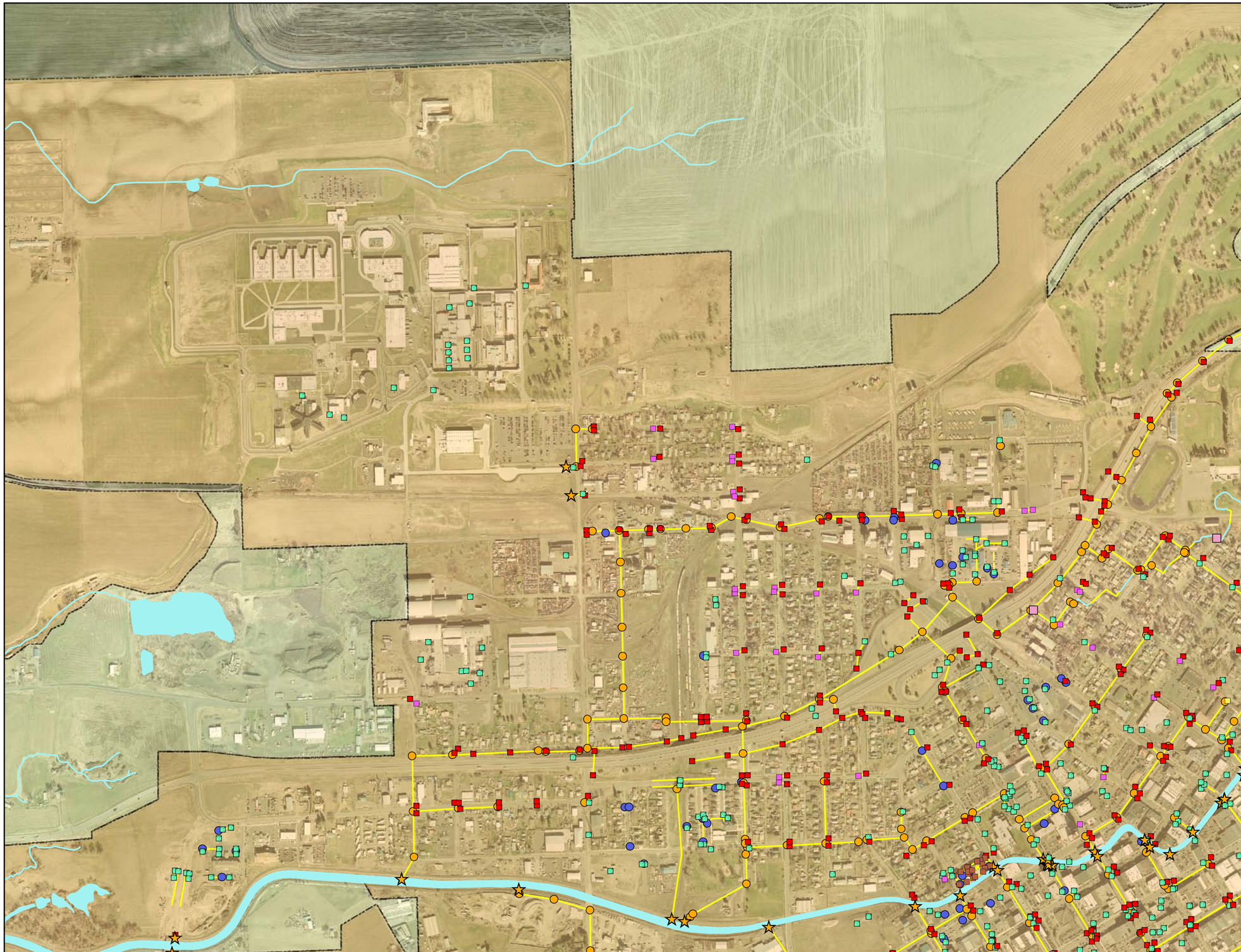
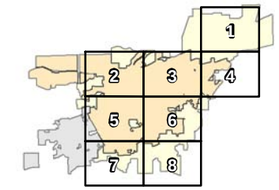
Figure 2-1-2
Map of Stormwater System
Sheet 2





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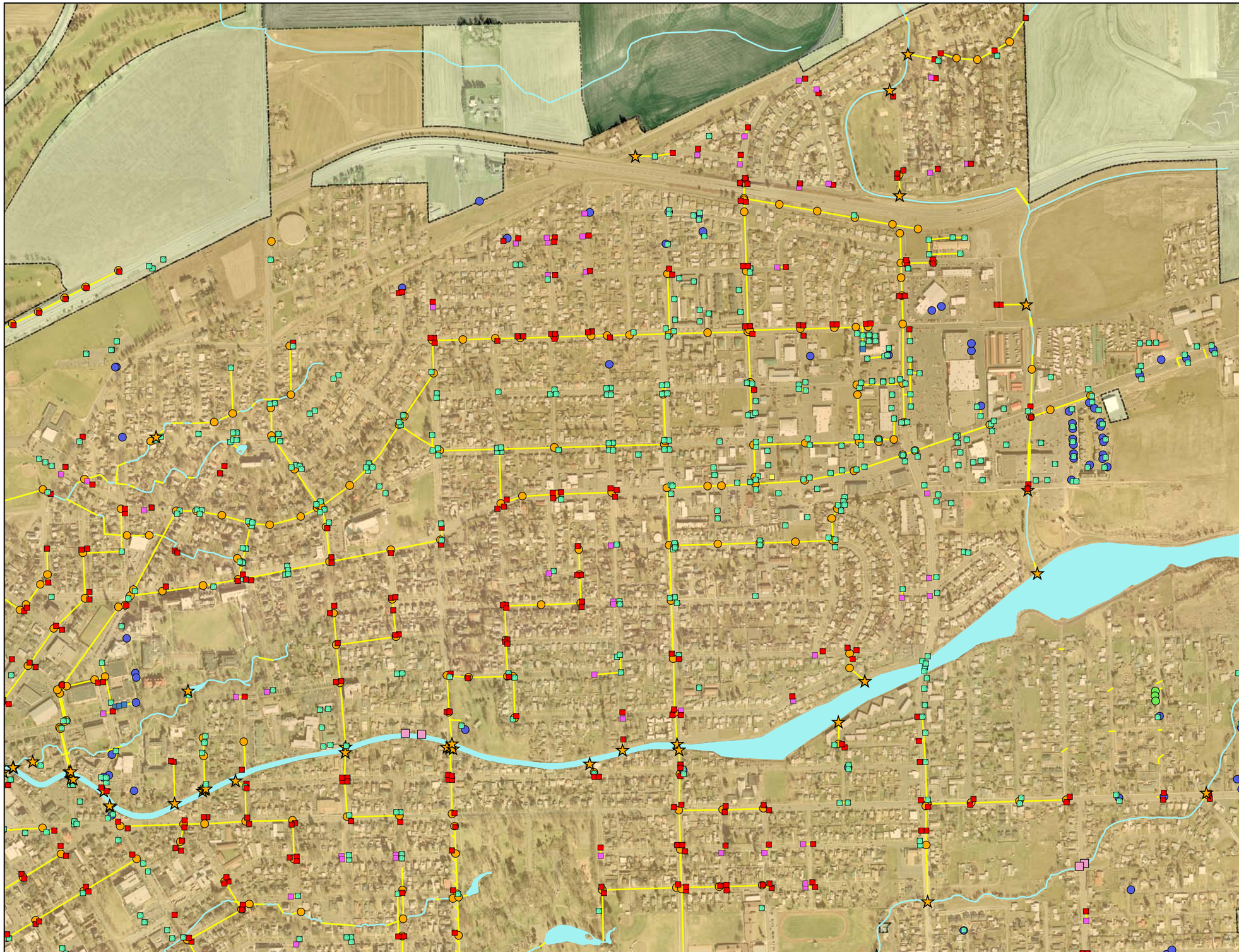
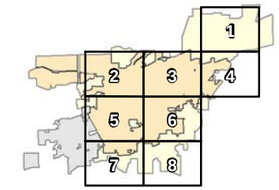


Figure 2-1-3
Map of Stormwater System
Sheet 3



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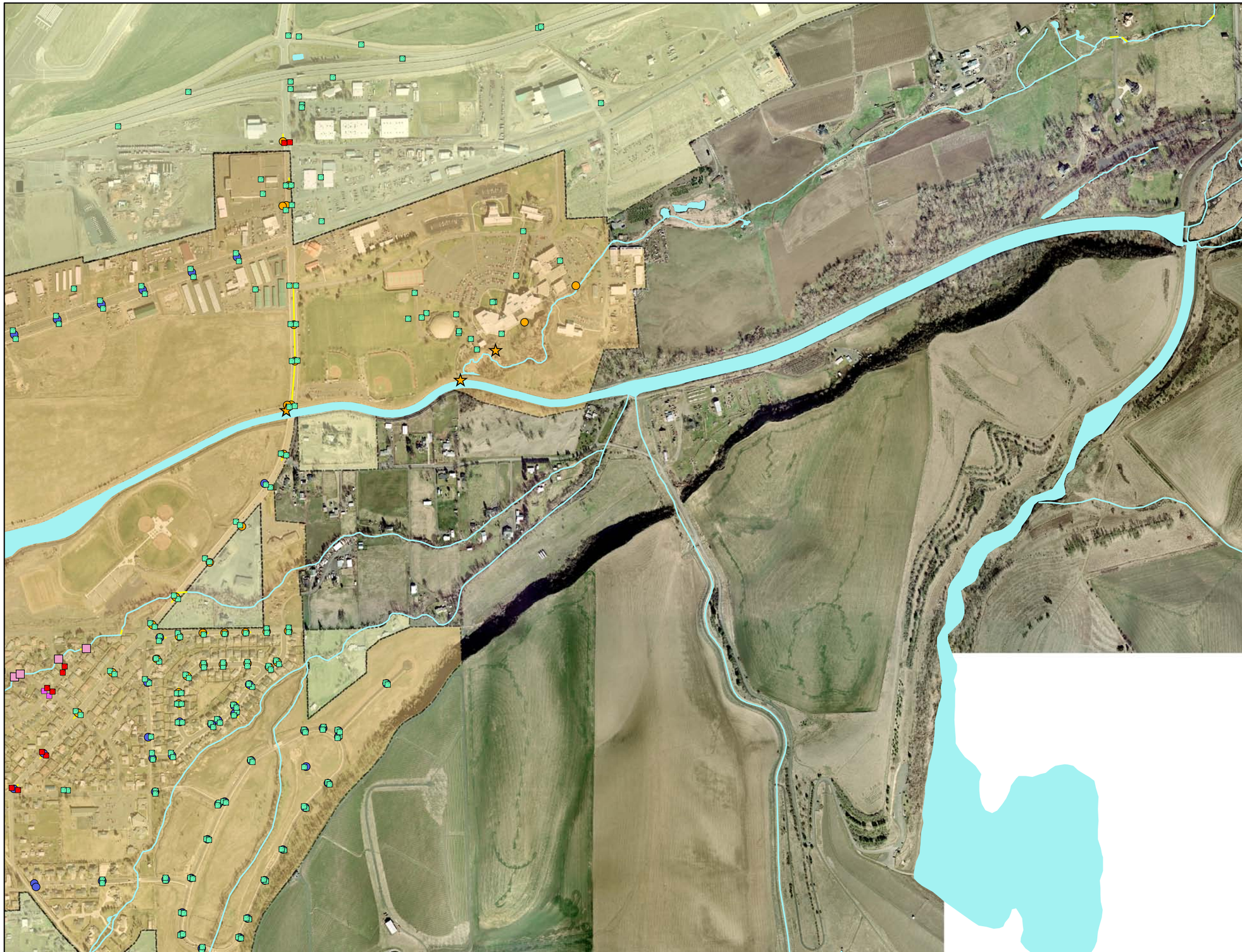

Figure 2-1-4
Map of Stormwater System
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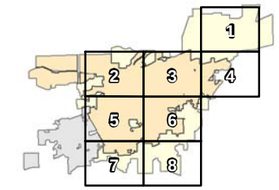

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Figure 2-1-5
Map of Stormwater System
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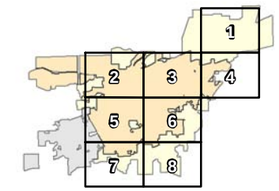

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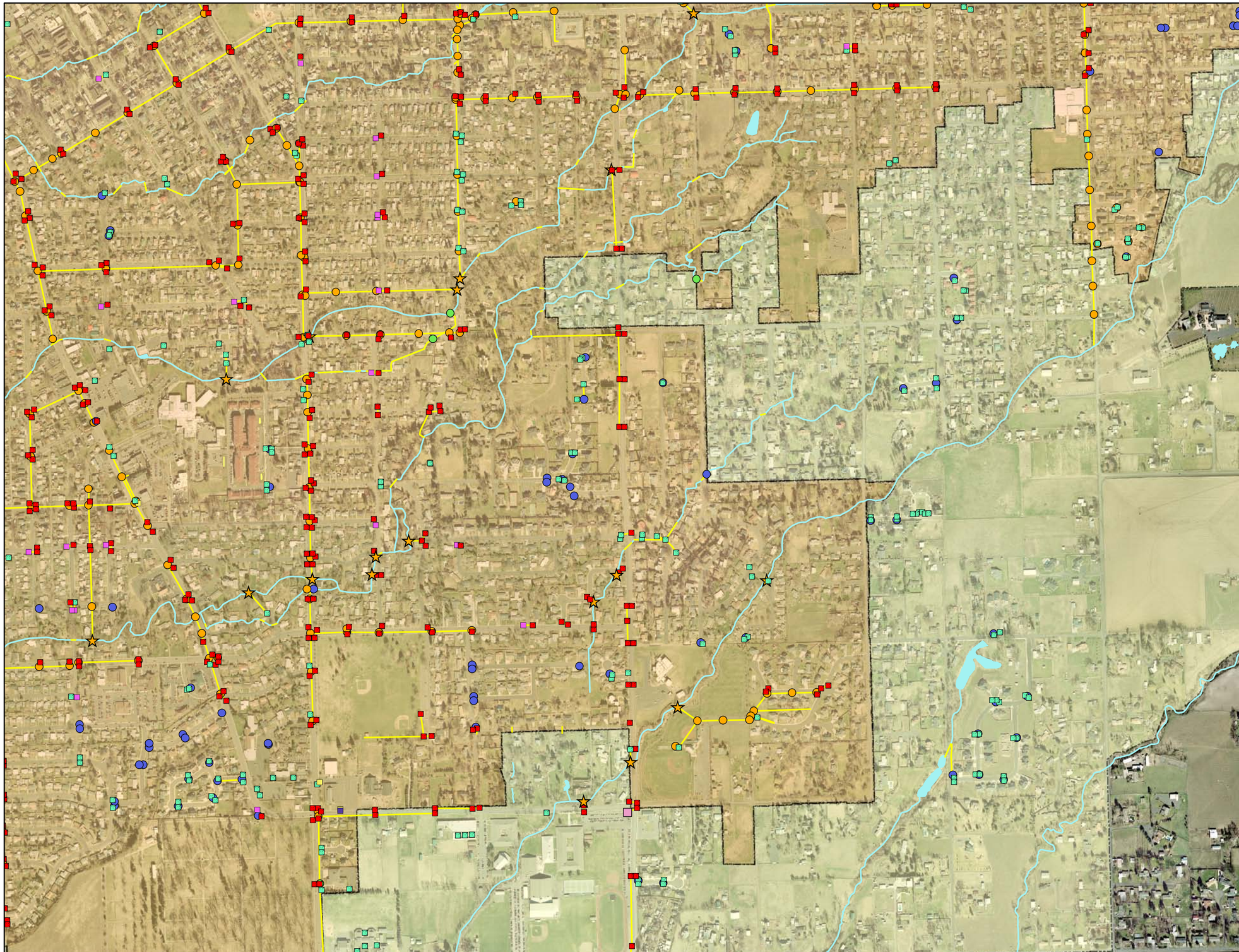

Figure 2-1-6
Map of Stormwater System
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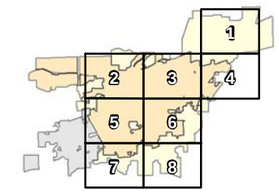

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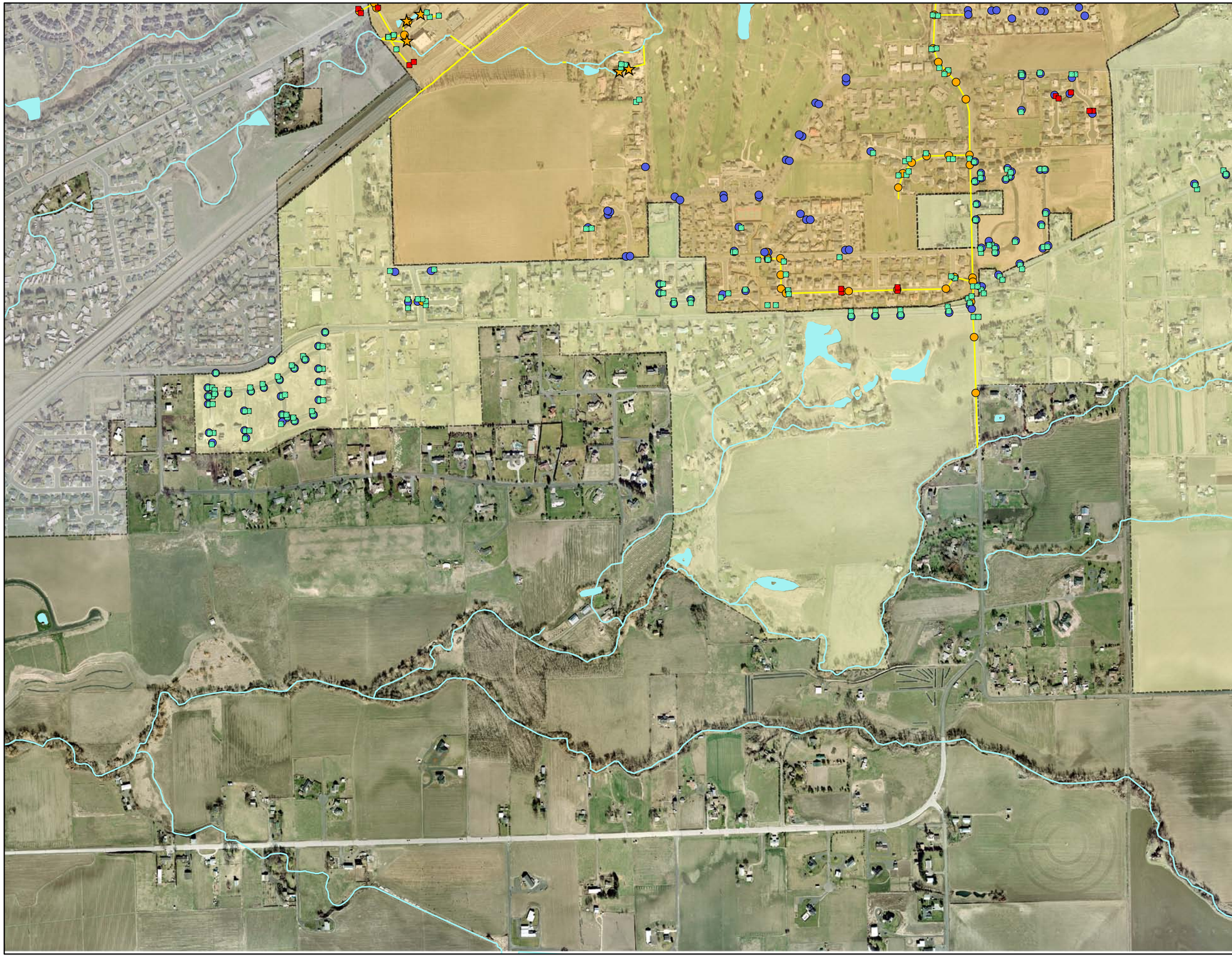

Figure 2-1-7
Map of Stormwater System
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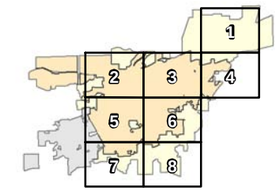

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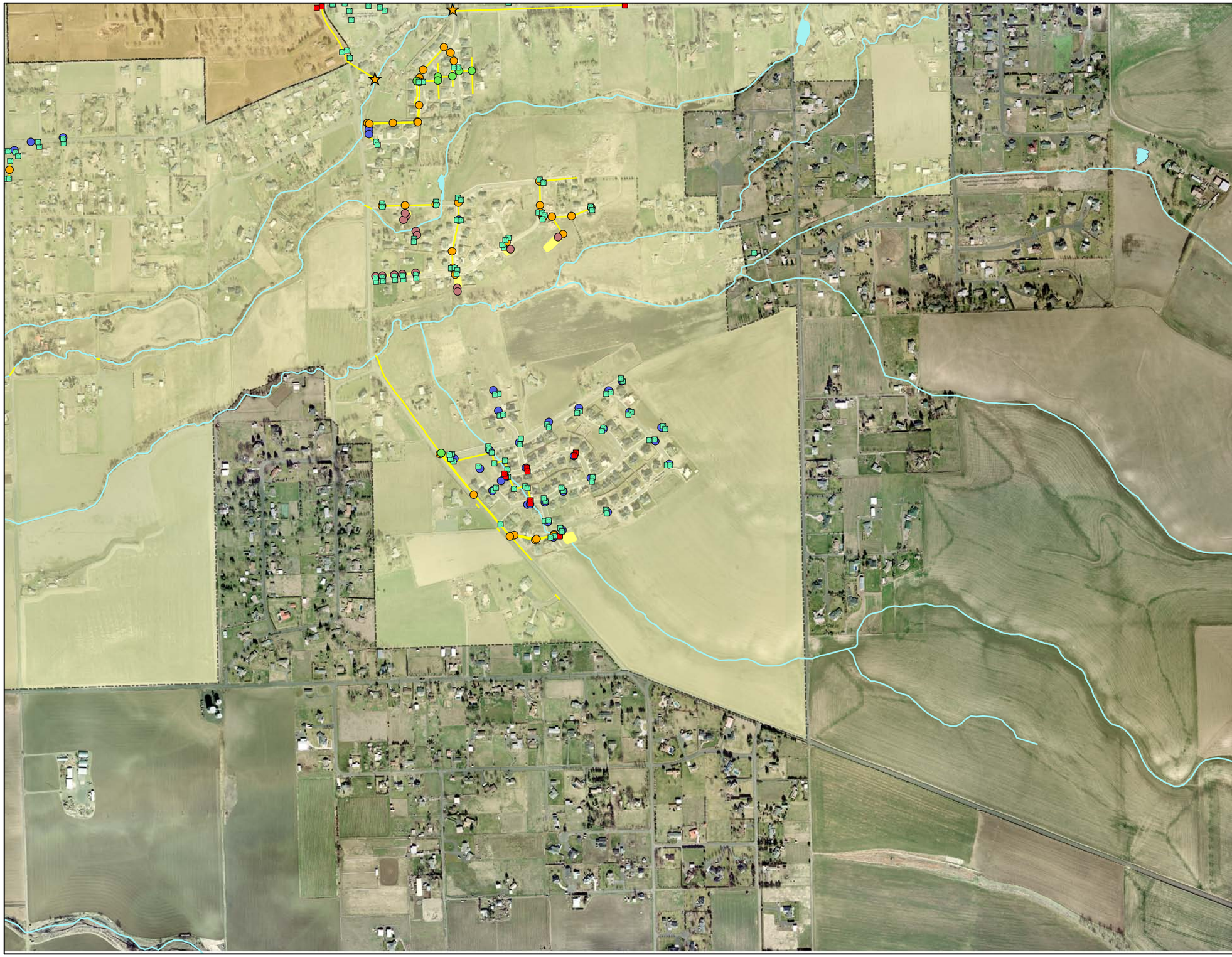

