Bear Creek Watershed Plan

Technical Workshop #1

Old Redmond Schoolhouse Community Center

Meeting Summary

November 4th, 2015

Total Attendees was 27. That includes King County staff and consultants.

Watershed Plan Partners: King County, Snohomish County, City of Redmond, City of Woodinville, and Washington State DOT

King County Staff present: Jeff Burkey (jeff.burkey@kingcounty.gov); Eric Ferguson (Eric.ferguson@kingcounty.gov); Josh Kubo (josh.kubo@kingcounty.gov); Olivia Wright (olivia.wright@kingcounty.gov); Claire Jonson (claire.jonson@kingcounty.gov); Larry Jones (larry.jones@kingcounty.gov); Jason Mulvihill-Kuntz, WRIA 8 (jason.mulvihill-kuntz@kingcounty.gov); Claire Jonson (claire.jonson@kingcounty.gov); Blair Scott (blair.scott@kingcounty.gov)

Partners present: Bill Leif, Snohomish County; Peggy Campbell, Snohomish County (peggy.campbell@snoco.org); Andy Rheaume, City of Redmond; Roger Dane, City of Redmond; Jeanne Justice, City of Redmond; Peter Holte, City of Redmond; Dick Gersib, Washington State Department of Transportation (gersibd@wsdot.wa.gov)

Attendees: Joan Nolan, Washington State Department of Ecology (jnol461@ecy.wa.gov); Anne Dettelbach, Washington State Department of Ecology; Tawni Dalziel, City of Sammamish (tdalziel@sammamish.us); Arthur Lee, City of Snohomish (arthur.lee@snoco.org); Danielle Shaw, Washington Environmental Council (danielle@wecprotects.org);Shana Joy, Washington State Conservation Commission (sjoy@scc.wa.gov);James Fletcher, Wild Fish Conservancy (james@wildfishconservancy.org);Karen Walter, Muckleshoot Tribal Fisheries (karen.walter@muckleshoot.nsn.us); Gary Smith, Trout Unlimited & Water Tenders (gandksmith@gmail.com);Brian Cochrane, Washington State Conservation Commission (bcochrane@scc.wa.gov); David Bain, SNO-KING Watershed Council (dbain@u.washington.edu);

Presenters: Jeff Burkey, Eric Ferguson, Olivia Wright, Andy Rheaume, Tamie Kellogg-Facilitator

Support: Tamie Kellogg, Kellogg Consulting, facilitator; Melissa Plotsky, Kellogg Consulting project assistant (melissa.plotsky@gmail.com)

Meeting Purpose and Process: The purpose of the Workshop was to ensure that attendees:

1. Gained awareness of the project and understood the project boundaries, goals and objectives;
2. Knew who the members of the Project Team and Partner Group;
3. Helped generate helpful information on the goals, existing conditions and modeling of existing and future conditions, to incorporate into the planning process; and
4. Contributed their input and diverse perspectives on all elements of the project.

The meeting included:

- A four-hour meeting, attendance in person
- Informal Poster tour and Meet & Greet with the Partner Group and Project Team
- Four presentations, followed by question and answer sessions
    1. Project Overview, Plan Goals and Objectives
    2. Existing and Future Conditions Regulations and Existing Stormwater Infrastructure
    3. Strategies Under Consideration
    4. Related Stormwater Management Efforts

