



Water Quality Program

Permit Submittal Electronic Certification

Permittee: SPOKANE COUNTY

Permit Number: WAR046506

Site Address: 1026 W BROADWAY AVE
Spokane, WA 99260-0430

Submittal Name: MS4 Annual Report Phase II Eastern

Version: 1

Due Date: 3/31/2016

Questionnaire

Number	Permit Section	Question	Answer
1	S5.A.3	Attach updated annual Stormwater Management Program Plan (SWMP Plan). (S5.A.3)	ATTACHMENT 1 - SWMP_1_03312016105534
2	S9.D.5	Attach a map and copy of any annexations, incorporations or boundary changes resulting in an increase or decrease in the Permittee's geographic area of permit coverage during the reporting period per S9.D.5.	Not Applicable
3	S5.A.4.a.ii	Tracked the estimated costs of implementation of each component of the SWMP. (S5.A.4.a.ii)	Yes
4	S5.A.5.b	Coordinated among departments within the jurisdiction to eliminate barriers to permit compliance. (S5.A.5.b)	Yes
4b	S5.A.5.b	Attach a written description of internal coordination mechanisms. (Required to be submitted no later than March 31, 2016, S5.A.5.b)	ATTACHMENT 3 - Internal Coordi_4b_03312016105534
5	S5.B.1.a and b	Attach description of public education and outreach programs and stewardship activities conducted per S5.B.1.a and b.	ATTACHMENT 4 - Education Outre_5_0331201610557
6	S5.B.2.a	Describe the opportunities created for the public to participate in the decision making processes involving the development, implementation and updates of the Permittee's SWMP. (S5.B.2.a)	ATTACHMENT 5 - Public Particip_6_0331201610557
7	S5.B.2.b	Posted the updated SWMP Plan and latest annual report on your website no later than May 31. (S5.B.2.b)	No
7b	S5.B.2.b	List the website address.	
8	S5.B.3.a	Maintained a map of the MS4 that includes the requirements listed in S5.B.3.a.	Yes
9	S5.B.3.b.vi	Implemented a compliance strategy, including informal compliance actions as well as enforcement provisions of the regulatory mechanism described in S5.B.3.b. (S5.B.3.b.vi)	Yes

10	S5.B.3.b.vii	Updated, if necessary, the regulatory mechanism to effectively prohibit illicit discharges into the MS4 per S5.B.3.b.vii. (Required, if applicable, no later than February 2, 2019)	Not Applicable
11	S5.B.3.c	Implemented procedures for conducting illicit discharge investigations in accordance with S5.B.3.c.	Yes
12	S5.B.3.c.iii	Percentage of MS4 coverage area screened in reporting year per S5.C.3.c.i. (Required to screen 40% of MS4 no later than December 31, 2018 and 12% on average each year thereafter, S5.B.3.c.iii)	100
13	S5.B.3.c.iv	Publicized a hotline telephone number for public reporting of spills and other illicit discharges. (S5.B.3.c.iv)	Yes
13b	S5.B.3.c.iv	List the hotline number.	5094777525
14	S5.B.3.c.v	Implemented an ongoing illicit discharge training program for all municipal field staff per S5.B.3.c.v.	Yes
15	S5.B.3.c.vi	Informed public employees, businesses, and the general public of hazards associated with illicit discharges and improper disposal of waste. (S5.B.3.c.vi)	Yes
15b	S5.B.3.c.vi	Describe actions.	See Attachment 1: Spokane County Stormwater Management Program (SWMP) - Appendix D for description.
16	S5.B.3.d	Number of illicit discharges, including illicit connections, eliminated during the reporting period. (S5.B.3.d)	3
17	S5.B.3.d.iv	Attach a summary of actions taken to characterize, trace and eliminate each illicit discharge found by or reported to the permittee. For each illicit discharge, include a description of actions according to required timelines per S5.B.3.d.iv.	ATTACHMENT 7 - IDDE Actions Ta_17_0331201610561 1
18	S5.B.3.e	Implemented an ongoing illicit discharge training program for all staff responsible for implementing the procedures and program, as described in S5.B.3.e.	Yes
19	S5.B.4.a	Implemented an ordinance or other regulatory mechanism and enforcement procedures for construction site stormwater runoff control as described in S5.B.4.a.	Yes
20	S5.B.4.b	Reviewed Stormwater Site Plans, including construction SWPPPs for all new development and redevelopment projects. S5.B.4.b.	Yes
20b	S5.B.4.b	Number of site plans reviewed during the reporting period.	105
21	S5.B.4.c	Implemented procedures for site inspection and enforcement of construction stormwater pollution control measures. (S5.B.4.c)	Yes
21b	S5.B.4.c.iii	Number of permitted construction sites inspected during the reporting period, (S5.B.4.c.iii)	38

22	S5.B.4.c	Number of enforcement actions taken during the reporting period based on construction phase inspections at new development and redevelopment projects. (S5.B.4.c)	0
23	S5.B.4.b.ii and S5.B	Trained the staff involved in permitting, plan review, field inspections and enforcement for construction site runoff control. (S5.B.4.b.ii and S5.B.4.c.ii)	Yes
24	S5.B.4.d	Provided information to construction site operators and design professionals about training available on how to comply with the requirements in Appendix 1 and the BMPs in the SWMMEW, or an equivalent document. (S5.B.4.d)	Yes
24b	S5.B.4.d	Cite website address, if located on your website.	http://www.spokanecounty.org/stormwater/content.aspx?c=1767
25	S5.B.4.e	The number of construction sites that provided their intent to apply for the "Erosivity Waiver" as described in (S5.B.4.e).	Not Applicable
26	S5.B.4.e	The number of complaints investigated about sites that have received an "Erosivity Waiver" and describe any enforcement actions taken as a result. (S5.B.4.e)	Not Applicable
27	S5.B.5.a.	Implemented ordinance or other regulatory mechanism and enforcement procedures as described in S5.B.5.a.	Yes
31	S5.B.5.b	Implemented procedures for post-construction site plan review. (S5.B.5.b)	Yes
32	S5.B.5.c.ii	Inspected post-construction stormwater controls, including structural BMPs, during installation at new development and redevelopment projects. (S5.B.5.c.ii)	Yes
32b	S5.B.5.c.ii	Number of sites inspected during the reporting period. (S5.B.5.c.ii)	24
33	S5.B.5.c	Number of enforcement actions taken during the reporting period? (S5.B.5.c)	1
34	S5.B.5.c.iii	Inspected structural BMPs at least once every five years after final installation. (S5.B.5.c.iii)	Yes
34b	S5.B.5.c.iii	Number of BMPs inspected during the reporting period. (S5.B.5.c.iii)	1793
35	S5.B.5.d	Trained the staff involved in permitting, plan review, inspection and enforcement for post-construction stormwater control. (S5.B.5.d)	Yes
37	S5.B.6.a	Implemented the schedule of Operation and Maintenance activities for municipal operations. (S5.B.6.a)	Yes
38	S5.B.6.a.i (f) and (Have NPDES permit coverage for all applicable Permittee construction projects and industrial facilities. (S5.B.6.a.i (f) and (g))	Yes
39	S5.B.6.a.ii (a)	Inspected stormwater treatment and flow control facilities (except catch basins) owned or operated by the Permittee at least once every two years. (S5.B.6.a.ii (a))	Yes
39b	S5.B.6.a.ii (a)	Number of facilities inspected during the reporting period. (S5.B.6.a.ii (a))	12007

41	S5.B.6.a.ii (b)	If used an alternative to standard schedule for catch basin inspections for all or a portion of the MS4, attach description of the method used. (S5.B.6.a.ii(b))	Not Applicable
42	S5.B.6.a.ii(c)	Conducted spot checks of stormwater facilities after major storms. (S5.B.6.a.ii (c))	Yes
43	S5.B.6.b	Trained the staff with primary construction, operations, or maintenance job functions that are likely to impact stormwater quality. (S5.B.6.b)	Yes
44	S7.A	Complied with the Total Maximum Daily Load (TMDL)-specific requirements identified in Appendix 2. (S7.A)	Yes
45	S7.A	For TMDLs listed in Appendix 2: Attach a summary of relevant SWMP and Appendix 2 activities to address the applicable TMDL parameter(s). (S7.A)	ATTACHMENT 8 - Appendix 2 TMDL_45_0331201610 5733
46	S8.A	Attach a description of any stormwater monitoring or stormwater-related studies as described in S8.A.	ATTACHMENT 9 - Stormwater Moni_46_03312016105 733
47	S8.B	Participated in the regional group to select, develop and conduct effectiveness studies as described in S8.B.	Yes
48	G3	Notified Ecology in accordance with G3 of any discharge into or from the Permittees MS4 which could constitute a threat to human health, welfare or the environment. (G3)	Yes
49	G3.A	Took appropriate action to correct or minimize the threat to human health, welfare, and/or the environment per G3.A.	Yes
50	G20	Notified Ecology of the failure to comply with the permit terms and conditions within 30 days of becoming aware of the non-compliance. (G20)	Not Applicable
51	G20	Number of non-compliance notifications (G20) provided in reporting year.	
51b	G20	If applicable, list permit conditions described in non-compliance notification(s).	
52	S4.F.3.d	Attach a summary of the status of implementation of any actions taken pursuant to S4.F.3 and the status of any monitoring, assessment, or evaluation efforts conducted during the reporting period. (S4.F.3.d)	Not Applicable

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

Amanda Hess

3/31/2016 12:05:44 PM

Signature

Date



ATTACHMENT 1:
SPOKANE COUNTY STORMWATER MANAGEMENT PROGRAM (SWMP)



SPOKANE COUNTY STORMWATER MANAGEMENT PROGRAM (SWMP)

Eastern Washington Phase II Municipal Stormwater Permit Compliance Permit WAR 04-6506

Permit Cycle - August 1, 2014, to July 31, 2019





FOREWARD

Spokane County is required to develop and implement a Stormwater Management Program in order to meet its requirements under the Eastern Washington Phase II Municipal Stormwater Permit.

The Stormwater Management Program (SWMP) for Spokane County described in the following document is designed to be a “Public Working document.”



TABLE OF CONTENTS

Section	Page No.
1.0 INTRODUCTION	
1.1 History.....	1
1.2 Purpose.....	2
1.3 Authorization.....	2
1.4 Area of Coverage.....	3
1.5 Period of Performance.....	3
1.6 Public Process.....	4
1.7 Stormwater Management Program Permit Requirements.....	4
1.8 Spokane County Stormwater Management Program, Sections.....	4
2.0 LEGAL AUTHORITY	
2.1 Introduction.....	5
2.2 Existing Legal Authority.....	5
2.3 Additional Required Legal Authority.....	7
3.0 STORMWATER BASELINE DATA AND MAPS	
3.1 Introduction.....	8
3.2 Previous Permit Cycle Actions.....	9
3.3 Current Permit Cycle Actions.....	9
3.4 Staffing and Funding.....	10
3.5 Priorities and Measurable Goals.....	10



4.0 PUBLIC EDUCATION AND OUTREACH

4.1	Introduction.....	11
4.2	Public Education and Outreach Program Elements.....	11
4.2.1	Objectives for Public Education and Outreach.....	11
4.2.2	Public Education and Outreach Activities.....	12
4.3	Staffing and Funding.....	13
4.4	Priorities and Measurable Goals.....	13

5.0 PUBLIC INVOLVEMENT AND PARTICIPATION

5.1	Introduction.....	14
5.2	Public Involvement and Participation Program Elements.....	14
5.2.1	Objectives for Public Involvement and Participation.....	14
5.2.2	Public Involvement and Participation Activities.....	15
5.3	Staffing and Funding.....	15
5.4	Priorities and Measurable Goals.....	16

6.0 ILLICIT DISCHARGE DETECTION AND ELIMINATION

6.1	Introduction.....	17
6.2	Illicit Discharge Data and Mapping.....	17
6.3	Non-Stormwater Discharges.....	18
6.4	Visual Inspection Program Elements.....	18
6.5	Spill Prevention and Response Program Elements.....	19
6.6	Public Reporting Program Elements.....	19
6.7	Hazardous Waste Disposal Program Elements.....	19



6.8	High Priority Waterbody Assessment.....	20
6.9	Staffing and Funding.....	20
6.10	Priorities and Measurable Goals.....	21
7.0	CONSTRUCTION SITE STORMWATER RUNOFF CONTROL	
7.1	Introduction.....	22
7.2	NPDES Construction Stormwater Permit - Ecology.....	22
7.3	Spokane Regional Stormwater Manual.....	22
7.4	Erosion and Sediment Control Plan – General Requirements.....	23
7.5	Developer Notification Program Elements.....	23
7.6	Construction Site BMP Elements.....	24
7.7	Contractor Education and Training Program Elements.....	24
7.8	Employee Education and Training Program Elements.....	25
7.9	Staffing and Funding.....	25
7.10	Priorities and Measurable Goals.....	26
8.0	POST-CONSTRUCTION STORMWATER MANAGEMENT FOR NEW DEVELOPMENT AND REDEVELOPMENT	
8.1	Introduction.....	27
8.2	Post-Construction General Requirements.....	27
8.3	Post-Construction Notification Program Elements.....	27
8.4	Post-Construction Site Inspection Program Elements.....	28
8.5	Education and Training Program Elements.....	28
8.6	New Regulatory Mechanisms for Development and Redevelopment.....	28



8.7	Staffing and Funding.....	28
8.8	Priorities and Measurable Goals.....	29
9.0	POLLUTION PREVENTION AND GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS	
9.1	Introduction.....	30
9.2	Municipal Stormwater Facilities and Programs.....	30
9.2.1	Regional Stormwater Facilities	31
9.2.2	Roadway Stormwater Facilities.....	31
9.2.3	Spokane County Decant Facility.....	33
9.2.4	Stormwater Facilities at Parks and Other County-Owned Properties.....	33
9.2.4.1	Parks and Open Spaces.....	33
9.2.4.2	Vehicle Fleets, Heavy Equipment Storage Areas, and Maintenance Areas.....	34
9.2.4.3	Municipal Buildings.....	34
9.2.4.4	Material Storage.....	35
9.2.4.5	Industrial Activities and Other Public Facilities.....	35
9.3	Construction Projects.....	35
9.4	Spokane County Employee Education and Training.....	35
9.4.1	Objectives for Spokane County Employee Education and Training.....	36
9.4.2	Employee Education and Training Activities.....	36
9.5	Staffing and Funding.....	36
9.6	Priorities and Measurable Goals.....	37



10.0	TOTAL MAXIMUM DAILY LOAD REQUIREMENTS	
10.1	Introduction.....	39
10.2	Implementation Requirements and Responsibilities.....	39
10.3	Implementation Actions and Activities.....	40
	10.3.1 Appendix 2 – TMDL Monitoring Actions.....	40
	10.3.2 Other Stormwater Management Program (SWMP) Activities	40
10.4	Staffing and Funding.....	41
10.5	Priorities and Measurable Goals.....	41
11.0	EFFECTIVENESS STUDIES	
11.1	Introduction.....	43
11.2	Planning and Development.....	43
11.3	Effectiveness Study Ideas.....	44
11.4	Staffing and Funding.....	47
11.5	Priorities and Measurable Goals.....	48
12.0	SWMP IMPLEMENTATION RESPONSIBILITIES	
12.1	Introduction.....	49
12.2	Implementation Responsibilities.....	49
12.3	Implementation in New Areas.....	49
12.4	Staffing and Funding.....	50
12.5	Priorities and Measurable Goals.....	50



13.0 PRIORITIES AND MEASURABLE GOALS (SUMMARY CHARTS)	
13.1 Stormwater Baseline Data and Maps.....	51
13.2 Public Education and Outreach.....	52
13.3 Public Involvement and Participation.....	53
13.4 Illicit Discharge Detection and Elimination.....	54
13.5 Construction Site Stormwater Runoff Control.....	55
13.6 Post-Construction Site Stormwater Management for New and Redevelopment.....	56
13.7 Pollution Prevention and Good Housekeeping for Municipal Operations.....	57
13.8 Total Maximum Daily Load Requirements.....	59
13.9 Effectiveness Studies.....	60
13.10 Coordination Responsibilities.....	61
14.0 CONCLUSION.....	62
APPENDIX A – ACRONYMS.....	63
APPENDIX B – DEFINITIONS.....	64
APPENDIX C – MS4 MAPS and PROGRAM DATA.....	68
APPENDIX D – ANSWER TO QUESTION 15b, MS4 ANNUAL REPORT (PHASE II – EASTERN WASHINGTON).....	76
APPENDIX E – DECANT FACILITY O&M PLAN.....	82
APPENDIX F – DECANT FACILITY TRAINING SIGN-IN SHEET.....	96



SECTION 1 – INTRODUCTION

1.1 History

The United States Environmental Protection Agency (EPA) considers pollution from all diffuse sources, including urban stormwater pollution, to be the most important source of contamination in our nation's waters. Runoff pollution occurs every time rain or snowmelt flows across the ground and picks up contaminants.

This Stormwater Management Program (SWMP) focuses on runoff pollution from developed areas, which occurs when stormwater carries away a wide variety of contaminants as it runs across rooftops, roads, parking lots, baseball diamonds, construction sites, golf courses, lawns, and other surfaces. A majority of Spokane County's population lives in urbanized areas where the water resources are highly vulnerable to degradation from urban runoff.



Figure 1. Spangle Creek (circa 1930's)

Urban stormwater continues to impair the nation's waterways, 29 years after passage in 1972 of the law now known as the Clean Water Act. The main reason urban stormwater remains such an important contributor to water pollution is the fact that in most areas, stormwater receives no treatment before entering waterbodies.

Over the past three decades, national and local water pollution control efforts have focused primarily on certain process water discharges from facilities such as factories and sewage treatment plants, with less emphasis on diffuse sources. While these efforts have led to many water quality improvements, new efforts are now needed to address the remaining sources of water pollution, including urban runoff pollution.

On December 8, 1999, the EPA promulgated a rule requiring smaller municipalities, those with populations of fewer than 100,000 people located in urbanized areas (where population density is greater than 1,000 persons per square mile), to develop a Stormwater Management Program that addresses stormwater pollution runoff that enters

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surface waters. In Washington, EPA’s smaller municipality rule is directed to local jurisdictions through the National Pollution Discharge Elimination System (NPDES) – Phase II Permits that are under the direction of the Department of Ecology.

Spokane County (County) was issued coverage under the *Eastern Washington Phase II Municipal Stormwater Permit* (Permit), Permit No. WAR 04-6506, effective February 16, 2007, for Permit cycle 2007-2014, and again on August 1, 2014, for Permit cycle 2014-2019. The Permit states, “All Counties shall develop and implement a *Stormwater Management Program* (SWMP) during the term of this permit.” The Permit primarily addresses stormwater discharges to surface waters. Stormwater that is directed to underground injection control (UIC) wells is regulated under the State of Washington’s, Underground Injection Control Program, and therefore is not addressed within the SWMP.

The following Stormwater Management Program is designed to meet Spokane County’s Permit obligations.

1.2 Purpose

The purpose of this SWMP is to describe the programs, practices, and responsibilities adopted by the County to manage the municipal separate storm sewer system (MS4) in implementing the requirements of the Permit.

The SWMP describes the activities that will be performed to comply with Permit conditions, provides measurable goals for key activities, and outlines staffing and funding responsibilities for the County. On August 1, 2014, the new Eastern Washington Phase II Municipal Stormwater Permit became effective. The SWMP will apply to the 5-year duration of the current Permit cycle (expiring July 31, 2019), furthering the County’s long-term program to reduce pollutants discharged to Waters of the State.

Annual updates to the SWMP will be provided to encourage public involvement, hear public comment, to address necessary revisions in program elements, and to provide for necessary revisions as conditions change within the Permit.

1.3 Authorization

This SWMP was prepared by the Spokane County, Engineering and Roads - Stormwater Utility.



1.4 Area of Coverage

The area of coverage is defined in paragraph S1 of the municipal Permit:

“For all Counties required to obtain coverage under this permit, the geographic area of coverage is the urbanized areas and the urban growth areas associated with Cities within the urbanized areas that are under the jurisdictional control of the County. The geographic area of coverage also includes any urban growth areas that are contiguous to urbanized areas that are under the jurisdictional control of the County.”

The focus is on the discharge of municipal stormwater runoff into the waters of the U.S. and waters of the state as described within the Permit. Consistent with this focus, the activities described in the SWMP will be conducted within the urban growth areas of Spokane County. See *APPENDIX C – MS4 Maps and Program Data* for a detailed Spokane County map of the initial Permit boundary covered by this permit, as well as the current Stormwater Service Area (SWSA) boundary.

The City of Spokane and the City of Spokane Valley are also subject to the Permit issued by Ecology and are developing their own processes of compliance with that permit. Spokane County will be coordinating with these jurisdictions and other agencies on various elements of the SWMP, particularly on the Public Education tasks.

1.5 Period of Performance

This SWMP applies to the 5-year effective period of the municipal Permit, valid from August 1, 2014, to July 31, 2019. The SWMP refers to Permit Years specifying when various activities are scheduled to occur. Permit Years are defined as follows:

Permit Year 1 – August 1, 2014 to July 31, 2015
Permit Year 2 – August 1, 2015 to July 31, 2016
Permit Year 3 – August 1, 2016 to July 31, 2017
Permit Year 4 – August 1, 2017 to July 31, 2018
Permit Year 5 – August 1, 2018 to July 31, 2019

In addition, the Permit also requires annual reports that are subject to the following “reporting periods”:

Annual Report, Year 1 – January 1, 2015 to December 31, 2015
Annual Report, Year 2 – January 1, 2016 to December 31, 2016
Annual Report, Year 3 – January 1, 2017 to December 31, 2017
Annual Report, Year 4 – January 1, 2018 to December 31, 2018
Annual Report, Year 5 – January 1, 2019 to July 31, 2019



1.6 Public Process

The SWMP is continually available for public comment on the Spokane County website (www.spokanecounty.org/stormwater). Prior to each year's deadline for the annual report, the SWMP will be evaluated and updated in response to public comments received.

1.7 Stormwater Management Program Permit Requirements

There are six (6) basic elements described within the Permit that make up the heart of the SWMP. Those elements are as follows:

- 1) Public Education and Outreach;
- 2) Public Involvement and Participation;
- 3) Illicit Discharge Detection and Elimination;
- 4) Construction Site Stormwater Runoff Control;
- 5) Post-Construction Stormwater Management for New Development and Redevelopment; and
- 6) Pollution Prevention and Good Housekeeping for Municipal Operations.

1.8 Spokane County Stormwater Management Program, Sections

The SWMP components are described within the following Sections of this document:

- Section 2.0 – Legal Authority
- Section 3.0 – Baseline Data and Maps
- Section 4.0 – Public Education and Outreach
- Section 5.0 – Public Involvement and Participation
- Section 6.0 – Illicit Discharge Detection and Elimination
- Section 7.0 – Construction Site Stormwater Runoff Control
- Section 8.0 – Post-construction Stormwater Management for New Development and Redevelopment
- Section 9.0 – Pollution Prevention and Good Housekeeping for Municipal Operations
- Section 10.0 – Effectiveness Studies
- Section 11.0 – Total Maximum Daily Load Requirements
- Section 12.0 – SWMP Coordination Responsibilities
- Section 13.0 – Priorities and Measurable Goals (Summary Charts)



SECTION 2 – LEGAL AUTHORITY

2.1 Introduction

This section addresses the Eastern Washington Phase II Municipal Permit (Permit) requirements dealing with legal authority of the County to implement the various aspects of the proposed Stormwater Management Program (SWMP). The objective is to provide documentation that the County either currently has adequate legal authority to conduct all necessary activities, or has a plan for obtaining that authority.



Figure 2. Chester Creek (circa 1980)

2.2 Existing Legal Authority

The Spokane County Stormwater Utility was formed in 1992 to prepare and implement stormwater basin management plans. The Utility is funded through stormwater service charges based on impervious coverage on developed parcels.

On January 17, 2006, the Board of County Commissioners adopted the *Comprehensive Stormwater Management Plan* (CSWMP) along with individual stormwater plans for Glenrose, North Spokane, and West Plains and their associated Capital Improvement Plans. Each of the individual basin plans emphasizes protecting natural drainage features as the most cost effective means of handling stormwater over the long term.

In addition, Spokane County has implemented flood controls through Title 3, Buildings and Structures, Chapter 3.20, Flood Damage Protection, a comprehensive flood control ordinance that manages development within floodplain zones in compliance with the National Flood Insurance Program (NFIP).

Spokane County has adopted engineering design standards and BMPs that are described within the *Spokane Regional Stormwater Manual* (SRSM). The SRSM was approved by the Board of Commissioners on April 15, 2008, and officially became law on June 1, 2008. The SRSM replaces the *Spokane County - Guidelines for Stormwater Management.*”

In addition to the requirements within the SRSM, the following chapters of the existing Spokane County Code address stormwater requirements: 1) Chapter 9.14, Roads, Approach and Drainage in New Construction; 2) Chapter 12.400 Subdivisions; and 3) Chapter 14.802.060, Parking Lot Location and Design.

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Spokane County Code, Title 8, Health and Sanitation Code, Chapter 8.03, Sanitary Sewer Code, includes various sections that address illicit discharges within Spokane County. The primary relevant sections include: 8.03.1570 POTW; 8.03.1710 Private Storm Sewer; 8.03.1730 Prohibited Discharge Standards or Prohibited Discharges; 8.03.1750 Public Sewer; 8.03.1830 Sewer; 8.03.1990 Stormwater; 8.03.2010 Storm Sewer or Storm Drain; 8.03.3200 Prohibited Uses of Sanitary Sewer; 8.03.3220 Use of Storm Sewers--Combined Sewers--Natural Outlets; 8.03.3260 Obstructing Sewer Prohibited; 8.03.3300 Unauthorized Connection to Public Sewers; 8.03.3240 Prohibited Uses--Public Sewers; 8.03.4040 Prohibited Discharge Standards--General Prohibitions; 8.03.4060 Prohibited Discharge Standards--Specific Prohibitions.

Spokane County Code, Title 8, Health and Sanitation Code, Chapter 8.26, Litter and Discriminate Dumping, includes various sections that are relevant to protecting the integrity of stormwater and other surface waters, such as Section 8.26.020, Litter in General, which addresses the disposal of litter upon any public place or private property, or within any waters in Spokane County. This Chapter also addresses notice of violation, enforcement, and penalty.

Spokane County Code, Chapter 8.60.030 Oil Sellers--Educational Responsibilities, requires sellers of lubricating oil to do the following: 1) post educational materials that describe the importance of used oil recycling and how and where used oil may be recycled; and 2) provide for the sale of reusable used oil containers.

In 2008, County staff evaluated current regulations relating to illicit discharge detection and elimination. The results of the investigation concluded that County Code, although covering many aspects of the illicit discharge detection and elimination components of the Permit, fell short of meeting all requirements. As a result, draft amendments to Spokane County Code, Chapter 9.14, Roads, Approach and Drainage in New Construction, were developed and approved (Resolution No. 09-0672). The illicit discharge regulations address the following:

- Prohibit illicit discharges to the municipal separate storm sewer system;
- Control spills, dumping or disposal of materials other than stormwater to the storm sewer system;
- Require compliance with conditions in ordinances related to stormwater discharges;
- Carry out inspection and monitoring procedures necessary to determine compliance with the prohibition on illicit discharges to the storm sewer system; and
- Provide regulations guiding inspection, enforcement, and penalty.

In 2013, the Eastern Washington Low Impact Development (LID) Guidance Manual was developed as a supplemental guidance for the design, construction, and maintenance of LID stormwater Best Management Practices (BMPs). This manual was a regional effort



led by the County in conjunction with many Eastern Washington municipalities, including the Washington Stormwater Center, Ecology, and regional LID experts.

The County has yet to formally adopt the manual as part of Spokane County Code. While LID practices remain optional in Eastern Washington, they are encouraged in Spokane County. The Manual provides an understanding of LID practices applicable in Eastern Washington, in addition to design guidance that both developers and the County can follow.

2.3 Additional Required Legal Authority

If the review of current regulations and ordinances identifies additional deficiencies in the ability to implement SWMP programs, a plan for addressing those deficiencies will be developed.



SECTION 3 – STORMWATER BASELINE DATA AND MAPS

3.1 Introduction

An initial task (special provision S5.B of the Permit) is to gather information about the County’s storm drainage infrastructure. Most stormwater runoff in unincorporated Spokane County is discharged into the ground, either via natural infiltration or through drywells. In many areas, the local geology, including the gravel soils that lie over the Spokane Valley Rathdrum Prairie (SVRP) aquifer, allows stormwater to infiltrate rapidly into the ground.

Unincorporated Spokane County has developed without an extensive system of storm sewers. Much of the runoff discharged into the ground recharges the aquifer which has an interchange of flows with both the Spokane River and the Little Spokane River. Providing a comprehensive approach to inventorying the County’s stormwater system requires combining an inventory of any municipal discharges to surface waters with an inventory of County facilities that discharge stormwater into the ground.

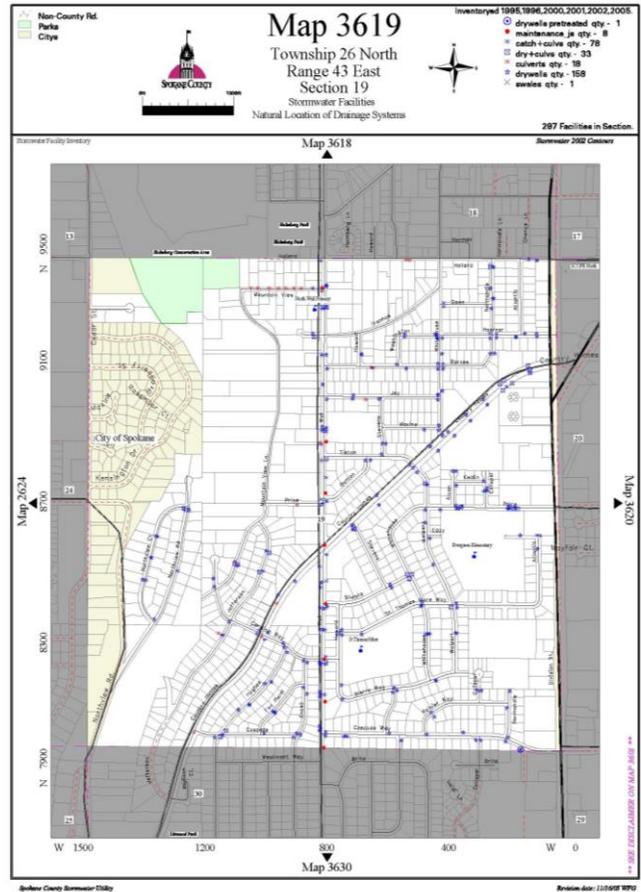


Figure 3. Example Stormwater Facilities Infrastructure Map

This SWMP is focusing on meeting the requirements of the Permit. At the same time, Spokane County is administering a separate program to meet the requirements of the State’s Underground Injection Control (UIC) program. The municipal separate storm sewer system (MS4) in Spokane County is comprised of roads with ditches, culverts, curbs, bridge drains, swales, detention ponds, and piping systems that direct stormwater into a surface waterbody such as a DNR stream, river, wetland, pond, lake, etc.

