

Draft TECHNICAL MEMORANDUM

Date: March 23, 2026
To: Aislin Gallagher, Kitsap County
Copy to: Michelle Perdue and Shawn Alire, Kitsap County
From: Brian Busiek and Julia Bruneau, Herrera Environmental Consultants
Subject: Kitsap Stormwater Park Analysis Assessment Approach

Contents

Introduction.....	1
Stormwater Park Framework Development.....	1
Stormwater Park Vision.....	1
Stormwater Park Framework	2
Guiding Objectives	3
Stormwater Park Typologies.....	3
General Screening Scheme.....	5
Subbasin Prioritization Scheme Development.....	7
Establishing Metrics and Pairing Data.....	7
Scoring Metrics	9
Weighting Metrics	10
Developing Overall Ratings.....	10
References.....	10

Tables

Table 1. Stormwater Park Guiding Objectives..... 3

Table 2. General Stormwater Park Screening Scheme. 6

Table 3. Metrics and Data Pairing for the Subbasin Prioritization Scheme. 8

Table 4. Scoring Values for the Subbasin Prioritization Scheme. 9

Table 5. Weighting for the Subbasin Prioritization Scheme. 10

Figures

Figure 1. Working Group Impressions of the Term “Stormwater Park” 2

Figure 2. Stormwater Park Typology Framework..... 4

Figure 3. Stormwater Park Analysis Project Work Flow..... 5

Introduction

Kitsap County (the County) commissioned the Stormwater Park Analysis project to identify, evaluate, and prioritize potential locations for large-scale stormwater park retrofit projects that provide both effective stormwater quality treatment and valuable community park amenities. The Study Area encompasses the Kitsap Peninsula within the County boundary, including unincorporated lands, incorporated cities, and Tribal territories. This project builds on the County's Stormwater Management Action Plans (SMAPs) and other planning efforts, including those by local Tribes and neighboring cities, which comprise the project Working Group. The County contracted with Herrera Environmental Consultants (Herrera) to help coordinate and perform the technical work under this project. This project has been funded wholly or in part by the United States Environmental Protection Agency under assistance agreement PC-01J95801-2 to the Washington State Department of Ecology.¹

Using lessons learned from existing stormwater parks, this project will develop and use a rigorous, science-based and stakeholder-inclusive process to identify the top sites for future stormwater parks within the Study Area. The overall project goal is to improve watershed health and support healthier communities, while building a working relationship and a shared vision with Working Group partners and their representative jurisdictions. The objective of the project is to create a framework for thinking about, identifying, siting, and designing stormwater parks, for this and future projects. The result of this project will be to develop conceptual designs for the next five stormwater parks in the Study Area.

This assessment approach memorandum details the stormwater park framework and subbasin prioritization scheme developed in collaboration with the Working Group. The framework and prioritization scheme will be used in a subsequent task to prioritize subbasins that need stormwater park investments. Later in the project, the stormwater park framework will help identify and prioritize stormwater park candidate sites.

Stormwater Park Framework Development

Stormwater Park Vision

After forming the Working Group, the first meeting was held in October 2025. During this meeting, the Working Group established a shared vision for stormwater parks in the Study Area. The shared vision is for future stormwater parks to become cherished and accessible "third spaces" for the community that improve water quality and ecologic functions, provide recreational and educational opportunities, and are resilient to climate change. Through efforts like this project, the Working Group also hopes to strengthen working relationships across jurisdictions to promote partnerships and improve watershed health across the County. Figure 1 below represents a word cloud generated from the Working Group

¹ The contents of this document do not necessarily reflect the views and policies of the Environmental Protection Agency, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

answers to the question: *What do you think of when you hear the term "stormwater park?"* For a more detailed summary of the discussion from the first meeting, refer to the *Working Group Meeting #1 Summary*.



Figure 1. Working Group Impressions of the Term "Stormwater Park"

Stormwater Park Framework

To help fulfill the Working Group's vision for stormwater parks and future cross-jurisdictional cooperation, the Herrera team proposed a stormwater park framework. The purpose of the framework is to:

- Develop **guiding objectives** for stormwater parks to illustrate primary and secondary functions;
- Establish **stormwater park typologies** to understand how they could look and perform in different settings; and
- Create a **screening scheme** to help prioritize watersheds where stormwater park investments are most needed and to identify and prioritize stormwater park siting opportunities that most effectively meet guiding objectives.

