7 Appendices

Appendix 1 – Phase 2 EWSG Meeting Documents

Notes

Eastern Washington Stormwater Group
Strategic Thinking Session

Moses Lake Fire Station, 701 E. Third, Moses Lake, WA
Thursday, January 28, 2016 – 9:30 am to 3:00 pm

Session Objective:

- Identify best organizational structure for development and work on strategic priorities of the Eastern WA Stormwater Group including the Effectiveness Studies Development - Phase II: Developing Partnerships.

Opening Remarks
Jon reminded folks of February 18 meeting…notification by email
March meeting may need a change in venue because half room available
City of Spokane Valley – Ecology grfant

Art welcomed the group…and ran introductions

Proposed Future Timeline – Phase II
See draft graphic, timeline and benchmarks, AKART graphic Art reviewed

	Benchmark	**Date**
Phase II	ID lead entities (LE) and Participating Permittees (PPs) for each study idea	February – March 2016
	Rank/Submit 12-15 SIs	February – June 2016
	ID Funding partnerships including roles and responsibilities	April – June 2016
	EWSG endorses proposed Implementation Plan	By June 2016
Phase IIIa	Study ?Teams work on detailed Study Design Proposals (SDPs) w/consultant(s)	January – June 2017
	Submit SDPs for 8-12 SIs	By June 2017
	Ecology Review	After June 2017
Phase IIIb	Within 6 months of ECY approval of SDP(s), study design and QAPP's	Within 6 months of ECY approval
	ECY review/approval within 90 days	
	Start work on 4 studies within 6 months of ECY approval	
	Start work on 4 studies within 15 months of ECY approval	
	Interim reporting	
	EIM data entry	
	Final results	
	Reporting & Recommendations	

Notes:

- Eventually we need to identify compliance and participation for a permittees (B4 requirements…cover on organizational structure

- Everybody has complied with B1….have list of studies, Ecology covering costs of B5…how to divvy up B6 and beyond
- No sideboards from this point on…good to have a facilitator…including majority decisions and minority concerns
- Needing to come up with 8 ideas and recognize studies that are already started…base need for additional resources
- Use G20 if needed if one or more of the 8 or more studies does not work out…should we have to use
- What does the next permit look like into the future…recommendations for the next permit
- Interim report as a grant deliverable
- Pass through monies can be used for study work
- Need to put a budget item in each entities budget for the financial commitment
-

Effectiveness Study

See work session handouts

Criteria for Selecting a Study Idea

- It would address the question is the BMP worth doing or could be done effectively
- Applicability to future permit requirements or manual updates
- Applicability to local conditions (soils, climate, politics, geographic, activities)
- Cost related to benefit
- Would it address "big ticket" items (eg fish consumption, water resources, water quality, HHC, Governor idea, TMDLs or other)
- Keeps the money local…work is done locally
- Would have a lead entity

Karen Dinicola
360-407-6550 | karen.dinicola@ecy.wa.gov

Available for questions from meetings before or after
Questions or Ecology to Jon
Note…move product forward…consider the grants that are not capacity grant cycle over this Phase II work to see how they applyu to satisfy permit requirements

Karen Dinicola comments:

- Karen stressed the opportunity to learn from one another including western WA examples including monitoring techniques…93 permittees
- Organizational structure in Western WA includes votes, tribes, stakeholder groups, envois, Agriculture…with formal charter and bylaws
- Stakeholders recommended the process be ongoing in Western WA
- Funding into a 'pot'…solicitation for ideas…vote on which ideas to work on…external committee oversees the work on studies…first report card has came in…value to our group would be to learn from the other groups
- PCHB has endorsed the process in Western WA permits…permit requirement…effectiveness study…
- Collection of data on what is causing problems…targeted public education and outreach
- Mentioned received monitoring agreement
- Jon noted that it is more effective to work together as a group to get the studies done…have a special group that can show what is effective and useful to Eastern WA
- Matt commented that we should get going on our studies even sooner than even Ecology would expect
- Jon noted the need for pooling of funding for the studies work
- Will need to consider permittees governing bodies decisions on budget and participation…Ecology can assist if needed
- Action Item - Should we consider a white paper on eastern WA Stormwater monitoring…presentation of what has led us here
- Karen noted that we are collecting a good set of information to make Stormwater programs better
- Leveraging other work and grant opportunities is important to recognize in implementation of Phase II and III and beyond
- Comment about kart before the horse…setting up an organization to early…not a grant to do that
- Writing QAPPs…Ecology funding for supporting the process…staffing, facilitation, monitoring, but not effectiveness studies in the future with Gross grant…Gross grants for not selected effectiveness studies
- Effectiveness studies eligible for other Stormwater activities especially if the activity includes measuring the effectiveness of the activity
- Combined Stormwater studies
- Proposal in for Gross Grant before detailed proposals then OK…after may not be funded

Study Idea	Lead entities (LE)	Participating Permittees (PPs)
Study 1 Modernizing Education and Outreach Strategies High	Quad Cities?	
Study 2 Mobile Contractor Illicit Discharge Education High	Jessica – City of Wenatchee	
Study 11 Comparison of Conventional and LID BMPs High		
Study 15 Street Sweeping and Catch Basin Cleaning Comparison High	Jon – City of Ellensburg	Matt
Study 18 Catch Basin Retrofit Device Placement High		
Study 20 Planting Options for Bioretention BMPs High		
Study 3 Illicit Discharge Detection Methods Medium		
Study 5 Business Inspection Program Strategies Medium		
Study 7 Stormwater BMP Owner Awareness Medium		
Study 9 BMP Inspection and Maintenance Responsibilities Medium		
Study 10 Impact of Privately Owned BMPs on MS4s Medium		
Study 12 Long-term Permeable Pavement Sidewalk Infiltration Performance Medium		
Study 13 Permeable Pavement Parking Lot Maintenance Medium		
Study 14 Sharp Avenue Porous Pavement Study Medium	City of Spokane?	
Study 16 Seasonal Differences in Street Sweeping Material Removal Medium	Art?	
Study 17 Catch Basin Insert Monitoring Protocol Medium		
Study 19 Seeding and Irrigation for Vegetated BMPs Medium		
Study 21 Media Component Study Medium	Matt – Spokane County	
Study 27 Media Thickness Study Medium	Matt – Spokane County	
Study 6 Soil Amendments for Erosion Control and Revegetation Low		
Study 8 Long-Term Maintenance of Privately Owned BMPs Low	City of Richland?	
Study 22 Treatment for Comingled Stormwater and Agricultural Discharges Low		

Study 24 Biochar Media Stormwater Treatment Study Low	Adrianne – City of Spokane	
Study add1 Use of Non-vegetative Swale with Native Soils	Teresa – City of Pasco	Martin
Study add2 Sand Filter Vault BMP	Matt – Spokane County	
Study add3 GIS Determination of the Concentration of Stormwater in Eastern WA		

October Work Session Notes

Organizational Structure

Option	Advantages	Disadvantages
Current informal group as core	• Working OK for now • See below	• See below
Formal group with formal interlocal agreements	•	•
Steering group with Ecology as bank with individual studies	• Like Western WA	•
Non-profit organization with membership (association)	• Cost sharing for operations • Shared expenses • Spokespeople • Banking money for special projects (subscription) • Focused on mission • Representation and influence at state and national level (association) • Could hire lobbyist • IRS Standing and contributions and funding sources • Would provide a central place for banking funds • Succession for the organization • Focused FTE on group needs	• Cost of structure • Disengagement of members • Time consuming • Would need council approval • Would have to demonstrate need to decision makers • How to pay for structure • Staffing would be needed • Could not go after some grant • Association of cities & Association of Counties
Current informal group with interlocal agreements and steering groups as needed	• Working OK for now • Would add interlocal agreements for funding • Organize steering groups for projects • Can use the charter with current organizations • Member involvement • Can use existing structure with lead entity and interlocal agreements for doing work • Can receive donations • Work though city and county managers	• Cost sharing for operations…fairly pay for this work • Have to find free space • Chair responsibilities & workload (more time than thought • Would need an interlocal agreement in order to transfer money • All busy with current activities at local level

Professional Assistance (if needed)

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Next Agendas

February 18 or 25

- Agenda and objective
- Revisit the Charter
- Results of survey on study ideas
- Draft Lead Entities & Partners
- Prioritize the study ideas
- Funding effectiveness studies
- Manual recommendations steering committee role (1 hour to 90 minutes)
- Status of MOU signings
- Action Register

March 24

- Agenda & objective
- Manual recommendations & steering committee role (1 hour)
-

Action Register (30 days)

Action	**Date**	**Lead**
1.28.16 notes to members	1.29.16	Ray & Art
Doodle poll February meeting date	1.29.16	Jon
Read Appendix A of Phase I report for study ideas…come ready to eliminate, combine, revise	Before Feb meeting	Art to send
Survey Monkey for study ideas on lead entity, participating permittees	By 2.3.16	Art
MOU Signatures by Permittees (use MOU talking points)	Send by 2.1.16 By Feb meeting	Each member for signing – Jon with cc to Art
Charter drafted from October notes	by 2.3.16	Art
Look at West side options and Association of Cities and Counties for organizing	By Feb meeting	Art
Reserve (enterprise) account ideas to Teresa	By Feb meeting	all
White paper / presentation on Stormwater program background for permittees governing bodies as primary audience includes connection of permit requirement, budget, benefits, cost sharing…part of phase II	By Feb meeting	Art

Action Ideas

Table 2. Initial Ranking of Study Questions Based on Informal Voting During Subregional Meetings.

Study Question Identification	Study Title	Initial Ranking
Study 1	Modernizing Education and Outreach Strategies	High
Study 2	Mobile Contractor Illicit Discharge Education	High
Study 11	Comparison of Conventional and LID BMPs	High
Study 15	Street Sweeping and Catch Basin Cleaning Comparison	High
Study 18	Catch Basin Retrofit Device Placement	High
Study 20	Planting Options for Bioretention BMPs	High
Study 3	Illicit Discharge Detection Methods	Medium
Study 5	Business Inspection Program Strategies	Medium
Study 7	Stormwater BMP Owner Awareness	Medium
Study 9	BMP Inspection and Maintenance Responsibilities	Medium
Study 10	Impact of Privately Owned BMPs on MS4s	Medium
Study 12	Long-term Permeable Pavement Sidewalk Infiltration Performance	Medium
Study 13	Permeable Pavement Parking Lot Maintenance	Medium
Study 14	Sharp Avenue Porous Pavement Study	Medium
Study 16	Seasonal Differences in Street Sweeping Material Removal	Medium
Study 17	Catch Basin Insert Monitoring Protocol	Medium
Study 19	Seeding and Irrigation for Vegetated BMPs	Medium
Study 21	Media Component Study	Medium
Study 27	Media Thickness Study	Medium
Study 6	Soil Amendments for Erosion Control and Revegetation	Low
Study 8	Long-Term Maintenance of Privately Owned BMPs	Low
Study 22	Treatment for Comingled Stormwater and Agricultural Discharges	Low
Study 24	Biochar Media Stormwater Treatment Study	Low

BMPs = best management practices

Note: A number of study questions (i.e., 4, 23, 25, and 26) were eliminated as part

Memorandum of Understanding (MOU)

Between

Eastern Washington Phase II Municipal Stormwater Permittees (Permittees): Asotin, Clarkston, East Wenatchee, Ellensburg, Kennewick, Moses Lake, Pasco, Pullman, Richland, Selah, Spokane, Spokane Valley, Sunnyside, Union Gap, Walla Walla, Wenatchee, West Richland, Yakima, Asotin County, Chelan County, Douglas County, Spokane County, Walla Walla County and Yakima County.

Purpose

This Memorandum of Understanding (MOU) sets forth the terms and understanding between the Permittees to establish a group (Group) to provide a region-wide perspective to the Washington State Department of Ecology (Ecology) and to assist with the needs of the members in responding to stormwater permit requirements.

Background

In January 2007, Ecology issued the first Eastern Washington Phase II Municipal Stormwater Permit (Permit) to Permittees. On August 1, 2012, Ecology issued the latest version of the Permit, which became effective August 1, 2014. A total of 18 Cities and 6 Counties are covered under the Permit in eastern Washington.

Permit Section S.8.B requires Permittees to collaborate to perform Best Management Practice (BMP) effectiveness studies. Collaboration may entail cost sharing and/or entering in inter-local agreements.

In addition, other Permit related items, tasks, and requirements could be performed through cooperative efforts to save time and money to local jurisdictions, such as updates to manuals, permits, etc. Therefore, it is proposed to form a Group to potentially share time, expertise, and funding with the overall goal to meet Permit requirements in the most cost effective manner possible.