A stormwater system map for the Permit area of unincorporated Spokane County has been prepared and is being continually updated. This map is invaluable to the various departments within the County, the public, regulatory agencies, and others by documenting the stormwater system and in determining where potential stormwater



quality problems may exist or originate. The initial stormwater system map is based on field work conducted regularly within the Stormwater Service Area since the Stormwater Utility's inception in 1992.

3.2 Previous Permit Cycle Actions

The basemaps prepared during the previous Permit cycle (February 2007 – July 2014) were developed from existing stormwater data layers developed over many years of the Stormwater Utility's past work activities. Data layers include facilities such as: catch basins, swales, roadside ditches, drywells, inlets, etc. The maps show the locations of major regional stormwater drainage and collection systems, stormwater control facilities and other relevant information.

During the previous permit cycle, outfall inventory analysis and field investigations were conducted. Subsequently, maps of the existing regional storm drainage system were also prepared to document locations and contributing areas of major outfalls. The maps include underground injection wells and Spokane County detention and retention ponds located within the Permit boundary. As new information is gathered and developed, GIS data is reviewed and updated on an annual basis.

3.3 Current Permit Cycle Actions

In 2015, the Spokane County Stormwater Utility began development of an internet-based facility inventory application. Working with GIS data from previous years' as a starting point, this new application allowed field crews to inspect and perform maintenance to stormwater facilities, updating old data in real time.

Temporary summer crews were hired and trained to inspect 100% of the facilities within the County's MS4. Using internet-connected tablets, GIS software, and GPS equipment, data was collected which assessed drywells, catch basins, swales, and culverts.

This data has provided a crucial baseline date for continued inspections and maintenance. Analysis of the data will provide information on facilities that may require more attention, need to be more frequently cleaned, and/or must be put on schedule for repair. The data may also demonstrate the need for fine-tuning the program, or development of an alternate system altogether. By color-coding each inspected stormwater structure according to condition, facilities and/or cluster areas that need attention are quickly identified, resulting in improved efficiency and cost savings for the County.

The following maps and programs have been developed by the Stormwater Utility:

- (a) Permit jurisdictional area map;
- (b) Permit areas in relation to the Stormwater Service Area;
- (c) Permit area in relation to the Spokane Valley-Rathdrum Prairie aquifer;



- (d) Stormwater conveyance and collection infrastructure systems (i.e., outfalls, UIC wells, detention and retention ponds, etc.);
- (e) Public facilities within the Permit area (parks and open spaces, public buildings, material storage, County shops, etc.);
- (f) Natural Drainage areas and contours (i.e., streams, rivers, lakes, ponds, etc.);
- (g) Regional watersheds;
- (h) County rights-of-way within the Permit boundary;
- (i) Public road systems within the Permit area; and
- (j) Stormwater Facility Inventory and Maintenance Tracking Application.

These maps and programs will also be useful in discovering and documenting illicit discharges. Each year, the maps will be continue to be updated with new information. Additional GIS coverages and maps will be identified and developed throughout the life of the current Permit. See *APPENDIX C – MS4 Maps and Program Data* for additional stormwater basemaps and snapshots of the new Stormwater Facility Inventory Tracking Application.

3.4 Staffing and Funding

Funding for the stormwater system infrastructure map will be provided by the Spokane County Stormwater Utility. In addition, staffing for map preparation will be provided by the Spokane County Stormwater Utility.

3.5 Priorities and Measurable Goals

Activities in this category were or will be conducted, as defined below:

Completed by	Measurable Goals/Milestones
End of Permit Year 1 (July 31, 2015)	<ul style="list-style-type: none"> • Begin preparing new MS4 basemaps • Update MS4 outfall coverage, incorporating data from 2015 field investigations • Update infrastructure maps for new public facilities and activities, as necessary
End of Permit Year 2 (July 31, 2016)	<ul style="list-style-type: none"> • Continue implementing previous year’s permit requirements
End of Permit Year 3 (July 31, 2017)	<ul style="list-style-type: none"> • Continue implementing previous year’s permit requirements
End of Permit Year 4 (July 31, 2018)	<ul style="list-style-type: none"> • Continue implementing previous year’s permit requirements
End of Permit Year 5 (July 31, 2019)	<ul style="list-style-type: none"> • Continue implementing previous year’s permit requirements



SECTION 4 – PUBLIC EDUCATION AND OUTREACH

4.1 Introduction

This Section describes the public education and outreach activities used by the County in response to the Permit requirements for such a program (special provision S5.B.1). The rationale for the program is to inform the general public about the importance of stormwater quality, and to influence behavior in a way that benefits water quality within the region. Activities were selected to take advantage of existing programs, and to target specific water quality problems and audiences that are important in Spokane County.



Figure 4. Soils and Geology Educational Tour (2004)

4.2 Public Education and Outreach Program Elements

4.2.1 Objectives for Public Education and Outreach

The overall objectives of the Public Education and Outreach Program include:

- (a) Inform the general public in Spokane County about important water quality issues related to stormwater runoff;
- (b) Inform businesses and the general public about the need to prevent illicit discharges;
- (c) Inform engineers, construction contractors, developers, development review staff and land use planners about technical standards, the development of stormwater site plans, erosion control plans, and stormwater *Best Management Practices* (BMPs) for reducing adverse impacts of stormwater runoff from development sites; and
- (d) Influence behavior of the general public, businesses, and those involved in the land development sector to reduce activities that have a negative impact on stormwater runoff quality and increase activities that have a positive impact on stormwater runoff quality.

Spokane County Public Works

**Division of Engineering and Roads
Stormwater Utility**

1026 West Broadway Avenue, Spokane, WA 99260
509-477-3600 Main / 509-477-7655 Fax



4.2.2 Public Education and Outreach Activities

Spokane County continues to work individually and, where mutually beneficial, with the Cities of Spokane and Spokane Valley to develop public education and outreach programs. Activities include, but are not limited to:

- (a) **Community Events:** The County will continue to use community events related to environmental awareness and regional water issues as opportunities for education and outreach (e.g., Spokane County Interstate Fair, Earth Day, etc.). Booths will be staffed by County employees, who will hand out informational materials and answer questions.
- (b) **Media Materials:** The County will evaluate the production or distribution of media materials to disseminate public education and outreach information. Media materials may include: (1) programs for local public television including general information on stormwater quality issues; and (2) public service announcements or commercials for targeted messages and audiences.
- (c) **Printed Materials:** The County will continue to develop, produce, and distribute printed materials for specific topics related to stormwater quality (e.g., brochures, flyers, activity books, promotional items, etc.). Older printed materials will be updated, as necessary.
- (d) **Grants:** The County will continue to pursue opportunities for obtaining grants and loans through Ecology for specific projects addressing stormwater quality issues, public education and outreach, and low impact development projects. This will be done in cooperation with state and/or local Permitted jurisdictions, as well as other regional planning and management agencies.
- (e) **Website:** The County will continue to enhance, maintain, and update the existing Spokane County website, to provide information to the public on stormwater permitting, water quality issues, BMPs, and links to other related websites.
- (f) **School Programs:** The County will continue to conduct outreach activities in public schools around Spokane County to promote awareness of water quality issues, pollution prevention, and basic watershed principles.
- (g) **Involvement in Other Organizations:** The County will continue to be active in regional and local organizations that promote interagency cooperation and, in particular, those that have education and outreach functions.
- (h) **Construction Program:** The County will continue education and outreach activities targeting construction industry organizations (developers, contractors, engineers, surveyors, etc.) about technical standards, development of stormwater site plans and erosion control plans, and BMPs for reducing adverse impacts from development sites. When



opportunities become available, Spokane County will work through professional engineering and land planning groups to provide education regarding compliance with the Spokane Regional Stormwater Manual and with other Permit requirements.

- (i) **Illicit Discharge Program:** The County will continue to provide information to businesses and the general public about illicit discharges – what they are and how to prevent them – and encourage proper management and disposal of toxic materials.
- (j) **Stormwater Facilities:** The County will continue to construct and maintain interpretive signage at regional stormwater facilities and demonstration swales to explain the meaning of watersheds, and the value of using natural stormwater systems to control and treat runoff. Where possible, stormwater facilities will include opportunities for hands-on education about wetlands, the stormwater cycle, and the value of clean water (i.e., holding native planting days, poster/signage design contests, etc.).

4.3 Staffing and Funding

The annual budgets of the Spokane County Stormwater Utility, Water Resources Department, and Regional Solid Waste System fund public education and outreach programs related to water quality and pollution prevention. Funds are used for staff time, producing printed material and other education and outreach materials, and for assisting in developing long-term education and outreach strategies and methods.

4.4 Priorities and Measurable Goals

Spokane County Stormwater Utility continues to implement existing public outreach and education programs in and around the community, among various internal County departments, and in cooperation with neighboring jurisdictions and cities. See also *Section 13.2 - SWMP Public Education and Outreach Priorities and Measurable Goals* for detailed list of activities and 5-year plan.

SECTION 5 – PUBLIC INVOLVEMENT AND PARTICIPATION

5.1 Introduction

In meeting the requirements of the Permit, Spokane County intends to integrate the stormwater management program as much as possible into existing programs and activities. Spokane County has, under the State’s Growth Management Act, adopted the *Public Participation Program Guidelines (PPPG)* which describes procedures to ensure a wide range of opportunities for public participation in land use decisions.



Figure 5. Storm Drain Stenciling (2012)

The County will use the PPPG to ensure ongoing opportunities for public involvement and participation in the development and update of stormwater-related codes. This Section describes the public involvement and participation activities to be used to meet the municipal permit requirements for such a program (S5.B.2).

5.2 Public Involvement and Participation Program Elements

5.2.1 Objectives for Public Involvement and Participation

The overall objectives of the Public Involvement and Participation Program are to:

- (a) Provide opportunities for public participation in the decision-making processes related to development of stormwater management plans and regulations;
- (b) Ensure the public has opportunities to participate in activities and discussions that will mold and guide the local stormwater management program; and,
- (c) Make the SWMP Plan Annual Report available online for public review and comment.



5.2.2 Public Involvement and Participation Activities

Spokane County continues to provide public involvement and participation opportunities, including the following:

- (a) **Public Meetings and Workshops:** Spokane County will continue to engage the public in decision-making processes including, but not limited to, code updates, plan amendments, capital construction project proposals, and public meetings and workshops. Public meetings and workshops will be conducted according to State and local public participation and noticing guidelines.
- (b) **Stormwater Questionnaire:** During the previous Permit cycle (February 2007 – July 2014), the SWU conducted a randomly distributed public survey to gauge the level of the public’s knowledge on stormwater related pollution sources, concerns, issues, and to begin to gain an understanding of where future education efforts should be focused towards. A follow-up survey to evaluate the effectiveness of stormwater education efforts will be conducted at a date to be determined within the current Permit cycle (August 2014 – July 2019).
- (c) **Storm Drain Stenciling Program:** The County will continue to sponsor a storm drain stenciling program to be implemented by local volunteer groups.
- (d) **Watershed Planting Events:** The County will provide opportunities for the public to participate in native planting events at stormwater facilities, where possible.
- (e) **Website:** In addition to maintaining and updating the website content, the County will continue to provide an online comment form where the public can share feedback and/or submit questions regarding the Stormwater Utility’s programs.
- (f) **Illicit Discharge Detection and Elimination (IDDE) Hotline:** The County will continue to operate an Illicit Discharge Detection and Elimination (IDDE) hotline for the public to report spills and other suspected illicit discharge activities.
- (g) **SWMP and Annual Report:** The SWMP and Annual Report will continue to be available for review and/or download on the Spokane County webpage, where public comment is encouraged.

5.3 Staffing and Funding

Following the adopted guidelines and creating ongoing opportunities for involvement in stormwater management activities is, and will continue to be, a part of doing business at Spokane County. Funding and staffing for public participation work are part of the operations of the Stormwater Utility and other County departments.



5.4 Priorities and Measurable Goals

Spokane County Stormwater Utility continues to provide the aforementioned public involvement and participation opportunities. Additionally, make the SWMP Plan available for public review and comment on the Spokane County website. See also *Section 13.3 - SWMP Public Involvement and Participation Priorities and Measurable Goals* for detailed list of activities and 5-year plan.



SECTION 6 – ILLICIT DISCHARGE DETECTION AND ELIMINATION

6.1 Introduction

This Section describes the elements of the Illicit Discharge Detection and Elimination (IDDE) Program required by the Permit in paragraph S5.B.3. This element may be somewhat difficult for Spokane County to define clearly since the County does not have an extensive stormwater pipe system. As previously discussed in Section 3.1, most stormwater, including that conveyed by gutters or ditches in unincorporated Spokane County, is discharged into the ground, either via natural infiltration or through drywells. In many areas, the geology above the SVRP aquifer allows for rapid stormwater infiltration. Therefore, opportunities for stormwater monitoring are limited.



Figure 6. Motor Oil Entering Parking Lot Storm Drain

Illicit discharge program elements focus on evaluating the existing stormwater system and potential non-stormwater discharges into the system to determine illicit discharge issues and future water quality monitoring sites.

In late 2009, the County began the process of developing an IDDE Guidance Manual (GM) that defines the procedures for locating, assessing, characterizing, tracing, and ending illicit discharges, as per Section S5.B.3.c. of the Permit. The GM also aids in guiding field assessments on three high priority water bodies (i.e., Spokane River, Little Spokane River, Liberty Lake, etc.). The IDDE Guidance Manual was completed in 2010, and has since been shared with other Eastern Washington Phase II Permittees.

6.2 Illicit Discharge Data and Mapping

The County has developed and will continue to update MS4 maps showing the following: known and new connections; outfalls; names and locations of all Waters of the State that receive discharges from those outfalls; and, areas served by discharges to the ground.

Illicit discharge-related maps are described in Section 3 – Stormwater Baseline Data and Maps.



6.3 Non-Stormwater Discharges

Spokane County Code, Chapter 9.14.215 Roads, Approach, and Drainage in New Construction, Discharge of Unauthorized Waters – Prohibited, historically prohibited the discharge of unauthorized waters onto County property or rights-of-way. Unauthorized waters include, but are not limited to, groundwater; surface water containing sediment; discharges from swimming pools and hot tubs; discharges to detention or evaporation ponds; water discharged from the cleaning of containers or equipment used in laying, cutting or processing concrete and mortar; and water discharged from the cleaning of equipment or containers holding paint solvents or similar contaminants. The Code also requires control of pollutants on construction sites in a manner that does not cause contamination of stormwater or groundwater.

Spokane County non-stormwater discharges are described in Spokane County Code, Section 9.14.185 Erosion and Sediment Control, as well as in the Spokane Regional Stormwater Manual (SRSM).

Additionally, the County also went through an extensive public review process, and adopted code revisions to Chapter 9.14.215, that address all IDDE Permit requirements. This code amendment (Resolution 09-0672) was formally adopted by the Spokane County Commissioners on July 21, 2009.

Finally, Spokane County Code, Title 8, Health and Sanitation Code, Chapter 8.03 Sanitary Sewer Code, includes various sections that address illicit discharges within Spokane County’s Municipal Separate Storm Sewer System (MS4). See *Section 2.2 – Existing Legal Authority*, for a detailed list of primarily relevant sections.

6.4 Visual Inspection Program Elements

Municipal Separate Storm Sewer Systems (MS4s) are periodically inspected for evidence of non-stormwater discharges by visually observing open channel sections.

Emphasis includes those areas that, based on the results of visual inspections or other appropriate information, indicate a reasonable potential of containing illicit discharges, infiltration from the sanitary sewer system, or other sources of non-stormwater discharges. Inspections are performed by Stormwater Utility staff who will continue working with landowners to correct the problems.

Spokane County Road Maintenance Dept. staff are also trained to look for evidence of non-stormwater discharges to the drainage system during their normal duties. A procedure for reporting potential problems is included with the existing *Hotline* and *Request for Investigation* processes currently utilized by the County.



6.5 Spill Prevention and Response Program Elements

Hazardous spill prevention and response programs and procedures are in place through the fire department, emergency management, and/or contracts with special emergency response contractors. These programs and procedures are designed to address safe storage, handling, containment, and cleanup of hazardous substances that have the potential to contaminate surface or ground water.

6.6 Public Reporting Program Elements

Public reporting of illicit discharges or other water quality problems is currently available through the following avenues:

- (a) Stormwater Hotline;
- (b) Calls to Spokane County Public Works;
- (c) Emails via Spokane County website;
- (d) Calls to Spokane County Health District; and
- (e) Calls directly to the Department of Ecology.

Spokane County continues to maintain an IDDE “Hotline” (509-477-7525), developed during the previous permit cycle, and follows an established process for investigating calls. Additionally, informational inserts describing the Hotline and its purpose have been disseminated to County residents along with County utility billing mailings.

6.7 Hazardous Waste Disposal Program Elements

The Spokane Regional Solid Waste System (System) was created by an Interlocal Agreement between Spokane County and the City of Spokane on October 11, 1988. All ten of the existing regional cities and towns, as well as Fairchild Air Force Base, subsequently joined the System by executing interlocal agreements with the City and

County of Spokane. In 2003, the newly incorporated cities of Liberty Lake and Spokane Valley also executed interlocal agreements and joined the System.

On November 17, 2014, a new interlocal agreement was initiated. Under said agreement, ownership and management of the region’s Solid Waste System was transferred from the City of Spokane to Spokane County, under the new name *Spokane County Regional Solid Waste System* (System). The exception to this transfer was the ownership of the Waste-to-Energy facility and the Northside Landfill, which are both retained by the City of Spokane with the understanding that Spokane County directs waste flow from the transfer stations to the Waste-to-Energy facility.

The County is now responsible for providing the framework for solid waste disposal, recycling, and educational outreach (which includes the household hazardous waste



pollution prevention program) within unincorporated Spokane County and System member jurisdictions. The Spokane County Comprehensive Solid Waste Management Plan will guide the solid waste decisions and activities of the System.

Spokane County Code, Title 8, Health and Sanitation Code, Chapter 8.26 Litter and Discriminate Dumping, Litter in General, addresses the disposition of litter upon any public place or private property, or within any waters in Spokane County. See *Section 2.2 – Existing Legal Authority*, for additional details.

6.8 High-Priority Waterbody Assessment

Throughout the previous Permit cycle, the County conducted numerous field investigations in an effort to identify outfalls and illicit discharges to three (3) high-priority water bodies, including; portions of the Spokane River, Silver Lake, and Liberty Lake.

Additionally, the County continually assesses existing outfalls to systematically prioritize and implement BMP retrofit opportunities. One such opportunity, the Liberty Lake Outfall Elimination Project, funded by Ecology (G1400499) and completed by June 2015, removed three pipe connections from the right-of-way that flowed directly into Liberty Lake.

Each year, the County continues to conduct field investigations of high-priority water bodies.

6.9 Staffing and Funding

Staffing and funding for the illicit discharge and elimination system program elements will be provided by Spokane County, and with assistance from Ecology, where available.



6.10 Priorities and Measurable Goals

Specific “Illicit Discharge Detection and Elimination” measurable goals are outlined below:

Completed by	Measurable Goals/Milestones
End of Permit Year 1 (July 31, 2015)	<ul style="list-style-type: none"> • Conduct field inspections of MS4 • Accomplish inspections of at least 40% of MS4 by December 31, 2018 • Continue to identify and eliminate illicit connections and outfalls identified in the County’s MS4 • Pursue opportunities to obtain grants and loans through Ecology for outfall elimination projects, where possible • Continue inspections of non-stormwater discharge sites, and require property owners to eliminate the cause • Maintain and update database of illicit connections and non-stormwater discharge sites • Continue to train field crews and maintenance staff on the IDDE Program • Update training materials for field crews and maintenance staff, as needed • Continue informing public and businesses of hazards associated with illicit discharges and improper disposal of waste (see <i>APPENDIX D – Answer to Question 15b, MS4 Annual Report</i> for 2015 activities) • Continue storm drain stenciling program • Maintain IDDE Hotline, and respond to non-stormwater discharge complaints • Update MS4 basemaps and outfall coverage (see <i>Section 3 – Stormwater Baseline Data and Maps</i>)
End of Permit Year 2 (July 31, 2016)	<ul style="list-style-type: none"> • Continue implementing previous year’s Permit requirements
End of Permit Year 3 (July 31, 2017)	<ul style="list-style-type: none"> • Continue implementing previous year’s Permit requirements
End of Permit Year 4 (July 31, 2018)	<ul style="list-style-type: none"> • Continue implementing previous year’s Permit requirements
End of Permit Year 5 (July 31, 2019)	<ul style="list-style-type: none"> • Increase MS4 inspection frequency to at least 12% every year • Update IDDE Guidance Manual and Spokane County Code (Chapter 9.14), as necessary • Continue implementing previous year’s other Permit requirements



SECTION 7 – CONSTRUCTION SITE STORMWATER RUNOFF CONTROL

7.1 Introduction

Spokane County has included, within the site plan review permitting process for new construction, notification to applicants regarding the criteria and potential need for coverage under Ecology’s NPDES Construction Permit. This Section describes the construction site engineering design standards and best management practice (BMP) program required by S5.B.4 of the municipal Permit. Construction activity has been singled out by EPA as a potential source of pollutants that require special permitting attention.



Figure 7. Construction Site Stormwater Runoff

Also, within the development review process the public is advised that proposed development projects need to comply with the standards described within the Spokane Regional Stormwater Manual (SRSM), including the erosion and sediment control plan requirements during construction.

The proposed program includes activities intended to provide guidance to public and private groups in Spokane County regarding appropriate construction practices, as well as activities intended to support Ecology in implementing its construction permitting program.

7.2 NPDES Construction Stormwater Permit - Ecology

Any construction projects disturbing one (1) acre or more of ground, or construction projects of less than one acre that are part of a common plan of development or sale shall receive a NPDES Construction Stormwater Permit from Ecology prior to beginning any construction activities.

7.3 Spokane Regional Stormwater Manual

In 1980, Spokane County Commissioners approved Resolution No. 80-1592, which included the *Guidelines for Stormwater Management* (GSM). The GSM was prepared to provide engineers and developers information regarding drainage requirements for land development in Spokane County. This document has been amended over the years, as



needed, to include updates such as the adoption of an “Erosion and Sediment Control” Section in April 1998.

The GSM was replaced by the *Spokane Regional Stormwater Manual (SRSM)*, adopted by the Board of County Commissioners in June 2008. The SRSM has been accepted by Ecology as being equivalent to the *Stormwater Management Manual for Eastern Washington (SWMMEW)*.

The SRSM establishes standards for stormwater design and management to protect water quality, natural drainage systems, and downstream/down gradient properties as urban development occurs. The purpose of the SRSM is not only to protect surface and ground water quality, but also to control stormwater runoff and reduce adverse impacts from flooding.

The SRSM describes, or references recommended design criteria for BMPs that will be applied to new development and redevelopment. BMPs include criteria for wetlands, bio-infiltration swales, bio-filtration channels, oil-water separators, emerging technologies, etc.

7.4 Erosion and Sediment Control Plan – General Requirements

In Spokane County, under the SRSM, the Erosion and Sediment Control Plan (ESC Plan) is equivalent (as approved by Ecology) to the Construction Stormwater Pollution Prevention Plan (SWPPP), referenced in Appendix 1 of the Permit. An ESC Plan shall be submitted with each proposed application for development that is proposing to disturb more than one acre of land, and for projects of less than one acre that are part of a common plan of development or sale, as required by the municipal Permit.

Where required, a proposed development must submit an ESC Plan in accordance with the Erosion and Sediment Control Plan requirements described within the SRSM at the time of application to Spokane County.

7.5 Developer Notification Program Elements

When a landowner or developer applies for a land action approval (subdivision, etc.) from the County, the applicant is notified of the need to prepare a drainage plan that meets local and state requirements prior to the actual development of the property. Public notification of “construction program elements” is also part of the Public Education and Outreach efforts described in Section 4.



7.6 Construction Site BMP Elements

Existing construction site engineering design standards and BMPs are described within the *Stormwater Management Manual for Eastern Washington (SWMMEW)* and the *Spokane Regional Stormwater Manual (SRSM)*. Practices recommended for Spokane County are described in detail within these manuals. As current construction practices evolve, BMP designs in one or more of these manuals will be modified and/or updated.

In addition, the following chapters of the Spokane County Code include provisions focusing on stormwater related planning, design, construction and maintenance: 1) Chapter 9.14 Roads, Approach and Drainage in New Construction; 2) Chapter 12.400 Subdivisions; 3) Chapter 14.802.060 Parking Lot Location and Design.

If new or improved BMPs are developed and/or approved by Ecology and included within the SWMMEW, those BMPs will be readily available in Spokane County due to the current language within the SRSM that adopts, by reference, those BMPs approved within the SWMMEW.

7.7 Contractor Education and Training Program Elements

Spokane County will support Ecology in conducting local construction site permit program workshops for developers, contractors, and engineers. This will include providing venues for workshops, handling local logistics, assisting with advertising, and providing staff to assist with workshop activities. Informational links will be provided via the Spokane County website regarding Ecology-sponsored training opportunities for contractors (or via other organizations).

Existing printed outreach and education materials for the construction site management program will continue to be reviewed, evaluated, and updated. Printed outreach and education materials for the construction site management program will be distributed with assistance from Ecology and the EPA. Possible examples include *Construction Site Permit Program*, *How to Prepare an Erosion and Sediment Control Plan (Stormwater Pollution Prevention Plan)*, and *Proper Selection and Installation of Construction Site BMPs*. Printed materials will be distributed to developers and contractors during the land use application process, and will also be available to Ecology and Spokane County staff to distribute at construction sites during field visits.

Spokane County specifies erosion and sediment control and BMP requirements for development and redevelopment to construction site operators through the SRSM, the Planning/Permitting processes, brochures, publications, and via the County website.



7.8 Employee Education and Training Program Elements

Relevant Spokane County staff will receive training on stormwater pollution prevention construction procedures to minimize stormwater pollution from County construction activities. Training will be specific to the various departments' operations and functions. "Refresher" training will be provided to County staff as requested or as needed. See Sections 9.4.1 and 9.4.2 for details about additional employee construction training activities.

Information for construction site operators about Certified Erosion and Sediment Control Lead (CESCL) training is displayed in an interactive calendar compiled by County staff on the Stormwater Utility's website. The CESCL training covers erosion and sediment control topics such as BMPs, how to install and maintain erosion and sediment controls, and how to meet related Ecology requirements.

Additionally, the County employs several engineers and/or field technicians who are CESCL-trained, and tasked to inspect private construction site stormwater controls.

7.9 Staffing and Funding

Spokane County, in coordination with Ecology, will be responsible for preparation of materials and the development of a process for notifying the public, developers and design professionals of construction permitting, inspection, and compliance requirements. Additionally, the Spokane County departments involved with construction permitting and inspection will keep a record of all relevant data, documentation, and information.



7.10 Priorities and Measurable Goals

Existing laws, programs, and procedures will be reviewed and evaluated on an annual basis. Specific “Construction Site Stormwater Runoff Control” measurable goals are outlined below:

Completed by	Measurable Goals/Milestones
End of Permit Year 1 (July 31, 2015)	<ul style="list-style-type: none"> • Continue to review all construction site plans for potential water quality impacts • Provide information to construction site operators on training in methods for erosion and sediment control • Ensure erosion control plans are being implemented and maintained at construction sites • Enforce erosion control at construction sites, where necessary • Review and refine procedures for conducting construction inspections and enforcement, as necessary • Continue recordkeeping of construction and post-construction inspections and enforcement actions • Improve the database for construction permits, inspections, and enforcement, as necessary • Require CESCL training for County engineers and field technicians tasked with inspecting stormwater controls • Update County’s interactive CESCL Calendar, and building permit handouts pertaining to construction site stormwater runoff control, as necessary • Continue to include construction permitting information in public education and outreach efforts
End of Permit Year 2 (July 31, 2016)	<ul style="list-style-type: none"> • Continue implementing previous year’s Permit requirements
End of Permit Year 3 (July 31, 2017)	<ul style="list-style-type: none"> • Continue implementing previous year’s Permit requirements
End of Permit Year 4 (July 31, 2018)	<ul style="list-style-type: none"> • Continue implementing previous year’s Permit requirements
End of Permit Year 5 (July 31, 2019)	<ul style="list-style-type: none"> • Continue implementing previous year’s Permit requirements



SECTION 8 – POST-CONSTRUCTION STORMWATER MANAGEMENT FOR NEW DEVELOPMENT AND REDEVELOPMENT

8.1 Introduction

This Section describes the post-construction stormwater management for new development and redevelopment programs required by S5.B.5 of the municipal Permit.

Post-construction activity has been singled out by EPA as a potential source of pollutants that require special permitting attention. The proposed program includes activities intended to provide for the long term inspection, maintenance and management of stormwater facilities.



Figure 8. Post-Construction Stormwater Drainage Problem

8.2 Post Construction General Requirements

The Spokane Regional Stormwater Manual (SRSW) requires the Erosion and Sediment Control (ESC) Plan, as described within Section 7, to include post-construction review, inspection, and compliance. The ESC Plan is required to be submitted with each proposed application for new development or redevelopment that is proposing to disturb more than one acre of land, and from projects of less than one acre that are part of a common plan of development or sale, as required within the Permit.

Post-construction review, inspection, and compliance requirements are described within the following chapters of the Spokane County Code: 1) Chapter 9.14 Roads, Approach and Drainage in New Construction; and 2) Chapter 12.400 Subdivisions.

8.3 Post-Construction Notification Elements

Public notification of post-construction program elements will continue to be part of the public education and outreach efforts described in Section 4.



8.4 Post-Construction Site Inspection Elements

The County currently reviews all new construction projects located within the Permit jurisdictional boundary within the site plan review process.

The County will continue to work with Ecology to advance a database of “state-permitted” construction sites within the Permit jurisdictional area. The database, combined with Spokane County construction project information and other tools, will be used to identify areas of recent construction projects and to track adverse impacts to surface waters from the projects after completion.

8.5 Education and Training Elements

When possible, Spokane County will work with Ecology and other jurisdictions to conduct post-construction inspection training for County personnel. This will include providing venues for workshops, handling local logistics, assisting with advertising, and providing staff to assist with training activities.

Spokane County provides information to construction site operators through the SRSM, the Planning/Permitting processes, brochures, publications, and on the web-page on erosion and sediment control and BMP requirements for development and redevelopment.

8.6 New Regulatory Mechanisms for Development and Redevelopment

In 2013, the Eastern Washington Low Impact Development (LID) Guidance Manual was developed as a supplemental guidance for the design, construction, and maintenance of LID stormwater Best Management Practices (BMPs). This manual was a regional effort led by Spokane County in conjunction with many Eastern Washington municipalities, including the Washington Stormwater Center, Ecology, and regional LID experts.

The County has yet to formally adopt this manual as part of Spokane County Code. While LID practices remain optional in Eastern Washington, they are encouraged in Spokane County. This Manual provides an understanding of LID practices applicable in Eastern Washington, in addition to design guidance that both developers and the County can follow.

8.7 Staffing and Funding

The various Spokane County departments involved in compliance with the Permit will provide relevant data, documentation, and information to Spokane County Phase II Permit coordinators to support the successful implementation of this Section of the SWMP.