Figure 2-1-8
Map of Stormwater System
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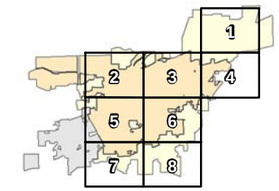

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- College Place City Limit

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0 400 800 1,600 Feet

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CITY OF WALLA WALLA

URS

Building Name	Number
City Hall/Police Dept	1
City Service Center	2
Public Library	3
Water Treatment Plant	4
Waste Water Treatment Plant	5
Fire Station 11-1	6
Fire Station 11-2	7
Sudbury Landfill	8

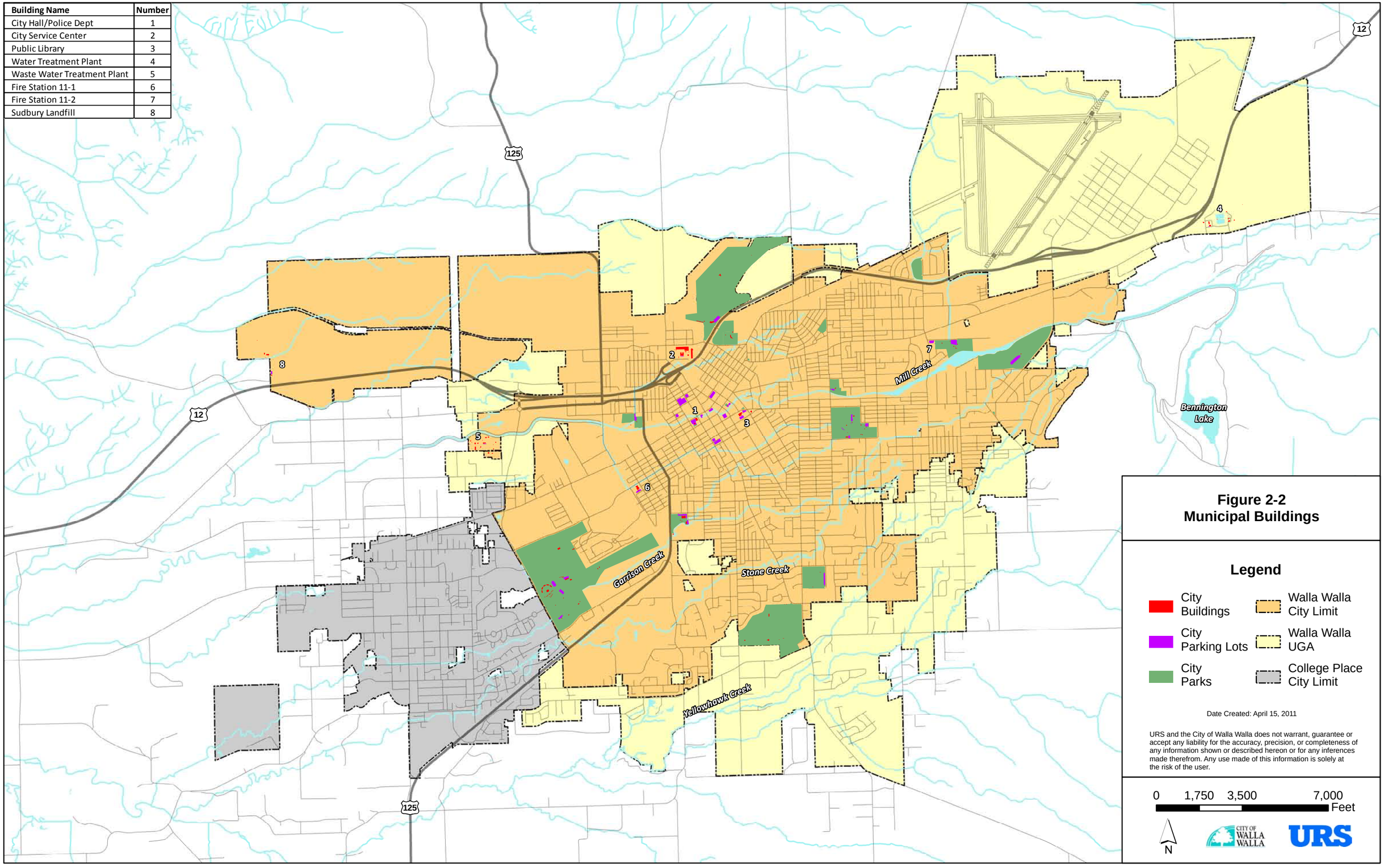

Figure 2-2
Municipal Buildings

Park Name	Number
Memorial Park	1
Xeriscape Park	2
Heritage Square Park	3
Crawford Park	4
Washington Park	5
Fort Walla Walla Park	6
Jefferson Park	7
Mountain View Cemetery	8
Howard-Tietan Park	9
Pioneer Park	10
Wildwood Park	11
Menlo Park	12
Vista Terrace Park	13
Eastgate Lions Park	14
Mill Creek Sportsplex	15
Volunteer Park	16
Carnegie Center	17

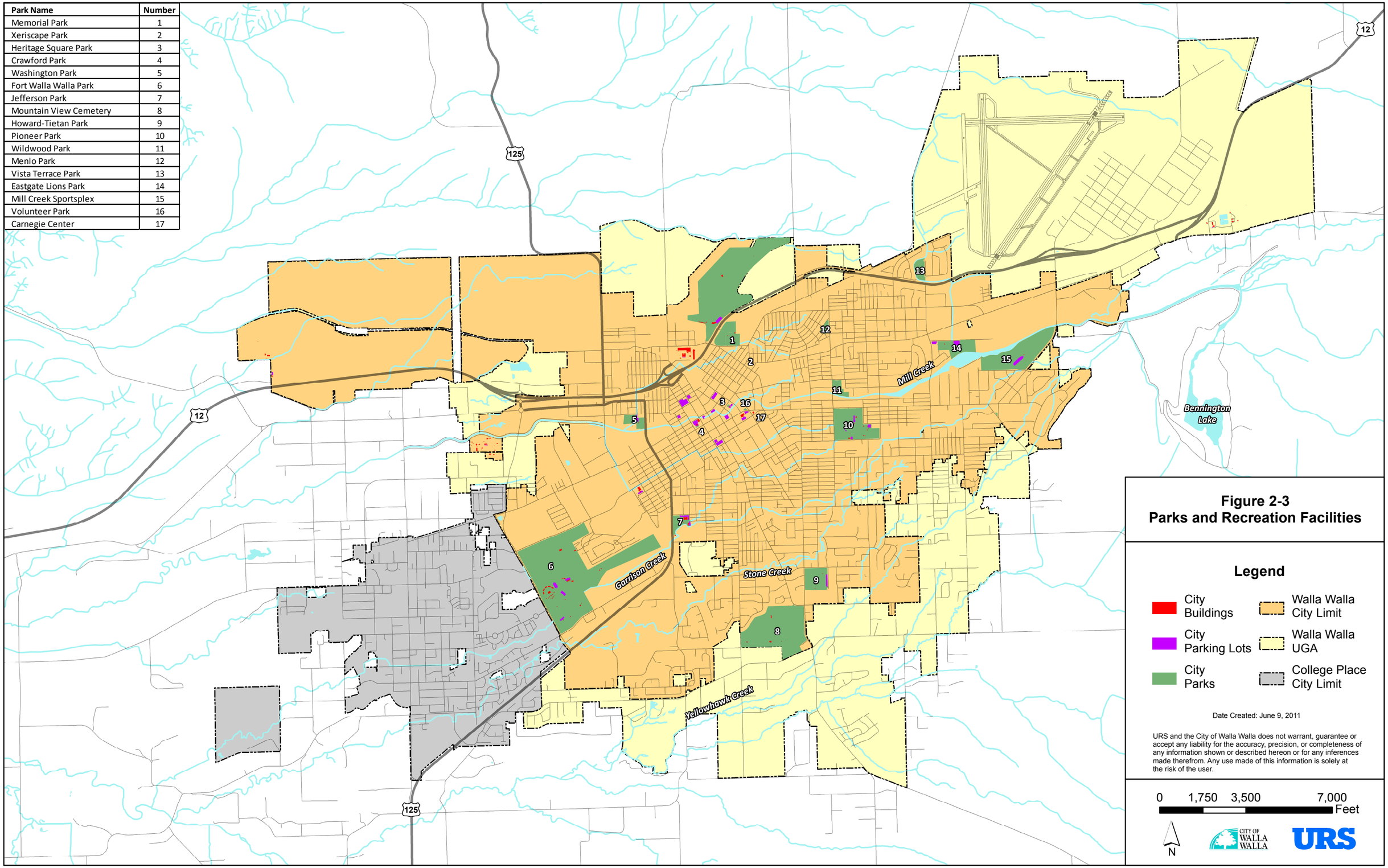

Figure 2-3
Parks and Recreation Facilities

Name/Location	Number
Unknown N 3rd Ave & W Cherry St	1
Mill Creek Sportsplex N Tausick Way	2
Eastgate Lions Park Tacoma St	3
City Hall W Rose St & N 4th Ave	4
Veterans Memorial Golf Course Par 72 Dr	5
Unknown E Sumach St & N Spokane St	6
Unknown W Birch St & S 3rd Ave	7
Tietan Park Hilbrooke Dr & E Tietan St	8
Fort Walla Walla Musuem Fort Walla Walla Park	9
Jefferson Park Malcom St & Sprague Ave	10
Macy's Parking Lot E Alder & S Colville St	11
Fort Walla Walla Park Fort Walla Walla Park	12
Fire Station 2 Tacoma St & N Wilbur Ave	13
Washington Park Cayuse St (WA Park)	14
Library E Poplar St & S Palouse St	15
Unknown W Oak St & N 3rd St	16
Fort Walla Walla Ampitheater Fort Walla Walla Park	17
Pioneer Park Ruth St & S Roosevelt St	18
Pioneer Park Pioneer Park (1), 70 Total	19
Park and Shop E Rose St & N 2nd Ave	20
Unknown W Poplar St & S 3rd Ave	21
Unknown N 5th Ave & W Sumach St	22
Fire Station 1 W Birch St & S 12th Ave	23
Fort Walla Walla Park SE Myra Rd & Dalles Military Rd	24
Library E Alder St & S Palouse St	25
Heritage Park E Main St & S Spokane St	26
Community Wellness Sprague Ave & Hariison St	27
E911/Dispatch W Rose St & N 2nd Ave	28
Wildwood Park S Division St & Francis Ave	29
City Landfill City Landfill	30
Pioneer Park Whitman St, 70 Total	31
Pioneer Park Pioneer Park (3), 70 Total	32
Service Center Service Center	33

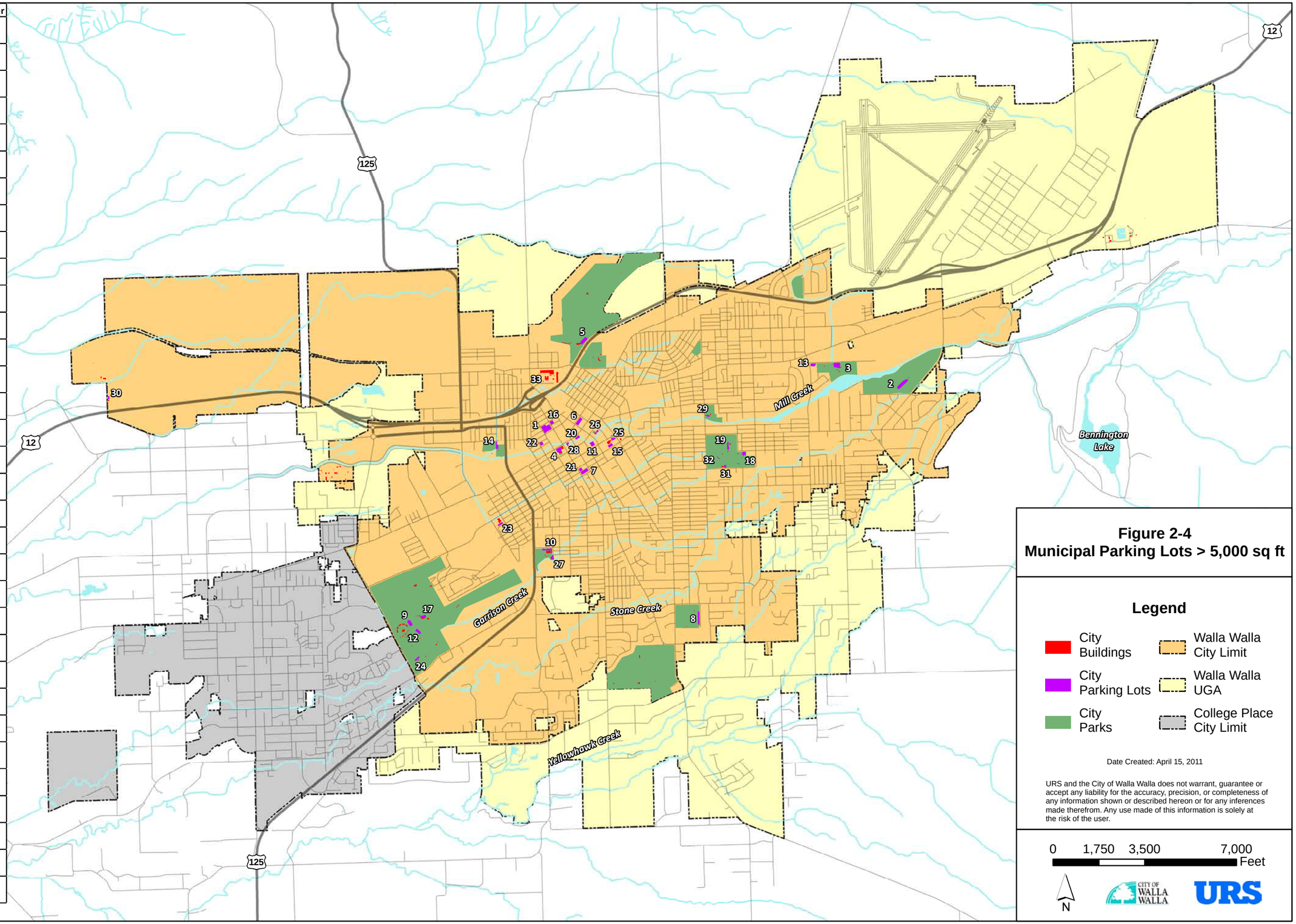

Figure 2-4
Municipal Parking Lots > 5,000 sq ft

Section 3—Stormwater Collection and Conveyance System

Table 3-1 Implementation Checklist Stormwater Collection and Conveyance System	
Potential Pollutants: Sediment, Nutrients, Hydrocarbons, Heavy Metals, Pathogens, Toxic Chemicals, Debris/Litter	
Activity/BMP	**Responsibility**
Stormwater Facility Inspections (See Table 3-2)	Streets Div. Maint. Worker
Stormwater Facility Maintenance – Clean or Repair Structures Based on Inspections	Streets Div. Maint. Worker
Small Construction Erosion and Sediment Controls	Streets Div. Maint. Worker
Proper Waste Disposal	Streets Div. Maint. Worker
Private Stormwater Facility Maintenance Program	City Engineer/ Stormwater Engineer
Recordkeeping	Streets Div. Supervisor

Overview

The Streets Division is responsible for maintenance of the stormwater collection and conveyance system, including catch basins and manholes, pipes, ditches, drywells, and stormwater management/treatment facilities. Maintenance activities focus on removing sediment, debris, and other pollutants from the stormwater system before they can be flushed downstream into receiving waters, resulting in adverse effects on aquatic life and water quality. Regular maintenance is also needed to keep stormwater management facilities (e.g., detention ponds, treatment swales, etc.) functioning as they were designed.

Maintenance for the stormwater collection and conveyance system consists of inspection, cleaning, repairs, and replacement. The Phase II Permit requires a shift from responsive maintenance to preventative, standards-based maintenance. Regular inspections will be used to identify when cleaning or repairs are needed to keep the stormwater system functioning at an optimal level. The maintenance activities should then be performed utilizing the BMPs in this section.

The activities related to stormwater collection and conveyance system maintenance that are covered in this O&M Plan include:

- Facility Inspections
- Conveyance System Maintenance
- Stormwater Management Facility Maintenance

- Small Construction Activities
- Waste Disposal
- Private Facilities
- Recordkeeping

Facility Inspections

The Phase II Permit requires regular inspection of the City's stormwater facilities to check system performance and identify maintenance needs. Stormwater facility inspections will be performed by the Streets Division.

Inspection Schedule

Table 3-2 shows the proposed inspection frequencies for each type of stormwater facility. Most stormwater facilities will be inspected on an annual basis. Drywells and other UICs will be inspected twice-yearly. Catch basin and manhole, pipe, and roadside ditch inspections are scheduled based on priority areas. High priority areas are those areas that are: (1) subject to major sanding; (2) neighborhoods with significant tree cover; and (3) frequently maintained based on previous inspection records and/or staff knowledge. High priority areas will be inspected annually and low priority areas will be inspected every three years on a rotating schedule. GIS will be utilized to develop geographic maps of high priority and low priority inspection/maintenance areas.

Table 3-2
Stormwater Facility Inspection Frequencies

Facility Type	Inspection Frequency	Timing
Conveyance System		
Catch Basins: (High Priority Areas)	Annually	Year-Round
1/3 of Low Priority Areas	Year A	Year-Round
1/3 of Low Priority Areas	Year B	Year-Round
1/3 of Low Priority Areas	Year C	Year-Round
Manholes: (High Priority Areas)	Annually	Year-Round
1/3 of Low Priority Areas	Year A	Year-Round
1/3 of Low Priority Areas	Year B	Year-Round
1/3 of Low Priority Areas	Year C	Year-Round

Table 3-2 (cont.) Stormwater Facility Inspection Frequencies		
Facility Type	Inspection Frequency	Timing
Conveyance System		
Storm Drain Pipes: (High Priority Areas)	Annually	Year-Round
1/3 of Low Priority Areas	Year A	Year-Round
1/3 of Low Priority Areas	Year B	Year-Round
1/3 of Low Priority Areas	Year C	Year-Round
Roadside Ditches: (High Priority Areas)	Annually	Year-Round
1/3 of Low Priority Areas	Year A	Year-Round
1/3 of Low Priority Areas	Year B	Year-Round
1/3 of Low Priority Areas	Year C	Year-Round
Culverts	Annually	Year-Round
Management Facilities		
Drywells	Twice Yearly	Spring – Fall
Infiltration Basins and Trenches	Twice Yearly	Spring – Fall
Bio-Infiltration Swales	Annually	Spring – Fall
Detention/Infiltration Ponds and Control Structures	Annually	Spring – Fall
Oil/Water Separators	Monthly in the Wet Season	October through June

Inspection Activities

During inspections, field inspectors should utilize the inspection checklists in Appendix A to document the condition of each facility and identify any required maintenance activities. Any identified maintenance needs should be reported to the Streets Division Supervisor, so that work orders can be developed to complete the required cleaning or repair.

In addition to documenting the condition of each stormwater facility, field inspectors should continually verify and update (as needed) the City's stormwater inventory map. Field inspectors should also immediately report any spills or illicit discharge concerns to the Streets Division Supervisor.

Standards and BMP Selection

The Stormwater Management Manual for Eastern Washington includes required facility maintenance standards related to the physical condition and function of each type of stormwater facility. The maintenance standards cover topics such as sediment depth, erosion, vegetation growth, accumulated trash and debris, and structural integrity. For example, one of the maintenance standards for catch basins states that a structure should be cleaned when sediment exceeds 60 percent of the sump depth or when sediment has accumulated to within 6 inches of the lowest pipe invert.

The inspection checklists in Appendix A list the required maintenance standards for each type of stormwater facility. Field inspectors should use the checklists during regular inspection to indicate when cleaning or repairs are needed. The Phase II Permit then requires that the City correct an observed problem "…as soon as practicable" after the condition is identified during a regularly scheduled inspection or spot check.

Beyond the inspection requirements, the Phase II Permit requires the City to prevent the discharge of pollutants to the stormwater system and protect water quality to the maximum extent practicable. The following operational and structural BMPs will help the City meet the permit requirements.

Conveyance System Maintenance

The following BMPs apply to the maintenance of the stormwater collection and conveyance system, including catch basins and manholes, pipes, ditches, and outfalls. Regular inspection and cleaning of catch basins and manholes should reduce the need for frequent cleaning of storm drain pipes.

Operational BMPs

- Regularly inspect catch basins and manholes according to the inspection schedule outlined in this O&M Plan to determine maintenance needs. Complete maintenance activities as identified during inspections.
- Whenever possible, coordinate street sweeping to occur just prior to catch basin cleaning.
- Clean catch basins and manholes when sediment and debris exceeds 60 percent of the sump depth or when sediment has accumulated to within 6 inches of the lowest pipe invert.
- Clean storm drain pipes when accumulated sediment and debris exceeds 20 percent of the pipe diameter.
- Clean roadside ditches when accumulated sediment and debris exceeds 20 percent of the design depth.

