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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 Subbasin Selection

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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 subbasin selection memorandum summarizes the outputs from the subbasin prioritization scheme that was developed in collaboration with the Working Group and detailed in the *Assessment Approach* memorandum.

Subbasin Prioritization Scheme

As described in the *Assessment Approach* memorandum, 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. Table 1 presents a summary of the proposed subbasin prioritization scheme metrics, weighting, rating categories, and associated data sources.

[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.

Table 1. Summary of Subbasin Prioritization Scheme.

Category	Criteria	Metric	Weight	Low Rating (1 pt)	Medium Rating (5 pts)	High Rating (10 pts)	Data Source
Watershed Benefits	Water Quality	% of untreated impervious area within a subbasin	29%	Less than 10% untreated impervious area	Between 10 and 18% untreated impervious area	Greater than 18% untreated impervious area	National Land Cover dataset (USGS 2024); Existing Stormwater BMPs (All Jurisdictions 2025)
	Flow Control	Ratings of the sensitivity of watersheds to altered flow regimes	18%	Low level of importance to water delivery processes.	Moderate level of importance to water delivery processes.	High level of importance to water delivery processes.	Puget Sound Watershed Characterization (Puget Sound Partnership 2016)
Ecological Benefits	Terrestrial Habitat Health	Assessment of level of service for existing forests	10%	"Very High" to "High" Upland LOS	"Medium" Upland LOS	"Very Low" to "Low" Upland LOS	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	12%	"Very High" to "High" Riparian LOS	"Medium" Riparian LOS	"Very Low" to "Low" Riparian LOS	Kitsap Natural Resource Asset Management Program (KNRAMP) (Kitsap County 2025a)
Community Benefits	Access to Nature & Green/ Community Spaces	% of subbasin outside walkshed of park/green/open space	17%	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%)	Parks, Open Space, and Walksheds dataset (Kitsap County 2025b)
	Priority Community Investments	% of subbasin with designated populations facing environmental harms, health disparities, and limited access to essential resources and services	15%	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	Environmental Health Hazard Index (HUD 2018), Climate and Economic Justice Screening Tool (CEJST) (CEQ 2024)

Subbasin Prioritization Results

The Hererra team deployed the subbasin prioritization scheme shown in Table 1 on the 614 subbasins within the project Study Area.

Subbasin Prioritization Scope

The scope of the grant that funds this project calls for using a two-step process to first identify the top three watersheds and then identify up to six top subbasins within those watersheds to target for identification of stormwater park candidate sites. The interim step of narrowing the universe of subbasins by first identifying target watersheds was intended to simplify the subbasin prioritization process. Given the resolution and coverage of the spatial data available and the nature of the prioritization process developed with the Working Group, the Herrera team was able to automate the spatial analysis and simultaneously consider both watersheds and subbasins in the prioritization process. Since the intended outcome is the selection of subbasins, this memorandum is focused on reporting of prioritized subbasins.

As noted above, the grant scope calls for selection of up to six subbasins to target for identification of stormwater park candidate sites. As with the watershed selection process, this narrowing step was intended to simplify subsequent site identification and prioritization steps. This is certainly prudent, but the Herrera team noted in the subbasin prioritization process that there is only slight differentiation in prioritization scores within a larger tier of top ranked subbasins, including and beyond the top six. With the availability of automation processes for the site identification step, the Herrera team recommends that a larger set of subbasins be carried forth to the site identification step than the six suggested in the grant. In this memorandum, the Herrera team presents the Top 25 and the Next 25 ranked subbasins. This expansion of subbasins to consider for stormwater park siting will help ensure that high-potential stormwater parks are not overlooked in subbasins beyond the top six.

