
TECHNICAL MEMORANDUM

Date: February 03, 2023

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From: Phil Struck, Struck Environmental

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SUBJECT: DRAFT RECEIVING WATER PRIORITIZATION AND RANKING

INTRODUCTION

The purpose of this technical memorandum (TM) is to document the stormwater basin prioritization process used by the City of Bremerton (City) to meet the Stormwater Management Action Plan (SMAP) requirements of the 2019–2024 Western Washington Phase II National Pollutant Discharge Elimination System (NPDES) Stormwater Permit. The approach to complete this prioritization process generally follows Ecology’s SMAP Guidance (Ecology 2019) with modifications that reflect City management priorities and the unique nature of receiving waters in the City.

The basin prioritization is the second phase of a three-step SMAP development process that started with the recently completed first phase Receiving Water Conditions Stormwater Influence Assessment (RWA) TM, which was completed by the City in December 2022. The RWA included a basin inventory, water quality assessment, pollutant loading analysis and assessment of stormwater influence. The RWA helps guide basin prioritization by identifying the receiving waters that are most likely to benefit from stormwater management planning and implementation.

Purpose and Scope

The purpose of basin prioritization is to determine which of the City’s receiving waters are most likely to benefit from stormwater management planning and actions. These priority basins will then advance to the third and final phase of the SMAP process, which is preparation of the SMAP and associated implementation plan.

The purpose of this TM is to document the process and criteria that were used to prioritize candidate basins, and to identify the two highest priority basins for inclusion in the SMAP Implementation Plan. This basin prioritization reflects the following process:

- Develop list of top three candidate stormwater basin areas (completed as part of the RWA);
- Develop scoring and ranking methodology to prioritize top three basins;
- Evaluate candidate basins relative to scoring criteria;
- Identify the two highest priority basins;
- Identify top retrofit priority stormwater catchment area within each priority basin; and

- Conduct outreach with stakeholders and the public to elicit feedback on proposed priorities.

The analysis presented in this TM also reflects the scope of Task 4 of the City’s grant agreement with Ecology, which consists of the following:

- Prepare draft prioritization scoring methodology narrative and Prioritization and Ranking Matrix,
- Provide the public and stakeholders with an opportunity to comment on draft prioritized basins, and
- Prepare a summary of stakeholder and public outreach.