Goals

The above stated purpose shall be accomplished by undertaking the following activities:

1. Staff from participating Permittees will meet to collectively review, discuss and recommend options for meeting Permit requirements and leveraging combined resources for Permittees to stay in compliance with current and future Permit requirements.
2. At its first meeting, the Group will elect a chairperson to run the meetings until the purposes of this MOU are met. The Group will also elect a secretary to take notes of meeting discussions, actions, and assignments.
3. Assignments may be made by the Group through mutual consent of the participants to individuals and sub-groups for various tasks to address current and ongoing Permit requirements.

Comment [PE1]: Just a stab at some verbiage that forms the committee for the long terms goal of addressing permit requirements..

Comment [PE2]: I would think the purpose would be on-going and not stop. The only change may be the hours committed by permittees that monthly meeting may be able to go to quarterly when topics are scarce?

Funding
This MOU is not a commitment of funds; it is however a commitment to provide staff representation and preparation for in-person, phone, and online Group and sub-group meetings. This commitment of staff time is estimated to be one meeting a month. The anticipated return on investment for this effort is an increased ~~influence~~collaboration with Ecology on future Permit requirements, manuals, and funding of future work.

Duration
This MOU shall become effective upon signature by the authorized officials from Permittees and will remain in effect until modified or ~~terminated by any one of the Permittees~~ by mutual consent.

Termination
Any Permittee may terminate their participation in this MOU or in the Group formed by this MOU by giving written notice to the Group chairperson. Withdrawal of one Permittee does not constitute termination of this MOU by the remaining Permittees.

Contact Information
Permittee Name:
Permittee Representative to Group contact information:
Name:
Position:
Address:
Telephone:
Fax:
E-mail:

Permittee Authorized Official:

_____ Date:_____
Signature of Authorized Official

Comment [ABD3]: I envision this to be a permanent organization. I get it that the main task is to research and possibly establish a formal organization but after that, don't we need this group to stay together to work on other permit issues and have input to Ecology on permit and grant issues on an on-going basis?

Comment [AJ4]: Ellensburg: change "influence" to "collaboration"

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MOU talking points

Background:
The Eastern Washington Stormwater Group (EWSG), representing eastern Washington city/county staff tasked with implementing the requirements of Ecology's Eastern Washington Municipal Stormwater Permit, has been meeting off and on over the past 15 years. The main purpose of the group is to discuss the best ways to meet permit requirements and to bring together a consensus of opinion to Ecology's proposed and currently applicable municipal stormwater permit requirements and manuals. The group started meeting formally in 2000-2001 under a "10 Cities" MOU and with funding from the Department of Ecology to create the Stormwater Manual for Eastern Washington (SMEW) and to negotiate with Ecology on what the Stormwater Permit for Eastern Washington. Since the completion of the SMEW and the issuance of the first permit in 2006, the group meets on an informal, as needed basis, which is almost on a monthly basis as of late. I have been attending the meetings for the last ____ years on behalf of our jurisdiction.

One of the major items the EWSG has been working on, has been "Effectiveness Studies" requirement of the new Municipal Stormwater Permit, effective August 1, 2014. It requires that between the 24 permit holders we work together to perform effectiveness studies, among other tasks.

The permit states that:

1. No one permittee shall perform more than 2 studies.
2. Each permittee shall be part of atleast 1 study
3. A list of 12-15 prioritized study ideas and the lead permittee identified shall be completed by 30 June 2016
4. Study designs proposals for 8-12 ideas shall be completed by 30 June 2017 and submitted for Ecology review and approval
5. Quality Assurance Project Plans (QAPP) shall be completed within 6 months of Ecology review and approval of study design proposals.
6. Effectiveness Studies shall be started no later than 6 months after approvals of the QAPP's by Ecology for the first 4 studies and within 15 months after approval of QAPP's by Ecology for the remaining studies. No end date for when each effectiveness study is given in the permit, as this will be determined in the Study Design/QAPP.
7. Collect data
8. Analyze data
9. Report data and analysis findings
10. Application to current stormwater programs

Ecology is reimbursing the City of Spokane Valley for grant funding to help the EWSG complete items 3, and part of items 4 and 5 above. There is a probable need to find "local" funding to complete item 5 above, and definitely to complete the data collection, analysis, and reporting items 6-10. It appears that Ecology will not help out on data collection, analysis, and reporting for all studies. Therefore, it may become necessary to find local funding between the 24 eastern Washington permittees.

Request:
I am requesting your review of the attached DRAFT MOU for staff from 24 Eastern Washington Municipal Stormwater Permittees to meet and discuss options to partner and fund Effectiveness Studies, work on a steering committee for the Ecology sponsored update of the Stormwater Manual for Eastern Washington, and prepare for and negotiate with Ecology the terms of the next permit which may start as early as 2017.

Notes

Eastern Washington Stormwater Group
Strategic Thinking Session
Moses Lake Fire Station, 701 E. Third, Moses Lake, WA
Thursday, April 28, 2016 – 9:00 am to 4:00 pm

Session Objective:

- Identify best organizational structure for development and work on strategic priorities of the Eastern WA Stormwater Group including the Effectiveness Studies Development - Phase II: Developing Partnerships.

Opening Remarks

Proposed Future Timeline – Phase II
See draft graphic, timeline and benchmarks, AKART graphic Art reviewed

	Benchmark	**Date**
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	Reporting & Recommendations	

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Karen Dinicola comments:

-

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October Work Session Notes

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- Action Register

March 24

- Agenda & objective
- Manual recommendations & steering committee role (1 hour)
-

Action Register (30 days)

Action	**Date**	**Lead**
Study Idea edits from Lead Entities (cc'd to Interested Parties) send to Art	5/15/2016	Lead Entities
Summarize Study Ideas/Changes	5/25/2016	Art
Draft Cover Letter for Study Idea List	5/25/2016	Art
Draft Ranking/Prioritization of Study Idea List based on existing information	5/15/2016	Art
Meeting with COSV Legal	5/	
Answer question on "what does ranked mean?"	5/15/2016	Karen D.
RSMP e-list to interested EWSG members	5/15/2016	Karen D.
Who from ECY will be here on 16 JUN 2016	5/25/2016	Karen D.
Time allocation for Manual Discussion with ECY	5/15/2016	Karen D.
Draft Implementation Plan	5/25/2016	Art
Draft RFQ by May 26th meeting	5/25/2016	Art
Draft QAPP templates before June RFQ	6/16/2016	Art

Action Ideas

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BMPs = best management practices

Note: A number of study questions (i.e., 4, 23, 25, and 26) were eliminated as part

Agenda

Date | *time* 4/28/2016 9:00am-4:00pm | *Location* Moses Lake Fire Station • 701 E Third

Meeting Topic	**Eastern WA Stormwater Group (EWSG)**	Moses Lake Fire Station • 701 E Third Moses Lake, WA
Meeting called by	EWSG Members	
Type of meeting	Coordination	

Morning Agenda

Topic

- ☐ Welcome and Introductions 9:00am
- ☐ APWA President Kirk Holmes 9:05am
- ☐ ECOSS (opportunities to work with) 9:20am
- ☐ Effectiveness Studies (Art) 10:00am
- ☐ News form Ecology regarding budget, grant funding, projects (Karen D) 11:45
- ☐
- ☐

Lunch: On Your Own

Afternoon Agenda

Topic

- ☐ Carry over discussion from morning effectiveness studies (Art) (Karen) 1:15pm
- ☐ Misc. (permit, audit, annual report, manual update concerns) 3:30pm
- ☐ Update Financial Assistance Council if there is one?
- ☐ Adjourn 4pm
- ☐

What if we offer that a few of us would skype with Pullman (and others) sometime from 12:15 pm to 1:15 pm (lunch hour) to inform them of meeting progress and then also to get their input/thoughts?

EW Effectiveness Studies – working with EWSG

Preliminary Draft Outline for 28 April 2016 Meeting:

Some of the main questions that I hope to have answers to at the April 28th meeting is:

1. Which permittees would be willing to take on effectiveness study(ies) so that we can get to our minimum of 12 to 15 study ideas with lead agencies identified? I'd propose that we would want to have the maximum number identified (15) so that we have the most freedom to move up or back studies that are advancing or aren't going anywhere in the next steps of actually performing the minimum of 8 studies.

2. How interested are people in certain studies and which one(s) would each individual permittee be involved with? (Every permittee must participate in at least one study and apply what is learned from the study towards their individual program.)

3. What is each study group entail? Who participates on what study group? We will be identifying groups that will work on each study and give them some support to get started – we may use part of our time at the May 26th follow-up meeting to start discussions around individual studies.

4. What are the supports that each study group can receive through the Grant and how might that be accomplished? - I'm going to propose that if folks want to take advantage of Grant funding, that we can do that through consultant agreements through the City of Spokane Valley and will talk about how that process entails (I will make life easy for project managers as far as the management of the consultant agreements).

5. What are some of the deliverables of the Grant phases 2 and 3?
    a. Discussion regarding draft QAPP templates for review – schedule and progress.
    b. Discussion regarding draft implementation plan (Ecology required deliverable for the grant)
    c. draft implementation plan/report
    d. proposed changes for next permit w/regards to effectiveness studies

6. What are the products due to the group by Art?
    a. Take the list of what we get at the April 28th meeting and put it out as a draft list of the 12-15 study ideas with lead entities and other participants identified.
    b. Draft implementation plan/report by the May 26th meeting.
    c. Draft RFQ by May 26th meeting
    d. Draft QAPP templates before June RFQ advertising date?

Preliminary Draft Outline/Goals for 26 May 2016 Meeting:

A. Go over the draft list of 12-15 study ideas:

- make any last minute changes for finalization
- get the group's consensus to approve final list
- discuss how we deliver the list of 12-15 to Ecology:
  - from each individual jurisdiction,
  - or through the City of Spokane Valley with each participant cc'd for their records
  - or both
  - get consensus on how it will be delivered to Ecology by June 30, 2016.

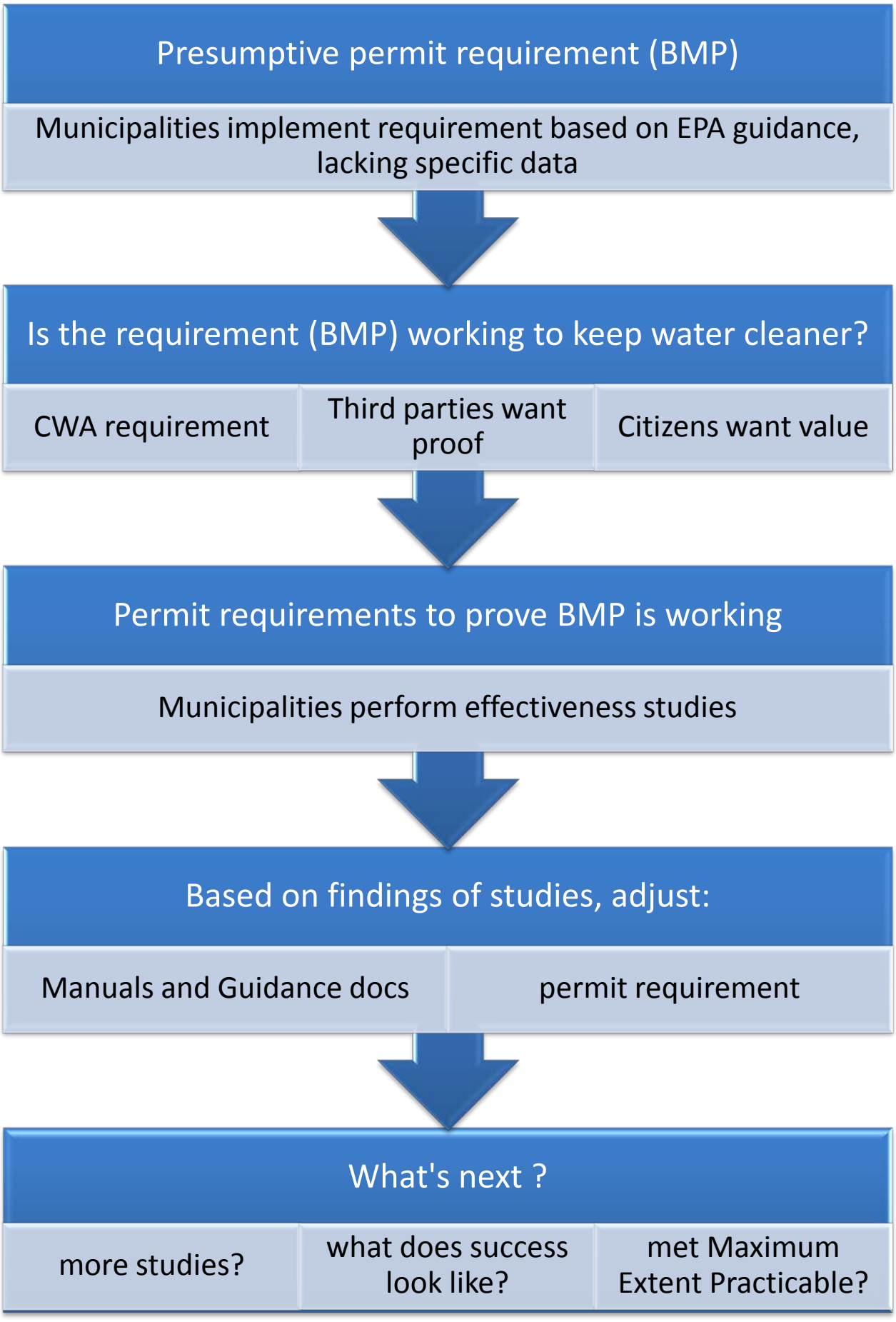
B. Review of the Draft Implementation Plan – set date for finalization by the group and approvals.

