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Memorandum

Date:	15 July 2020
To:	Todd Hunsdorfer, King County Dept. of Natural Resources and Parks
From:	Christian Nilsen
Subject:	OGD Mapping Features and Needs

This memo describes existing data and features available to Our Green Duwamish (OGD) members to meet Ecology's Stormwater Management Action Planning (SMAP) Guidance. After review by King County, this document is intended to be shared with the OGD Mapping Subgroup to solicit feedback for development of a prototype SMAP tool that meets members' needs.

1. BACKGROUND

Through collaboration with The Nature Conservancy (TNC), Geosyntec is developing the Puget Sound Stormwater Heatmap, an open-source, region-wide spatial tool for stormwater planning. Data layers and software are available for distribution and adaptation by anyone under an open-source license. Full documentation of the tool and data is available online: https://stormwaterheatmap.github.io/docs/reference/. Additional data has been provided by King County and reviewed by Geosyntec.

2. PREVIOUSLY IDENTIFIED NEEDS

Through ongoing workgroup meetings, OGD members have identified the following features and needs in the short term:

- The ability for Phase II jurisdictions to comply with SMAP permit requirements (i.e., receiving water assessment and prioritization) using the outputs of the mapping tool.
- A mapping tool that identifies priority basins for actions/projects at the jurisdiction- and watershed-levels, which could be used for prioritization, justification for funding support, and collaboration.
- Users include permit managers, engineers, planners, GIS staff/managers, public works directors, city managers, and OGD stakeholders/partners.

3. EXISTING SPATIAL DATA

Existing data that can be used in a SMAP tool are summarized below. In addition to data developed for the Stormwater Heatmap, we list data provided by King County and other agencies.

3.1 Boundaries

Boundaries include watersheds and municipal boundaries that would be used for aggregating and reporting data.

Table 1. Boundary Data

Name	Description	Source	Reference
Catchments	Fine-scale watersheds derived from topographic data	King County	King County, 2020
NHD Plus HR Watersheds	Fine-scale watersheds derived from topographic data	USGS	USGS, 2019
Puget Sound Assessment Units	Homogeneous watershed units	Ecology	Ecology, 2014
Phase II MS4 Boundaries	Boundaries for OGD Phase II Municipal Stormwater Permittees	Ecology	Ecology, 2014
Study Area	Developed for this project, the study area boundary includes the WRIA 9 boundary merged with all watersheds within member jurisdiction boundaries.	Geosyntec	--

3.2 Receiving Water Data

Receiving water data include those data that are relevant for assessing the condition of waterways that receive stormwater data.

Name	Description	Source	Reference
303(d) listed streams	Category 5 streams on 303(d) impairment list	Ecology	King County, 2020

Stream buffer	An approximately 100-foot buffer of streams showing tree cover	Geosyntec	In development
Riparian Revegetation Projects in King County	Riparian revegetation projects summary data per project.	King County	King County, 2016a
Small Habitat Restoration Project (SHRP) Data	Locations of Small Habitat Restoration Projects (SHRP) in King County.	King County	King County, 2017
Riparian Sun Map Data	Locations along the riverbank as Critical, High, Medium, or Low in potential to provide shade.	King County	King County, 2016b

3.3 Landscape Data

Landscape data includes data that can be used to evaluate the effect of runoff from urbanized areas on receiving waters.

Name	Description	Data Provider	Reference
Landcover	7-class fine-scale land cover	Stormwater Heatmap	Nilsen et al., 2020
Land Use	Parcel derived land-use categories	Stormwater Heatmap, Dept. of Commerce	Nilsen et al., 2020
Imperviousness	Fine-scale imperviousness	Stormwater Heatmap	Nilsen et al., 2020
Slope Categories	Categorized slopes	USGS	USGS, 2020
Slope	Continuous slope	USGS	USGS, 2020
Soils	Hydrologic Soils Groups	Stormwater Heatmap, USDA, Oak Ridge National Laboratory	Nilsen et al., 2020

Mean annual runoff	Modeled average annual runoff for 1970-2000	Stormwater Heatmap	Nilsen et al., 2020
Flow Duration Index	Modeled index of flow duration changes from development	Stormwater Heatmap	Nilsen et al., 2020
HSPF land cover classes	Recategorized land cover data for HSPF modeling	Stormwater Heatmap	Nilsen et al., 2020
Age of Imperviousness	Detected change to impervious land cover derived from remote sensing	Tsinghua University	Gong, et al, 2020.
Mean Annual Precipitation		Stormwater Heatmap	Daly et al. 2015

4. SUGGESTED ADDITIONAL DATA FROM MEMBERS

Local agencies may have more detailed and current spatial data than what is listed above. Additional data that may be used for SMAP planning includes:

- Catchment and subcatchment boundaries delineated from storm drain networks
- Stream buffer requirements
- Critical areas
- Comprehensive plan data
- Redevelopment data
- Receiving waters in categories 2-5 from EPA's 303(d) list of impaired waters
- Data from the Lower Duwamish Pollutant Loading Assessment

5. FUTURE SOLICITATION OF INPUT FROM MEMBER AGENCIES

After reviewing the existing data summarized above, member agencies are invited to provide further comments about data needs, including existing data or additional data to be developed for the tool.

Together with King County, we plan to solicit future input regarding the following other needs of the tool:

- General workflow
- Structure for decision support (e.g. ranking and prioritizing of criteria).
- Outputs and reporting needs
- Preferred “look and feel” examples

6. REFERENCES

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