- Conduct ditch cleaning during low water periods, minimizing the disturbance of existing vegetation.
- Test and dispose of sediment and debris according to the City's *Street Waste Beneficial Reuse Facility Operations Plan* (2004) and *Street Waste Decant Facility Solid Waste Permit* (2006), included in Appendix B.
- If vegetation is removed during ditch cleaning, the ditch side slopes should be seeded and mulched as soon as possible after cleaning.
- Develop a "hot spot" list of frequent flooding locations. Conduct spot checks of those locations following major precipitation events, exceeding 1.7 inches of rainfall in any 24 hour period.
- Implement the City's Illicit Discharge Detection and Elimination Program to regularly inspect outfalls for evidence of unreported spills, illicit connections, or illegal dumping.

Structural BMPs

- Continue to placard and/or stencil catch basin grates with, "No Dumping – Drains to Creek".
- Prioritize, schedule, and complete repairs and replace damaged components of the stormwater conveyance system identified during inspections.

Stormwater Management Facility Maintenance

The following BMPs apply to the maintenance of stormwater management facilities, including drywells, detention and infiltration ponds, underground tanks and vaults, treatment swales, oil/water separators, and proprietary treatment devices.

Operational BMPs

- Regularly inspect stormwater management facilities according to the inspection schedule outlined in this O&M Plan to determine maintenance needs. Complete maintenance activities as identified during inspections.
- Remove sediment when it exceeds the sediment storage depth (typically 12 inches) in ponds.
- Remove sediment when it exceeds a depth of 2 inches in treatment swales.
- Remove sediment when it exceeds a depth of 6 inches in vaults and oil/water separators.
- Remove oil accumulation when it exceeds 1 inch at the water surface of oil/water separators.
- Test and dispose of sediment and debris according to the City's *Street Waste Beneficial Reuse Facility Operations Plan* (2004) and *Street Waste Decant Facility Solid Waste Permit* (2006), included in Appendix B.

- Develop a "hot spot" list of major stormwater detention and infiltration facilities. Conduct spot checks of those locations following major precipitation events, exceeding 1.7 inches of rainfall in any 24 hour period.
- Construct all new municipal UIC wells in accordance with the Ecology document entitled *Guidance for UIC Wells that Manage Stormwater* (Publication Number 05-10-067). As new municipal UIC wells are constructed, register them with Ecology. Required information includes: operator/owner information, site location (latitude and longitude), BMPs used to protect groundwater quality, and a UIC well description.
- Complete a UIC well assessment for all existing wells (constructed prior to February 3, 2006), evaluating the potential for pollutants to enter the stormwater runoff that flows to each UIC well. The well assessment should consider land use and groundwater protection areas and may consider local geology and depth to groundwater for wells that are considered a high threat to groundwater.
- Implement the City's Illicit Discharge Detection and Elimination Program to regularly inspect stormwater management facility inlets for evidence of unreported spills, illicit connections, or illegal dumping.

Structural BMPs

- Placard and/or stencil drywells and catch basin grates that lead to drywells with, "No Dumping – Drains to Groundwater".
- Prioritize, schedule, and complete repairs and replace damaged components of stormwater management facilities identified during inspections.
- Retrofit UIC wells identified during the well assessment as being a high threat to groundwater. A retrofit may include changing the source control activities and/or Structural BMPs around the well, adding an upstream catch basin or spill control device, adding pretreatment facilities, and/or well decommissioning. For more details, see the Ecology document entitled, *Guidance for UIC Wells that Manage Stormwater*.

Vegetation Management BMPs

- Mow vegetation in ponds and swales at least once per year to prevent the establishment of woody vegetation.
- If vegetation is removed during sediment removal, seed and mulch the area as soon as possible after cleaning.
- Limit the use of herbicides; use mechanical methods of vegetation removal where practical. See Section 7 for additional information on pesticide and herbicide BMPs.

Small Construction Activities

Sediment and erosion control measures should be implemented when stormwater system repair or replacement projects include grading, soil transfer, or vegetation removal. The following BMPs apply when making structural repairs or replacing stormwater infrastructure components.

Small Construction BMPs

- Minimize land disturbance and exposed slope length.
- Whenever possible, avoid land disturbance during the wet season.
- Implement erosion control techniques or devices to stabilize disturbed areas. Use mulch or other erosion control measures when soils are exposed for more than a week.
- Install storm drain inlet protection on all inlets within 500 feet downstream or down gradient of the project site to prevent coarse sediment from entering the drainage system. Inlet protection methods include block and gravel inlet protection, gravel and wire inlet protection, and catch basin inserts. Inspect inlet protections frequently during construction.
- Remove excess soil from the site as soon as possible after backfilling to eliminate sediment loss from surplus fill.
- For larger construction projects that include the addition of new stormwater system components or the replacement of culverts in streams or other perennial water bodies, follow the construction activity guidelines in Section 8.

For additional details, see the *Eastern Washington Erosion Prevention and Sediment Control Field Guide* (2011).

Waste Disposal

Waste generated from cleaning of catch basins, drywells, and other stormwater facilities must be taken to the City's decant facility located at 55 E. Moore Street. Once decanted, the debris must be taken to the landfill and used as cover. Waste with obvious contamination (unusual color, staining, corrosion, unusual odors, fumes, and oily sheen) is segregated from other wastes and placed in the decant facility bay designated for "hot" loads only. Testing is performed on the suspected "hot" waste material to determine the proper disposal method. Appendix B includes the City's *Street Waste Beneficial Reuse Facility Operations Plan* (2004) and *Street Waste Decant Facility Solid Waste Permit* (2006), which outline the City's procedures for the characterization, reuse, and disposal of sediment and debris generated from catch basins, drywells, and other stormwater facilities.

Private Facilities

In addition to the stormwater system owned and operated by the City, there are a number of stormwater facilities that manage stormwater runoff from private property. These facilities are owned and operated by private property owners – either commercial/industrial businesses or residential homeowners associations. While the maintenance of these systems

is the responsibility of the private owner, the City is required to establish a private facilities maintenance program for facilities that discharge to the City's stormwater collection and conveyance system or to local receiving waters. The purpose of the program is to verify that maintenance is performed and the private facilities are functioning to manage and protect water quality.

The private facility maintenance program is administered by the City Engineer. Details of the program are described in Appendix C.

Recordkeeping

Recordkeeping is a condition of the Phase II Permit. The Streets Division Supervisor is responsible for keeping records of stormwater collection and conveyance system maintenance activities. In accordance with the Phase II Permit, the following documentation must be kept for at least five years following work activity:

- Inspection schedules and checklists for stormwater facilities;
- Records of spot checks performed following major storm events,
- Repairs or maintenance actions completed as a result of inspections and spot checks,
- Number and type of enforcement actions related to private facilities, and
- Number and type of illicit discharges detected and eliminated.

In addition, tracking the following information may be helpful in planning and budgeting for future maintenance activities. See Section 13 for additional information.

- Catch basins cleaned each year,
- Amount of sediment collected and date removed, and
- Results of waste material testing.

Hard copy and/or electronic reports should be stored in the Streets Division office. Inspections, catch basin cleaning, and facility maintenance should also be imported into the City's GIS system, so the Streets Division Supervisor and field crews can geographically track maintenance activities and plan for future work.

In addition, material or liquid spills should be promptly reported to either the Street Division Supervisor or Stormwater Engineer and all paperwork related to the spill and cleanup activities should be maintained in the Streets Division office.

Section 4—Roads, Highways, and Parking Lots

Table 4-1 Implementation Checklist Roads, Highways, and Parking Lots	
Potential Pollutants: Sediment, Hydrocarbons, Heavy Metals, Toxic Chemicals, Debris/Litter	
Activity/BMP	**Responsibility**
Street Sweeping (See Table 4-2)	Streets Div. Maint. Worker
Winter Maintenance Activities – Deicing, Sanding, and Snow Removal	Streets Div. Maint. Worker
Street Repair and Maintenance	Streets Div. Maint. Worker
Small Construction Erosion and Sediment Controls	Streets Div. Maint. Worker
Vegetation Management – Loose Leaf Collection Program	Streets Div. Maint. Worker
Proper Waste Disposal	Streets Div. Maint. Worker
Street Repair and Maintenance	Streets Div. Maint. Worker
Recordkeeping	Streets Div. Supervisor

Overview

Pollutants accumulate on roadway surfaces and parking lots from pavement and vehicle wear, atmospheric deposition, and littering. Hydrocarbons, copper, and other heavy metals are deposited on roads from clutch and break wear, vehicle exhaust, and leaking motor fluids. Degrading road surfaces, litter, and trash also add pollutants to stormwater runoff. Deicing chemicals that include acetate can deplete dissolved oxygen, increase conductivity, and increase pH of receiving waters. Sand used for winter traction can accumulate in the stormwater collection and conveyance system, carrying pollutants into receiving waters. If not properly managed, regular municipal street maintenance activities can negatively impact the health of local aquatic resources.

The Streets Division is responsible for implementing this O&M Plan during maintenance of the City's roads and highways. The Streets Division is also responsible for implementing this O&M Plan during maintenance of all municipal parking lots over 5,000 square feet, see Figure 2-4.

Stormwater pollution prevention during roadway and parking lot maintenance focuses on collecting sediment, debris, and pollutants before they can enter the stormwater collection and conveyance system. This plan also covers application and storage of materials used for snow and ice control and proper vegetation management

Standards and BMP Selection

The Phase II Permit does not include specific maintenance standards or BMPs related to the maintenance of roads, highways, and parking lots. The City's obligation is to prevent the discharge of pollutants to the stormwater system and protect water quality to the maximum extent practicable. To meet that goal, the City has identified BMPs related to each of the following activities:

- Street Sweeping
- Winter Activities
- Street Repair and Maintenance
- Vegetation Management
- Recordkeeping

In general, the focus on selecting road, highway, and parking lot BMPs is to reduce the amount of sediment and debris that is washed from the roadways into the stormwater collection and conveyance system. Implementing these BMPs will help prevent the discharge of pollutants into receiving waters and help reduce the cost of maintaining the stormwater collection and conveyance system.

Street Sweeping

The City conducts street sweeping for aesthetic, safety, and public health reasons. Effective sweeping removes pollutants before they can be carried into the stormwater collection and conveyance system and may reduce the frequency of catch basin cleaning.

Street Sweeping Schedule

The City's street sweeping schedule was developed to produce the most cost-effective reduction of pollutants, taking into account pollutant loads and weather patterns (sweeping before the onset of wet weather). Throughout winter, if traction sand is applied it is swept up as soon as weather permits. Table 4-2 shows the proposed street sweeping schedule.

Table 4-2 Street Sweeping Schedule		
Location/Neighborhood	Sweeping Frequency	Timing
Downtown Core Area, City Owned Parking Lots, and Major Arterial Streets	Once per Week	Year-Round
Minor Arterial Streets	Every Two Weeks	Year-Round
Residential Streets	Every Six to Eight Weeks	Year-Round

Street Sweeping BMPs

- Use regenerative air sweepers on curb and gutter streets.
- Maintain sweeping equipment in good working condition.
- Store swept material in the appropriate bay at the City's decant facility until it can be disposed of following the protocols outlined in Appendix B.
- Whenever possible, coordinate street sweeping to occur just prior to catch basin cleaning and immediately following Loose Leaf Collection Program activities.
- Schedule additional street sweeping following special events that generate higher than normal pollutant loadings.
- Train operators on factors that influence pollutant removal, including sweeper speed, brush adjustment, rotation rate, sweeping pattern, and maneuvering around parked vehicles.
- Consider periodic parking restrictions to ensure curbs are cleared before sweeping takes place.
- Track street sweeping waste (total volume or weight per mile of road swept) and modify sweeping schedules based on accumulated sediment loads.
- Avoid wet cleaning or flushing and utilize dry methods whenever possible.
- If wet cleaning or flushing is absolutely necessary, sweep and remove debris prior to flushing; plug storm drain inlets and direct wash water to sanitary sewer with prior approval from the Wastewater Division.

Waste Disposal

Waste generated from street sweeping must be taken to the City's decant facility. Once decanted the debris must be taken to the landfill and used as cover. Waste with obvious contamination (unusual color, staining, corrosion, unusual odors, fumes, and oily sheen) is segregated from other wastes and placed in the decant facility bay designated for "hot" loads only. Testing is performed on the suspected "hot" waste material to determine the proper disposal method. Appendix B includes the City's *Street Waste Beneficial Reuse Facility Operations Plan* (2004) and *Street Waste Decant Facility Solid Waste Permit* (2006), which outline the City's procedures for the characterization, reuse, and disposal of sediment and debris generated from street sweeping.

Winter Activities

The City conducts winter activities such as deicing, sanding, snow plowing, and snow removal to enhance public safety during inclement winter weather. Proper selection and application of deicing chemicals is important to prevent negative environmental impacts to water quality and plants.

Deicing and Sanding

- Select deicers that cause the least adverse environmental impact while still providing adequate public safety. Road salt is the City's preferred deicer.
- Follow manufacturer's recommendations when applying deicer.
- Calibrate equipment to optimum levels according to manufacturer instructions.
- Apply sand at the lowest rate necessary to provide for vehicle traction; avoid excessive application.
- Sweep streets as soon as weather allows to collect accumulated sand.

Snow Removal

- Whenever possible, avoid covering inlets to the stormwater collection and conveyance system during plowing so snowmelt can drain.
- Snow removed from City streets shall be taken to the City's decant facility for storage during melting.
- It is recommended that snow not be disposed of within 25 feet of surface waters, 75 feet of private water supplies, 200 feet from any community water supply, or 400 feet from any municipal well.

Material Storage

Uncovered material storage stockpiles are a major source of pollutants as sand, cinder, salts, or other road maintenance materials can be carried into the stormwater system during rain or snowmelt events. Vehicle, equipment, and material storage areas should be maintained according to the City Service Center SWPPP included in Appendix D. The following operational BMPs should be implemented to limit the transport of materials into the stormwater collection and conveyance system:

- Limit deicer and sand purchases to the amount that is expected to be needed for the upcoming season.
- Whenever possible, store material stockpiles in a building or within a paved and bermed covered area.
- Store chemical deicing materials following manufacturer recommendations.
- Sweep parking lots, material storage areas, and driveways regularly to collect dirt, waste, debris, and loose stockpile materials. Do not hose down the areas toward a storm drain inlet or ditch.
- Whenever possible, collect and recycle stored materials back into the stockpile.

Street Repair and Maintenance

Street repair and maintenance activities include road surfacing (repairing potholes, sealing cracks, overlaying roads, and paving shoulders), pavement marking, signage and signal repairs, and small construction projects. The BMPs related to these activities are described below.

Street Repair and Maintenance BMPs

- When possible, avoid work in wet weather.
- Carry a spill kit during maintenance activities.
- Prevent paving materials, paint, pavement markings, and wastes from entering the stormwater system.
- When placing chip seals, limit spreading aggregate to the sealed surface and sweep up excess aggregate once cured and each day thereafter until aggregate loss is insignificant.
- Collect any loose sand, gravel, asphalt, or other material as soon as possible after repair activities.
- Sweep or vacuum dust and debris before using water to clean up work sites.
- Avoid striping operations when the pavement is wet or if rain is likely.
- When striping, use water-based paints or thermoplastics rather than solvent-based materials.
- When possible, use portable drip trays under equipment to catch spills.
- Use dry cutting techniques with proper dust control when saw cutting and sweep or vacuum up residue. If wet cutting techniques are required, use as little cooling water as possible and switch the water off when the saw is not in use. Use downstream inlet protection to keep cutting waste out of the stormwater collection and conveyance system.
- Properly contain and dispose of unused paint, cleaning materials, and debris following repair activities.

Small Construction BMPs

The following sediment and erosion control measures should be implemented when making small roadway repairs that include grading, soil transfer, or vegetation removal.

- Minimize land disturbance and exposed slope length.
- Whenever possible, avoid land disturbance during the wet season.
- Implement erosion control techniques or devices to stabilize disturbed areas. Use mulch or other erosion control measures when soils are exposed for more than a week.
- Install storm drain inlet protection on all inlets within 500 feet downstream or down gradient of the project site to prevent coarse sediment from entering the drainage system. Inlet protection methods include block and gravel inlet protection, gravel and wire inlet protection, and catch basin inserts. Inspect inlet protections frequently during construction.
- Remove excess soil from the site as soon as possible after backfilling to eliminate sediment loss from surplus fill.

- For larger construction projects that create new impervious surfaces or have the potential to disturb large areas of soil, follow the construction activity guidelines in Section 8.

For additional details, see the *Eastern Washington Erosion Prevention and Sediment Control Field Guide* (2011).

Vegetation Management

The Parks and Recreation Department maintains landscaping for roadway right-of-ways, medians, and parking lots (see Section 7).

The Streets Division maintains a Loose Leaf Collection Program to help keep street gutters and storm drainage grates clean and working properly. Starting in November, City crews make two trips around town within a six to eight week period and pick up leaves deposited in the street by residents. Crews follow a leaf pickup schedule similar to the sanitation collection schedule.

Leaf Collection BMPs

- Provide a leaf collection schedule, map, and instructions for residents, including proper placement of leaf piles along curb gutters to avoid covering storm drain inlets, vehicle parking restrictions, and other requirements;
- Dispose collected leaves at the City Landfill/Compost Facility;
- Coordinate street sweeping to occur immediately following scheduled leaf collection;
- Avoid wet cleaning or flushing and utilize dry methods whenever possible; and
- If wet cleaning or flushing is absolutely necessary, sweep and remove debris prior to flushing; plug storm drain inlets and direct wash water to sanitary sewer with prior approval from the Wastewater Division.

Recordkeeping

Recordkeeping is a condition of the Phase II Permit. The Street Division Supervisor is responsible for keeping records of road and parking lot maintenance activities that have the potential to impact stormwater. The recordkeeping required by the Phase II Permit is limited to documenting any liquid or material spills that could carry pollutants into the stormwater collection and conveyance system. Spills should be reported to either the Street Division Supervisor or Stormwater Engineer and all paperwork related to the spill and cleanup activities should be maintained in the Streets Division office.

The following records may also assist the Street Supervisor in planning for future maintenance activities:

- Street sweeping – location, frequency;
- Total volume/weight of materials collected per mile of road swept;
- Winter deicing/sanding activities – location, type, frequency;
- Amount of street waste removed, and
- Results of sediment testing.

Hard copy and/or electronic reports should be stored in the Streets Division office. Appropriate records should also be imported into the City's GIS system, so the Streets Division Supervisor and field crews can geographically track maintenance activities and plan for future work.

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Section 5—Vehicle Fleets

Table 5-1 Implementation Checklist Vehicle Fleets	
Potential Pollutants: Sediment, Hydrocarbons, Heavy Metals, Toxic Chemicals, Debris/Litter	
Activity/BMP	**Responsibility**
Vehicle Storage	Vehicle Operator – Varies by Dept./Div.
Vehicle Fueling	Vehicle Operator – Varies by Dept./Div.
Vehicle Maintenance	Fleet Services Div. Mechanic
Vehicle Washing	Vehicle Operator – Varies by Dept./Div.
Recordkeeping	Fleet Services Div. Supervisor

Overview

The Fleet Services Division is responsible for maintaining City vehicles and equipment in proper working order. Most vehicle maintenance is conducted at the Fleet Services shop, located in Building 65B at the City Service Center. Vehicle maintenance activities have the potential to spill or leak fluids, fuel, or other polluting liquids.

Vehicle washing has the potential to contribute soap, debris, and pollutants into the stormwater collection and conveyance system. Individual vehicle operators from the various departments/divisions are responsible for vehicle washing activities. The washing facilities are cooperatively maintained by the Facility Maintnenace and Streets Divisions.

Standards and BMP Selection

The Phase II Permit does not include specific maintenance standards or BMPs related to the maintenance of vehicle fleets. The City's obligation is to prevent the discharge of pollutants to the stormwater system and protect water quality to the maximum extent practicable. To meet that goal, the City has identified BMPs related to each of the following activities:

- Vehicle Storage
- Vehicle Fueling
- Vehicle Maintenance
- Vehicle Washing
- Recordkeeping

In general, the focus on selecting vehicle fleet BMPs is to prevent spills and reduce the potential for non-stormwater discharges into the stormwater collection and conveyance system. Implementing these BMPs will help prevent the discharge of pollutants into receiving waters.

Vehicle Storage

When vehicles and equipment are parked or stored outside without cover they have the potential to leak or drip hazardous fluids that can be carried to the stormwater system during a rain or snow melt event. Various vehicle storage sites exist throughout the City. Refer to Figures 2-2 and 2-4 for specific locations. In addition to the following BMPs, the vehicles stored at the City Service Center should be maintained according to the City Service Center SWPPP included in Appendix D.

Operational BMPs

- Sweep parking lots, storage areas, and driveways regularly to collect dirt, waste, and debris. Do not hose down the areas to a stormwater conveyance system.
- Use drip pans or containers under vehicles and equipment that drip or are likely to drip liquids.
- Remove liquids from vehicles retired for scrap.

Structural BMPs

- Where feasible, park/store all vehicles and equipment in a designated covered area that prevents run-on of stormwater runoff.

Vehicle Fueling

The City operates fueling stations at the City Service Center, Landfill, Cemetery, and Fort Walla Walla. The following BMPs should be implemented to minimize contact between stormwater runoff and spilled fuel, oil, or other leaked vehicle fluids at equipment fueling areas.

Operational BMPs

- Fuel tanks and fuel dispensers shall have current permits with the appropriate agencies.
- Prepare an emergency spill response plan and have a designated trained person(s) available either on-site or on-call at all times to promptly and properly implement that plan and immediately clean up all spills.
- Maintain a spill kit on-site at all times.

- Train employees on the proper use of fuel dispensers. Proper fueling and spill cleanup instructions shall be posted at fueling areas. Post signs in accordance with the Uniform Fire Code.
- Make sure that the automatic shutoff on the fuel nozzle is functioning properly.
- The person conducting the fuel transfer must be present at the fueling pump during fuel transfer, particularly at unattended or self-serve stations.
- Temporarily cover all nearby storm drain and drywell inlets during the transfer of fuel from the delivery tank truck to the fuel storage tanks.
- Hosing down of leaks, drips and spills is prohibited.

Structural BMPs

- Fueling stations should be paved with concrete and covered with a roof/canopy.
- Design/retrofit fueling island as a spill containment pad with a sill or berm raised to a minimum of four inches to prevent the runoff of spilled liquids and to prevent run-on of stormwater from the surrounding area.

Vehicle Maintenance

Vehicle and equipment maintenance and repair conducted by the City includes vehicle fluid removal and engine and parts cleaning. All body and paint repairs are currently contracted out by the City. If conducted outdoors, all of these activities have the potential to discharge pollutants into the stormwater system.