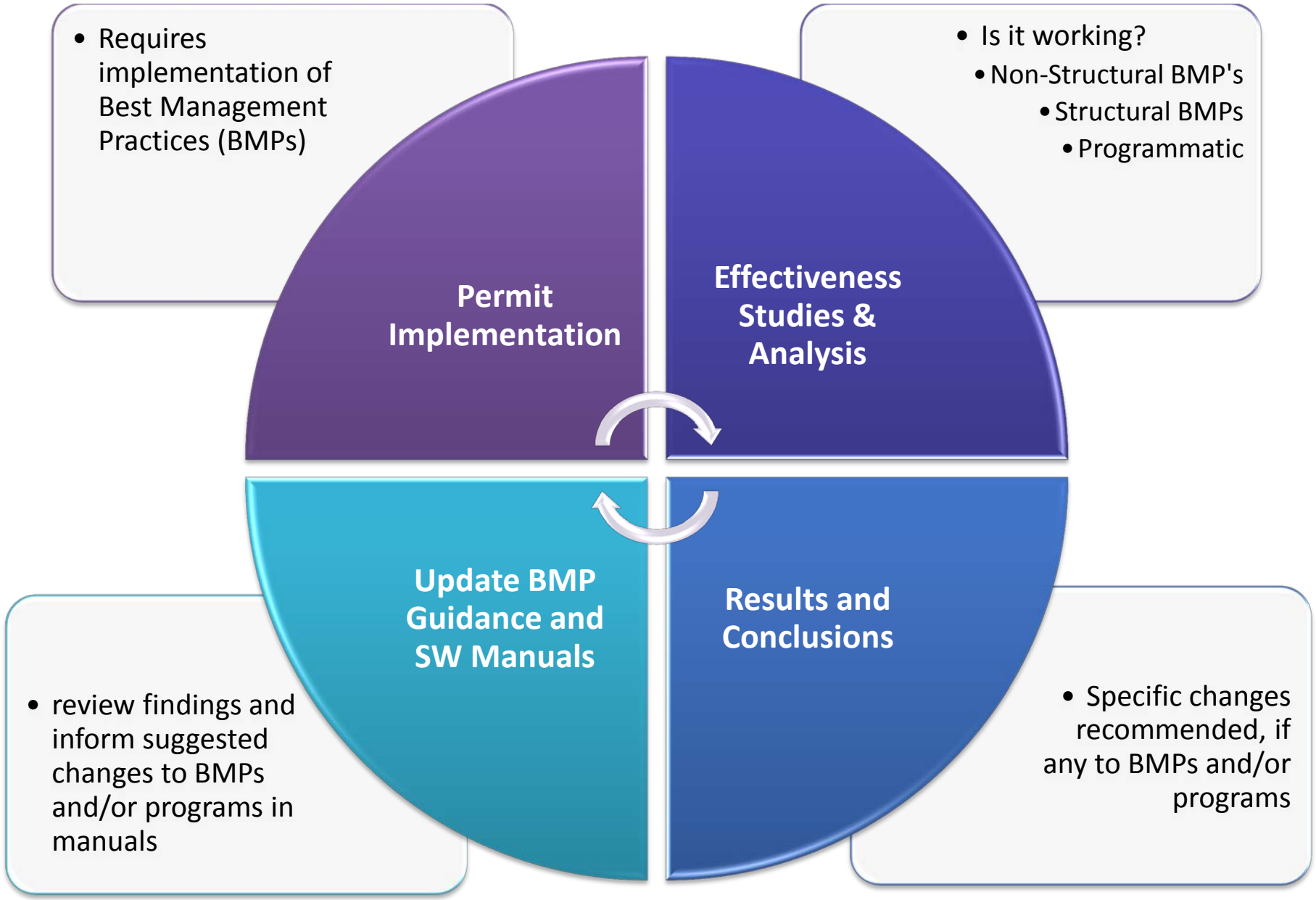
C. Discuss steps for individual studies:
   - set up a WebEx for a lead entity meeting in June to go over coordinated efforts on detailed study design proposals
   - perhaps set up individual times to meet with each study group via WebEx in June or July

D. Discuss RFQ for Consultant Services:
   - Approval process of draft RFQ
   - Advertising
   - Ranking and Selection of consultants for a Pre-Qualified list
   - Selection by individual study groups from the pre-qualified list to perform detailed study work

E. Discuss Agreements with Consultants for reimbursement of Detailed Study Design Proposal Phase
   - Managed through agreements administered by the City of Spokane Valley (COSV) (to receive grant reimbursement) Lead entity's representative works with and through COSV Program Manager to hire consultant(s).
   - Lead entity's representative is responsible for getting group's approval of consultant selection, scope of work, budget. Also getting COSV Prg Mgr approval.
   - COSV Prg Mgr will assist with agreement management and monitor expenditures from each consultant for each study(ies) detailed design proposal work.

F. Start discussion on proposing changes to the permit regarding Effectiveness Studies Program.
   - Rationale and purposes for the program – what does it accomplish for Ecology? For individual programs? For the water quality of surface waters of the State?
   - Should it be based on individual programs and simplified ways of showing protection of surface waters of the state?
   - Better timing with manual and bmp guidance document updates
   - Other items?


Presumptive permit requirement (BMP)
Municipalities implement requirement based on EPA guidance, lacking specific data
Is the requirement (BMP) working to keep water cleaner?
CWA requirement
Third parties want proof
Citizens want value
Permit requirements to prove BMP is working
Municipalities perform effectiveness studies
Based on findings of studies, adjust:
Manuals and Guidance docs
permit requirement
What's next ?
more studies?
what does success look like?
met Maximum Extent Practicable?


• Requires implementation of Best Management Practices (BMPs)
Permit Implementation
• Is it working?
• Non-Structural BMP's
• Structural BMPs
• Programmatic
Effectiveness Studies & Analysis
Update BMP Guidance and SW Manuals
• review findings and inform suggested changes to BMPs and/or programs in manuals
Results and Conclusions
• Specific changes recommended, if any to BMPs and/or programs

Agenda

Date | *time* May 26, 2016 9:30am-3:00pm | *Location* Moses Lake Museum & Art Center • 401 E Balsam

Meeting Topic	**Eastern WA Stormwater Group (EWSG)**
Meeting called by	EWSG Members
Type of meeting	Coordination
Facilitated by:	Ray Ledgerwood

Moses Lake Art Center Room• 401 E Balsam

Moses Lake, WA 98837

Session Objective:

Continue work on strategic priorities of the Eastern WA Stormwater Group, including the Effectiveness Studies Development and manual update activities

Morning Agenda

Topic

- ☐ Welcome and Introductions (Jon) 9:30 am
- ☐ Action Item Review & Updates (permit, audits, manual update concerns, etc.) (Jon) 9:35 am
- ☐ Effectiveness Study List(s) & Ranking (Art and Consultant) 10:05am

Break 11:05

- ☐ Design for June 16 Public Meeting (Ray) 11:15 am
- ☐ Lunch 12:00 pm

Lunch: On Your Own

Afternoon Agenda

Topic

- ☐ Design for June 16 Public Meeting (Ray) 1:15pm
- ☐ Procedures for Effectiveness Study Work (Art) 1:30pm
- ☐ Next Steps and Agenda Items (Jon & Group) Adjourn: 2:30 pm
- ☐ Adjourn: 3:00 pm

Eastern Washington Stormwater Group
Manual & Effectiveness Studies

Moses Lake Art Center Room • 401 E Balsam, Moses Lake, WA
Thursday, May 26, 2016 • 10:30 am to 3:00 pm

Session Objective:

- Continue work on strategic priorities of the Eastern WA Stormwater Group, including the Effectiveness Studies Development and manual update activities

Time	Duration	Activities	Outcomes & Notes
9:30 am	5 minutes	**Opening Comments, Session Objective & Agenda** ▪ Opening comments by Jon Morrow ▪ Review of workshop objective and agenda (Jon)	▪ Participant's knowledge of session purpose & agenda
9:35 am	30 minutes	**Action Items Review & Updates** ▪ Review Action Items (Jon) ▪ Brief updates by Jon Morrow on permit, audits, manual update & concerns, other ▪ Group discussion of activities	▪ Participant's knowledge & discussion of updates and actions. ▪ Action register (if needed)
10:05 am	60 minutes	**Effectiveness Study List(s) & Ranking** ▪ Presentation by Aimee Brasch on effectiveness study list(s) and ranking survey results ▪ Group review and discussion of effectiveness study list(s), leads, interested parties, and recommendation on which ranked list(s)(all, regions, jurisdictions) to forward to Ecology ▪ Example effectiveness study white paper (Jon) ▪ Presentation of a template letter for sending effectiveness study list to Ecology	▪ List or listings of effectiveness studies including confirmation of rankings and leaders for each study
11:05 am	10 minutes	**Break**	
11:15 am	45 minutes	**Design for June 16 Public Meeting** ▪ Discussion and design of June 16, 2016 public information meeting at 10:00 am to noon and follow-up meeting of Eastern Stormwater Group	▪ June 16, 2016 session design developed
noon	75 minutes	**Lunch**	

Time	Duration	Activities	Outcomes & Notes
1:15 pm	15 minutes	**Design for June 16 Public Meeting** ▪ Continue discussion and design of June 16, 2016 public information meeting at 10:00 am to noon and follow-up meeting of Eastern Stormwater Group	▪ June 16, 2016 session design developed
1:30 pm	60 minutes	**Procedures for Effectiveness Study Work** ▪ Review timeline and actions for effectiveness study work (Art) ▪ Group discussion regarding next steps in studies & procedures for working with the City of Spokane Valley on contracts, bids, vouchering, allowed expenses, communication, reporting and other	▪ Participant's knowledge and discussion of timeline and procedures for effectiveness study work. ▪ Next steps identified
2:30 pm	30 minutes	**Next Steps & Agenda** ▪ Group discussion of any miscellaneous topics (Jon & Group) ▪ Identify and list next steps for next 30 days, leader, and time frame ▪ Develop next work session agenda	▪ 30-day action register developed
3:00 pm		**Adjourn**	

Room Setup

- Board room for 20

Equipment:

- Computer (Ray)
- Projector (Ray)
- Extension Cord (Ray)
- Large Screen (Group)
- Small table (Group)

Materials

- Agenda (Art)
- Worksheets (Art)
- Handouts on Effectiveness Studies & Ranking (Art & Aimee)
- Other Background Materials (Art)

