

[8-18-15 meeting notes](#)

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SECONDARY DRAFT FOR WORK GROUP REVIEW

BUILDING CITIES IN THE RAIN

Watershed Prioritization Guidance for a Stormwater Control Transfer Program
*Harmonizing the NPDES Municipal Permit, Growth Management Act,
and Puget Sound Recovery*

7-13-15

Comment [BH1]: Please note that this is not yet a product of the Work Group. It is a second draft based on the discussions of the Work Group for the group's review before issuance of the document for public comment.

DRAFT

BEGINNING WITH DOCUMENT PAGE 15—NOTE THAT FOOTNOTE NUMBERING IS MESSED UP IN THIS TEXT EXCERPT.

On 8/18/15, Ecology staff (Abbey, Anne, Dan, and Ed) met with the following members of the BCitR Workgroup to discuss comments on the draft Prioritization Table: Scott Stolnack (WRIA 8); Doug Navetski and Claire Jonson (King County); Dana de Leon (Tacoma); Andy Rheau (Redmond); Lynn Kohn (Commerce); Heather Trim (Futurewise); Stewart Reinbold (DFW)

The assessments prioritize small watersheds, or habitat areas, relative to one another for their protection and restoration value. The Characterization Process analyzes watersheds and sorts them into four different categories – “Protection”, “Restoration”, “Conservation”, and “Development”. Ecology indicates that watersheds that fall into the “Protection” and “Restoration” categories are expected to rank as higher priority under a stormwater control transfer program than watersheds in the “Conservation” or “Development” categories.

b. Using Local Data

To implement a successful stormwater control transfer program, a jurisdiction will need to further prioritize receiving waterbodies or receiving waters based on local conditions. A two-step process described below is recommended for using local data to refine prioritization of receiving waterbodies or receiving waters. Data from the first step can be used to do an initial review of receiving waterbodies or receiving waters. Step 2 data digs deeper into the connection between stormwater management and waterbody quality or value to further refine or validate the initial prioritization. The next section – Table 1 – provides information on the sources of local data.

Step 1: Potential and Actual Fish Use and Aquatic Habitat

Review the receiving waterbodies or receiving waters for actual or potential fish use with a focus on the biological conditions and potential for environmental lift. Give higher priority to receiving waterbodies or receiving waters with low to moderate levels of impairment¹ as assessed using the following data:

- ~~• Presence of culverts or other barriers, including natural barriers, to fish passage.~~
- Percentage of tree canopy/condition of buffer for habitat and shade (This may also be considered at Step 2.)
- Benthic Index of Biotic Integrity (B-IBI) as an indicator of biological conditions.
- Known water quality impairment – 303(d) listings and Total Maximum Daily Loads (TMDLs²), local knowledge, or low instream flows – that impact fish mortality and use.

Step 2: Flow control/LID and runoff treatment opportunities

Review the receiving waterbodies or receiving waters for opportunities to address flow control issues or provide runoff treatment. Give higher priority to receiving waterbodies or receiving waters within which stormwater management improvements are expected to accelerate environmental improvement.³

¹ Ecology Prioritization Principle #1 (page 9 of draft Ecology guidance)

² TMDL is a calculation of the maximum amount of a pollutant that a waterbody can receive and still safely meet water quality standards.

³ Ecology Prioritization Principle #3 (page 9 of draft Ecology guidance)

Comment [a2]: I think this is unnecessary since it is in the first sentence

● ~~Physical flow control data:~~

- Percentage of impervious area/land cover in the watershed containing the receiving waterbodies or receiving waters
- Extent, age and condition of stormwater management treatment and flow control infrastructure – an assessment of the need for retrofits
- Ripeness to proceed (local knowledge, aligns with programs such as tree planting and stormwater capital improvement plan, etc., that will accrue water quality or stream flow benefits.)
- Watershed area data (inside vs. outside jurisdictional boundaries) – Give higher priority to receiving waterbodies or receiving waters in watersheds where the municipality can exert greater influence. However, if the municipality coordinates a priority watershed identification and rehabilitation strategy approach with a neighboring municipality, receiving waterbodies or receiving waters in a shared watershed may be scored higher.⁴
- Presence of culverts or other barriers, including natural barriers, to fish passage.
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- Coordination with state, regional and local plans – Give higher priority to receiving waterbodies or receiving waters in watersheds where other regional rehabilitation efforts are also focused⁵ through:
 - Comprehensive plans and zoning – ~~understanding the potential for growth in the watershed is necessary for prioritizing and planning a retrofit appropriate for the watershed's future.~~
 - Salmon Recovery Plans (3-year work plans, Water Resource Inventory Area priorities)
 - TMDL plans (active and planned)
 - Model Toxics Control Act/Superfund cleanups
 - Regional ecosystem goals, e.g. B-IBI
 - Endangered Species Act listings and critical habitat designations