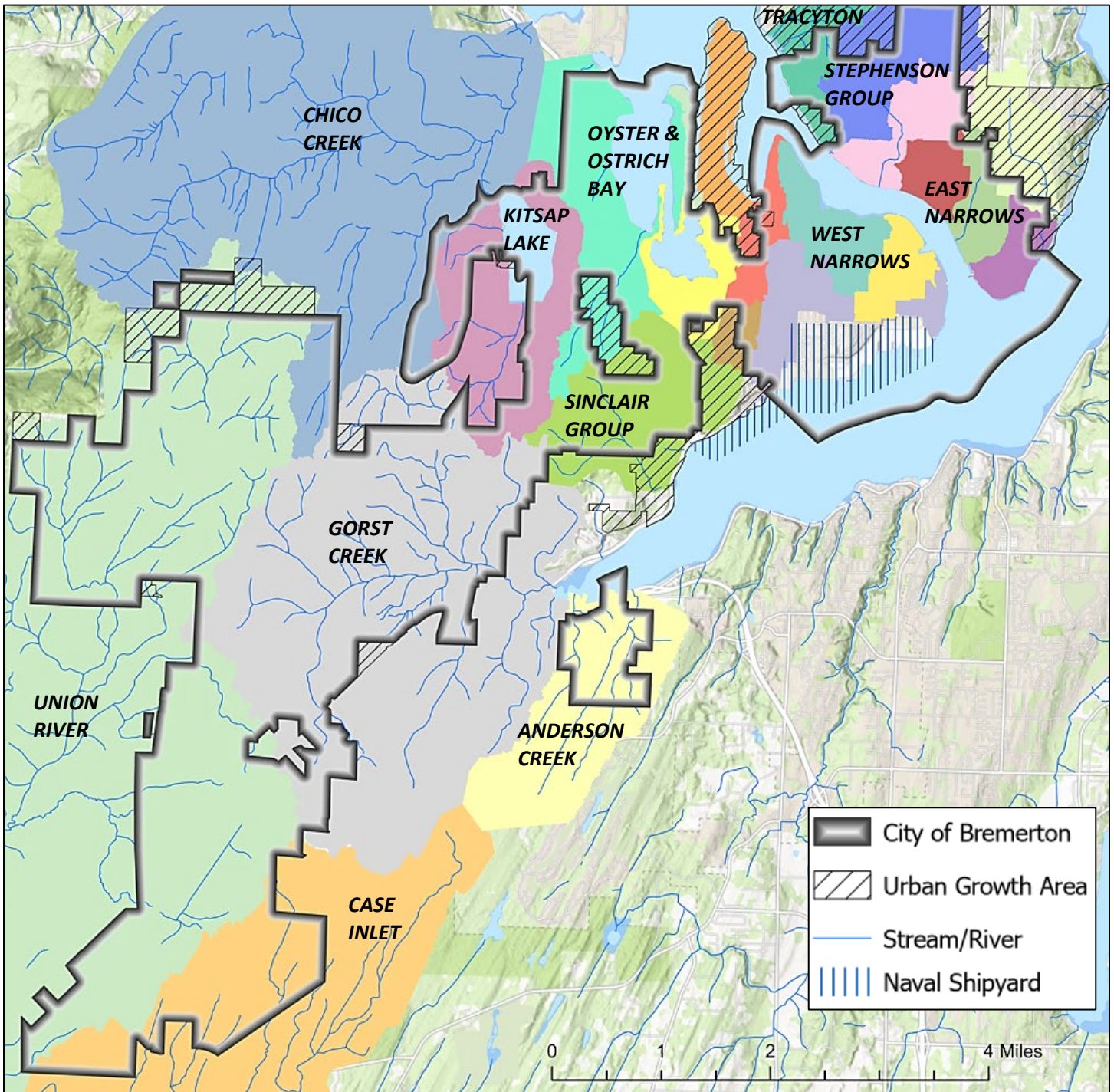
RECEIVING WATER ASSESSMENT AND CANDIDATE BASIN SUMMARY

A total of 12 basin areas made up of 24 individual stormwater basins were evaluated in the RWA based on physical characteristics, receiving water conditions and stormwater management influence (see Figure 1). A tiered analysis was used for the RWA, with six basins eliminated in the Tier 1 evaluation due to low levels of development or low portion within City jurisdiction. The remaining six basin areas were evaluated relative to existing water quality conditions, pollutant loading, extent of existing stormwater treatment, and existing and potential future development.

The combined existing receiving water quality and stormwater influence assessment results provided a comparison of relative conditions across the six Tier 2 basins (Table 1). The purpose of the combined scoring was to identify the list of basins to move forward for prioritization. Based on the results in Table 1, the top three basins with highest combined scores have moved forward to prioritization. As shown in Table 1, the top three basins have a significantly higher summary rating than the remaining three Tier 2 basins. Accordingly, Kitsap Lake, Oyster and Ostrich Bay and the West Narrows basins have been advanced to the prioritization phase of the SMAP and are addressed in detail in this TM.

Table 1. Combined receiving water and stormwater influence rating and ranking.

Stormwater Basin	Receiving Water Rank	Stormwater Influence Rating	Summary Rating	Final Rank	Advanced to Prioritization Step
Kitsap Lake	1	1	2	1	Yes
Oyster & Ostrich Bay	2	3	5	2	Yes
West Narrows	3	2	5	2	Yes
East Narrows	4	4	9	3	No
Sinclair	5	5	9	3	No
Stephenson	6	6	12	4	No
Anderson Creek	Eliminated in Tier 1 screening				No
Gorst Creek					No
Tracyton					No
Chico Creek					No
Union River					No
Case Inlet					No



Stormwater Basins

Anderson Cove	Ostrich Bay	East Park	Sinclair Park
Anderson Creek	Oyster Bay	Enetai Creek	Stephenson Creek
Callow Ave	Pacific Ave	Gorst Creek	Tracyton
Cherry Ave	Phinney Bay	Kitsap Lake	Trenton Ave
Chico Creek	Pine Road	Marine Drive	Union River
Coulter Creek	Rocky Point	Marion Ave	Warren Ave



FIGURE 1. STORMWATER BASINS AND RECEIVING WATERS MAP
Stormwater Management Action Plan

The City's receiving water assessment memorandum is available for review on-line at the following address: bremertonwa.gov/404/Projects

BASIN PRIORITIZATION APPROACH

The initial RWA screening analysis evaluated and ranked all basins within the City (Figure 1). The RWA was the first step in the prioritization process, and resulted in Oyster Bay and Ostrich Bay, Kitsap Lake and West Narrows as the top three candidate basins. Additional information on the parameters and technical approach used to rank all basins within the City can be found in the RWA.

The City's prioritization approach for the top three candidate basins follows Ecology's SMAP Guidance (2019) and the Washington State Department of Commerce's Building Cities in the Rain (2016). The City's approach uses applicable prioritization principles as described in SMAP guidance, tailored to reflect specific local conditions in the City of Bremerton.