Meals & Breaks

- Organized by group

Summary List of Ranked Stormwater Effectiveness Studies for Eastern Washington

Phase 1 Study #	Study Title	Study Summary	BMP Classification (Structural, Operational, E&O)	4/28/16 LE Readiness Score[1]	EWSG May 25, 2016 Score	EWSG May 25, 2016 Ranking	Lead Entity (LE)	Participating Permittees
20	Use of Non-vegetative Swale with Native Soils	The purpose of this study is to develop a soil media more suited for Eastern Washington with an emphasis on un-vegetative soil matrixes and what they will treat in arid and xeriscaping locations. The study will also emphasize the use and evaluation of local sources of the media components (e.g., local sand to replace the sand component and local sandy loams to replace the sand/organic component) where appropriate.	Structural	**B**	**2.58**	**High**	Pasco	Quad Cities, City of Yakima, City of Walla Walla, Asotin Co, Moses Lake, Douglas, **COSV,** City of Pullman, Walla Walla County, Yakima County
15	Street Sweeping and Catch Basin Cleaning Comparison	The goal of this study is to determine the effectiveness of street sweeping versus catch basin cleaning. Two side by side streets with the same tree canopy, traffic counts, equal distance, same number of catch basins and surfacing, will be initially swept and catch basins cleaned (pipes jetted) at the start of the study. One of the streets will only receive sweeping once a month. The other will only have catch basins cleaned once a month. Measurements will be collected at the end of 8 months (March-October) in each catch basin to determine which method removed more solids from entering the storm system. Streets selected will run east to west to avoid drainage from different drainage basins. Intersections that have catch basins from other drainage basins (north-south) will be excluded from the measurement.	Operational	**A**	**2.54**	**High**	City of Ellensburg	Asotin, COWR, COSV, Moses Lake, COS, Richland, Wenatchee, City of Walla Walla
1	Modernizing Education and Outreach Strategies	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.	E&O	**B**	**2.50**	**High**	**City of Kennewick**	Quad Cities, Wenatchee, Spokane County, COY, Asotin Co, COSV, Yakima Co, City of Pullman
2	Mobile Contractor Illicit Discharge Education	This study will involve the development and testing of a new educational programs 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.	E&O	**B**	**2.38**	**High**	City of Wenatchee	City of Spokane Valley, Ellensburg, Yakima Co, Chelan, Douglas, E. Wenatchee, COY, COWR, City of WW, City of Pullman, City of Pasco, City of Kennewick
28	Sand Filter Vault BMP	The goal of this study is to develop a sand filter mix that will be installed in vaults and catch basins and used to reduced concentrations of stormwater pollutants including TSS, dissolved metals, total phosphorus, and total petroleum hydrocarbons. The scope of the study may include bench testing sand filter mixes in a laboratory as well as field monitoring the mix using runoff from 24,000 square feet of high ADT urban arterial roadway. The influent and effluent concentrations will be analyzed and compared to determine the reduction of each pollutant using 12 natural rainfall events. The desired outcome of this study is design guidance and a specification for a sand filter mix that meets Ecology performance requirements for general use on future projects.	Structural	**A**	**2.17**	**Medium**	Spokane County	COSV, COWR, Richland, Moses Lake, Wenatchee, City of Pullman
18	Catch Basin Retrofit Device Placement	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.	Structural	C	**2.04**	**Medium**	Asotin County & COSV	Kennewick, COSV, Wenatchee, Richland, City of Pullman
16	Seasonal Differences in Street Sweeping Material Removal	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).	Operational	**C**	**2.04**	**Medium**	City of Spokane Valley	City of Walla Walla, Richland, Wenatchee, Ellensburg, Asotin, Moses Lake,
9	BMP Inspection and Maintenance Responsibilities	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.	E&O	B	**1.83**	**Medium**	Yakima County	Richland, COY, COWR, Wenatchee, WW Co, Yakima County, City of Pasco

Phase 1 Study #	Study Title	Study Summary	BMP Classification (Structural, Operational, E&O)	4/28/16 LE Readiness Score[1]	EWSG May 25, 2016 Score	EWSG May 25, 2016 Ranking	Lead Entity (LE)	Participating Permittees
27	27a Media Thickness Study	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.	Structural	**A**	**1.83**	**Medium**	Spokane County	COSV, Walla Walla County,
~~21~~	27b Media Component Study	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.	Structural	**B**				
7	Stormwater BMP Owner Awareness	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.	E&O	**B**	**1.79**	**Medium**	City of Wenatchee	Wenatchee Valley (Chelan, Douglas, E Wenatchee, Wenatchee), Ellensburg, COY, WW CO, City of Pullman, City of Pasco, City of Kennewick
29	Determining Pollutant Contributions from Municipal Stormwater in Eastern WA using GIS	The goal of this study is to estimate the contribution of stormwater pollutants from various municipalities' outfalls to receiving surface waters of the state. The scope of this study includes researching existing mapping of storm sewer systems and outfall locations, data input to a GIS database along with characterizing the contributing basins area (specifically the percentage of impervious areas and land use). The contribution of pollutants will be estimated using studies that report national averages of stormwater characteristics (i.e. pollutant types and concentrations) from similar land uses. The outcome of the study is to estimate how effective permittees are in reducing polluted runoff from impervious surfaces to receiving water bodies. Future studies may include collecting outfall water quality data to compare against the national averages and to potentially evaluate changes over time to determine the combined effectiveness of stormwater management from areas to reduce polluted discharges.	All: Structural, Operational, E&O	**B**	**1.75**	**Low**	City of Spokane Valley	COY, Moses Lake, East Wenatchee,
14	Sharp Avenue Porous Pavement Study	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 operation and maintenance impacts.	Structural	**A**	**1.67**	**Low**	City of Spokane	COSV,
24	Biochar Media Stormwater Treatment Study	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.	Structural	**A**	**1.63**	**Low**	City of Spokane	Spokane Co, COSV,
12	Long-term Permeable Pavement Sidewalk Infiltration Performance	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.	Structural	**B**	**1.38**	**Low**	City of Richland	COSV, Yakima Co,

[1]**Readiness score: A) Good to go or already underway, B) Could be ready to go in a few months, or C) Would rather not do, will take awhile to get going, but will if needed**

EASTERN WA STORMWATER GROUP (EWSG)
Notes for 5.26.16 – Moses Lake

Attending:

Desired Outcomes:

- Continue work on strategic priorities of the Eastern WA Stormwater Group, including the Effectiveness Studies Development and manual update activities

Time	Agenda Item	Notes
9:00 am	Welcome and Introductions (Jon) 9:30 am	Opening by Jon Murrow
	Action Item Review & Updates (permit, audits, manual update concerns, etc.) (Jon) 9:35 am	**Manual** • Karen manual update…1st thing is consultant selection…steering committee to have a role in consultant selection…not a lot going on right now • Dovetail manual update input with these meetings • Union considering process for consultant selection process **Grants** • Cover letter from Heather Bartlett…amended to $25,000 not $50,000…ignore the 1st correspondence **Audits** • No information on audits…visit from financial person **Permits** • Work will be coming up soon…need for steering committees • Have entire Stormwater staff for eastern and central WA in the room…much different from western WA **Chair** • Chair term will be up next year…be thinking of the next chair Ecology staff • New people…Shawn, financial person; Brandy coming on this month for Stormwater grants in Eastern and Central; Shannon joining for • Jon to meet Charlie McKenney (sp) about need for staffing the permit managers position **Peoples perspective on grate plugging and raking** • Adopt a drain in Ellensburg…amazed at the response • Brad had difficulty with legal on liability **Practices** • Lack of round rock sources in quad-city…now writing in angular rock into the specifications…working with DOT, but have smaller spec than what we will use...talked with Walla2 also about need and voids moving from round to angular…construction applications taking into account fabric use
	Effectiveness Study List(s) & Ranking (Art	• April ranking seemed to be a readiness study • Survey seemed to run well • Ecology feedback on how to make the study most effective

Time	Agenda Item	Notes
	and Consultant) 10:05am	
	Design for June 16 Public Meeting (Ray) 11:15 am	June 16 public meeting was "awesome"…because… • Public understands and is sold on the direction we are moving in with the effectiveness studies and understands the "why" we are doing this • Taken into account their input and comments and the public knows what we are going to do with their responses • Have attendance…turnout from all regions • Clear input and allowed us to prioritize our list • Attendees that want to be active participants • Someone wanted to give us money • Checked off the box on grant • Public understands the diversity of the studies • Identify the audience so we prepare the information in a way to reach the audience • How to manage the meeting with individuals there to disrupt…have a facilitator • Potential funders…eg Boeing, Schweitzer, other • Another permit and ideas later Draft Agenda (9:45 am registration…10:00 am start) (Martin facilitation) Moses Lake venue – Fire Station or • Self-Introductions (10 minutes) (facilitator decision) • Opening remarks…why we are here and managing Stormwater and best job…permit opportunity on effectiveness studies…our group…history of collaboration (10 minutes – Jon) • Purpose of meeting…public informed of the work we are doing…feedback on effective studies that the public has interest in and recommendations to improve…ideas for future effectiveness studies…recommendations for public outreach (10 minutes) • Effectiveness Studies Review – lead entity speakers (30 minutes) • Feedback on Effectiveness studies (Table Discussion 1)… "The effectiveness study you have most interest and enthusiasm about is….and recommendations to improve…What would be your idea for a future effectiveness study we have not listed and share with large group (30 minutes) • Public Outreach Recommendations (Table Discussion 2) …"What is the best approach for informing and involving public about the effectiveness study results and feedback: (15 minutes) • Closing Remarks…notes from session distributed, and how the EWSG will use input, public comment meeting today, work groups, listing for studies interest (lead entity contact) (Jon) (15 minutes)

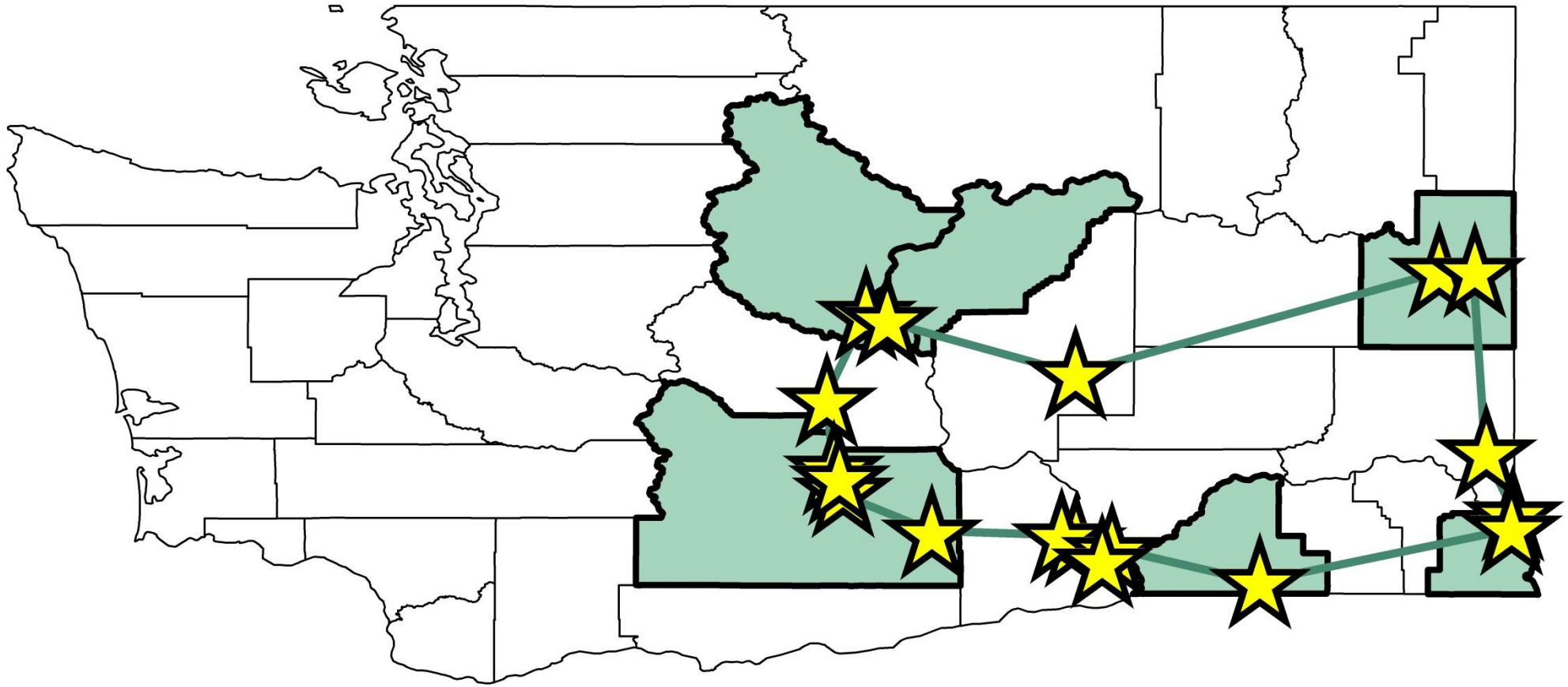
Time	Agenda Item	Notes
		Materials • Agenda with purpose statement (Jon) • Work sheet (Art) • Signup sheet (Art) • Effectiveness study listing (title, description, study number, concise) (Art) • Lead Entity Contact listing (Art) • Slides – send to Art (all to Art) Food • Light refreshments Equipment • Projector (Bill) • Screen (Bill) • Laptops (Martin & Jon) • Paper and pens (Art) •
	Procedures for Effectiveness Study Work (Art) 1:30pm	• See graphic slide – project management by COSV • Draft consultant RFQ • Group meetings for ILAs; • QAPP template work…detailed study design proposal (one document to customize for the study) • COSV lead entity during consultant, helping study roll along, study group work and assistance • Interlocal agreement with COSV and lead entities (overall) • If an entity wants to do work on their own with separate funding…good with coordination with EWSG • COSV work with Ecology on outline, QAPP template sections; Notes • Aimee would be available through COSV for helping out designs and studies •
	Next Steps and Agenda Items (Jon & Group) Adjourn: 2:30 pm	• See below
		•
3:00 pm	**Adjourn**	