Preliminary Feasibility Screening

Before processing and sorting the prioritized subbasins, the Herrera team performed a preliminary feasibility screening to ensure that the subbasins would be able to support development of a stormwater park under the scope of this project. The preliminary feasibility screening considered three main conditions:

- Size – is the subbasin of a sufficient size to support a stormwater park? Stormwater parks are regional-scale treatment facilities expected to manage runoff from many dozens to many hundreds of acres. The subbasins within the Study Area range in size from 0.1 acres to 29,500 acres with an average subbasin size of 508 acres. Many of the smallest subbasins are likely not of sufficient size to accommodate a stormwater park. The Herrera team recommends excluding subbasins that are less than 50 acres. With this exclusion, the number of subbasins to consider in the Study Area is reduced by 195.

- Collaborating Jurisdictions – does the subbasin include unincorporated areas of Kitsap County? This project is primarily focused on identifying and developing stormwater parks in the Study Area associated with unincorporated Kitsap County. The project scope acknowledges that water does not know jurisdictional boundaries and there may be opportunities to site stormwater parks that jointly manage stormwater from both incorporated and unincorporated catchment areas. As such, subbasins partially controlled by other jurisdictions (e.g., cities of Bremerton, Port Orchard, and Poulsbo) should be considered in subbasin prioritization. Subbasin that are wholly within the boundaries of a collaborating jurisdiction are assumed to be covered by other jurisdiction-specific planning efforts. The Herrera team recommends excluding subbasins that have greater than 90% of their area controlled by a collaborating jurisdiction. With this exclusion, the number of subbasins to consider in the Study Area is reduced by 142.

- Other Jurisdictions – does the subbasin include sufficient area of unincorporated Kitsap County outside of land owned or controlled by another entity that may be an unlikely partner? The primary instances of this are related to U.S. Department of Defense installations, including but not limited to Bangor Base (Naval Base Kitsap), Puget Sound Naval Shipyard in Bremerton, and Naval Undersea Warfare Center in Keyport. The Herrera team recommends excluding subbasins wholly or substantially controlled by these other jurisdictions. Substantial control is assumed to be those subbasins where the portion within unincorporated Kitsap County is less than 50 acres. With this exclusion, the number of subbasins to consider in the Study Area is reduced by 7.

Accounting for the overlap of these independent conditions, the preliminary feasibility screening resulted in exclusion of 295 subbasins from further analysis. A total of 319 of the original 614 subbasins remained for consideration in the subbasin prioritization scheme.

Priority Subbasins

An overview map of the Top 25 and the Next 25 ranked subbasins in the Study Area are presented in Figure 1. Maps zoomed to the North, Central, and South Kitsap Commissioner Districts are presented in Figures 2 through 4. Table 2 provides a summary of the overall and individual metric ratings for the Top 25 and Next 25 ranked subbasins. As part of the subbasin prioritization process, the Herrera team gave each subbasin a unique numeric identifier. These "Subbasin IDs" can be used to crosswalk between the figures and tables noted above.

Since the subbasin prioritization scheme represents a reconciliation of a number of different guiding objectives and their representative metrics, the Herrera team conducted a limited sensitivity analysis of the top ranked subbasins. This analysis was intended to determine whether any metrics and/or metric weighting had an unintentional effect of excluding subbasins with higher individual metric scores. While the inclusion or exclusion of metrics during sensitivity testing had an impact on the ranking order, it did not have a significant effect on the sites included in the Top 25 and the Next 25 rankings. The conclusion from this analysis was that expanding the set of priority subbasins from 6 to 50 helped to mitigate any inherent uncertainty in the subbasin prioritization scheme or underlying data.

Generally, the Top 25 and Next 25 subbasins are in more urbanized parts of the Study Area with less water quality treatment of pollutant-generating surfaces, increased sensitivity to flow control, limited access to green spaces, and the presence of overburdened and/or underserved communities. These subbasins will move forward to the stormwater park site identification and prioritization steps in the next phase of this project. That process and the results will be presented in the *Site Screening* memorandum.