In all cases, seek input from federal (US Fish and Wildlife, NOAA Fisheries, US Environmental Protection Agency), tribal, and state (Departments of Fish and Wildlife, Ecology and Natural Resources) resource agencies to gain buy-in on the proposed plan. Those agencies may have data pertinent to establishing priorities, and informed opinions about the relative importance of watersheds.

c. Local Data for Prioritization of Receiving Waters

This section discusses recommended sources of local data to be used in the two-step prioritization analysis. The data sources are evaluated for flow control and LID separately from runoff treatment. Flow control and LID are evaluated together because Ecology's guidance limits transfers of LID requirements to the performance standard, which is a flow duration standard.⁶ Each jurisdiction will need to provide information on the data used and explain the prioritization process to Ecology and the public.

The data are split between highly useful and useful. Data identified as "highly useful" are important to assess potential environmental lift and suitability for retrofits. Data recommended as "useful" should be used to further inform prioritization decisions if it is available.

⁴ Ecology Prioritization Principle #2 (page 9 of draft Ecology guidance)

⁵ Ecology Prioritization Principle #4 (page 9 of draft Ecology guidance)

⁶ See draft Ecology Guidance, page 6, #1.

Comment [eo3]: ECY suggests that this heading is not appropriate. The bullets below cover issues beyond "physical flow control data." That term itself is confusing anyway. Suggest eliminate this heading and move the four "see-through" bullets to the left, making them solid black bullets.

Comment [SA(4): Group agreed with this change

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Comment [eo5]: ECY proposal/recommendation: It is not appropriate to use future growth plans to prioritize watersheds. It is appropriate to look at comp plans and zoning to anticipate where regional facilities could be built to serve existing development, redevelopment, and new development. So, this statement should be eliminated here.

Comment [SA(6): There was significant discussion on this topic, some would like comp plans to be used as an information tool; others see the concern that ECY raised; others see that this ref is in the wrong place, e.g: potential for growth should be considered as a "ripeness to proceed" category. All agreed that the sentence that follows the Comp plan should be deleted. Need further discussion

All of the data and prioritization decisions will be informed by local, on the ground knowledge of streams and habitat conditions.

Table 1: Recommended Local Prioritization Data for Flow Control, Low Impact Development and Runoff Treatment

Data Sources	Flow Control/LID		Runoff Treatment		Comments/Notes
	Highly Useful	Useful	Highly Useful	Useful	
Step 1: Fish Use and Aquatic Conditions					
Actual or Potential Fish Use & Existing Aquatic Conditions					
<p>Current Chinook, Coho and other salmonid use and potential use data:</p> <ul style="list-style-type: none"> • Water Resource Inventory Area (WRIA) Plans • Watershed Characterization habitat data – Puget Sound Characterization Project • SalmonScape web site maintained by WDFW provides a computer mapping system for salmon recovery planners. It has lifestage and barriers information for mainstems and named tributaries. It will need to be verified and refined by local data and knowledge, especially for smaller or unnamed tributaries. • Salmonid Stock Inventory (SaSI) web site has reports describing and categorizing the status of 435 salmon and steelhead stocks. • County and city-specific data. • Location of physical and natural barriers – Local governments -and state DOT maintains this data? • Subareas of streams that drain to downstream hatcheries as well as to salmon bearing streams • Take advantage of existing prioritization efforts if available especially those with tribal co-manager involvement. 					<p>A local government needs to know that fish are prioritizing for habitat restoration. Of this of data types, Chinook is the best indicator of high issues.</p> <p>Potential fish use data is highly useful for salmon recovery.</p> <p>Barriers information recorded in WDFW Fish Pass Program</p>
	X			X	

Comment [BH(7)]: I will put these headings at the top of each page after you have reviewed it and before I send this out to the Work Group for work over the summer with Ecology.

Comment [SA(10): [ECY recommends](#) deleting this statement as chinook tend to use rivers and large stream that are most likely flow-control exempt and/or are less likely to have channel alterations caused by urban storm flows. Coho, chum, and other salmonids are better indicators for small streams – where chinook are less likely to be a species of concern.

Comment [SA(11): Group agreed with this deletion

Comment [HB8]: This was suggested by Holly Coccoli with the Muckleshoot Tribe. It needs to be discussed by the Work Group.