Action Register			
Action Item	**Member(s) Assigned**	**Impact / due date**	**Status**
Save the date notice on public meeting	Karen, Art and Group	ASAP	
Effectiveness Study lists completed for public meeting	Art	By June 7, 2016	
Effectiveness study lists including data collection to evaluate effectiveness	Lead to Art	By June 9, 2016	
Public Meeting planned and delivered	Jon, Martin, Art	By June 16, 2016	
Send letters and effectiveness studies list to Ecology	Each permittee	By June 30, 2016	
COSV & Permittees interlocal agreement	Art & lead entities	By August 30, 2016 Signing in fall	
GAANT charting of each study	Art	Start June 16, 2016 and draft by June 30, 2016	
Next Meeting	Jon	June 16, 2016 Moses Lake	
Webinars for each study group	Art	Each month	

Action Register			
Action Item	**Member(s) Assigned**	**Impact / due date**	**Status**

Appendix 2 – Phase 2 Public Briefing Documents

EW Effectiveness Studies Development Project

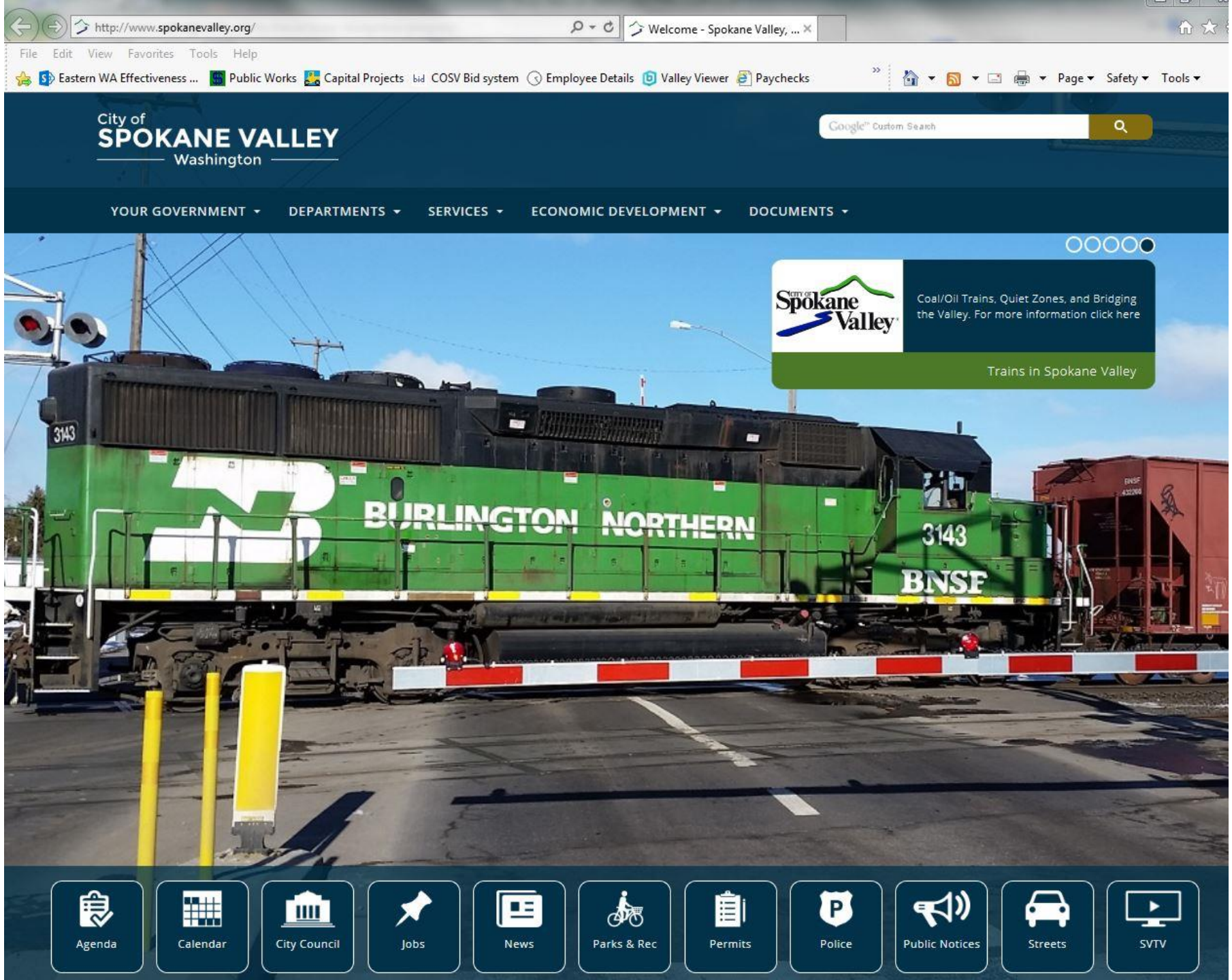


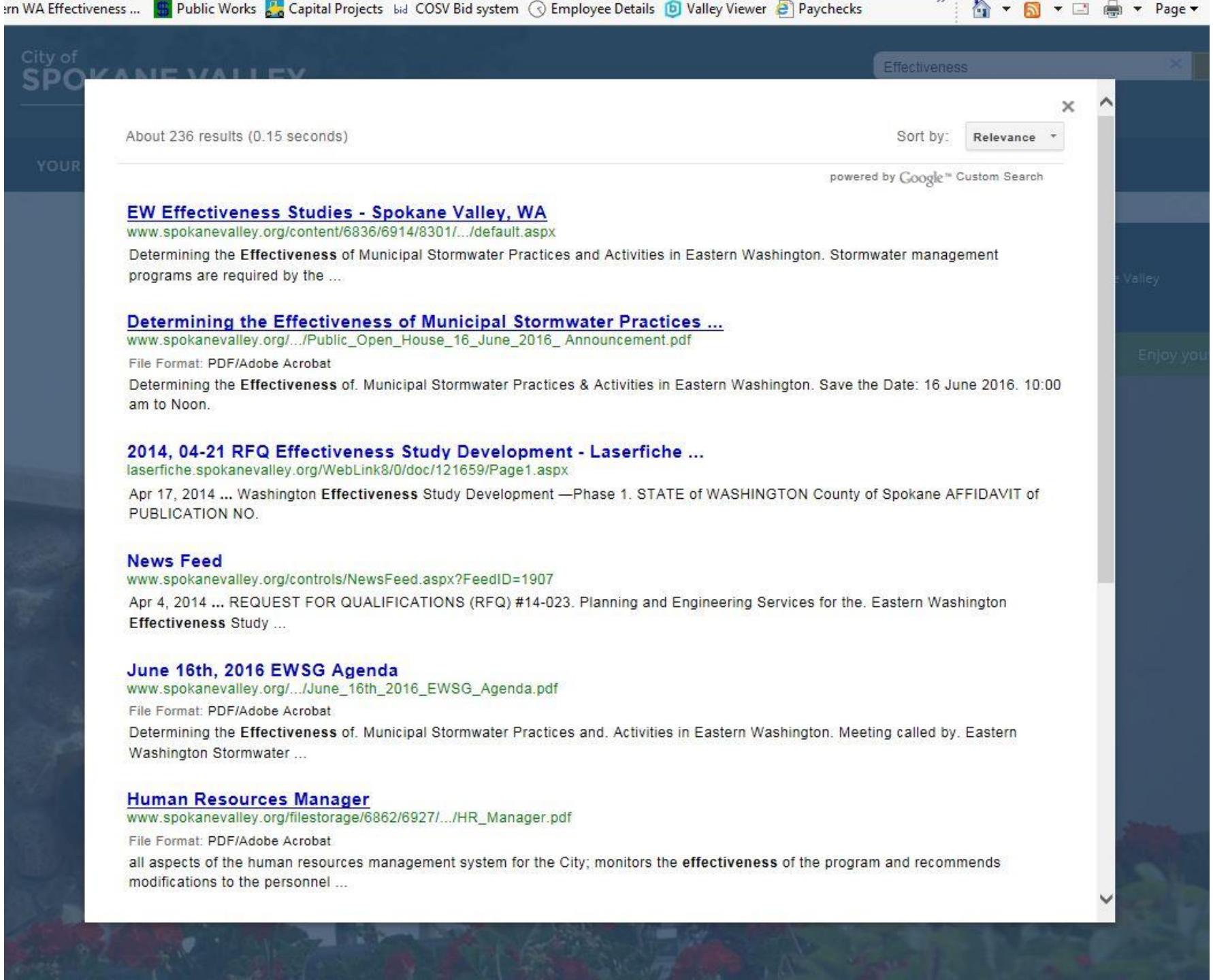
Eastern Washington Stormwater Group Effectiveness Study Development Phase 2

June 16, 2016

Public Meeting

www.spokanevalley.org




rn WA Effectiveness ...
Public Works
Capital Projects
COSV Bid system
Employee Details
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Paychecks
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City of
SPOKANE VALLEY
Effectiveness
YOUR
About 236 results (0.15 seconds)
Sort by:
Relevance
powered by Google™ Custom Search
EW Effectiveness Studies - Spokane Valley, WA
www.spokanevalley.org/content/6836/6914/8301/.../default.aspx
Determining the Effectiveness of Municipal Stormwater Practices and Activities in Eastern Washington. Stormwater management programs are required by the ...
Determining the Effectiveness of Municipal Stormwater Practices ...
www.spokanevalley.org/.../Public_Open_House_16_June_2016_ Announcement.pdf
File Format: PDF/Adobe Acrobat
Determining the Effectiveness of. Municipal Stormwater Practices & Activities in Eastern Washington. Save the Date: 16 June 2016. 10:00 am to Noon.
2014, 04-21 RFQ Effectiveness Study Development - Laserfiche ...
laserfiche.spokanevalley.org/WebLink8/0/doc/121659/Page1.aspx
Apr 17, 2014 ... Washington Effectiveness Study Development —Phase 1. STATE of WASHINGTON County of Spokane AFFIDAVIT of PUBLICATION NO.
News Feed
www.spokanevalley.org/controls/NewsFeed.aspx?FeedID=1907
Apr 4, 2014 ... REQUEST FOR QUALIFICATIONS (RFQ) #14-023. Planning and Engineering Services for the. Eastern Washington Effectiveness Study ...
June 16th, 2016 EWSG Agenda
www.spokanevalley.org/.../June_16th_2016_EWSG_Agenda.pdf
File Format: PDF/Adobe Acrobat
Determining the Effectiveness of. Municipal Stormwater Practices and. Activities in Eastern Washington. Meeting called by. Eastern Washington Stormwater ...
Human Resources Manager
www.spokanevalley.org/filestorage/6862/6927/.../HR_Manager.pdf
File Format: PDF/Adobe Acrobat
all aspects of the human resources management system for the City; monitors the effectiveness of the program and recommends modifications to the personnel ...

Determining the Effectiveness of Municipal Stormwater Practices and Activities in Eastern Washington

Stormwater management programs are required by the Washington State Department of Ecology (Ecology) to choose and implement practices and activities, many of which are presumed to be effective at minimizing or eliminating pollution to surface waters of the State. Municipal stormwater managers from various cities and counties in eastern Washington are working to prioritize and answer questions about the effectiveness of these presumed practices and activities.

Ecology regulates 18 cities and 6 counties in eastern Washington for municipal stormwater discharges to surface waters of the State through a permit. The permit requires collaboration and implementation during the next several years to develop stormwater effectiveness studies. The City of Spokane Valley Stormwater Utility applied to Ecology and received grant funding to help the City and other communities in Eastern Washington develop meaningful effectiveness studies and meet permit requirements.

Key Documents

- Public Open House June 16th, 2016
- June 16th, 2016 EWSG Agenda
- Implementation Plan
- Phase 1 Study Report
- Phase 2 Ranked List of Study Ideas
- Ecology Permit

Today's Documents

- FINAL DRAFT RANKED STUDY IDEA LIST (ECOLOGY SUBMITTAL)
- PRESENTATION LIST (Ordered by BMP Class Type & Study Leads)
  - Education & Outreach
  - Operational
  - Structural
- Comment Forms

Study Title

Rank: #

Study Classification: Structural

Insert Picture Here

- Study Goal:
- Conceptual Study Approach:
- Data Collection: GIS Stormwater Mapping and climate information

#1-Modernizing Education and Outreach Strategies

EWSG Rank: 1st

Study Classification: **Education & Outreach**

- Study Goal: determine the effectiveness of various new communication technologies (NCT) to convey messages that protect stormwater
- Conceptual Study Approach:
  - assess known effectiveness of different NCT
  - define message
  - deploy message through various NCT
  - evaluate reception of message
- Data Collection: Data will be collected through surveys (multiple choice and yes/no questions) through mailers, websites, social media, etc.