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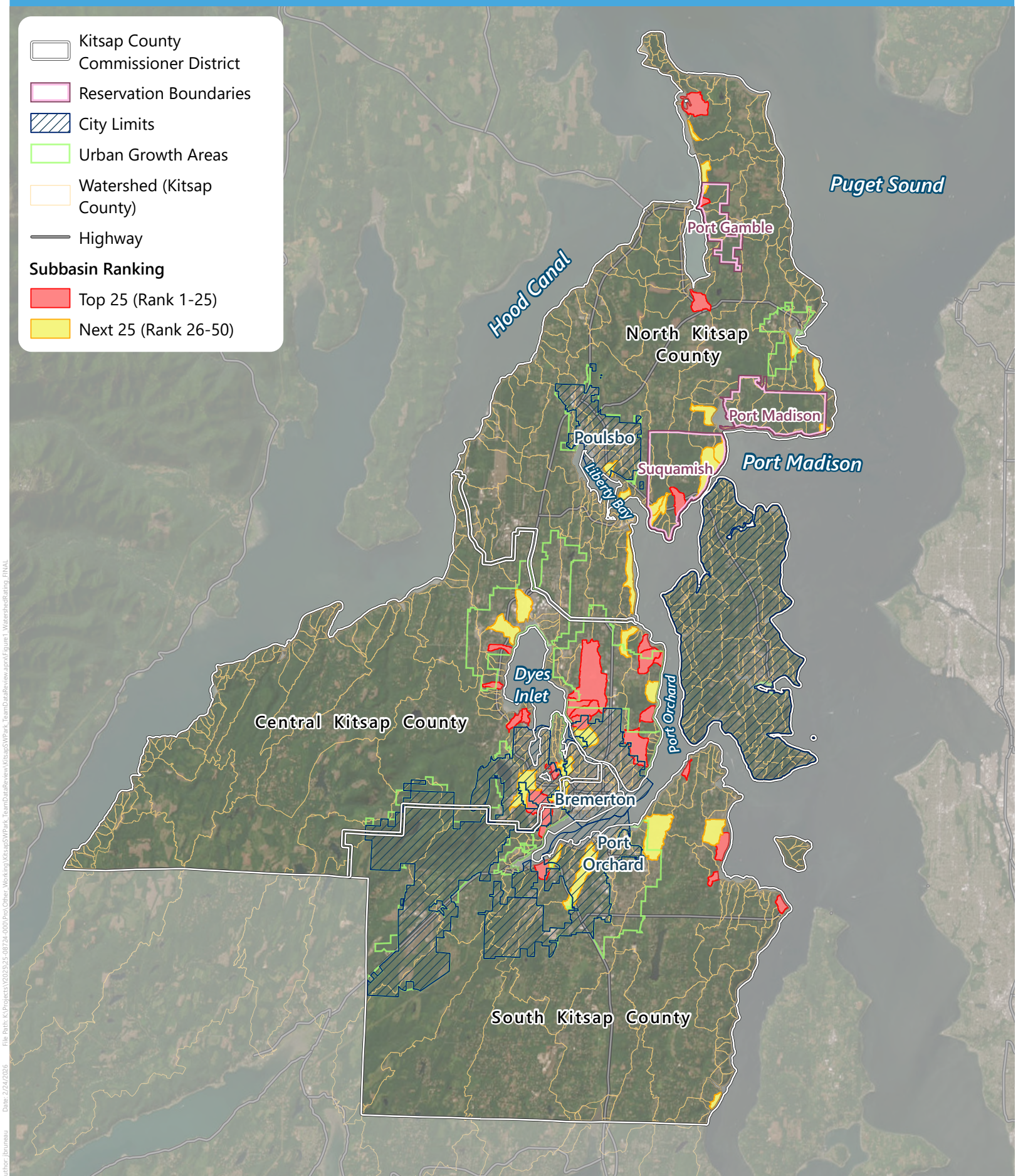
Figure 1.
Kitsap County Subbasin Prioritization Map.