Operational BMPs

- Whenever possible, conduct vehicle maintenance indoors or within a paved, bermed and covered area.
- Outdoor vehicle and equipment maintenance shall not be performed during rain events or prior to predicted rain events unless required by emergency conditions.
- Maintenance activity areas should be kept clean, well-organized, and equipped with cleanup supplies.
- Inspect for leaks all incoming vehicles, parts, and equipment stored temporarily outside.
- Use absorbent pads, drip pans, or absorbent material as appropriate. If rags and absorbents are saturated or contaminated with high concentrations of regulated hazardous materials, dispose of rags and absorbents according to hazardous waste disposal guidelines.
- Vehicle maintenance activities (fluid removal, engine and parts cleaning, and body repair and painting) should be done in accordance with the City Service Center SWPPP included in Appendix D.

Vehicle Washing

In accordance with the Chapter 13.15 of the Walla Walla Municipal Code (WWMC), which pertains to illicit discharge detection and elimination, vehicle wash water is prohibited from entering the stormwater collection and conveyance system. In addition to the potential impacts from soapy water, wash water may contain other hazardous vehicle fluids.

Vehicle washing is conducted primarily at the City Service Center in a dedicated covered area by individual vehicle operators from the various City departments and divisions. Wash water drains to a catch basin and oil/water separator before draining to the sanitary sewer. The washing facilities are cooperatively maintained by the Facility Maintnenace and Streets Divisions.

Operational BMPs

- Vehicle and equipment washing areas should be inspected daily and cleaned as needed.
- Inspect and maintain catch basins/sumps and oil/water separators according to Section 3.
- Use phosphate-free biodegradable soaps and detergents whenever practical.
- Do not remove original product label from cleaning containers as it contains important spill cleanup and disposal information. Use the entire product before disposing of the container.
- Minimize water usage.

Recordkeeping

The Phase II Permit requires long-term recordkeeping of events and activities that have the potential to impact stormwater. The recordkeeping required by the Phase II Permit is limited to documenting any liquid or material spills that could carry pollutants into the stormwater collection and conveyance system. Material or liquid spills should be promptly reported to either the Fleet Services Supervisor or Stormwater Engineer and all paperwork related to the spill and cleanup activities should be maintained in the Fleet Services Division office.

Section 6—Municipal Buildings

Table 6-1 Implementation Checklist Municipal Buildings	
Potential Pollutants: Sediment, Nutrients, Hydrocarbons, Heavy Metals, Toxic Chemicals, Debris/Litter	
Activity/BMP	**Responsibility**
General Facility Housekeeping	Facility Maint. Div. Worker
Building Cleaning and Washing	Facility Maint. Div. Worker
Building Painting	Facility Maint. Div. Worker
Vegetation Management	Parks and Rec. Dept.
Building Winter Activities – Deicing, Sanding, and Snow Removal	Parks and Rec. Dept.
Recordkeeping	Facility Maint. Div. Supervisor

Overview

Municipal building maintenance includes cleaning, washing, and painting. Landscape maintenance and winter activities are provided by the Parks and Recreation Department. Potential pollutants from these activities include organic compounds, oil and grease, soap, heavy metals, and particulate matter. The Facility Maintenance Division is responsible for the maintenance of the majority of the City's municipal buildings (see Figure 2-2) including:

- City Hall
- Police Department
- City Service Center
- Public Library
- Water Treatment Plant
- Fire Station 11-1 and 11-2
- Landfill

Standards and BMP Selection

The Phase II Permit does not include specific maintenance standards or BMPs related to the maintenance of municipal buildings. The City's obligation is to prevent the discharge of pollutants to the stormwater system and protect water quality to the maximum extent practicable. To meet that goal, the City has identified BMPs related to each of the following activities:

- General Facility Housekeeping
- Building Cleaning and Washing
- Painting
- Vegetation Management
- Winter Activities
- Other Maintenance Activities
- Recordkeeping

In general, the goals in selecting municipal building maintenance BMPs are to prevent spills, reduce the potential for non-stormwater discharges into the stormwater collection and conveyance system, and reduce the amount of sediment and debris that is washed into the storm drain system. Implementing these BMPs will help prevent the discharge of pollutants into receiving waters and help reduce the cost of maintaining the stormwater collection and conveyance system.

General Facility Housekeeping

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 also includes storing materials under cover and handling materials and waste products in a way that minimizes the risk to stormwater.

Operational BMPs

- Keep open areas clean and orderly.
- Pick-up litter.
- Promptly contain and clean up solid and liquid leaks and spills.
- Sweep paved material handling and storage areas regularly.
- Inspect all structural BMPs regularly, particularly after a significant storm.
- Use drip pans or absorbent pads under leaking vehicles and equipment to capture fluids.
- Promptly remove debris and old equipment.
- Store hazardous materials as specified by the manufacturer.
- Conduct regular employee training to reinforce proper housekeeping actions.

Building Cleaning and Washing

Municipal building cleaning and washing activities may include washing of carpet and other interior items and/or conducting pressure washing of buildings, rooftops, and other large structures associated with a municipal building. Wash water from municipal building washing practices has the potential to be contaminated with harmful pollutants such as sediment and chemicals.

Operational BMPs

- Dispose of carpet or interior wash water to the sanitary sewer with prior approval from the Wastewater Division. Do not dispose of any wash water outdoors or to a storm drain system.
- Report any spills or accidental discharges to the storm drain system to either the Facility Maintenance Supervisor or Stormwater Engineer
- Collect wash water from building structures and convey it to an appropriate treatment device, such as the sanitary sewer system with prior approval from the Wastewater Division. If wash water contains oils, soaps, or detergents, it may be directed to soils that have sufficient natural attenuation capacity. A sump pump, wet vacuum, or similarly effective device may be used to collect the runoff and loose materials.
- Use storm drain covers for any inlets in the vicinity of the work area when conducting pressure washing activities. The cover(s) must be in place prior to engaging in the washing activity. Collect any accumulated runoff and solids with a wet vacuum or broom, and properly dispose of wastes before removing the cover(s).

Painting

Municipal building interior and exterior painting activities include surface preparation and application of paints, stains, finishes, and other coatings. Paints, stains, and finishes contain harsh chemicals and will contaminate stormwater if allowed to comingle.

Operational BMPs

- Never dump any toxic substance or liquid waste on the pavement or the ground.
- Report any spills or accidental discharges to the storm drain system to either the Facility Maintenance Supervisor or Stormwater Engineer.
- Train employees in the proper application of paints, finishes, stains, and coatings to reduce misuse and over spray.
- Use ground cloths or drop cloths underneath outdoor painting, scraping, media blasting work, paint mixing, and tool cleaning.
- Wipe up spills with rags and other absorbent materials immediately. Do not hose down the area to a storm drain, receiving water, or conveyance ditch that drains to a receiving water.
- Clean brushes and tools covered with oil-based paints, finishes, or other materials in a manner that allows collection of used solvents (e.g., paint thinner, turpentine, xylol, etc.) for recycling or proper disposal.
- Store hazardous materials indoors or under cover (tarp, etc.) during precipitation events and when not in use to prevent contact with stormwater.

Structural BMPs

- Enclose and/or contain all work while using a spray gun or conducting media blasting in compliance with applicable air pollution control, Occupational Safety and Health

Administration (OSHA), and Washington Industrial Safety and Health Act (WISHA) regulations.

Vegetation Management

Vegetation management includes maintaining landscaping for 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 receiving waters. The Parks and Recreation Department handles municipal building vegetation maintenance, refer to Section 7 for specific BMPs.

Winter Activities

Winter activities around municipal buildings include deicing, sanding, and snow removal on sidewalks and small parking lots. These activities enhance and protect public safety during inclement winter weather. In addition to the BMPs described below, see Section 4 for BMPs related to storage of sand and deicer.

Deicing and Sanding

- Select deicers that cause the least adverse environmental impact while still providing adequate public safety. Road salt is the preferred deicer.
- Follow manufacturer's recommendations when applying deicer.
- Apply sand and deicers at the lowest rate necessary to provide traction; avoid excessive application.
- Sweep sidewalks and parking lots as soon as weather allows to collect accumulated sand.

Snow Removal

- Whenever possible, avoid covering inlets to the stormwater collection and conveyance system so snowmelt can drain.
- Snow removed from sidewalks and municipal parking lots shall be deposited on adjacent landscaped areas, within a seldom used parking stall, or taken to the City's decant facility for storage during melting.
- It is recommended that snow not be disposed of within 25 feet of surface waters, 75 feet of private water supplies, 200 feet from any community water supply, or 400 feet from any municipal well.

Other Maintenance Activities

Additional maintenance activities associated with municipal buildings include building repair, remodeling, and construction projects.

Operational BMPs

- Use a storm drain cover if dust, grit, wash water, or other pollutants have the potential to enter a storm drain inlet. Collect any accumulated runoff and solids with wet vacuums and brooms as needed.
- Use ground cloths or drop cloths underneath outdoor painting, scraping, and media blasting work and properly dispose of collected material daily.
- Use a ground cloth or oversized tub for activities such as paint mixing and tool cleaning.
- Store and maintain a spill control kit and ensure employees are familiar with proper spill control procedures.
- Report spills or accidental discharges to the stormwater conveyance system to either the Facility Maintenance Supervisor or Stormwater Engineer.

Structural BMPs

- Continue to placard and/or stencil catch basin grates with, “No Dumping – Drains to Creek".
- Placard and/or stencil drywells and catch basin grates that lead to drywells with, “No Dumping – Drains to Groundwater".

Recordkeeping

The Phase II Permit requires long-term recordkeeping of events and activities that have the potential to impact stormwater. The recordkeeping required by the Phase II Permit is limited to documenting any liquid or material spills that could carry pollutants into the stormwater collection and conveyance system. Material or liquid spills should be promptly reported to either the Facility Maintenance Supervisor or Stormwater Engineer and all paperwork related to the spill and cleanup activities should be maintained at the Facility Maintenance Division office.

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Section 7—Parks and Open Space

Table 7-1 Implementation Checklist Parks and Open Space	
Potential Pollutants: Sediment, Nutrients, Heavy Metals, Pathogens, Toxic Chemicals, Debris/Litter	
Activity/BMP	**Responsibility**
Vegetation Management – General Landscaping Activities	Park Maint. Worker
Irrigation System Maintenance	Irrigation Technician
Pesticide/Herbicide Application	Licensed Applicator
Consider Development of an Integrated Pest Management Policy	Park Maintenance Supervisor
Trash and Debris Removal	Park Maint. Worker and Sanitation Div. Refuse Collector
Small Construction Erosion and Sediment Controls	Park Maint. Worker
Vehicle, Equipment, and Material Storage	Park Maint. Worker
Proper Waste Disposal	Park Maint. Worker
Recordkeeping	Park Maintenance Supervisor

Overview

The maintenance of parks and open space areas frequently includes mowing, fertilizer and pesticide applications, and irrigation. Potential pollutants from these activities include nutrients, chemicals, organic debris, and sediment. Improving the way park and open space maintenance activities are conducted can reduce the amount of stormwater pollution that is conveyed to local receiving waters.

The Parks and Recreation Department is responsible for maintaining landscaped areas associated with City-owned and operated medians, parking lots, open space, undeveloped properties, and other right-of-way areas not already maintained by abuting property owners. In addition, the Parks and Recreation Department is responsible for maintaining the following City park properties (see Figure 2-3):

- Memorial Park
- Xeriscape Park
- Heritage Square
- Crawford Park
- Washington Park
- Fort Walla Walla Park

- Jefferson Park
- Mountain View Cemetery
- Howard-Tietan Park
- Pioneer Park
- Wildwood Park
- Menlo Park
- Vista Terrace Park
- Eastgate Lions Park
- Mill Creek Sportsplex
- Volunteer Park
- Carnegie Center

Standards and BMP Selection

Unless park areas include stormwater management facilities, the Phase II Permit does not include specific maintenance standards or BMPs related to the maintenance of parks and open space. Maintenance of stormwater management facilities is handled by the Streets Division, see Section 3. The City's obligation is to prevent the discharge of pollutants to the stormwater system and protect water quality to the maximum extent practicable. To meet that goal, the City has identified BMPs related to each of the following activities:

- Vegetation Management
- Trash and Debris
- Small Construction Projects
- Buildings and Structures
- Storage Areas
- Recordkeeping

In general, the goals in selecting park and open space maintenance BMPs are to prevent spills, reduce the potential for a non-stormwater discharge into the stormwater collection and conveyance system, and reduce the amount of sediment and debris that is washed into the storm drain system. Implementing these BMPs will help prevent the discharge of pollutants into receiving waters and help reduce the cost of maintaining the stormwater collection and conveyance system.

Vegetation Management

Proper turf management and landscape maintenance practices have the potential to reduce the amount of stormwater runoff and the amount of pollutants that drain to receiving waters. Vegetated spaces provide an excellent opportunity to infiltrate precipitation as it falls and filter pollutants before they can be washed downstream. Vegetation management includes maintaining landscaping throughout park and open space areas and controlling noxious weeds, pests, and unwanted vegetation growth. BMPs should be used to prevent disturbed soil, removed vegetation, and chemicals from causing a negative impact to receiving waters.

Vegetation Management BMPs

- Maintain vegetative cover on medians and embankments to prevent soil erosion. When vegetation is removed, apply mulch or other cover measures to prevent soil erosion.
- Allow natural revegetation in suitable areas and clearly designate "no mow" areas.
- Use mulching type mowers or dispose of lawn clippings at the City Landfill/Compost Facility.
- Dispose of vegetated waste (clippings, leaves, branches) at the City Landfill/Compost Facility; landscape material should not be disposed of in streams or storm drains.
- Avoid loosening the soil during weed control.
- Do not use leaf blowers to blow waste into streets, storm drains, or ditches.
- If grass clippings or other vegetated waste ends up in the street or on sidewalks, promptly sweep up the debris or use leaf blowers to blow waste back into vegetated areas.
- Minimize the use of chemical fertilizers and calibrate the distributor to avoid excessive application. Application should be conducted in a manner and at application rates that will prevent the loss of chemical to stormwater runoff.
- When working near sidewalks, streets, and other paved areas, utilize drop spreaders rather than broadcast spreaders to prevent chemicals from entering into storm drainage systems.
- Store fertilizers in enclosed areas or in covered impervious containment. Store and maintain appropriate spill cleanup materials near the storage area in a location known to all employees.

Irrigation BMPs

- Inspect the irrigation system regularly to minimize excess watering and prevent the runoff of fertilizer.
- Repair leaks to the irrigation system as soon as they are observed or reported.
- Irrigate in the morning or evening to conserve water.
- Monitor soil for moisture content and adjust irrigation times accordingly.

Pesticide and Herbicide BMPs

- Use integrated best management practices that consider cultural, biological, mechanical, or engineering controls before chemical controls. Such information is typically documented in an Integrated Pest Management (IPM) policy/plan and generally includes at a minimum: a list of selected pesticides and their specific uses; brands, formulations, application methods and quantities to be used; equipment use and maintenance procedures; safety, storage, and disposal methods; and monitoring, record keeping, and public notice procedures.The City currently does not have a written IPM policy. If the City wishes to develop such a policy, Appendix E provides regulatory framework, sample plans, and additional resources.
- Limit the use of herbicides; use mechanical methods of vegetation removal where practical.

- Use pesticides only if there is an actual pest problem (not as a regularly scheduled preventative maintenance measure).
- Use the least toxic pesticide for the job. Select products with low water solubility and low persistence.
- Do not use pesticides or herbicides if rain is expected.
- Do not mix or prepare pesticides near storm drain inlets.
- Follow product labels for proper application of any pesticide or herbicide.
- Use the minimum amount of chemical needed for the job.
- Avoid non-permitted pesticide and herbicide applications within 100 feet of a water body and avoid application on or near most stormwater collection and conveyance facilities, excluding dry roadside ditches.
- Use products specifically labeled for dry ditches when treating roadside ditches.
- Pesticides and herbicides must be applied by a State licensed applicator.

Storage and Disposal

- Follow federal, state, and local laws governing the storage and disposal of pesticides and herbicides.
- Store herbicides/pesticides in enclosed areas or in covered impervious containment. Store and maintain appropriate spill cleanup materials near the storage area in a location known to all employees.
- Rinse water from equipment cleaning and/or from herbicide/pesticide/fertilizer containers should be used as product, recycled into product, or disposed of properly.
- Following use, dispose of unused pesticide as hazardous waste.

Trash and Debris

Trash and debris collection is important to maintain the aesthetic and livability of the City's parks. Prompt trash removal also helps prevent garbage and leachate from entering the stormwater conveyance system and polluting receiving waters.

Trash and Debris Removal BMPs

- Cover garbage containers to prevent contact with precipitation. When possible, store garbage containers beneath covered structures.
- Locate dumpsters on a flat, concrete surface that does not slope or drain into the storm drain system.
- Regularly inspect garbage and recycling containers for cracks and leaks; make repairs promptly.
- Properly dispose of hazardous waste, gasoline, oil, and other chemical liquids. Never dispose of hazardous waste in park dumpsters or garbage containers.

- Encourage responsible pet waste cleanup. Maintain existing pet waste receptacles by providing signage, collection bags, and pet waste receptacles.
- Collect litter and trash on a daily basis and dispose at the City Landfill.

Small Construction Activities

The following sediment and erosion control measures should be implemented when small construction or repair activities include grading, soil transfer, or vegetation removal.

Small Construction BMPs

- Minimize land disturbance and exposed slope length.
- Whenever possible, avoid land disturbance during the wet season.
- Implement erosion control techniques or devices to stabilize disturbed areas. Use mulch or other erosion control measures when soils are exposed for more than a week.
- Install storm drain inlet protection on all inlets within 500 feet downstream or down gradient of the project site to prevent coarse sediment from entering the drainage system. Inlet protection methods include block and gravel inlet protection, gravel and wire inlet protection, and catch basin inserts. Inspect inlet protections frequently during construction.
- Remove excess soil from the site as soon as possible after backfilling to eliminate sediment loss from surplus fill.
- For larger construction projects that add new impervious surfaces, modify components of the stormwater system, disturb large areas of soil, or include any in-water work, follow the construction activity guidelines in Section 8.

For additional details, see the *Eastern Washington Erosion Prevention and Sediment Control Field Guide* (2011).

Buildings and Structures

Municipal building facilities located at the park properties listed above shall be maintained according to the BMPs in Section 6 of this O&M Plan.

Storage Areas

Maintenance vehicles, equipment, and uncovered material stockpiles have the potential to leak or contribute pollutants to the stormwater system during rain or snowmelt events. The following operational BMPs should be implemented to limit the transport of materials into the stormwater collection and conveyance system.

- Sweep parking lots, material storage areas, and driveways regularly to collect dirt, waste, debris, and loose stockpile materials. Do not hose down the areas to a stormwater conveyance system.
- Whenever possible, store material stockpiles in a building or within a paved and bermed covered area. Place temporary plastic sheeting over stockpiles that are exposed to the elements.
- Whenever possible, collect and recycle stored materials back into the stockpiles.
- Park/store all vehicles and equipment in a designated covered containment area.
- Use drip pans or containers under vehicles and equipment that drip or are likely to drip liquids.

Recordkeeping

The recordkeeping required by the Phase II Permit is limited to documenting any liquid or material spills that could carry pollutants into the stormwater collection and conveyance system. Material or liquid spills should be promptly reported to either the Park Maintenance Supervisor or Stormwater Engineer and all paperwork related to the spill and cleanup activities should be maintained at the Parks and Recreation Department office.

Section 8—Construction Projects

Municipal construction projects are subject to the same requirements as those projects proposed by private developers. During construction, proper erosion and sediment controls should be used to prevent sediment laden stormwater from flowing away from the site and entering the stormwater collection and conveyance system, receiving waters, or a conveyance ditch that drains to a receiving water. Ecology requires construction sites of a certain size to document their planned sediment and erosion control techniques in the form of a construction SWPPP and to obtain separate NPDES permit coverage.

The Washington State Department of Ecology issues the *General NPDES Permit for Stormwater Discharges Associated with Construction Activities* (Construction Stormwater Permit) to authorize stormwater discharges associated with construction activities. The current permit was put into effect as of January 1, 2011. The following construction projects are required to obtain a Construction Stormwater Permit from Ecology. Refer to Ecology's website or regional office for additional information.

- Clearing, grading, and/or excavation (including forest practices) that results in the disturbance of one or more acres and discharges stormwater to surface waters of the State; or
- Clearing, grading and/or excavation on sites smaller than one or more acres that are part of a larger common plan of development or sale that will ultimately disturb one acre or more, and discharge stormwater to surface waters of the State; or
- Any size construction activity discharging stormwater to waters of the State that Ecology determines to be a significant contributor of pollutants to waters of the State of Washington or that Ecology reasonably expects to cause a violation of any water quality standard.

The following construction activities are exempt from NPDES permit coverage:

- Construction activities that discharge all stormwater and non-stormwater to ground water, sanitary sewer, or combined sewer, and have no point source discharge to either surface water or a storm sewer system that drains to surface waters of the State.
- Construction activities covered under an Erosivity Waiver (see Permit Special Condition S2.C).
- Routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility.

Municipal projects that are subject to the Construction Stormwater Permit should refer to Ecology's website for information regarding the required erosion and sediment control practices. For additional guidance, see the *Eastern Washington Erosion Prevention and Sediment Control Field Guide* (2011).

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Section 9—Industrial Activities

The Washington State Department of Ecology issues the *General NPDES Permit for Stormwater Discharges Associated with Industrial Activities* (Industrial Stormwater Permit) to authorize stormwater discharges associated with industrial activities. The current permit was put into effect as of January 1, 2010. The permit requires the development and implementation of a SWPPP and a sampling plan specific to the permitted facility.

The City currently has no facilities covered under the Industrial Stormwater Permit.

Any facility listed in Table 9-1 that discharges to surface water or into a storm drainage system that later discharges to a surface water is subject to the Industrial Stormwater Permit and must obtain permit coverage from Ecology. This guidance table was adopted from Ecology's *Guidance Manual for Preparing/Updating a Stormwater Pollution Prevention Plan for Industrial Facilities.*

Table 9-1
Examples of Facilities that Require an Industrial Permit

Municipal Industrial Facilities	Description and SIC Codes
Hazardous Waste Treatment, Storage, or Disposal Sites	Including those operating under interim status or a permit under Subtitle C of the Resource Conservation and Recovery Act (RCRA).
Landfills, Land Application Sites, and Open Dumps	Facilities receive or have received any industrial wastes (waste that is received from any industrial facilities, including those subject to regulation under Subtitle D of RCRA).
Recycling Facilities	Facilities involved in recycling of materials, including metal scrap yards, battery reclaimers, salvage yards, and automobile recyclers, including but not limited to those classified as SIC 5015 and 5093.
Transportation Facilities	Those classified under the following SICs which have vehicle maintenance shops, equipment cleaning operations, or airport deicing operations: 40 – Railroad Transportation, 41 – Local and Interurban Passenger Transportation, 45 – Transportation by Air.
Sewage Treatment Plants	Those with a design flow of one million gallons per day or more.