8:00 - 8:45 am **Partner Group and Project Team**	**Informal Poster Tour | Meet & Greet** King County presented a series of posters, showing the history of the Bear Creek area, previous issues in the area, related projects, maps of the project area and monitoring locations, existing and future conditions, the modeling framework, and the process and timeline for undertaking the Watershed-Scale Plan.
8:45 – 9:00 am **Tamie Kellogg**	**Welcome, Introductions and Project Overview** Tamie Kellogg welcomed attendees, introduced members of the Project Team and Partner Group, and had Workshop attendees introduce themselves to the room. She explained that the purpose of the Workshop (see above).
9:10 - 9:40 **Jeff Burkey**	**1. Project Overview, Plan Goals and Objectives: Presentation** Jeff Burkey presented a high-level overview of the Bear Creek Watershed-Scale Stormwater Management Plan, including who the project partners are, the proposed goals and objectives, major milestones, approaches, and process.
	Goals and Objectives of the Plan: Table Discussion
	A. **Do you generally agree with the stated goals? Is there anything missing**
	• The goal should be healthy habitat for all salmon; not just Chinook. Coho is an indicator species. • We should move away from having a single species approach. • The number one limiting factor of the watershed is that there is too much stormwater and not enough groundwater. This should be addressed. • Where does the TMDL fit in? • Water rights must be addressed in the Plan; if the Plan doesn't include this element, then it won't survive challenges to it. • The County and State manuals do not mitigate for all impacts; Stormwater and State regulations don't address everything. The Tribes have raised questions: All streams lack wood and we MUST look at it; we also must look at the receiving water body and outfall. • What can this process (the regulatory framework) reasonably accomplish? • The goal is too broadly written for what the models will evaluate. • All living things need protection in a watershed: salmon, trout, mussels, amphibians, etc. • I like that it is broader and not just the regulatory requirements -- it's good that it's not just a basin plan for permit requirements. • It seems that it is holistic and does not seem to be missing anything. • Bear Creek has been identified as a good habitat and as a higher quality water basin. • You may want to take off "King County" in the opening statement; it should be communicated that this is a partnership. It is contradictory to the collaborative goals. • I like the inclusion of salmon. This should be made more clear by adding "protecting salmon run." • It is about more than just Chinook; it should highlight the other benefits of a riparian corridor. • Needs to include all salmon species, per Tribes' needs. • I'm concerned that stormwater won't get us all the way. • Buffer integrity and enhancement need proper emphasis. • I agree with the goals and would be open to new goals if they become apparent. • Do not forget about buffer integrity. • These need to be measurable goals so that we can know if they are achieved.
	B. What can this plan do for your organization? How do you envision using this in your work?
	• The Plan will clearly show how effective stormwater regulations are today -- and will help us identify

	the limitations of the existing regulations and processes. • It will help us identify what needs to be met to achieve beneficial uses. • It will hopefully result in less review work needed by the Tribes for land use because we'll have certainty. • It will identify activities where the general public can get involved: planting, flow measurement, monitoring, etc. • It will provide a good model to address stormwater and habitat needs. • It will provide a useful basin plan and shows how it will align with Puget Sound. • It will provide regionally specific actions that fall within the WRIA 8 plan. • It will give us metrics and thresholds of conditions. • It merges stormwater and salmon recovery needs and retrofit and stormwater needs and gives us a more holistic approach to work with (rather than just presenting the needs side by side). • It will help our 10-year plan for salmon recovery. • It will help with basin retrofit planning and modeling. • It will help with the Monticello retrofit CIP work. • I'm interested in possibly replicating the process in conservation districts. • I think it will breathe life into resident and community organizations and will help with grass root support building. • I'm interested in the land use recommendations/opportunities coming out of the study. • I'm interested in seeing how the modeling works.
	C. How important is this plan to your work (On a scale of 1 to 5, with 5 being highest)?
	The average number was 4.
	D. What do you think are some of the resulting impacts, both positive and negative, that could arise from the decisions made in this plan?
	● **Negatives:** o The fiscal element o Reduces land use zone o Feasibility with built environment; the practicality of doing this in an urban environment. It's difficult and expensive. o Can't just sell on fish recovery (spotted owl experience) o Fish are important, but we need more reasons that relate to all. (Need to address flooding, stream erosion, and consider climate change). ● **Positives:** o Hopefully, improvement for salmon runs o Leveraging funding for projects that need to happen o It's comprehensive. o It addresses stormwater and salmon recovery needs together. o It is multi-jurisdiction and multi-interest. o It helps highlight needs to legislature and communicate to elected officials. o How to get the largest benefit to cost o How explicit implementation activities will be and how it will line up from funding o Providing stormwater and habitat needs and how to step outside just mitigation/degradation o Stormwater and habitat needs working in tandem o Connecting dots from hydrology and actions to habitat needs o Help staff with strategic planning and prioritization of actions, work plans, etc. o Hopefully, education and outreach in a programmatic effort o Funding source and needs; identifying resources
9:40-10:30	**2. Existing and Future Conditions** Eric Ferguson provided a presentation on existing conditions in the Bear Creek basin, including an