The prioritization approach uses a four step process:

- Step 1:* Characterize receiving water beneficial uses;
- Step 2:* Identify the degree of impairment to beneficial uses;
- Step 3:* Sort the top three candidate basins into four different management strategy categories: "Protection", "Restoration", "Conservation", and "Development"; and
- Step 4:* Prioritize the top two basins based on a combination of outcomes from steps 1, 2 and 3.

Prioritization Scoring and Ranking Methodology

Prioritization criteria have been divided into three general categories:

- Type and extent of beneficial use and degree of impairment,
- Extent and intensity of development and future growth, and
- Water quality and habitat conditions.

Each basin was assigned a score for each criterion, with a higher priority score associated with a higher level of beneficial use, development or habitat value. The highest-priority basins were then identified by summing point values for each criterion. Explanations for scoring of the ranking criteria are provided in the sections below. Summary basin receiving water prioritization scores are shown in Table 2. Detailed scoring and ranking data is provided in Attachment A.

Beneficial Uses

Beneficial uses are generally defined as uses that provide for the public's enjoyment of specific natural resources (Table 2). Impairment criteria are the metrics used to assess the condition and degree that these beneficial uses are degraded by stormwater related impacts (Table 3).

Parks, swimming beaches and areas of direct contact recreation (paddle boards, kayaks, etc.) were calculated based on number of parks and magnitude of historical recreational uses. A higher prioritization was assigned to basins with a higher level of direct contact recreation.

Shellfish harvesting prioritization scoring was based on WDOH harvesting area classification and the basis for the classification (WDOH 2023a). Finfish harvest criteria are based on WDOH advisories due to toxics bioaccumulation (WDOH 2023a). Areas that are consider potential shellfish harvest areas and are monitored by WDOH were assigned a higher priority than areas that are restricted or prohibited to harvesting because of discharges and/or potential pollution from point sources.

Table 2. Beneficial Use Type and Extent Scoring Criteria.

Metric	Score	Description
Direct Contact Recreation	3	Extensive and frequent direct contact recreation including swimming and boating.
	2	Periodic direct contact recreation including wading and boating.
	1	No direct contact recreation.
Commercial or Recreational Shellfish Harvest	3	Portion of shoreline area approved for recreation or commercial harvest.
	2	Area monitored for commercial shellfish use but currently not approved. Freshwater areas that do not support shellfish habitat.
	1	Commercial shellfish harvest prohibited and recreational harvest not recommended.