The framework is intended to be multi-dimensional and adaptive to the evolution of a stormwater park project. The framework provides a throughline from project visioning to site identification and prioritization to design development. In practice, the framework can help the County and partners visualize what stormwater parks can be, where they can go, and how they look and perform.

Guiding Objectives

In collaboration with the Working Group, guiding objectives of stormwater parks in Kitsap County were developed. These objectives were grouped into three categories: Watershed Benefits, Ecological Benefits, and Community Benefits. Table 1 presents the guiding objectives for stormwater parks and their associated definitions. It should be noted that climate resiliency was a critical objective desired by the Working Group, but it was acknowledged that climate resiliency does not warrant separate consideration since it underpins many of the watershed, ecological, and community benefits already being considered.

Table 1. Stormwater Park Guiding Objectives.

Category	Objective	Definition
Watershed Benefits	Improve health of watersheds and receiving waters	• Treat polluted stormwater runoff before discharging to receiving waters or groundwater • Prevent erosive flows from scouring creeks and shorelines • Mitigate upland flooding from excessive stormwater • Recharge groundwater
Ecological Benefits	Improve ecological and environmental health	• Enhance or preserve aquatic habitats for fish and amphibians • Enhance or preserve forests and terrestrial habitats for wildlife and pollinators
Community Benefits	Maximize community health and amenities	• Improve access to nature and green space • Mitigate urban heat island impacts • Enhance community education and stewardship opportunities • Increase investments in priority (overburdened and/or underserved) communities

Stormwater Park Typologies

Stormwater parks can achieve the guiding objectives outlined above in a wide range of different ways and in a wide range of different settings. To help with future siting and design of stormwater parks, it is helpful to understand how this variability in stormwater park types informs where to look for opportunities to put them.

The Herrera team created a simple typology structure to help illuminate a few key siting and design differences. This typology structure relies on two sets of variables. The first relates to whether the stormwater park is sited within an existing park or community space or whether it represents a new park or community space. The second variable relates to whether the stormwater park is located in an urbanized setting or a natural setting. In a more urbanized setting, space constraints may be more likely to result in a more compact, engineered design. In a more natural setting, the design is more likely to be integrated with existing natural systems.

This typology structure results in four distinct typologies:

- Existing park retrofit in an urban setting
- Existing park retrofit in a natural setting
- New park in an urban setting
- New park in a natural setting

Figure 2 depicts the typology structure and the four resultant stormwater park typologies.



Figure 2. Stormwater Park Typology Framework

General Screening Scheme

The arc of this Stormwater Park Analysis project includes prioritizing watersheds and subbasins where stormwater park investments are needed (Step 1), identifying and prioritizing potential locations for stormwater park projects (Steps 2 and 3), and developing conceptual designs for the highest priority stormwater park projects (Step 4). Figure 3 depicts this work flow graphically.