#9 - BMP Inspection and Maintenance Responsibilities

EWSG Rank: **6th (tied with 3 others)** Study Classification: **Education & Outreach**

- Study Goal: Determine effective ways that municipalities ensure that privately owned BMPs that flow to municipal systems are maintained
- Conceptual Study Approach:
  - A survey will be conducted of 10 to 15 municipalities in Washington State to determine how they address the long-term needs of privately-owned structural BMPs.
- Data Collection:
  - Survey will be conducted to municipalities asking:
    - inspection strategies and frequency, funding, access, etc.
    - Interviews of stormwater managers to gain perceptions of advantages and shortcomings of programs

#2-Mobile Contractor Illicit Discharge Education

EWSG Rank: **4th**

Study Classification: **Education and Outreach**

- Study Goal: Evaluate the effectiveness of education and outreach to mobile contractors on allowable collection and disposal practices for their wastewater.
- Conceptual Study Approach: part of a statewide effort led by Kitsap County which will include using social marketing strategies to develop and deliver targeted E&O programs
- Data Collection: Data regarding mobile contractors will be collected (before and after the education campaign is launched) through surveys, interviews, and/or focus groups.

#7-Stormwater Best Management Practice (BMP) Owner Awareness

EWSG Rank: 9th

Study Classification: **Education and Outreach**

- Study Goal: assess BMP owners' general knowledge of the type of structural BMP on their property, proper operate/maintain
- Conceptual Study Approach: A survey of residential, commercial, and industrial owners for a range of BMP types: filters, detention ponds, vegetated filter strips, and bioretention swales.
- Data Collection: survey to gauge owner's awareness BMP M&O requirements

#15 - Street Sweeping and Catch Basin Cleaning

EWSG Rank: 3rd

Study Classification: **Structural**

- Study Goal: Determine if street sweeping and/or catch basin cleaning is more effective at removal of road solids during certain times
- Conceptual Study Approach:
  - 8 months from Spring through Fall
  - Arterial street with no trees or parking
  - Swept on one side/month
  - Other side only catch basins are cleaned/month
- Data Collection:
  - Scuppers at each outfall to measure sediment bypass
  - Catch basins outfitted with gauges on four sides
  - Measurements monthly

#16-Seasonal Differences in Street Sweeping Material Removal

EWSG Rank: **6th (tied with 3 others)** Study Classification: **Operational**

- Study Goal: evaluate seasonal and regional differences in sediment and pollutant accumulations to optimize street sweeping programs
- Conceptual Study Approach:
  - Select various EW communities representing different regions of Eastern Washington
  - Selected roadways in each community would be tested and swept on a monthly basis.
  - Street dirt would be collected from test strips just prior to and directly after sweeping
- Data Collection: amount of street dirt prior to and directly after sweeping, material gradation, organic vs inorganics, street type and conditions, land use, region, street/location

#29-Determining Pollutant Contributions from Municipal SW in E.WA using GIS

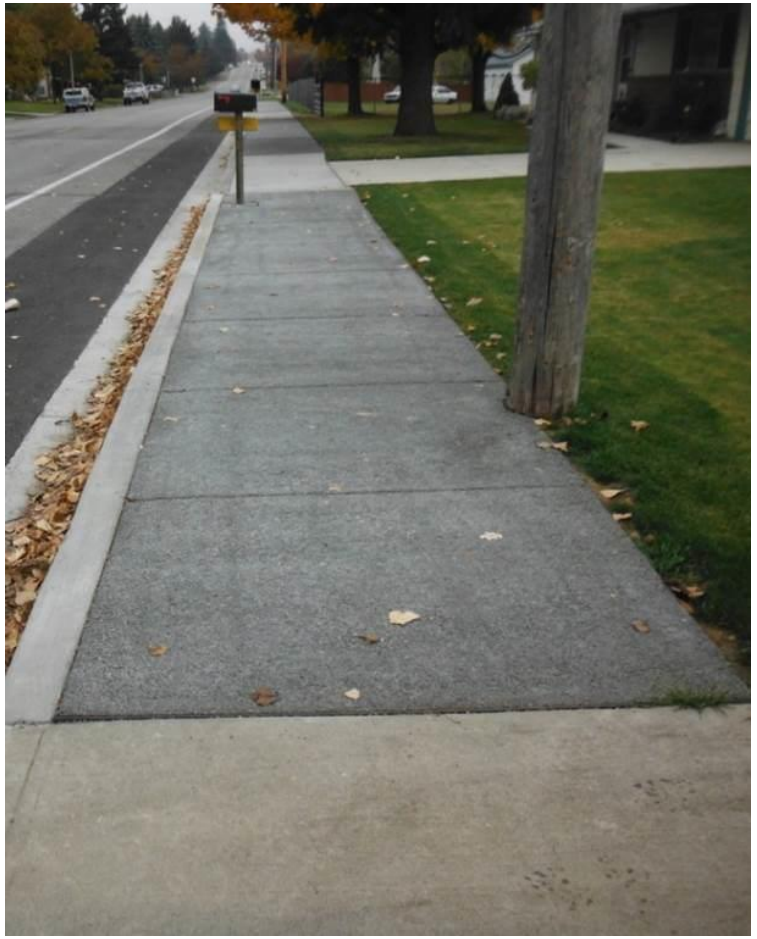
EWSG Rank: 10th Study Classification: **Education and Outreach, Operational, Structural**

- Study Goal: estimate the contribution of stormwater pollutants from various municipalities' outfalls to receiving surface waters of the state
- Conceptual Study Approach:
  - Collect existing mapping of storm sewer systems and outfall locations
  - Input data to a GIS database along with characterizing the contributing basins area
  - Initial contribution of pollutants will be estimated using studies that report national averages of stormwater characteristics (i.e. pollutant types and concentrations) from similar land uses.
- Data Collection: Stormwater system mapping, information on land use(s), topography, basins discharging to surface waters, climate, etc.

#12-Long-term Permeable Sidewalk Infiltration Performance

EWSG Rank: **14th**

Study Classification: **Structural**



- Study Goal: Determine the long term effectiveness and durability of permeable pavement sidewalks in Eastern Washington Communities.
- Conceptual Study Approach:
  - Test Segments of permeable pavement sidewalks would be tested in participating communities in similar land use areas. No maintenance would occur during the testing even if a decrease in infiltration rates occurs.
- Data Collection:
  - The infiltration rate would be measured twice a year for up to a 10 year period at multiple locations
  - A qualitative visual assessment would also be completed annually to track pavement durability.

#18-Catch Basin Retrofit Device Placement

EWSG Rank: 6th (tied with 3 others)

Study Classification: **Structural**

- Study Goal: determine effectiveness of pollutant removal of spill prevention control (spc) at multiple catchbasins in a system versus one spc at the end of the system prior to discharge
- Conceptual Study Approach:
  - Select 2 Similar catchments
  - In one catchment, each catch basin would contain an spc;
  - In the other, only the final catch basin in the series would receive spc.
- Data Collection: At specific intervals the quantity of oil and grease, solids, floatables, and other associated pollutants will be estimated in the catch basins in both test catchments. The total amount of material removed would be quantified for each system.

#20-Use of Non-vegetative Swale with Native Soils

EWSG Rank: 2nd

Study Classification: **Structural**

- Study Goal: test 'no plants' option for BMPs that are typically vegetated, determine pollutant treatment in non-irrigated locations
- Conceptual Study Approach: A non-vegetated soil mix will be compared to a soil mix with vegetation
- Data Collection: Water quality samples taken below the treatment columns of BMPs will be compared to water quality samples of incoming stormwater to determine the treatment effectiveness of each BMP

#14-Sharp Avenue Porous Pavement Study

EWSG Rank: **12th (tied with 1 other)**

Study Classification: **Structural**

- Study Goal: assess the effectiveness of three different permeable pavement configurations on an urban arterial with respect to durability, water quality, and long term infiltration performance
- Conceptual Study Approach: Evaluate the durability, water quality, and long term infiltration performance monitoring
- Data Collection: sample data collection will include durability, water quality (influent and effluent), and infiltration rates

#24-Biochar Media Stormwater Treatment Study

EWSG Rank: **12th (tied with 1 other)**

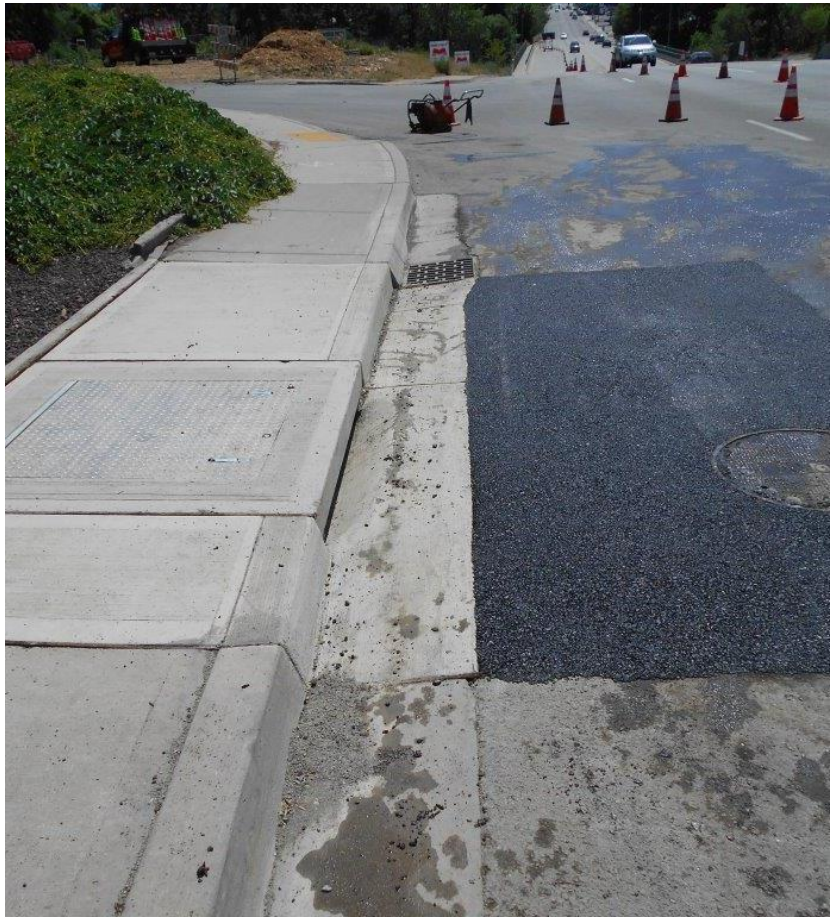
Study Classification: **Structural**

- Study Goal: evaluate stormwater pollutant concentrations and pollutant removal efficiency through the storm garden amended with wood biochar
- Conceptual Study Approach: a bioretention soil media mix amended with Biochar was installed in the Cochran Basin of Spokane which will be field monitored
- Data Collection: Stormwater sample collection before and after treatment through the biochar media and analysis of sample data

#28-Sand Filter Vault BMP

EWSG Rank: **5th**

Study Classification: **Structural**

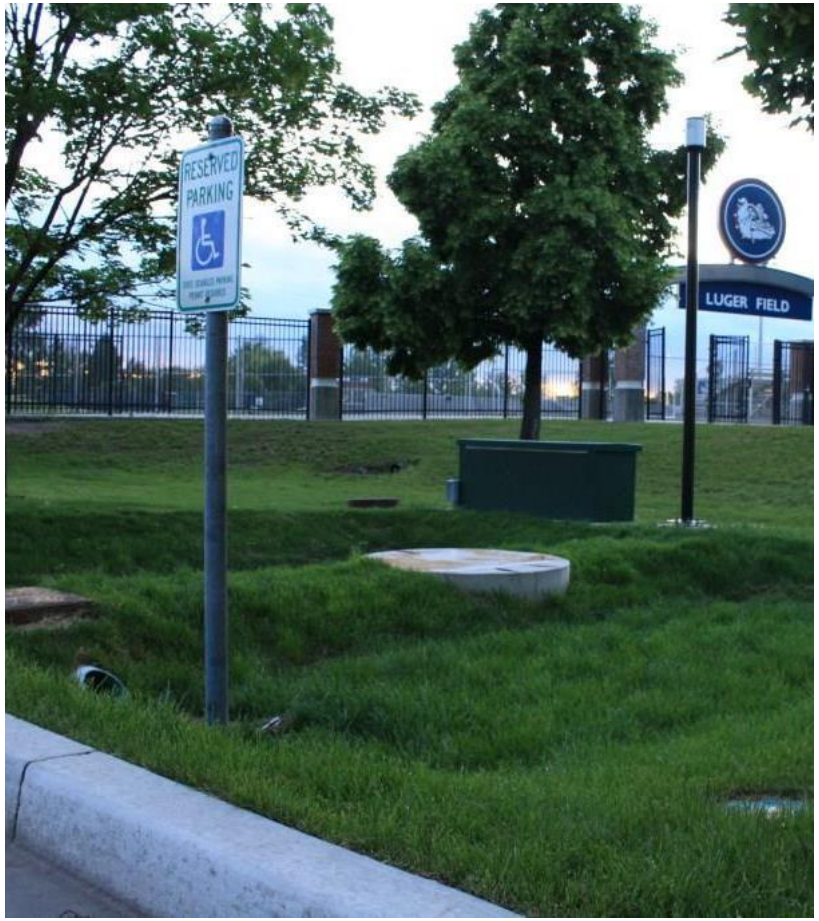


- Study Goal: to develop a sand filter media mix that can be installed in vaults and catch basins to reduce stormwater pollutants
- Conceptual Study Approach: to evaluate the media mix using runoff from 24,000 square feet of a high ADT urban arterial roadway
- Data Collection: The influent and effluent concentrations will be analyzed and compared to determine the reduction of each pollutant using 12 rainfall (qualifying) events.