Table 3. Beneficial Use Impairment Scoring Criteria.

Metric	Score	Description
Direct Contact Recreation	3	Extensive and frequent direct contact recreation closures due to fecal coliform, <i>e. coli</i> and/or toxic blue-green algae.
	2	Periodic direct contact recreation closures due to fecal coliform, <i>e. coli</i> and/or toxic blue-green algae.
	1	No direct contact recreation closures.
Commercial or Recreational Shellfish or Finfish Harvest	3	Commercial shellfish closure due to stormwater and other non-point sources.
	2	Shellfish closure due to location near point source WWTP facility outfall or marina. Finfish harvest advisory due to bioaccumulation.
	1	Shellfish harvest allowed/not impaired.

Development and Future Growth

Development and future growth was assessed using total impervious area (TIA), type and extent of high density development, percent of developed area without stormwater treatment, and extent of high average daily traffic (ADT) roads.

Percentage of zoning classification for each basin was calculated from City zoning. Priority scoring was based on percent of basin zoned for high intensity uses (commercial, industrial, high density residential) since these uses typically have greater potential to contribute to water quality impairments.

Percent TIA for each of basin was calculated from land cover GIS data evaluated as part of the RWA. Higher scores were assigned to basins with higher levels of TIA. Miles of arterial and collector roads were calculated for each basin as part of the RWA. High ADT roads are known to be significant stormwater pollutant sources. Basins with a higher number of miles of arterial and collector roads were therefore assigned a higher priority score.

Table 4. Development and Growth Scoring Criteria.

Metric	Score	Description
Total Impervious Area	3	40% or greater TIA
	2	20% - 30% TIA
	1	10% - 20% TIA
Development Pressure	3	Existing development < 20% of available high density zoning (i.e., high level of vacant urban zoned land)
	2	Existing development between 20% and 85% of available high density zoning
	1	Existing development > 85% of available high density zoning
Existing Treatment and Flow Control	3	More than 90% of area developed without stormwater BMPs
	2	90% - 20% of area developed without stormwater BMPs
	1	Less than 20% of area developed without stormwater BMPs
High ADT Roads	3	More than 3 miles of high ADT roads (> 20,000 trips/day)
	2	One to three miles of high ADT roads (> 20,000 trips/day)
	1	Less than 1 mile of high ADT roads (> 20,000 trips/day)

Water Quality, Hydrology and Habitat Conditions

Overall water quality was rated based on a pollutant load per acre index developed as part of the RWA. Basins with higher load index were assigned a higher score.

Habitat analysis was based on the number of salmonid species present in the freshwater portion of each basin. Marine water salmonid presence was not used since multiple salmonid species are present at some life stage in all of the City’s marine receiving water. Data for this criterion were obtained from the WDFW Salmonscape tool (WDFW 2023a). Higher scores were given to basins with the most salmonid species.

Fish passage barrier ratings were calculated based on the number of known partial or complete fish passage barriers as mapped by WDFW (WDFW 2023b). Forage fish scores were based on the number of forage fish species mapped as using nearshore areas for spawning (WDFW 2023c).

Hydrology data were derived from the Ecology Watershed Characterization tool (Ecology 2023). The tool rates the level of importance to maintaining overall water flow processes with ranks of Low, Moderate, Moderate High, and High. A higher score was assigned to basins with streams that were rated Moderate/High or High.

Table 5. Habitat Scoring Criteria.

Metric	Score	Description
Freshwater Salmon and Trout Presence	3	Three or more salmonid species presence
	2	One to three salmonid species presence
	1	No salmonid species presence
Fish Passage Barriers	3	Five or more fish passage barriers
	2	One to five fish passage barriers
	1	No fish passage barriers
Forage Fish Nearshore Use	3	Three forage fish species use/presence
	2	One to two forage fish species/use presence, or freshwater lake
	1	No forage fish species/use presence
Water Quality and Pollutant Loading	3	Pollutant load/acre index > 100
	2	Pollutant load/acre index between 50 and 100
	1	Pollutant load/acre index < 50
Hydrology	3	High water flow importance
	2	Moderate water flow importance
	1	Low water flow importance

BASIN SCORING RESULTS AND MANAGEMENT MATRIX

Basin scoring and ranking are summarized in Table 6. Additional scoring detail is provided in Attachment

A. Basin scoring is summarized as follows:

- Oyster and Ostrich Bay was the top ranked basin with a total score of 31,
- Kitsap Lake was the second highest ranked basin with a score of 29, and
- West Narrows was the lowest ranked stormwater basin area with a score of 25.

Table 6. Receiving Water Prioritization Summary.

SMAP Stormwater Basin Group	Area (Ac)	Ranking Criteria													Total Score	Overall Rank
		Dir. Contact Recreation	Shellfish or Finfish Harvest	Dir. Contact Recreation Impairment	Shellfish or Finfish Harvest Impairment	Total Impervious Area	Development Pressure	Extent of Existing SW Treatment	High ADT Roads	Salmonid Presence	Fish Passage Barriers	Forage Fish Use	WQ Pollutant Loading	Hydrology		
OYSTER & OSTRICH BAY	1,524	2	2	2	3	2	2	2	3	3	3	2	3	2	31	1
KITSAP LAKE	1,256	3	2	3	1	1	3	3	2	2	2	2	2	3	29	2
WEST NARROWS	1,270	2	1	2	2	3	1	3	3	1	0	2	3	2	25	3

Stormwater Basin Matrix and Approach

The three candidate basins were evaluated for placement in one of four management categories (Figure 2) based on prioritization guidance provided by the Washington Department of Commerce (2016) and Ecology’s Puget Sound Watershed Characterization Project (2016).