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Date: 2/24/2026
Author: jbruneau

Produced by Herrera Environmental Consultants (herrerainc.com) | Sources: WSDOT, Kitsap County, City of Port Orchard, ESRI (Aerial, 2023)

0 1 2 4 Miles

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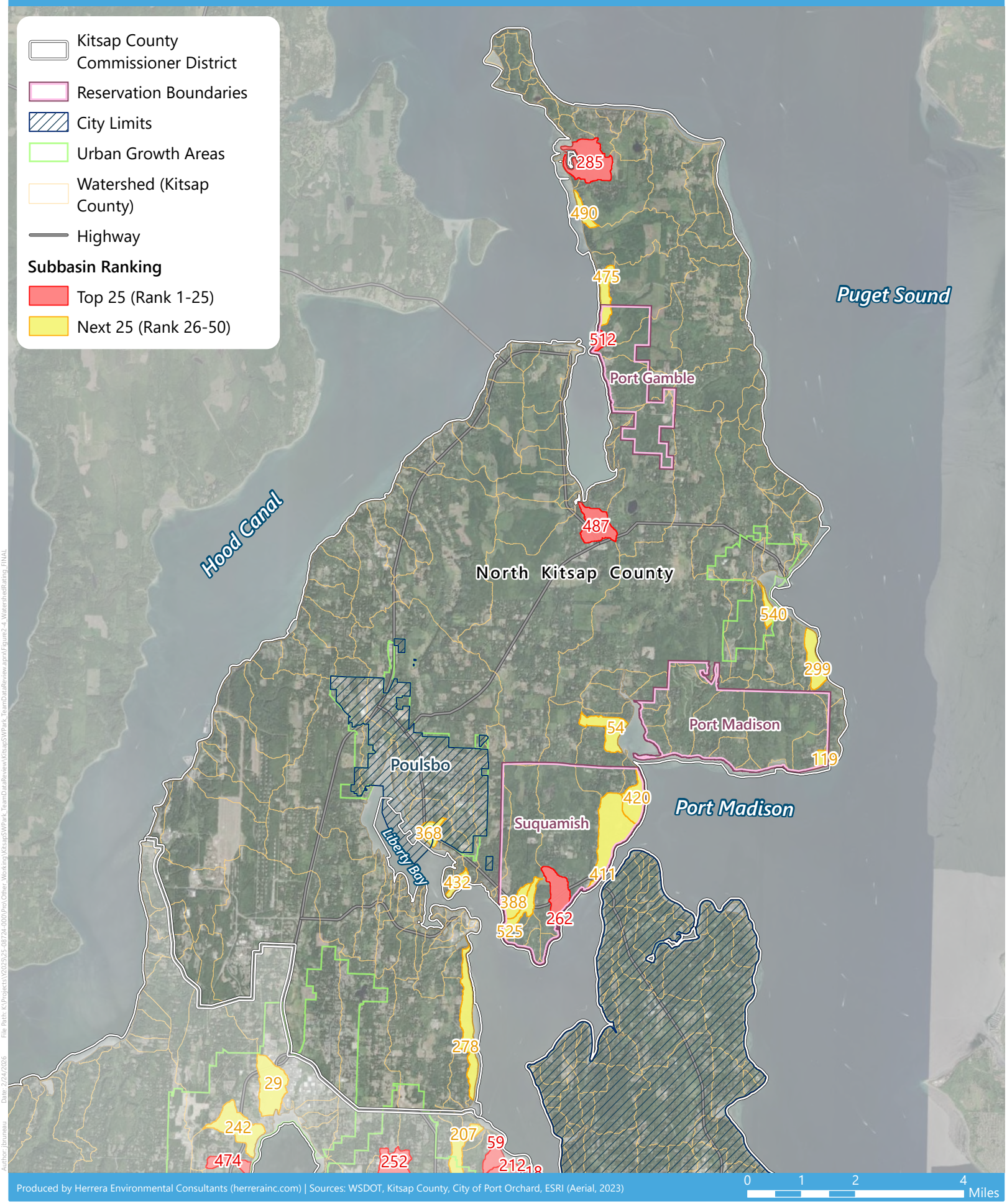
Figure 2.
North Kitsap County Subbasin Prioritization Map.



