



# **Acknowledgements**

This Stormwater and Watersheds Comprehensive Plan (Plan) was produced through the combined efforts, ideas and contributions of the following City of Port Orchard staff, appointed and elected officials, and consultants. Photos courtesy of Herrera staff.

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# **Acronyms And Abbreviations**

ВМР	Best management practice
CFC	Capital Facilities Charge
CTE	Career & Technical Education
CIP	Capital improvement program
City	City of Port Orchard
CMMS	Computerized maintenance management system
Ecology	Washington State Department of Ecology
ESA	Federal Endangered Species Act
FTE	Full Time Equivalent
GIS	Geographic information systems
GMA	Washington State Growth Management Act
IDDE	Illicit discharge detection and elimination
ISU	Impervious Surface Unit
LID	Low Impact Development
MS4	Municipal separate storm sewer system
NPDES	National Pollutant Discharge Elimination System
O&M	Operations and Maintenance

OFM	Office of Financial Management
Permit	Western Washington Phase II Municipal Stormwater Permit
PMC	Port Orchard Municipal Code
QAPP	Quality Assurance Project Plan
RCW	Revised Code of Washington
SAM	Stormwater Action Monitoring
SMAP	Stormwater Management Action Planning
STEM	Science, technology, engineering, and math
TMDL	Total Maximum Daily Load
UGA	Urban Growth Area
UIC	Underground Injection Control
WAC	Washington Administrative Code
WRIA	Water Resource Inventory Area
WREC	Watershed Restoration and Enhancement
WSPER	West Sound Partners for Ecosystem Recovery
WSSOG	West Sound Stormwater Outreach Group

## Stormwater Runoff and Effects

The City of Port Orchard (City) operates a system of drainage pipes and ditches to convey stormwater runoff to receiving waters including streams and Sinclair Inlet. The drainage system prevents and minimizes damage to private properties, city streets, and other infrastructure. As rain falls and travels across hard surfaces, such as roofs, yards, and streets, pollutants are picked up and carried to receiving waters. The City is faced with the challenge to convey runoff safely, while minimizing adverse high-flow impacts (erosion, flooding, and sediment deposition) and water quality degradation to receiving waters.

In 2008, the City established the storm drainage utility (Utility) to create a funding source to address stormwater and receiving water management issues citywide. State and federal regulations related to stormwater have evolved since 2007, when the City was issued its first National Pollutant Discharge Elimination System (NPDES) Western Washington Phase II Stormwater Permit (Permit) from the Washington Department of Ecology (Ecology), leading to more stringent requirements for implementing projects, programs, and maintenance.



Watershed signage, City of Port Orchard

## **Purpose of this Plan**

City water resources include freshwater streams, marine water shorelines and estuaries, upland wetlands, and aquifers underground. These waters support aquatic wildlife, terrestrial wildlife, and people, in the form of recreation and drinking water.

A watershed is the area of land where surface water flows to a receiving water body: supporting salmon in a stream, where children play at the beach, or the nearshore environment nourishing shellfish and forage fish.

The City has chosen to develop and implement its first surface and stormwater comprehensive plan with a focus on watersheds spanning the landscape and stormwater influence on water resources. This approach recognizes the ecosystem function and value of receiving waters and maps out a plan to accommodate future growth, correct existing flooding problems, involve the public, preserve functioning habitat, and enhance habitat where opportunities are found.

This Stormwater and Watersheds Comprehensive Plan (Plan) sets a course for stormwater programs and capital projects for years to come and addresses current and anticipated regulatory requirements, future development, existing flooding and water quality concerns, infrastructure maintenance and management, and the resources needed for the City to fully implement this Plan.

## **Stormwater Management Mission Statement**

The mission of the stormwater management program is to regulate and manage use of the City's municipal separate storm sewer system (MS4) as required by the City's NPDES permit while conscientiously managing and protecting surface and receiving waters for public health and enjoyment.