8.8 Priorities and Measurable Goals

The “Post-construction Stormwater Management for New and Redevelopment” measurable goals are outlined below:

Completed by	Measurable Goals/Milestones
End of Permit Year 1 (July 31, 2015)	<ul style="list-style-type: none"> • Continue to include construction and post-construction permitting information in public education and outreach efforts • Continue recordkeeping of construction and post-construction inspections and enforcement actions • Review and modify process for post-construction inspections, enforcement, and recordkeeping, as necessary • Revise existing code relative to post-construction review, inspection, and compliance, as necessary • Begin process to incorporate LID principles and BMPs via ordinance or other regulatory mechanism
End of Permit Year 2 (July 31, 2016)	<ul style="list-style-type: none"> • Continue implementing previous year’s Permit requirements
End of Permit Year 3 (July 31, 2017)	<ul style="list-style-type: none"> • Formally codify the “Eastern Washington LID Guidance Manual” by December 31, 2017 • Revise Spokane County Code to require that certain new and redevelopment projects retain runoff on-site for the 10-year, 24-hour rainfall event or equivalent; otherwise: <ul style="list-style-type: none"> a) Develop and implement criteria to determine when it is infeasible to require new and redevelopment projects to retain runoff on-site for the 10-year, 24-hour rainfall event • Continue implementing previous year’s other Permit requirements
End of Permit Year 4 (July 31, 2018)	<ul style="list-style-type: none"> • Submit one of the following to Ecology by March 31, 2018: <ul style="list-style-type: none"> a) A summary of criteria defining infeasibility of the 10-year, 24-hour rainfall retention on-site requirement for new and redevelopment projects; OR b) A citation for formally adopting, via ordinance or other regulatory mechanism, the infeasibility criteria detailed in the Eastern Washington LID Guidance Manual • Continue implementing previous year’s other Permit requirements
End of Permit Year 5 (July 31, 2019)	<ul style="list-style-type: none"> • Continue implementing previous year’s Permit requirements



SECTION 9 – POLLUTION PREVENTION AND GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS

9.1 Introduction

In coordination with multiple departments, Spokane County has developed a Stormwater Operations and Maintenance (O&M) Plan. This Section describes the various pollution control, good housekeeping, BMPs, and source control measures that will be applied to existing and new public facilities, and operations to mitigate the effects of urbanization on stormwater quality. These practices and measures address the miscellaneous requirements described in special provision S5.B.6 of the Permit.



Figure 9. County Cleaning Storm Drains and Drywells

Specific activities and programs were selected because of their link to existing County activities (e.g., for street and stormwater system maintenance), and their relevance to the Spokane County environment. Emphasis is on enhancing and documenting existing programs and activities.

Many County operations already meet the requirements under the Permit. Therefore, the SWMP for “Good Housekeeping” will primarily be a documentation of existing activities and recommendation/implementation of necessary modifications to reduce pollutants to surface and groundwater. The full Stormwater O&M Plan is available at the office of Engineering and Roads, Department of Stormwater Utility.

9.2 Municipal Stormwater Facilities and Programs

Public stormwater facilities in unincorporated Spokane County fall into three general categories: (1) regional stormwater facilities; (2) facilities that mainly handle road runoff; and, (3) on-site stormwater facilities at county owned parks, maintenance shops, county buildings, parking lots, etc. In several cases, county road crews also maintain stormwater facilities serving a specific development using funds from the owners of the parcels of land within the area served.

In addition, many new developments install on-site stormwater facilities that are owned and maintained privately. For residential developments, this may mean that a homeowners association is responsible for maintenance of all stormwater facilities in the

Spokane County Public Works

**Division of Engineering and Roads
Stormwater Utility**

1026 West Broadway Avenue, Spokane, WA 99260
509-477-3600 Main / 509-477-7655 Fax



neighborhood. For commercial and private industrial facilities, the landowner or operator of the establishment on the site operates and maintains the stormwater facilities.

Spokane County will review the following Public Works O&M activities and document the activities in relation to complying with the Permit.

9.2.1 Regional Stormwater Facilities

On January 17, 2006, the Board of County Commissioners adopted the *Comprehensive Stormwater Management Plan* (CSWMP) along with individual stormwater plans for Glenrose, North Spokane, and West Plains and their associated Capital Improvement Plans. Each of the individual basin plans emphasizes protecting natural drainage features as the most cost effective means of handling stormwater over the long term.

The Stormwater Utility has constructed or participated in the funding to construct regional stormwater facilities, and has purchased parcels of land for said facilities. Two regional facilities were constructed in 2008, the Browne Mountain Regional Stormwater Facility and Price and Wall Regional Stormwater Facility. In 2015, a third regional facility was completed, the Country Homes Boulevard Restoration Project. Regional stormwater facilities are generally maintained by the Stormwater Utility, County Road Maintenance, private landscape maintenance contractors and, at times, County Parks crews.

Existing maintenance plans for regional stormwater facilities will be reviewed for consistency with the Permit and UIC requirements. As maintenance plans are developed for the new regional facilities, they will comply with Permit, as well as Ecology's UIC requirements.

9.2.2 Roadway Stormwater Facilities

Stormwater facilities in the County road rights-of-way are maintained by crews from the County Engineering and Roads Maintenance Section. Generally, curbs and gutters, culverts, and ditches alongside County roads make up a large portion of the MS4. Stormwater Utility staff will continue working with County Road Maintenance employees to develop and/or update the inventory of facilities and potential outfalls to surface waters and the program of preventative or proactive maintenance. Topics to be addressed include appropriate frequencies for cleaning catch basins, inlets, and storm drains, and appropriate ditch cleaning methods and frequencies.

Staff has evaluated current street sweeping and dust control practices and determined that current practices are meeting Permit guidelines. All County streets are cleaned once in the spring and once in the fall of each year. In 2015,



more than 1,870 miles of County roads were swept. Furthermore, spot street cleaning operations are conducted primarily based on field inspections or in response to public complaints. Spokane County has also placed GPS units on all street sweepers to provide documentation of sweeping activities, as well as provide the public an opportunity to view street sweeping progress. See below for snapshot of selected sweeper activity from November 3-4, 2015.

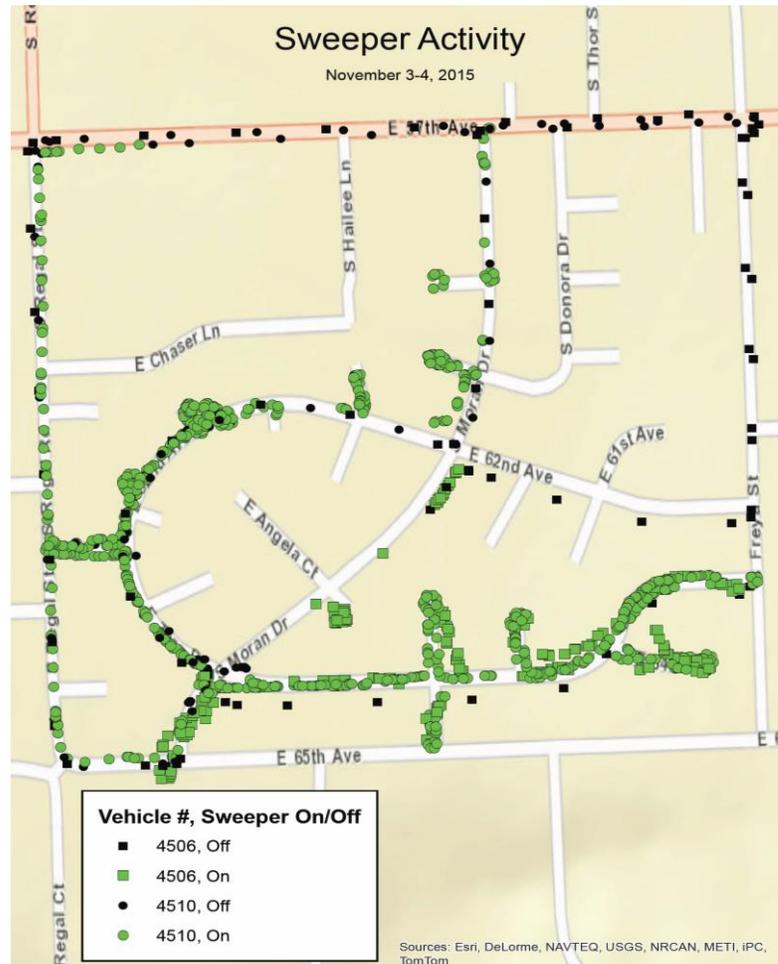


Figure 10. County Street Sweeping Mapping Program

The County also constructs new roads and improves existing roads. Stormwater staff works with the Engineering and Roads Design Section regarding compliance with the Spokane Regional Stormwater Manual (SRSM).

Stormwater staff regularly consults with the Roads Maintenance Department on procedures for tracking and reporting stormwater facility maintenance activities. This includes standardization of the data that will be collected, and how it will be reported.



9.2.3 Spokane County Decant Facility

In the 2012, the County received a grant from the Department of Ecology (G1200559) to construct a vector waste decant facility at the Old Corral site, located at 12807 N. Mayfair Road, Spokane, WA 99260.

Waste generated from cleaning catch basins and other stormwater management and treatment facilities is transferred to the decant facility. The decant facility provides separation and treatment of street waste so that the materials collected can be reused or disposed of properly.

This project, completed in 2015, was designed in accordance with the *Spokane Regional Stormwater Manual (SRSM)*. Procedures for using the decant facility are incorporated in the County's O&M Plan. See *APPENDIX E – Decant Facility O&M Plan* for operations and maintenance guidelines. Training was conducted in December 2015 to educate Road Maintenance field crew on proper operations and use of the decant facility. See also *APPENDIX F – Decant Facility Training Sign-In Sheet*.

9.2.4 Stormwater Facilities at Other County-Owned Properties

Stormwater Utility staff will continue working with Parks and Golf Courses, Fair and Expo, Utilities, Human Resources, Sheriff, Facilities Maintenance Departments, and maintenance supervisors at the County shops within the Permit boundary to review site management practices. Staff will review site operations, the use of herbicides, pesticides and other chemicals, the disposal of vector wastes and the treatment and disposal of stormwater from the various sites. Existing maintenance plans will be reviewed and updated, as necessary.

9.2.4.1 Parks and Open Spaces

Stormwater Utility staff will continue to work with Parks staff to evaluate landscaping and maintenance practices. Staff will review any water quality data collected by Parks personnel. Staff will also plan training opportunities for Parks staff about proper storage, handling, and application of pesticides, herbicides, and fertilizers.

Spokane County communities are implementing water conservation plans that have guidelines and ordinances addressing outdoor landscape irrigation. The plans are aimed at reducing water waste resulting from over-watering. This will also reduce the contribution of pesticides, herbicides and fertilizers to downstream receiving waters.



Spokane County Parks currently operates and maintains three golf courses: Meadow Wood, Liberty Lake, and Hangman Valley. While the Hangman Valley Golf Course is under the jurisdiction of Spokane County Parks, it is located approximately 3 miles outside of the Permit boundary.

9.2.4.2 Vehicle Fleets, Heavy Equipment Storage Areas, Maintenance Areas

Stormwater Utility staff reviews O&M practices, and implements improvements for the cleaning, washing, painting, and other maintenance activities of County vehicles, equipment, heavy equipment, and maintenance/repair shops. The staff also addresses need for additional training regarding pollution prevention and good housekeeping practices at vehicle and heavy equipment maintenance shops, where necessary.

The County continues to conduct all vehicle and equipment washing, maintenance, and repair in self-contained covered buildings or in designated wash and/or maintenance and repair areas, which keeps wash-water contaminants from discharging to the MS4.

Spokane County has developed Stormwater Pollution Prevention Plans (SWPPP) for all vehicle fleets, heavy equipment storage areas, and maintenance areas. The SWPPPs are on file at each maintenance and repair shop.

In 2015-2016, Spokane County Engineering and Roads put together a six-year plan to update and build six equipment maintenance shops for road maintenance field operations. The facilities will be designed to treat stormwater in accordance with the *Spokane County Regional Stormwater Manual (SRSM)*, which is an approved equivalent of the Department of Ecology's *Stormwater Management Manual for Eastern Washington (SWMMEW)*. All on-site stormwater runoff will be collected and treated in a bio-infiltration swales, prior to disposal/discharge.

9.2.4.3 Municipal Buildings

Stormwater Utility staff will continue working with County Facilities Maintenance staff to learn about frequencies and practices for cleaning, washing, painting, and other maintenance activities related to County-owned, operated, or maintained buildings.

The staff will continue to address concerns and the need for additional training, if warranted, regarding pollution prevention and good



housekeeping practices for all County-owned, operated, or maintained buildings.

9.2.4.4 Material Storage

All hazardous material storage areas will be contained within a secure structure, in accordance with all applicable local, state, and federal codes (i.e. Building and Fire Codes, OSHA Regulations, State of Washington, etc.). Hazardous material handling procedures and practices are currently being implemented.

All non-hazardous materials will be stored in secure areas where the potential for stormwater pollution or contamination are minimal. Material storage is addressed within the SWPPPs at all vehicle fleets, heavy equipment storage areas, and maintenance areas.

9.2.4.5 Industrial Activities and Other Public Facilities

The following publicly-owned industrial facilities in Spokane County will be identified using best available information:

- (a) Municipal landfills and waste transfer stations;
- (b) Public hazardous waste treatment, disposal, and recovery facilities; and
- (c) Public industrial facilities that could contribute a substantial pollutant load to the MS4.

Public facilities identified above will be shown on a GIS map. Current Permit requirements and available information about onsite BMPs will be identified.

9.3 Construction Projects

See the *Spokane Regional Stormwater Manual* (SRSM) for details regarding engineering design standards, including BMPs relevant to construction projects. Spokane County will continue to comply with the applicable construction standards relating to stormwater pollution control.

9.4 Spokane County Employee Education and Training

Relevant Spokane County staff will be trained periodically on operations and maintenance procedures to minimize stormwater pollution from operations and maintenance activities.



Training will continue to be focused specific to the various departments' operations and functions. "Refresher" training will be provided to County staff, as requested or needed.

9.4.1 Objectives for Spokane County Employee Education and Training

The overall objectives of the Employee Education and Training Program are to:

- (a) Inform the employee about important water quality issues, regulations, BMPs, and other construction practices related to stormwater management;
- (b) Influence behavior of the employee to reduce activities that have a negative impact on stormwater runoff quality, and increase activities that have a positive impact on stormwater runoff quality.

9.4.2 Employee Education and Training Activities

The following activities will continue to be part of the employee education and training program:

- (a) **Training Events:** The County will use training events for employees that focus on stormwater pollution awareness, stormwater construction practices, pollution prevention practices, and regional stormwater issues.
- (b) **Printed Materials:** The County will continue to develop, produce, and distribute printed materials (e.g., brochures, flyers, promotional items) for specific topics related to stormwater quality. Older printed materials will be updated, as necessary.
- (c) **Website:** The County will continue to enhance, maintain, and update the Spokane County Stormwater Utility website, to provide information to employees on stormwater pollution potential sources and pollution prevention practices, Spokane County water quality issues, BMPs, and links to other related websites.
- (d) **Construction Program:** The County will conduct education and training activities targeting County employee construction and maintenance personnel.

9.5 Staffing and Funding

The evaluation of existing procedures and practices relating to pollution prevention and good housekeeping measures will be funded by Spokane County. Staffing will also be provided by Spokane County.



9.6 Priorities and Measurable Goals

The “Pollution Prevention and Good Housekeeping for Municipal Operations” measurable goals are outlined below:

Completed by	Measurable Goals/Milestones
End of Permit Year 1 (July 31, 2015)	<ul style="list-style-type: none"> • Update good housekeeping and pollution prevention materials for maintenance staff and field crews, as necessary • Continue to implement inspection schedule of fleet operations, heavy equipment and equipment storage areas, and maintenance areas • Continue assessment of fleet operations, and make improvements based on assessment findings, as necessary • Continue implementing SWPPPs for vehicle fleets, heavy equipment storage areas, and maintenance areas • Continue implementing the County’s spill response plan for vehicle fleets, heavy equipment storage areas, and maintenance areas • Continue inspections and assessment of material storage locations, and make improvements based on findings, as necessary • Continue to conduct catch basin inspections within the County’s MS4 • Continue County street sweeping program • Continue County parking lot sweeping program • Continue to monitor and track MS4 cleaning activities • Continue to implement erosion controls for County construction projects that meet Ecology’s 1-acre land disturbance threshold • Continue to train in-house inspectors in erosion and stormwater controls • Continue to train maintenance staff, field crews, and other County employees in good housekeeping and pollution prevention practices • Continue recordkeeping of O&M actions and activities
End of Permit Year 2 (July 31, 2016)	<ul style="list-style-type: none"> • Continue implementing previous year’s Permit requirements
End of Permit Year 3 (July 31, 2017)	<ul style="list-style-type: none"> • Review and update the County’s O&M Plan, if needed • Continue implementing previous year’s other Permit requirements
(Permit Years 4 & 5 Priorities and Measurable Goals continued on next page)	



Completed by	Measurable Goals/Milestones
End of Permit Year 4 (July 31, 2018)	<ul style="list-style-type: none">• Accomplish inspections of all County catch basins by December 31, 2018• Continue implementing previous year's other Permit requirements
End of Permit Year 5 (July 31, 2019)	<ul style="list-style-type: none">• Increase catch basin inspection frequency to 95% of MS4 every two years• Continue implementing previous year's other Permit requirements



SECTION 10 – TOTAL MAXIMUM DAILY LOAD REQUIREMENTS

10.1 Introduction

Water cleanup plans will result in cleaner streams, rivers, lakes, and aquifers. Clean water is vital for quality of life – for both economic development and a healthy environment. Water quality improvement projects, including total maximum daily loads (TMDLs), are one way to return our waterbodies to a healthy condition.

A TMDL is a calculation of the maximum amount of a pollutant that a water body can receive and still safely meet water quality standards. TMDLs describe the type, amount, and sources of water pollution in a particular water body; they analyze how much the pollution needs to be reduced or eliminated to meet water quality standards; and they provide targets and strategies to control the pollution. The Washington State Department of Ecology determines the reduction of pollutant discharge needed to be compliant with water quality standards.

This Section describes the requirements and implementation of special provision S7, *Compliance with Total Maximum Daily Load (TMDL) Requirements*, of the Permit.

10.2 Implementation Requirements and Responsibilities

The Spokane River was designated as an impaired water by the Department of Ecology (DOE) for several parameters that do not meet State-established standards. Parameters of concern include dissolved oxygen, metals, phosphorus, and toxics. As such, Ecology has developed TMDLs for sections of the Spokane River that address these impairments.

Spokane County is tasked with developing and, subsequently, implementing a monitoring program to evaluate its stormwater discharges from the Ella Road outfall to the Spokane River in order to determine pollutant loading for carbonaceous biochemical oxygen demand (CBOD), phosphorus, and ammonia.

According to Appendix 2 of the Eastern Washington Phase II Municipal Stormwater Permit, to-date Permit requirements are described as follows. No later than August 31, 2014, Spokane County shall:

- (a) Prepare a monitoring plan to evaluate its stormwater discharges to the Spokane River in order to determine pollutant loading for CBOD, phosphorus, and ammonia;
- (b) Conduct sampling at the Ella Road outfall and calculate discharge volume estimates at least once per month during the months of March through October during the first precipitation event in a month that produces adequate stormwater for analysis; and



- (c) Prepare and submit a Quality Assurance Project Plan (QAPP) to Ecology for review and approval that follows *Quality Assurance Project Plans for Environmental Studies*, July 2004, Ecology Publication No. 04-03-030. Monitoring shall be conducted using Ecology-approved Standard Operating Procedures. If the QAPP needs to be modified, Spokane County will provide the updated QAPP for review and approval within 90 days of receiving Ecology comments.

Additionally, no later than August 31, 2015, Spokane County shall:

- (d) Start sampling and implement the Ecology-approved monitoring plan; and
- (e) Enter all applicable seasonal results of the monitoring into Ecology's EIM database by December 21st of each year. Include a summary and discussion of the monitoring results with the respective Annual Report.

10.3 Implementation Actions and Activities

10.3.1 Appendix 2 – TMDL Monitoring Actions

Spokane County Stormwater Utility prepared and submitted a QAPP in 2014 that proposed to perform flow monitoring at the Ella Road outfall to the Spokane River.

In 2015, Spokane County constructed a series of catch basins, swales, and drywells to intercept and infiltrate the runoff from Ella Road. Since installation of these storm drainage facilities, Spokane County has performed site visits after significant rainfall events. No discharge to the outfall pipe has been observed during any of these inspections, and the sediment past the mouth of the outfall pipe was found to be dry and undisturbed each time.

10.3.2 Other Stormwater Management Program (SWMP) Activities

Spokane County requires design and implementation of construction and post-construction Best Management Practices (BMPs) for flow and pollution control in order to protect surface waterbodies and meet water quality and TMDL goals. Spokane County also employs good housekeeping in the form of maintenance of storm drainage facilities within road rights-of-way and County-owned properties to reduce nutrient and other pollutant-loading impacts on surface waterbodies. Additionally, Spokane County intends to continue performing field inspections to identify and eliminate, where possible, potential outfalls to the Spokane River.



10.4 Staffing and Funding

The provisions of this Permit component will be implemented and managed by Spokane County staff. Staff time will also be funded by Spokane County.

10.5 Priorities and Measurable Goals

The “Total Maximum Daily Load Requirements” measurable goals are outlined below:

Completed by	Measurable Goals/Milestones
End of Permit Year 1 (July 31, 2015)	<ul style="list-style-type: none"> • Prepare Ella Road stormwater discharge monitoring plan August 31, 2014 • Prepare and submit a Quality Assurance Project Plan (QAPP) to Ecology by August 31, 2014 • Modify QAPP, if necessary, and resubmit within 90 days of receiving Ecology comments
End of Permit Year 2 (July 31, 2016)	<ul style="list-style-type: none"> • Implement Ecology-approved monitoring plan by August 31, 2015 • Begin sampling for pollutant loading at Ella Road outfall, at least once per month from March to October • Document discharge volumes for all precipitation events sampled • Enter monitoring data and results into Ecology’s Environmental Information Management (EIM) database by December 31, 2015 • Include monitoring data and results in Annual Report (see also <i>ATTACHMENT 8: Summary of Relevant SWMP and Appendix 2 Actions and Activities</i>)
End of Permit Year 3 (July 31, 2017)	<ul style="list-style-type: none"> • Continue sampling for pollutant loading at Ella Road outfall, at least once per month from March to October • Continue recordkeeping of discharge volumes for all precipitation events sampled • Consult with Ecology to evaluate results of monitoring plan prior to December 31, 2016 • If monitoring results exceed Ecology’s Waste Load Allocations (WLA) for pollutant loading, prepare and submit and Action Plan to Ecology by March 31, 2017 • Enter monitoring data and results into Ecology’s Environmental Information Management (EIM) database by December 31, 2016 • Include monitoring data and results in Annual Report
(Permit Years 4 & 5 Priorities and Measurable Goals continued on next page)	



Completed by	Measurable Goals/Milestones
End of Permit Year 4 (July 31, 2018)	<ul style="list-style-type: none"> • Continue sampling for pollutant loading at Ella Road outfall, at least once per month from March to October • Continue recordkeeping of discharge volumes for all precipitation events sampled • Implement Action Plan conditions, if required • Enter monitoring data and results into Ecology’s Environmental Information Management (EIM) database by December 31, 2017 • Include monitoring data and results in Annual Report
End of Permit Year 5 (July 31, 2019)	<ul style="list-style-type: none"> • Continue implementing previous year’s Permit requirements

SECTION 11 – EFFECTIVENESS STUDIES

11.1 Introduction

This Section addresses the Eastern Washington Phase II Municipal Stormwater Permit, special provision S8.B, which requires Permittees to propose, select, develop, and conduct Ecology-approved studies to assess the effectiveness of Permit-required stormwater management activities and Best Management Practices.



Figure 11: Street Sweeping

Effectiveness assessments are integral for the development and implementation of a successful stormwater management program.

They are a fundamental component of the process employed by stormwater programs to determine how successful a program has been in complying with NPDES Permit requirements, increasing awareness, changing behavior, decreasing inputs of target pollutants to the environment, and improving water quality.

11.2 Planning and Development

Cities and counties within Central and Eastern Washington have created a working group, known as the Eastern Washington Stormwater Group (EWSG), to cooperatively develop regional guidance documents and draft permits. In 2013, the EWSG began discussing how to collaboratively develop and implement studies to test the effectiveness of stormwater management program components.

Assessments typically include a variety of effectiveness measurements such as tracking and analyzing the number of inspections completed and associated outcomes, the number of public education and outreach activities conducted or material distributed, the number and success of training events conducted, and the pollutant loads reduced or avoided.

In 2014, Eastern Washington Permittees developed a list of potential study ideas. By June 2015, a report outlining 24 such studies was submitted to Ecology. The City of Spokane Valley has been awarded two grants from Ecology to accomplish this program component, and has been coordinating all phases of this effort to-date.



11.3 Effectiveness Study Ideas

In developing study ideas, the goal was to make sure that the studies evaluated stormwater management activities that are currently being implemented by member jurisdictions, and/or could be efficiently managed by staff. Eight to twelve effectiveness studies will ultimately be implemented. The following list outlines the proposed studies compiled by the EWSG:

Proposed Effectiveness Study Questions			
Study No.	Study Title	Permit Category	Study Summary
1	Modernizing Education and Outreach Strategies	Public Education and Outreach	A marketing firm would be hired to develop an education and outreach program utilizing modern communication tools (apps, social media, would be developed for one stormwater Permit-related topic (e.g., reporting illicit discharges). Public awareness and behaviors about the topic would be assessed via survey before and after deliver of the educational campaign to assess results.
2	Mobile Contractor Illicit Discharge Education	Public Education and Outreach	This study will involve the development and testing of a new educational program for educating contractors that move on a daily basis about illicit discharge prevention. The study will focus, in particular, on ways of reaching mobile contractors and delivering the material.
3	Illicit Discharge Detection Methods	IDDE	The study will survey stormwater managers to gather information regarding illicit discharges detected by various IDDE methods. The purpose is to identify which methods result in the highest detection rate.
5	Business Inspection Program Strategies	IDDE	This survey study will query Phase II Western Washington jurisdictions with business inspection programs. The purpose of the survey will be to qualitatively assess the effectiveness of business inspection programs in Western Washington, and to learn effective strategies that can be adopted into the developing business inspection programs of Eastern Washington jurisdictions.
6	Soil Amendments for Erosion Control and Revegetation	Construction Site Stormwater Runoff Control	This study will test commercially available soil amendments claiming to improve plant growth by enhancing soil structure and water holding capacity. The study will be conducted at a plot scale using typical erosion control seed grass mixes.
7	Stormwater BMP Owner Awareness	Post-Construction Stormwater Management	This simple, survey study will be delivered to homeowners, homeowners associations, and businesses that have structural stormwater BMPs installed on their properties. The survey will assess their general knowledge about the stormwater BMPs on their land, the maintenance requirements of the BMP, and their responsibility to continually maintain the BMP.
8	Long-Term Maintenance of Privately Owned BMPs	Post-Construction Stormwater Management	This two-part study will review existing inspection and maintenance records to evaluate the effectiveness of each Eastern Washington Jurisdiction's inspection and maintenance program, and survey Permittees to learn about the most significant impediments to conducting BMP inspections.



Proposed Effectiveness Study Questions (Continued)

Study No.	Study Title	Permit Category	Study Summary
9	BMP Inspection and Maintenance Responsibilities	Post-Construction Stormwater Management	A survey will be used to gather information from Washington Jurisdictions to learn novel and effective ways that municipalities are meeting the challenge of ensuring ongoing maintenance of structural BMPs on private property. In particular, the survey will question Permittees about different models of BMP ownership and responsibility for continued maintenance of BMPs.
10	Impact of Privately Owned BMPs on MS4s	Post-Construction Stormwater Management	This study will evaluate the percentage of privately owned BMPs that would drain to the MS4 in the event of failure. The study will use GIS analysis at the sub-basin scale.
11	Comparison of Conventional and LID BMPs	Post-Construction Stormwater Management	This study will evaluate flow control benefits through sizing and modeling various BMPs (both common infiltration BMPs and LID BMPs) for typical residential and commercial development in Eastern Washington. The study would also include a cost comparison among various BMPs and compile an Eastern Washington Stormwater BMP cost database.
12	Long-term Permeable Pavement Sidewalk Infiltration Performance	Municipal Operations and Maintenance	Test strips of permeable pavement sidewalks will be constructed in four Eastern Washington communities. Infiltration measurements will occur twice yearly for a 10-year study period. No maintenance will take place, so the infiltration measurements will document decreases in infiltration performance over time as the pavement becomes clogged with sediment.
13	Permeable Pavement Parking Lot Maintenance	Municipal Operations and Maintenance	Test segments will be designated within the traveling lanes of a newly constructed permeable pavement parking lot. Each test segment will be subjected to different maintenance regimes ranging from no-maintenance to monthly vacuuming. The infiltration rate of the pavement will be measured on a quarterly basis and the infiltration performance of each test segment will be tracked over time.
14	Sharp Avenue Porous Pavement Study	Municipal Operations and Maintenance	A porous pavement "laboratory" will be constructed in the traveling and parking lanes of a City arterial street near Gonzaga University. A porous concrete intersection, full-width pervious asphalt, pervious asphalt in the parking lanes only, and a control section will be installed. Gonzaga University students will monitor water quality, pavement condition over time (especially with respect to studded tire use) and operations and maintenance impacts.
15	Street Sweeping and Catch Basin Cleaning Comparison	Municipal Operations and Maintenance	This study will use a small-scale, "paired" basin approach for evaluating differences in the amount of material removal by street sweeping and catch basin cleaning compared to only catch basin sweeping. One of the basins will be swept regularly, and the other will not. The total amount of material removed will be calculated for both basins and compared. All Eastern Washington jurisdictions will also be surveyed about their street sweeping and catch basin cleaning procedures.



Proposed Effectiveness Study Questions (Continued)

Study No.	Study Title	Permit Category	Study Summary
16	Seasonal Differences in Street Sweeping Material Removal	Municipal Operations and Maintenance	All the roadways within four or five communities will be swept on a monthly basis. The amount of material and pollutants removed during each sweeping event will be totaled. Statistical analysis will be used to identify whether there are significant factors (timing, region) affecting the amount of material removed by each sweeping event (a surrogate for sediment deposition rate).
17	Catch Basin Insert Monitoring Protocol	Municipal Operations and Maintenance	The objective of this study is to develop a protocol (QAPP) for evaluating the effectiveness of commercially available catch basin inserts at bench and field scales. Having this procedure in place will streamline testing and evaluation, and will ensure uniformity of methods allowing for objective performance comparisons. This protocol would be developed with input from Ecology and interested vendors. Vendors who chose to have their product tested would provide the funding for the testing.
18	Catch Basin Retrofit Device Placement	Municipal Operations and Maintenance	The objective of this research is to evaluate gross solids removal differences between two, similarly sized and located catchments; one in which a downturned elbow type retrofit is only installed at the most downstream catch basin and one in which retrofits are installed at multiple locations within the catchment.
19	Seeding and Irrigation for Vegetated BMPs	Monitoring and Assessment	Test plots simulating conditions in vegetated BMPs (e.g., bioretention, bioinfiltration, dispersion) will be constructed. Different seeding densities of seed mixes typically used in Eastern Washington, and irrigation regimes will be applied to each test plot. Beneficial plant and weed growth will be monitored. Jurisdictions will be able to use this information to help with plants establishment in vegetated BMPs, resulting in better performance, reduced maintenance needs, and cost savings.
20	Planting Options for Bioretention BMPs	Monitoring and Assessment	A plant list of climate-appropriate plants will be developed based on literature sources. Test plots simulating conditions in bioretention BMPs will be constructed. Combinations of seed mixes and substrates, as well as at least one option that has no plants, will be applied to the test plots. Infiltration and soil cation exchange capacity will be measured throughout the study.
21	Media Component Study	Monitoring and Assessment	This project would mimic the Western Washington study conducted at the Washington Stormwater Center that evaluated media mixes used in bioretention facilities. The purpose of this study would be to develop bioretention media better suited for Eastern Washington conditions, and if possible maximize usage of locally sourced materials.