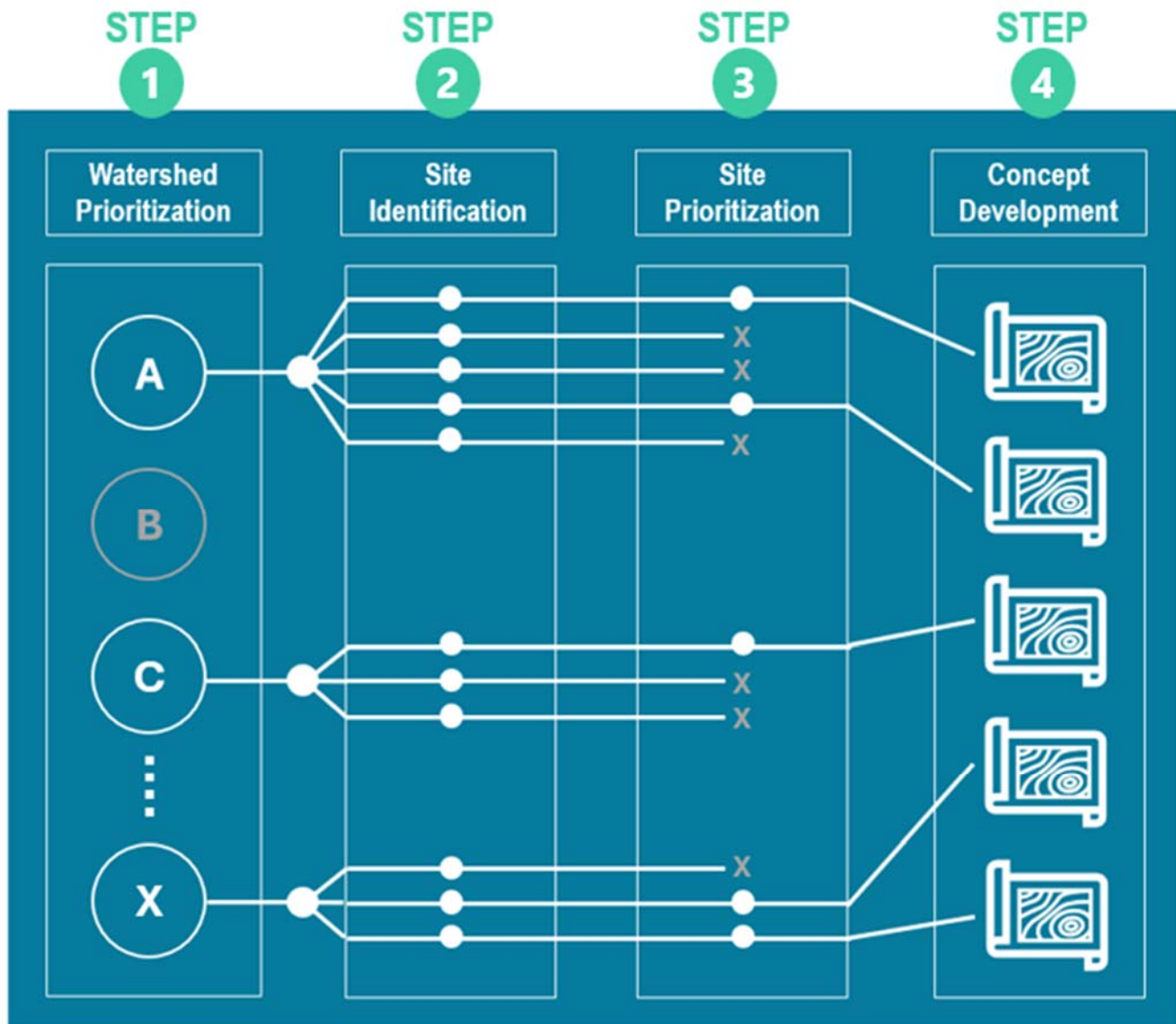


Figure 3. Stormwater Park Analysis Project Work Flow

To get from the full Study Area prior to Step 1 to individual prioritized stormwater parks in Step 4, a screening scheme is needed. The screening scheme facilitates decision-making with multiple objectives.

The Herrera team envisions a tiered screening scheme that can be deployed at each of the steps in the stormwater park development process. In general, an effective screening scheme must:

- Reflect values of decision-makers and program vision
- Facilitate an effective balance of meeting different objectives
- Allow for comparison of distinct subbasins and sites
- Work with different types of information and of varying quality or levels of detail
- Be effective at differentiating opportunities (independent criteria)
- Account for risks and future uncertainty
- Balance data and resources needed to complete analysis with value of output
- Be transparent and easy to understand and communicate

The screening schemes for this project will be anchored by the overall guiding objectives but will be tailored to the specific scale and need at each step in the stormwater park development process. At the subbasin prioritization step (Step 1), the screening scheme will be focused on identifying issues or deficiencies at a subbasin scale that could generally be solved with stormwater park investments. At the site identification and prioritization steps (Steps 2 and 3), the scheme will be focused on identifying specific opportunities to solve those issues or deficiencies at the site scale. Table 2 presents the proposed general stormwater park screening scheme with guiding objectives and their applicability to specific steps in the process.

Table 2. General Stormwater Park Screening Scheme.