## **Long-term Goals**

All functions performed or influenced by the stormwater management program can be divided into ten major elements. City staff developed goals for each program element.

These goals guide the City during planning and implementation of this Plan.













## **Long-term Goals**

#### **FLOOD REDUCTION**

- Conveyance infrastructure that meets the Public Works Engineering Standards (City Standards) (convey the 100-yr return period flow; 50-yr return period flow if the 100-yr overflow does not threaten buildings and critical structures) for the entire city.
- The City's tidally influenced stormwater infrastructure is resilient to tidal fluctuation including projected sea level rise.
- The City has a complete understanding of system deficiencies and a plan to address those deficiencies that is balanced with available funding.

#### **GROUND AND SURFACE WATER QUALITY**

- Infiltrated stormwater does not negatively affect groundwater quality.
- · Streams meet water quality standards for human health and aquatic life.

#### **GROUND AND SURFACE WATER QUANTITY**

- Groundwater supply is replenished by infiltration from developed areas at a rate that is equal to the volume infiltrated under natural forested conditions.
- Streams have adequate summer flow volume and natural winter storm flow regimes to support local aquatic life.

#### **HABITAT ENHANCEMENT**

- City-influenced streams are fully restored to forested hydrologic conditions and meet designated uses and water quality standards.
- City culverts that carry fish-bearing streams allow fish to pass unimpeded.
- Pocket estuaries adjacent to city lands are ecologically functional and not negatively affected by stormwater runoff or hydraulic constraints from stormwater infrastructure.
- Shorelines adjacent to city lands are not negatively affected by stormwater.
- City watersheds are characterized and prioritized according to potential environmental restoration, conservation, or development so that investments in stormwater and watershed projects can be directed to where they achieve the maximum benefit.

#### **MAPPING AND ASSET MANAGEMENT**

- Stormwater system asset attributes and conditions are tracked and managed in one cohesive system that is compatible with all other city systems.
- The stormwater system asset management system supports planning and prioritizing repairs, upgrades, and maintenance, as well as generating and tracking work orders to support annual review and evaluation.

#### PUBLIC PARTICIPATION (EDUCATION, OUTREACH, AND INVOLVEMENT)

• Community members understand the relationship between their actions and stormwater quantity and quality and take action to minimize their stormwater impacts and habitat damage.



#### **POLLUTANT SOURCE CONTROL**

- Pollutants from developed lands and roads do not enter surface water or groundwater at levels that are harmful to aquatic life or human health.
- Citizens and businesses implement pollution prevention practices to the maximum extent feasible.



#### **INFRASTRUCTURE OPERATIONS AND MAINTENANCE**

• All City-owned and privately-owned stormwater infrastructure, including flow control and water quality facilities, function as designed.



- All development and redevelopment projects comply with City Standards for stormwater management.
- The City's approach to development and redevelopment oversight enables money spent on stormwater management to have the maximum benefit for water resources.
- Runoff from all manmade development and construction sites is mitigated by stormwater facilities in accordance with current City Standards prior to discharge to surface water bodies.



#### **COMPREHENSIVE PLANNING, ADMINISTRATION, AND FUNDING**

- The City's storm drainage utility has a comprehensive strategy to manage infrastructure protect water resources, restore damaged habitats, and ensure sustainable development.
- The City's storm drainage utility is adequately funded to meet regulatory requirements and the stormwater related needs of citizens.
- Existing property owners and developers pay for an equitable share of the necessary improvement and expansion of the City's stormwater system.
- The City has a complete understanding of existing unmanaged manmade surfaces and a plan to retrofit those surfaces that is balanced with available funding.







## **Opportunities and Challenges**

As part of the stormwater and watersheds comprehensive planning process, the City identified opportunities and challenges faced by the Utility. The relationship between these opportunities and challenges and the City's long-term goals is discussed in more detail below.