Proposed Effectiveness Study Questions (Continued)			
Study No.	Study Title	Permit Category	Study Summary
22	Treatment for Comingled Stormwater and Agricultural Discharges	Monitoring and Assessment	Synthetic water blends with nutrient, metal, bacteria, and pesticide concentrations typical of those found in agricultural runoff in eastern Washington will be run through test columns with different media and native soil combinations found in Eastern Washington infiltration and UIC stormwater treatment devices. The purpose of this experiment is to determine if existing stormwater treatment is capable of treating agricultural water that is comingled with stormwater to a level that is safe and protective of water quality so that decision makers can make more informed decisions.
24	Biochar Media Stormwater Treatment Study	Monitoring and Assessment	Two types of biochar are being studied for their stormwater treatment capacity (Kentucky bluegrass and wood-based biochars). A bench-scale laboratory study was completed in 2015. A field scale pilot study began construction in 2014 and will be implemented in 2015. The field portion of the study includes construction and water quality monitoring of storm gardens with biochar-supplemented treatment media along Garland Avenue in Spokane.
27	Media Thickness Study	Monitoring and Assessment	This study will help to determine optimal media depths for maximizing performance and cost-effectiveness bioinfiltration BMPs in Eastern Washington. A bioinfiltration pond with two treatment cells (12- and 18-inch media depth) was constructed adjacent to the parking area at Gonzaga University's Rudolph Fitness Center. Influent and effluent concentrations for each of the treatment cells will be compared to determine treatment efficiency of each of the cells. From this analysis, differences in treatment efficiency and performance attributable to the different media depths of each of the cells should be determined.

11.4 Staffing and Funding

Spokane County will continue collaboration with the Eastern Washington Stormwater Group (EWSG) to advance the successful implementation of this Section of the SWMP. To support this Permit component, staff time will be provided and funded by Spokane County.



11.5 Priorities and Measurable Goals

Final selection of questions and lead agencies selected to champion each question needs to be made, and different structures for organizing the work are still being discussed. Permittees will continue to develop the list and refine study ideas in 2015 and 2016. A ranked list of detailed study design proposals will be submitted to Ecology by June 30, 2016.

Completed by	Measurable Goals/Milestones
End of Permit Year 1 (July 31, 2015)	<ul style="list-style-type: none"> • Eastern WA Permittees collaborate to review effectiveness study ideas, define sub-regions, and potential partnerships • Compile list of 12 to 15 study ideas, and identify lead entity for each study • Include County participatory details in SWMP and Annual Report (see also <i>ATTACHMENT 9: Description of Stormwater Monitoring or Stormwater-Related Studies</i>)
End of Permit Year 2 (July 31, 2016)	<ul style="list-style-type: none"> • Eastern WA Permittees collaborate to submit ranked list of 12 to 15 effectiveness study ideas • Each study idea to include a summary of data collection needed, lead entity, and participating Permittees • Include County participatory details in SWMP and Annual Report
End of Permit Year 3 (July 31, 2017)	<ul style="list-style-type: none"> • Lead entities submit a total of 8 to 12 study proposals to Ecology for review/approval • Include County participatory details in SWMP and Annual Report
End of Permit Year 4 (July 31, 2018)	<ul style="list-style-type: none"> • Include County participatory details in SWMP and Annual Report
End of Permit Year 5 (July 31, 2019)	<ul style="list-style-type: none"> • Within 6 months of Ecology approval, lead entities to submit QAPPs for a combined total of 8 to 12 effectiveness studies • Within 6 months of QAPP approval, lead entities of at least 4 studies begin implementing each study • Within 15 months of QAPP approval, lead entities begin to implement remaining 4 to 8 studies • Within 6 months of completing each study, submit reports and recommendations to Ecology • Prior to end of Permit Year 5, enter data/results in to Ecology's Environmental Information Management (EIM) database



SECTION 12 – SWMP COORDINATION RESPONSIBILITIES

12.1 Introduction

This Section describes how the responsibilities for implementing the adopted SWMP programs will be shared among the various Spokane County entities.

This Section is in compliance with the Eastern Washington Phase II Municipal Stormwater Permit, special provision S5.A and S5.B, which requires an implementation strategy within the Stormwater Management Program (SWMP).



Figure 12: Spokane County Courthouse Campus

12.2 Implementation Responsibilities

In general, Spokane County provides overall program oversight, funding, and staffing for activities that are described within the SWMP.

Responsibility for implementing the various elements of the SWMP will be primarily by various Spokane County departments as described below:

- (a) Public Works, Engineering and Roads (Development Services, Stormwater Utility, Fleet Management, and Road Maintenance Sections);
- (b) Building and Planning;
- (c) Utilities (Water Resources, and Regional Solid Waste System);
- (d) Parks, Recreation, and Golf Department;
- (e) Facilities; and
- (f) Fair and Expo Center.

The aforementioned Spokane County departments shall continue coordination through the Stormwater O&M Plan.

12.3 Implementation in New Areas

The programs outlined in this SWMP will be applied to Spokane County areas described as United States Census classified urbanized areas, *Urban Growth Areas* (UGA) associated with Phase II Permit-regulated cities under the jurisdictional control of the County, and UGA areas contiguous to urbanized areas (see *Spokane County*



Comprehensive Plan for UGA details) that are under the jurisdictional control of the County, as required by Section S1.A.2. Those areas that become urbanized or are included in a UGA area during the period of the current municipal Permit will be documented and included within the next subsequent Phase II Municipal Stormwater Permit cycle.

12.4 Staffing and Funding

Spokane County will continue coordination with various internal departments to advance the successful implementation of this Section of the SWMP. Staff time will be provided and funded by Spokane County.

12.5 Priorities and Measurable Goals

The “Coordination” measurable goals are outlined below:

Completed by	Measurable Goals/Milestones
End of Permit Year 1 (July 31, 2015)	<ul style="list-style-type: none"> • Continue lead role in coordinating Permit requirements among various County departments • Continue participation in inter-departmental meetings regarding new and re-development construction proposals • Continue utilizing SEPA and Cultural Resources Review as additional mechanism to coordinate with other jurisdictions • Continue to coordinate with contiguous MS4 cities on projects that impact interconnected MS4s • Continue to make County stormwater inventory and mapping available to neighboring jurisdictions and cities • Continue involvement in NPDES regional coordination groups, and local water quality working groups and committees • Include summary of coordination efforts in Annual Report
End of Permit Year 2 (July 31, 2016)	<ul style="list-style-type: none"> • Continue implementing previous year’s Permit requirements
End of Permit Year 3 (July 31, 2017)	<ul style="list-style-type: none"> • Continue implementing previous year’s Permit requirements
End of Permit Year 4 (July 31, 2018)	<ul style="list-style-type: none"> • Continue implementing previous year’s Permit requirements
End of Permit Year 5 (July 31, 2019)	<ul style="list-style-type: none"> • Continue implementing previous year’s Permit requirements



SECTION 13 – PRIORITIES AND MEASURABLE GOALS

This Section summarizes all of the activities planned and measurable goals proposed for Years 1, 2, 3, 4, and 5 of the five-year Permit cycle. Many yearly activities are a continuation of the previous Permit cycle’s public education and outreach, public involvement, IDDE, construction, post-construction, and operations and maintenance programs.

13.1 SWMP *Stormwater Baseline Data and Maps* Priorities and Measurable Goals

Permit Component	Program Category	Measurable Milestones Description	Permit Year				
			2014 – 2015	2015 – 2016	2016 – 2017	2017 – 2018	2018 – 2019
S5.B	Stormwater Baseline Data and Maps (See Section 3)	• Prepare new MS4 basemaps	X				
		• Update MS4 outfall coverage, incorporating data from 2015 field investigations	X	X	X	X	X
		• Update infrastructure maps for new public facilities and activities, as necessary	X	X	X	X	X



13.2 SWMP Public Education and Outreach Priorities and Measurable Goals

Permit Component	Program Category	Measurable Milestones Description	Permit Year				
			2014 – 2015	2015 – 2016	2016 – 2017	2017 – 2018	2018 – 2019
S5.B.1	Public Education and Outreach (See Section 4)	• Staff community events related to environmental awareness and regional water issues	X	X	X	X	X
		• Conduct outreach activities in public schools around Spokane County	X	X	X	X	X
		• Develop, produce, and disseminate education and outreach materials pertaining to stormwater quality and pollution prevention	X	X	X	X	X
		• Update informational materials, as necessary	X	X	X	X	X
		• Continue education and outreach activities targeting the construction industry	X	X	X	X	X
		• Construct and maintain interpretive signage at regional stormwater facilities and demonstration swales	X	X	X	X	X
		• Pursue grant opportunities for projects addressing stormwater education and outreach	X	X	X	X	X
		• Actively participate in work groups, and/or committees that advance regional and local public education and outreach campaigns	X	X	X	X	X
		• Enhance, maintain, and update the existing Spokane County website	X	X	X	X	X



13.3 SWMP Public Involvement and Participation Priorities and Measurable Goals

Permit Component	Program Category	Measurable Milestones Description	Permit Year				
			2014 – 2015	2015 – 2016	2016 – 2017	2017 – 2018	2018 – 2019
S5.B.2	Public Involvement and Participation (See Section 5)	• Engage the public in various decision-making processes	X	X	X	X	X
		• Begin efforts to initiate follow-up “Stormwater Questionnaire”	X				
		• Distribute follow-up “Stormwater Questionnaire”			X	X	
		• Compile and submit report documenting results of “Stormwater Questionnaire” by July 31, 2019					X
		• Sponsor the volunteer storm drain stenciling program	X	X	X	X	X
		• Provide opportunities for the public to participate in native planting events at stormwater facilities	X	X	X	X	X
		• Continue operating the IDDE hotline for the public to report spills and suspected illicit discharge activities	X	X	X	X	X
		• Provide a public comment form on website	X	X	X	X	X
		• Post updated SWMP and Annual Report online for public review and comment by May 31 st each year	X	X	X	X	X



13.4 SWMP Illicit Discharge Detection and Elimination Priorities and Measurable Goals

Permit Component	Program Category	Measurable Milestones Description	Permit Year				
			2014 – 2015	2015 – 2016	2016 – 2017	2017 – 2018	2018 – 2019
S5.B.3	Illicit Discharge Detection and Elimination (See Section 6)	• Conduct field inspections of MS4	X	X	X	X	X
		• Inspect of at least 40% of MS4 by December 31, 2018				X	
		• Increase MS4 inspection frequency to at least 12% every year					X
		• Update MS4 basemaps and outfall coverage (see also <i>SWMP Section 3 – Stormwater Baseline Data and Maps</i>)	X	X	X	X	X
		• Continue to identify and eliminate illicit connections and outfalls identified in the County’s MS4	X	X	X	X	X
		• Pursue opportunities to obtain grants and loans through Ecology for outfall elimination projects, where possible	X	X	X	X	X
		• Continue inspections of non-stormwater discharge sites, and require property owners to eliminate the cause	X	X	X	X	X
		• Maintain and update database of illicit connections and non-stormwater discharge sites	X	X	X	X	X
		• Train field crews and maintenance staff on the IDDE Program	X	X	X	X	X
		• Update training materials for field crews and maintenance staff, as needed	X	X	X	X	X
		• Continue informing public and businesses of hazards associated with illicit discharges and improper disposal of waste	X	X	X	X	X
		• Continue storm drain stenciling program	X	X	X	X	X
		• Maintain IDDE Hotline, and respond to non-stormwater discharge complaints	X	X	X	X	X
		• Update IDDE Guidance Manual and Spokane County Code (Chapter 9.14), as necessary					X



13.5 SWMP Construction Site Stormwater Runoff Control Priorities and Measurable Goals

Permit Component	Program Category	Measurable Milestones Description	Permit Year				
			2014 – 2015	2015 – 2016	2016 – 2017	2017 – 2018	2018 – 2019
S5.B.4	Construction Site Stormwater Runoff Control (See Section 7)	• Review all construction site plans for potential water quality impacts	X	X	X	X	X
		• Provide information to construction site operators on training in methods for erosion and sediment control	X	X	X	X	X
		• Ensure erosion control plans are being implemented and maintained at construction sites	X	X	X	X	X
		• Enforce erosion control at construction sites, where necessary	X	X	X	X	X
		• Review and refine procedures for conducting construction inspections and enforcement, as necessary	X	X	X	X	X
		• Continue recordkeeping of construction and post-construction inspections and enforcement actions	X	X	X	X	X
		• Improve the database for construction permits, inspections, and enforcement, as necessary	X	X	X	X	X
		• Require CESCL training for County engineers and field technicians tasked with inspecting stormwater controls	X	X	X	X	X
		• Update building permit handouts pertaining to construction site stormwater runoff control, as necessary	X	X	X	X	X
		• Continue to include construction permitting information in public education and outreach efforts	X	X	X	X	X



13.6 SWMP Post-Construction Site Stormwater Management for New and Redevelopment Priorities and Measurable Goals

Permit Component	Program Category	Measurable Milestones Description	Permit Year				
			2014 – 2015	2015 – 2016	2016 – 2017	2017 – 2018	2018 – 2019
S5.B.5	Post-construction Stormwater Management for New and Redevelopment (See Section 8)	<ul style="list-style-type: none"> Continue to include construction and post-construction permitting information in public education and outreach efforts 	X	X	X	X	X
		<ul style="list-style-type: none"> Continue recordkeeping of construction and post-construction inspections and enforcement actions 	X	X	X	X	X
		<ul style="list-style-type: none"> Review and modify process for post construction inspections, enforcement, and recordkeeping, as necessary 	X	X	X	X	X
		<ul style="list-style-type: none"> Revise existing code relative to post-construction review, inspection, and compliance, as necessary 	X	X	X	X	X
		<ul style="list-style-type: none"> Begin process to incorporate LID principles and BMPs via ordinance or other regulatory mechanism 		X			
		<ul style="list-style-type: none"> Formally codify the “Eastern Washington LID Guidance Manual” 			X		
		<ul style="list-style-type: none"> Revise Spokane County Code to require that certain new and redevelopment projects retain runoff on-site for 10-year, 24-hour rainfall event or equivalent; otherwise: <ol style="list-style-type: none"> Develop and implement criteria to determine when it is infeasible to require new and redevelopment projects to retain runoff on-site for 10-year, 24-hour rainfall event 			X		
		<ul style="list-style-type: none"> Submit one of the following: <ol style="list-style-type: none"> A summary of criteria defining infeasibility of the 10-year, 24-hour rainfall retention on-site requirement for new and redevelopment projects; OR A citation for formally adopting, via ordinance or other regulatory mechanism, the infeasibility criteria detailed in the Eastern Washington LID Guidance Manual 				X	



13.7 SWMP Pollution Prevention and Good Housekeeping for Municipal Operations Priorities and Measurable Goals

Permit Component	Program Category	Measurable Milestones Description	Permit Year				
			2014 – 2015	2015 – 2016	2016 – 2017	2017 – 2018	2018 – 2019
S5.B.6	Pollution Prevention and Good Housekeeping for Municipal Operations (See Section 9)	• Update good housekeeping and pollution prevention materials for maintenance staff and field crews, as necessary	X	X	X	X	X
		• Implement inspection schedule of fleet operations, heavy equipment and equipment storage areas, and maintenance areas	X	X	X	X	X
		• Assess fleet operations, and make improvements based on assessment findings, as necessary	X	X	X	X	X
		• Continue to implement SWPPPs for vehicle fleets, heavy equipment storage areas, and maintenance areas	X	X	X	X	X
		• Continue to implement the County’s spill response plan for vehicle fleets, heavy equipment storage areas, and maintenance areas	X	X	X	X	X
		• Inspect and assess material storage locations, and make improvements based on findings, as necessary	X	X	X	X	X
		• Conduct catch basin inspections within MS4	X	X	X	X	X
		• Inspect all County catch basins by December 31, 2018	X	X	X	X	
		• Increase catch basin inspection frequency to 95% of MS4 every two years					X
		• Continue County street sweeping program	X	X	X	X	X
		• Continue County parking lot sweeping program	X	X	X	X	X
		• Monitor and track MS4 cleaning activities	X	X	X	X	X
		• Implement erosion controls for County construction projects that meet Ecology’s 1-acre land disturbance threshold	X	X	X	X	X
• Train in-house inspectors in erosion and stormwater controls	X	X	X	X	X		
(Additional Priorities and Measurable Goals continued on next page)							



Permit Component	Program Category	Measurable Milestones Description	Permit Year				
			2014 – 2015	2015 – 2016	2016 – 2017	2017 – 2018	2018 – 2019
S5.B.6	Pollution Prevention and Good Housekeeping for Municipal Operations	• Train maintenance staff, field crews, and other County employees in good housekeeping and pollution prevention practices	X	X	X	X	X
		• Continue recordkeeping of O&M actions and activities	X	X	X	X	X
		• Review and update the County’s O&M Plan, if needed			X		



13.8 SWMP Total Maximum Daily Load Requirements Priorities and Measurable Goals

Permit Component	Program Category	Measurable Milestones Description	Permit Year				
			2014 – 2015	2015 – 2016	2016 – 2017	2017 – 2018	2018 – 2019
S7	Total Maximum Daily Load Requirements (See Section 10)	• Prepare Ella Road stormwater discharge monitoring plan	X				
		• Prepare and submit a Quality Assurance Project Plan (QAPP)	X				
		• Modify QAPP, if necessary, and re-submit within 90 days of receiving Ecology comments	X				
		• Implement Ecology-approved monitoring plan	X	X			
		• Sample for pollutant loading at outfall, at least once per month from March to October	X	X	X	X	X
		• Document discharge volumes for all precipitation events sampled	X	X	X	X	X
		• Consult with Ecology to evaluate results of monitoring plan prior to December 31, 2016			X		
		• If monitoring results exceed Ecology’s Waste Load Allocations (WLA) for pollutant loading, prepare and submit an Action Plan to Ecology by March 31, 2017			X		
		• Implement Action Plan conditions, if required				X	
		• Enter monitoring data and results into Ecology’s Environmental Information Management (EIM) database		X	X	X	X
		• Include monitoring data and results in Annual Report	X	X	X	X	X



13.9 SWMP Effectiveness Studies Priorities and Measurable Goals

Permit Component	Program Category	Measurable Milestones Description	Permit Year				
			2014 – 2015	2015 – 2016	2016 – 2017	2017 – 2018	2018 – 2019
S8.B; S8.C	Effectiveness Studies (See Section 11)	<ul style="list-style-type: none"> Collaborate to review effectiveness study ideas, define sub-regions, and potential partnerships 	X				
		<ul style="list-style-type: none"> Compile list of 12 to 15 study ideas, and identify lead entity for each 	X				
		<ul style="list-style-type: none"> Collaborate to submit ranked list of 12 to 15 effectiveness study ideas 		X			
		<ul style="list-style-type: none"> Submit summary of data collection needed, lead entity, and participating Permittees with each study idea 		X			
		<ul style="list-style-type: none"> Each lead entity to submit a total of 8 to 12 study proposals to Ecology for review/approval 			X		
		<ul style="list-style-type: none"> Within 6 months of Ecology approval, lead entities to submit QAPPs for a combined total of 8 to 12 effectiveness studies 			X	X	
		<ul style="list-style-type: none"> Within 6 months of QAPP approval, lead entities of at least 4 studies begin implementing each study 			X	X	
		<ul style="list-style-type: none"> Within 15 months of QAPP approval, lead entities begin to implement remaining 4 to 8 studies 			X	X	
		<ul style="list-style-type: none"> Prior to end of Permit Year 5, enter data/results in to Ecology’s Environmental Information Management (EIM) database 					X
		<ul style="list-style-type: none"> Include County participatory details in SWMP and Annual Report 	X	X	X	X	X



13.10 SWMP Coordination Responsibilities Priorities and Measurable Goals

Permit Component	Program Category	Measurable Milestones Description	Permit Year				
			2014 – 2015	2015 – 2016	2016 – 2017	2017 – 2018	2018 – 2019
S5.A; S5.B	Coordination Responsibilities (See Section 12)	<ul style="list-style-type: none"> Continue lead role in coordinating Permit requirements among various County departments 	X	X	X	X	X
		<ul style="list-style-type: none"> Participate in inter-departmental meetings regarding new and re-development construction proposals 	X	X	X	X	X
		<ul style="list-style-type: none"> Utilize SEPA and Cultural Resources Review as additional mechanism to coordinate with other jurisdictions 	X	X	X	X	X
		<ul style="list-style-type: none"> Coordinate with contiguous MS4 cities on projects that impact interconnected MS4s 	X	X	X	X	X
		<ul style="list-style-type: none"> Make County stormwater inventory and mapping available to neighboring jurisdictions and cities 	X	X	X	X	X
		<ul style="list-style-type: none"> Continue involvement in NPDES regional coordination groups, and local water quality working groups and committees 	X	X	X	X	X
		<ul style="list-style-type: none"> Include summary of coordination efforts in Annual Report 	X	X	X	X	X



SECTION 14 – CONCLUSION

On August 1, 2014, Spokane County’s new 5-year term NPDES Phase II Permit went into effect. This Stormwater Management Program Plan has been prepared to demonstrate compliance with the requirements of the current NPDES Phase II Permit. This SWMP Plan will be a working document, to be updated annually, until the Permit expires on July 31, 2019. Additional information about the County’s NPDES program can be found at the website listed below.

The public is encouraged to participate in the development of the SWMP Plan. Please contact Spokane County’s Division of Engineering and Roads, Stormwater Utility Department, with questions, comments, or ideas at:

Spokane County Stormwater Utility
Public Works Building, 3rd Floor
Spokane, WA 99260-0170
Phone: 509-477-3600
Website: <http://www.spokanecounty.org/stormwater>



APPENDIX A – ACRONYMS

BMP:	Best Management Practice
CWA:	Clean Water Act
ESC:	Erosion and Sediment Control
GIS:	Geographic Information System
IDDE:	Illicit Discharge Detection and Elimination
LID:	Low Impact Development
MS4:	Municipal Separate Storm Sewer System
NPDES:	National Pollutant Discharge Elimination System
O&M:	Operations and Maintenance
QAPP:	Quality Assurance Project Plan
RCW:	Revised Code of Washington
SEPA:	State Environmental Policy Act
SRSM:	Spokane Regional Stormwater Manual
SWMMEW:	Stormwater Management Manual for Eastern Washington
SWMP:	Stormwater Management Program
SWPPP:	Stormwater Pollution Prevention Plan
TMDL:	Total Maximum Daily Load
UIC:	Underground Injection Control
WAC:	Washington Administrative Code
WADOE:	Washington Department of Ecology (<i>aka</i> DOE)



APPENDIX B – DEFINITIONS

Best Management Practice: The utilization of methods, techniques and/or products that have been demonstrated to be the most effective and reliable in minimizing environmental impacts.

CWA: The federal Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Pub. L. 92-500, as amended in Pub. L. 95-217, Pub. L. 95-576, pub. L. 96-483, and Pub. L 97-117, 33 U.S.C 1251 *et seq.*

Development: Any proposed land use, zoning, or rezoning, comprehensive plan amendment, annexation, subdivision, short subdivision, planned unit development, planned area development, conditional use permit, special use permit, shoreline development permit, or any other property development action permitted or regulated by the Spokane County Code.

Discharge (v): Disposal, injections, dumping, spilling, pumping, emitting, emptying, leaching or placing of any material so that material enters and exits from the MS4 or from any other publicly owned or operated drainage system that convey storm water. The term includes other verb forms, where applicable.

Discharge (n): Runoff, excluding offsite flows, leaving the proposed development through overland flow, built conveyance systems or infiltration facilities.

Drainage: (1) The process of removing surplus ground or surface water by artificial means, (2) the manner in which the waters of an area are removed, or (3) the area from which waters are drained; a drainage basin.

Erosion and Sediment Control: Any temporary or permanent measures taken to reduce erosion, control siltation and sedimentation, and ensure that sediment-laden water does not leave a site.

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

Heavy Equipment Maintenance or Storage Yard: An uncovered area where heavy equipment (e.g. mowers, excavators, dump trucks, backhoes, or bulldozers) is washed, maintained, or stored regularly or on a long-term basis.

Illicit Connection(s): Any man-made conveyance connected to the MS4 in violation of the National Pollutant Discharge Elimination System (NPDES) Permit requirements.



Illicit Discharge: The introduction or discharge of anything into the MS4 in violation of the National Pollutant Discharge Elimination System (NPDES) Permit requirements.

Impervious Surface: A hard surface area that either prevents or retards the entry of water into the soil mantle. Common impervious surfaces include, but are not limited to, rooftops, walkways, patios, driveways, parking lots, storage areas, concrete, or surfaces that impede the natural infiltration of stormwater.

Low Impact Development: A stormwater management and land development strategy applied at the parcel and/or subdivision scale that emphasizes conservation and use of on-site natural features integrated with engineered, small-scale hydrologic controls to more closely mimic predevelopment hydrologic conditions.

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

Municipal Separate Storm Sewer System (MS4): A conveyance or system of conveyances, including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains, (1) owned or operated by a state, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State Law) having jurisdiction over disposal of wastes, stormwater, or other wastes, including special districts under State Law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the United States, (2) designed or used for collecting or conveying stormwater, (3) which is not a combined sewer, and (4) which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

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

NPDES Eastern Washington Phase II Municipal Stormwater Permit (WAR 04-6506): A permit issued to Spokane County from the Washington State Department of Ecology, granting authority to discharge stormwater into state surface waters.



Outfall: The point where a MS4 discharges to Waters of the State, and does not include open conveyances connecting two MS4s, or pipes, tunnels, or other conveyances which connect segments of the same stream or other Waters of the State, and are used to convey Waters of the State.

Permittee: Any Primary Permittee, Co-Permittee, or Secondary Permittee, unless specifically stated otherwise for a particular Section of Permit WAR 04-6506.

Pollutant: (1) Any substance prohibited or limited by federal, state or local regulations, released or discharged in conjunction with development. (2) Any substance, released or discharged, that causes or contributes to violation of water quality standards.

Quality Assurance Project Plan (QAPP): Describes the goals and objectives of a monitoring project, and procedures necessary to achieve objectives. Preparation of a QAPP helps focus and guide project planning, and promotes communication among those who contribute to the study. A completed QAPP provides direction to those who carry out monitoring projects while providing regulators/managers a view of successful and validated data collection systems

Runoff: (1) Water that travels across the land surface, or laterally through the ground near the land surface, and discharges to waterbodies either directly or through a collection and conveyance system.

Spokane Regional Stormwater Manual: A technical document establishing standards for stormwater design and management to protect water quality, natural drainage systems, and down-gradient properties as urban development occurs.

State Environmental Policy Act (SEPA): A Washington State program, enacted by the Washington Legislature in 1971, that helps state and local agencies in Washington identify possible environmental impacts that could result from governmental decisions including, (1) issuing permits for private projects, (2) constructing public facilities, and (3) adopting regulations, policies, or plans such as a comprehensive plan, critical areas ordinance, or water quality regulation. Under SEPA, project proponents are tasked with completing an environmental checklist which asks questions about the proposal and its potential impacts on the environment. The checklist is subsequently reviewed by the lead agency in which the project is located, and decision-makers determine whether or not to issue a license or permit for the proposal.

Stormwater: Any runoff flow occurring during or after any form of natural precipitation, and resulting from such precipitation, including snowmelt. Stormwater further includes any locally accumulating ground or surface waters, even if not directly associated with natural precipitation events, where such waters contribute or have potential to contribute to runoff onto the public right-of-way, public storm or sanitary sewers, or flooding or erosion on public or private property.



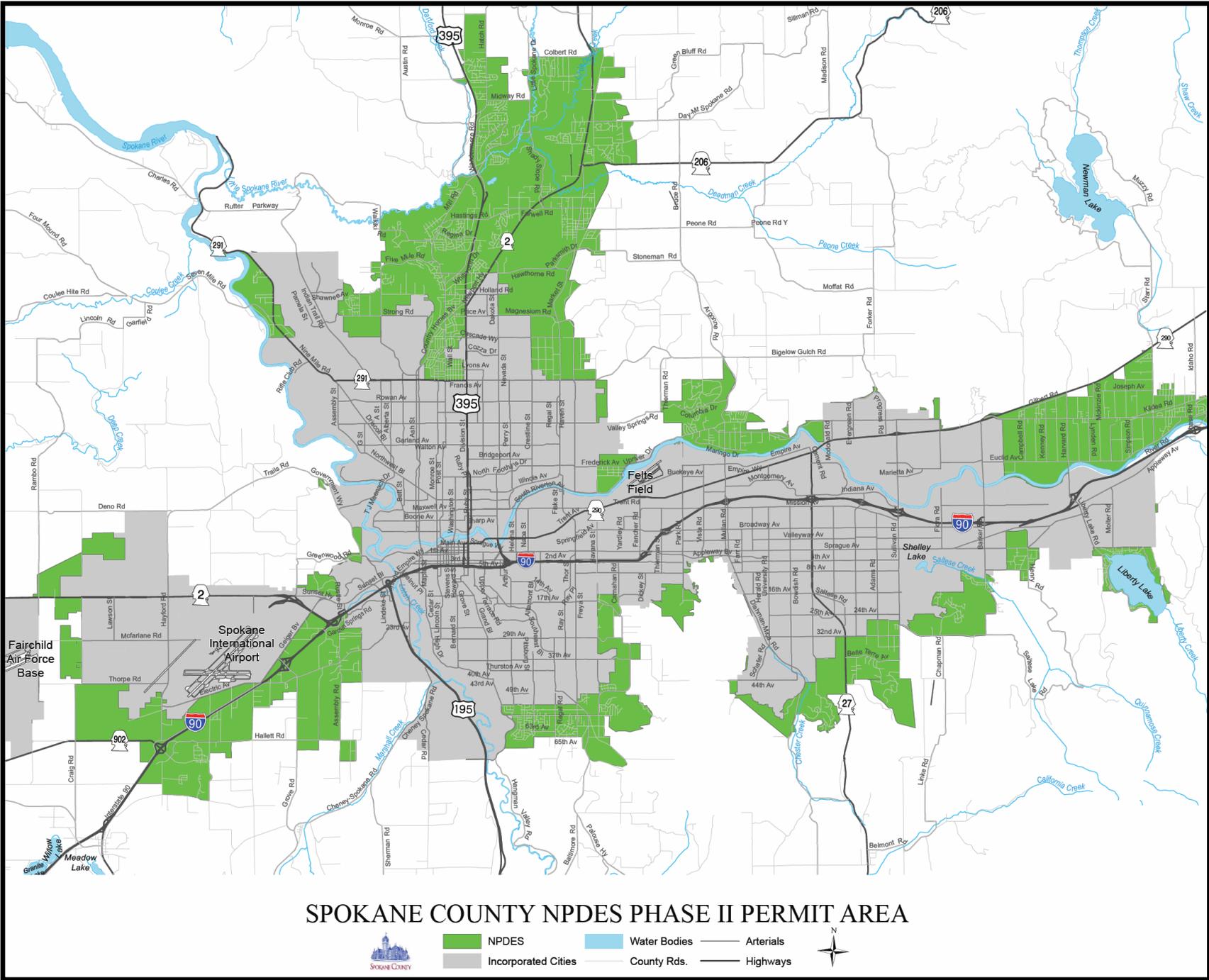
Stormwater Management Program (SWMP): A set of actions and activities designed to reduce the discharge of pollutants from the regulated small MS4 to the MEP, and to protect water quality; it comprises the components listed in S5, S6, and S8 of Permit WAR 04-6506, and any additional actions necessary to meet the requirements of applicable TMDLs.

