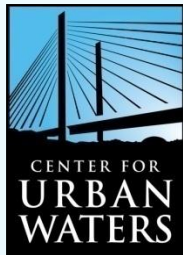


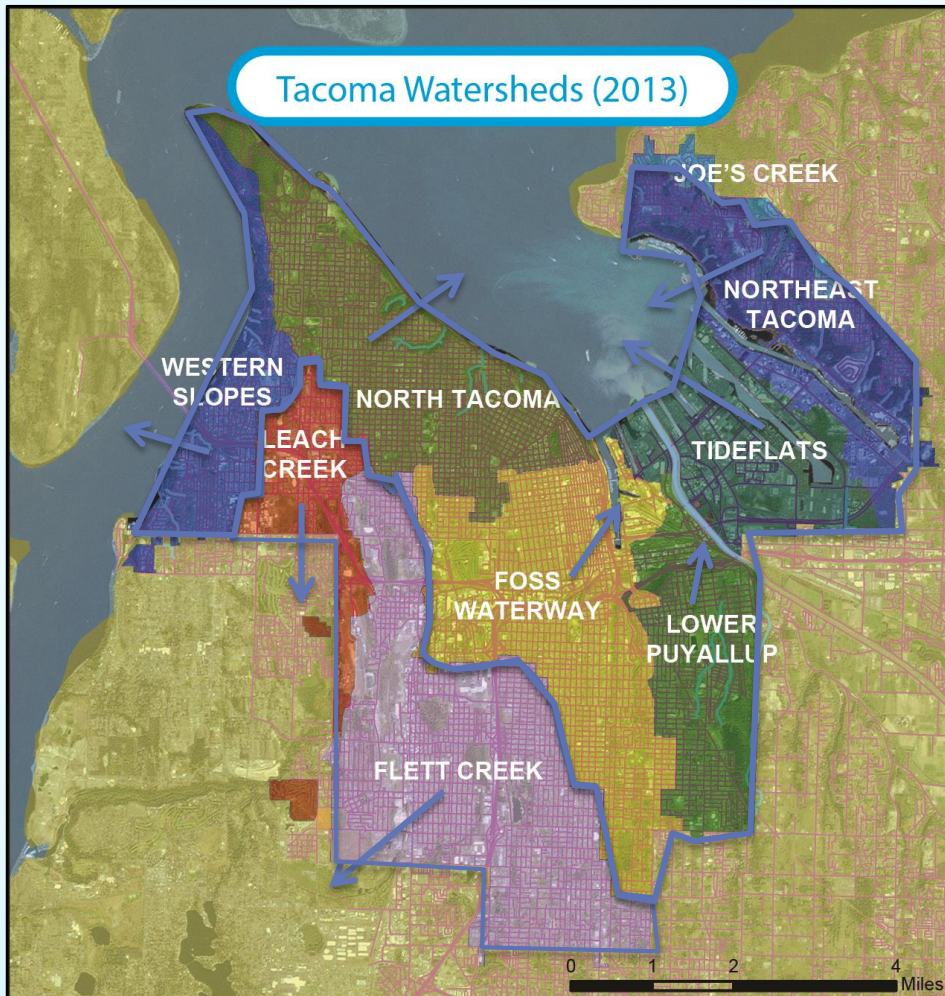
City of Tacoma - LID Plan Review

Washington Municipal Stormwater Conference November 5, 2014



Mieke Hoppin
Corey Newton

City of Tacoma - Background



- ~72% drains to flow control exempt receiving waters
- ~500 miles of pipe
- MR #5 is different based upon the ultimate discharge location

Lessons Learned

1. Know your watersheds

- Requirements may be applied differently based on watershed.
- May have different areas of concern.

2. Training

- Continuous.
- Internal and external.

3. Databases or Software

- Find or develop databases for plan review/inspection tracking.
- GIS Layers

4. Publicly Maintained Facilities

- What facilities/BMPs/configurations will City accept.

5. Public Education

- Explain Why?