Produced by Herrera Environmental Consultants (herrerainc.com) | Sources: WSDOT, Kitsap County, City of Port Orchard, ESRI (Aerial, 2023)

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Date: 2/24/2026
Author: jbruneau

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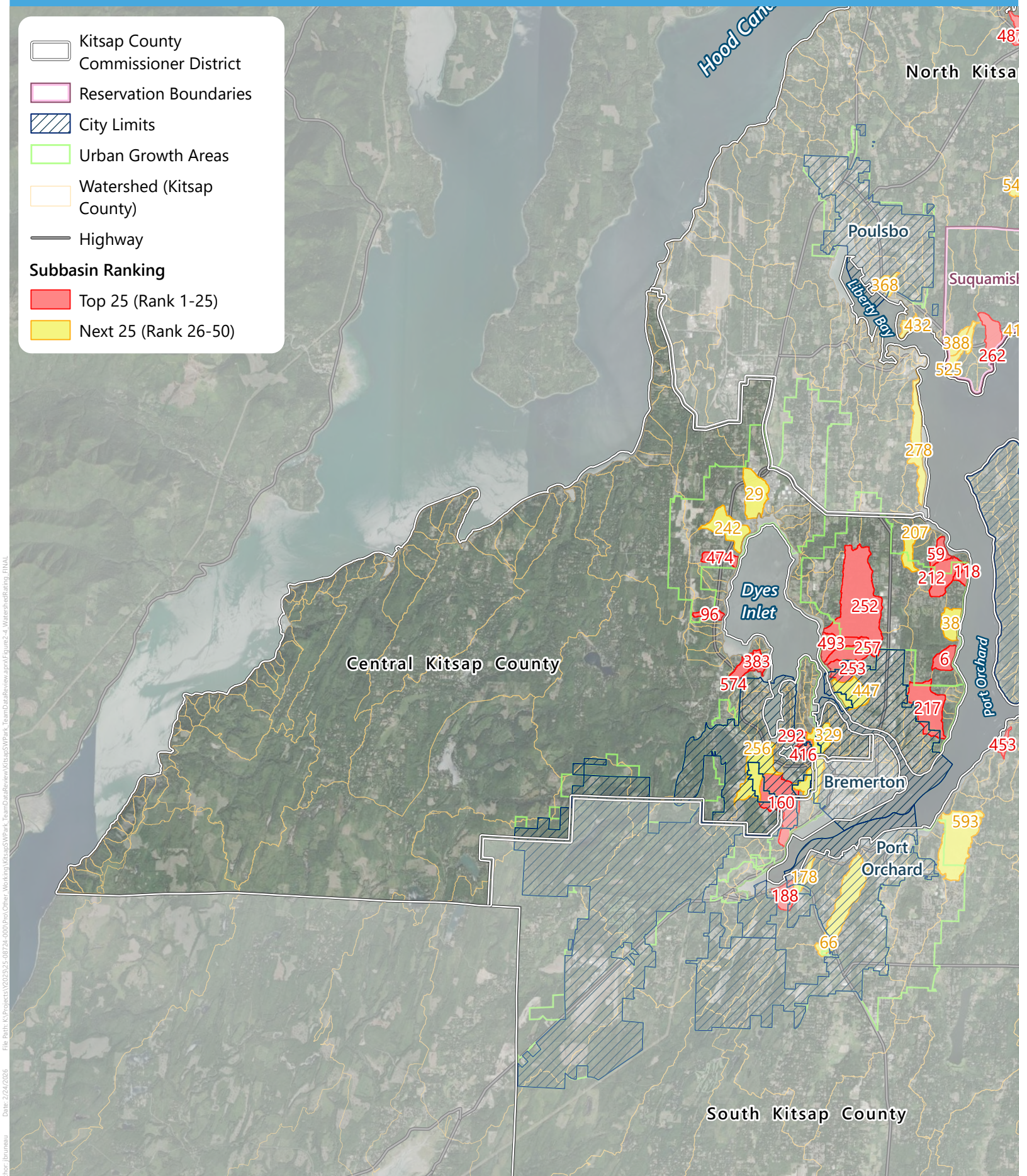
Figure 3.
Central Kitsap County Subbasin Prioritization Map.