Total Maximum Daily Load (TMDL): A TMDL is both a calculation of the maximum amount of a pollutant that a water body can receive and still meet water quality standards, and an allocation of that amount to the pollutant's sources. TMDLs are the sum of the allowable loads of a single pollutant from all contributing point and non-point sources. The calculation includes a margin of safety to ensure that the water body can be used for its state-designated purposes. The calculation also accounts for seasonable variation in water quality. Water quality standards are set by states, territories, and tribes. They identify the uses for each water body – such as drinking water supply, contact recreation (swimming), and aquatic life support (fishing) – and the scientific criteria to support that use. The Clean Water Act, Section 303, establishes the water quality standards and TMDL program.



APPENDIX C – MS4 MAPS and PROGRAM DATA

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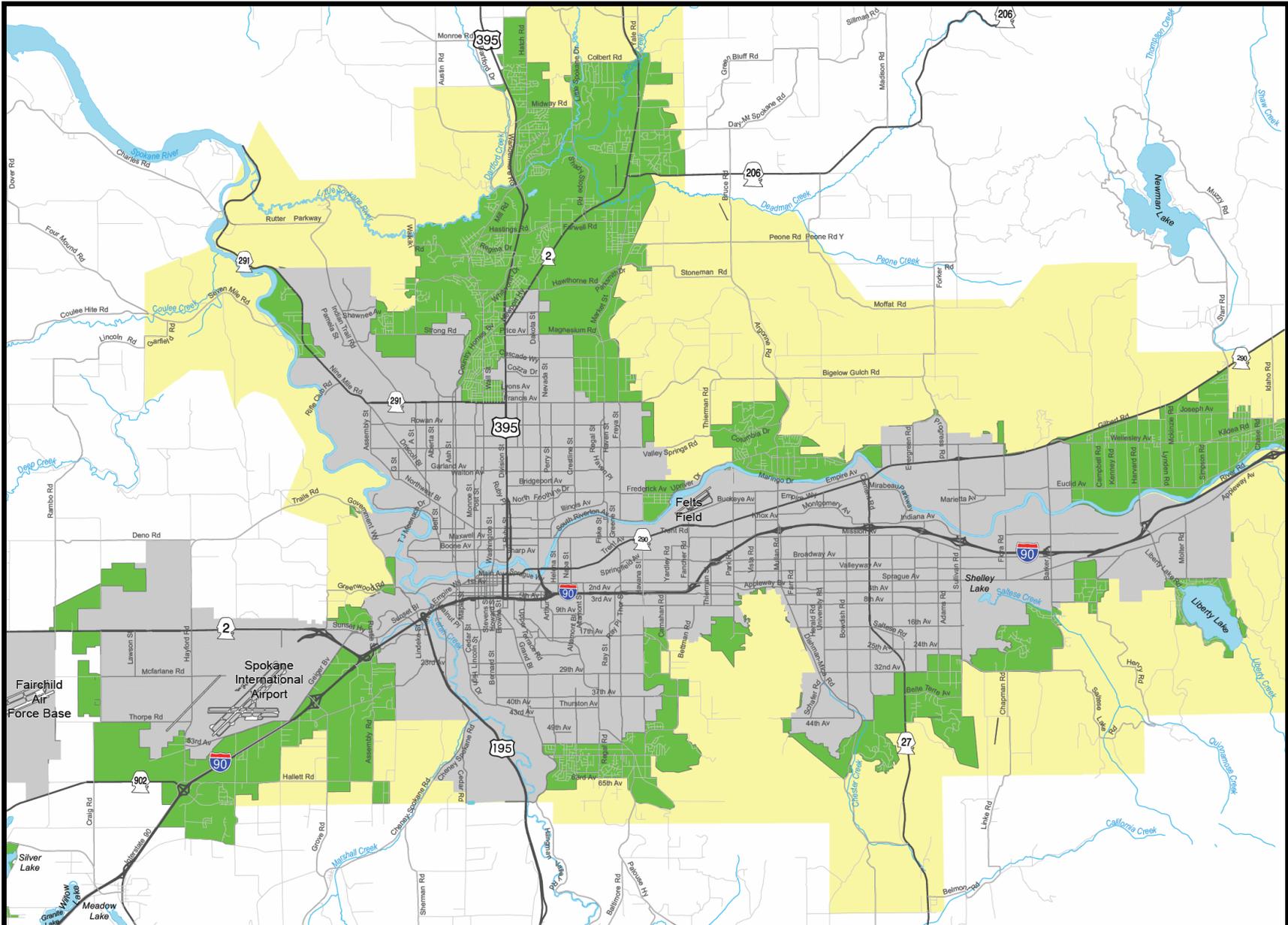


SPOKANE COUNTY NPDES PHASE II PERMIT AREA



- NPDES
- Water Bodies
- Incorporated Cities
- Arterials
- County Rds.
- Highways





SPOKANE COUNTY STORMWATER SERVICE AREA



Stormwater Service Area

NPDES

Incorporated Cities

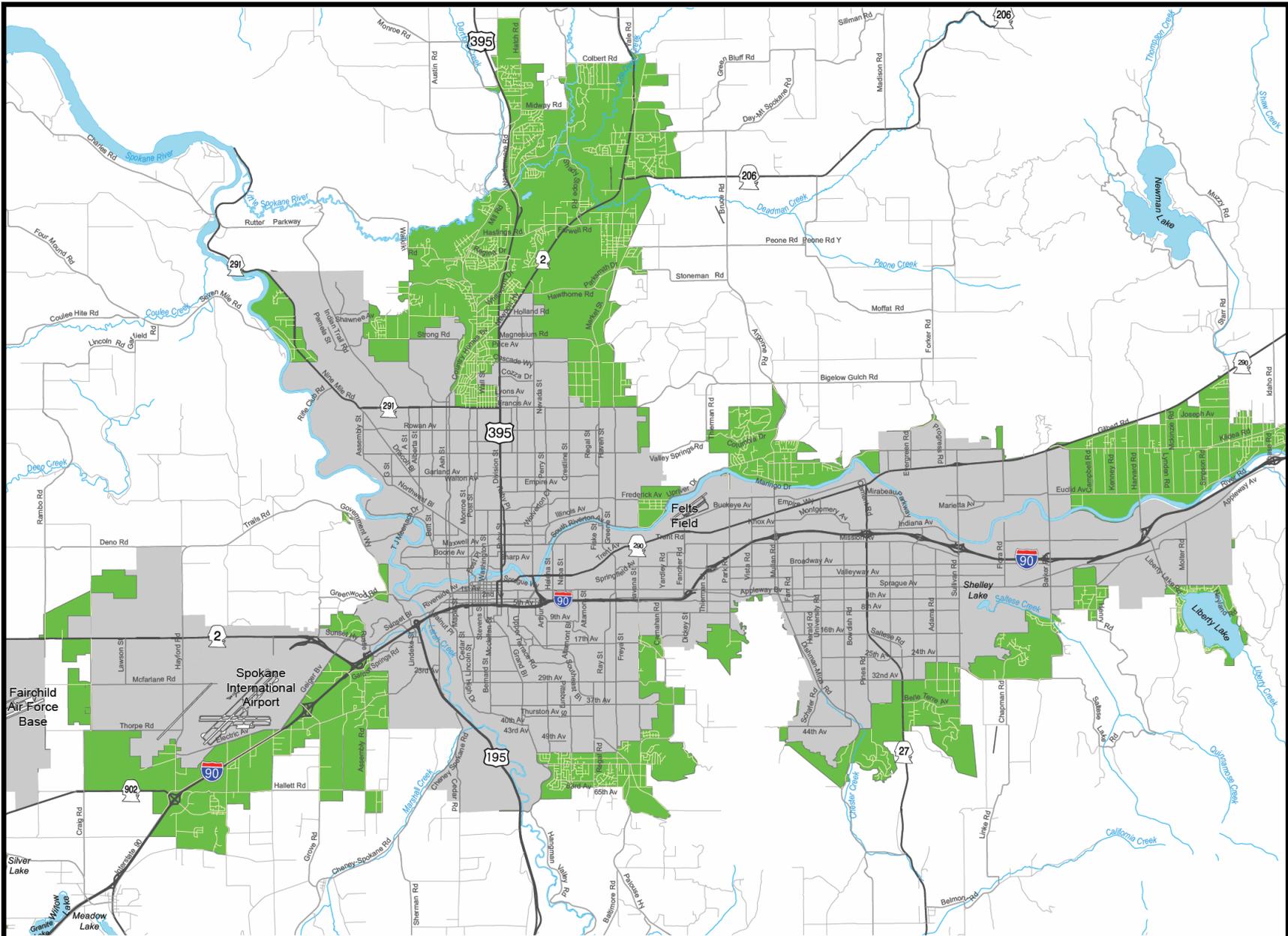
Water Bodies

Arterials

Highways

County Rds.



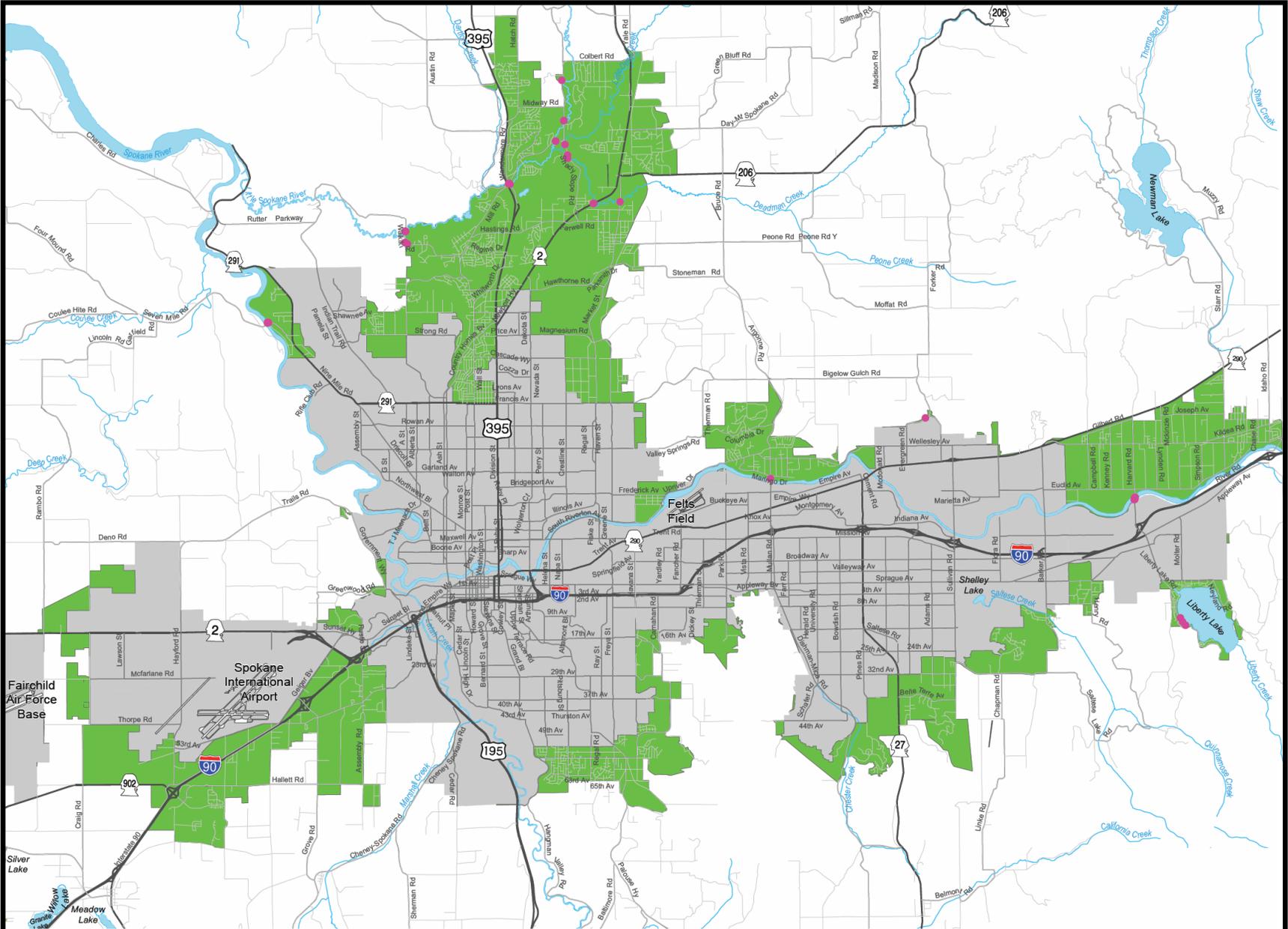


NPDES PHASE II COUNTY-MAINTAINED ROADS


 Roads in NPDES (494 m.)
 Incorporated Cities
 Water Bodies

NPDES
 Highways
 Arterials
 County Rds.





SPOKANE COUNTY NPDES PHASE II OUTFALLS



- Outfalls
- Incorporated Cities
- Arterials
- County Rds.
- NPDES
- Water Bodies
- Highways

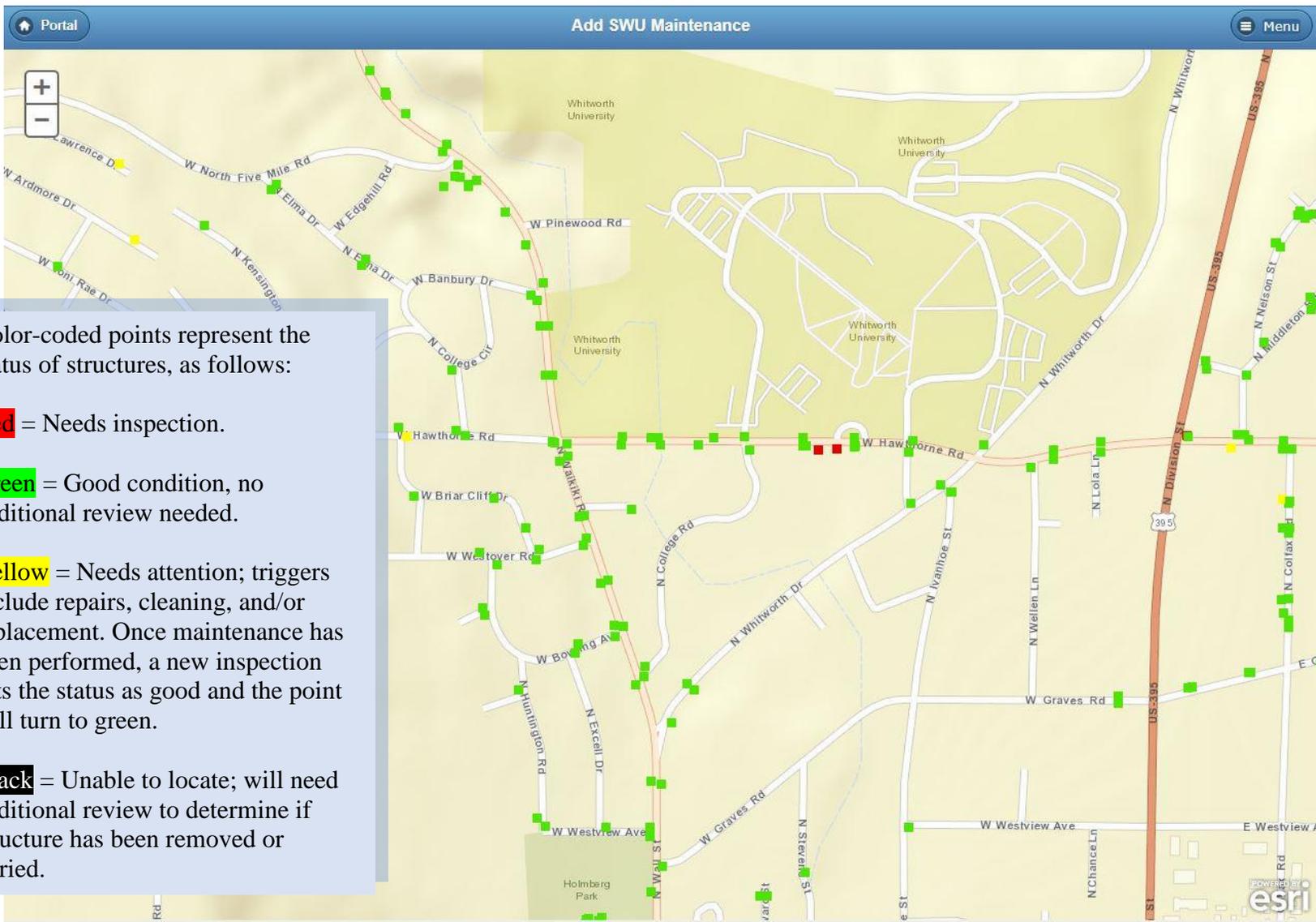


Snapshots of new *Stormwater Facility Inventory and Maintenance Tracking Application*

Working with GIS inventory from previous years as a baseline, this application allows field crews to inspect and perform maintenance on stormwater facilities, updating data in real time.

While at an inspection site, the map screen adjusts to the current location using GPS.

As a facilities maintenance schedule is determined, the color of the points will change to red, indicating a new inspection cycle is required.



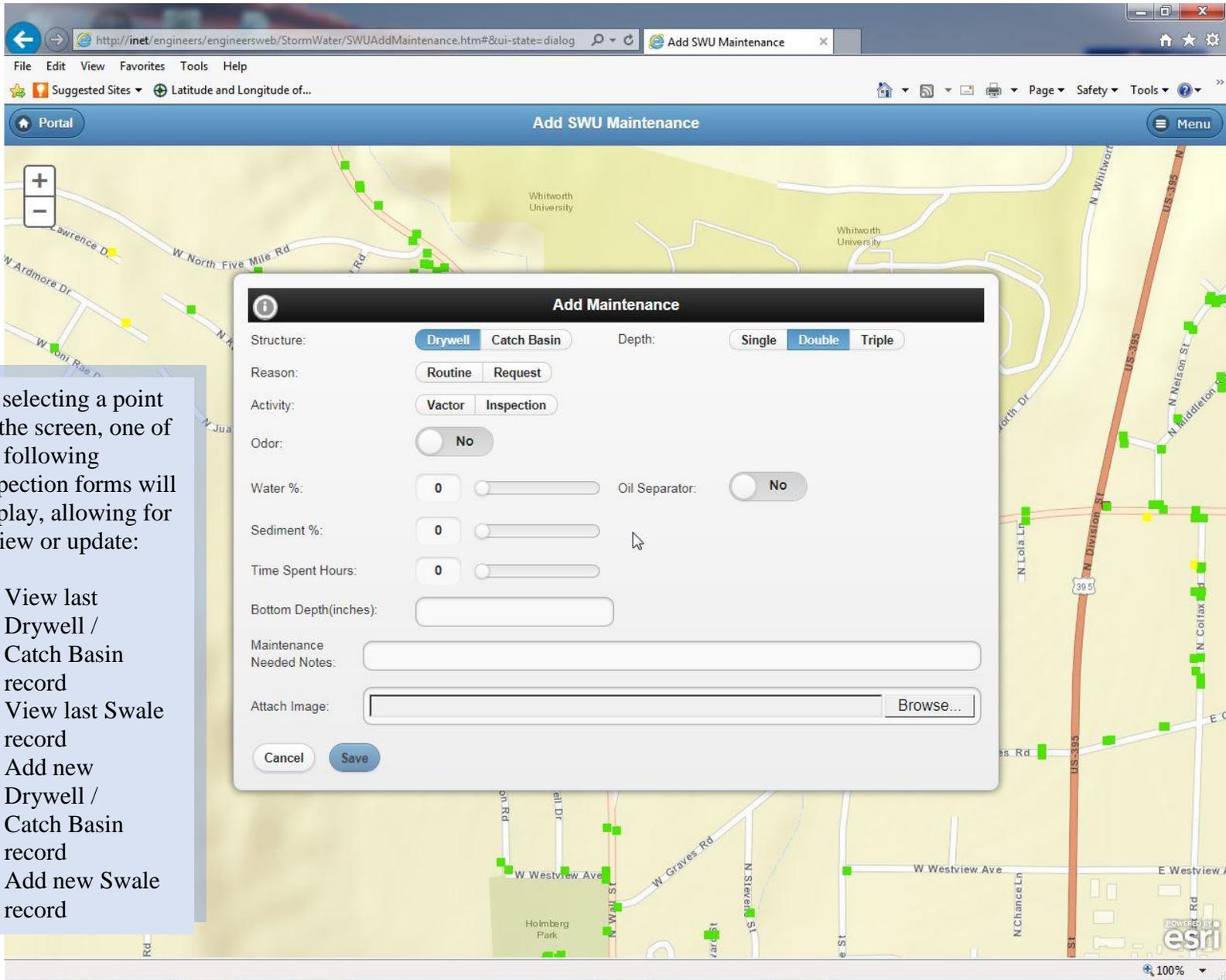
Color-coded points represent the status of structures, as follows:

Red = Needs inspection.

Green = Good condition, no additional review needed.

Yellow = Needs attention; triggers include repairs, cleaning, and/or replacement. Once maintenance has been performed, a new inspection sets the status as good and the point will turn to green.

Black = Unable to locate; will need additional review to determine if structure has been removed or buried.



By selecting a point on the screen, one of the following inspection forms will display, allowing for review or update:

1. View last Drywell / Catch Basin record
2. View last Swale record
3. Add new Drywell / Catch Basin record
4. Add new Swale record



**APPENDIX D – ANSWER TO QUESTION 15b, MS4 ANNUAL REPORT
(PHASE II – EASTERN WASHINGTON)**

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SPOKANE COUNTY

**ACTIONS TAKEN TO INFORM EMPLOYEES, BUSINESSES, AND PUBLIC
OF HAZARDS ASSOCIATED WITH
ILLICIT DISCHARGES AND IMPROPER DISPOSAL OF WASTE**



1. Introduction and Permit Requirement

The Eastern Washington Phase II Municipal Stormwater Permit, Special Condition, Requirement S5.B.3.c.vi reads:

The Stormwater Management Program (SWMP) “shall inform public employees, businesses, and the general public of hazards associated with illicit discharges and improper disposal of waste.”

This narrative addresses variety of methods employed by the Stormwater Utility to inform staff, residents, and businesses about hazards associated with illicit discharges and improper disposal of waste.

2. Illicit Discharge Education Program

Public education is a key component in influencing behavior in a way that benefits water quality, and has become the first line of defense in addressing many stormwater problems. The outreach activities and actions listed below were selected to take advantage of existing programs and to target specific audiences that are important in Spokane County.

2.1 Website

The Spokane County Stormwater Utility maintains an Illicit Discharge and Detection (IDDE) website which discusses the County’s program, and lists the IDDE Hotline. The public can read about the County’s mascot, *Storm Drain Dan*, whose motto “Only Rain down the Storm Drain” encourages youth and adults alike to take responsibility for keeping pollution out of storm drains. The website, found [HERE](#), describes what illicit discharges are, how to prevent them, and actions to take when someone is dumping or discharging pollutants into the County’s MS4.

The Spokane County Stormwater Utility, Water Resources Department, and Spokane County Regional Solid Waste System help promote the *EnviroStars Waste Directory* website, an online service that not only lists and explains the hazardous materials found in varying types of waste, but identifies vendors who accept that waste for disposal. The *EnviroStars Waste Directory* can be accessed [HERE](#).

2.2 Mailings, Brochures, Giveaways, etc.

On several occasions, the Stormwater Utility has disseminated informational inserts to County residents via Utility billing mailings which describe the County’s Illicit Discharge Detection and Elimination (IDDE) Hotline and its purpose.

The County has purchased refrigerator magnets and temporary tattoos, which similarly list the IDDE Hotline number and depict our mascot, *Storm Drain Dan*, and continues to give them away to the public at various community events.



Additionally, the Spokane County Stormwater Utility, Water Resources Department, and Spokane County Regional Solid Waste System regularly distribute and/or post downloadable online versions of various brochures and informational flyers instructing the public on pollution prevention and hazardous waste disposal.

2.3 Spokane Valley-Rathdrum Prairie Aquifer Atlas – 2015 Update

The Stormwater Utility and Spokane County Water Resources Department, in cooperation with other local NPDES Permittees and regional water quality protection groups, participated in a comprehensive update of the *Spokane Valley-Rathdrum Prairie Aquifer Atlas* during throughout 2014-2015. The new edition features several pages on stormwater runoff and stormwater facilities, in addition to IDDE pollution prevention instruction for homeowners and businesses. The Atlases are available to the public free-of-charge at the Public Works Building and Spokane County Water Resource Center during regular business hours, and are given away at various community events including Earth Day, Kids Day, ValleyFest, and the Spokane County Interstate Fair. The *Atlas* can also be accessed online at the County’s website [HERE](#).

2.4 K-12 Education

Spokane County utilizes various educational tools throughout the year to instruct youth about the importance of keeping pollution out of the MS4 and, in particular, storm drains. These games include: 1) Stormwater Plinko; 2) Stormwater Magic; 3) Stormwater *MisMatch*; and the 4) Storm Drain Shell Game. The games are described in *ATTACHMENT 4: Public Education & Outreach and Public Involvement & Participation Plan* of the Annual Report.

In 2012, the County completed its first stormwater-related activity book geared toward young children. The focus of the activity book, titled *Storm Drain Dan and His Adventures to Save Our Water*, is to educate kids about stormwater, stormwater pollution, and pollution prevention via storytelling, mazes, word searches, and puzzles. The storyline spotlights two children informing their father about the hazards of pouring used motor down a storm drain, and what to do with it instead. Over 1,500 of these activity books were given away in 2015 alone.

2.5 Public Education via Enforcement

Municipal Separate Storm Sewer Systems (MS4s) are periodically inspected for evidence of non-stormwater discharges by visually observing open-channel sections. Inspections are performed by Stormwater Utility staff, who work with landowners to correct problems. Spokane County Road Maintenance Dept. staff are also trained to look for evidence of non-stormwater discharges to the drainage system during their normal duties. A procedure for reporting potential problems is included with the existing “Hotline and Request for Investigation” process currently utilized by the County.



2.6 Hazardous Waste Disposal

Spokane County is now responsible for providing the framework for solid waste disposal, recycling, and related educational outreach within unincorporated Spokane County and System member jurisdictions. The *Spokane County Regional Solid Waste System* conducts extensive education and outreach on waste reduction, recycling, and both household and business hazardous waste pollution prevention. Their education program can be accessed online at the County's website [HERE](#).

As mentioned above, the Spokane County Regional Solid Waste System, Stormwater Utility, and Water Resources Department distributes various brochures and informational flyers instructing the public on pollution prevention and hazardous waste disposal. These County departments also help promote the non-profit *EnviroStars Waste Directory* website, a free online service that not only lists and explains the hazardous materials found in varying types of waste, but similarly identifies vendors who accept that waste for disposal. The *EnviroStars Waste Directory* can be accessed [HERE](#).

3. Staff Training

Training municipal staff who may come into contact with or otherwise observe an illicit discharge or connection while performing their normal job responsibilities is essential in order to conduct timely mitigation of non-stormwater discharges to the MS4. As such, the County provides opportunities for IDDE training for staff that conduct field-related activities. This includes staff from the following departments:

- Stormwater Utility;
- Development Services;
- Road Maintenance;
- Construction Services;
- Fleet Management; and
- Facilities Maintenance.

County staff has been trained to identify potential sources of stormwater pollution and report concerns. Staff can also report stormwater-related issues by directly contacting the Stormwater Utility. Public Works Road Maintenance staff has primary responsibility for responding to emergencies related to surface water in the County. This includes providing 24-hour emergency response to flooding of streets or structures, pollutant spills, and illegal discharge of pollutants to the storm and surface-water systems.

Additionally, the Public Works Road Maintenance; Fleet Management; Parks, Recreation, and Golf; Regional Solid Waste System; and Facilities Maintenance staff continue to implement practices and procedures designed to prevent stormwater impacts associated with their respective maintenance activities including, but not limited to: 1) pipe and culvert cleaning; 2) swale and ditch maintenance; 3) street cleaning; 4) road repair; 5) snow and ice control; 6) vector waste



disposal; 7) storage, handling, and application of pesticides and fertilizers; 8) hazardous material storage and disposal; and 9) vehicle washing and repair.

4. Conclusion

Stormwater pollution, as a result of illicit discharges, has a major impact on our local waterways and groundwater. Spokane County is required to protect these valuable resources and, by targeting audiences such as the general public and businesses, significant improvements are being achieved simply through the ability to understand the problem at-hand. In addition, with proper guidance and training, municipal employees play an important role in protecting water quality by preventing stormwater pollution during their daily operations, and reporting all pollution observed in the field.



APPENDIX E – DECANT FACILITY O&M PLAN

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MAINTENANCE & OPERATIONS PLAN

**SPOKANE COUNTY REGIONAL DECANT
FACILITY**

15 E. Farwell
Spokane, WA

SPOKANE COUNTY ENGINEERING AND ROADS

1026 W. Broadway
Spokane, WA 99260

August 18, 2015

1. INTRODUCTION

The Spokane County Regional Decant Facility is owned and operated by Spokane County Engineering and Roads. The mission of the Spokane County Regional Decant Facility is to provide an environmentally sound system for handling, treating, and disposing of stormwater liquids and solids generated from the cleaning of stormwater drainage systems. Spokane County is providing a regional stormwater disposal option for all authorized users including City of Spokane and Washington State Department of Transportation.

The purpose of this manual is to serve as a guide for operating, maintaining, and using the Spokane County Regional Decant Facility.

2. GENERAL INFORMATION

The Spokane County Regional Decant Facility was constructed in 2015. Other operations occurring at the facility site include: Old Corral pit for road maintenance, stockpiling of aggregates, winter operations including sand/salt and magnesium chloride storage, office for the road maintenance district, and sweeping operations. General information about the decant facility is presented in Table 1. A vicinity map with facility access routes and access restrictions is provided in Figure 1. Figure 2 shows the facility layout.

Access to the Spokane County Regional Decant Facility is reached travelling north on Highway 395 and then heading west on Farwell Road. The entrance to the Decant Facility is located at the intersection of Farwell and Ruby, west of the main entrance to the Old Corral Pit.

Authorization to use the Spokane County Regional Decant Facility will be granted to government agencies that are approved by Spokane County and have been trained to use the facility.

Only stormwater liquids and solids collected from the cleaning of drainage systems designed to collect stormwater (water that originates from precipitation and enters the stormwater system as stormwater runoff, groundwater, or surface water) is allowed to be disposed of at the Spokane County Regional Decant Facility.