Tools

- **Stormwater Site Plan Short Form**
- **Soils Report Appendix**
- **Small Site SWMM**
- **Project Examples**
- **Flowcharts**

SSP Short Form

City of Tacoma

2015 SWMM

Minimum Requirement #2 – Construction Stormwater Pollution Prevention

- The Construction Stormwater Pollution Prevention Plan Short Form and TESC Plan Drawing(s) satisfy this requirement.
- Other: _____

Minimum Requirement #3 – Source Control of Pollution

- For a single family residence, the homeowner shall comply with all Best Management Practices (as applicable) contained in Volume 4, Chapter 3 of the 2015 City of Tacoma Stormwater Management Manual.
- For commercial or industrial facilities, complete the, "Worksheet for Commercial and Industrial Activities" contained in Volume 3, Chapter 2 of the 2015 City of Tacoma Stormwater Management Manual. Attach the worksheet to the Stormwater Site Plan Report. The owner or operator shall comply with all BMPs checked.
- Other: _____

Minimum Requirement #4 – Preservation of Natural Drainage Systems and Outfalls

All boxes (except Other) should be checked for this Minimum Requirement.

- The natural drainage patterns have been maintained to the maximum extent feasible.
- Discharges from the project site occur at the natural location to the maximum extent feasible.
- Discharge from the project site will not cause a significant adverse impact to downstream receiving waters and downgradient properties.
- Other: _____

Minimum Requirement #5 – Onsite Stormwater Management

The following BMPs are proposed for meeting this requirement. See Volume 3 and Volume 6 of the SWMM for feasibility and design requirements for onsite stormwater management techniques. If there are multiple surface types (more than one roof), ensure the means of onsite management is described for each.

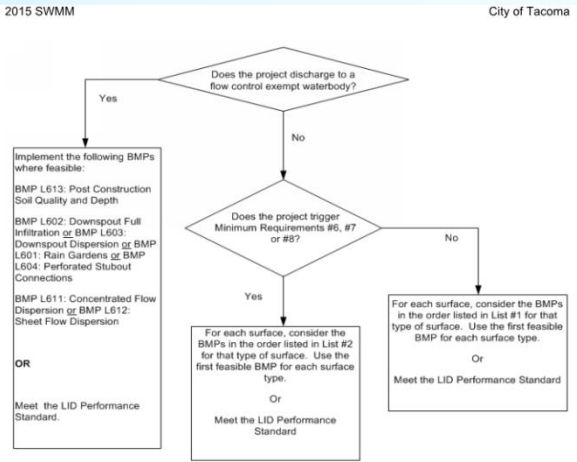
Roofs:

- Downspout Infiltration Trench
- Downspout Dry Well
- Rain Garden
- Bioretention Facility
- Dispersion Trench
- Splashblocks
- Perforated Stubout
- Collect and Convey

Other Hard Surfaces:

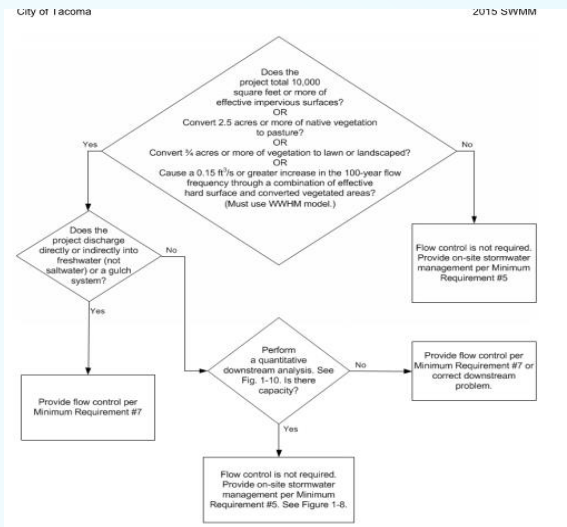
- Concentrated Flow Dispersion
- Permeable Pavement
- Rain Garden
- Bioretention Facility
- Sheet Flow Dispersion
- Concentrated Flow Dispersion

MR Flowcharts



NOTES:
 1. Marine Waterbodies, the Puyallup River, and First Creek are considered flow control exempt Waterbodies.
 2. See Volume 1, Section 3.4.5.5 for List #1.
 3. See Volume 1, Section 3.4.5.6 for List #2.