Source: *Stormwater Pollution Prevention and Good Housekeeping*, Yakima County, 2010.

The following types of facilities do not need an Industrial Stormwater Permit:

- Facilities that infiltrate all stormwater associated with industrial activity into the ground (e.g., infiltration basins, dry wells, drain fields, etc.); with some exemptions.
- Facilities that discharge all stormwater to a combined sewer system.
- Facilities owned and operated by the federal government or are on Tribal land, or facilities that discharge directly to Tribal waters meeting Environmental Protection Agency (EPA) approved water quality standards.
- Facilities that qualify for "Conditional No Exposure". However, facilities must re-apply every five years or 30 days after the effective date reissuance of the Industrial Stormwater Permit, whichever comes first.

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Section 10—Storage and Maintenance Areas

Section 10—Storage and Maintenance Areas

The Phase II Permit requires all material storage areas, heavy equipment storage areas, and maintenance areas to develop and implement a SWPPP to protect water quality and prevent the discharge of contaminated stormwater to surface or groundwater. The SWPPP describes both operational and structural BMPs that will be implemented at each facility.

All current material storage areas, heavy equipment storage areas, and maintenance areas are contained at the City Service Center, located at 55 E. Moore Street. As such, a SWPPP has been developed for this facility and is included in Appendix D. The following City departments/divisions are housed at the City Service Center and will be responsible for implementing the SWPPP:

- Public Works Department;
- Streets Division;
- Fleet Services Division;
- Facility Maintenance Division;
- Signal Maintenance Division;
- Sanitation Division;
- Water Division; and
- Parks and Recreation Department.

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Section 11—Flood Management Projects

Overview

The City currently does not own or operate any flood management facilities. However, the Engineering Division of the Public Works Department will be responsible for the design and review of any proposed flood management projects. During the design of all new flood management projects, the City's engineers will assess the water quality impacts of the proposed project and consider the use of controls to minimize impacts to site hydrology.

Standards and BMP Selection

The Phase II Permit does not include specific maintenance standards or BMPs related to flood management projects. The Phase II Permit requires the City to "…assess water quality impacts in the design of all new flood management projects that are associated with the MS4 or that discharge to the MS4…." The City will meet this obligation by reviewing all projects under Chapter 13.16 WWMC.

As with all other maintenance activities, the City's obligation during flood management facility maintenance will be to prevent the discharge of pollutants to the stormwater system and protect water quality to the maximum extent practicable. To meet this goal, the City will implement the following BMPs when needed.

Inspections

Flood management facilities will be inspected regularly to identify maintenance needs. During inspections, field crews should utilize the inspection checklists in Appendix A to document the condition of each facility and identify any required maintenance activities. Any identified maintenance needs should be reported to either the City Engineer or Stormwater Engineer, so that work orders can be developed to complete the required repair or cleaning.

All flood management facilities should be inspected on an annual basis and following any major precipitation events exceeding 1.7 inches of rainfall in any 24 hour period.

Facility Maintenance

Routine facility maintenance often includes vegetation management, dike or levee repair, sediment removal, fence replacement, or access road repair. When flood management facilities require routine maintenance, implement the Stormwater Facility Maintenance BMPs outlined in Section 3.

Small Construction BMPs

Sediment and erosion control measures should be implemented when small construction projects include grading, soil transfer, or vegetation removal. The following BMPs apply when making structural repairs or replacing components of flood management facilities:

- Minimize land disturbance and exposed slope length.
- Whenever possible, avoid land disturbance during the wet season.
- Implement erosion control techniques or devices to stabilize disturbed areas. Use mulch or other erosion control measures when soils are exposed for more than a week.
- Install storm drain inlet protection on all inlets within 500 feet downstream or down gradient of the project site to prevent coarse sediment from entering the drainage system. Inlet protection methods include block and gravel inlet protection, gravel and wire inlet protection, and catch basin inserts. Inspect inlet protections frequently during construction.
- Remove excess soil from the site as soon as possible after backfilling to eliminate sediment loss from surplus fill.
- For larger construction projects that add impervious surface, modify the function of existing flood management facilities, or include any in-water work, follow the construction activity guidelines in Section 8.

For additional details, see the *Eastern Washington Erosion Prevention and Sediment Control Field Guide* (2011).

Recordkeeping

Recordkeeping is a condition of the Phase II Permit. The City Engineer or Stormwater Engineer will be responsible for keeping records of flood management activities that may impact receiving waters. In accordance with the Phase II Permit, the following documentation will be kept for at least five years following work activity:

- Inspection schedules and checklists for stormwater treatment and flow control facilities;
- Records of spot checks performed following major storm events, and
- Repairs or maintenance actions completed as a result of inspections and spot checks.

Hard copy and/or electronic reports will be stored in Engineering Division office. Inspections and facility maintenance will also be imported into the City's GIS system, so the City Engineer or Stormwater Engineer can geographically track maintenance activities and plan for future work.

In addition, material or liquid spills will be promptly reported to the Stormwater Engineer and all paperwork related to the spill and cleanup activities will be maintained at the Engineering Division office.

Section 12—Other Facilities and Activities

Table 12-1 Implementation Checklist Other Facilities and Activities	
Potential Pollutants: Sediment, Nutrients, Heavy Metals, Pathogens, Toxic Chemicals, Debris/Litter	
Activity/BMP	**Responsibility**
Water Line Flushing	Water Div. Maint. Worker
Small Construction Erosion and Sediment Controls	Varies by Dept./Div.
Dust Control	Varies by Dept./Div.
Swimming Pool Maintenance	Facility Maint. Div. Worker

Overview

The City also conducts several other maintenance activities that have the potential to impact stormwater runoff. This section covers the following municipal activities:

- Water System/Sewer System Maintenance
- Dust Control
- Fire Fighting
- Swimming Pool Maintenance

The BMPs associated with each activity are listed in the individual sections below.

Water System / Sewer System

The City is responsible for operation and maintenance of approximately 170 miles of water system and approximately 150 miles of sewer system. Maintenance and repairs to the water and sewer utility systems has the potential to impact receiving waters.

Water Line Flushing BMPs

The Phase II Permit allows planned discharges from potable water sources into the stormwater collection and conveyance system under certain conditions. These conditions apply to potable water line flushing, fire hydrant system flushing, and pipeline hydrostatic testing.

- The velocity and volume of discharges must be controlled so as not to mobilize sediment deposits or cause soil erosion around the storm drain system.
- Discharges must be dechlorinated to a concentration of 0.1 ppm or less and be pH-adjusted.
- Every field personnel responsible for dechlorination activities shall be trained in proper use of a chlorine field test kit.

- When water line flushing is likely to drain into the stormwater collection and conveyance system, the preferred dechlorination method is using a dechlorinating diffuser and chemical tablet chamber.

Small Construction BMPs

Sediment and erosion control measures should be implemented when water or sewer repair or replacement projects include grading, soil transfer, or vegetation removal. The following BMPs apply when making structural repairs or replacing components of the water or sewer utility infrastructure.

- Minimize land disturbance and exposed slope length.
- Whenever possible, avoid land disturbance during the wet season.
- Implement erosion control techniques or devices to stabilize disturbed areas. Use mulch or other erosion control measures when soils are exposed for more than a week.
- Install storm drain inlet protection on all inlets within 500 feet downstream or down gradient of the project site to prevent coarse sediment from entering the drainage system. Inlet protection methods include block and gravel inlet protection, gravel and wire inlet protection, and catch basin inserts. Inspect inlet protections frequently during construction.
- Remove excess soil from the site as soon as possible after backfilling to eliminate sediment loss from surplus fill.
- For larger construction projects that include the addition of new water or sewer system components, follow the construction activity guidelines in Section 8.

For additional details, see the *Eastern Washington Erosion Prevention and Sediment Control Field Guide* (2011).

Dust Control

Chemical based dust suppressants can be used to control dust and stabilize road surfaces. However, the chemicals used can have negative environmental impacts by decreasing dissolved oxygen in surface waters or increasing concentrations of iron, sulfur compounds, and other pollutants in groundwater.

The City currently does not use chemical-based dust suppressants; only water is used for dust control.

Dust Control BMPs

- Care should be taken when applying water to prevent non-stormwater discharges and sediment from entering the stormwater collection and conveyance system, receiving waters, or a conveyance ditch that drains to a receiving water.

Fire Fighting

Emergency firefighting activities are exempt from the conditions of the Phase II Permit. However, day-to-day operations are subject to the pollution prevention requirements. Vehicle and building maintenance activities at fire stations should implement the BMPs for vehicle fleets in Section 5 and the BMPs for municipal buildings in Section 6. For training exercises and fire hydrant system flushing, the Phase II Permit does allow planned discharges from potable water sources into the stormwater collection and conveyance system under certain conditions. Follow the water line flushing BMPs described above for training exercises and fire hydrant system flushing.

Swimming Pools

Municipal building maintenance activities at the Jefferson swimming pool, located at 750 Sprague Avenue, should implement the BMPs for municipal buildings in Section 6. In addition to the potential impacts from building maintenance, chlorinated pool water poses an additional threat to aquatic species. If pool water is discharged to the stormwater collection and conveyance system, excessive chlorine concentrations may kill nitrifying bacteria and other aquatic life necessary for sustenance for the aquatic food chain.

Swimming Pool Maintenance BMPs

- Pool water must be dechlorinated to a concentration of 0.1 ppm or less, volumetrically controlled to prevent the mobilization of sediments, and pH adjusted prior to discharge to the stormwater collection and conveyance system.
- Pool water that cannot meet the requirements for discharge to the stormwater system must be discharged to the sanitary sewer system with prior approval from the Wastewater Division.
- During pool maintenance, discharge filter backwash and wastewater from pool maintenance (i.e., acid cleaning) to sanitary sewer system with prior approval from the Wastewater Division.

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Section 13—Planning, Budgeting and Recordkeeping

The focus of this O&M Plan is to implement activities and practices that will protect receiving waters. Most of the BMPs included in this plan require minor adjustments to existing behaviors and maintenance activities.

Management Philosophy

This O&M Plan was developed to meet the requirements of the NPDES Phase II Permit. The Permit includes required inspection schedules and maintenance standards for the stormwater collection and conveyance system. Beyond that, the Permit is prescriptive when it comes to implementing BMPs for other City activities and facilities. Instead, the BMPs in this plan have been selected based on the requirements to "…reduce the discharge of pollutants to the maximum extent practicable (MEP)" (Permit Section S4.C) and to "…use all known, available, and reasonable methods of prevent, control and treatment (AKART) to prevent and control pollution of waters of the State of Washington" (Permit Section S4.D).

The BMPs and activity schedules in this O&M Plan have also been developed based on:

- The level of service expected by local citizens;
- The level of service requested by Public Works management; and
- The maintenance frequencies needed to prevent costly repairs of the stormwater collection and conveyance system.

For example, the Phase II Permit does not have required street sweeping frequencies, so the frequencies listed in this plan are those necessary to maintain aesthetics, prevent excessive build-up of sediment in catch basins, and prevent significant trash, debris, and sediment accumulation in bike lanes.

Staff Assignments and Work Orders

The City utilizes Cartegraph software as a work order system to keep a detailed breakdown of the staff hours, equipment needs, and overall costs to implement the activities and frequencies presented in this O&M Plan. Cartegraph is linked to the City's GIS and used for tracking costs of material, labor, equipment, and other costs associated with the completion of a work order. Work orders can be linked to assets in the GIS software so staff can easily see what work has been done in the field by pulling it up in GIS. Below is a list of actions that will be tracked in Cartegraph. More actions may be added as the City implements and further refines the system for use in the field.

- Culvert Backup
- Decant Deposit
- Decant Removed
- Dye Test
- Hydro Excavating
- Inspection
- Jetting and Vacuum
- Repair – City/Contractor
- Rodding
- ROW Chemical Weed Control
- Street Flushing
- Street Sweeping
- TV Inspection – Requests
- TV Inspection – Routine

City department/division supervisors are responsible for developing work orders and making crew assignments to implement the practices and activities outlined in this O&M Plan.

Annual Budget

Additional funding will be needed to maintain the stormwater collection and conveyance system in accordance with the Phase II Permit requirements. The majority of the cost increase over current expenditures is needed to conduct annual inspections of all components of the stormwater system. Over time, these annual inspections will allow the City to adjust crew assignments to focus maintenance activities on neighborhoods and facilities that experience the most problems. Recurring problem areas can also be identified for long-term retrofit to address the challenges.

As the Cartegraph software is impletmented and futher refined, the City will be better able to track the on-going annual cost of implementing this O&M Plan for all City facilities and operations.

Equipment Needs

The City is generally well equipped to address the maintenance needs identified in this O&M Plan. The following list of major equipment currently owned by the City will used to perform various maintenance activities:

- 2001 Vactor Jet/Vac
- 2001 Omco Street Flusher
- 2008 Challenger Mechanical Street Sweeper
- 2009 Tymco Regenerative Air Street Sweeper
- 2010 VacCon Jet/Vac Truck with Mounted Sectional Rodder

The City does not anticipate replacing or acquiring any new major or minor equipment purchases in the next ten years.

Coordination with Phase II Permit

This O&M Plan is focused on meeting the requirements of Section S5.B.6 of the Phase II Permit. However, a number of other permit requirements are intertwined with the City's operations and maintenance activities. Implementing this O&M Plan will assist the City with compliance with the following:

Illicit Discharge Detection and Elimination

Field inspectors play a key role in verifying and updating information in the City's stormwater system inventory. Field inspectors and maintenance crews are also the front lines

for identifying spills and potential illicit discharge concerns. Illicit discharge issues will be promptly reported to the Street Division Supervisor and Stormwater Engineer and all paperwork related to the spill and cleanup activities should be maintained at the Engineering office.

Recordkeeping

The Phase II Permit focuses primarily on keeping records of activities related to inspection, maintenance, and repair of the stormwater collection and conveyance system. The inspection checklists in Appendix A are a key component to the City's recordkeeping system. As described in Section 3, the Phase II Permit requires that the following documentation be kept for at least five years following work activity:

- Inspection schedules and checklists for stormwater treatment and flow control facilities;
- Records of spot checks performed following major storm events,
- Repairs or maintenance actions completed as a result of inspections and spot checks,
- Number and type of enforcement actions related to private facilities, and
- Number and type of illicit discharges detected and eliminated.

In addition, tracking the following information may be helpful in planning and budgeting for future maintenance activities.

- Catch basins cleaned each year;
- Amount of sediment collected and date removed;
- Results of sediment testing;
- Street sweeping – location, frequency;
- Total volume/weight of materials collected per mile of road swept; and
- Winter deicing/sanding activities – location, type, frequency.

City department/division supervisors are responsible for keeping records of crew activities for their respective maintenance program elements and submitting copies to the Stormwater Engineer. Stormwater program staffing and equipment usage will be tracked in Cartegraph software and available to the Stormwater Engineer for planning, budgeting, and record keeping purposes.

Annual Report

Inspection checklists and maintenance records developed during the implementation of this O&M Plan will assist the City Stormwater Engineer in completing the Phase II Permit annual report that must be submitted to Ecology by March 31 of each year. While the maintenance records do not need to be submitted with the annual report, the City does have an obligation to supply Ecology with the records if requested.

Appendix A
Stormwater Facility Inspection Checklists

Inspection and Maintenance Checklist
Stormwater Collection and Conveyance System

Date of Inspection: _____ Inspection Area: _____

Field Inspector(s): _____ Reason for Inspection: _____

Current Weather: _____ Rain (inches): In Last 24 hrs: _____ In Last Week: _____

Facility Type	Location		Sediment Build-up		Maintenance Needed		Maintenance Follow-up	
(CB, Pond, etc.)	GIS ID #	Description	Depth (in)	Needs Removal?	Code	Description/Action Needed	Date Completed	Initials

Maintenance Codes:

1 – Accumulated Sediment
2 – Trash & Debris
3 – Vegetation Concerns
4 – Water Quality Concerns
5 – Impeded Water Flow
6 – Erosion
7 – Cover/Frame/Grate
8 – Structural Repairs
9 – Damaged Pipes
10 – Mosquito/Vector Breeding
11 – Other
12 – Could Not Locate

See maintenance standards for detailed code descriptions for each facility type. Maintenance standards are based on the Washington State Department of Ecology's *Stormwater Management Manual for Eastern Washington* (2004).

Make additional copies of this page as needed for field inspections.

Maintenance Standards
Catch Basins and Manholes

Maintenance Code	Type	Conditions When Maintenance Is Needed
1	Sediment	Sediment exceeds 60% of sump depth. Sediment depth within 6 inches of the invert of the lowest pipe.
2	Trash & Debris	Trash or debris in front of catch basin opening or blocking inlet by more than 10%. Trash or debris exceeds 60% of sump depth. Trash or debris within 6 inches of the invert of the lowest pipe. Trash or debris blocking more than 1/3 of any inlet or outlet pipe. Trash and debris blocking more than 20% of grate surface. Dead animals or vegetation that generate odors and cause complaints or dangerous gases (e.g., methane).
3	Vegetation	Vegetation growing across and blocking more than 10% of the grate opening. Vegetation growing in inlet/outlet pipe joints that is more than six inches tall.
4	Water Quality	Any evidence of oil, gasoline, contaminants or other pollutants. Water flowing in catch basin during dry weather – report as potential illicit discharge concern.
5	Water Flow	Impeded water flow due to vegetation or sediment (use appropriate code from above).
6	Erosion	N/A
7	Cover/Frame/ Grate	Cover is missing or only partially in place. One maintenance person cannot remove lid after applying normal lifting pressure. Frame separated by more than 3/4 inch from top slab. Frame not securely attached. Locking mechanism cannot be opened by one maintenance person with proper tools. Bolts into frame have less than 1/2 inch of thread. Grate with opening wider than 7/8 inch. Grate damaged or missing.
8	Structure	Top slab with holes larger than 2 square inches or cracks wider than 1/4 inch. Fractures or cracks in basin walls or bottom. Grout at inlet/outlet pipes has separated or cracked wider than 1/2 inch and longer than one foot. Soil is entering the catch basin through cracks in the structure. Settlement has created a safety, function, or design problem. Field inspector judges that structure is unsound.

Maintenance Standards derived from the Washington State Department of Ecology's *Stormwater Management Manual for Eastern Washington* (2004).

Maintenance Code	Type	Conditions When Maintenance Is Needed
9	Damaged Pipes	Inlet or outlet piping damaged or broken and in need of repair.
10	Mosquito Vector Breeding	Suitable habitat exists for mosquito production (e.g. standing water for more than 72 hours in areas accessible to mosquitoes).
11	Other	Ladder is unsafe due to missing rungs, not securely attached to basin wall, misalignment, rust, cracks, or sharp edges. Catch basin insert requires replacement if: • Sediment, trash or debris blocks water flow through the insert, • Effluent water from the insert has a visible sheen, or • Insert is saturated with water or oil and can no longer absorb.
12	Could Not Locate	Field inspectors are unable to locate the catch basin or manhole.

Maintenance Standards derived from the Washington State Department of Ecology's *Stormwater Management Manual for Eastern Washington* (2004).

Maintenance Standards
Control Structures

Maintenance Code	Type	Conditions When Maintenance Is Needed
1	Sediment	Sediment depth exceeds 60% of sump depth. Sediment accumulated within 6 inches of the orifice plate or lowest pipe invert.
2	Trash & Debris	Trash or debris exceeds 60% of sump depth. Trash or debris within 6 inches of the orifice plate or lowest pipe invert. Trash or debris blocking openings in the control structure. Trash or debris blocking more than 1/3 of any inlet or outlet pipe. Dead animals or vegetation that generate odors and cause complaints or dangerous gases (e.g., methane).
3	Vegetation	Vegetation growing in inlet/outlet pipe joints that is more than 6 inches tall.
4	Water Quality	Any evidence of oil, gasoline, contaminants or other pollutants.
5	Water Flow	Impeded water flow due to vegetation or sediment (use appropriate code from above).
6	Erosion	N/A
7	Cover/Frame/ Grate	Cover is missing or only partially in place. One maintenance person cannot remove lid after applying normal lifting pressure. Frame separated by more than 3/4 inch from top slab. Frame not securely attached. Locking mechanism cannot be opened by one maintenance person with proper tools. Bolts into frame have less than 1/2 inch of thread.
8	Structure	Damaged or missing orifice plate. Control structure is not securely attached to manhole wall. Control structure is not in upright position. Connection between control structure and outlet pipe is not water tight. Holes (other than design openings) in the control structure. Cleanout gate is not watertight, is missing, is rusted, or cannot be moved up and down by one maintenance person applying normal pressure. Top slab with holes larger than 2 square inches or cracks wider than 1/4 inch. Fractures or cracks in basin walls or bottom. Grout at inlet/outlet pipes has separated or cracked wider than 1/2 inch and longer than one foot. Soil is entering the catch basin through cracks in the structure. Settlement has created a safety, function, or design problem. Field inspector judges that structure is unsound.

Maintenance Standards derived from the Washington State Department of Ecology's *Stormwater Management Manual for Eastern Washington* (2004).

Maintenance Code	Type	Conditions When Maintenance Is Needed
9	Damaged Pipes	Inlet or outlet piping damaged or broken and in need of repair.
10	Mosquito Vector Breeding	Suitable habitat exists for mosquito production (e.g. standing water for more than 72 hours in areas accessible to mosquitoes).
11	Other	Ladder is unsafe due to missing rungs, not securely attached to basin wall, misalignment, rust, cracks, or sharp edges.
12	Could Not Locate	Field inspectors are unable to locate the structure.

Maintenance Standards derived from the Washington State Department of Ecology's *Stormwater Management Manual for Eastern Washington* (2004).