Waste materials specifically prohibited from being disposed of at the Spokane County Regional Decant Facility include, but is not limited to:

- ⊗ Materials with suspected or obvious contamination
- ⊗ Waste or leachate collected from solid waste transfer stations
- ⊗ Sites associated with the production of solvents, fuels, PCBs, pesticides, or radioactive materials
- ⊗ Process water from car wash vaults
- ⊗ Stormwater and/or water treatment systems (filters, etc.)
- ⊗ Concrete slurry
- ⊗ Waste material from stormwater drainage systems with known contamination
- ⊗ Sewage or industrial lift stations
- ⊗ Sanitary sewer systems or septic systems
- ⊗ Grease trap wastes
- ⊗ Water pumped from utility vaults (requires analytical testing/profile)

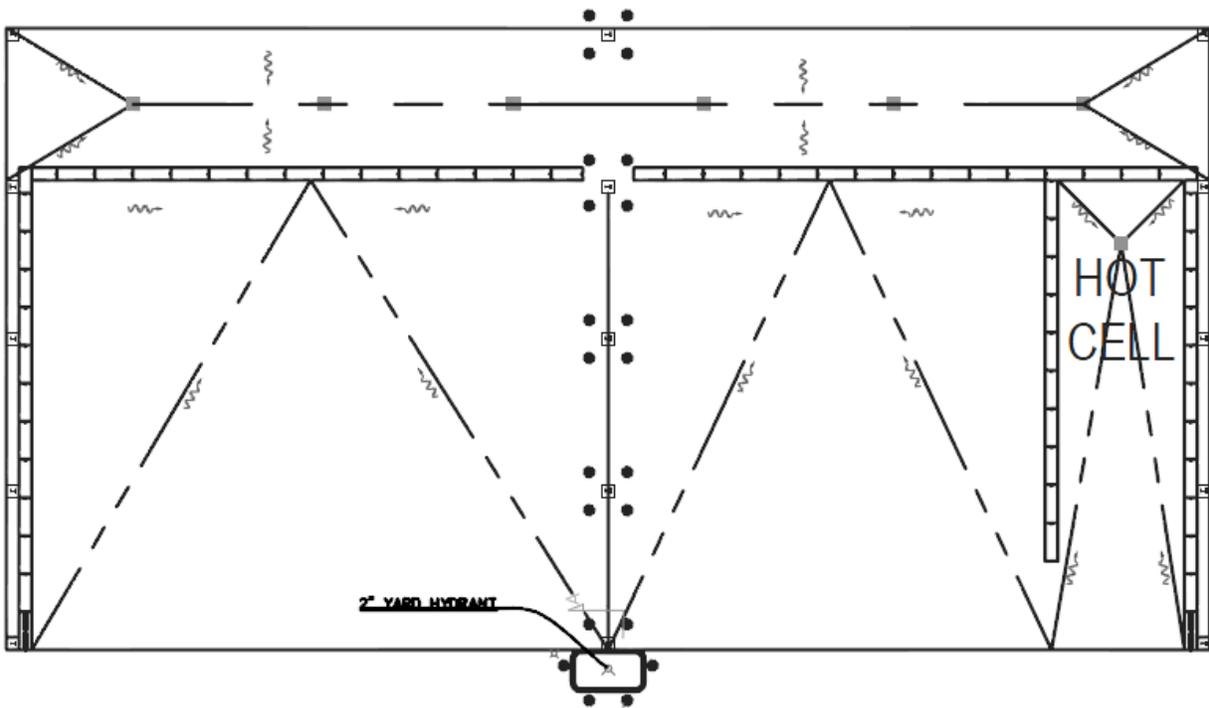
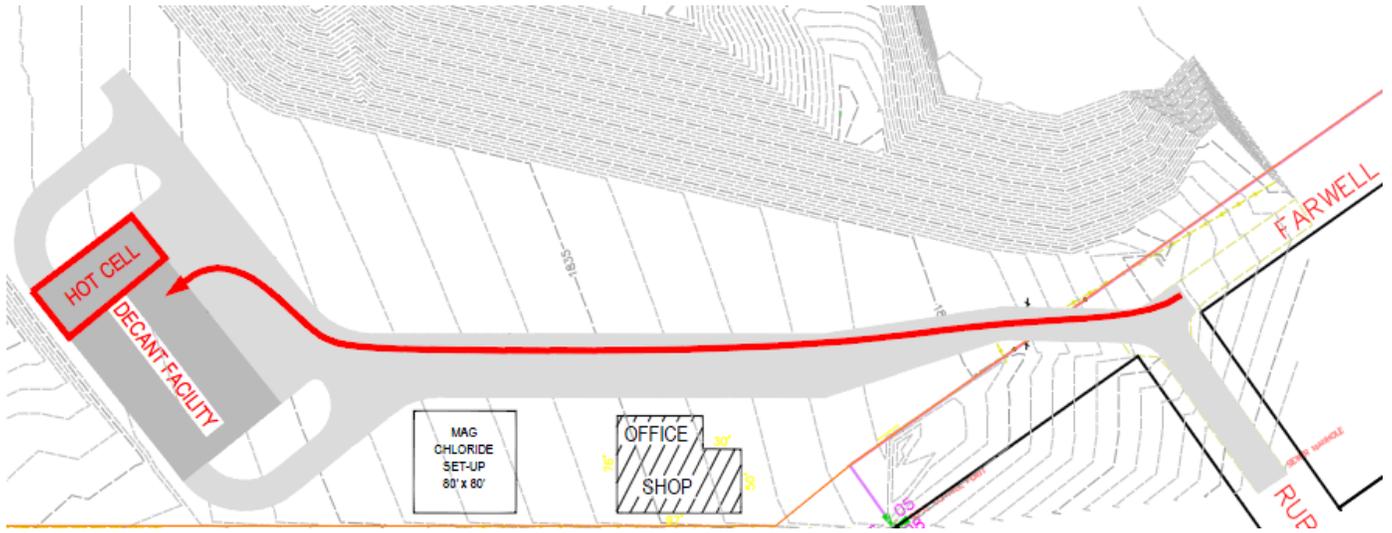
Any authorized user who disposes of prohibited wastes or waste materials at the Spokane County Regional Decant Facility will be responsible for the cost of cleaning the decant facility. In addition, the user may have their authorization to use the station revoked.

Table 1. Decant Facility Information	
Facility Name	Spokane County Regional Decant Facility
Facility Owner	Spokane County Engineering and Roads
Facility Address	15 E. Farwell Road, Spokane, WA 99208
Days/Hours of Operation	Monday - Friday, 7:30am to 3:30pm
Primary Contact	Robert Keneally, Spokane County, 509-477-3600
Authorized Users	City of Spokane, WSDOT
Acceptable Materials	Materials removed from catch basins, drywells, and other stormwater drainage facilities
Prohibited Materials	All non-stormwater, except roadway sweepings
Site Area	Approximately 10 acres
Decant and Solid Storage Area	20,000 square feet
Maximum # Loads Per Day	10 loads per day
Liquids Storage Volume	8,000 cubic feet (total swale volume)
Maximum Allowed Discharge Rate	2,400 cubic feet per day
Maximum Solids Storage Volume	200 cubic yards
Annual Solids Volume	5,000 cubic yards

Figure 1. Vicinity Map and Access Routes to the Spokane County Regional Decant Facility



Figure 2. Layout of the Spokane County Regional Decant Facility



3. USE AUTHORIZATION

3.1 Authorized Users

Authorized users of Spokane County Regional Decant Facility currently include:

- Designated employees of the following governmental agencies: City of Spokane and WSDOT. We accept designations made by municipal managers holding the following types of positions: Head of Public Works, Head of Roads Operations, and Head of Stormwater Operations.

In order to gain access to the Spokane County Regional Decant facility, please email Robert Keneally (rkeneally@spokanecounty.org) and training will be arranged. All drivers who plan to use this facility must complete the required training prior to use.

The training is approximately 1 hour in length and covers operational procedures for decanting liquids and dumping solids, acceptable and unacceptable materials, and hydrant use for refilling water. Additional topics may also be covered. Spokane County staff will keep a database of personnel successfully completing the training program.

License Requirements

Authorized drivers must possess a valid commercial driver's license.

Equipment Requirements

Vehicles using the decant facility must meet the following requirements:

- Ability to discharge liquids and solids separately
- Total capacity for liquid not to exceed 3000 gallons
- Company sign or image on vehicle that is visible from 100 feet
- Decant discharge hose reaches ground

4. MATERIAL QUANTITY MEASUREMENT

Material will be measured by load count. There will be a clip board available on-site to track loads. The authorized user will need to sign in with equipment number and organization. This will be identified as a single load.

5. MATERIAL ACCEPTANCE AND INSPECTION

5.1 Material Acceptance

Acceptable materials may include:

- Eductor liquids and solids from cleaning and maintenance of stormwater conveyance, detention, and treatment structures or facilities
- Excavated materials from cleaning and maintenance of stormwater conveyance, detention, and treatment structures or facilities
- Street and parking lot sweepings
- Ditch spoils
- Eductor liquids and soils generated during utility excavation and potholing
- Other materials deemed acceptable by the decant facility owner(s)

Prohibited materials may include:

- Suspected or confirmed contaminated waste (hot loads)
- Sanitary sewer waste
- Electrical vault waste
- Detergent washed surface waste
- Fuel or hazardous site waste
- Concrete or other inert construction site waste
- Grease trap waste
- Stormwater treatment media (filter media)
- Leachate from transfer stations
- Waste materials from other decant facilities

6. FIELD VACUUM/FLUSH TRUCK PROCEDURES

6.1 Vacuum/Flush (Vactor) Truck Guidelines

Only stormwater liquids and solids collected from the cleaning of drainage systems designed to collect stormwater (water that originates from precipitation and enters the stormwater system as stormwater runoff, groundwater, or surface water) is allowed to be disposed of at the Spokane County Regional Decant Facility.

Vactor trucks are used to conduct a wide-range of services from typical stormwater system cleaning to utility potholing to spill response. If you do work that contaminates your tank (i.e. sewer work or hydraulic oil spill cleanup), be sure to thoroughly clean the tank before conducting stormwater work. Residual tank contamination can contaminate future loads.

Vactor trucks may be used over a weekend or during an after-hours call out. When this work occurs, the generated load may not be decanted after the work has been completed and remains in the tank. If a driver takes a truck that has a load that was not generated by that driver, the driver should determine who picked up the load and the load composition. Drivers should always use extreme caution when decanting loads from unknown sources (as presented in this scenario).

6.2 Inspection of Storm Drains

Liquids and solids removed from stormwater drainage systems are nearly always characterized as an unregulated waste rather than dangerous or hazardous. However, it is possible for contaminants to accumulate over time resulting in concentrations that could designate as dangerous or hazardous wastes. Contaminants can also be present because of spills or illegal dumping of material by citizens or businesses. A quick inspection of the stormwater system using sight and smell can provide valuable information regarding potential contamination of the stormwater system (field screen your loads).

6.3 Inspect Drainage System for Contaminants

Prior to removing materials from the stormwater system, the truck operator or driver must first inspect the stormwater system to be cleaned for evidence of contamination or possible contamination (field screening). Be aware of the area that the work is being conducted and upstream users of the system and the potential for contamination.

One or more of the following occurrences indicates potential contamination:

- Liquid and or solid materials are simply “not typical” of the materials normally found during day-to-day operations.
- Presence of fumes, vapors, or odors. Fumes, vapors, or odors are an excellent indicator of the presence of gas, hydrocarbons, or solvents. If unusual odors are detected, exposure could be dangerous to the driver or helper. Some fumes can deaden the sense of smell almost immediately. If you think you smelled something bad, you probably did.

- Unusual water color. May indicate the presence of antifreeze, oil-based paint, or other contaminant. Antifreeze is classified as a dangerous waste.
- Clear or transparent water. A chemical may be inhibiting normal biological activity.
- Dark, thick, gooey sludge buildup on top of the sediment. May indicate the presence of petroleum products or infrequent cleaning and resulting buildup of contaminants in the sump.
- Drainage area stained or corroded. Stains or corrosion may indicate the presence of hazardous or dangerous waste. Wastes containing metals, solvents, or petroleum constituents will stain surrounding surfaces.
- Unusually clean looking sump. An industrial solvent or cleaner may have been “dumped” into the sump. These may designate as hazardous or dangerous waste.

6.4 Fails Inspection

Follow your own agency/company guidelines on how to proceed if you suspect a storm drain is contaminated.

Do not dispose of any known or suspected contaminated loads at the Spokane County Regional Decant Facility.

6.5 Passes Inspection

Clean the storm drain(s) and dispose of generated liquids and solids at the Spokane County Regional Decant Facility.

7. SPOKANE COUNTY REGIONAL DECANT FACILITY

7.1. Decanting and Dumping Procedures

The following is a quick overview of the procedures to follow when using the Spokane County Regional Decant Facility. At no time shall there be less than one trained person per vehicle to use the station.

- When decanting liquids, make sure that the discharge hose is lying on the pavement in an open area of the slab furthest from the separation barrier (ecology blocks).
- When dumping solids, position the truck close to the line that is delineated by traffic cones and then dump. This also maximizes the capacity of the solids dump pad.
- Always check for contamination or prohibited materials on the pad prior to decanting or dumping. If prohibited or suspected or contaminated materials are found, report it immediately. (Spokane County District 1 Foreman)
- Always check for damage to the equipment or facility and if found, report it immediately. (Spokane County District 1 Foreman)

7.2 Facility Emergency Shutdown Procedures

If you notice any of the following conditions after you have already begun to decant, STOP DECANTING, call Spokane County District 1 Foreman and then proceed to the “Hot Cell”. Make sure the gate is closed.

- Pronounced odor of solvent or gasoline
- Hydrogen sulfide (rotten egg odor)
- Significant oil sheen
- Unusual color
- Grease
- Stormwater filter media
- Anything that looks unusual and not typical of stormwater decant materials

Once directed, you may dump the rest of your load. If you utilize the “Hot Cell”, the authorized user (agency) will be responsible for testing and cleaning the “Hot Cell”.

8. STAFF CONTACTS

8.1 Spokane County Roads Personnel

Robert Keneally	Maintenance & Operations Superintendent	509-477-3600 rkeneally@spokanecounty.org
Bryan Dowd	District 1 Foreman	509-710-5018 bdowd@spokanecounty.org
Wendy Iris	Stormwater Utility Engineer	509-477-7441 wiris@spokanecounty.org
Front Desk	General Questions	509-477-3600



APPENDIX F – DECANT FACILITY TRAINING SIGN-IN SHEET

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2015

Decant Facility Training

Wednesday December 16th – 8:30 a.m. @ WSDOT & 10:00 a.m. @ Old Corral
By Doug Bierce Of WSDOT & Wendy Iris Spokane County

Dist 1

- ✓ Greg Greeson – 10:00 a.m. Session Only _____
- ✓ Brian Gibson – 10:00 a.m. Session Only _____
- ✓ Ryan Craig – 10:00 a.m. Session Only _____

Dist 2

- ✓ Don Green – 8:30 & 10:00 Sessions _____
- ✓ Levi Scrimsher – 8:30 & 10:00 Sessions _____

Dist 3

- ✓ Richard Salinas – 10:00 a.m. Session Only _____
- Pat Riley – 10:00 a.m. Session Only _____
- ✓ Kathy Blakesley – 10:00 a.m. Session Only _____
- ✓ Raudy Jenkins – 10:00 a.m. Session Only _____

Dist 4

- ✓ Kelly Emtman – 8:30 & 10:00 Sessions _____
- ✓ Doug Ziel – 8:30 & 10:00 Sessions _____
- ✓ Rod Maki – 8:30 Session Only _____

Bridge Crew

- ✓ Tom Hardee – 10:00 a.m. Session Only _____



ATTACHMENT 2:
SPOKANE COUNTY NPDES PHASE II PERMIT AREA MAP



ATTACHMENT 3:
INTERNAL COORDINATION MECHANISMS



1. Introduction and Permit Requirement

The Eastern Washington Phase II Municipal Stormwater Permit, Special Condition, Requirement S5.A.5.b reads:

The Stormwater Management Program (SWMP) “shall include coordination mechanisms among departments within each jurisdiction to eliminate barriers to compliance with the terms of this Permit. Permittees shall include a written description of internal coordination mechanisms in the Annual Report due no later than March 31, 2015.”

This narrative addresses important coordination mechanisms among various departments within Spokane County. Successful coordination is critical to remove barriers, promote understanding of the NPDES Permit, and facilitate Permit compliance between County departments.

2. County Department Involvement

The Spokane County Engineering and Roads Division, Stormwater Utility, coordinates implementation and documentation of NPDES Permit compliance and informs staff of Permit requirements, provides training when necessary, and ensures mechanisms for tracking and coordination are in place. Stormwater Utility staff also have the primary responsibility for implementing and enforcing the stormwater regulations. The following is a list of divisions in the County that are most impacted by the NPDES Permit:

- Public Works, Division of Engineering and Roads
 - (a) Stormwater Utility
 - (b) Development Services
 - (c) Road Maintenance
 - (d) Fleet Management
- Building and Planning
- Utilities
 - (a) Regional Solid Waste System
 - (b) Water Resources
- Parks, Recreation, and Golf
- Facilities Maintenance
- Fair and Expo Center

3. Coordination Efforts

3.1 Public Education and Outreach

Spokane County, in cooperation with Water Resources, the Regional Solid Waste System, and Parks, Recreation, and Golf, staff, fund, and implement ongoing education and outreach programs that are designed to reduce behaviors and practices that contribute to or cause stormwater pollution. The programs target both school-aged children adults. Topics



of importance include: impacts of stormwater on surface waters, impacts of illicit discharges and how to report them, principles of low impact development, best management practices (BMPs), natural yard care and the benefits of xeriscaping, outdoor use and storage of chemicals, hazardous materials disposal, and vehicle maintenance.

3.2 Public Involvement and Participation

The Stormwater Utility affords the public the ability to participate in the decision-making process involving the development and implementation of the NPDES Permit-related activities and programs. This is accomplished by making the Stormwater Management Program Plan (SWMP) and the most recent Annual Report available on the County's website, with an opportunity to provide public comment via online submittal [HERE](#). The Stormwater Utility coordinates with the County's Information Systems Department to provide technical expertise to manage networks and computer systems to accomplish this task.

3.3 Illicit Discharge Detection and Elimination (IDDE)

Spokane County implements an Illicit Discharge Detection and Elimination (IDDE) program designed to prevent, detect, characterize, and eliminate illicit connections and illicit discharges into the County's MS4. Required components of the program include mapping the MS4, development of a regulatory and enforcement mechanism, and an ongoing process to identify and eliminate sources of stormwater pollution.

The County provides opportunities for IDDE training for staff that conduct field-related activities. This includes staff from the following departments: 1) Stormwater Utility; 2) Road Maintenance; 3) Construction Services; 4) Fleet Management; and 5) Facilities Maintenance. Staff is trained to identify potential sources of stormwater pollution and report concerns. Staff can also report stormwater related issues by directly contacting the County Stormwater Utility. Public Works Road Maintenance staff has primary responsibility for responding to emergencies related to surface water in the County. This includes providing 24-hour emergency response to flooding of streets or structures, pollutant spills, and illegal discharge of pollutants to the storm and surface water system.

The County's ordinance, which prohibits non-stormwater discharges, spills, illicit connections, and illegal dumping into the stormwater system, is enforced by the Stormwater Utility staff, and where applicable, the local Spill Response Team with the Department of Ecology.

3.4 Construction Site Stormwater Runoff Control

The responsibility for controlling runoff from construction sites is shared by both the Stormwater Utility and Development Services. Development Services is responsible for reviewing all stormwater site plans and pollution prevention BMP's for development activities, and ensuring that projects meet the standards documented in both the



Stormwater Management Manual for Eastern Washington (SWMMEW) and Spokane Regional Stormwater Manual (SRSM). The Stormwater Utility is responsible for reviewing stormwater site plans and pollution prevention BMP's for County capital improvement projects under the same standards and permitting requirements.

For all construction-related projects within the County's MS4, regular inspections are conducted to review all erosion and sediment control requirements on site. Development Services is responsible for inspecting and enforcing private development erosion control, while the Stormwater Utility inspects and enforces County capital improvement project construction sites. Staff in both departments are CESCL-trained to conduct these inspections, and continues to track records of all inspections, violations, and enforcement activities.

3.5 Pollution Prevention and Good Housekeeping for Municipal Operations

The Public Works Road Maintenance Department is responsible for the maintenance of the County's storm drainage infrastructure, which includes catch basins, pipes, open channels, swales, and regional retention/detention facilities. Spokane County Stormwater Utility staff regularly inspects stormwater treatment and flow control facilities and stormwater retention/detention ponds, and refers concerns, and cleaning and/or repair needs to Roads Maintenance. Stormwater Utility staff also inspects stormwater facilities after major storm events to ensure the systems are functioning properly. Records of inspections and maintenance or repair activities are kept in accordance with the Permit.

Public Works Road Maintenance; Fleet Management; Parks, Recreation, and Golf; Regional Solid Waste System; and Facilities Maintenance staff also implement practices and procedures designed to prevent stormwater impacts associated with their respective maintenance activities including, but not limited to: 1) pipe and culvert cleaning; 2) swale and ditch maintenance; 3) street cleaning; 4) road repair; 5) snow and ice control; 6) vector waste disposal; 7) storage, handling, and application of pesticides and fertilizers; 8) hazardous material storage and disposal; and 9) vehicle washing and repair.

3.6 Reporting

The Spokane County Stormwater Utility oversees the preparation of the Annual Report, due on March 31st of each calendar year. The Report details compliance with the requirements outlined in the Eastern Washington Phase II Municipal Stormwater Permit. Stormwater Utility staff coordinates with the various County departments to collect data that is tracked for compliance, and annually updates the Stormwater Management Program document (SWMP), as required.



4. Conclusion

In general, Spokane County continues provides overall program oversight, funding, and staffing for all activities that are described within the Stormwater Management Program (SWMP). Spokane County will continue coordination with various internal departments to advance the successful implementation Section 12 – SWMP Coordination Responsibilities.



ATTACHMENT 4:
PUBLIC EDUCATION & OUTREACH and
PUBLIC INVOLVEMENT & PARTICIPATION PLAN



1. Introduction and Permit Requirement

The Eastern Washington Phase II Municipal Stormwater Permit, Special Condition, Requirement S5.B.1 reads:

The Stormwater Management Program (SWMP) “shall implement a public education and outreach program to distribute educational materials to the community or conduct equivalent outreach activities about the impacts of stormwater discharges to waterbodies and the steps the public and take to reduce pollutants in stormwater.”

This narrative addresses both the County’s public education and outreach and public involvement and participation programs, including descriptions of educational materials utilized and outreach activities implemented throughout calendar year 2015.

2. 2015 Program Focus

The program’s focus is to educate Spokane County residents about stormwater. Of particular importance is demonstrating how everyone’s individual actions add up to negatively affect the quality of our lakes, rivers, and even our drinking water. The desired result is to change behavior in ways that will improve water quality throughout the County.

Spokane County Stormwater Utility’s Education & Outreach and Public Involvement & Participation Plan has the following objectives:

- Encourage public reporting of illicit discharges or improper disposal of materials into the MS4 conveyances and clogged catch basin inlets. The reporting is accomplished by the use of a countywide hotline telephone number;
- Utilize the County website to convey information about stormwater permitting, water quality issues, BMPs, and hotlinks to other important websites; and provide an opportunity for public comment and feedback regarding the Stormwater Utility’s programs.
- Educate residents concerning potential impacts of pollutants from the MS4 conveyances serving their place of residence, their workplace, and the roads on which they drive, including the need for members of the public to take stewardship of their water resources;
- Continue to provide informative materials and live presentations to school children on stormwater pollution issues;
- Provide opportunities for the public to actively participate in activities and events that improve the health of our watersheds, such as storm drain stenciling and swale planting days, thus broadening the sense of responsibility and understanding of water quality issues throughout the region;
- Use applicable public notification protocol, seeking input from the public in the SWMP through meetings or other means, and support efforts to improve water quality in the MS4 area;
- Educate County residents regarding acceptable application and disposal of pesticides, herbicides, and fertilizers;



- Educate construction site operators, contractors, and engineers on the importance of storm water management techniques and structural BMPs to reduce pollutants in runoff from construction sites; and
- Educate the public on the proper management and disposal of toxic materials, including the availability and locations of facilities for disposal or drop-off of household hazardous wastes, chemicals, grass clippings, leaf litter, animal wastes and motor fluids.

3. Public Education & Outreach and Public Involvement & Participation Programs

The Spokane County Stormwater Utility (SWU), in cooperation with the Spokane County Water Resources Department, continues to conduct a significant amount of public education based on the perceived needs of our community and that of successful programs implemented in other communities. See *Appendix A* for spreadsheet of 2015 activities.

This was an exciting year with a number of activities and wide-reaching impacts, including offering in-house learning opportunities at Spokane County’s *Water Resource Center*, a water-focused interpretive center located at our Regional Water Reclamation Facility.

3.1 Spokane County Water Resource Center

Learning events for all ages of students and adults are held at the *Water Resource Center* throughout the year. The *Water Resource Center* has three separate areas for education and meetings:

- **Indoor Exhibits** – There is an indoor exhibit area, which has permanent informative displays highlighting important features of the Spokane regional water cycle, the geology of the Spokane Valley-Rathdrum Prairie Aquifer, a model of the Water Reclamation Facility process, in addition to interactive water cycle quizzes on two Apple iPads. Portable activities include a stream table; EnviroScape and other watershed models; Stormwater Plinko; stormwater pollution jars; and the “Flush-o-matic,” an electrically powered agitator that simulates the breakdown of flushables in sewer or septic systems, to name a few.
- **Conference Room** – The indoor conference room provides tables and chairs for hosting meetings up to 80 people. This room also exhibits a “stormwater maze” taped to the floor which is utilized for K-6 non-point pollution education during the winter and spring months.
- **Patio/Landscaping** – The outdoor patio and facility grounds allow visitors to view and learn about the Center’s xeriscaping and on-site stormwater treatment facilities, including swales and pervious pavement.

On forty-five (45) separate occasions, K-12 students, students from Spokane Community College, and adults were brought to the Water Resource Center in 2015. The County continues to actively market this facility to area schools, and anticipates doubling the number of teaching events by 2018.



See *Appendix B* at the end of this document for a summary of the various water-based curricula, including stormwater instruction, currently offered at the *Water Resource Center*. The County continues to develop new and refine existing curricula on a yearly basis, as needs arise.

3.2 Participation in Community Events

Spokane County successfully reaches a wide variety of the public through outreach at community events each Permit year.

- **Earth Day Spokane** – Reaching over 250 people, County and Spokane City staff shared a booth at this event on April 18, 2015, where information was provided to the public on current efforts to improve stormwater quality. Kids played “Stormwater Plinko” and the City of Spokane’s “Stormwater Bean Bag” game, while Staff handed out: 1) a variety of brochures on pollution prevention and water conservation; 2) refrigerator magnets depicting our mascot, *Storm Drain Dan*, and our illicit discharge hotline number; 3) *Storm Drain Dan* activity books; and 4) the City of Spokane’s water droplet stress balls and “End Stormwater Pollution” bracelets. Additionally, County and Spokane City staff teamed up with other regional agencies to offer a joint activity for youth – a make-your-own bracelet by acquiring different beads at each partner booth.
- **Unity in the Community** – The annual Unity in the Community event was held on August 15, 2015. Spokane County’s booth, situated among many of Spokane’s well-known local vendors, attracted over 100 youth and adults. Families played “Stormwater Plinko,” and the “Storm Drain Shell Game,” where three mini storm drains – two of them with “pollution” inside – are shuffled quickly and the player guesses which storm drain is the “clean” one. Additionally, the public was offered Spokane Valley-Rathdrum Prairie Aquifer Atlases, *Storm Drain Dan* activity books, stickers, magnets, and various stormwater-related informational brochures.
- **Go Green Zone at Spokane County Interstate Fair** – The SWU, Spokane County Water Resources, Spokane County Regional Solid Waste System, City of Spokane, Spokane Conservation District, Spokane Regional Clean Air Agency, National Weather Service, Spokane Joint Aquifer Board, and EnviroStars staffed a joint booth at this event from September 11 - 20, 2015. Over the span of ten days, hundreds of youth and adults learned about storm drains and the aquifer, in addition to such things as hazardous waste recycling and air quality. The various items for distribution included *Storm Drain Dan* Activity books, Spokane Valley-Rathdrum Prairie Aquifer Atlases, and brochures on pollution prevention.
- **ValleyFest** – Spokane County Water Resources, in cooperation with the City of Spokane Valley Stormwater Utility, staffed a booth at this event on September 26, 2015. Youth and adults again learned about storm drains, drywells, and water pollution via the County’s “Stormwater Plinko” game. Our regional stormwater mascot, *Storm Drain Dan*, also made an appearance at this event to greet area children. Various items for distribution included *Storm Drain Dan* activity books, and pamphlets on pollution prevention and water conservation.

3.3 Education Tools

Spokane County continues to utilize existing and construct new educational tools and resources to educate the public at community events, in classrooms, and at the *Water Resource Center* each Permit year.

- **EnviroScape Model** – The SWU continues to educate school children and their parents using EnviroScape’s Nonpoint Source/Stormwater Pollution and Prevention model and Groundwater Liner kit. The EnviroScape is a 3D mini-watershed model that simulates the many sources of both point and nonpoint source pollution. It allows students and adults to observe the interactions of precipitation with various land use practices, and the impacts those practices have on streams, lakes, and groundwater.
- **Stormwater Plinko** – The SWU continues to utilize a 4’ x 2’-sized Plinko game as a stormwater pollution teaching tool at community events. Players are asked to release a Ping-Pong ball “water droplet” at the top. The “water droplet” ultimately falls into one of nine spaces at the bottom. Three of the spaces are swales/grass, four spaces are storm drains, and two spaces involve infiltration through bare soil. Optimally, a player’s “water droplet” will land in the grass/grassed swale, where plant medium acts as a filter for removing pollutants from rainwater. Those whose “water droplets” land in the storm drain are asked to describe a type of pollution found on the street that would not get filtered by a storm drain, potentially percolating to harm our groundwater.
- **Stormwater Magic** – The SWU and Spokane County Water Resources group also uses this activity at various community events to educate adults and children as to where stormwater really goes, and how pollution on our streets doesn’t get filtered by storm drains. The trick works as follows: 1) a teaspoon of sodium polyacrylate is placed in a white Styrofoam cup; 2) the top of the cup is then covered with a black shower drain strainer to give the cup the appearance of being a miniature storm drain; 3) when water is poured into the cup, the powder acts like a sponge and turns the water into a clear solid; and 4) the cup and lid are turned upside down to show that the water doesn’t come flowing back out. Adults and children are then asked what happens to stormwater once it enters a real storm drain. Does polluted stormwater “magically” disappear like the water poured into our *Magic Storm Drain*?
- **Stormwater MisMatch Game** – The Stormwater Utility developed this game in 2014, and most often uses it to educate the region’s 5th graders at our *Outdoor Environmental Education* programs. Students are broken into two teams, and each team is given a large poster and various photos of good and bad behaviors/actions that can affect water quality. Both teams have identical batches of photos. The object of the game is to have the students make correct “matches” using the photos, and then attach them – as pairs – to their respective poster. For example, one photo shows dog





waste that was left by the side of the road (the bad behavior), while its “match” depicts a woman picking up after her dog with a pet waste bag (the good behavior). Once both teams have completely filled their poster by making “matches” with all of the photos, the entire group is then encouraged to discuss each “match” by explaining how each good and bad behavior helps or harms our region’s rivers, lakes, and aquifer.