#27a – Media Thickness Study

EWSG Rank: 11th

Study Classification: **Structural**



- Study Goal: determine optimal media depths for maximizing performance and cost effectiveness for bioinfiltration BMPs in Eastern Washington
- Conceptual Study Approach:
  - A bioinfiltration BMP pond was designed/constructed with 2 cells each with a different media depth: 12 inches and 18 inches.
  - Influent and effluent concentrations for each of the cells will be compared to determine treatment efficiency of each cell; and the treatment efficiencies of each cell will be compared.
- Data Collection: Influent and effluent from each of the treatment cells will be collected during qualifying storm events using automated sampling techniques and analyzed for pollutants of concern

#27b – Media Component Study

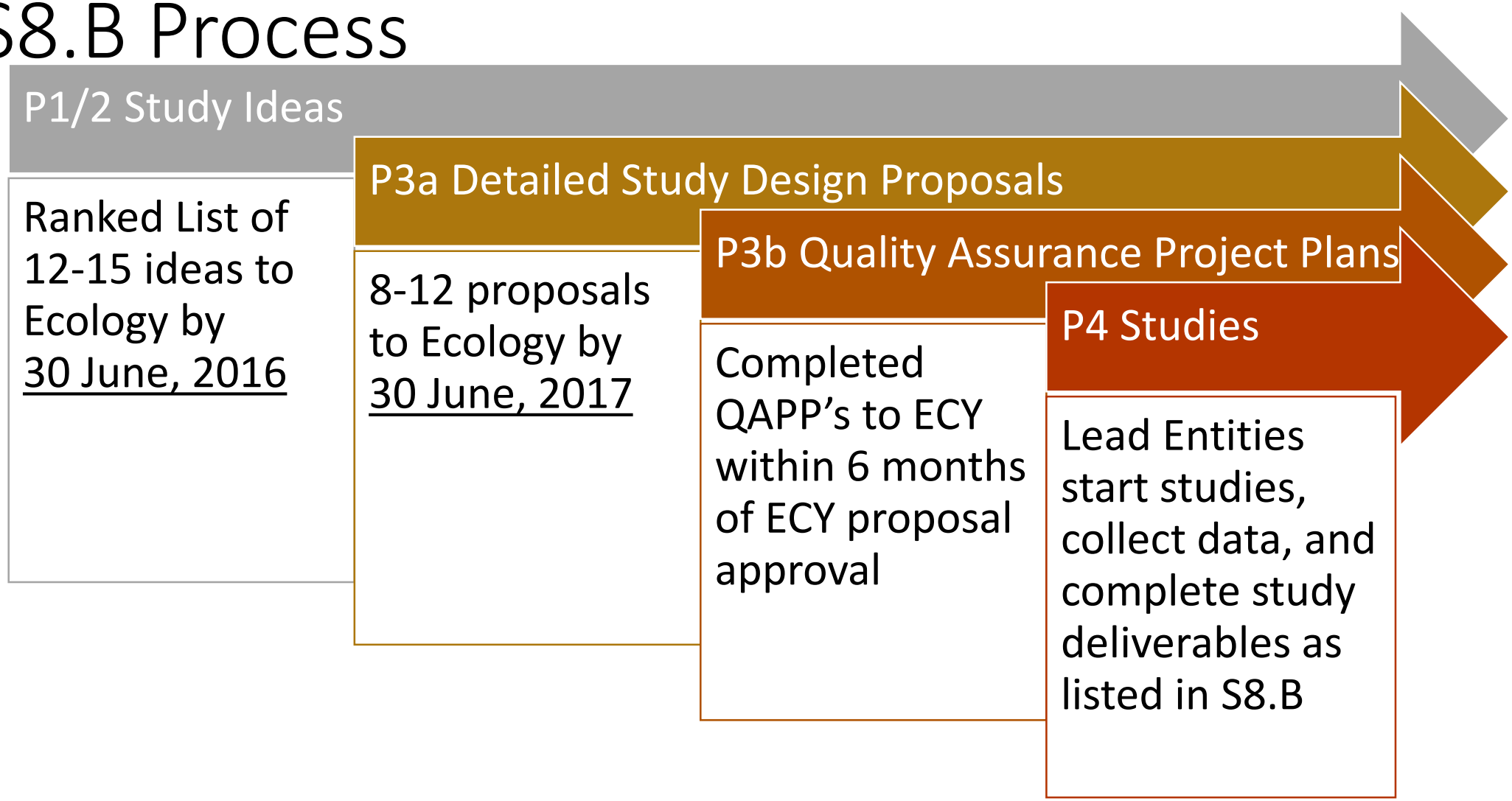
EWSG Rank: 11th

Study Classification: **Structural**

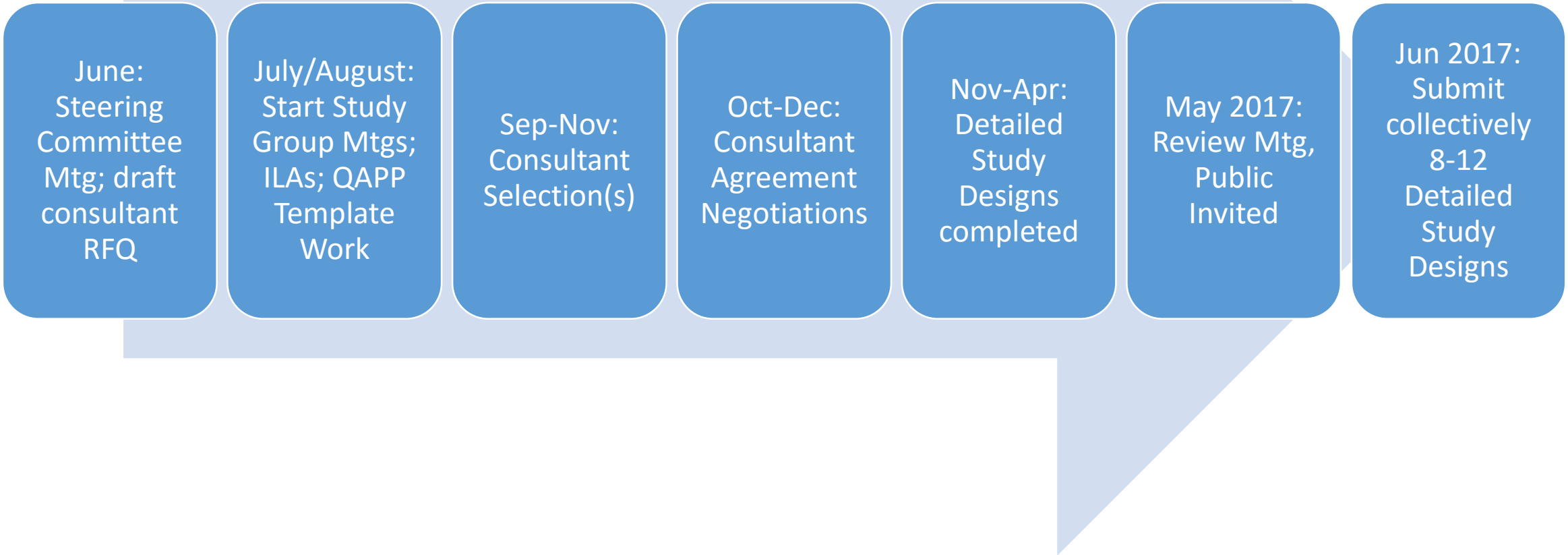
- Study Goal: develop a soil media mix suitable for EWA climatic conditions and composed of materials that are readily available in the area
- Conceptual Study Approach:
  - Utilize existing test bioinfiltration BMP pond used for Study 27a.
  - media in each of the cells could be replaced to test the relative effectiveness of different media types
- Data Collection: Influent and effluent from each of the treatment cells will be collected during qualifying storm events using automated sampling techniques and analyzed for pollutants of concern


ANY
QUESTIONS
?

S8.B Process


P1/2 Study Ideas
Ranked List of 12-15 ideas to Ecology by 30 June, 2016
P3a Detailed Study Design Proposals
8-12 proposals to Ecology by 30 June, 2017
P3b Quality Assurance Project Plans
Completed QAPP's to ECY within 6 months of ECY proposal approval
P4 Studies
Lead Entities start studies, collect data, and complete study deliverables as listed in S8.B

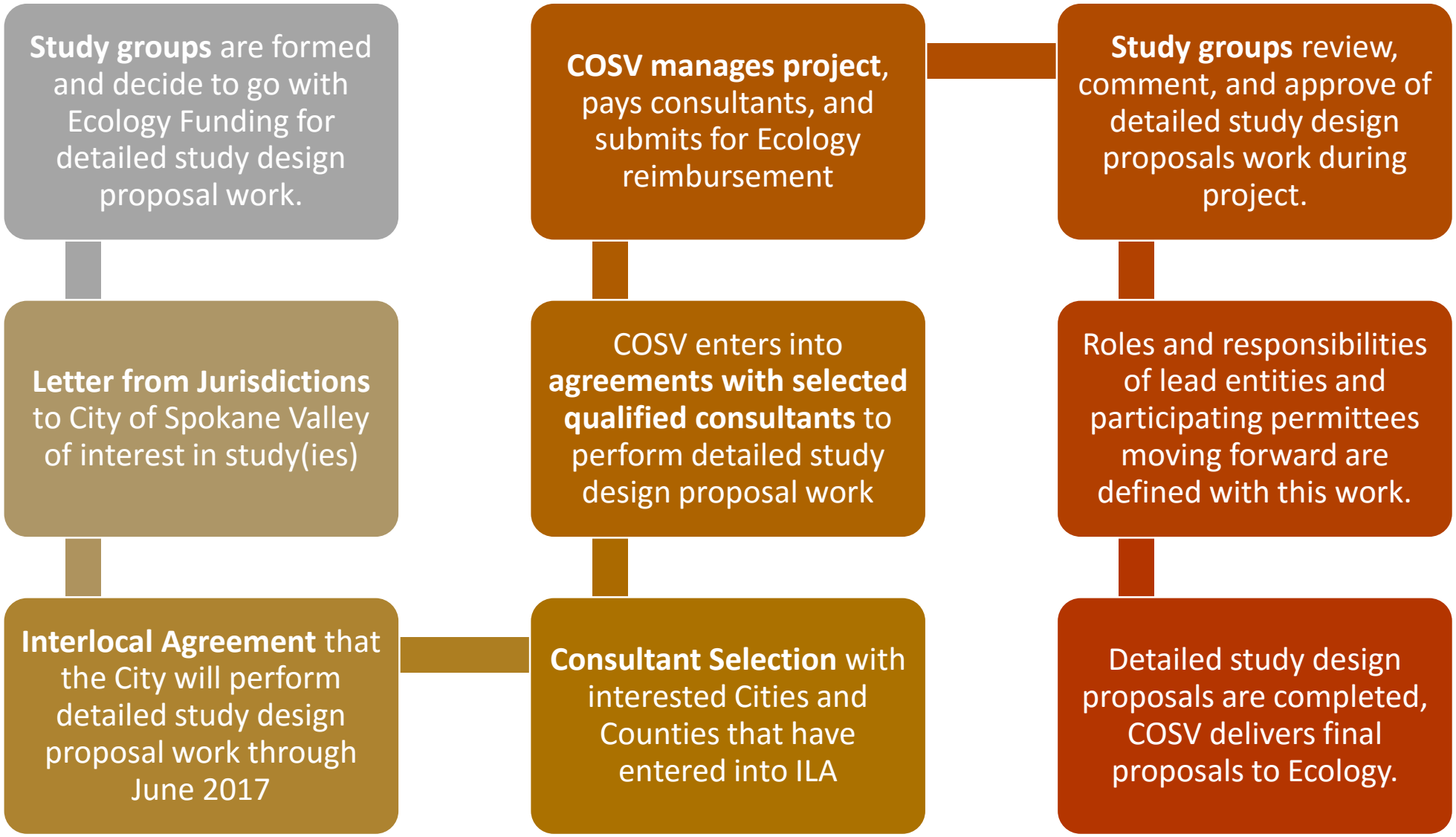
Detailed Study Design Proposals Schedule