am **Eric Ferguson, Olivia Wright**	overview of previous studies and monitoring activities. Olivia Wright presented on the process used for modeling current and future conditions, including brief explanations of HSPF watershed modeling, catchment delineation, EPA SUSTAIN modeling, and the BMP Treatment Train.
	Existing and Future Conditions: Interactive Mapping Exercise
	A. Which areas in the Bear Creek basin do you think are most important and why?
	(*See Individual Table Maps for locations*) ● **Table 1** (Jeff Burkey, Danielle Shaw, Joan Nolan, Eric Ferguson, Josh Kubo, Peter Holte) ○ Water quality at basin and site-specific ____ (cannot read writing) ○ Preservation/protection areas ○ Ecological hot spots ○ BMP using natural ecological methods (wetlands, beavers, etc.) ● **Table 2** (Blair Scott, Claire Jonson, Andy Rheaume, Jason Mulvihill-Kuntz, Arthur Lee, Shana Joy) ○ **A:** Protect headwaters areas. ○ **B:** Protect and restore riparian buffers (regs and stewardship) ○ **C:** Identify and protect wetlands ○ **D:** Restore in-stream habitat conditions in Lower Bear Creek basin. ○ **E:** Point of interest ○ **F:** Monticello Creek - target water body for City of Redmond. ○ **G:** Cottage Lake Creek TMDL ○ **H:** Holding _____ (cannot read writing) ● **Table 3** (Olivia Wright, Peggy Campbell, Karen Walter) ○ **A:** This is the cold water refuge area for the watershed; it should be part of this. ○ **B:** Downstream habitat quality impacts fish access to Bear Creek. ○ **C:** Areas with a lot of potential for retrofit. ○ **D:** Protect existing high quality habitat. ● **Table 4** (Larry Jones, Roger Dane, Tawni Dalziel, Dick Gersib, Bill Leif, Gary Smith Anne Dettelbach) ○ **A:** PVCA high quality environment with some recreational impacts. ○ **B, C & D:** Unique, high quality habitat; concern regarding any areas draining to Redmond WS. ○ **E:** Confluence of Evans Creek brings pollutants from industrial park nearby on Union Hill Rd. ○ **F:** Case Study: Mackey Creek property was acquired by King County and is being restored now. ○ **G & H:** Key spawning areas. ○ **I:** Cold water from aquifer attracts Chinook.
	B. Is there existing data that would help with the Plan? Do you have data sources that would assist in our modeling calibration and evaluation?
	● Channel geometry and substrate ● Culvert survey data from Redmond and KCDOT ● We need a basin-wide in-stream wood survey. ● Workshop on fish distribution ● It is difficult to respond to this since the existing data that King County is working with is unknown to the group. ● Fish data surveyed by the Tribes for adult salmon distribution and Salmon Watchers program ● Wetland reports ● Updated fish distribution data, especially juvenile distribution (Wildfish Conservancy and Sno-King

