Appendix 11 - Structural Source Control Project List

March, 2015

Project Name	Type[1]	Start Year	Status[2]	End Year	Cost Estimate[3]	Funding (%)			WQ Benefit[4]	Hydro Benefit[5]	Hydro Benefit #	Retrofit Incentive[6]	Other Benefit	Monitoring Planned	Lat	Long	Receiving Water Body	Comments
						Local	State	Federal										
Capitol Hill Water Quality Project (aka Swale on Yale)	2	2006	4,4,2*	2018	11.7 M	88%	1%		97,600 lbs TSS/yr	NA		580.0	Increased green space	Yes	47.621	-122.331	Lake Union	Biofiltration swales treating 439 acres. *Status: Phase 1 & 4 (Diversion, Pretreatment, Conveyance & Utility Relocation): **4** Phase 2 & 3 (Block 10 Swale): 4 Phase 5 & 6 (Block 11 Swale): **2** Local funding includes 1.8M SRF Loan. Private funding: 11%.
Venema Natural Drainage System (NDS) Project	2	2005	3	2016	7.65 M	85%	15%		12,000 lbs TSS/yr	92%	2	74.0	Increased green space	Yes	47.717	-122.361	Piper's Creek	Bioinfiltration followed by infiltration treating 80 acres.
South Park Water Quality Project	2	2005	2	2025	30 M*	100%			54,500 lbs TSS/yr	NA		225.0	Protects Duwamish sediments (Superfund site)	Yes	47.535	-122.325	Duwamish Waterway	Active treatment (e.g., chitosan enhanced sand filtration) for 240 acres of industrial/commercial/HDR. * Cost estimate includes pump station and water quality facility.
Street Sweeping for Water Quality Program	11	2011	4	Ongoing	1.16 M /yr	100%			1,688,000 lbs TS/yr (dry)	NA		310.0	Improved air quality; clean streets	Yes	City wide		Lake Washington, Lake Union, Ship Canal/Salmon Bay, Puget Sound, Duwamish Waterway, Longfellow Creek, Piper's Creek, Thornton Creek	High efficiency sweeping of 1240 acres of arterial roadways.

Project Type

Instructions: Do not alter this table. The type numbers and descriptions are for reference only.

[1]Type	Description
1	New flow control facility, including Low Impact Development (LID) Best Management Practices (BMPs)
2	New treatment facility (or treatment and flow control facility), including LID BMPs
3	Retrofit of existing treatment and/or flow control facility
4	Property acquisition for water quality and/or flow control benefits (not associated with future facility)
5	Maintenance with capital construction costs ≥ $25,000
6	Property acquisition for riparian habitat
7	Restoration of forest cover
8	Restoration of riparian buffer
9	Floodplain reconnection projects on water bodies that are not flow control exempt per Appendix 1
10	Capital projects related to the MS4 which implement an Ecology approved basin or watershed plan
11	Other actions to address stormwater runoff into or from the MS4 not otherwise required in S5.C

Project Status

Instructions: Do not alter this table. The status numbers and descriptions are for reference only.

[2]Status (as of December 31st of the reporting year)	Description
1	Planning
2	Design and permitting
3	Construction
4	Complete/Maintenance
5	Project cancelled
6	Property acquisition

Project Cost

Instructions: These descriptions are provided for reference only.

[3]Cost Estimate
Costs must be updated to reflect final costs when Status 4 or 6 is reached

Funding (%)
Estimate the percentage of funds from local, state, and federal sources

Water Quality Benefit

(Estimated Total Suspended Solids (TSS) or Total Solids (TS) reduction in pounds per year (lbs/yr))

Instructions: Use this tool to calculate the TSS or TS load reduction for each project. Enter contributing acreage for each land use category in the blue cells on the left, and the estimated unit area loading rate (from your S8.D data) in the blue cells on the right. Then enter the removal efficiency in the blue box under Treatment Efficiency. The value to enter into the main table will appear under Estimated TSS Reduction.