Produced by Herrera Environmental Consultants (herrerainc.com) | Sources: WSDOT, Kitsap County, City of Port Orchard, ESRI (Aerial, 2023)

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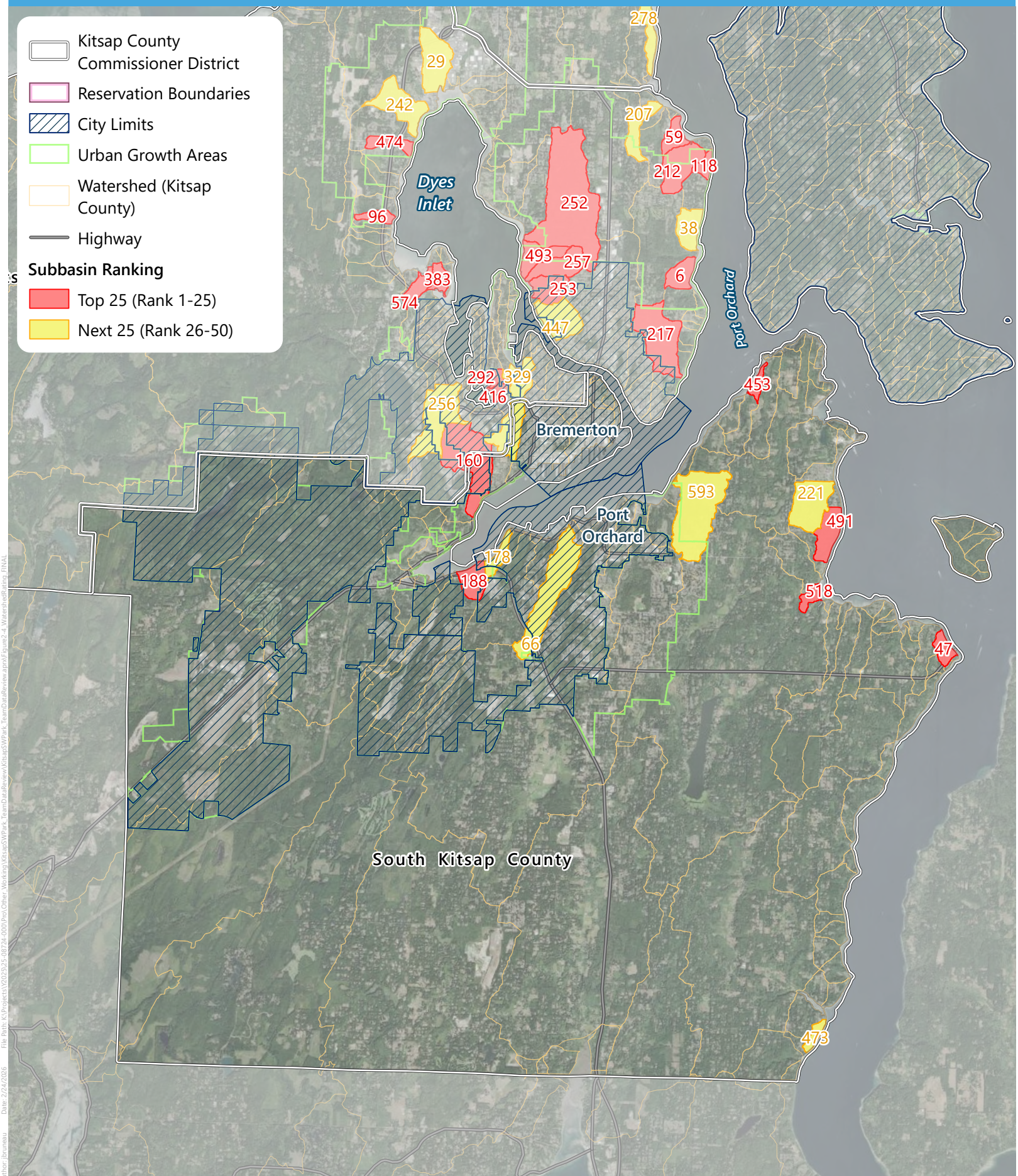
Figure 4.
South Kitsap County Subbasin Prioritization Map.