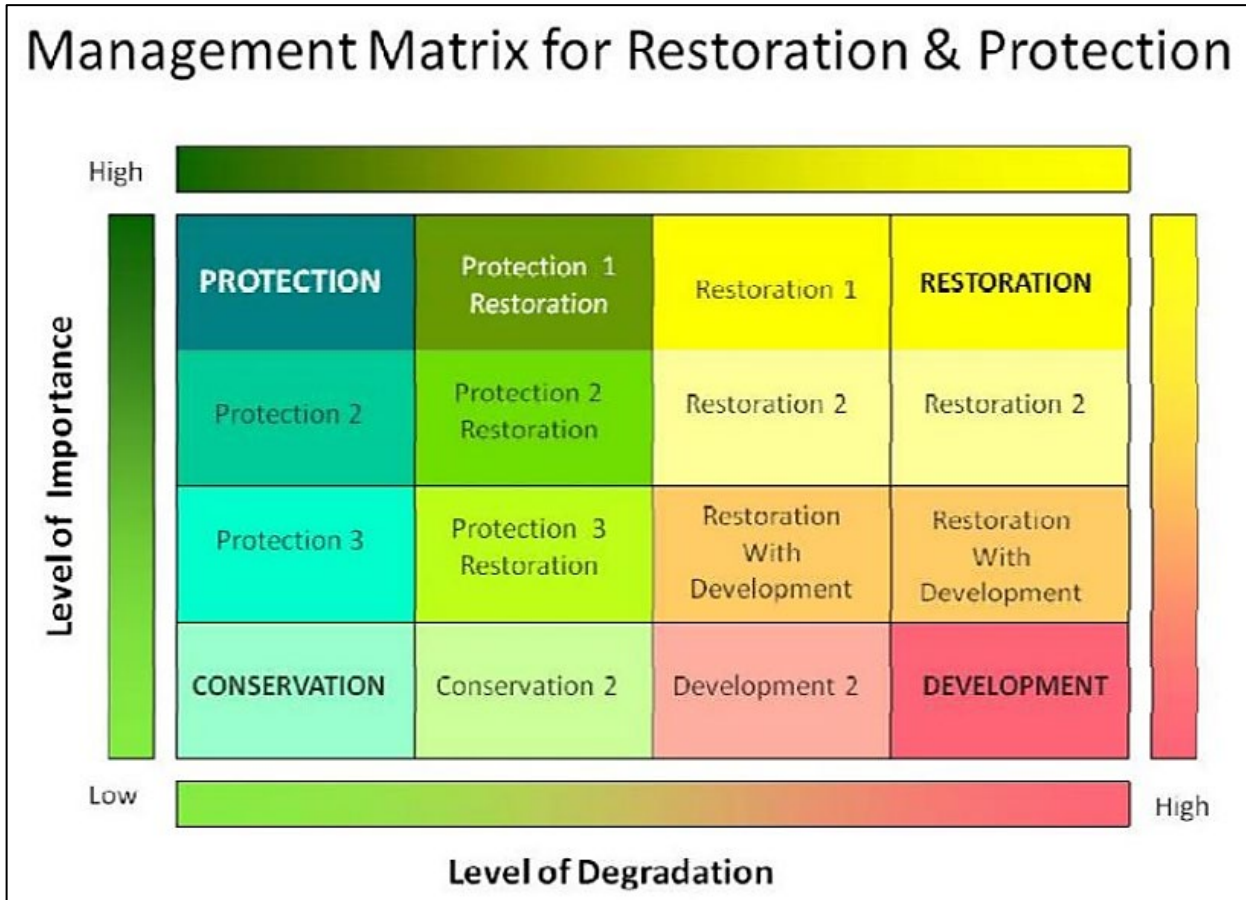


Figure 2. Stormwater Basin Management Matrix (source: Wash. Dept. of Commerce 2016).

The basin management framework is based on a combination of *Level of Importance* and *Level of Degradation*. In general, *Level of Importance* is considered relative to beneficial uses and “*Level of Degradation*” is considered relative to level of beneficial use impairment, development and future growth.

Both *Protection* and *Restoration* basins are characterized by high and moderate beneficial use support. A *Protection* basin has lower levels of development, while a *Restoration* basin has higher levels of development. *Conservation* and *Development* basins are characterized by lower beneficial use support, with *Development* basins having higher levels of development and more degraded receiving water conditions.

Under this framework, basins are considered to be more appropriately oriented toward a particular management strategy depending on where their combined importance and degradation ranking falls on the matrix. *Protection* and *Restoration* basins are considered higher priority for stormwater retrofits and stormwater management actions than *Development* and *Conservation* basins due to higher beneficial use

support and potential to benefit more quickly as a result of stormwater actions (Ecology 2019). Stormwater retrofits are also appropriate in *Development* basins but are typically considered a lower priority.

The results of the basin management matrix approach are summarized in Table 7. Both Oyster and Ostrich Bay and Kitsap Lake basins are oriented toward a Restoration management approach, with a higher priority for stormwater retrofits.

Table 7. Basin Management and Retrofit Strategies for Bremerton Candidate Basins.

Stormwater Basin Area	Beneficial Use Support	Habitat	Development and Growth	Management Approach	Retrofit Priority
Oyster-Ostrich Bay	High	High	Moderate	Restoration	High
Kitsap Lake	High	High	High	Restoration	High
West Narrows	Moderate	Low	Low	Restoration with Development	Moderate

CANDIDATE BASIN EVALUATION SUMMARY

Three candidate basins were evaluated as potential priorities for the strategic SMAP elements recommended by Ecology (2019); Oyster and Ostrich Bay basin, Kitsap Lake basin, and the West Narrows basin. These basins are shown in Figures 3, 4 and 5, respectively.