NOTE: Group agreed with addition of hatcheries

Comment [SA(9): Move the 2nd bullet to Coordination with local, state plans section

See King County example at <http://www.govlink.org/regional-water-planning/tech-committees/trib-streamflow/TribStrmfwFinalReport10-2006.pdf>.

Known number of culvert crossings/1,000 linear feet— city or county maps					Mapped culvert crossings (street, driveway, or utility) per 1,000 linear feet on mapped Class II stream channels each watershed within the jurisdictional boundary. Does not include trail bridges, long storm pipes, pipe outfalls, or piped sections of stream headwaters (even if mapped in culvert layer). Multiple parallel culverts are counted as one crossing.
	X	-	X		
Aquatic Habitat Condition					
All available physical stream assessment data related to salmonid habitat conditions, including, but not limited to: pool/riffle ratio; type of substrate; embeddedness; and Naturally occurring large woody debris/100 linear feet - weighted average of large woody debris density over walked channel length. This data can be collected by local government staff walking each creek. Standard Operating Procedures for collecting this data can be found at: http://www.ecy.wa.gov/programs/eap/quality.html A study assessing streams in WRIA 8 provides recommendations for salmon habitat parameters and procedures: http://www.kingcounty.gov/depts/dnrp/wlr/sections-programs/science-section/doing-science/wadeable-streams.aspx					
Tree Canopy/Condition of Buffer for Habitat					
Naturally occurring large woody debris/100 linear feet— weighted average of large woody debris density over walked		X			Large woody debris is defined as wood at least 10 inches in diameter and 10 feet long, in or over bankfull channel ⁸

Comment [BH(12): Should this be moved up to the yellow highlighted bullet above?

Comment [SA(13): Move to pg. 9 Land use

Comment [SA(14): ECY suggests that the prioritization consider any available stream assessment information not just LWD

Comment [SA(15): Group agreed with this change, but would like to add a row and develop data sources for Nearshore Marine and large, flow control-exempt River habitat. Individuals may offer suggested language. The WRIA 8 Study may be an additional data source – which suggested data to collect

⁸ “Bankfull width” is defined by the Washington State Department of Natural Resources in WAC 22-16-010 for streams as “the measurement of the lateral extent of the water surface elevation perpendicular to the channel at bankfull depth. In cases where multiple channels exist, bankfull width is the sum of the individual channel widths along the cross-section (see board manual section 2).”

⁹ “Bankfull width” is defined by the Washington State Department of Natural Resources in WAC 22-16-010 for streams as “the measurement of the lateral extent of the water surface elevation perpendicular to the channel at bankfull depth. In cases where multiple channels exist, bankfull width is the sum of the individual channel widths along the cross-section (see board manual section 2).”

channel length. This data can be collected by local government staff walking each creek;					counted by field crews. (Unnecessary for runoff treatment.)
Tree canopy percentage cover in local government regulatory stream buffers – aerial photography.	X		X		Tree canopy includes trees with a minimum 10-foot diameter canopy within regulatory buffers for open channel stream reaches within the jurisdictional limit. Tree canopy can be used as a tiebreaker between two otherwise equally ranked receiving waterbodies or receiving waters.
Percentage of intact 300-foot vegetated stream buffer – aerial photography.		X		X	
Percentage of intact 100-foot vegetated stream buffer – aerial photography.	X		X		The extent of intact buffers throughout a stream system correlate well with fish recovery/potential. Higher values equate to more vegetation. All vegetation including landscaped and mowed or plowed land is included – trees, shrubs, and unmowed grasses.

Comment [SA(16): Ecy supports creating new category above: in-stream habitat, as this topic does not correspond to tree canopy/condition of buffer

Comment [SA(17): Group agreed with this change

Benthic Index of Biotic Integrity				
Benthic Index of Biotic Integrity (BIBI) ¹⁰ , where appropriate, to measure aquatic health. Local government can collect this data relatively inexpensively.	X		X	<p>BIBI scores provide a quantitative method for determining and comparing the biological condition of streams using the macro-invertebrate assemblages as indicators. BIBI scores can be shown as the median value of all samples taken from the applicable stream.</p> <p>BIBI data is highly useful for fresh water, but is not available for salt water. As it cannot be collected in all streams, other measures of aquatic health may be needed. It is a good metric on a yearly scale for the general health of a stream and shows a good correlation with impervious surface and flow metrics.</p> <p>Another measure of aquatic health could be square miles of road density as a percentage of the watershed.</p>
Known Water Quality Impairment				
Ecology listed water quality impairments - State Water Quality Assessment (cat 4a, 4b, 4c, or 5) at Ecology's Water Quality Assessment and 303(d) List .	X		X	Waterbodies that are identified on the Ecology 303(d) list as a category 5 or category 5B due to impairment from the indicated water quality parameter.
Known water quality concerns based on locally-collected data: High temperature, low dissolved oxygen, and high fecal coliform bacteria.			X	If a local government collects this data, it is good data to have.
Shellfish bed health - shellfish bed closure(s)- Washington State Department of Health Beach Closures		X	X	Shellfish bed closures by the Washington Department of Health are an indicator of water quality issues.