- **Storm Drain Shell Game** – This game was created in 2015 for use at various community events, including *Earth Day* and *Unity in the Community*. The “Storm Drain Shell Game,” where three mini storm drains – two of them with “stormwater pollution” inside (i.e., the kind of pollution one might see in a street drain, including some rocks and dirt, a few leaves, wrappers, etc.) – are shuffled quickly and the player is to guess which storm drain is the “clean” one. This game is not only a lightweight and highly-portable option for educating the public about storm drains and pollution, but proved highly engaging to both adults and children, too.
- **Storm Drain Dan Activity Book** – The SWU completed its first stormwater-related activity book geared toward young children in 2012. It became available for distribution at local community events and schools beginning September 2013. The focus of the activity book, titled *Storm Drain Dan and His Adventures to Save Our Water*, is to educate kids about stormwater, stormwater pollution, and pollution prevention via storytelling, mazes, word searches, and puzzles. Over 1,500 of these books were given away in 2015.
- **Spokane Valley-Rathdrum Prairie Aquifer Atlas** – The Stormwater Utility and Spokane County Water Resources Department, in cooperation with other local NPDES Permittees and regional water quality protection groups, participated in a comprehensive update of the Spokane Valley-Rathdrum Prairie Aquifer Atlas during the 2014-2015 calendar years. Of note, the new edition features several pages on stormwater runoff, stormwater pollution, swales and LID, in addition to pollution prevention instruction for businesses and homeowners.

3.4 K-12 and Adult Education & Outreach and Public Participation Programs

Spokane County successfully reaches youth and adults via classroom activities and public participation projects each Permit year.

- **Central Valley School District Outdoor Environmental Education Program** – The SWU and Spokane County Water Resources continued its participation in a 29-year-old environmental program for 5th graders. Over the span of 20+ days, from April to June, more than 1,200 5th-grade students from the Central Valley School District (CVSD) learned about watersheds, the water cycle, stormwater pollution, stewardship regarding their storm drains, and drinking water protection. Each day, more than 50 kids worked their way through four (4) stations. The first station focused on the aquifer and water quality/stormwater. The second station, staffed by the Liberty Lake Sewer and Water District, involved a lesson on beavers, wetland ecology, and identifying macroinvertebrates in a nearby creek. The third station was a nature hike. For the final station, two CVSD P.E. instructors led a ropes course to



teach teamwork. All the sessions were hands-on, with students collecting information and being tested.

- **5th Annual Mead School District Outdoor Environmental Education Days** – The SWU and Spokane County Water Resources organized and funded its fifth environmental program for 5th graders within the Mead School District. Over the span of eight days, June 1 - 10, 2015, more than 650 5th-grade students and 100 teachers/chaperones learned about the watersheds, the water cycle, aquifers, stewardship regarding their storm drains, and drinking water protection. Each day, approximately 80 kids worked their way through six (6) stations. The first station, staffed by Water Resources, focused on watersheds and aquifers. Station 2 – “Got Waste? Put it in the right place!” – educated the kids about the difference between garbage vs. recyclables vs. hazardous waste. The Stormwater Utility staffed the third station. Station 4 focused on the connection between air pollution and water pollution. Time at the fifth station was split between three agencies, and either involved a nature walk, a lesson about composting, or a discussion about weather, storms, and flooding. The final station, Station 6, saw the kids seining for macroinvertebrates or learning about raptor ecology. In addition to the groups mentioned above, the Spokane Joint Aquifer Board, Spokane Regional Clean Air Agency, Spokane Regional Solid Waste System, National Weather Service, Turnbull National Wildlife Refuge, and the West Valley Outdoor Learning Center also volunteered their time to make this program possible. Most have committed to make the 6th Annual Mead School District Outdoor Environmental Education Program happen in 2016.
- **Girl Scouts Flex Program** – The SWU and Spokane County Water Resources hosted several presentations to the Girl Scouts at the County’s *Water Resource Center*. This class serves to increase kids’ awareness of water quality issues. Spokane County staff used models and real examples to explain how precipitation reaches lakes, streams, and even our drinking water. The girls identify examples of potential contaminants to water and learn how they can help prevent water pollution. A patch is earned for taking the “class.”
- **Storm Drain Stenciling Program** – Many people mistakenly believe that storm drain inlets empty water to treatment facilities, so they pour chemicals or sweep debris directly into the storm drains. This dumping greatly increases the level of non-point source pollution (i.e., leaves, soil, trash, fertilizers, pesticides, street residue, etc.) already present in urban stormwater runoff, and can contribute substantially to a decline in water quality. As such, 2015 saw the fourth year of the County’s storm drain stenciling program. The program is a hands-on, service learning project for volunteers who are interested in educating the public about stormwater pollution prevention. Storm drain stenciling involves placing a “clean water” message next to a drain. The County’s stencil messages, “Dump No Waste, Drains to Aquifer” and “Keep It Clean, Drains to Aquifer,” remind would-be dumpers and passersby that most storm drains in Spokane County connect to the aquifer, and that dumping has the potential to pollute our drinking water. In addition to stenciling, volunteers are asked to distribute an informational door hanger to all residents within the stenciling area, which discusses the stenciling program and stormwater pollution. Spokane County believes storm drain stenciling educates threefold: 1) to the crew of stenciling volunteers; 2) to the neighboring residents who receive the door hanger; and 3) to



public citizens who happen upon the stenciled messages. Thus far, participants-to-date include Boy Scouts, area 5th graders, and non-profit organizations. In 2016, the Stormwater Utility will co-sponsor a large-scale stenciling event to be organized and implemented by a local Boy Scout looking to earn his Eagle Scout rank.

- **Volunteer Planting Days** – November 2015 saw the first volunteer public participation project at a newly-constructed County bioswale on East Wellesley Avenue in Otis Orchards. The roadside bioswale, located adjacent to the ballfields at Otis Orchards Elementary, was prepped, weeded, and planted by over ninety 6th graders at the school. The event lasted an entire school day, with three different classrooms rotating between an indoor lesson on watersheds, water quality, and stormwater (taught by the Spokane Conservation District), and the outdoor planting experience (guided by the Stormwater Utility). In April 2016, a poster contest will be held for the 6th graders, and the winning poster – which must show the benefit of swales as a filtering medium – will be showcased in the interpretive signage box at the bioswale site.
- **“Got Waste? Put it in the right place!” Campaign** – The local non-profit, *Spokane Aquifer Joint Board*, implemented this public outreach campaign to educate the public about proper disposal of various types of waste products. In cooperation with the Spokane County Regional Solid Waste System, kids and adults alike are now more aware of difference between garbage vs. recyclables vs. hazardous waste products.
- **EnviroKids Club** – Spokane County Stormwater Utility became a new partner in this regionally-cooperative environmental education program for K-6 students. When kids join the Club, they receive quarterly newsletters in the mail which focus on topics that tackle a wide variety of environmental subjects, including water quality issues. The kids are also encouraged to visit partner booths at community events and, when they do so, are awarded points toward earning prizes. Other partners supporting the EnviroKids Club include Spokane County Water Resources, Spokane County Regional Solid Waste System, City of Spokane Water Department, National Weather Service, Spokane Aquifer Joint Board, Spokane Conservation District, and Spokane Regional Clean Air Agency.

3.5 Stormwater Utility Webpage

The County provides the following website for information about stormwater and surface water management: <http://www.spokanecounty.org/stormwater>. In addition to a variety of education and outreach materials and public announcements regarding SWU capital projects, the County’s Annual Report, Spokane Regional Stormwater Manual, and Eastern Washington LID Guidance Manual are available for download on the site. The public is also encouraged to participate in the decision-making process involving the development and implementation of the NPDES Permit-related activities and programs via the County’s online comment form.

3.6 Local Media

An educational documentary on one of the County’s regional stormwater facilities was produced during the 2009 Permit year. The 20-minute piece tells the story about how the



facility uses natural processes to remove pollutants from urban stormwater, in addition to discussing the public’s involvement before, during, and after the construction of the facility. This piece continues to be rebroadcasted periodically on Cable Channel 5, the City of Spokane’s Community Access station. The documentary can also be viewed on the County’s website [HERE](#).

3.7 Poo-llution Prevention Campaign

Spokane County has continued its marketing campaign, titled “Canines for Clean Water,” to encouraging residents to pick up after their dog(s). The project’s goals were to inform dog owners about the impacts pet waste can have on surface waters, if not properly disposed of in the trash. The County distributes brochures and temporary tattoos at community events. For those who take a “pledge” to always pick up after their pooch, we give away (or mail) free “Canines for Clean Water” bandanas for their dogs to wear. For those residents unable to attend an event but still wishing to “pledge,” there is an online pledge form on the County’s website.



3.8 County Projects

In order to facilitate the implementation of stormwater management and xeric landscaping techniques by developers and homeowners, Spokane County has constructed several demonstration projects and stormwater treatment facilities over the years.

In both 2010 and 2012, the Stormwater Utility was awarded grants for a retrofit project that will replace a one-mile stretch of an asphalt drainage channel with a LID raingarden/bio-infiltration swale along Country Homes Boulevard. County staff conducted an extensive public involvement and participation process throughout 2013, 2014, and 2015 that included open houses, newsletters, and staff interviews to educate neighbors and interested parties about this innovative stormwater project. Completed in Summer 2015, the channel now provides water quality treatment for the adjacent road network, showcases the use of trees and native perennials and grasses, and serves as a highly visible example to residents and developers of the benefits of xeriscaping.

Additionally, in 2015, the County removed several stormwater outfalls to Liberty Lake and installed pre-treatment structures ahead of drywells along Argonne Road, a major arterial. County staff administered similar public involvement and participation processes for these smaller, but equally important construction projects, including conducting mailings and press releases, and organizing and staffing public meetings, to name a few.

3.9 Erosion and Sediment Control Education for Contractors and Developers

During the course of the Spokane County Development Review and/or the Site Plan Review processes and while conducting on-site inspections, Public Works staff provides Erosion and Sediment Control (ESC) guidance to contractors and developers. The Stormwater Utility also has a minimum of three CESCLs on-staff who are ready to field questions regarding the



County's ESC ordinances, and local, state, and federal regulations. In addition, the Stormwater Utility has compiled a calendar, which displays the dates of – and hyperlinks to – all Certified Erosion and Sediment Control Lead (CESCL) trainings and recertification courses within the entire State of Washington. Contractors and/or developers can access the calendar via the County's Stormwater webpage [HERE](#).

The County's Building and Planning Department also includes a flyer in building permit application packets to remind contractors and developers to contact the Department of Ecology to find out if their project will require a Construction General Permit (CGP).

3.10 Stormwater Hotline – 509.477.7525

Spokane County understands that citizen cooperation is vital to an effective stormwater program. Likewise, the public is key to timely enforcement. This is why the Stormwater Utility created a reporting hotline to provide citizens with an opportunity to help eliminate polluted stormwater discharges. Through this hotline – available 24 hours a day – anyone can report illegal dumping, illegal discharges into storm drains, or pollution spills. The County continues to spread the word about this hotline via the website and magnets that are handed out at community events.

3.11 Spokane Valley-Rathdrum Prairie Aquifer Atlas – 2015 Update

The Stormwater Utility and Spokane County Water Resources Department, in cooperation with other local NPDES Permittees and regional water quality protection groups, participated in a comprehensive update of the Spokane Valley-Rathdrum Prairie Aquifer Atlas during the 2014-2015 calendar years. Of note, the new edition features several pages on stormwater runoff, stormwater pollution, swales and LID, in addition to pollution prevention instruction for businesses and homeowners. Spokane County disseminates the Atlases at various community events, and classes and meetings held at the *Water Resource Center*. The Atlas can also be accessed online at the County's webpage [HERE](#), and via the Spokane Aquifer Joint Board website [HERE](#).

3.12 Speaker Forums

Spokane County Staff also works to share their knowledge of stormwater concerns, local stormwater projects, new technologies, and successful application of Best Management Practices (BMPs) with audiences inside and outside the local MS4. The presentation name (in bold) is followed by the date, speaker's name, forum title, and location.

- **Country Homes Boulevard Restoration Project.** March 2, 2015. Colleen Little, P.E. *KREM Channel 2 News*. Country Homes Boulevard, Spokane, WA.
- **Country Homes Boulevard Restoration – Regional Water Quality Retrofit Project in a Highly-Developed Urban Area.** September 23, 2015. Colleen Little, P.E. *Northwest Regional Floodplain Management Association (NORFMA)*. Red Lion Templins, Post Falls, ID.



4 Planned Activities

In the following years, Spokane County Stormwater Utility will supplement its current public education and outreach program by updating it to maintain compliance as the Department of Ecology phases in its new Permit requirements. Actions recommended for continued compliance include:

- Continued collaboration with other NPDES municipalities;
- Identifying target behaviors relevant to Spokane County;
- Implementing new or modifying existing education and outreach activities;
- Maintaining records of all education, outreach, and public participation activities;
- Utilizing GIS tools for better communication with the public about what is occurring in their watersheds; and
- Summarizing annual activities for the “Public Education and Outreach” and “Public Involvement and Participation” components of the Annual Compliance Report; and identifying updates to the Program document.

4.1 Workplan for 2016 Activities

In addition to the aforementioned actions, the following activities for education and outreach are targeted for implementation in FY2016:

- Continuing participation in community events;
- Expanding educational programs at Spokane County’s *Water Resource Center*;
- Continuing youth outreach programs, including hosting and funding the Mead School District Outdoor Environmental Education Days;
- Providing new informational material (i.e., fact sheets, brochures, etc.);
- Growing the storm-drain marking and volunteer swale planting programs to encourage greater public participation in stormwater education; and
- Continuing webpage development and enhancements.

5. Conclusion

Spokane County, in cooperation with Water Resources, the Regional Solid Waste System, and Parks, Recreation, and Golf, will continue to staff, fund, and implement ongoing education and outreach programs that are designed to reduce behaviors and practices that contribute to or cause stormwater pollution.



APPENDIX A

Education/Outreach and Public Participation/Involvement Conducted in 2015

EVENT	DATE
Mead High School RA ECO Club	1/7/2015
Girl Scouts	1/22/2015
Mead STEM Night	1/28/2015
Otis Orchards Elementary Science Night	1/29/2015
Regional Lakes Conference @ Spokane Community College	2/7/2015
EnviroKids at Mobius	2/18/2015
EnviroKids at Mobius	2/18/2015
McDonald Elementary Science Fair	2/19/2015
Business After School	2/24/2015
SCC Environmental Conservation Class	2/25/2015
TV Interview - KREM 2 News	3/2/2015
T.R.E.E. Workshop (Washington Green Schools) for Teachers	3/4/2015
Palisades Christian Academy	3/5/2015
River Day School	3/6/2015
Mullan Road Elementary Science Night	3/18/2015
Shaw Middle School Science Night	4/2/2015
Otis Orchards Elementary School	4/14/2015
Snowdon Elementary Science Night	4/16/2015
Earth Day @ Riverfront Park	4/18/2015
SPACE Program	4/24/2015
Community School	4/24/2015
Liberty Lake Elementary	4/27/2015
Liberty Lake Elementary	4/28/2015
Liberty Lake / Greenacres Elementary	5/1/2015
McDonald Elementary	5/4/2015
Sunrise Elementary	5/5/2015
Greenacres Elementary	5/6/2015
University Elementary Science Night	5/6/2015
Chester Elementary	5/8/2015
Fire Service Open House	5/9/2015
Opportunity Elementary	5/11/2015
Adams Elementary	5/12/2015
Broadway Elementary	5/13/2015
McDonald Elementary and Opportunity Elementary	5/15/2015
Open House	5/16/2015
Sunrise Elementary	5/18/2015
Broadway Elementary / Adams Elementary	5/19/2015
University Elementary	5/20/2015
EVSD - East Farms Magnet School	5/21/2015
South Pines Elementary	5/26/2015
Spokane STEMposium @ Spokane Community College	5/27/2015



EVENT (Continued)	DATE
Progress Elementary	5/27/2015
Ponderosa Elementary	5/29/2015
Turnbull Floods, Flowers, and Feathers Festival	5/30/2015
Farwell Elementary	6/1/2015
G. Prep. Environmental Club @ Gonzaga Prep	6/1/2015
Brentwood Elementary	6/2/2015
Meadow Ridge Elementary	6/3/2015
Midway Elementary	6/4/2015
Shiloh Hills Elementary	6/5/2015
Colbert Elementary	6/10/2015
Prairie View Elementary	6/11/2015
Evergreen Elementary	6/12/2015
City Parks and Recreation Outdoor Adventure Camp	6/23/2015
City Parks and Recreation Outdoor Adventure Camp	6/30/2015
YMCA Field Trip	7/1/2015
City Parks and Recreation Outdoor Adventure Camp	7/7/2015
Cheney Care Center	7/9/2015
NE Youth Center Leadership Camp	7/13/2015
City Parks and Recreation Outdoor Adventure Camp	7/14/2015
City Parks and Recreation Outdoor Adventure Camp	7/21/2015
Planet Kids Childcare	7/23/2015
City Parks and Recreation Outdoor Adventure Camp	7/28/2015
Tech Trek STEM Camp for Girls (AAUW sponsored)	7/29/2015
City Parks and Recreation Outdoor Adventure Camp	8/4/2015
YMCA Field Trip	8/6/2015
Kid's Day @ Riverfront Park	8/8/2015
Lincoln Heights Summer Express	8/10/2015
City Parks and Recreation Outdoor Adventure Camp	8/11/2015
Lincoln Heights Summer Express	8/12/2015
Unity in the Community @ Riverfront Park	8/15/2015
YMCA Field Trip	8/20/2015
YMCA Field Trip	9/3/2015
Water Festival	9/10/2015
Water Festival	9/11/2015
Spokane County Interstate Fair @ County Fairgrounds	9/11/2015- 9/20/2015
NORFMA Conference Presentation	9/23/2015
Summit School	9/24/2015
ValleyFest @ Mirabeau Park	9/26/2015
Saint George's School	10/6/2015
Roosevelt Elementary @ Manito Park	10/16/2015
Fall Public Virtual and Walking Tour	10/19/2015
Fall Public Virtual and Walking Tour	10/20/2015
Fall Public Virtual and Walking Tour	10/21/2015
HUB Sports Center After-school Program	10/21/2015



HUB Sports Center After-school Program	10/22/2015
All Saints Catholic School @ Brown Mtn. Stormwater Facility	10/22/2015
Fall Public Virtual and Walking Tour	10/22/2015
Fall Public Virtual and Walking Tour	10/23/2015
Fall Leaf Festival @ Finch Arboretum	10/24/2015
West Valley City School	10/26/2015
West Valley City School	10/27/2015
SCC Adult ESL Class	10/27/2015
West Valley City School	10/29/2015
West Valley City School	10/30/2015
SCC Environmental Conservation Class	11/5/2015
Gonzaga SMILE Program	11/5/2015
Otis Orchards Elementary Swale Planting day	11/10/2015
Girl Scouts	11/11/2015
PRIDE Prep	11/16/2015
Riverview Terrace Retirement Center - Men's Day	11/23/2015

Focused Information Distribution for 2015

PUBLICATIONS AND OUTREACH

Homeowner's Guide to Grassed Swales
Homeowner's Guide to Storm Drains and Drywells
Homeowner's Guide to Stormwater Drainage Easements
You Dump It, You Drink It – A Guide to Automotive Care and Fluids Disposal
Urban Runoff Pollution Prevention Fact Sheet
Good Housekeeping Practices Fact Sheet
Maintaining Pools and Hot Tubs to Prevent Stormwater Pollution
Contractors Swale Field Guide (Laminated)
Wally Otter Stormwater Pollution Word Search
Wally Otter Stormwater Maze
Wally Otter “We Really Otter Protect Our Water” Stickers
Canines for Clean Water Tattoos
Canines for Clean Water Mousepads
“Protect the Aquifer, Only Rain Down the Storm Drain” License Plate Covers
Spokane Valley-Rathdrum Prairie Aquifer Atlas – 2015 Update
Spokane Valley-Rathdrum Prairie Aquifer Folders
Storm Drain Dan Magnets
Storm Drain Dan Tattoos
“Storm Drain Dan and His Adventures to Save our Water” Activity Book



APPENDIX B

Activities offered at the Spokane County Water Resource Center (WRC)

THE WATER CYCLE				
Title	Description	Age Group	Group Size / Duration of Activity	Next Gen. Science Standards
Our Local Water System	Learn how the natural water cycle works in the Spokane area. Students will get to participate in simulating precipitation and water pumping.	All ages	Any size group (15 or less optimal) 25 minutes	Practices #2 Cross Cut #2,4,5,6 Core Ideas: PS1A; ESS2A,C; ESS3A,C
Our Watershed Through the Year	Be a part of a watershed by mimicking part of a river or aquifer. Learn about watershed systems and boundaries; seasonal changes in river flows; and how the Spokane River and the Spokane Valley – Rathdrum Prairie Aquifer interact.	Grade 5 and up	Larger groups 30 minutes	Practices #2 Cross Cut #4,5,6 Core Ideas: PS2C; ESS2A,C
Travel Through the Water Cycle	Learn how water moves through the water cycle by being a water molecule. Learn that the water cycle is a complex non-circular system. Observe that the water goes from one state to another and back.	All ages	Any size group 30 minutes	Practices #2 Cross Cut #4,5 Core Ideas: PS2C; ESS2A,C

PEOPLE AND WATER				
Title	Description	Age Group	Group Size / Duration of Activity	Next Gen. Science Standards
Water Reclamation Facility Process	Learn about the process the wastewater coming out of their houses and schools goes through to become reclaimed water using hands on activities for most of the steps in the process.	All ages	Small groups (15 or less optimal) About 20 min	Practices #2 Cross Cut #4,5,6 Core Ideas: PS2C; ESS3C; ETS2B
What Should You Flush?	Investigate why some common household materials should not be flushed down the toilet. Predict which materials will break down, make observations, and draw conclusions.	All ages	Any size group 10 - 15 minutes	Practices #3,4 Cross Cut #2 Core Ideas: ETS2B



PEOPLE AND WATER (Continued)				
Title	Description	Age Group	Group Size / Duration of Activity	Next Gen. Science Standards
Where Does Stormwater Go?	Investigate where precipitation goes when it falls on various surfaces around the Water Resource Center. Select sites, state a hypotheses, control variables, and record results on a map.	Grade 5 and up	Any size group 50 minutes	Practices #3,8 Cross Cut #1,2,6 Core Ideas: ESS3C
Stormwater Maze	Learn about pollutants on our streets and where they go when it rains. Students will take turns playing the part of water and pollutants in a stormwater pipe maze.	Grade K - 8	Medium-sized groups (15 - 20 optimal) 30 minutes	Practices #2 Cross Cut #2,4,5 Core Ideas: ESS3A,C
Stormwater MisMatch	Match “good” with “bad” photos of different at-home behaviors that might lead to stormwater pollution. Groups will work as a team(s) making predictions and drawing conclusions.	Grade 2 and up	Any size group 20 - 30 minutes	Practices #2 Cross Cut #1,2,3,4 Core Ideas: ESS3A,C
Runoff Walk and Talk	Explore how stormwater is managed at the WRC and how it helps to protect the SVRP aquifer water quality.	All ages	Any size group 30 - 45 minutes	Practices #2 Cross Cut #2,6 Core Ideas: ESS3C; ETS2B
To Leak or Not to Leak	Investigate the differences between permeable pavement and traditional asphalt or concrete pavement and learn why each has benefits.	All ages	Any size group 30 minutes	Practices #2 Cross Cut #2,6 Core Ideas: ESS3C; ETS2B
Build a Water Well	Learn about the aquifer under the WRC and how we get our potable water. Measure the water level in a small “monitoring well.” Assemble a 30- to 60-foot casing for a new “well.”	All ages	Any size group	Practices #2 Cross Cut #4,6 Core Ideas: ESS3A,C; ETS2B



WATER QUALITY

Title	Description	Age Group	Group Size / Duration of Activity	Next Gen. Science Standards
Investigate Water	Investigate the properties of several types of water. Make predictions, test the predictions, make observations, and draw conclusions.	Grade 2 - 8	Small groups (15 or less optimal) 20 minutes	Practices #3,8 Cross Cut#1,2 Core Ideas: PS1A
Sum of the Parts	Learn about point- and non-point sources of pollution. Recognize that everyone contributes and is responsible for water quality. Discuss the effects of pollution on other people's property and the river.	Grade 5 and up	Any size group (12 or more optimal) 50 minutes	Practices #2 Cross Cut #2,5 Core Ideas: ESS3A,C
Concentration and Load	Learn about concentrations versus loads, maximum contaminant levels, and total maximum daily loads (TMDLs). The participants will help with a concentration activity then form a river and make the "water" flow at various levels with pollutants added to understand load.	Grade 7 and up	Large groups 50 minutes	Practices #2 Cross Cut #2,4,5 Core Ideas: PS2C; ESS3A,C

SCAVENGER HUNTS

Title	Description	Age Group	Group Size / Duration of Activity	Next Gen. Science Standards
WRC Information Scavenger Hunt	Explore the Water Resource Center exhibits by looking for answers to questions. Scavenger hunts will be appropriate for the age group.	All ages	Any size group	Practices #8 Cross Cut #2,4,5,6 Core Ideas: ESS2A,C; ESS3A,C
Outdoor Water Scavenger Hunt	Learn about the water related features outside of the Water Resource Center by looking for answers to questions provided. Scavenger hunts will be appropriate for the age group.	All ages	Any size group	Practices #8 Cross Cut #2,4,5,6 Core Ideas: ESS2A,C; ESS3A,C



TEACHER-GUIDED OR WRC STAFF-GUIDED ACTIVITIES				
Crumple a Watershed	Students build a model landscape to investigate how water flows through and connects watersheds. Observe how pollutants travel through the watershed.	Grade 3 - 6	Small groups (10 or less optimal) 20 minutes	Practices #2 Cross Cut # 2,4,5 Core Ideas: ESS2C
H2Olympics	Students do different water Olympic events to investigate two properties of water, cohesion, and adhesion.	Grade 3 - 6	Small groups (15 or less optimal) 30 minutes	Practices #3 Cross Cut #2, 6 Core Ideas: ESS2A,C
Permeability of 3 Earth Materials	Investigate the permeability of three Earth materials - pebbles, sand and silt. Permeability is an important property for the Spokane Valley – Rathdrum Prairie Aquifer.	Grade 3 - 6	Small groups (15 or less optimal)	Practices #3 Cross Cut # Core Ideas: ESS2A,C; PS2C
EnviroScope	Students observe and simulate the interactions of precipitation with various land use practices, the impacts those practices have on streams, lakes, and groundwater. Reinforce the concept of watersheds, identify pervious and impervious surfaces, discuss common types of pollutants, and learn about point- and non-point source pollution.	Grade 2 and up	Small groups (15 or less optimal)	Practices #2 Cross Cut #2,4,5,6 Core Ideas: PS1A; ESS2A,C; ESS3A,C

WRC activities are designed to meet Washington State science education standards in the following ways:

Use models to understand...

- 1) Natural water systems
- 2) Engineered water systems
- 3) The roles of water in Earth’s surface processes
- 4) Human impacts on Earth's systems

Carry out investigations of the properties of water...

- 1) Make predictions
- 2) Collect data
- 3) Analyze data
- 4) Draw conclusions



ATTACHMENT 5:

**OPPORTUNITIES FOR THE PUBLIC TO PARTICIPATE IN THE
DECISION-MAKING PROCESSES INVOLVING THE
DEVELOPMENT, IMPLEMENTATION, AND UPDATES OF THE SWMP**



1. Introduction and Permit Requirement

The Eastern Washington Phase II Municipal Stormwater Permit, Special Condition, Requirement S5.B.2.a reads:

The Stormwater Management Program (SWMP) “shall include implement a program or policy for the public to provide input during the decision-making process involving the development, implementation, and update of the SWMP, including development and adoption of all required ordinances and regulatory mechanisms.”

This narrative addresses Spokane County’s ongoing opportunities for public participation such as involvement in SWMP development, implementation, and updates; public hearings; and watershed committees.

2. Public Participatory Opportunities

The County encourages the public to participate in the decision-making processes involving the Stormwater Management Program (SWMP). Opportunities for public participation are available through the following venues:

- (a) The Stormwater Utility page on the County website hosts the yearly SWMP and Annual Report. The website also offers an online comment form for users to submit their concerns, questions, and suggestions regarding the SWMP, as well as the Utility’s programs, practices, and responsibilities, in general.
- (b) Spokane County assembled a multi-jurisdictional committee in 2015 comprised of area NPDES Permittees, administering agencies, water quality non-profit organizations, and interested parties to discuss and develop cooperative education and outreach programs (Permit Component S5.B.1) within the region.
- (c) Where ordinance adoption needs to be addressed in the SWMP in order to meet Permit requirements, Spokane County conducts the public notification and hearing process according to local and State law. Notice of hearings and meetings reinforces the citizens’ role in government, making them aware of the issues and giving them an opportunity to contribute to the governing of our community. Because ordinances are regulatory in nature, the County understands that the public needs notification as to what the ordinance requires.

3. Conclusion

The Spokane County Stormwater Utility is in compliance with this Special Condition by making the SWMP and Annual Report available to the public in both hard-copy (available upon request at the Spokane County Engineering and Roads front desk) and electronic formats (via Stormwater Utility’s website [HERE](#)), and by participating in an open-forum committee to further water quality education and outreach efforts in the greater-Spokane region. During the previous calendar year, however, no new County ordinances and/or regulatory mechanism to address the Stormwater Utility’s program components or SWMP were developed or adopted.



ATTACHMENT 6:

**ACTIONS TAKEN TO INFORM EMPLOYEES, BUSINESSES, AND PUBLIC
OF HAZARDS ASSOCIATED WITH
ILLICIT DISCHARGES AND IMPROPER DISPOSAL OF WASTE**



1. Introduction and Permit Requirement

The Eastern Washington Phase II Municipal Stormwater Permit, Special Condition, Requirement S5.B.3.c.vi reads:

The Stormwater Management Program (SWMP) “shall inform public employees, businesses, and the general public of hazards associated with illicit discharges and improper disposal of waste.”

This narrative addresses variety of methods employed by the Stormwater Utility to inform staff, residents, and businesses about hazards associated with illicit discharges and improper disposal of waste.

2. Illicit Discharge Education Program

Public education is a key component in influencing behavior in a way that benefits water quality, and has become the first line of defense in addressing many stormwater problems. The outreach activities and actions listed below were selected to take advantage of existing programs, and to target specific audiences that are important in Spokane County.

2.1 Website

The Spokane County Stormwater Utility maintains an Illicit Discharge and Detection (IDDE) website which discusses the County’s program, and lists the IDDE Hotline. The public can read about the County’s mascot, *Storm Drain Dan*, whose motto “Only Rain down the Storm Drain” encourages youth and adults alike to take responsibility for keeping pollution out of storm drains. The website, found [HERE](#), describes what illicit discharges are, how to prevent them, and actions to take when someone is dumping or discharging pollutants into the County’s MS4.