The Oyster and Ostrich Bay and Kitsap Lake basins were ranked as the City’s top priority basins, and accordingly will advanced to the strategic retrofit and management strategies steps of the SMAP. These two basins were identified as top priorities based on the following:

- Both Oyster and Ostrich Bay and Kitsap Lake basins have moderate levels of impairment and high levels of beneficial use. Both basins are therefore suited for a Restoration management approach that includes stormwater retrofits. Receiving waters in these basins are expected to benefit more quickly as a result of stormwater management actions.
- The City has jurisdiction over the majority of these basin areas that have urban land use, higher development and growth expectations. The City therefore has greater ability to implement actions that have potential to improve water quality.
- Designating both basins as priorities is consistent with existing City plans and policies. The City has previously identified the Oyster and Ostrich Bay basins as a priority location for stormwater improvements. This historical prioritization reflects multiple beneficial uses and habitat values in the basin, as well as historical water quality monitoring by the Kitsap Health District showing high levels of bacterial contamination (KHD 2021). Similarly, the City has prepared a Watershed Management Plan for the Kitsap Lake basin, which reflects the importance of Kitsap Lake beneficial uses and habitat.

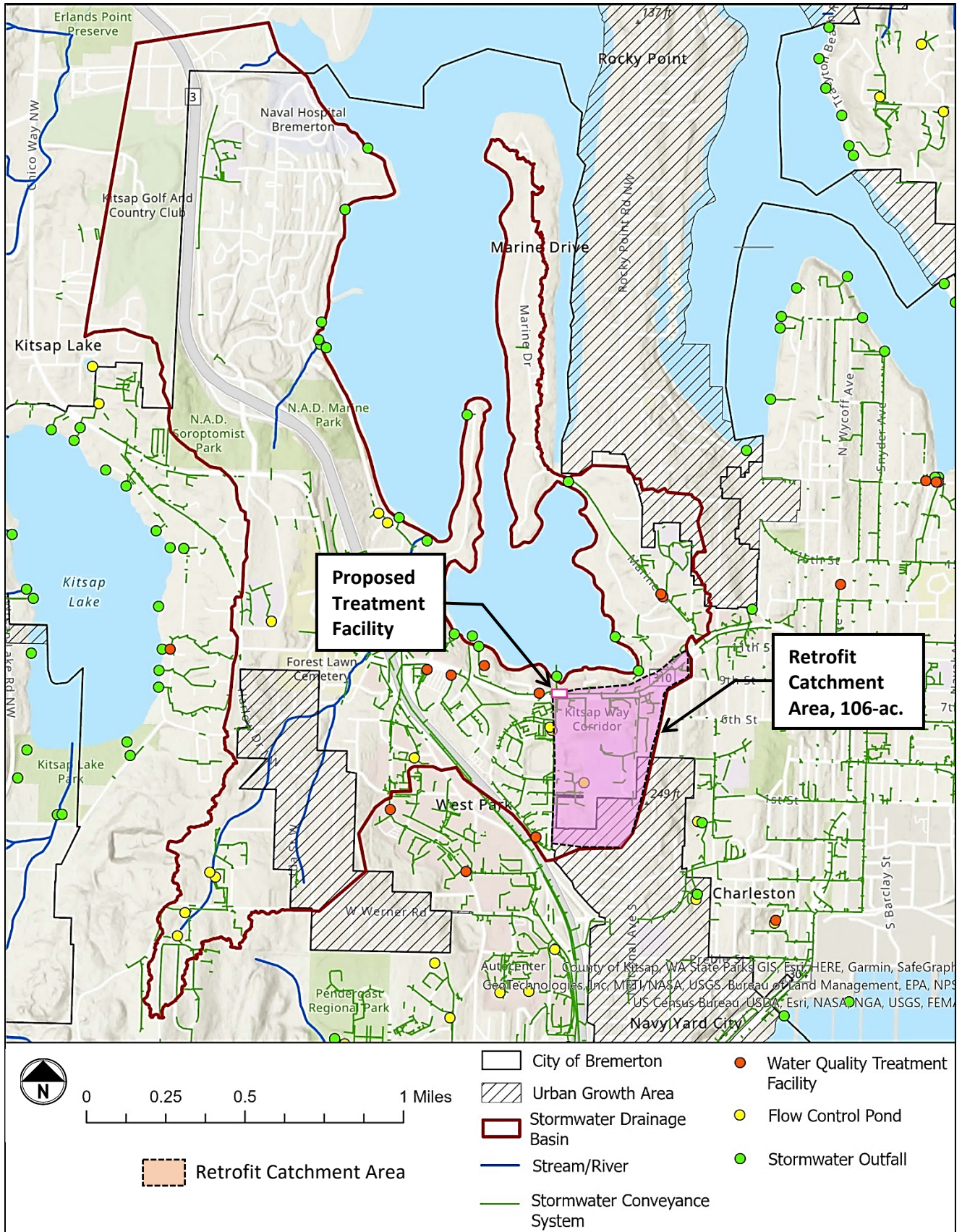
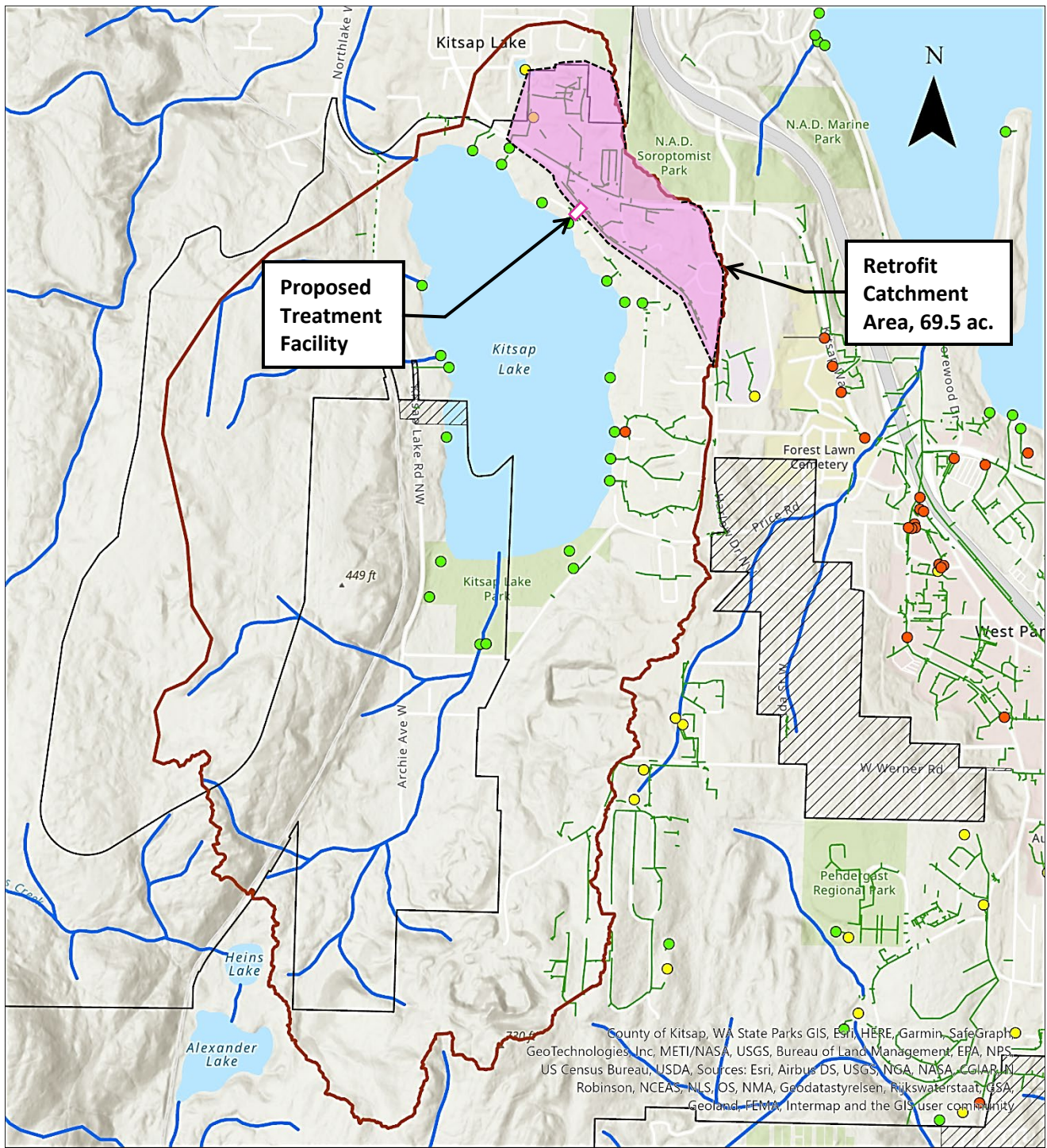