Comment [SA(18): Ecy suggests that it is better to include this measure in the existing land use category (see proposed)

Comment [SA(19): Group agreed with this change

¹⁰ Fish Index of Biotic Integrity (F-IBI) is good data where it is available, but it can be hard to interpret as it is stream size dependent.

<u>High vehicle traffic areas – Annual Average Daily Traffic¹²>7,500.</u>			X		(Unnecessary for flow control.)
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Comment [BH30]: This was the left over meatloaf. I didn't see where to put this based on the Process outline.

Comment [SA(31): **ECY edit:** Moved up from SW influence

Comment [SA(32): Agreement

Existing/Current Land Use Data – Percentage of land in use for commercial, industrial, roads (include the right-of-way parcel, private, and public roads), single-family and multi-family residential, and parks and undeveloped land.

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Land uses are parcel based and calculated by summing different land use types into the categories presented from a maintained city or county Land Use GIS database. Can also use Buildable Lands Analysis. ¹³ Land use designations and zoning are not always indicative of what is on the ground. Selecting categories to lump land uses into should be based on the literature values for effective impervious surface percentages for each land use. This exercise should be simple once the jurisdiction decides what to use for categories of existing land use.		X	X		Runoff treatment transfers should go to a like land use or to a land use with greater pollutant-generating potential. ¹⁴ <i>Land use and land cover data are often available in the same data set.</i>
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<u>Known number of culvert crossings/1,000 linear feet – city or county maps.</u>	X	-	X		<u>Mapped culvert crossings (street, driveway, or utility) per 1,000 linear feet on mapped stream channels in each watershed with jurisdictional boundaries. Does not include trail bridges, long storm pipes, pipe out piped sections of stream headwaters (e mapped in culvert layer). Multiple parallel culverts are counted as one crossing.</u>
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Comment [OE(33): Why is this restricted to Class II stream channels? Maybe the intent was to say Class II and larger stream channels?

Comment [SA(34): This is a new comment that was not discussed with the group. Recommendation for consideration: Instead of Class II (Redmond rating) Use the Typing System adopted by DNR and refer at least to Type S and F streams (WAC 222-16-030)

¹² Total volume of vehicle traffic of a highway or road for a year divided by 365 days.

¹³ Buildable Lands Report per RCW 36.70A.215.

¹⁴ See draft Ecology guidance on page 5 regarding transfers of basic versus enhanced treatment under Specific Guidelines re: Minimum Requirement 6 Runoff Treatment.

Age and condition of stormwater management treatment and flow control infrastructure					
High vehicle traffic areas — Annual Average Daily Traffic ¹⁵ >7,500.			X		(Unnecessary for flow control.)
Outdated flow control infrastructure needing retrofit - percentage of watershed developed before [DATE TO BE DETERMINED-Retrofit need by the Work Group — 2010?] based on flow duration	X				This data indicates the environmental lift potential from installing stormwater retrofits. While a good indicator, not all jurisdictions have this information. (Unnecessary for runoff treatment.)
Total acres/percentage of developed watershed not equipped with basic runoff treatment. This can be done by plat and based on the age of the plat. It is important to remove forest and pasture areas from total watershed area to make sure undeveloped areas are not counted in the areas needing basic treatment.			X		The percentage can be calculated using the entire watershed minus areas that currently contribute runoff to a basic treatment facility or are currently forest or pasture.
Known number of <u>stormwater pipe and ditch outfalls and ditches, including the location and severity of fish passage barriers — city or county maps.</u>	X		X		Mapped <u>stormwater</u> outfalls <u>and ditches</u> draining pollution generating surfaces for 1,000 linear feet stream classes within the jurisdiction.
<u>Known number of mapped ditch outfalls (or pipes smaller than 12") potentially draining from pollution generating surfaces within jurisdictional boundaries — city or county maps.</u>	X		X		<u>Mapped ditch outfalls.</u>
Ripeness to Proceed					
Local knowledge of alignment with other programs such as tree planting, capital improvement plan, <u>asset management plans</u> , etc.					This wasn't in the data sets discussed, so do not know how useful it is for flow control/LID or runoff treatment.
Watershed Area Data					
Watershed area data — <u>total acres of stream area</u> inside and outside jurisdictional boundaries. Local governments could be very accurate with this exercise or simply use topography to delineate areas that drain to each receiving <u>water</u>	X		X		Includes stormwater conveyance and topographic watershed.