Figure 1 - 8. Minimum Requirement #5 Flowchart



NOTES:
 1. Minimum Requirements #9 may apply to any project regardless of site size.
 2. Watershed specific requirements may or may not require compliance with certain minimum requirements regardless of site size.
 Puyallup River is considered a flow-control exempt waterbody. See Section 3.4.7.5 for flow control requirements.
 The applicant's responsibility to determine the final natural discharge location for all projects.
 1) ft/s increase using 15-minute time steps.

Figure 1 - 9. Flow Control Flowchart

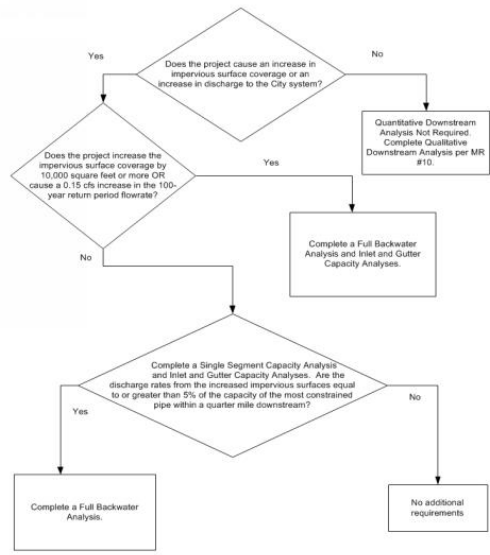


Figure 1 - 10. Infrastructure Protection Flowchart

Soils Report Appendix

Appendix B Soils Reports

This Appendix describes when a site-specific soils report is required and the requirements of that soils report.

B.1 All Projects

- If infiltration is being utilized to meet Minimum Requirement #6, Minimum Requirement #7 or Minimum Requirement #8, a site specific soils report is required. See Section B.8 for soils report requirements.
- A site-specific soils report is required to obtain flow credits for Best Management Practices that manage stormwater by infiltration and that allow flow credits. Refer to each individual BMP for flow credit evaluation. To obtain flow credits, the best management practices shall be designed per the SWMM requirements.

B.2 Downspout Full Infiltration Systems - BMP L602

A soils report per Section B.2.1 is required to design a downspout infiltration trench or downspout dry well per BMP L602 – Full Downspout Infiltration. Downspout full infiltration facilities shall be designed per Volume 3, Section 2.3.3.

A soils report per Section B.2.1 is required to complete the determination of infeasibility or to design the system if the minimum infiltration trench length or a minimum drywell size will fit on the project site. If the setback and site constraint criteria per Volume 3, Section 2.3.3.2 or the design standards per BMP L602a – Infiltration Trenches (Volume 3, Section 2.3.3.4) or BMP L602b – Dry Wells (Volume 3, Section 2.3.3.5) can be met assuming the minimum trench length per Table 3-2 or the minimum dry well size per Table 3-3 a soils report is required to determine if an infiltration facility is infeasible,.

B.2.1 Soils Report Requirements for Downspout Full Infiltration

The soils report must, at a minimum:

- Be prepared by one of the following*: professional soils scientist certified by the Soil Science Society of America (or an equivalent national program), a Washington State licensed onsite sewage designer, other suitably-trained professional engineer, geologist, hydrogeologist, or engineering geologist registered in the State of Washington, or persons working under the supervision of one of the soils professionals listed above;
- Contain at least one soils log a minimum of 4 feet deep (from proposed grade) and at least one foot below expected bottom elevation of the facility taken at the location of the proposed infiltration system (if it is unknown where the infiltration system will likely be sited, it may be necessary to take several soils logs to ensure appropriate site coverage);
- Identify the USDA textural class of the soil horizon through the depth of the log;
- Note any evidence of high groundwater level, such as mottling; and
- Note the depth to seasonal high groundwater table or other impermeable layer.

*Each professional should know the limits of their professional licensing. Contact your state or local licensing board for additional information.