## **Opportunities**

The process to develop this Plan allowed City staff to identify long-term goals, describe the ideal state for managing stormwater runoff, and identify and plan capital projects to invest in the future of the City stormwater system. Existing activities, future programs and projects, and future regulatory requirements were evaluated when developing this Plan. This Plan sets a road map for the future of stormwater management.

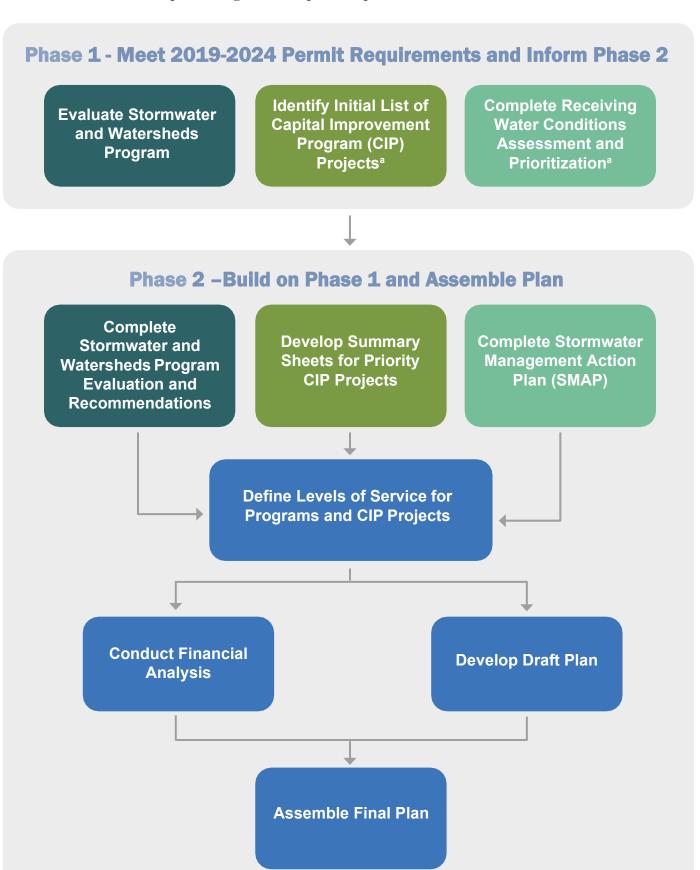
#### **Challenges**

The City is operating its stormwater program according to the 2019-2024 Permit (Ecology 2019). Challenges facing the City include meeting more stringent requirements in the 2019-2024 Permit, such as: business source control and inspection program, public education, reporting, watershed planning, and adoption of a new stormwater manual. Additionally, a new NPDES Permit will be issued in 2024 and is expected to have additional requirements.

Lack of dedicated staff time is the primary challenge facing the City. Staff conduct the activities required by the 2019-2024 Permit, track progress, and report to Ecology on an annual basis. Staff also respond to flooding and water quality issues submitted by citizens and conduct inspections during construction, post-construction, and for maintenance of selected stormwater drainage facilities. The City lacks available staff time to manage stormwater capital projects and submit and manage grant applications and funds.

## **Plan Development**

This Plan was developed using the two-phased process that is illustrated below.