Consultant Selection Process – Detailed Study Design Proposal Phase

- Request for Qualifications Advertised
- Consultants Submits Statements of Qualifications
  - Structural BMP Study Qualifications
  - Education and Outreach BMP Study Qualifications
  - Operational BMP Study Qualifications
- City of Spokane Valley Reviews, Lists Firms
- Study Groups Review Listed Firms SOQ's, may request additional information and perform limited interviewing via online meetings
- City of Spokane Valley leads Study Group to selection of Consultant(s)

Project Management by COSV (Proposed)



Phase 2 Rank	Study Title	Study Classification	Comment
1	Modernizing Education and Outreach Strategies	E&O	• Consider combining this study with the mobile contractor study; also consider using information from other recent and relevant studies conducted in the state. • Expand the study to include multiple phases: social marketing and developing targeted campaigns • Developing relationships with target community, this will help with getting message across. • Track resources and needs for work conducted on this study so that when the opportunity comes up, the city can apply for funding to assist in this effort.
6	BMP Inspection and Maintenance Responsibilities	E&O	• Investigate prior study findings to help guide the direction of this study. • Similar study is being conducted on the west side for source control; recommend investigating those findings and folks involved to help guide these studies • 10-15 MS4s is not a sufficient sample size and he requested reaching out to other states.
4	Mobile Contractor Illicit Discharge Education	E&O	• As part of this study: consider requiring training for mobile contractors that is tied to license renewal.
7	Stormwater BMP Owner Awareness	E&O	
3	Street Sweeping and Catch Basin Cleaning Comparison	Operational	• Consider conducting some relative size distribution testing to characterize the particle size and portion of fines in the catch basin sediments • since one side of the street may have more traffic in comparison to the other, consider switching sides of the street half way through the study.
6	Seasonal Differences in Street Sweeping Material Removal	Operational	
9	Determining Pollutant Contributions from Municipal Stormwater in Eastern WA using GIS	All: Structural, Operational, E&O	• Clearly state assumptions in the study write up, specifically that national averages will be used to characterize SW runoff (compared to actual samples collected at the outfall). • A similar study was conducted in Yakima; in that study imperviousness appeared to trump small concentrations of pollutants (with respect to total pollutant loading). • Consider pulling in the Bellevue study (one of the original nerp studies); as a point of comparison because there is data that could be used as a point of comparison • City of Spokane has conducted outfall monitoring; that data might be useful information for this study.
11	Long-term Permeable Pavement Sidewalk Infiltration Performance	Structural	• Many existing permeable side walk locations are located on private property; consider those sites for this study. • Based on similar study conducted in Bellevue; site conditions can impact the outcome of the study. Consider logging the site conditions as part of the study (investigate into Bellevue lessons learned) • Consider differences in pavement mixes and construction practices as part of study • Another potential test site: existing permeable concrete sidewalk in downtown Monroe (Lewist St and Main)

6	Catch Basin Retrofit Device Placement	Structural	• Question regarding whether the same configuration or different configurations will be tested in the study • Blanket comment on operational studies; need to have the maintenance staff committed to the study and involved. • Consider end of pipe testing for both systems.
2	Use of Non-vegetative Swale with Native Soils	Structural	• Consider maintenance burden in the study • Consider combing efforts with 27b; i.e. literature search and lab testing. • Bias regarding plants; there might be benefit to conducting the study in columns • Consider raising inlets so the 2 year storm is retained; also look at existing BMP options and how they could be modified for EWA • Something to consider; UIC does allow vadose zone treatment
10	Biochar Media Stormwater Treatment Study	Structural	
10	Sharp Avenue Porous Pavement Study	Structural	• Concerns about durability were expressed: raveling on PP is a problem; need to consider installation practices and paving at the right time • Gonzaga has some new data on column testing
5	Sand Filter Vault BMP	Structural	• Sand can plug quickly; consider ways to reduce maintenance as part of the study goals • Future study; investigate blending native soil with materials that enhance treatment to improve pollutant reduction.
8	27a Media Thickness Study	Structural	• how about 6-inch soil depth instead of 12? • Boise may have some info on how to define/defend qualifying events.
	27b Media Component Study	Structural	

Appendix 3 – Phase 2 Ranked Study Idea List

Final Draft Ranked List of Study Ideas for Eastern Washington

EWSG Rank	Study Idea #	Study Idea Title	City of Richland	City of Kennewick	City of Pasco	West Richland	Yakima County***	Sela***	Union Gap***	Sunnyside***	City of Yakima	City of Wennatchee*	Douglas County**	Chelan County*	City of East Wenatchee**	City of Spokane	Spokane County	City of Spokane Valley	Asotin****	Asotin County****	Clarkston****	Ellensburg	Walla Walla County	City of Walla Walla	City of Pullman	City of Moses Lake	Quad-Cities	Yakima Regional	Wenatchee Regional	Spokane Regional	Asotin Regional	ESWG Score	Brief Summary of Data Collection Required	Lead Entity (LE)	Participating Permittees
1	1	Modernizing Education and Outreach Strategies	2	3	2	2	3	3	3	3	3	3	3	3	3	2	3	2	3	3	3	2	2	2	3	1	2.3	3.0	3.0	2.3	3.0	**2.58**	Data will be collected through surveys (multiple choice and yes/no questions) disseminated through multiple methods including mailers, websites, and social media.	City of Kennewick	Cities: Asotin, Clarkston, Kennewick, Pasco, Pullman, Spokane Valley, Wenatchee, Yakima Counties: Asotin, Spokane, Yakima
2	20	Use of Non-vegetative Swale with Native Soils	3	3	3	3	3	3	3	3	2	2	1	2	1	2	3	3	3	3	3	1	2	3	3	3	3.0	2.8	1.5	2.7	3.0	**2.54**	Water quality samples taken below the treatment columns of BMPs will be compared to water quality samples of incoming stormwater to determine the treatment effectiveness of each BMP	Pasco	Cities: Asotin, Clarkston, Kennewick, Moses Lake, Pasco, Pullman, Richland, Spokane Valley,Walla Walla, West Richland, Yakima Counties: Asotin, Douglas,Walla Walla, Yakima
3	15	Street Sweeping and Catch Basin Cleaning Comparison	2	3	2	3	2	2	2	2	3	3	2	3	2	2	2	3	3	3	3	3	2	3	2	3	2.5	2.2	2.5	2.3	3.0	**2.50**	Sediments depths will be collectively measured and averaged once a month at a number of catchbasins.	City of Ellensburg	Cities: Asotin, Moses Lake, Spokane, Spokane Valley, Walla Walla, Wenatchee, West Richland
4	2	Mobile Contractor Illicit Discharge Education	2	3	3	2	3	3	3	3	3	3	3	3	3	1	1	3	2	2	2	3	1	2	2	2	2.5	3.0	3.0	1.7	2.0	**2.42**	Data regarding mobile contractors will be collected (before and after the education campaign is launched) through surveys, interviews, and/or focus groups.	City of Wenatchee	Cities: East Wenatchee, Ellensburg, Kennewick, Pasco, Pullman, Spokane Valley, Walla Walla, Yakima Counties: Chelan, Douglas, Yakima
5	28	Sand Filter Vault BMP	2	2	1	3	2	2	2	2	1	3	1	3	1	1	3	3	2	2	2	2	1	2	3	3	2.0	1.8	2.0	2.3	2.0	**2.04**	The influent and effluent concentrations will be analyzed and compared to determine the reduction of each pollutant using 12 rainfall (qualifying) events.	Spokane County	Cities: Moses Lake, Pullman, Spokane Valley, Wenatchee, West Richland
6	9	BMP Inspection and Maintenance Responsibilities	2	3	3	2	3	3	3	3	2	1	3	1	3	2	1	1	1	1	1	2	3	1	2	1	2.5	2.8	2.0	1.3	1.0	**2.00**	A survey will cover questions related to the municipalities BMP maintenance program (i.e. inspection strategies and frequency, funding, BMP access, etc.). Stormwater managers perceptions of their programs success will also be collected.	Yakima County	Cities: Pasco, Wenatchee, Yakima Counties: Walla Walla, Yakima
6	16	Seasonal Differences in Street Sweeping Material Removal	2	2	2	1	1	1	1	1	2	3	2	3	2	1	1	3	3	3	3	3	2	3	1	2	1.8	1.2	2.5	1.7	3.0	**2.00**	Data collected will include street dirt prior to and directly after sweeping, material gradation, organic vs inorganics, street type and conditions, land use data would be collected	City of Spokane Valley	Cities: East Wenatchee, Ellensburg, Kennewick, Pasco, Pullman, Wenatchee, Yakima Counties: Chelan, Douglas, Walla Walla
6	18	Catch Basin Retrofit Device Placement	2	2	3	1	2	2	2	2	2	3	2	3	2	1	2	1	2	2	2	2	1	2	3	2	2.0	2.0	2.5	1.3	2.0	**2.00**	At specific intervals the quantity of oil and grease, solids, floatables, and other associated pollutants will be estimated in the catch basins in both test catchments. The total amount of material removed would be quantified for each system.	Asotin County & City of Spokane Valley	Cities: Kennewick, Pullman, Spokane Valley, Wenatchee
9	7	Stormwater BMP Owner Awareness	2	3	3	1	2	2	2	2	2	2	3	2	3	1	1	1	1	1	1	3	3	1	3	1	2.3	2.0	2.5	1.0	1.0	**1.92**	Data will be gathered through a survey to gauge the BMP owner's awareness of the maintenance and inspection requirements of the BMPs on their property.	City of Wenatchee	Cities: East Wenatchee, Ellensburg, Kennewick, Pasco, Pullman, Wenatchee, Yakima Counties: Chelan, Douglas, Walla Walla
10	29	Determining Pollutant Contributions from Municipal Stormwater in Eastern WA using GIS	1	2	1	1	2	2	2	2	2	1	2	1	2	1	2	3	3	3	3	2	1	1	1	2	1.3	2.0	1.5	2.0	3.0	**1.79**	Stormwater system mapping, information on land use(s), topography, basins discharging to surface waters, climate, etc.	City of Spokane Valley	Cities: East Wenatchee, Moses Lake, Yakima
11	27	27a Media Thickness Study	3	3	1	1	2	2	2	2	1	2	1	2	1	2	3	2	2	2	2	2	2	2	2	1	1.5	1.7	2.3	2.3	2.3	**1.78**	Influent and effluent from each of the treatment cells will be collected during qualifying storm events using automated sampling techniques. Samples will be analyzed for identified constituents of concern (TSS, metals, total nitrogen, total phosphorus, fecal coliform, total petroleum hydrocarbons).	Spokane County	Cities: Richland, Spokane Valley Counties: Walla Walla
	~~21~~	27b Media Component Study																																
12	14	Sharp Avenue Porous Pavement Study	2	1	1	1	1	1	1	1	2	2	2	2	2	3	3	2	2	2	2	2	1	2	1	1	1.3	1.2	2.0	2.7	2.0	**1.67**	Sample data collection of the permeable pavement will include durability, water quality (influent and effluent), and infiltration rates.	City of Spokane	Cities: Spokane Valley
12	24	Biochar Media Stormwater Treatment Study	2	3	1	1	2	2	2	2	1	2	1	2	1	3	3	2	1	1	1	1	1	2	2	1	1.8	1.8	1.5	2.7	1.0	**1.67**	Stormwater sample collection before and after treatment through the biochar media and analysis of sample data.	City of Spokane	Cities: Spokane Valley Counties: Spokane
14	12	Long-term Permeable Pavement Sidewalk Infiltration Performance	2	1	1	1	1	1	1	1	1	1	2	1	2	1	2	2	2	2	2	2	1	2	1	1	1.3	1.0	1.5	1.7	2.0	**1.42**	The infiltration rates at multiple locations of each test segment. A qualitative visual assessment would also be completed annually to track the durability of the pavement.	City of Richland	Cities: Spokane Valley Counties: Yakima

*City of Wenatchee and Chelan County share scores; **City of East Wenatchee and Douglas County share scores; ***Yakima County, Sela, Union Gap, and Sunnyside share scores; ****Asotin, Asotin County, and Clarkston share scores