- Comment [SA(35): **ECY observation**: This is addressed in Fish Use category
- Comment [SA(36): Agreement
- Comment [SA(37): **ECY note**: Mapped ditch outfall are addressed above
- Comment [SA(38): Agreement
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- Comment [SA(39): **ECY**: Stream acres is not the same as watershed area. ECY believes that watershed area is the appropriate criterion
- Comment [SA(40): Agreement with changes

¹⁵ ~~Total volume of vehicle traffic of a highway or road for a year divided by 365 days.~~

body/receiving waters. If nothing else, local governments could use catchments delineated in the Puget Sound Watershed Characterization Model, which are likely from a larger dataset owned by someone at the state level, likely WDNR. Data sources at DNR?					
Each Stream length—total stream miles and percentage of total stream miles within jurisdictional boundaries. . Local governments should create their own stream data, which likely occurred as part developing the critical areas ordinance. Even with inaccuracies local critical area map should be sufficient. Newer LiDAR data to map water bodies is by far the most accurate.	X		X		If a stream flows into the jurisdiction from a less developed area outside the jurisdiction, then the jurisdiction may want to prioritize that stream. Co will be important to understand the habitat well.
Class II (Department of Natural Resources Type F plus S ¹⁶) stream length inside jurisdictional boundaries. Data sources?		X		X	

Comment [SA(41): ECY proposed addition:
A jurisdiction might have significant # of stream miles in their jurisdiction, but if that number is still dwarfed by the number of stream miles for the subject watershed that are outside their jurisdiction, that limits the ability to influence overall watershed health.

Comment [SA(42): Agreement with changes

¹⁶ The Washington State Forest Practices Board has adopted an interim water typing system in WAC 222-16-031. Type F streams have fish use as defined in WAC 222-16-031(2) and (3). Type S streams are inventoried shorelines of the state as referenced in WAC 222-16-031(1).

Coordination with State, Regional and Local Plans

Zoned Land Use/Land Cover – Zoning designations/planned uses for commercial, industrial, single family and multi-family residential, and parks.

City or county comprehensive land use and zoning maps. Zoning, right-of-way, critical areas, stormwater and other regulations related to land cover.

- o Salmon Recovery Plans (3-year work plans, Water Resource Inventory Area priorities)
- o TMDL plans (active and planned)
- o Model Toxics Control Act/Superfund cleanups
- o Regional ecosystem goals, e.g. B-IBI
- o Endangered Species Act listings and critical habitat designations
- o Existing prioritization efforts if available, especially those with tribal co-manager involvement

Zoning is important because future development to the watershed must be considered.

Function and structure code combinations can be for each land use type.

Residential:

- Single family can be further differentiated by development density. For example, four categories of single family based on parcel size.
- Multi family includes condominiums and apartments. Can include commercial first story with dwelling above in the commercial area calculation.

Parks and Undeveloped Land – Undeveloped land includes areas that are forest and pasture, as well as other areas that are not developed.

X

X

Comment [SA(44): ECY proposal/suggestion: This info could be added to the text of the document and would be helpful to determine whether there is enough redevelopment occurring in the low priority watersheds to make this program useful, as well as inform where runoff treatment facilities will need to be sited, and may help to inform or develop land use strategies that help to protect high priority watershed (e.g. where zoning changes may be needed; changes to lot coverage limits, need for additional stream buffer protections, etc). However, future land use and zoning is inappropriate criteria for determining watershed prioritization – this prioritization effort should be science-based, not based on where development is planned to occur.

Comment [SA(45): More discussion needed re: Comp plans and where it can be appropriate in this guidance

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Comment [SA(43): ECY recommends: This table should be expanded to include the plans, goals, listings, and clean-up activities listed in the text on page 16.

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9. Stormwater Influence					
-					
High vehicle traffic areas — Annual Average Daily Traffic ⁴⁷ >7,500			*		(Unnecessary for flow control.)

- Comment [BH46]:** This was the left over meatloaf. I didn't see where to put this based on the Process outline.
- Comment [SA(47):** ECY: Moved up to the Existing Land Use category.
- Comment [SA(48):** Agreement

⁴⁷ Total volume of vehicle traffic of a highway or road for a year divided by 365 days.

DRAFT