Maintenance Standards
Conveyance Systems (Pipes and Ditches)

Maintenance Code	Type	Conditions When Maintenance Is Needed
1	Sediment	Sediment or debris exceeds 20% of pipe diameter or 20% of debris barrier openings. Accumulated sediment that exceeds 20% of the design depth of the ditch.
2	Trash & Debris	Trash and debris accumulated in pipe or ditch. Visual evidence of dumping.
3	Vegetation	Vegetation reduces movement of water through pipes. Excessive vegetation that reduces free movement of water through ditches.
4	Water Quality	Any evidence of oil, gasoline, contaminants or other pollutants. Water flowing in pipes or ditch during dry weather – report as potential illicit discharge concern.
5	Water Flow	Impeded water flow due to vegetation or sediment (use appropriate code from above). Standing water in the pipe or swale between storm events.
6	Erosion	Erosion damage over 2 inches deep where cause is still present or there is potential for continued erosion. Native soil is visible beneath the rock lining of a conveyance ditch.
7	Cover/Frame/ Grate	N/A
8	Structure	Debris barrier/trash rack is missing or not attached to pipe. Debris barrier/trash rack bars are bent by more than 3 inches. Debris barrier/trash rack bars are loose or rust is causing 50% deterioration to any part of the barrier.
9	Damaged Pipes	Protective coating is damaged or rust is causing more than 50% deterioration to any part of pipe. Any dent that decreases the flow area by more than 20% or puncture that impacts performance.
10	Mosquito Vector Breeding	Suitable habitat exists for mosquito production (e.g. standing water for more than 72 hours in areas accessible to mosquitoes).
11	Other	
12	Could Not Locate	Field inspectors are unable to locate the pipe or ditch.

Maintenance Standards derived from the Washington State Department of Ecology's *Stormwater Management Manual for Eastern Washington* (2004).

Maintenance Standards
Drywells

Maintenance Code	Type	Conditions When Maintenance Is Needed
1	Sediment	Sediment depth exceeds 2 feet or impedes flow from inlet pipes.
2	Trash & Debris	Trash or debris exceeds 2 feet or impedes flow from inlet pipes. Trash or debris blocks more than 1/3 of any inlet or outlet pipe. Dead animals or vegetation that generate odors and cause complaints or dangerous gases (e.g., methane).
3	Vegetation	Vegetation growing in inlet/outlet pipe joints that is more than six inches tall. Root systems entering drywell.
4	Water Quality	Any evidence of oil, gasoline, contaminants or other pollutants. Water flowing into drywell during dry weather – report as potential illicit discharge concern.
5	Water Flow	Facility does not drain within 72 hours. Impeded water flow due to vegetation or sediment (use appropriate code from above).
6	Erosion	N/A
7	Cover/Frame/ Grate	Cover is missing or only partially in place. One maintenance person cannot remove lid after applying normal lifting pressure. Frame separated by more than 3/4 inch from top slab. Frame not securely attached. Locking mechanism cannot be opened by one maintenance person with proper tools. Bolts into frame have less than 1/2 inch of thread.
8	Structure	Top slab with holes larger than 2 square inches or cracks wider than 1/4 inch. Grout at inlet/outlet pipes has separated or cracked wider than 1/2 inch and longer than one foot. Settlement has created a safety, function, or design problem. Field inspector judges that structure is unsound.
9	Damaged Pipes	Inlet piping damaged or broken and in need of repair.
10	Mosquito Vector Breeding	Suitable habitat exists for mosquito production (e.g. standing water for more than 72 hours in areas accessible to mosquitoes).
11	Other	
12	Could Not Locate	Field inspectors are unable to locate the drywell.

Maintenance Standards derived from the Washington State Department of Ecology's *Stormwater Management Manual for Eastern Washington* (2004).

Maintenance Standards
Energy Dissipators

Maintenance Code	Type	Conditions When Maintenance Is Needed
1	Sediment	Accumulated sediment exceeds 20% of the design depth. Over 1/2 of perforations in dispersion pipe are plugged with sediment.
2	Trash & Debris	Visual evidence of dumping. Over 1/2 of perforations in dispersion pipe are plugged with trash or debris.
3	Vegetation	Excessive vegetation reduces free movement of water through the flow spreader or energy dissipator.
4	Water Quality	Any evidence of oil, gasoline, contaminants or other pollutants. Water flowing through facility during dry weather – report as potential illicit discharge concern.
5	Water Flow	Visual evidence of water discharging at concentrated points from the dissipator (normal condition is a “sheet flow” of water from the facility). Water in receiving area has potential to cause significant erosion or landslide.
6	Erosion	Only one layer of rock above native soil in an area five square feet or larger. Any exposure of native soil within rock pad area. Soil erosion in or adjacent to rock pad.
7	Cover/Frame/ Grate	N/A
8	Structure	Flow spreader has deteriorated to1/2 of original size or concentrated worn spots exceeding one square foot making structure unsound. See Conveyance System standards for pipes and debris barriers/trash racks.
9	Damaged Pipes	See Conveyance System standards for pipes and debris barriers/trash racks.
10	Mosquito Vector Breeding	Suitable habitat exists for mosquito production (e.g. standing water for more than 72 hours in areas accessible to mosquitoes).
11	Other	
12	Could Not Locate	Field inspectors are unable to locate the energy dissipator facility.

Maintenance Standards derived from the Washington State Department of Ecology’s *Stormwater Management Manual for Eastern Washington* (2004).

Maintenance Standards
Green Roofs (or Roof Gardens)

Maintenance Code	Type	Conditions When Maintenance Is Needed
1	Sediment	Inlets to roof drainage system clogged with sediment.
2	Trash & Debris	Inlets to roof drainage system clogged with trash or debris. Trash and debris accumulated on the roof.
3	Vegetation	Planted vegetation becomes excessively tall. Presence of poisonous or nuisance vegetation or noxious weeds. Planted vegetation is sparse or bare or eroded patches occur in more than 10% of roof garden.
4	Water Quality	Any evidence of oil, gasoline, contaminants or other pollutants.
5	Water Flow	Water stands in the green roof between storms and does not drain freely.
6	Erosion	Eroded or scoured areas due to wind or water.
7	Cover/Frame/ Grate	N/A
8	Structure	Membrane or roof structure is compromised by either roots and/or water damage.
9	Damaged Pipes	N/A
10	Mosquito Vector Breeding	Suitable habitat exists for mosquito production (e.g., standing water for more than 72 hours in areas accessible to mosquitoes).
11	Other	Irrigation system leaking or malfunctioning.
12	Could Not Locate	Field inspectors are unable to locate the facility.

Maintenance Standards derived from the Washington State Department of Ecology's *Stormwater Management Manual for Eastern Washington* (2004).

Maintenance Standards
Infiltration Trenches

Maintenance Code	Type	Conditions When Maintenance Is Needed
1	Sediment	Two inches or more of accumulated sediment. Percolation test indicates infiltration rate is less than 90% of design capacity. Inlet pipe is clogged with sediment.
2	Trash & Debris	Trash or debris impeding water flow. Visual evidence of dumping. Inlet pipe is clogged with trash and debris.
3	Vegetation	Poisonous or nuisance vegetation constituting a hazard to maintenance personnel or the public. Evidence of noxious weeds.
4	Water Quality	Evidence of oil, gasoline, contaminants, or other pollutants.
5	Water Flow	Little or no water visibly flows through trench during heavy rain storms.
6	Erosion	Erosion damage over 2 inches deep where cause is still present or there is potential for continued erosion.
7	Cover/Frame/ Grate	N/A
8	Structure	N/A
9	Damaged Pipes	Protective coating is damaged or rust is causing more than 50% deterioration to any part of pipe. Any dent that decreases the flow area by more than 20% or puncture that impacts performance.
10	Mosquito Vector Breeding	Suitable habitat exists for mosquito production (e.g. standing water for more than 72 hours in areas accessible to mosquitoes).
11	Other	
12	Could Not Locate	Field inspectors are unable to locate the trench.

Maintenance Standards derived from the Washington State Department of Ecology's *Stormwater Management Manual for Eastern Washington* (2004).

Maintenance Standards
Media Filters (e.g. Stormfilter)

Note: Manufacturer maintenance standards should supersede those shown below.

Maintenance Code	Type	Conditions When Maintenance Is Needed
1	Sediment	Sediment depth on filters exceeds 1/4 inch. Sediment depth in vault exceeds 6-inches in first chamber. Drain pipes and/or clean-outs become full with sediment.
2	Trash & Debris	Trash and debris accumulated on compost filter bed. Drain pipes and/or clean-outs become full with trash or debris.
3	Vegetation	Root systems entering the structure.
4	Water Quality	Any evidence of oil, gasoline, contaminants or other pollutants. Water flowing into the system during dry weather – report as potential illicit discharge concern.
5	Water Flow	Drawdown of water through the media takes longer than 1 hour and overflow occurs frequently. Flows do not properly enter filter cartridges.
6	Erosion	N/A
7	Cover/Frame/ Grate	Cover is missing or only partially in place. One maintenance person cannot remove lid after applying normal lifting pressure. Locking mechanism cannot be opened by one maintenance person with proper tools. Bolts into frame have less than 1/2 inch of thread.
8	Structure	Cracks wider than 1/2 inch. Evidence of soil particles entering structure through cracks. The vault is not structurally sound. Baffles corroding, cracking, warping and/or showing signs of failure.
9	Damaged Pipes	Any part of the pipes that are crushed or damaged due to corrosion and/or settlement. Inlet piping damaged or broken and in need of repair.
10	Mosquito Vector Breeding	Suitable habitat exists for mosquito production (e.g. standing water for more than 72 hours in areas accessible to mosquitoes).
11	Other	Ladder is corroded or deteriorated, not functioning properly, not securely attached to structural wall, missing rungs, has cracks and/or is misaligned.
12	Could Not Locate	Field inspectors are unable to locate the facility.

Maintenance Standards derived from the Washington State Department of Ecology's *Stormwater Management Manual for Eastern Washington* (2004).

Maintenance Standards
Oil/Water Separators

Maintenance Code	Type	Conditions When Maintenance Is Needed
1	Sediment	Sediment depth in bottom of structure exceeds 6 inches.
2	Trash & Debris	Trash and debris accumulation in vault, or pipe inlet/outlet, floatables and non-floatables.
3	Vegetation	Root systems entering the structure.
4	Water Quality	Discharge shows obvious signs of poor water quality. Oil accumulations that exceed 1 inch at the surface of the water. Water flowing into the system during dry weather – report as potential illicit discharge concern.
5	Water Flow	Water is not flowing properly through the facility.
6	Erosion	N/A
7	Cover/Frame/ Grate	Cover is missing or only partially in place. One maintenance person cannot remove lid after applying normal lifting pressure. Locking mechanism cannot be opened by one maintenance person with proper tools. Bolts into frame have less than 1/2 inch of thread.
8	Structure	Cracks wider than 1/2 inch. Any evidence of soil entering the structure through cracks. The vault is not structurally sound. Baffles or walls corroding, cracking, warping and/or showing signs of failure.
9	Damaged Pipes	Inlet or outlet piping damaged or broken and in need of repair.
10	Mosquito Vector Breeding	Suitable habitat exists for mosquito production (e.g. standing water for more than 72 hours in areas accessible to mosquitoes).
11	Other	Ladder is corroded or deteriorated, not functioning properly, not securely attached to structural wall, missing rungs, has cracks and/or is misaligned.
12	Could Not Locate	Field inspectors are unable to locate the facility.

Maintenance Standards derived from the Washington State Department of Ecology's *Stormwater Management Manual for Eastern Washington* (2004).

Maintenance Standards
Ponds: Detention, Infiltration, Evaporation, Water Quality

Maintenance Code	Type	Conditions When Maintenance Is Needed
1	Sediment	Inlet/Outlet pipe clogged with sediment. Sediment accumulation in pond bottom exceeds 6 inches or 10% of the designed pond depth unless otherwise specified.
2	Trash & Debris	Trash and debris exceeding 5 cubic feet (equivalent to one standard size garbage can) per 1,000 square feet of pond area. Visual evidence of dumping. Inlet/outlet pipe clogged with trash or debris.
3	Vegetation	Poisonous or nuisance vegetation constituting a hazard to maintenance personnel or the public. Evidence of noxious weeds. Tree growth does not allow access or interferes with slope mowing, silt removal, vactoring, or equipment movements. Dead, diseased, or dying trees identified by a certified Arborist. Tree growth on berms over 4 feet high that may lead to piping and eventual berm failure. Tree growth on emergency spillways.
4	Water Quality	Prevalent and visible oil sheen. Evidence of oil, gasoline, contaminants or other pollutants.
5	Water Flow	First cell (if applicable) is empty, doesn't hold water.
6	Erosion	Erosion of the pond's side slopes exceeding 2 inches deep where there is potential for continued erosion. Scouring of the pond bottom exceeding 6 inches deep, or where continued erosion is prevalent.
7	Cover/Frame/ Grate	See Control Structures for additional maintenance standards.
8	Structure	See Control Structures for additional maintenance standards. Liner is visible and has more than three 1/4 inch holes in it. Any part of the berm or emergency spillway that has settled 4 inches lower than the design elevation. Discernable water flow through pond berm. (Consult with Geotechnical Engineer to evaluate condition and recommend repair). Emergency spillway: only one layer of rock exists above native soil in area five square feet or larger, or any exposure of native soil at the top of flow path of spillway (rip-rap on inside slopes need not be replaced). Internal spillway not level.
9	Damaged Pipes	See Conveyance System standards for pipes and debris barriers/trash racks.

Maintenance Standards derived from the Washington State Department of Ecology's *Stormwater Management Manual for Eastern Washington* (2004).

Maintenance Code	Type	Conditions When Maintenance Is Needed
10	Mosquito Vector Breeding	Suitable habitat exists for mosquito production (e.g. standing water for more than 72 hours in areas accessible to mosquitoes).
11	Other	Evidence of rodent holes or any evidence of water piping through dam or berm via rodent holes (consult with Geotechnical Engineer to evaluate condition and recommend repair). Beaver dam within the pond, resulting in change or function of the facility. Insects such as wasps and hornets that interfere with maintenance activities.
12	Could Not Locate	Field inspectors are unable to locate the pond.

Maintenance Standards derived from the Washington State Department of Ecology's *Stormwater Management Manual for Eastern Washington* (2004).

Maintenance Standards
Porous Pavement

Maintenance Code	Type	Conditions When Maintenance Is Needed
1	Sediment	Porous pavement clogging due to organic matter and sediment.
2	Trash & Debris	Porous pavement clogging due to trash or debris. Trash and debris accumulated on overflow devices.
3	Vegetation	Planted vegetation becomes excessively tall. Nuisance weeds and other vegetation start to take over.
4	Water Quality	Any evidence of oil, gasoline, contaminants or other pollutants.
5	Water Flow	N/A
6	Erosion	Soil from adjacent areas washed onto pavement.
7	Cover/Frame/ Grate	N/A
8	Structure	Cracked or moving edge restraints. Cracked or settled pavement. Aggregate loss in pavers from settling or power washing.
9	Damaged Pipes	N/A
10	Mosquito Vector Breeding	N/A
11	Other	
12	Could Not Locate	

Maintenance Standards derived from the Washington State Department of Ecology's *Stormwater Management Manual for Eastern Washington* (2004).

Maintenance Standards
Sedimentation Manholes

Maintenance Code	Type	Conditions When Maintenance Is Needed
1	Sediment	Accumulated sediment exceeding 12 inches or impeding flow from inlet or outlet pipes.
2	Trash & Debris	Accumulated trash or debris exceeding 12 inches or impeding flow from inlet or outlet pipes.
3	Vegetation	N/A
4	Water Quality	Discharge shows obvious signs of poor water quality. Water flowing into the system during dry weather – report as potential illicit discharge concern.
5	Water Flow	N/A
6	Erosion	N/A
7	Cover/Frame/ Grate	Cover is missing or only partially in place. One maintenance person cannot remove lid after applying normal lifting pressure. Locking mechanism cannot be opened by one maintenance person with proper tools. Bolts into frame have less than 1/2 inch of thread.
8	Structure	Any openings or voids allowing material to be transported into facility. Cracks wider than 1/2 inch and any evidence of soil particles entering the structure through the cracks. Field inspector determined the vault is not structurally sound.
9	Damaged Pipes	Inlet or outlet piping damaged or broken and in need of repair.
10	Mosquito Vector Breeding	Suitable habitat exists for mosquito production (e.g. standing water for more than 72 hours in areas accessible to mosquitoes).
11	Other	Ladder is unsafe due to missing rungs, misalignment, not securely attached to structure wall, rust, or cracks.
12	Could Not Locate	Field inspectors are unable to locate the facility.

Maintenance Standards derived from the Washington State Department of Ecology's *Stormwater Management Manual for Eastern Washington* (2004).

Maintenance Standards
Swales: Biofiltration, Infiltration, Bio-Infiltration

Maintenance Code	Type	Conditions When Maintenance Is Needed
1	Sediment	Sediment depth exceeds 2 inches. Inlet/outlet areas clogged with sediment.
2	Trash & Debris	Trash and debris accumulated in the swale. Inlet/outlet areas clogged with trash and debris.
3	Vegetation	Grass is sparse or bare or eroded patches occur in more than 10% of the bottom of the swale. Grass is taller than 10 inches. Nuisance weeds or other vegetation starting to take over. Excessive shading causing poor grass growth.
4	Water Quality	Any evidence of oil, gasoline, contaminants or other pollutants. Water flowing through facility during dry weather – report as potential illicit discharge concern.
5	Water Flow	Standing water in swale between storms does not drain freely. Flow spreader uneven or clogged where flows are not uniformly distributed through the swale.
6	Erosion	Small quantities of water continually flow causing an eroded, muddy channel at the bottom. Eroded or scoured grassy swale bottom due to flow channelization, or higher flows.
7	Cover/Frame/ Grate	N/A
8	Structure	N/A
9	Damaged Pipes	See Conveyance System standards for pipes and debris barriers/trash racks.
10	Mosquito Vector Breeding	Suitable habitat exists for mosquito production (e.g. standing water for more than 72 hours in areas accessible to mosquitoes).
11	Other	
12	Could Not Locate	Field inspectors are unable to locate the swale.

Maintenance Standards derived from the Washington State Department of Ecology's *Stormwater Management Manual for Eastern Washington* (2004).

Maintenance Standards
Vaults, Tanks, and Storage Pipes

Maintenance Code	Type	Conditions When Maintenance Is Needed
1	Sediment	Sediment depth exceeds 10%of diameter of storage area for half length of storage vault or any point depth exceeds 15% of diameter. (Example: 72 inch storage tank would require cleaning when sediment reaches depth of 7 inches for more than 1/2 length of tank.)
2	Trash & Debris	Trash or debris exceeds the limits for sediment described above.
3	Vegetation	N/A
4	Water Quality	Prevalent and visible oil sheen. Evidence of oil, gasoline, contaminants or other pollutants.
5	Water Flow	First cell (if applicable) is empty, doesn't hold water.
6	Erosion	N/A
7	Cover/Frame/ Grate	Cover is missing or only partially in place. One maintenance person cannot remove lid after applying normal lifting pressure. Locking mechanism cannot be opened by one maintenance person with proper tools. Bolts into frame have less than 1/2 inch of thread.
8	Structure	See Control Structures for additional maintenance standards. Openings or voids between tank or pipe sections allowing material to be transported into facility. Tank/pipe is bent more than 10% of its design shape. Cracks wider than 1/2 inch. Evidence of soil particles entering structure through cracks. The vault is not structurally sound. One-half of the cross section of an air vent is blocked or vent is damaged.
9	Damaged Pipes	Inlet or outlet piping damaged or broken and in need of repair.
10	Mosquito Vector Breeding	Suitable habitat exists for mosquito production (e.g. standing water for more than 72 hours in areas accessible to mosquitoes).
11	Other	Ladder is unsafe due to missing rungs, misalignment, not securely attached to structure wall, rust, or cracks.
12	Could Not Locate	Field inspectors are unable to locate the facility.

Maintenance Standards derived from the Washington State Department of Ecology's *Stormwater Management Manual for Eastern Washington* (2004).

Maintenance Standards
Vegetated Filter Strips

Maintenance Code	Type	Conditions When Maintenance Is Needed
1	Sediment	Sediment depth exceeds 2 inches.
2	Trash & Debris	Trash and debris accumulated on the filter strip.
3	Vegetation	Grass taller than 10 inches. Nuisance weeds or other vegetation starts to take over. Planted vegetation is sparse or bare or eroded patches occur in more than 10% of the filter strip area.
4	Water Quality	Any evidence of oil, gasoline, contaminants or other pollutants. Water flowing through facility during dry weather – report as potential illicit discharge concern.
5	Water Flow	Visual evidence of water discharging at concentrated points (rather than sheet flow) onto the filter strip.
6	Erosion	Eroded or scoured areas due to flow channelization or higher flows.
7	Cover/Frame/ Grate	N/A
8	Structure	Flow spreader uneven or clogged so that flows are not uniformly distributed through filter width.
9	Damaged Pipes	See Conveyance System standards for pipes and debris barriers/trash racks.
10	Mosquito Vector Breeding	Suitable habitat exists for mosquito production (e.g. standing water for more than 72 hours in areas accessible to mosquitoes).
11	Other	
12	Could Not Locate	Field inspectors are unable to locate the filter strip.

Maintenance Standards derived from the Washington State Department of Ecology's *Stormwater Management Manual for Eastern Washington* (2004).

Appendix B
City Decant Facility Operations Plan and Solid Waste Permit

City of Walla Walla
55 Moore Street
Walla Walla, WA 99362

Street Waste Beneficial Reuse Facility

Operations Plan

October 2004

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BACKGROUND

The City of Walla Walla generates thousands of tons of material yearly from sweeping streets and cleaning storm drainage systems. The waste stream that is generated from this cleaning of roadways and storm drainage systems is mostly silt, sand, and small rocks. There is also organic material and garbage associated with this maintenance activity. We clean our streets to keep them safe for public use. We clean the debris from the drywells and catch basins to enable stormwater to flow to the ground. The material collected is not obviously contaminated with an odor or dark color. It is not collected where known contamination has occurred. These wastes usually fall into the gray area of having detectable amounts of petroleum hydrocarbons and heavy metals. Historically this material has been landfilled or used in roadway construction. Given today's technologies, certain efficiencies can be utilized at a common facility for case of handling and final utilization.

FACILITY DESCRIPTION

The facility is located at the City of Walla Walla Service Center, 55 Moore Street. It is an 11,190 square foot concrete pad with three decant bays and one 'hot load' bay. The liquids generated from street sweepings and Vactor storm drain cleaning will be decanted through an oil/water separator before entering the City of Walla Walla's sanitary sewer system. The solids remaining in the decant area will be periodically removed and reused or disposed of in accordance with local health department and Department of Ecology requirements. This facility will be permitted through two different governmental agencies. The Walla Walla County Health Department will permit the solid waste activities, and the Washington State Department of Ecology will permit the discharge of liquids to the sewer system by a State General Discharge Permit.

STREET WASTE

Sweepings

The City of Walla Walla operates one air sweeper and one mechanical broom type sweeper. They maintain major arterial, minor arterial, and residential streets within the city. Sweeping operations produce the majority of solid waste material brought to this facility.