The Spokane County Stormwater Utility, Water Resources Department, and Spokane County Regional Solid Waste System help promote the *EnviroStars Waste Directory* website, an online service that not only lists and explains the hazardous materials found in varying types of waste, but identifies vendors who accept that waste for disposal. The *EnviroStars Waste Directory* can be accessed [HERE](#).

2.2 Mailings, Brochures, Giveaways, etc.

On several occasions, the Stormwater Utility has disseminated informational inserts to County residents via Utility billing mailings which describe the County’s Illicit Discharge Detection and Elimination (IDDE) Hotline and its purpose.

The County has purchased refrigerator magnets and temporary tattoos, which similarly list the IDDE Hotline number and depict our mascot, *Storm Drain Dan*, and continues to give them away to the public at various community events.



Additionally, the Spokane County Stormwater Utility, Water Resources Department, and Spokane County Regional Solid Waste System regularly distribute and/or post downloadable online versions of various brochures and informational flyers instructing the public on pollution prevention and hazardous waste disposal.

2.3 Spokane Valley-Rathdrum Prairie Aquifer Atlas – 2015 Update

The Stormwater Utility and Spokane County Water Resources Department, in cooperation with other local NPDES Permittees and regional water quality protection groups, participated in a comprehensive update of the *Spokane Valley-Rathdrum Prairie Aquifer Atlas* during throughout 2014-2015. The new edition features several pages on stormwater runoff and stormwater facilities, in addition to IDDE pollution prevention instruction for homeowners and businesses. The Atlases are available to the public free-of-charge at the Public Works Building and Spokane County Water Resource Center during regular business hours, and are given away at various community events including Earth Day, Kids Day, ValleyFest, and the Spokane County Interstate Fair. The *Atlas* can also be accessed online at the County's website [HERE](#).

2.4 K-12 Education

Spokane County utilizes various educational tools throughout the year to instruct youth about the importance of keeping pollution out of the MS4 and, in particular, storm drains. These games include: 1) Stormwater Plinko; 2) Stormwater Magic; 3) Stormwater *MisMatch*; and the 4) Storm Drain Shell Game. The games are described in *ATTACHMENT 4 - Public Education & Outreach and Public Involvement & Participation Plan* of the Annual Report.

In 2012, the County completed its first stormwater-related activity book geared toward young children. The focus of the activity book, titled *Storm Drain Dan and His Adventures to Save Our Water*, is to educate kids about stormwater, stormwater pollution, and pollution prevention via storytelling, mazes, word searches, and puzzles. The storyline spotlights two children informing their father about the hazards of pouring used motor down a storm drain, and what to do with it instead. Over 1,500 of these activity books were given away in 2015 alone.

2.5 Public Education via Enforcement

Municipal Separate Storm Sewer Systems (MS4s) are periodically inspected for evidence of non-stormwater discharges by visually observing open-channel sections. Inspections are performed by Stormwater Utility staff, who work with landowners to correct problems. Spokane County Road Maintenance Dept. staff are also trained to look for evidence of non-stormwater discharges to the drainage system during their normal duties. A procedure for reporting potential problems is included with the existing "Hotline and Request for Investigation" process currently utilized by the County.



2.6 Hazardous Waste Disposal

Spokane County is now responsible for providing the framework for solid waste disposal, recycling, and related educational outreach within unincorporated Spokane County and System member jurisdictions. The *Spokane County Regional Solid Waste System* conducts extensive education and outreach on waste reduction, recycling, and both household and business hazardous waste pollution prevention. Their education program can be accessed online at the County's website [HERE](#).

As mentioned above, the Spokane County Regional Solid Waste System, Stormwater Utility, and Water Resources Department distributes various brochures and informational flyers instructing the public on pollution prevention and hazardous waste disposal. These County departments also help promote the non-profit *EnviroStars Waste Directory* website, a free online service that not only lists and explains the hazardous materials found in varying types of waste, but similarly identifies vendors who accept that waste for disposal. The *EnviroStars Waste Directory* can be accessed [HERE](#).

3. Staff Training

Training municipal staff who may come into contact with or otherwise observe an illicit discharge or connection while performing their normal job responsibilities is essential in order to conduct timely mitigation of non-stormwater discharges to the MS4. As such, the County provides opportunities for IDDE training for staff that conduct field-related activities. This includes staff from the following departments:

- Stormwater Utility;
- Development Services;
- Road Maintenance;
- Construction Services;
- Fleet Management; and
- Facilities Maintenance.

County staff has been trained to identify potential sources of stormwater pollution and report concerns. Staff can also report stormwater-related issues by directly contacting the Stormwater Utility. Public Works Road Maintenance staff has primary responsibility for responding to emergencies related to surface water in the County. This includes providing 24-hour emergency response to flooding of streets or structures, pollutant spills, and illegal discharge of pollutants to the storm and surface-water systems.

Additionally, the Public Works Road Maintenance; Fleet Management; Parks, Recreation, and Golf; Regional Solid Waste System; and Facilities Maintenance staff continue to implement practices and procedures designed to prevent stormwater impacts associated with their respective maintenance activities including, but not limited to: 1) pipe and culvert cleaning; 2) swale and ditch maintenance; 3) street cleaning; 4) road repair; 5) snow and ice control; 6) vector waste



disposal; 7) storage, handling, and application of pesticides and fertilizers; 8) hazardous material storage and disposal; and 9) vehicle washing and repair.

4. Conclusion

Stormwater pollution, as a result of illicit discharges, has a major impact on our local waterways and groundwater. Spokane County is required to protect these valuable resources and, by targeting audiences such as the general public and businesses, significant improvements are being achieved simply through the ability to understand the problem at-hand. In addition, with proper guidance and training, municipal employees play an important role in protecting water quality by preventing stormwater pollution during their daily operations, and reporting all pollution observed in the field.



ATTACHMENT 7:

**ACTIONS TAKEN TO CHARACTERIZE, TRACE, AND ELIMINATE
ILLICIT DISCHARGES, ILLICIT CONNECTIONS, AND OUTFALLS**



1. Introduction and Permit Requirement

The Eastern Washington Phase II Municipal Stormwater Permit, Special Condition, Requirement S5.B.3.d.iv reads:

The Stormwater Management Program (SWMP) shall comply with the following provisions:

- *“Immediately respond to all illicit discharges, including spills which are determined to constitute a threat to human health, welfare, or the environment;”*
- *“Investigate (or refer to the appropriate agency with the authority to act) within 7 days, any complains, reports, or monitoring information that indicates a potential illicit discharge;” and*
- *“Initiate an investigation within 21 days of any report of discovery of a suspected illicit connection, the nature and volume of the discharge through the connection, and the party responsible for the connection. Upon confirmation of an illicit connection use the compliance strategy outlined in S5.B.3.b.vi in a documented effort to eliminate the illicit connection within 6 months. All known illicit connections to the MS4 shall be eliminated.”*

The purpose of an Illicit Discharge Detection and Elimination (IDDE) program is to find, fix, and prevent non-stormwater discharges, and implement a series of techniques exist to meet these objectives. This narrative describes the actions taken characterizing, tracing, and eliminating illicit discharges, illicit connections, and outfalls in 2015.

2. Tracking and Tracing Spills, Illicit Discharges, Illicit Connections, and Outfalls

The highest priority in most IDDE programs is to find any continuous and/or intermittent non-stormwater discharges to the storm system. A range of monitoring techniques can be used to find such discharges. In general, monitoring techniques are used to find problem areas and then trace the problem back up the stream or pipe to identify the ultimate generating site or connection. Monitoring can sometimes pick up other types of illicit discharge that occur on a continuous or intermittent basis (e.g., wash water and liquid waste dumping). Monitoring techniques are classified into three major groups:

- (a) Outfall reconnaissance;
- (b) Indicator monitoring at stormwater outfalls; and
- (c) Tracking discharges to their source.



Documentation of illicit discharge reports, investigations, and elimination actions is critical for demonstrating compliance with the MS4 Permit. In the case of spills, illicit discharges, illicit connections, and outfall investigations, Spokane County's MS4 Permit requires, at a minimum, the following information:

- The date or dates that the illicit discharge was observed and reported;
- The results of the investigation;
- Any follow-up of the investigation;
- Resolution of the investigation; and
- The date that the investigation was closed.

All actions relating to illicit discharge detection are recorded in a database administered by the Stormwater Utility. The database contains information including the number of sites inspected and any complaints received, to name a few. Additionally, stormwater outfalls are currently identified on the MS4 mapping system. For outfall map, see *ATTACHMENT 1: Spokane County Stormwater Management Program (SWMP), APPENDIX C – MS4 Maps and Program Data*. In the coming years of this Permit cycle, it is anticipated that illicit discharge detection activities will also be documented on the mapping system.

For documentation on tracking and tracing spills, illicit discharges, illicit connections, and outfalls during the 2015 calendar year, see *Section 4 – IDDE and Outfall Database Summary* below.

3. Fixing Illicit Discharges and Outfalls

Once non-stormwater discharges or other connections are discovered, they can be fixed, repaired, or eliminated through several different mechanisms. Municipalities are required to establish targeted education, training, and capital construction programs to promote timely corrections.

The County continually assesses existing outfalls to systematically prioritize and implement BMP retrofit opportunities. One such opportunity, the *Liberty Lake Outfall Elimination Project*, funded by Ecology (G1400499) and completed by June 2015, removed three pipe connections from the right-of-way that flowed to Liberty Lake.

For documentation on fixing and eliminating illicit discharges, illicit connections, and outfalls during the 2015 calendar year, see *Section 4 – IDDE and Outfall Database Summary* below.



4. IDDE and Outfall Database Summary for 2015

Discharge Type	Location	Material	Date of Report or Discovery	Date of Investigation	Did the Spill or Illicit Discharge enter the MS4?	Code Enforcement Action, if necessary	Date Investigation Terminated	Notes
<p>Illicit Discharge/ Hotline Report</p>	<p>7625 N. Whitehouse Ave.</p>	<p>Vehicle Fluids</p>	<p>3/2/2015</p>	<p>3/2/2015</p>	<p>Yes</p>	<p>Yes - Letter of Violation sent on 3/3/2015</p>	<p>Ongoing</p>	<p>Concerned citizen contacted Stormwater Utility (SWU) via County Stormwater Hotline regarding repeated intentional dumping of various vehicle fluids onto the paved roadway. Multiple neighbors have approached the resident(s) at address to explain why they shouldn't do this, but to no avail; summer after summer, they continue to do so. Now and again, they will put down cat litter to soak up a very bad mess, but they do not sweep up the litter and dispose of it; it stays in the street until it rains, and is also washed into the storm drain. Caller recently became aware through a City of Spokane employee that illicit discharge into a storm drain is illegal, and should be reported. SWU sent offending homeowner letter/notice of violation. Inspections will be conducted again in 2016 to check the street and storm drain. If violation continues, case should be forwarded for misdemeanor proceedings, as per County ordinance, 9.14.215.8 - Discharge of Unauthorized Waters and Non-Stormwater Prohibited--Penalty.</p>



<p>Spill</p>	<p>Vicinity of Sprague & Havana</p>	<p>Magnesium Chloride</p>	<p>6/26/2015</p>	<p>6/26/2015</p>	<p>Yes</p>	<p>No</p>	<p>6/26/2015</p>	<p>A train and truck collided on Havana Street, causing the truck to spill 1,500+ pounds of magnesium chloride. Havana Street is co-owned/co-maintained by both the City of Spokane (CoS) and Spokane County. Both municipalities were notified of the spill by the Fire Department. Additionally, the Dept. of Ecology Spill Response Team was contacted. It was determined that the Spokane Fire Department would wash the spill to the CoS's MS4 (the West half of Havana), as their MS4 ties to the Wastewater Treatment Plant (WWTP) at that location, while the County's MS4 (the East half of Havana) are infiltration facilities. The CoS WWTP was notified of this and fully prepared to manage the material.</p>
<p>Outfall Elimination</p>	<p>Shoreline Drive, Liberty Lake</p>	<p>Potential IDDE site; stormwater runoff outfall w/no pre-treatment</p>	<p>9/15/2010</p>	<p>8/22/2012</p>	<p>N/A</p>	<p>N/A</p>	<p>6/30/2015</p>	<p>Eliminated one existing stormwater outfall to Liberty Lake, a 303(d) listed waterbody, from two locations Shoreline Drive. Spokane County Stormwater Utility (SWU) installed a Filterra unit for stormwater treatment ahead of infiltration facilities, and disconnected the existing outfall pipe. The Filterra units have Department of Ecology General Use Level Designation (GULD) approval for basic, enhanced, oil, and phosphorus treatment for stormwater runoff. The outflow from the Filterra unit is piped to drywells in the roadway. Additionally, catch basins were placed down-gradient from the Filterra unit to handle bypass from high-intensity storm events. Eliminating this outfall provides a significant reduction in pollutants that are delivered to the Lake, and removes the threat of direct contamination to Liberty Lake posed by accidental or deliberate hazardous material spills in the roadway.</p>



<p>Outfall Elimination</p>	<p>Shoreline Drive, Liberty Lake</p>	<p>Potential IDDE site; stormwater runoff outfall w/no pre-treatment</p>	<p>9/15/2010</p>	<p>8/22/2012</p>	<p>N/A</p>	<p>N/A</p>	<p>6/30/2015</p>	<p>Eliminated one outfall onto a private residence adjacent to Liberty Lake, a 303(d) listed waterbody, with a TMDL in place for phosphorus. Spokane County Stormwater Utility (SWU) installed a Filterra unit for stormwater treatment ahead of infiltration facilities, and disconnected the existing outfall pipe. The Filterra units have Department of Ecology General Use Level Designation (GULD) approval for basic, enhanced, oil, and phosphorus treatment for stormwater runoff. The outflow from the Filterra unit is piped to drywells in the roadway. Additionally, catch basins were placed down-gradient from the Filterra unit to handle bypass from high-intensity storm events. Eliminating this outfall provides a significant reduction in pollutants that are delivered to the Lake. It also eliminates the threat of direct contamination to Liberty Lake posed by accidental or deliberate hazardous material spills in the roadway.</p>
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ATTACHMENT 8:

**SUMMARY OF RELEVANT SWMP AND APPENDIX 2 ACTIONS AND ACTIVITIES
TO ADDRESS APPLICABLE TOTAL MAXIMUM DAILY LOAD PARAMETERS**



1. Introduction and Permit Requirement

The Eastern Washington Phase II Municipal Stormwater Permit, Special Condition, Requirement S7.A reads:

The Stormwater Management Program (SWMP) shall “...comply with the specific requirements identified in Appendix 2. Each Permittee shall keep records of all actions required by this Permit that are relevant to applicable TMDLs within their jurisdiction. The status of the TMDL implementation shall be included as part of the Annual Report submitted to Ecology. Each Annual Report shall include a summary of relevant SWMP and Appendix 2 activities conducted in the TMDL area to address the applicable TMDL parameter(s).”

The Spokane River was designated an impaired water by the Washington State Department of Ecology (WADOE) for several parameters that do not meet State-established standards. Parameters of concern include dissolved oxygen, metals, phosphorus, and toxics. As such, Ecology has established Total Maximum Daily Loads (TMDLs) for segments of the Spokane River that address these impairments. This narrative describes the actions taken by Spokane County in 2014-2015 to address applicable TMDL parameters, as listed in S7.A and Appendix 2 of the Permit.

2. Total Maximum Daily Load Definition

A TMDL is a calculation of the maximum amount of a pollutant that a water body can receive and still safely meet water quality standards. TMDLs describe the type, amount, and sources of water pollution in a particular water body; they analyze how much the pollution needs to be reduced or eliminated to meet water quality standards; and they provide targets and strategies to control the pollution.

3. Total Maximum Daily Load (TMDL) Requirements and Responsibilities

According to Appendix 2 of the Permit, no later than August 31, 2014, Spokane County shall:

- (a) Prepare a monitoring plan to evaluate its stormwater discharges to the Spokane River in order to determine pollutant loading for total carbonaceous biochemical oxygen demand (CBOD), phosphorus, and ammonia;
- (b) Conduct sampling at the Ella Road outfall and calculate discharge volume estimates at least once per month during the months of March through October during the first precipitation event in a month that produces adequate stormwater for analysis; and
- (c) Prepare and submit a Quality Assurance Project Plan (QAPP) to Ecology for review and approval that follows *Quality Assurance Project Plans for Environmental Studies*, July 2004, Ecology Publication No. 04-03-030. Monitoring shall be conducted using Ecology-approved Standard Operating Procedures. If the QAPP needs to be modified, Spokane County will provide the



updated QAPP for review and approval within 90 days of receiving Ecology comments.

Additionally, no later than August 31, 2015, Spokane County shall:

- (d) Start sampling and implement the Ecology-approved monitoring plan; and
- (e) Enter all applicable seasonal results of the monitoring into Ecology's EIM database by December 21st of each year. Include a summary and discussion of the monitoring results with the respective Annual Report.

4. Monitoring Actions and Activities To-Date

Spokane County Stormwater Utility prepared and submitted a QAPP in 2014 that proposed to perform flow monitoring at the Ella Road outfall to the Spokane River.

In 2015, Spokane County constructed a series of catch basins, swales, and drywells to intercept and infiltrate the runoff from Ella Road. Since installation of these storm drainage facilities, Spokane County has performed site visits after significant rainfall events. No discharge to the outfall pipe has been observed during any of these inspections, and the sediment past the mouth of the outfall pipe was found to be dry and undisturbed each time.

5. Ongoing Stormwater Management Program (SWMP) Actions and Activities

Spokane County requires design and implementation of construction and post-construction Best Management Practices (BMPs) for flow and pollution control in order to protect surface waterbodies and meet water quality and TMDL goals. Spokane County also performs good housekeeping in the form of maintenance of storm drainage facilities within road rights-of-way and County-owned properties to reduce nutrient and other pollutant-loading impacts on surface waterbodies. Additionally, Spokane County intends to continue performing field inspections to identify and eliminate, where possible, potential outfalls to the Spokane River.

6. Conclusion

It is Spokane County's position that this outfall has been eliminated for the purposes of any design storm events. Physical removal of the outfall pipe was the original objective; however, it was discovered that the pipe is sited in a designated floodway, and removal would require an overarching restudy of the basin and a Conditional Letter of Map Revision (CLOMR) from FEMA. Spokane County is in continuing discussion with Ecology staff on how to best move forward with this requirement, since no flows exist to sample and test at this time.



ATTACHMENT 9:
DESCRIPTION OF STORMWATER MONITORING OR
STORMWATER-RELATED STUDIES



1. Permit Requirement

The Eastern Washington Phase II Municipal Stormwater Permit, Special Condition, Requirement S8.A reads:

“All Permittees... shall provide, in each annual report, a description of any stormwater monitoring or stormwater-related studies conducted by the Permitted during the reporting period. ...Annual reporting of any monitoring, studies, or analyses conducted as part of S8.B must follow the requirement specified in the approved Quality Assurance Project Plans (QAPPs).”

This narrative describes the actions taken by Spokane County to address special provision S8.A, which requires Permittees to describe all stormwater monitoring or stormwater-related studies performed and/or undertaken through Permit Year 2015.

2. Spokane County Stormwater Monitoring or Stormwater-Related Studies Narrative

Spokane County has been participating in the effectiveness study selection process with numerous Eastern Washington jurisdictions; this effort has been moving along, as specified in Section S8 of the Permit. No additional Ecology-approved studies have been undertaken by Spokane County at this time.

3. Proposed Effectiveness Study Questions

In developing study ideas, the goal was to make sure that the studies evaluated stormwater management activities that are currently being implemented by member jurisdictions, and/or could be efficiently managed by staff. Eight to twelve effectiveness studies will ultimately be implemented. The chart below lists the study ideas compiled to-date:

Proposed Effectiveness Study Questions			
Study No.	Study Title	Permit Category	Study Summary
1	Modernizing Education and Outreach Strategies	Public Education and Outreach	A marketing firm would be hired to develop an education and outreach program utilizing modern communication tools (apps, social media, would be developed for one stormwater Permit-related topic (e.g., reporting illicit discharges). Public awareness and behaviors about the topic would be assessed via survey before and after deliver of the educational campaign to assess results.
2	Mobile Contractor Illicit Discharge Education	Public Education and Outreach	This study will involve the development and testing of a new educational program for educating contractors that move on a daily basis about illicit discharge prevention. The study will focus, in particular, on ways of reaching mobile contractors and delivering the material.
3	Illicit Discharge Detection Methods	IDDE	The study will survey stormwater managers to gather information regarding illicit discharges detected by various IDDE methods. The purpose is to identify which methods result in the highest detection rate.



Proposed Effectiveness Study Questions (Continued)

Study No.	Study Title	Permit Category	Study Summary
5	Business Inspection Program Strategies	IDDE	This survey study will query Phase II Western Washington jurisdictions with business inspection programs. The purpose of the survey will be to qualitatively assess the effectiveness of business inspection programs in Western Washington, and to learn effective strategies that can be adopted into the developing business inspection programs of Eastern Washington jurisdictions.
6	Soil Amendments for Erosion Control and Revegetation	Construction Site Stormwater Runoff Control	This study will test commercially available soil amendments claiming to improve plant growth by enhancing soil structure and water holding capacity. The study will be conducted at a plot scale using typical erosion control seed grass mixes.
7	Stormwater BMP Owner Awareness	Post-Construction Stormwater Management	This simple, survey study will be delivered to homeowners, homeowners associations, and businesses that have structural stormwater BMPs installed on their properties. The survey will assess their general knowledge about the stormwater BMPs on their land, the maintenance requirements of the BMP, and their responsibility to continually maintain the BMP.
8	Long-Term Maintenance of Privately Owned BMPs	Post-Construction Stormwater Management	This two-part study will review existing inspection and maintenance records to evaluate the effectiveness of each Eastern Washington Jurisdiction's inspection and maintenance program, and survey Permittees to learn about the most significant impediments to conducting BMP inspections.
9	BMP Inspection and Maintenance Responsibilities	Post-Construction Stormwater Management	A survey will be used to gather information from Washington Jurisdictions to learn novel and effective ways that municipalities are meeting the challenge of ensuring ongoing maintenance of structural BMPs on private property. In particular, the survey will question Permittees about different models of BMP ownership and responsibility for continued maintenance of BMPs.
10	Impact of Privately Owned BMPs on MS4s	Post-Construction Stormwater Management	This study will evaluate the percentage of privately owned BMPs that would drain to the MS4 in the event of failure. The study will use GIS analysis at the sub-basin scale.
11	Comparison of Conventional and LID BMPs	Post-Construction Stormwater Management	This study will evaluate flow control benefits through sizing and modeling various BMPs (both common infiltration BMPs and LID BMPs) for typical residential and commercial development in Eastern Washington. The study would also include a cost comparison among various BMPs and compile an Eastern Washington Stormwater BMP cost database.
12	Long-term Permeable Pavement Sidewalk Infiltration Performance	Municipal Operations and Maintenance	Test strips of permeable pavement sidewalks will be constructed in four Eastern Washington communities. Infiltration measurements will occur twice yearly for a 10-year study period. No maintenance will take place, so the infiltration measurements will document decreases in infiltration performance over time as the pavement becomes clogged with sediment.



Proposed Effectiveness Study Questions (Continued)

Study No.	Study Title	Permit Category	Study Summary
13	Permeable Pavement Parking Lot Maintenance	Municipal Operations and Maintenance	Test segments will be designated within the traveling lanes of a newly constructed permeable pavement parking lot. Each test segment will be subjected to different maintenance regimes ranging from no-maintenance to monthly vacuuming. The infiltration rate of the pavement will be measured on a quarterly basis and the infiltration performance of each test segment will be tracked over time.
14	Sharp Avenue Porous Pavement Study	Municipal Operations and Maintenance	A porous pavement "laboratory" will be constructed in the traveling and parking lanes of a City arterial street near Gonzaga University. A porous concrete intersection, full-width pervious asphalt, pervious asphalt in the parking lanes only, and a control section will be installed. Gonzaga University students will monitor water quality, pavement condition over time (especially with respect to studded tire use) and operations and maintenance impacts.
15	Street Sweeping and Catch Basin Cleaning Comparison	Municipal Operations and Maintenance	This study will use a small-scale, "paired" basin approach for evaluating differences in the amount of material removal by street sweeping and catch basin cleaning compared to only catch basin sweeping. One of the basins will be swept regularly, and the other will not. The total amount of material removed will be calculated for both basins and compared. All Eastern Washington jurisdictions will also be surveyed about their street sweeping and catch basin cleaning procedures.
16	Seasonal Differences in Street Sweeping Material Removal	Municipal Operations and Maintenance	All the roadways within four or five communities will be swept on a monthly basis. The amount of material and pollutants removed during each sweeping event will be totaled. Statistical analysis will be used to identify whether there are significant factors (timing, region) affecting the amount of material removed by each sweeping event (a surrogate for sediment deposition rate).
17	Catch Basin Insert Monitoring Protocol	Municipal Operations and Maintenance	The objective of this study is to develop a protocol (QAPP) for evaluating the effectiveness of commercially available catch basin inserts at bench and field scales. Having this procedure in place will streamline testing and evaluation, and will ensure uniformity of methods allowing for objective performance comparisons. This protocol would be developed with input from Ecology and interested vendors. Vendors who chose to have their product tested would provide the funding for the testing.
18	Catch Basin Retrofit Device Placement	Municipal Operations and Maintenance	The objective of this research is to evaluate gross solids removal differences between two, similarly sized and located catchments; one in which a downturned elbow type retrofit is only installed at the most downstream catch basin and one in which retrofits are installed at multiple locations within the catchment.



Proposed Effectiveness Study Questions (Continued)

Study No.	Study Title	Permit Category	Study Summary
19	Seeding and Irrigation for Vegetated BMPs	Monitoring and Assessment	Test plots simulating conditions in vegetated BMPs (e.g., bioretention, bioinfiltration, dispersion) will be constructed. Different seeding densities of seed mixes typically used in Eastern Washington, and irrigation regimes will be applied to each test plot. Beneficial plant and weed growth will be monitored. Jurisdictions will be able to use this information to help with plants establishment in vegetated BMPs, resulting in better performance, reduced maintenance needs, and cost savings.
20	Planting Options for Bioretention BMPs	Monitoring and Assessment	A plant list of climate-appropriate plants will be developed based on literature sources. Test plots simulating conditions in bioretention BMPs will be constructed. Combinations of seed mixes and substrates, as well as at least one option that has no plants, will be applied to the test plots. Infiltration and soil cation exchange capacity will be measured throughout the study.
21	Media Component Study	Monitoring and Assessment	This project would mimic the Western Washington study conducted at the Washington Stormwater Center that evaluated media mixes used in bioretention facilities. The purpose of this study would be to develop bioretention media better suited for Eastern Washington conditions, and if possible maximize usage of locally sourced materials.
22	Treatment for Comingled Stormwater and Agricultural Discharges	Monitoring and Assessment	Synthetic water blends with nutrient, metal, bacteria, and pesticide concentrations typical of those found in agricultural runoff in eastern Washington will be run through test columns with different media and native soil combinations found in Eastern Washington infiltration and UIC stormwater treatment devices. The purpose of this experiment is to determine if existing stormwater treatment is capable of treating agricultural water that is comingled with stormwater to a level that is safe and protective of water quality so that decision makers can make more informed decisions.
24	Biochar Media Stormwater Treatment Study	Monitoring and Assessment	Two types of biochar are being studied for their stormwater treatment capacity (Kentucky bluegrass and wood-based biochars). A bench-scale laboratory study was completed in 2015. A field scale pilot study began construction in 2014 and will be implemented in 2015. The field portion of the study includes construction and water quality monitoring of storm gardens with biochar-supplemented treatment media along Garland Avenue in Spokane.
27	Media Thickness Study	Monitoring and Assessment	This study will help to determine optimal media depths for maximizing performance and cost-effectiveness bioinfiltration BMPs in Eastern Washington. A bioinfiltration pond with two treatment cells (12- and 18-inch media depth) was constructed adjacent to the parking area at Gonzaga University's Rudolph Fitness Center. Influent and effluent concentrations for each of the treatment cells will be compared to determine treatment efficiency of each of the cells. From this analysis, differences in treatment efficiency and performance attributable to the different media depths of each of the cells should be determined.



4. Effectiveness Studies Participation Letter

The City of Spokane Valley has provided a letter to substantiate the County's participation in the Effectiveness Studies process to-date, and is included at the end of this document.

5. Conclusion

Spokane County will continue collaboration with the Eastern Washington Stormwater Group (EWSG) to propose, select, develop, and conduct Ecology-approved studies that assess the effectiveness of Permit-required stormwater management activities and Best Management Practices. Permittees have developed the list and continue to refine study ideas throughout 2015-2016. Final selection of studies and lead agencies chosen to champion each study needs to be made, and different structures for organizing the work are still being discussed. A ranked list of detailed study design proposals will be submitted to Ecology by June 30, 2016. Detailed proposals and Quality Assurance Project Plans (QAPPs) for each study are anticipated for the 2017 calendar year, with implementation of approved studies in 2018/2019.



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March 8, 2016

For General Distribution

**Subject: Monitoring and Assessment, Permit Compliance Letter
Eastern Washington Phase II Municipal Stormwater Permit
Section/Paragraph: S8.B.1**

To Whom It May Concern:

Individual cities and counties (see attached list) have met the conditions of the Eastern Washington Phase II Municipal Stormwater Permit, requirement S8.B.1. This requirement is the first part of the Stormwater Management Program Effectiveness Studies program and required permittees to review, discuss, and collaborate on potential study ideas. The preliminary work started at the end of 2013 and continued through June of 2015 and was paid for, in part, through a Washington State Department of Ecology (Ecology) grant.

A group representing stormwater staff from the municipal permittees is currently continuing to work on the next requirements of S8.B program. This includes to rank and compile a list of twelve to fifteen study ideas for submittal to Ecology no later than June 30, 2016. After the first submittal, permittees will then be required to submit eight to twelve study design proposals for approval from the original list, receive Quality Assurance Project Plan approval, perform studies, measure and record results, and analyze and apply the findings to the participant's stormwater management programs over the next several years.

In the meantime, the first part of the work has been completed successfully. A final report of this first phase of the program was published in June 2015 and is available for review upon request.

Sincerely,

A handwritten signature in black ink, appearing to read "Art Jenkins", written in a cursive style.

Art Jenkins, PE, CSM
Stormwater Engineer

Enc: List of Cities/Counties Participating in completing S8.B.1

S8.B.1 – Participating Cities and Counties

The following cities and counties participated in the “Eastern Washington Effectiveness Studies Program, Phase 1” that occurred from December 2013 through June 2015, meeting the Eastern Washington Phase II Municipal Stormwater Permit (effective August 1, 2014) requirement S8.B.1:

Cities:

1. Asotin
2. Clarkston
3. East Wenatchee
4. Ellensburg
5. Kennewick
6. Moses Lake
7. Pasco
8. Pullman
9. Richland
10. Selah
11. Spokane
12. Spokane Valley
13. Sunnyside
14. Union Gap
15. Walla Walla
16. Wenatchee
17. West Richland
18. Yakima

Counties:

1. Asotin
2. Chelan
3. Douglas
4. Spokane
5. Walla Walla
6. Yakima