<sup>&</sup>lt;sup>a</sup> Included public and stakeholder outreach

## **BACKGROUND**

## **City Watersheds**

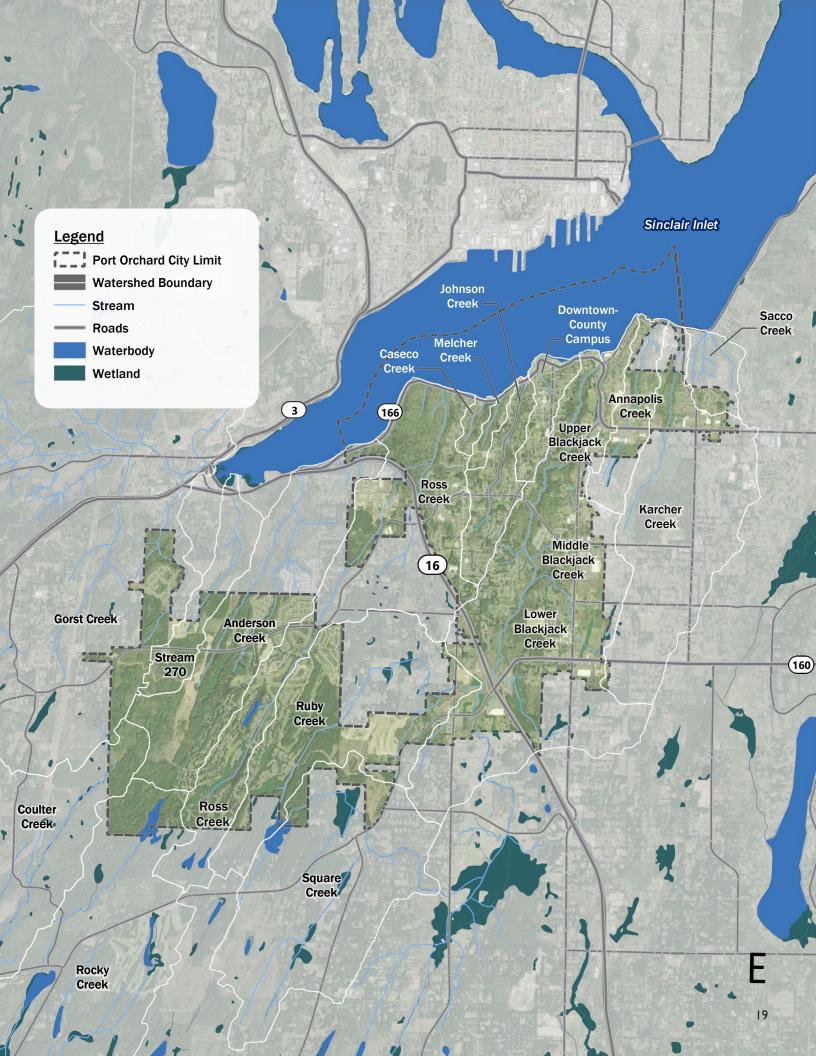
This chapter summarizes background information of existing conditions, regulations and environmental considerations influencing Plan development and implementation.

Within the City of Port Orchard, there are 17 distinct watersheds (see Figure 2). These watersheds were delineated and characterized as part of the City's Watershed Inventory and Assessment (Herrera 2022a). The major watersheds (or watersheds with the most jurisdictional control) located within the City include:

- Annapolis Creek
- Downtown County Campus
- · Anderson Creek
- · Caseco Creek
- Johnson Creek
- Blackjack Creek (including Lower, Middle, and Upper Blackjack Creeks)
- Melcher Creek
- · Ross Creek
- · Ruby Creek
- Stream 270

The minor watersheds (or watersheds with the least jurisdiction control) located within the City include:

- Karcher Creek
- · Coulter Creek
- · Rocky Creek
- · Sacco Creek
- Square Creek



## **City Watersheds, Continued...**

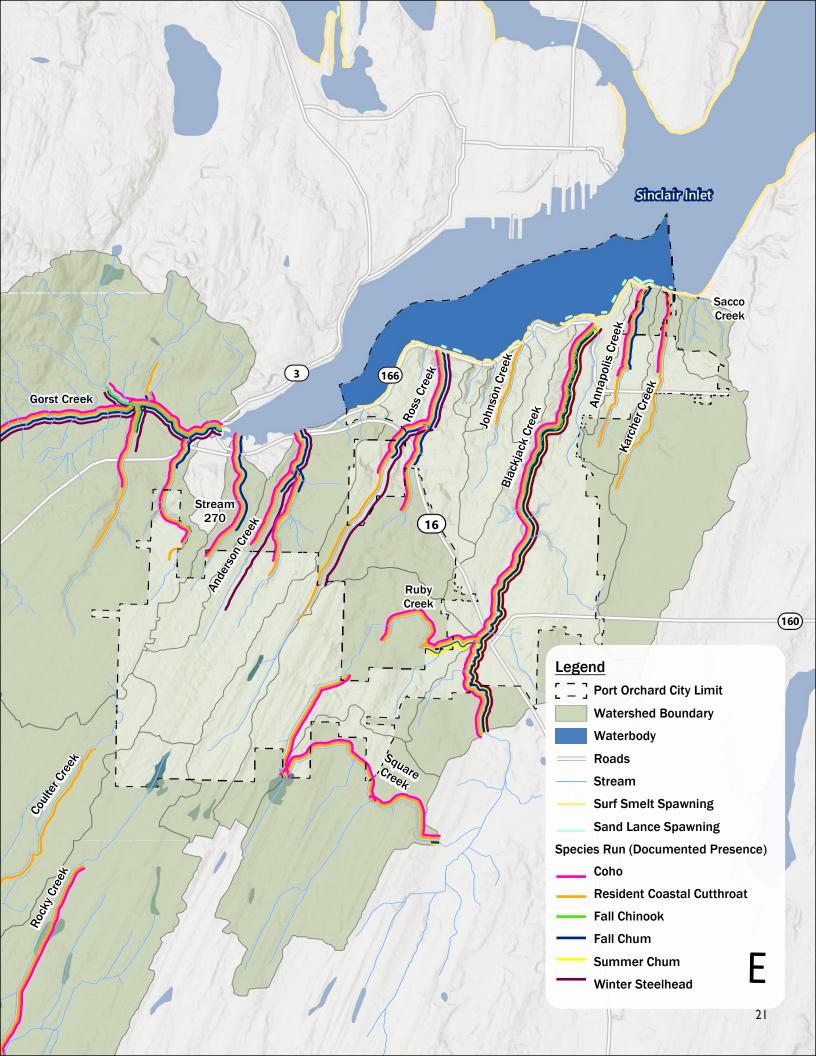
Some watersheds support salmon while others support other aquatic species (see Figure 3). Streams, such as Johnson Creek, Annapolis Creek, Karcher Creek and Stream 270, support up to three salmonid species, while other larger stream systems associated with valued wetlands, such as Lower Blackjack Creek, Anderson Creek, Ross Creek, and Ruby Creek, support a wider variety of salmonid species which may include fall and summer chum, coho, fall chinook and steelhead. Smaller stream systems such as Downtown County Campus, Melcher Creek and Caseco Creek, do not support salmonids and may host other species including sculpin, freshwater eels, and other small stream aquatic species.

Important species that utilize the nearshore marine environment of Sinclair Inlet are forage fish including surf smelt and sand lance (see Figure 3). These small fish serve to provide recreation for the local community in the form of "smelting" during the open season at Ross Point, and provide an essential food source for larger fish, seals, and river otter, to name a few local wildlife often seen from City shorelines. Refer to the City's Watershed Inventory and Assessment (Herrera 2022a) for detailed characteristics of each watershed.



Above: Photo of Johnson Creek.

Figure 2. Presence of Key Stream and Nearshore Fish Species in City of Port Orchard Watersheds.