Category	Subcategory	Subbasin Prioritization (Step 1)	Site Identification (Step 2)	Site Prioritization (Step 3)
Watershed Benefits	Water Quality	●	●	●
	Flow Control	○	○	●
	Flood Mitigation	○	○	●
	Groundwater Recharge	○	○	●
Ecological Benefits	Terrestrial Habitat Health	○	○	●
	Aquatic Habitat Health	○	○	●
Community Benefits	Access to Nature & Green/Community Spaces	●	●	●
	Priority Community Investments	●	●	●
	Community Education & Stewardship		○	●
	Heat Island Reduction		●	●
Other Considerations	Feasibility			●
	Cost			●
	Maintenance			●

Key: ● Include in scheme ; ○ Include in scheme if data available at appropriate scale

From this basic stormwater park framework, the Herrera team will collaborate with the Working Group to develop the screening schemes for each step in this project process. This will generally involve:

1. Establishing metrics and pairing available data
2. Developing individual metrics scores
3. Weighting metrics according to Working Group values
4. Combining metrics into a single ratings score

This process was applied to the development of the subbasin prioritization scheme. The results of this process and the recommended subbasin prioritization scheme are presented in the next section.

Subbasin Prioritization Scheme Development

Based on the stormwater park framework above, the Herrera team worked with the Working Group over the course of two meetings (Meeting #2 in December 2025 and Meeting #3 in February 2026) to develop the subbasin prioritization scheme. A more detailed summary of the Working Group meetings can be found in the *Working Group Meeting #2 Summary* and the *Working Group Meeting #3 Summary*. The components of the scheme development are described below.

Establishing Metrics and Pairing Data

The first step in the subbasin prioritization scheme development process was to establish metrics and pair them with data sources to measure the objective-aligned screening criteria. This was an iterative and collaborative process between the Herrera team and the Working Group over the course of the two meetings noted above. During this development and refinement process, several criteria were dropped from consideration and others were merged or modified. It should be noted that a decision to eliminate or modify a prioritization criterion was not a reflection of the value of the underlying idea or broad concept. Criteria were eliminated or modified because they were not deemed to be aligned with the objectives of this planning effort, they were not deemed to be differentiators among subbasins, or they were too difficult to assess and quantify. This latter point was determined to be the case for the Flood Mitigation and Groundwater Recharge criteria under the Watershed Benefits objective. The Herrera team determined that there are no data sets or surrogates available to meaningfully pair with those metrics. As such, they were removed from the subbasin prioritization scheme.

Table 3 presents a summary of the proposed subbasin prioritization scheme metrics and the associated data sources for scoring the metrics.

Table 3. Metrics and Data Pairing for the Subbasin Prioritization Scheme.

Category	Criteria	Metric	Data Source and Notes
Watershed Benefits	Water Quality	% of untreated impervious area within a subbasin	Impervious area determined from National Land Cover dataset (USGS 2024); treated portion calculated from assumed drainage areas of existing stormwater BMPs based on facility type (All Jurisdictions 2025)
	Flow Control	Ratings of the sensitivity of watersheds to altered flow regimes	Level of importance ratings from Puget Sound Watershed Characterization (Puget Sound Partnership 2016)
	Flood Mitigation	Upland flooding frequency and severity	No data were found to support this metric. Data are available to support riverine and shoreline flooding due to climatic events, but these were deemed to not be representative of the type of flood mitigation that a stormwater park could effectively address. Recommend removing this metric from the subbasin prioritization scheme.
	Groundwater Recharge	Aquifer sensitivity and importance to drinking water resources	No data were found to support this metric. Soil permeability was considered, but this is indicative of high-recharge potential and not need. Wellhead protection zones and critical aquifer recharge areas were considered, but these areas are highly regulated and have limited overlap with development that would be the target of a stormwater park. Recommend removing this metric from the subbasin prioritization scheme.
Ecological Benefits	Terrestrial Habitat Health	Assessment of level of service for existing forests	Level of service (LOS) ratings from the Kitsap Natural Resource Asset Management Program (KNRAMP) (Kitsap County 2025a)
	Aquatic Habitat Health	Assessment of level of service for existing shoreline and stream/riparian areas	Level of service ratings from the Kitsap Natural Resource Asset Management Program (Kitsap County 2025a)
Community Benefits	Access to Nature & Green/Community Spaces	% of subbasin outside walkshed of park/green/open space	Walksheds obtained from Parks, Open Space, and Walksheds data set (Kitsap County 2025b). Use of this dataset may prioritize subbasins with limited park access. This is valuable for the “new park” typologies but may be counter effective for evaluation of “retrofit existing park” typologies. This will be reconsidered during the site identification and prioritization steps.
	Priority Community Investments	% of subbasin with designated populations facing environmental harms, health disparities, and limited access to essential resources and services	Ratings and designations from Environmental Health Hazard Index (HUD 2018), Climate and Economic Justice Screening Tool (CEJST) (CEQ 2024)