All street sweepings will be placed in section 3 for decanting and storage.

Numerous reuse options for street wastes are potentially available. For example the material might be used as feedstock in cement manufacture, asphalt production, composting, concrete manufacture, and industrial fill. Other reuse options include construction uses like fill or roadbed material.

The street waste facility will endeavor to reuse and recycle the wastes generated. Whenever possible, these wastes will have a beneficial effect.

* Currently, street wastes are used as landfill cover. Material is needed here as roadway base and as fill.

* Garbage generated at the site will be collected and hauled to the Landfill.

Seasonal Traction Sand

After winter weather events, large amounts of material are picked up off the roadway surfaces within the city. Depending upon the length and severity of the winter weather, sanding operations may produce large volumes of debris.

The Street Waste Facility provides a location where this material can be brought, cleaned, and reused. Seasonal traction sand is not left on the roadways for a long period of time. As soon as the roadways are clear of snow and ice, the sweepers clean up the sand. There are contaminants picked up in the cleaning process, but they usually have a lower concentration level compared to other wastes brought to this facility. This increases the reuse options for this material.

Testing/Handling of Street Sweepings and Traction Sand

Sweepers are dumped into section 3 to separate liquid from solids. After separation, the solids are then stockpiled for further treatment with a front end loader. When stockpile reaches capacity of 600 cubic yards, the pile is then loaded into dump trucks and hauled to the landfill to use as cover. Chemical testing will be performed in accordance with the conditions of the solid waste permit issued by the County Health Department. The County Health Department will be consulted regarding final disposal or reuse of the material based upon chemical test results.

Cleaning and Maintenance

When stockpile is completed, section 3 is thoroughly cleaned. The concrete slab and walls are washed down and washed into the catch basin. The oil separators and catch basins are then pumped out and cleaned.

VACTOR WASTE

Storm Drain Cleanings (Catch Basins and Dry Wells)

The majority of material generated by the operation of the vactor truck(s) comes from drywells and catch basins. The components of this waste stream are soils with some organic material and garbage like plastics, metals, and glass. Another major component is liquid. Storm drain cleanings will be decanted and stored in section 2.

Clean Material

During operations and maintenance of the City's sewer system, the vactor collects material which is clean and inert. Vactor wastes of this nature just need decanting because large volumes of water cannot be handled by other means except at this facility. The liquids are decanted through the oil/water separator with the remaining solids allowed to dry on the decant pad. They can be mixed with other vactor wastes in the storage area.

Testing/Handling of Vactor Waste

Vactor wastes are dumped into section 2 to separate liquid from solids. After separation, the solids are then stockpiled for further treatment with a front end loader. When stockpile reaches capacity of 600 cubic yards, the pile is then loaded into dump trucks and hauled to the landfill for cover. Chemical testing will be performed in accordance with the conditions of the solid waste permit issued by the County Health Department. The County Health Department will be consulted regarding final disposal or reuse of the material based upon chemical test results

Cleaning and Maintenance

When stockpile is completed, section 2 is thoroughly cleaned. The concrete slab and walls are washed down and washed into the catch basin. The oil separators and catch basins are then pumped out and cleaned.

OPERATIONS OF DECANT OIL/WATER SEPARATOR AND CLARIFIERS

Normal

Sweeper and Vactor trucks bringing material to the facility are required to remove as much water from their tank as possible. This is within a given time frame of filling up their auxiliary water tanks at time of decanting. The desired result will mean less water splashing out and washing solids into the separator.

The facility should be monitored on a weekly basis. The conditions to check for are the following:

* Solid build up in the catch basins and the oil/water separator.
* Any noticeable sheen on the surface.
* Any odor emanating from the oil/water separator.
* Any unusual color in the water.

Cleaning/Testing/Handling

When it has been determined that there is a build up of material in the bottom of the separator that causes solids to not settle out sufficiently, the separator must be cleaned. The material will be placed on a decant pad for dewatering. It will not be mixed with other waste material stored on-site prior to testing. Chemical testing will be performed in accordance with the conditions of the solid waste permit issued by the County Health Department. The County Health Department will be consulted regarding final disposal or reuse of the material based upon chemical test results.

EMERGENCY RESPONSE PLAN

Potential flooding of the facility, discovery of hazardous material(s), fire, and odor problems all pose significant risks. For situations that impose a significant risk or injury to persons, public property, and/or adjoining properties, the Public Works notification list is activated to start the response. Walla Walla Public Works Safety Regulations Must Be Followed.

*	Public Works Director	527-4463
*	Street Supervisor	527-4363
*	Waste/Stormwater Maintenance crew	527-4363
*	Street Maintenance crew	527-4363

RECORDS

Logs will be kept of all incoming loads, origin, type of waste, operator name, and site and drain inspections. Once these logs are completed, they will be maintained in the Street Supervisors office at the City Service Center.

Records of final destination of all decanted material will be kept in the Street Supervisors office at the City Service Center.

(See inspection log next page).

CITY OF WALLA WALLA
PUBLIC WORKS DEPARTMENT
STREET DIVISION

STREET WASTE DECANT FACILITY DAILY OPERATING LOG

Employee Name (print): ____ **Date:** ____________

Section #: __________ # of Loads: __________ Yards of Debris: __________ EQ #: __________

Type of Waste Material Received: ____

Origin of Waste: ____

* *

DAILY INSPECTION

Solid Build Up In The Catch Basins? ***Yes / No*** **Unusual Color In The Water?** ***Yes / No***

Is Water Able To Flow Through The Blocks? *Yes / No* If No, Did You Remove Debris? *Yes / No*

Any Unusual Odor? ***Yes / No*** **Any Noticeable Sheen On The Surface?** ***Yes / No***

* *

FRIDAY INSPECTION

Solid Buildup In The Oil/Water Separator? ***Yes / No*** **Any Unusual Color Or Odor?** ***Yes / No***

* *

MATERIAL REMOVED FROM FACILITY

Type of Waste Removed: ____

Quantity of Waste Removed: ____

Destination of Waste: ____

Employee Comments: ____

____

____

____

Employee Signature ______________________________

TESTING/MONITORING

All City of Walla Walla material will be stockpiled by waste classification (sweepings, vactor waste, seasonal waste and clarifier cleanings). Decanted materials may be contaminated with:

Arsenic
Cadmium
Chromium
Lead
Nickel
Zinc
PAHs
Petroleum Products
Benzene
Ethyl Benzene
Toluene
Xylenes

City staff will visually inspect the decant pad, catch basins, oil/water separator, and surrounding area on a weekly basis. Traffic areas on the site will be monitored for cleanliness to prevent off site tracking of material.

Clarifier Cleanings

Clarifiers are routinely cleaned once per month and then dumped back into drying beds. If solids are present, chemical testing will be performed accordingly to Health Department Permit Regulations.

SPILL PREVENTION, CONTROL, AND COUNTERMEASURE PLAN

There are no known pre-existing conditions at this site that warrant special provisions for planning purposes. It was previously used as a truck loading area for a cannery. There were no underground storage tanks. Hazardous materials were not stored at this site. However, the known activities taking place at this facility represent a potential risk that needs this planning element.

Known Potential Spill Sources

Equipment on site:

* Backhoe/front end loader = Diesel fuel, hydraulic oil, motor oil, lubricating grease.

Equipment brought on site:

* Backhoe/front end loader = Diesel fuel, hydraulic oil, motor oil, lubricating grease.
* Sweeper = Diesel fuel, hydraulic oil, motor oil, lubricating grease.

* Vactor = Diesel fuel, hydraulic oil, motor oil, lubricating grease.
* Dump truck = Diesel fuel, hydraulic oil, motor oil, lubricating grease.
* Small truck = Gasoline, hydraulic oil, motor oil, lubricating grease.
* Small tools (pumps, generators, etc.) = Gasoline, motor oil.

On-site activities after discovering a spill:

* Notification:
  An immediate supervisor is notified after discovery.
  Depending upon the nature and severity of the discovered spill, the City of Walla Walla
  Wastewater Treatment Plant may be notified.
* Containment:
  Keep the problem from getting bigger.
  Cover appropriate catch basins on site to keep liquids out of the separator.
* Abatement
  Absorb material
  Remove material
  Characterize
  Treat appropriately

Special Spillage Control Plan for Known or Unknown Material and Hot Loads

Contaminated soils and liquids may be encountered because the City responds to clean up spills in the right-of-way. At the time of cleaning up a spill, either the material is known (MSDS is available) or it is unknown. All unknown spill clean up must be chemically characterized (solids and liquids). Either the Department of Ecology or the Walla Walla County Health Department will be consulted prior to final disposal or reuse of the liquid or material.

* Known Solids:
  Depending on the known initial quantities and waste characterization from MSDS sheet(s), the material can be placed in a special area set aside for such an event (Bay #1). If the material is of a potentially dangerous type from known quantities and waste characterization from MSDS sheet(s), it will not be allowed on site.
* Known Liquids:
  Depending upon the known initial quantities and waste characterization from MSDS sheet(s), the liquids may be allowed to enter the drainage system to the oil/water separator. Otherwise these liquids must be contained in tanks and await transportation to a permitted facility. If the material is of a potentially dangerous type from known quantities and waste characterization from MSDS sheet(s), it will not be allowed on site.

* Unknown Solids (waiting for Chemical Analysis of material):
  Before hot loads can be dumped, the gate valve controlling the out flow from the catch basin must be closed. 6-mil plastic (stored in the Street Division tool room) must be placed on the slab; the hot load is then placed on top of the plastic, and then covered with more plastic. The material is to remain isolated until test results are completed and proper disposal method is known.
* Unknown Liquids (waiting for Chemical Analysis of liquids):
  Initially test pH, if above 9.0 or below 6.0, isolate from entering drainage system to oil/water separators in tanks or barrels. If the liquid is suspected of containing hydrocarbons, isolate from entering drainage system to oil/water separator in tanks or barrels. If the liquid is suspected to contain herbicides or pesticides, isolate from entering drainage system to oil/water separator in tanks or barrels.

On site there will be a 55-gallon barrel containing supplies to clean up small spills and absorb oil that may occur within the normal operating parameters of the facility. The facility will remain clean and free of garbage generated from the operations and maintenance activities. If at any time certain guidelines outlined above need changing, they will be done in writing.

A list of current phone numbers can be found at Walla Walla Emergency Services Communications Center (WESCOMM) at 509-527-1960 to notify the appropriate employees. This list is updated yearly and as necessary by the Public Works Department.

WASHINGTON STATE DEPARTMENT OF TRANSPORTATION SITE USE

WSDOT will be responsible for compliance with approved plan of operation and provisions in the solid waste permit.

Addendum to Street Waste Beneficial Reuse Facility Operations Plan – October 2010:

Addendum A: Dust Control

If material is too dusty when loading for removal, the stockpile will be sprinkled with water using the two inch fire hose located at both ends of the facility. Only enough water is to be use to settle prevent dust from blowing.

All trucks hauling debris away from facility will be covered with a tarp to prevent the spread of dust.

Addendum B: Access to Piles

Access to the facility is limited by a six foot tall chain link fence around the entire perimeter.

Addendum C: Annual Reporting

The City is required to report yearly facility activities to the Walla Walla County Health Department and the Washington State Department of Ecology. The report is to include volume of all material deposited at site for decanting along with the volume of all material removed from site and its final use/destination. The report is also to include all material testing results.

Addendum D: Maximum Amount of Waste Stored

Total facility capacity is 700 cubic yards of solid debris.
Capacity of bay 1 is 100 cubic yards of solid debris.
Capacity of bays 2, 3, and 4 is 200 cubic yards each.

Addendum E: Method of Waste Removal

Once the material in bays 2, 3, and 4 has decanted, it is removed from the facility by using a frontend loader scooping the material and loading it into a dump truck.

Any 'hot loads' may be removed from bay 1 only after consulting with Walla Walla County Health Department or Washington State Department of Ecology.

WALLA WALLA COUNTY
HEALTH DEPARTMENT
Environmental Health
310 W. Poplar Street, Suite 102 • PO Box 1753
Walla Walla, WA 99362
Phone 509.524.2650 • Fax 509.524.2677

CITY OF WALLA WALLA

STREET WASTE DECANT FACILITY SOLID WASTE PERMIT

Issuance Date: April 28, 2006

Expiration Date: May 1, 2007

Designation of Operations: **Street Waste Decant Facility**

Location of Operations: **55 Moore Street, Walla Walla**

The owner/operator is hereby authorized to operate the aforementioned facility in accordance with Chapter 70.95 RCW, WAC 173-304 and WAC 173-350; other federal, state and local laws, rules and regulations, including zoning laws; and in accordance with the special and general conditions contained in this permit, and as the same may hereafter be amended, and the plans and specifications filed with the application. Nothing herein shall be deemed to relieve the permittee from compliance with any such laws, rules, and regulations. By acceptance of this permit, the permittee acknowledges that the duty of compliance and conformance with all laws, rules, and regulations rests on the permittee.

David Eaton, R.S.
Director of Environmental Health Programs

1. GENERAL INFORMATION

A. Name of Site: City of Walla Walla Street Waste Decant Facility
Phone: (509) 527-4363

B. Parcel Numbers: 36-07-20-73-1205

2. PERFORMANCE STANDARDS

The following standards of performance are the enforceable objectives of this permit:

A. The permittee shall not contaminate the groundwater underlying the site and facility.

B. The permittee shall not cause a violation of any ambient air quality standard at the property boundary or any other emission associated with such a facility.

C. The permittee shall not cause a violation of any receiving water quality standard or violate Chapter 90.48 RCW, as now or hereafter amended, from discharges to surface run-off, leachate or any other liquid associated with such a facility.

D. The permittee shall comply with all applicable federal, state, and local statutes, rules, regulations, and ordinances in the operation of this site and facility, and shall not cause or create a nuisance thereby.

3. RECORDKEEPING AND REPORTING

A. The permittee shall maintain daily operating records on the weights or volumes, number of vehicles entering and the types of wastes received and recycled. Major deviations from the "Plan of Operation" shall be noted on the operating record. The permittee shall follow the submitted "Plans of Operation" as noted below:

General Operations Plan Dated: **October 30, 2001 & updated October, 2004**

Amendments to these plans will require review and approval by the Walla Walla County Health Department.

B. Current operating records shall be maintained by the operator, shall be stored for a minimum period of three (3) years, and shall be made available for inspection by the Walla Walla County Health Department upon reasonable request. This period of retention shall be extended during the course of any unresolved litigation regarding the site and facility operation or when requested by the Walla Walla County Health Department.

C. Any dangerous or hazardous waste as specified in Chapter 173-303 WAC found or rejected by the facility will be recorded in the daily operating log. A record of all findings will include date, nature of material, generator's name and address, actions taken and signature of inspector.

4. **ANNUAL REPORT**

The permittee shall prepare and submit two copies of the annual report to the Walla Walla County Health Department by **March 1 of each year.** The annual report shall cover facility activities during the previous year and must include as a minimum the following information:

A. Name and address of the facility;

B. Annual quantity in tons or volume in cubic yards of solid waste received and transported from the facility. Wastes received should be broken into the following classifications:

Types of waste received; Quantities and types of waste recycled; Quantities and types of waste disposed; Destination of the waste.

C. Calendar year covered by the report.

5. **INSPECTIONS**

A. The permittee shall inspect the facility to prevent malfunction and deterioration, operator errors and discharges which may cause or lead to the release of wastes to the environment, a threat to human health, or a nuisance. The permittee must conduct these inspections often enough to identify problems in time to correct them before they harm human health or the environment. The permittee shall keep an inspection log or summary including at least the date and time of inspection, the printed name and the handwritten signature of the inspector, a notation of observations made, and nature of the problem, any repairs or corrective actions required. The log or summary must be kept available for at least three (3) years from the date of inspection. Inspection records shall be available to the Walla Walla County Health Department upon request.

B. Any duly authorized officer, employee, or representative of Walla Walla County Health Department or WDOE may, upon presentation of credentials enter and inspect any property, premises or place on or related to the site/facility at any reasonable time for the purpose of determining compliance with this permit, to inspect or copy any records that must be kept under the terms and conditions of this permit, or for obtaining samples of groundwater, surface water, leachate, or gaseous emissions. This permit may be subject to suspension at any time Walla Walla County Health Department determines that the site or solid waste facility located on the site is being operated in violation of Chapter 70.95 RCW; Chapter 173-304 WAC, or any applicable federal, state, and local laws and regulations, or other conditions set forth in the permit. The permittee shall be given written notice of non-compliance, required corrective actions, and a time to implement corrective actions.

6. **TESTING SCHEDULE AND REUSE**

A. **Vactor Wastes** (Catch Basins)

No further testing of vactor wastes (catch basins) is necessary as long as vactor waste is used as landfill cover.

B. **Street Sweepings**

No further testing of street sweepings is necessary as long as sweepingsare used as landfill cover.

C. **Clarifier Cleanings**

1. Decanted, clarifier cleanings shall be tested for the parameters listed below. A baseline survey will be initially conducted using laboratory test results of the first four consecutive samplings. After each sampling, the Walla Walla County Health Department will be consulted prior to reuse or disposal of the material. Subsequent sampling may be adjusted based upon initial survey results.

2. Testing will be conducted using composite grab samples. The number of grab samples for each composite sample will be as follows:

100 cubic yards or less ---------- 3 grab samples
101 - 500 cubic yards ---------- 5 grab samples
501 – 1000 cubic yards --------- 7 grab samples

Parameter	Laboratory Test Method
Arsenic, Total	EPA SW-846
Cadmium, Total	EPA SW-846
Chromium, Total	EPA SW-846
Lead, Total	EPA SW-846
Nickel	EPA SW-846
Zinc	EPA SW-846
Mercury (Inorganic)	EPA SW-846
PAHs – (Carcinogenic) Expressed as Benzo(a)pyrene equivalent.	EPA SW-846
TPH (Diesel)	NWTPH-DX
TPH (Heavy Fuel Oil)	NWTPH-DX
TPH (Gasoline)	NWTPH-GX
Benzene	EPA SW-846
Ethylbenzene	EPA SW-846
Toluene	EPA SW-846
Xylenes (Total)	EPA SW-846

D. This permit may be amended by letter from the Health Officer, or his authorized designee, at any time prior to its expiration date should circumstances or conditions arise which require immediate compliance for the protection of the public health, welfare, or safety.

7. **GENERAL CONDITIONS**

A. Storage of solid wastes shall be controlled so as not to create a nuisance, allow vermin inhabitation, create a safety hazard, create malodors, create water pollution, allow insect infestation, or otherwise adversely affect human health.

B. The facility shall restrict access to unauthorized personnel.

C. Solid Wastes stored on-site are restricted to a maximum allowed by each bay.

D. Tarps or other methods shall be used to prevent windblown material from leaving the site.

E. Reuse of this waste requires approval by the Walla Walla County Health Department.

F. The permittee shall not knowingly dispose, treat, store, or otherwise handle hazardous wastes unless the requirements of Chapter 173-303 WAC, as now or hereafter amended, are met.

G. The permittee shall institute an adequate maintenance program for the equipment and facility related fixtures to ensure the conditions of this permit are continuously and efficiently met.

H. The permittee shall provide direct communications between employees working at the facility and management offices off-site to handle emergencies.

I. A copy of the approved plan of operation shall be kept at the city shops for reference by the site operator and other personnel. The plan shall describe the facilities operation and shall convey to the site operating personnel the concept of operation intended by the designer. The plan of operation shall be available for inspection at the request of the Walla Walla County Health Department. The facility must be operated in accordance with the approved plan. The site operator is responsible for being familiar with and using the plan.

J. The permittee shall notify the Walla Walla County Health Department whenever any change or alteration of the permitted site and facility is contemplated. This permit may be amended by letter from the Health Officer or his authorized designee, prior to its intended date of expiration in order to accommodate necessary changes.

K. Solid waste shall not be disposed of on-site. All non-recyclable solid waste shall be removed to a permitted solid waste disposal facility.

L. In the event the permittee is unable to comply with any of the conditions of this permit due to any cause, the permittee shall:

   i. Immediately take action to stop, contain and clean up any unauthorized discharges or spills and correct the problem.

   ii. Immediately notify the Walla Walla County Health Department.

   iii. Submit a detailed report regarding the nature and extent of the violation, corrective action taken and/or planned, steps taken or to be taken to prevent a recurrence, and any other pertinent information.

   iv. Compliance with this section does not relieve the permittee from responsibility to maintain continuous compliance with the conditions of this permit or the resulting liability for failure to comply.

M. If any part, section, sentence, or paragraph of this permit should be suspended by appropriate action of the Walla Walla County Health Department, or found invalid by a tribunal or court of competent jurisdiction, the remainder of this permit shall not be affected thereby.

Appendix C
Private Facility Inspection and Enforcement Protocol

Private Facility Inspection and Enforcement Protocol

City of Walla Walla

The Eastern Washington Phase II Municipal Stormwater Permit (Permit) requires that the City protect water quality and reduce the discharge of pollutants into receiving waters. As part of the Permit, the City must reduce pollutant discharges from stormwater management facilities through implementation of the Illicit Discharge, Detection and Elimination Ordinance (Chapter 13.15 WWMC), Construction and Post-Construction Ordinance (Chapter 13.16 WWMC), and the City of Walla Walla Stormwater Pollution Prevention Operations and Maintenance (O&M) Plan.

This protocol outlines the City's procedures for ensuring private stormwater facilities are maintained according to City standards. The facilities that may be impacted include privately owned and maintained ponds, tanks, vaults, swales, and other stormwater management facilities that drain to the public municipal separate storm sewer system (MS4). The MS4 includes the public storm sewer pipe system, as well as local ditches, creeks, and other water courses.

Transfer of Ownership

At this time, the City will not assume ownership of privately owned and maintained stormwater management facilities.

Inspection and Enforcement

The City's Construction and Post-Construction Stormwater Ordinance (Chapter 13.16 WWMC) states that all privately owned stormwater facilities that discharge to the public stormwater collection and conveyance system (i.e., MS4) shall be subject to inspection by the City Engineer or appointed designee. These private stormwater facilities must be maintained in accordance with the facility O&M Plan submitted to the City in compliance with Chapter 13.16.070 WWMC. The following protocol describes the City's procedures for inspecting and enforcing maintenance standards for private facilities.

The City assumes responsibility for inspection of all private stormwater facilities. The inspection program includes record keeping and reporting. The City will inform each facility owner of maintenance actions that are necessary to maintain the facility in a manner that prevents stormwater pollution and maintains the original function of the facility. Private owners must perform or hire crews to perform the maintenance actions and submit records to the City for long-term recordkeeping.