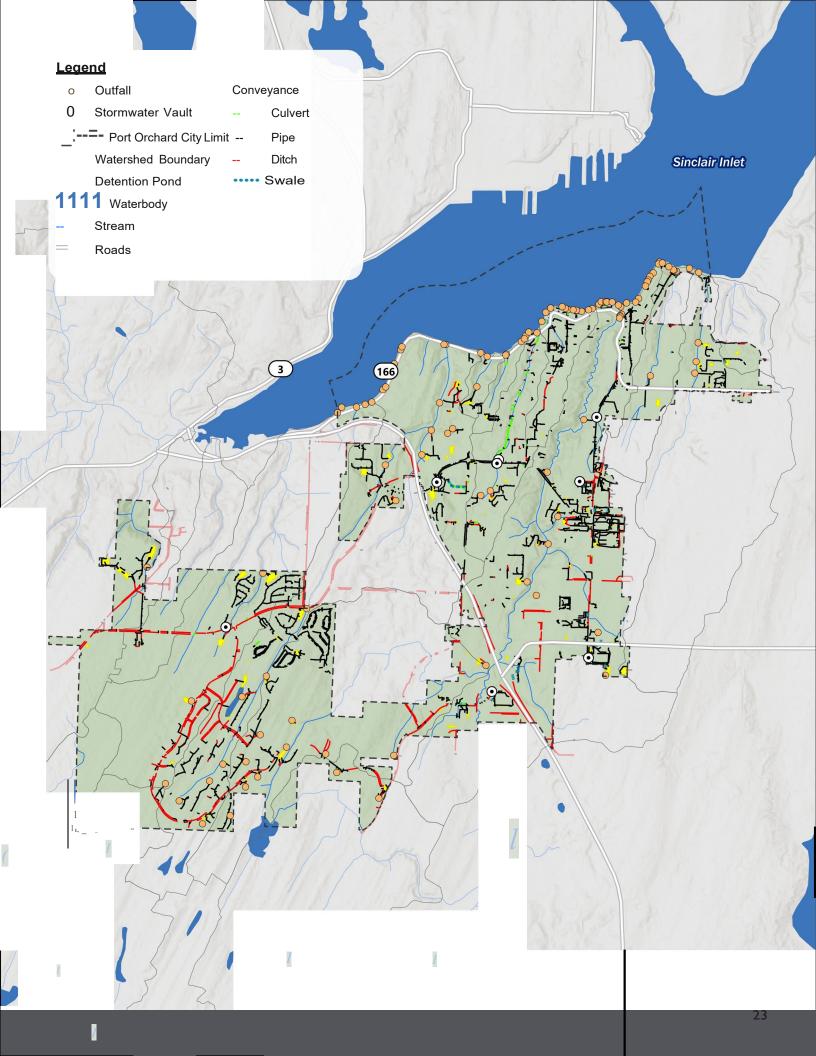


## **City Stormwater System**

The City stormwater system (inlets, pipes, ditches, vaults, swales, culverts, and ponds) collects runoff from streets, yards, rooftops, and parking lots (see Figure 4). That runoff is discharged through stormwater outfalls to either waterbodies (streams or marine nearshore) or to an adjacent municipality.



Figure 3. City of Port Orchard Stormwater Infrastructure.