	WC) ● Any of the data from Wildfish Conservancy or Water Tenders ● All of the wetland data from Redmond and KC DPER, collected from developments, not just NWI ● Water Tenders' lidar analysis ● Brian Collins' historical wetland data (now at UW; formerly with King County) ● Existing WRIA 8 completed projects ● Salmon Watchers ● Fish counter ● Chinook recovery plan coordination ● WRIA 8 land cover change analysis ● States and trends modeling ● Opportunity to fund projects ● Land use ● KCD information ● Sno- Conservation District ● TMDLS ● Ed/outreach data ● Redmond data sets ● Regional stormwater monitoring data, along with Bear Creek ● Redmond Parks Plan; Trail Plan ● Water Tenders (mussels, waterways 2000) ● DPER for wetland inventory work ● Jurisdiction density ● Identification of Critical Areas (CAR) ● Identifying opportunities for protection ● Flooding review of areas/flashiness ● Climate change data/meteorological data (that could or would affect climate change) ● Look at jurisdictions and how they define zoning densities. ● Impervious surfaces ● Adopt-A-Stream stream surveys ● Washington Trout stream surveys
10:45 – 11:10 am **Andy Rheume**	3. **Strategies Under Consideration** Andy Rheume presented on the three categories of tools that are under consideration by the planning team, capital, programmatic and regulatory.presented on the three categories of tools that are under consideration by the planning team, capital, programmatic and regulatory.
	Strategies Under Consideration: Table Discussion & Worksheet
	Discuss the strategies under consideration, both the pros and cons of using the tools and add additional suggestions of tools to consider.
	Capital Project Strategies
	● **In-stream Restoration Project** ● **Bank Stabilization, Riparian Cover, Wood Volume** ○ **Challenges:** ■ Access to most critical areas (money and permission). ■ Cost ■ Will of government and public and businesses ■ Physical ability to site limitations ■ Retrofit impervious areas > 20% on public and private properties. ○ **Considerations:**

	■ Opportunities to coordinate at wetland mitigation ■ All the strategies are valuable and should be implemented ● **Stormwater Flow Control (New, Retrofit)** ○ **Challenges:** ■ Can be expensive to buy land to meet flow control goals. ■ Addressing volume is easier than treatment. ○ **Considerations:** ■ Existing drainage complaints can be used to prioritize areas where flooding and erosion control are problems. ■ Good deal of public land available. ■ WRIA 8 priorities ● **Distributed (e.g., bio-retention)** ○ **Challenges:** ■ Bio-retention is currently having problems with compost having more phosphorous coming out than coming in. ● **Regional (e.g., R/D ponds)** ● **Cisterns** ○ **Challenges:** ■ Cost; need to be huge to be effective. ■ Public thinks in too small of scale via rain barrel. ○ **Considerations:** ■ Tie this into opportunity at individual property level to mitigate the drought years' landscape water. ● **Rain Garden Retrofits** ○ **Challenges:** ■ Create incentives for private property owners to place on their property. ■ Include O&M costs ■ R/D Ponds/Vaults may not treat stormwater before release, so they're just storing pollutants like hydrocarbons. ■ Cost and maintenance ○ **Considerations:** ■ Provides water quality benefit without concentrated flow.
	Additional Capital Project Strategies
	● **Channel Reconnection:** ○ **Challenges:** ■ Acquisition needs ■ Conflicting interests ■ Beaver management issues ● **Wetlands Restoration:** ○ **Challenges:** ■ Cost/location limitations ● **Flood Plain Engagement** ● **Off-channel Habitat Creation** ● **Wetland Creation** ● **Beaver Management** ● **Barrier Removal and Assessment** ● **Fish Barrier Retrofit (Private crossings as well as public)** ● **Restore Tree Canopy** ● **Open Space Acquisition** ● **Ecology Embankment** ● **Reforestation**