Scoring Metrics

Spatial data from public sources and data provided by the Working Group were used to define a measurement method for each metric. The measurement methods are a combination of quantitative thresholds and qualitative criteria. The metrics were then scored on a 1-10 scale based on the measurement method and the following scoring conditions:

- Low (Minimal or no negative impact on the subbasin)
 - Score assigned: 1
 - Condition: Acceptable
- Medium (Some impact on the subbasin)
 - Score assigned: 5
 - Condition: Concerning
- High (Significant impact on the subbasin)
 - Score assigned: 10
 - Condition: Critical

Table 4 presents a summary of scoring values for the subbasin prioritization scheme metrics.

Table 4. Scoring Values for the Subbasin Prioritization Scheme.				
Category	Criteria	Low Rating (1 pt)	Medium Rating (5 pts)	High Rating (10 pts)
Watershed Benefits	Water Quality	Less than 10% untreated impervious area	Between 10 and 18% untreated impervious area	Greater than 18% untreated impervious area
	Flow Control	Low level of importance to water delivery processes.	Moderate level of importance to water delivery processes.	High level of importance to water delivery processes.
Ecological Benefits	Terrestrial Habitat Health	"Very High" to "High" Upland LOS	"Medium" Upland LOS	"Very Low" to "Low" Upland LOS
	Aquatic Habitat Health	"Very High" to "High" Riparian LOS	"Medium" Riparian LOS	"Very Low" to "Low" Riparian LOS
Community Benefits	Access to Nature & Green/ Community Spaces	Well established park network, open space coverage, and walkshed (Coverage more than 34%)	Established park network and moderate open space/walkshed coverage (Coverage between 12-34%)	Poor park network, lack of open space, and gaps in the walkshed (Coverage less than 12%)
	Priority Community Investments	High Hazard Index (>50) AND Regions identified as NOT disadvantaged	Moderate Hazard index (25-50) AND Regions identified as NOT disadvantaged	Low Hazard Index (<25) OR Regions identified as disadvantaged

Weighting Metrics

The total score for each subbasin is based on a weighted combination of individual metric scores. Metric weights were determined by the Working Group during a Meeting #2 exercise. Higher weighting values represent a higher importance for the metric. Table 5 summarizes the metric weights used in the subbasin prioritization scheme.

Table 5. Weighting for the Subbasin Prioritization Scheme.		
Category	Criteria	Weight
Watershed Benefits	Water Quality	29%
	Flow Control	18%
Ecological Benefits	Terrestrial Habitat Health	10%
	Aquatic Habitat Health	12%
Community Benefits	Access to Nature & Green/Community Spaces	17%
	Priority Community Investments	15%

Developing Overall Ratings

The final step in the subbasin prioritization scheme development process involves combining metrics into a single rating score. The results of this step will be presented in a subsequent memorandum entitled *Subbasin Selection*.

References

Council on Environmental Quality (CEQ). 2024. *Climate and Economic Justice Screening Tool (Version 1.0 or 2.0)*. Executive Office of the President.

Kitsap County. 2025a. Kitsap Natural Resource Asset Management Program (KNRAMP). Department of Community Development, Kitsap County, WA

Kitsap County. 2025b. Parks, Open Space, and Walksheds. Kitsap County GIS Division.
<https://www.kitsap.gov/gis/Pages/Data-Downloads.aspx>.

Puget Sound Partnership. 2016. Puget Sound Watershed Characterization: A Method for Identifying Areas for Action. Olympia, WA: Puget Sound Partnership.

U.S. Department of Housing and Urban Development (HUD). 2018. Environmental Health Hazard Index. Washington, DC: HUD. Retrieved from <https://hudgis-hud.opendata.arcgis.com/datasets/environmental-health-hazard-index/about>

U.S. Geological Survey (USGS), 2024, Annual NLCD Collection 1 Science Products (ver. 1.1, June 2025): U.S. Geological Survey data release, <https://doi.org/10.5066/P94UXNTS>.