The City's private stormwater facility inspection program consists of the following:

- The private facility inspection program is the responsibility of Engineering Division.
- The City maintains a GIS map and database of private facilities that discharge to the City's stormwater collection and conveyance system.
- Structural BMPs (ponds, swales, vaults, tanks, etc.) shall be inspected annually, or more frequently as determined by the City Engineer to be necessary to prevent adverse water quality impacts and to ensure that adequate maintenance is being performed (Chapter 13.16.090 WWMC).
- The GIS Division shall develop a geographically-based schedule for annual facility inspection to indicate which facilities are inspected in a given year.
- It is the owner's responsibility to maintain access to facilities for inspection purposes. Inaccessible facilities will subject the owner to inspection, enforcement, and penalty provisions as set forth in Chapters 8.05 and 8.07 WWMC.
- The City will perform private facility inspections according to the schedule established by the City Engineer. Field inspectors will use the inspection checklists in Appendix A of the City's Stormwater Pollution Prevention O&M Plan to document conditions at each private facility.
- The City will send a letter with the inspection report to the owner after completion of the inspection. The report will identify all required maintenance activities necessary for each facility and a required date of completion.
- Identified maintenance activities must be completed by the owner upon receiving an inspection report from the City. Maintenance records must be submitted to the City after completing the required maintenance activities.
- The City Engineer will review all maintenance records and enter the information in the private facility database. Inspection and maintenance records will be maintained for at least five years.
- The City will send a reminder letter to all private facility owners that have not completed the required maintenance activities or submitted maintenance records to the City Engineer.
- If the City does not receive maintenance records from a private facility owner, the owner will be subject to inspection, enforcement, and penalty provisions as set forth in Chapters 8.05 and 8.07 WWMC.
- If after inspection, enforcement, and penalty provisions are implemented and the City has still not received maintenance records from a private facility owner, the City has the authority to perform required maintenance activities and bill the owner for the cost.
- Upon receiving maintenance records, the City will conduct follow-up inspections to verify required maintenance activities have been completed.

Appendix D
Stormwater Pollution Prevention Plan

CITY OF WALLA WALLA
SERVICE CENTER

Stormwater Pollution Prevention Plan

City of Walla Walla
15 North 3rd Avenue
Walla Walla, WA 99362

July 6, 2011

City of Walla Walla
Service Center Stormwater Pollution Prevention Plan
Provided as a Separately Bound Document

Appendix E
Integrated Pest Management Policy Resources

Integrated Pest Management Policy Resources

City of Walla Walla

IF THE CITY OF WALLA WALLA DECIDES TO DEVELOP AN INTEGRATED PEST MANAGEMENT (IPM) OR VEGETATION AND PEST CONTROL PLAN OR POLICY, REPLACE THESE APPENDIX PAGES WITH THE SPECIFIC PLAN OR POLICY DEVELOPED.

Regulatory Framework

Developing an IPM policy is not a requirement of the Phase II Permit. However, it is recommended that each jurisdiction develop written guidelines or policies related to the use of chemical pesticides, herbicides, and fertilizer. A written policy can also be included in the scope of work for private contractors hired to perform vegetation or pest management activities.

Samples

The *Model Integrated Vegetation and Pest Management Policy* included in this appendix was developed by IPM Associates (www.ipmaccess.com). The associated website also includes a *Model IPM Policy Framework* (www.ipmaccess.com/polframe.html) describing the process used to develop an IPM Policy. Sample IPM documents from the City of Seattle and Clark County have also been included in this appendix for reference.

Additional Resources

Additional information related to developing an IPM or Vegetation and Pest Control Policy can be found from the following resources:

- Washington State University Extension: http://ipm.wsu.edu/
- Washington State Department of Ecology's Urban Pesticide Education Strategy Team: http://www.ecy.wa.gov/programs/swfa/upest/index.html
- King County's Noxious Weed Control Program:
- http://www.kingcounty.gov/environment/animalsAndPlants/noxious-weeds/weed-control-practices.aspx
- IPM Access Website: http://www.ipmaccess.com/
- US EPA, "Integrated Pest Management for Schools: A How To Manual." http://www.epa.gov/pesticides/ipm/schoolipm/index.html

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Model Integrated Vegetation and Pest Management Policy—IPM Associates

Model Integrated Vegetation and Pest Management Policy

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NOTE: The original version of this document is supplemented with graphics which are not included in this file. The graphics will be included in a future version of this document for on-line viewing. However, the complete hard copy version with graphics is available for a nominal shipping and handling charge. If interested, send a request to the IPMPA (see end of document to find out how to contact IPMPA)

SECTION 1: PURPOSE

1.0. This policy provides implementation guidelines for departments and contractors that are directly involved with managing vegetation and pests or the planning, design, and construction of new and rebuilt landscapes and facilities.

1.1. This policy provides administrative guidelines for staff and committees that are indirectly involved with vegetation and pest management.

1.2. This policy provides an example in implementing IPM programs and informing staff and the public about IPM principles.

SECTION 2: PRINCIPLES/PHILOSOPHY

2.0. --*Organization's Name*-- will manage vegetation and pests in a manner that:

- utilizes an ecological approach;
- minimizes the use of pesticides;
- minimizes risk to human health and the environment;
- considers community values in establishing standards of maintenance for --*Group Name*-- properties; and
- determines cost-effectiveness using life-cycle costing.

2.1. Implementation of this policy shall be coordinated with affected --*Organization's Name*-- policies and department programs.

2.2. Affected departments and contractors shall follow --*Organization's Name*-- pesticide use procedures.

2.3. --*Organization's Name*-- shall provide on-going staff training to facilitate effective implementation of this policy.

2.4. --*Organization's Name*-- shall promote development and implementation of landscape designs that are not only aesthetic and functional, but also provide opportunities for ecological approaches to and cost-effective management of vegetation and pests.

2.5. --*Organization's Name*-- shall provide opportunities for (public) education regarding the use of ecologically sound methods of vegetation and pest management.

SECTION 3: DEFINITIONS

3.0. **Integrated Pest Management (IPM)**: Integrated Pest Management is an ecological approach to suppressing pest populations (i.e., weeds, insects, diseases, etc.) in which all necessary techniques are consolidated in a unified program, so that pests are kept at acceptable levels in effective, economical, and environmentally safe ways. Because pest problems are often symptomatic of ecological imbalances, the goal is to attempt to plan and manage ecosystems to prevent organisms from becoming pests.

The components of an IPM program are:

- **Injury and Action Levels**
    - A. Injury level refers to the point in growth of a vegetation or pest problem where it will cause an unacceptable impact on: public safety, recreation, or health; natural and/or managed ecosystems; aesthetic values; economic injury to desirable plants; or the integrity, function, or service life of facilities.
    - B. Action level is the level of development of a vegetation or pest population at a specific site at which action must be taken to prevent the population from reaching the injury level.
- **Selection of optimal strategies.** The criteria for selecting treatment tactics and developing pest management strategies include:
    - A. Least disruptive of natural controls;
    - B. Least hazardous to human health;
    - C. Minimizes negative impacts to non-target organisms;
    - D. Least damaging to the general environment;
    - E. Best preserves natural or managed ecosystem;
    - F. Most likely to produce long-term reductions in pest control requirements;
    - G. Effective implementation is operationally feasible;
    - H. Cost-effectiveness in the short and long term.
- **Timing.** Involves applying a treatment action during the most vulnerable time in the life cycle of the vegetation or pest with the least impact on natural predators and/or other non-target organisms.
- **Monitoring.** Involves the regular surveying of sites and/or features to understand and identify the location and extent of potential pest management problems.
- **Record-keeping.** Involves maintenance of written records of specific pest management factors observed during monitoring, information on labor and materials used in implementation of the IPM program, results of applied pest management strategies, and comprehensive data on pesticide applications.
- **Evaluation.** Involves analysis of treatment strategies and prescriptions to help determine the effectiveness of the control program. These records are useful in developing future pest management plans.

3.1. **IPM Prescriptions** - Integrated pest control or eradication plans that are specific to a variety of pest management situations and/or pests and vegetation; these plans are based on the principles of IPM.

3.2. **IPM Programs** - Agency, Division, Department, and/or Operational Section level programs which are designed and developed to implement the Integrated Vegetation and Pest Management Policy; individual programs are geared to the specific administrative and operational requirements and responsibilities of that specific working group.

3.3. **Pest** - Any organism, including weeds, insects, diseases, etc., which by the situation or size of its population adversely interferes with the aesthetic, health, environmental, functional, or economic goals of humans.

3.4. **Pesticide** - Any substance registered by the U.S. government as a pesticide.

SECTION 4: REGULATORY CONTEXT

4.0. --*Organization's Name*--, including all of its departments and contractors, shall be aware of and comply with all laws, regulations, bylaws, and policies that are directly or indirectly related to vegetation and pest management operations.

SECTION 5: IPM PROGRAMS

5.0. --*Organization's Name*-- departments directly involved with managing vegetation and pests will implement and evaluate IPM programs in accordance with the requirements of this policy. These IPM programs shall include:

- Maintenance management guidelines, procedures, standards, and IPM prescriptions;
- An inventory of all sites and features and estimates of their annual labor and material requirements;
- A record-keeping and monitoring system; and
- IPM program implementation timetable, strategy, and costs.

5.1. --*Organization's Name*-- departments involved with the development, review, and implementation of landscape and facility designs will implement and evaluate IPM programs in accordance with the requirements of this policy. These programs shall include:

- Landscape and facility design and construction criteria and standards that promote cost-effective and ecologically sound management of landscape vegetation and pests;
- A record-keeping system for program implementation and evaluation;
- A landscape and facility design and construction review process that includes --Organization's Name-- landscape maintenance staff;
- An IPM program implementation timetable, strategy, and costs.

SECTION 6: ROLES AND RESPONSIBILITIES

6.0. Landscape Supervisor

The Landscape Supervisor will :

- Coordinate compliance of --*Organization's Name*-- IPM landscape management program with applicable laws, rules, regulations, and policies;

- Assist with the development of landscape and engineering design and construction criteria for use in landscape and facility development projects;
- Coordinate the development and implementation of --*Organization's Name*-- landscape IPM program with any other vegetation and pest management operations;
- Perform research needed to facilitate implementation of the landscape IPM program;
- Assist with the development and implementation of a (public) education program for promoting an understanding of --*Organization's Name*-- utilization of ecologically sound methods of vegetation and pest management;
- Assist with evaluation of --*Organization's Name*-- IPM Policy and the landscape IPM program, including preparation of an annual report;
- Monitor for new and modified legislation and regulations that will require adjustments to --*Organization's Name*-- landscape IPM program.

6.1. Other Supervisors/Managers involved directly or indirectly with vegetation and pest management

- As above as relates to their specific work.

6.2. The IPM Coordinating Committee [e.g., composed of Board members, administrative and operational lead staff, public, and student representative(s)]

- Decide whether to reject or recommend approval of IPM programs, IPM prescriptions, and requested pesticides using the following criteria:
    - Principles of IPM;
    - The pest and vegetation management problem has been assessed and control is deemed necessary;
    - The use of a pesticide is a necessary element of prescriptions that utilize these chemicals; and
    - The risk to public health and the environment is shown to be minimal.
- Evaluate, approve, and rank all pesticide products proposed for use by --Organization's Name-- departments. The criteria used for approval and ranking of the pesticide formulation shall include:
    - Prescription evaluation, including: application methods, scale of application, elements of exposure, buffer zones;
    - Registration by the EPA;
    - Adverse human health effects (quality and quantity of data);
    - Animal data (quality and quantity of data);
    - Mobility and persistence in the environment;
    - Potential impact to non-target organisms;
    - Inert ingredients;
    - Data gaps; and
    - Pesticide classification.
- Provide annual review, evaluation, and recommendations for modification of utility-wide IPM Policy, utility-wide IPM program, and department IPM programs.

Figure 1. Routine IPM Prescriptions Approval Process
Flow Chart of Decision Process
(Determined by Roles & Responsibilities Identified in Policy)

Figure 2. Pesticide Approval Process
Flow Chart of Decision Process
(Determined by Roles & Responsibilities Identified in Policy)

Figure 3. Special/Emergency IPM Prescriptions Approval Process
Flow Chart of Decision Process
(Determined by Roles & Responsibilities Identified in Policy)

Figure 4. IPM Program Approval Process
Flow Chart of Decision Process
(Determined by Roles & Responsibilities Identified in Policy)

Last Modified: Friday, June 28, 1996 [updated 1/5/07]

Source: *IPM Access* - An Integrated Pest Management Online Service

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E-Mail: ipmpa@efn.org
URL: www.ipmaccess.com

Sample IPM—City of Seattle

CITY OF SEATTLE
PESTICIDE USE REDUCTION STRATEGY

Purpose

It is the policy of the City of Seattle to promote environmentally sensitive landscape pest and vegetation management by phasing out the use of the most hazardous pesticides and reducing overall pesticide use while preserving landscape assets and protecting the health and safety of the public and our employees. The following strategy describes how the City will achieve these goals and establishes pesticide reduction targets and timelines.

Background

The City of Seattle's Environmental Management Program was developed in l999 to promote environmental stewardship in City operations. The pesticide use reduction strategy is an outgrowth of two policies developed under that program. The Landscape and Grounds Management policy promotes the design, construction and maintenance of City landscapes in a way that protects and enhances the region's natural resources and public health. The Landscape and Grounds Management Guidelines were developed to implement that policy, including promoting the use of Integrated Pest Management (IPM), which favors the use of pest prevention/tolerance over control.

It is the City's policy to reduce the toxicity and amount of hazardous materials used in City operations. The Chemical Use Policy sets forth a framework for evaluating hazardous materials used by the City and prioritizing products for phase-out and replacement with less hazardous alternatives.

Regional Integrated Pest Management Initiative

The listing of Puget Sound Chinook salmon under the Endangered Species Act has heightened awareness of the impact common practices have on the environment. Recent studies documenting the presence of pesticides in area streams and effects of pesticides on salmon point to the need for public agencies to serve as models of environmental stewardship in landscape management.

Representatives from local jurisdictions in King, Pierce, and Snohomish counties developed a model Tri-County IPM Policy and Guidelines in support of the goal of reducing the potential impact of pesticide use on threatened and endangered species. This pesticide use reduction strategy is consistent with the Tri-County Policy and Guidelines.

Strategy Approach

The two main components of this strategy are (1) to eliminate the use of the most hazardous pesticides (as defined below) and (2) to achieve a 30% reduction in overall pesticide use. The following paragraphs discuss the approach to achieving these goals.

<u>Eliminating use of the most hazardous pesticides</u>

Based on the general criteria in the Chemical Use Policy, pesticide-specific review criteria were developed. A hazard assessment was then conducted on the pesticides used by the City to prioritize products for phase-out. Products were categorized into three tiers ranging from greatest potential hazard -Tier 1 to least -Tier 3. New products considered for use will undergo the same analysis and product tier designations will be re-evaluated, as additional information becomes available.

Products meeting any of the following criteria were placed in Tier 1.

Tier 1 Criteria

- Products assigned by the U.S. Environmental Protection Agency (EPA) to Hazard Category I: Signal word DANGER appears on label
* Restricted use pesticides – use of the product is restricted to certified pesticide applicators (except aquatic herbicides[1])
* Products that cannot be disposed of because of dioxin contamination
* Products with active ingredient on the state list of acutely dangerous wastes (P list-Washington State Dangerous Waste Regulations)
* Products with known, likely, or probable carcinogens as active ingredients (as identified by U.S. EPA, State of California, National Toxicology Program, or International Agency for Research on Cancer)
* Products with reproductive toxicants as active ingredients (California Proposition 65 list)
* Products with known or probable endocrine disruptors as active ingredients (State of Illinois EPA)
* Products labeled as highly toxic or extremely toxic to birds, aquatic species, bees, or wildlife. (Exceptions for products used only indoors; exception to bee toxicity will be needed for products intended to control bees, wasps, or hornets)
* Products that are persistent in the environment - defined as those with active ingredients with soil half-lives greater than 100 days. (Possible exception for products used only indoors.)
* Products that move readily in the environment and may impact ground or surface water - defined as those with active ingredients with mobility ratings high or very high or with specific label warnings about groundwater hazard. (Possible exception for products used only indoors.)

[1]Note: aquatic herbicides are not included in this criterion because all aquatic applications in the state are restricted because of the need for a permit rather than because of particular properties of the chemicals involved.

Target: Tier 1 herbicides and insecticides have been targeted as first priority for phase-out. Exceptions to the restriction will be considered as described below. Affected departments will designate IPM Coordinators to evaluate exception requests.

Exceptions

Exceptions to the restrictions will be considered based on:

- a description of the pest problem,
- rationale for chemical control with the proposed product,
- a description of how the product will be used,

- legal requirements,
- public health and safety considerations,
- preservation of landscape assets, and
- an evaluation of all feasible alternatives including non-chemical and no action alternatives; the safety, health, and environmental impacts of the alternatives also will be evaluated.

Exceptions may be granted on a one-time-only basis or as a programmatic exception that applies across all departments.

> One-Time-Only Exceptions - The Departmental IPM Coordinator and the Office of Environmental Management will be responsible for evaluating and approving one-time-only exceptions within each Department.
>
> Programmatic Exceptions - Departmental IPM Coordinators and the Office of Environmental Management will meet, as necessary, to evaluate and approve or deny programmatic exceptions. All programmatic exceptions will be re-evaluated annually by the IPM Coordinators and the Office of Environmental Management based on a review of alternatives and a re-evaluation of the need for the control.

For all exceptions granted, a Best Management Practice will be required to minimize human health and environmental risk.

Overall Pesticide Use Reduction

City staff have already significantly reduced the amount and toxicity of pesticides used through IPM. In order to identify ways to reduce pesticide use further, a survey of specific pest management strategies was conducted and general alternative controls were suggested. Many of the suggestions came from City gardeners based on their knowledge and experience. Specific pest management strategies were evaluated for ornamentals, turf, trees/woody brush, electrical substations, rights-of-way, and golf courses. Alternative pest management strategies identified include:

- Pest prevention techniques like mulching, irrigating, fertilizing, and using pest-resistant species;
- Mechanical pest control techniques like flame weeding, hand pulling, string trimming, and hot water weeding; and
- Alternative chemical controls like neem oil products, active bacillus products, and potassium bicarbonate products.

Increasing pest tolerance thresholds was also suggested. Pesticide use reduction decisions will consider preservation of the landscape asset, safety, and legal requirements.

Target: Reduce overall pesticide use by 30% by the end of 2002.

Implementation Strategy

In order to plan for these long-term investments, over the next year we will conduct further research into alternative pest control methods and initiate pilot studies to evaluate alternative effectiveness and potential for use on a citywide scale. The lessons learned from this work will help us effectively target our resources. Over the next year, we will develop a pesticide reduction program including the following elements:

- Research alternative pest control equipment, products, and techniques;
- Conduct pilot studies to evaluate alternative effectiveness and potential for use on citywide scale;
- Develop maintenance standard trial sites to monitor increased pest tolerance thresholds and any resulting damage;
- Conduct public outreach to both increase awareness of and gauge reactions to changing maintenance standards and alternative approaches;
- Partner with private entities to leverage community support for reduced pesticide use through volunteer programs; and
- Pursue alternative funding sources.

For more information about the City's pesticide use reduction strategy and program plan, please contact Tracy Dieckhoner in the Office of Environmental Management at 206/386-4595.

Sample IPM—Clark County

Vegetation Management

The following practices are adapted, with minor modifications for format and local practices, from City of Portland Parks Pest Management Policy (April 1999).

General Goals and Philosophy

Clark County recognizes the special importance of rivers, streams, wetlands, ponds, and stormwater control and treatment facilities. The sensitive nature of such habitats, their plant and animal communities, and their direct link with other waterways require that we establish specific policies to ensure their health.

All landscape management decisions for controlling unwanted vegetation, diseases, and pests should follow Integrated Pest Management principles and decision-making rationale. These are:

- Proper planning and management decisions begin the IPM process
- Cultural methods of vegetation and pest control are preferred and are first employed
- Mechanical means of vegetation and pest control are next in line of preference, and are utilized where feasible
- Biological methods of vegetation and pest control are considered before chemical means, where they are feasible
- Botanical and synthetic pesticides are used only when no other feasible methods exist

General Practices

Use Only Appropriate Plants

Clark County has adopted a list of approved plants for use in development projects. The list also has prohibited undesirable plants. Only plants approved for use in the Clark County Plant List are allowed for use in plantings in unincorporated areas.

Vegetation and Pest Management in Stormwater Control Facilities

Stormwater control facilities include biofiltration treatment swales, treatment wetlands, treatment ponds, detention ponds, open channels, and infiltration basins. Stormwater control facilities discharge to surface water or groundwater either directly or through pipes or ditches. Many facilities are built to remove pollutants from stormwater.

Generally, vegetation should be maintained to blend into surrounding areas. Stormwater facilities can provide habitat for aquatic life and birds. Promoting natural vegetation where feasible improves habitat. Swales often blend into intensively managed landscapes. Pond perimeters can include natural vegetation.

The use of pesticides and, in most cases fertilizer, is not compatible with the task of pollutant removal or the direct connection of stormwater facilities to streams and groundwater.

Features of Stormwater Facilities:

- There is a mix of native and non-native plants
- Generally not used by the public
- Include areas managed to promote design function, such as turf in swales
- Managed landscapes may be nearby

- May be used by fish and wildlife

Objectives for Stormwater Facilities:

- Maintain healthy plant communities
- Avoid or minimize need for chemical intervention
- Control invasive plants where feasible
- No bare soil areas are allowed
- Tolerance for natural appearance and weeds

Practices

The vegetation management focus is establishing and maintaining healthy low-maintenance native plantings and sustaining the design function of vegetated filters such as biofiltration swales. This includes controlling invasive plants where feasible, and planting cover on bare soils.

Only use plants on the City of Vancouver plant list or the Clark County Plant List (Ordinance 1995-01-26).

In some cases, the original plantings may not be appropriate for the actual condition at a facility. One example is a frequently flooded swale that cannot support normal turf. In cases like this, replace turf with appropriate wetland plants if the underlying drainage problem cannot be fixed. Consider the use of soil amendments such as compost before using fertilizer.

Limit mulch use to covering bare soil while establishing plantings.

Chemical use should be avoided within 25 feet of any area that holds or conveys surface water or stormwater. This includes the base of a biofiltration swale.

Trees or shrubs that block access roads may be trimmed (or removed if within the access road) when access is required for maintenance by heavy equipment.

Trees that pose a risk to stormwater structures due to root growth may be removed and replaced by smaller shrubs.