	● **Fish Passage Improvements** ● **Green Roofs** ● **Porous Pavement** ● **Culvert Replacement** ● **Reduce Impervious Surfaces on Private Land by Removing Pavement & Creating Infiltration Sites** ○ **Challenges:** ■ Funding Availability ○ **Considerations:** ■ Small amount of asphalt removal can provide very cost-effective benefits; creates opportunity for private landowners to be part of the solution. ● **Land Acquisition of Priority Areas** ○ **Challenges:** ■ Cultivating willing landowners ■ Offer is opportunistic, rather than strategic ○ **Considerations:** ■ Supports needed for restoration projects ● **Riparian Wetland Acquisition** ○ **Challenges:** ■ Limited opportunity ○ **Considerations:** ■ Permanent resource ● **Storm Drain Retrofits** ○ **Considerations:** ■ Amended soil to filter stormwater before it reaches drain.
	Programmatic Activities
	● **Natural Yard Care** ○ **Challenges:** ■ It's not hard to measure, but truly is a lack of commitment by jurisdiction to invest in public education and outreach. ■ Jurisdictions focus on their priority of CIP first and programmatic last. ○ **Considerations:** ■ See 2014-2015 SnoCo and City of Olympia behavior change study on natural yard care. ● **Increased Street Sweeping** ○ **Challenges:** ■ Cost can be challenging. ● **Deep Cleaning of Stormwater** ○ **Challenges:** ■ Waterway 2000 ■ Septic's ■ Snohomish County OSS ■ Hobby Farms ○ **Considerations:** ■ Great deal of microbial research is available. ■ Model programs are available.
	Additional Programmatic Activities
	● **Improved Development System** ○ **Challenges:** ■ Institutional opportunity building is always complex.

	○ **Considerations:** ■ Programmatic effort would need to be uniform across jurisdictions. ● **Public Outreach and Public Education** ○ **Considerations:** ■ Things like "pick up your dog poop" are highly successful. ● **Look for Places to Place BMPs in the Right of Way Such as Traffic Islands and Wide Shoulders** ● **Riparian Planting** ● **LID Research** ○ **Challenges:** ■ Very long term ■ Large cost ■ Diverse implementation times ○ **Considerations:** ■ Current innovation, method in LID provides strong resources. ● **Targets Social Marketing on a Regional Scale for Particular Behavior Change** ○ **Challenges:** ■ Has been done for pet waste; maybe harder to broaden and still have an impact. ○ **Considerations:** ■ STORM group is an existing resource, possible framework for coordination. ● **Native Vegetation** ● **Streamside Stewardship Programs to Support Riparian Area Restoration and Protection** ● **Incentive Programs for Developer to Improve Stormwater Management (Salmon Safe, Built Green)** ○ **Challenges:** ■ Monitoring and compliance ● **Invasive Species Control** ○ **Challenges:** ■ Working with private property owners and getting agreement to enable strategic approach (i.e., knotweed control, starting top and moving down) ● **Convert Riparian Farms to Tree Crops** ● **Maintenance of Riparian Plantings (e.g. irrigation)** ● **Non-use of Fertilizer, Pesticides, and Other Toxics** ● **Don't Drip & Drive** ● **Eliminate Stocking of Fish in This Basin** ● **Rainwise Program** ● **Septic System Care** ● **Outreach to Dog and Horse Owners on BMPs for Proper Manure Management** ○ **Challenges:** ■ Cost ■ Overcoming erroneous perception about dog/pet waste on environment
	Regulatory Strategies
	● **Lot Clustering** ○ **Challenges:** ■ Cost ● **Maximum Impervious Coverage:** ○ **Challenges:** ■ Cost ■ Feasibility for some locations ■ Require retention on site to effectively reduce impact of imperviousness. ○ **Considerations:** ■ Changes to critical areas; lessons learned from King County's previous efforts. ■ OSS Septic