Produced by Herrera Environmental Consultants (herrerainc.com) | Sources: WSDOT, Kitsap County, City of Port Orchard, ESRI (Aerial, 2023)

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Date: 2/24/2026
Author: jbruneau

Table 2. Prioritization Scheme Ratings and Rankings.

Subbasin ID	Watershed Area (AC)	Impervious Area (%)	Portion in Incorporated Kitsap County (%)	Commissioner District	COMMUNITY BENEFITS		ECOLOGICAL BENEFITS		COMMUNITY BENEFITS		Total Rating	Ranking
					Water Quality (Weight 29%)	Flow Control (Weight 18%)	Terrestrial Habitat Health (Weight 10%)	Aquatic Habitat Health (Weight 12%)	Access to Nature & Green/ Community Spaces (Weight 17%)	Priority Community Investments (Weight 15%)		
TOP 25 SUBBASINS												
252	1,103	27%	0%	Central	10.0	10.0	1.0	5.0	10.0	10.0	84.8	1
257	202	22%	0%	Central	10.0	10.0	1.0	5.0	10.0	10.0	84.8	2
59	106	19%	0%	Central	10.0	10.0	1.0	10.0	10.0	5.0	83.3	3
491	188	30%	0%	South	10.0	10.0	1.0	10.0	10.0	5.0	83.3	4
188	149	19%	23%	South	10.0	7.5	1.0	5.0	10.0	10.0	80.4	5
285	315	25%	0%	North	10.0	10.0	1.0	1.0	10.0	10.0	80.0	6
292	51	23%	77%	Central	10.0	10.0	1.0	1.0	10.0	10.0	80.0	7
416	53	31%	81%	Central	10.0	10.0	1.0	1.0	10.0	10.0	80.0	8
487	202	20%	0%	North	10.0	10.0	1.0	1.0	10.0	10.0	80.0	9
493	159	24%	0%	Central	10.0	10.0	1.0	5.0	10.0	5.0	77.3	10
47	85	27%	0%	South	10.0	10.0	1.0	5.0	10.0	5.0	77.3	11
118	59	25%	0%	Central	10.0	10.0	1.0	5.0	10.0	5.0	77.3	12
212	263	25%	0%	Central	10.0	10.0	1.0	5.0	10.0	5.0	77.3	13
453	52	22%	0%	South	10.0	10.0	1.0	5.0	10.0	5.0	77.3	14
217	439	27%	13%	Central	10.0	10.0	1.0	5.0	5.0	10.0	76.5	15
160	528	43%	72%	Central/South	10.0	10.0	1.0	5.0	5.0	10.0	76.5	16
253	165	16%	67%	Central	5.0	10.0	1.0	10.0	10.0	10.0	76.5	17
6	127	18%	0%	Central	10.0	10.0	1.0	10.0	5.0	5.0	75.0	18
518	63	21%	0%	South	10.0	7.5	1.0	5.0	10.0	5.0	72.9	19
96	70	30%	0%	Central	10.0	10.0	1.0	1.0	10.0	5.0	72.4	20
474	90	32%	0%	Central	10.0	10.0	1.0	1.0	10.0	5.0	72.4	21
574	96	26%	0%	Central	10.0	10.0	1.0	1.0	10.0	5.0	72.4	22
383	72	19%	0%	Central	10.0	10.0	1.0	1.0	10.0	5.0	72.4	23
262	187	10%	0%	North	5.0	7.5	1.0	10.0	10.0	10.0	72.1	24
512	54	11%	0%	North	5.0	7.5	1.0	10.0	10.0	10.0	72.1	25