FIGURE 3. OYSTER AND OSTRICH BAY BASIN
Stormwater Management Action Plan





0 0.25 0.5 1 Miles

Retrofit Catchment Area

- City of Bremerton
- Urban Growth Area
- Stormwater Drainage Basin
- Stream/River
- Stormwater Conveyance System
- Water Quality Treatment Facility
- Flow Control Pond
- Stormwater Outfall



FIGURE 4. KITSAP LAKE BASIN
Stormwater Management Action Plan

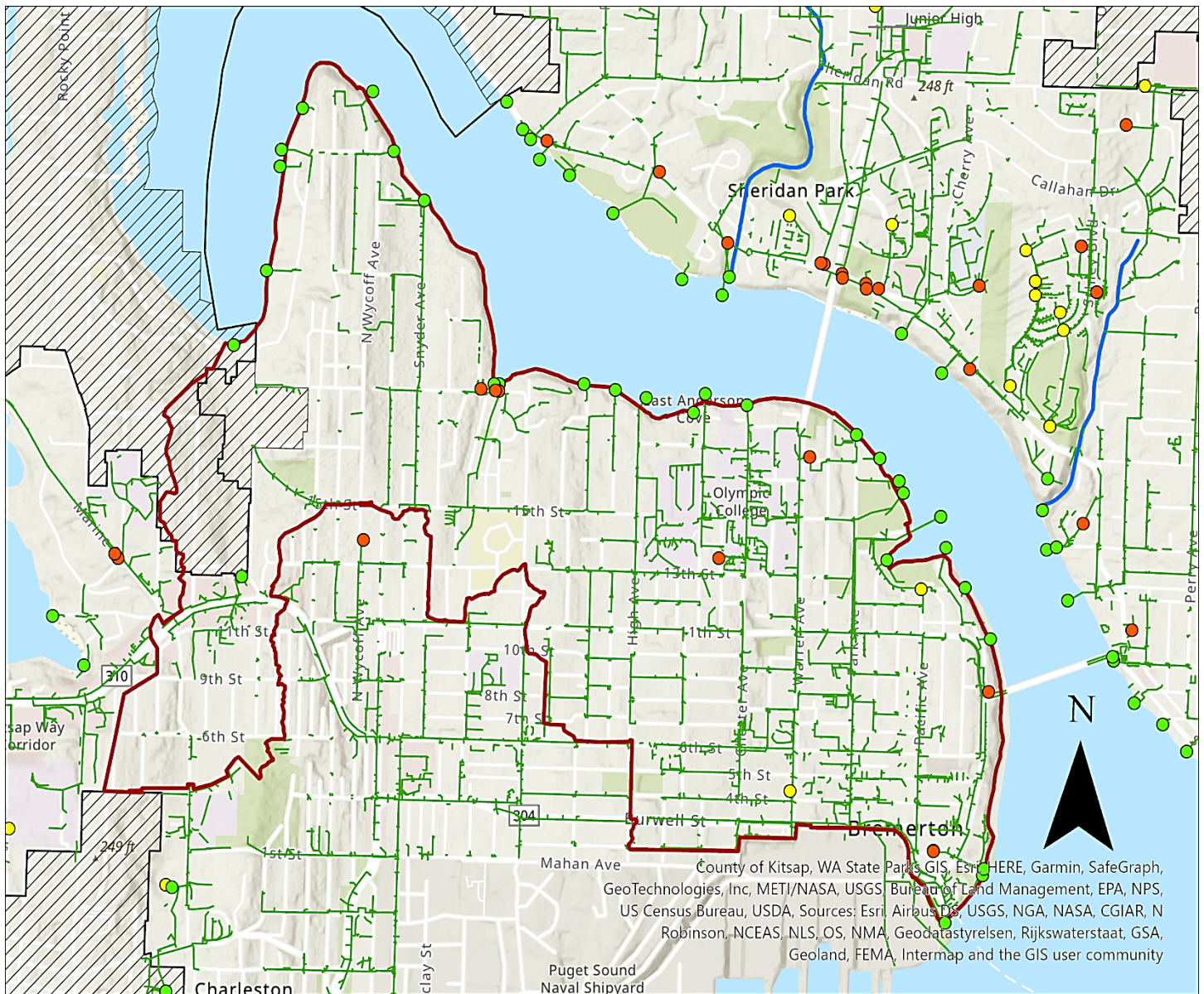


FIGURE 5. WEST NARROWS BASIN
 Stormwater Management Action Plan



The West Narrows basin area was not selected as a priority due its lower level of beneficial uses, lower level of development pressure, and higher levels of existing development. However, as the third highest ranking basin in the City, the City will continue to look for opportunities to support and/or implement stormwater retrofits and enhanced management actions as part of other projects proposed by the City, regional stakeholders or the public.

Social Equity and Environmental Justice

Ecology guidance (2019) recommends giving a higher priority to basins with overburdened communities where the water quality issues and human health impacts overlap and can be addressed (at least partly) through stormwater management improvements.

Equity metrics were calculated using data from the *Washington Environmental Health Disparities Map* (WDOH 2023b) and the *Kitsap Overburdened Communities Assessment* (Kitsap County 2023). The percentage of potentially sensitive or disadvantaged populations were used to quantify a relative level of social equity and environmental justice across the three candidate basins. The combined Over Burdened Summary Rank reflects both the potential vulnerability of populations and the potential threat from environmental exposures.

Table 8 presents a summary of social equity and environmental justice variables for the three candidate basins. Overall, the socioeconomic and environmental justice analysis aligns with water quality and land use based priority basin ranking by demonstrating that Oyster and Ostrich Bay is the highest ranked overburdened community, followed by Kitsap Lake basin and the West Narrows basin.

Table 8. Social Equity and Environmental Justice Ranking.

Basin	Ethnicity (% POC) ¹	% Population with Income Below Poverty Level	% Population > 65 years age	WDOH Environ. Health Disparity Score ²	Over-burdened Summary Rank
Oyster-Ostrich Bay	27%	22%	41%	6.5	1
Kitsap Lake	37%	14%	21%	7	2
West Narrows	27%	10%	34%	7	3

¹ POC = People of color.

² Score range 1-10, with 10 = largest disparity.

Selection of Retrofit Catchment Areas

The final step in the prioritization process consists of identifying specific stormwater catchment areas within each of the Oyster and Ostrich Bay, and Kitsap Lake basins where stormwater facility retrofits would be most beneficial for receiving waters. These retrofits will consist of construction of new treatment facilities at optimal locations that benefit water quality as shown in Figures 3 and 4.

The proposed Oyster and Ostrich Bay retrofit will treat approximately 106-acres of urban commercial, residential and industrial development. The proposed Kitsap Lake retrofit facility will treat approximately

69.5-acres of urban commercial and residential development. Retrofit basins and treatment sites were selected based on the following criteria:

- Existing high density development in the contributing basin area,
- No basin transfer or wetland hydrology impacts,
- Suitable “end of pipe” sites already owned by the City that are capable of supporting treatment facilities, and
- Existing outfall facilities that are appropriately sized for peak flow discharges.

Preliminary design including hydrologic and hydraulic modeling for both basins is underway and will be completed as part of the final SMAP document and implementation plan.

Potential Targeted Management Strategies

Potential targeted management strategies are planning, regulatory and O&M tools that help conserve, protect, or restore receiving waters. The following targeted strategies will be addressed in the final SMAP:

- Phosphorous control and treatment for new development in the Kitsap Lake basin.
- Intergovernmental coordination with Kitsap County for the upper portions of the Ostrich Creek basin where Kitsap County stormwater systems interconnect with City stormwater systems and discharge to City receiving waters.

SINCLAIR AND DYES INLET TMDL CONSIDERATIONS

Ecology guidance (Ecology 2019) states that SMAPs with priority basins that drain to impaired waterbodies with current Total Maximum Daily Load (TMDL) plans must document how SMAP investments will go above and beyond current TMDL requirements, and what the additional investments will achieve.

All of the City of Bremerton receiving waters are within the limits of the Sinclair Inlet and Dyes Inlet Fecal Coliform TMDL Plan (Ecology 2012). This plan was developed using data from 2003 and 2009. The TMDL Plan called for several actions to be completed by the City of Bremerton to help reduce fecal coliform (FC) levels in receiving waters of proposed priority basins in order to meet water quality standards by 2016. These TMDL actions and status of the City’s response are summarized in Table 9 on the following page.

As shown in Table 9, the City has met TMDL implementation actions and goals including attaining water quality standards in Oyster Bay. As such, the proposal SMAP priority basin investments go above and beyond TMDL requirements. The proposed SMAP retrofit and management actions will help to sustain and enhance water quality improvements in Oyster and Ostrich Bay, as well as address water quality impairments in Kitsap Lake, which was not specifically addressed as part of the 2012 TMDL.