Land Use Category	Contributing Acres (ac)	Median TSS Unit Area Loading Rate (lbs/ac/yr)*	Treatment Removal Efficiency for TSS (%)	Estimated TSS Reduction (lbs/yr)
Commercial				
Industrial				
Low-density Residential				
High-density Residential				
Totals	0	-		-

← *Insert this number in Worksheet for* ***Water Quality Benefit***[4]

Notes:

**Values derived from S8.D data collected under 2007/12 Phase I Permits*

Estimated Total Solids (TS): For maintenance projects involving solids removal, enter the estimated dry weight of TS removed in pounds (lbs) in the Worksheet for Water Quality Benefit[4]

For 2014, in absence of a Western Washington median TSS unit area loading rate, Permittees should base this on their own S8.D data.

Ecology may approve other methods for calculating an estimated TSS reduction if the Permittee justifies the method is appropriate for the relevant project type.

Hydro Benefit

Estimated average percent flow reduction

Instructions: Do not alter this table. The hydro benefit numbers and descriptions are for reference only.

Option #	Description
1	*Standard Flow Control Requirement:* Enter the hydro benefit number in the reporting table under "Hydro Benefit" equal to the project's volume ratio, up to 100%. Refer to Volume Ratio Calculation.
2	*LID Performance Standard:* Enter the hydro benefit number in the reporting table under "Hydro Benefit" according to the following: - 100% if the project meets the LID Performance Standard in Appendix 1, Section 4.5 - 100% if the project uses Full Dispersion functionally equivalent to BMP T 5.30 in Chapter 5 of Volume V of the Stormwater Management Manual for Western Washington - Equal to the project's volume ratio, up to 100%. Refer to Volume Ratio Calculation

Volume Ratio Calculation

Instructions: Use one of the forms below to calculate the volume ratio, then copy and paste the value into the "Hydro Benefit" column of the worksheet. Units do not matter, as long as they are the same for the first and second fields. Use either Option 1 or Option 2.

Hydro Benefit Option 1		
Actual Storage Volume Provided	**Volume Required if Project had to Meet Standard Flow Control Requirement**	**Volume Ratio**
75	100	75%

Hydro Benefit Option 2		
Actual Storage Volume Provided	**Volume Required if Project had to Meet LID Performance Standard**	**Volume Ratio**
75	100	75%

Notes:

To calculate volume required if project had to meet the Standard Flow Control Requirement or the LID Performance Standard, use forested land cover as the pre-developed condition unless one of the following applies:

Reasonable, historic information is available that indicates the site was prairie prior to settlement (modeled as "pasture" in the WWHM).

The drainage area of the immediate stream and all subsequent downstream basins have had at least 40% total impervious area since 1985. In this case the pre-developed condition to be matched shall be the existing land cover condition. Where basin-specific studies determine a stream channel to be unstable, even though the above criterion is met, the pre-developed condition assumption shall be the "historic" land cover condition, or a land cover condition commensurate with achieving a target flow regime identified by an approved basin study.

Retrofit Incentive

Instructions: Determine the appropriate Project Achievement category from the table below based on project type and specifics. Then calculate the incentive using the formula below.

Retrofit Incentive Table

Incentive Points	Applicable Area (include the type of area listed below in the formula below in *acres*)	Project Achievement
100%	Impervious area	Water Quality: Better than Existing
150%	Impervious area	Water Quality: Better than Existing in known water quality problem area
150%	Impervious area	Water Quality: Basic treatment
175%	Impervious area	Water Quality: Enhanced treatment
200%	Impervious area	Water Quality: Meets WQ standards for target pollutant (assumed to be > level of treatment than Enhanced)
100%	Impervious area	Flow Control: Better than Existing
125%	Impervious area	Flow Control: Meets duration standard for Pasture
150%	Impervious area	Flow Control: Meets duration standard for Forest
150%	Impervious area	Flow Control: Protects habitat or prevents erosion and scour in known flow control problem area
200%	Impervious area	Flow Control: Meets LID Performance Standard
25%	Total area served by maintenance activity	Maintenance with capital construction costs ≥ $25,000 or other maintenance actions per S5.C.6.a.ii.(5)
50%	Total area acquired	Riparian Habitat Acquisition
25%	Total area restored	Restoration of Forest Cover
25%	Total area restored	Restoration of Riparian Buffer

Formula

Incentive Points	**Applicable area**	**Retrofit Incentive**
from table above	*from table above, in acres*	*Insert this number in Worksheet for Retrofit Incentive* [6]
150%	0.23	0.345