Table 2. Prioritization Scheme Ratings and Rankings.

Subbasin ID	Watershed Area (AC)	Impervious Area (%)	Portion in Incorporated Kitsap County (%)	Commissioner District	COMMUNITY BENEFITS		ECOLOGICAL BENEFITS		COMMUNITY BENEFITS		Total Rating	Ranking
					Water Quality (Weight 29%)	Flow Control (Weight 18%)	Terrestrial Habitat Health (Weight 10%)	Aquatic Habitat Health (Weight 12%)	Access to Nature & Green/ Community Spaces (Weight 17%)	Priority Community Investments (Weight 15%)		
NEXT 25 SUBBASINS												
525	124	14%	0%	North	5.0	7.5	1.0	10.0	10.0	10.0	72.1	26
119	52	18%	0%	North	5.0	10.0	1.0	5.0	10.0	10.0	70.5	27
432	67	15%	0%	North	5.0	10.0	1.0	5.0	10.0	10.0	70.5	28
178	88	10%	77%	South	5.0	7.5	5.0	5.0	10.0	10.0	70.2	29
388	110	16%	0%	North	5.0	7.5	5.0	5.0	10.0	10.0	70.2	30
490	55	11%	0%	North	5.0	7.5	5.0	5.0	10.0	10.0	70.2	31
368	83	24%	88%	North	10.0	10.0	1.0	5.0	1.0	10.0	69.9	32
242	280	27%	0%	Central	10.0	10.0	1.0	5.0	5.0	5.0	69.0	33
29	292	63%	0%	Central	10.0	10.0	1.0	5.0	5.0	5.0	69.0	34
38	163	28%	0%	Central	10.0	10.0	1.0	5.0	5.0	5.0	69.0	35
207	171	11%	0%	Central	5.0	10.0	1.0	10.0	10.0	5.0	69.0	36
278	304	11%	0%	North	5.0	10.0	1.0	10.0	10.0	5.0	69.0	37
593	659	14%	0%	South	5.0	10.0	1.0	10.0	10.0	5.0	69.0	38
221	319	27%	0%	South	10.0	10.0	1.0	10.0	1.0	5.0	68.4	39
473	61	20%	0%	South	10.0	7.5	1.0	1.0	10.0	5.0	68.1	40
475	143	16%	0%	North	5.0	7.5	1.0	5.0	10.0	10.0	66.1	41
54	180	12%	0%	North	5.0	7.5	1.0	5.0	10.0	10.0	66.1	42
299	164	17%	0%	North	5.0	10.0	1.0	1.0	10.0	10.0	65.7	43
66	531	30%	87%	South	10.0	10.0	1.0	1.0	1.0	10.0	65.1	44
411	428	20%	0%	North	10.0	10.0	1.0	1.0	1.0	10.0	65.1	45
540	74	24%	0%	North	10.0	10.0	1.0	1.0	1.0	10.0	65.1	46
256	405	29%	75%	Central	10.0	10.0	1.0	1.0	1.0	10.0	65.1	47
329	384	32%	64%	Central/South	10.0	10.0	1.0	1.0	1.0	10.0	65.1	48
420	177	27%	0%	North	10.0	10.0	1.0	1.0	1.0	10.0	65.1	49
447	243	33%	85%	Central	10.0	10.0	1.0	1.0	1.0	10.0	65.1	50