Table 9. Summary of City of Bremerton TMDL Implementation Actions.

TMDL Plan Action	City Response Status	Comment
Extend sanitary sewer to Gorst community	Completed in 2012	
Implement public education measures to reduce pet waste and stormwater pollution	Implemented 2016	On-going action part of City's education program
Implement IDDE program	Implemented in 2016 and continuing	On-going action part of City's IDDE program
Implement stormwater system O&M program	Implemented in 2016 and continuing	On-going action part of City's O&M program
Reduce FC levels in Ostrich Creek	Implemented regional stormwater treatment retrofits in 2020 and 2022	Multiple agencies responsible for implementation
Reduce FC levels in Oyster Bay	Implemented and continuing	Most recent marine monitoring in 2021 met standards (WDOH 2021)

OUTREACH AND NEXT STEPS

The City will solicit additional input from the public through the City's website and targeted emails to specific stakeholders and the Suquamish Tribe. This draft TM will be updated as needed to reflect comments that are received. The updated draft TM will then be submitted to Ecology for review and comment as described under the grant agreement between the City and Ecology.

Following Ecology acceptance of the prioritization analysis, the draft SMAP will be prepared detailing proposed retrofit and land management strategies for the two priority basins.

REFERENCES

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ATTACHMENT A

PRIORITIZATION SCORING AND RANKING TABLES

Table A. Beneficial Uses and Development-Growth Scoring Summary.

SMAP Stormwater Basin Group	Basins	Area (Ac)	Public Dir. Contact Rec. ¹		Shellfish and Finfish Harvest		Total Impervious Area ⁵	Development Pressure ⁶	Extent Existing SW Treatment ⁷	High ADT Roads ⁸	Total Score	Overall Rank
			Use (H/M/L)	Impaired ²	Commercial Monitor Areas ³	Impaired ⁴						
OYSTER & OSTRICH BAY	Oyster Bay	1,524	2	2	2	3	2	2	2	3	18	1
	Ostrich Bay		2	2	2	3	2			2		
	Marine Drive		2	2	2	3	1			1		
	Score		2	2	2	3	2	2	3			
KITSAP LAKE	Kitsap Lake	1,256	3	3	1	2	1	3	3	2	18	1
	Score		3	3	1	2	1	3	3	2		
WEST NARROWS	Anderson Cove	1,270	2	2	1	2	3	1	3	3	17	2
	Warren Ave		2	2	1	2	3		3	3		
	Pacific Ave		1	2	1	2	3		3	3		
	Phinney Bay		2	2	1	2	2		3	2		
	Rocky Point		2	2	1	2	2		3	1		
	Score		2	2	1	2	3	1	3	3		

¹ 3 = full immersion swimming and boating; 2 = wading and partial immersion; 1= no significant direct contact recreation.

² 3 = frequent public health closures; 2 = occasional public health closures; 1 = infrequent or no public health closures.

³ Shellfish harvest areas per WDOH 2023. 3= Approved commercial shellfish area; 2 = Monitored potential commercial shellfish area; 1 = Closed commercial or recreation shellfish

⁴ Commercial or recreational beaches listed by WDOH due to stormwater/non-point sources = 3. Listing due primarily to point sources = 2. Finfish harvest advisory per WDOH = 2. All others = 1.

⁵ TIA > 40% = 3; TIA 20% - 40% = 2; TIA < 20% = 1

⁶ High density dev. & existing dev < 20% = 3; High density dev. & existing dev < 85% = 2; High density dev. & existing dev > 85% = 1

⁷ > 90% area without BMPs = 3; 90% -20% of are without BMPs = 2; <20% of area without BMPs = 1.

⁸ > 3 miles ADT = 3; 1-3 miles ADT = 2; < 1 mile high ADT = 1

Table B. Habitat, Water Quality and Hydrology Scoring Summary.

SMAP Stormwater Basin Group	Basins	Salmonid Presence and Use ¹					No. Fish Passage Barriers ²	Forage Fish Spawning ³		Water Quality ⁴	Hydrology ⁸	Total Score	Overall Rank
		Area (Ac)	FW Species Use	Spawning	Rearing	Salmonid Rating		Species	Extent (H/M/L)				
OYSTER & OSTRICH BAY	Oyster Bay	1,524	None	No		Moderate	13	S	Moderate		Moderate/low storage and recharge	13	2
	Ostrich Bay		c, fc, rt	Yes	Yes	High	6	S, SL	High				
	Marine Drive		None	No	No	Moderate	0	S	Low				
	Score		3			3	2		3	2			
KITSAP LAKE	Kitsap Lake	1,256	c, rt	No	No	Moderate	3	FW	Moderate		High storage and recharge	11	1
	Score		2			2	2		2	3			
WEST NARROWS	Anderson Cove	1,270	No	No	No	Low	0	S, SL	Moderate		Moderate/low storage and recharge	8	3
	Warren Ave		No	No	No	Low	0	None	Low				
	Pacific Ave		No	No	No	Low	0	S	High				
	Phinney Bay		No	No	No	Low	0	S	Moderate				
	Rocky Point		No	No	No	Low	0	S	Moderate				
	Score		1			0	2		3	2			

¹ Salmonid key: c = coho fc = fall chum rt = resident trout ch = chinook sh = steelhead

² Both full and partial barriers per WDFW 2023. > 5 barriers = 3; 2-4 barriers = 2; 1-2 barriers = 1; No barriers = 0

³ Forage fish key: S = smelt, SL = sand lance, H = herring, FW = Freshwater spp.

⁴ Pollutant loading index per Table 5 criteria.

⁵ Rating per Ecology Watershed Characterization Tool 2023. High = 3: Moderate = 2: Low = 1.