	■ Existing infrastructure ■ Public/official opposition ■ Staffing to enforce existing laws ■ Project vs. site constraints ● **Transfer Development Rights** ○ **Challenges:** ■ Cost
	Additional Regulatory Strategies
	● **CAO & SMP Buffers (Include Protective Buffers in Regulations)** ○ **Challenges:** ■ Effective size can be challenging in more urban areas. ■ "One size fits all" is hard ■ Political will ● **Forest Retention** ● **Beaver Relocation** ○ **Challenges:** ■ Beaver relocation limitations by the State. ● **OSS O/M Programs** ○ **Challenges:** ■ Due to abundant OSS in SA, fund/create an operational/maintenance program for landowners to maintain healthy OSS. ● **Ordinances: Critical areas, increase buffer, and don't allow wetland development (even with mitigation elsewhere)** ● **Retaining Native Regulations** ● **Increased Stream Buffer Setbacks** ○ **Considerations:** ■ With redevelopment, added buffer can be preserved and restored. ● **Mitigation Banking** ● **Don't Allow Outfall Directly into Stream; Setback Distance and Soil/Vegetation Requirement** ○ **Challenges:** ■ Not all sites can meet this goal. ● **More Stringent Redevelopment Requirements** ● **Band Outfalls in Streams** ● **Buffer Around Outfall Intakes** ● **Net Increase to Offset Unregulated Uses** ● **Tree Retention** ○ **Challenges:** ■ Need realistic levels of replacement (10,000 to 1 for immediate replacement of ecological function). ● **Changes to Design Manual and Regulations** ● **Conservation Lands** ● **Additional Compliance and Enforcement for Home On-Site Septics** ● **Size of Roads** ● **Fund Public Health Onsite Septic System Programs** ● **Noxious Weed Control to Protect Integrity of Habit Now and Long-term.** ● **Complete Water-typing of Headwaters** ○ **Considerations:** ■ Offers protection in association with CAO buffer regulations. What is allowed in buffer zones should be guided by historic conditions.

11:10 – 11:50 am **Multiple**	4. **Related Stormwater Management Efforts** The project partners conducted short presentations about related projects in the Bear Creek basin area, including: ● Snohomish County Little Bear Creek (Arthur Lee) ● Redmond Paired Basin, Tosh and Monticello Creek, and Groundwater Study (Andy Rheaume) ● WRIA 8 Plan Update (Jason Mulvihill-Kuntz) ● Climate Change (Jeff Burkey)
11:50 – 12:00 pm **Tamie Kellogg**	**5. Next Steps** Tamie Kellogg informed attendees that the Project would host additional stakeholder workshops over the next two-year period and asked that they provide names of individuals or organizations who should be on our mailing list for this project. She let them know to contact Jeff Burkey for questions and further information as the project progresses. Then she asked if there were any last questions about how the project.
	Participant Questions
	● **How many alternatives will we be able to run through the models within the time frame of the project?** We do not have a hard number of how many strategies we will look at; hopefully, not too many. I imagine that the number will be more than 2 and less than 100. Ideally, we'll have maybe three iterations, possibly eight. ● **Will you look at wetland alterations and drainage?** We have identified wetlands and wetland assessment is within the scope of the project, but we have not figured out how that plays out at this point. ● **Since the goal for the plan is to restore Bear Creek and provide healthy aquatic habitat for all salmon, how will you use HSPF and SUSTAIN to figure out the salmon component? Those programs don't have a biological component.** We are using another data source for the salmon. Part of this workshop is to have you help us identify data sources to look at. ● **What is your timeline?** The project needs to finish by 2018, but the bulk of it will be completed by 2017. ● **[Comment]** It would be helpful to provide some kind of map on acquisitions. ● **I'm curious about what water resources you're looking at regarding groundwater?** The original groundwater resource area is only a portion of the Bear Creek study area. King County is coordinating with City of Redmond and their consultants, who are hired to characterize Redmond's aquifer, possibly modify their Critical Aquifer Recharge Area (CARA). We will be communicating with Redmond's consultants about what their fluxes of groundwater in the basin area and how water supply/withdrawals impact it. One of the elements that we didn't talk much about today is about water supply and the import and export of water through the basin. We are including consumptive use and sources of water supply to try and account for water balance calculations.