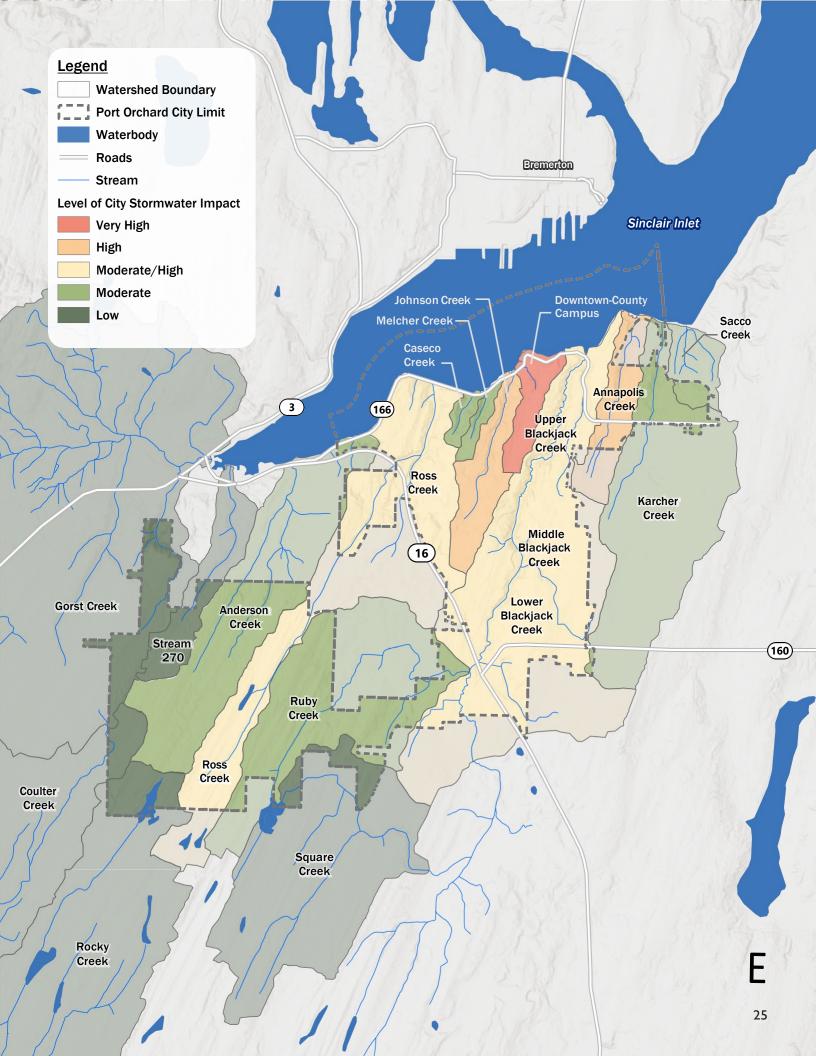


## **Stormwater Impacts on Watersheds**

The degree to which the City stormwater system impacts local receiving waters can be categorized from low to high by assessing the dominance of City lands in the watershed and the level of stormwater infrastructure (see Figure 4 and Table 1).

The total percent of impervious lands in a watershed is correlated to the health of receiving waters. The greater the percent impervious lands, the likely greater level of degradation upon water resources. City stormwater influence is highest in Downtown County Campus, Annapolis Creek and Johnson Creek watersheds, and lowest in the more rural or limited City presence in the Square Creek, Stream 270, Gorst Creek, Rocky Creek and Coulter Creek watersheds.

Table 1. Watershed Stormwater Impact Rating					
Watershed Name	Level of City Stormwater Impact	Percent City Lands within the Watershed	Percent Watershed Impervious Area	City Outfalls to Watershed Stream	City Outfalls to Sinciair Inlet
Downtown County Campus	Very High	100%	50%	0	10
Annapolis Creek	High	55%	30%	1	4
Johnson Creek	High	100%	29%	2	2
Lower Blackjack Creek	Moderate/High	68%	22%	10	12
Ross Creek	Moderate/High	65%	13%	10	13
Melcher Creek	Moderate	100%	12%	0	3
Caseco Creek	Moderate	100%	12%	1	1
Anderson Creek	Moderate	60%	9%	4	5
Ruby Creek	Moderate	54%	5%	6	NA
Karcher Creek	Moderate	11%	28%	3	0
Sacco Creek	Moderate	22%	18%	0	0
Square Creek	Low	7%	4%	1	NA
Stream 270	Low	45%	3%	0	NA
Gorst Creek	Low	5%	4%	1	NA
Rocky Creek	Low	1%	2%	0	NA
Coulter Creek	Low	1%	<1%	0	NA



## **Applicable Policies And Regulations**

In addition to addressing drainage and water quality concerns impacted by stormwater runoff, the Surface Water Management Program must also comply with several local, state, and federal regulatory requirements. They include:













#### **NPDES Permit**

The 2019-2024 Permit (Ecology 2019) has broad requirements associated with stormwater runoff and requires the City to develop distinct program components. The first Phase II Permit was issued by Ecology in 2007, reissued in 2012, and again in 2019. The requirements for the City's stormwater program have become more stringent with each new permit issuance. The permit requires that the City's program meet requirements in 11 primary areas:

- Stormwater planning
- Public education and outreach
- Public involvement and participation
- Municipal separate storm sewer system (MS4) permit mapping and documentation
- Illicit discharge detection and elimination (IDDE)
- Controlling runoff from new development, redevelopment, and construction sites
- Operations and maintenance (O&M)
- · Source control program for existing development
- Compliance with Total Maximum Daily Load (TMDL) requirements
- Monitoring and assessment
- · Reporting requirements





## **Washington State Growth Management Act (GMA)**

The Washington State Growth Management Act (GMA) is a series of statues, which include requirements for the inventory and protection of environmentally critical areas. Environmentally critical areas include steep slopes, wetlands, and streams (Chapter 36.70A of the Revised Code of Washington [RCW]). The GMA also requires fast-growing cities and counties to develop comprehensive plans to ensure environmentally responsible and economically sustainable development, which includes planning for stormwater related capital facilities.











#### **Port Orchard Municipal Code**

Several chapters of the Port Orchard Municipal Code (POMC) govern aspects of stormwater management on new development and redevelopment project sites, as well as inspection and maintenance requirements for private stormwater facilities. The primary chapters in the POMC related to surface and stormwater management include:

- Chapter 13.06 Storm Drainage Utility
- Chapter 15.30 Illicit Discharge Prevention, Detection, and Elimination
- Chapter 20.140 Land Disturbing Activity
- Chapter 20.150 Stormwater Drainage



## **Ecology Total Maximum Daily Load Implementation Plans**

ATMDL cleanup action is required for water bodies that have been identified as impaired on Ecology's Section 303(d) list due to poor water quality. The City implements actions in compliance with the Sinclair/Dyes Inlet Fecal Coliform TMDL as required per Appendix 2 of the 2019-2024 Permit.



## **Federal Endangered Species Act**

The Federal Endangered Species Act (ESA) prohibits the take of all listed species, including a take that could result from the City's stormwater facility operations or private development stormwater management activities that are permitted by the City.







## **Underground Injection Control Program**

The underground injection control (UIC) program is a federal program intended to ensure that underground sources of drinking water are protected from surface discharges to the ground. In the State of Washington, the UIC program is administered by Ecology through Chapter 173-218 of the Washington Administrative Code (WAC). The Guidance for UIC Wells that Manage Stormwater (Ecology 2006) lays out the requirements for UIC wells, and Ecology has included additional guidance in the latest version of the Stormwater Management Manual for Western Washington, released in 2019.

## **Program Accomplishments**

Since the storm drainage utility was founded in 2008, the City of Port Orchard has made significant progress in reducing detrimental effects of stormwater runoff on receiving waters in and around Port Orchard. The City has planned and built capital projects to alleviate drainage problems throughout the City. The City has also provided stewardship opportunities through education and outreach. The City's accomplishments for the past four years are described in chronological order below:

2019



City staff hosted a springtime shoreline cleanup and beach education activity. Participants were encouraged to remove any trash they encountered, as well as recovering and removing any riprapor shoring materials that had fallen on the beach from the upland shoreline. While participants worked, City staff provided educational guidance regarding ecosystem recovery efforts, shoreline biodiversity, effects of stormwater on shoreline habitats and anthropogenic effects on intertidal habitats in general.



City staff provided outreach to assist with stormwater, stream, and habitat education at South Kitsap High School, supporting the school's Career & Technical Education and Science, Technology, Engineering, and Math (CTE/STEM) program. This outreach event included providing demonstrations and descriptions of methods for establishing student stewardship activities relating to monitoring water quality, measuring discharge, and habitat and riparian monitoring methods at Annapolis Creek.



Tremont St. widening; Kitsap Daily News

The City completed the Tremont Street Widening project, which included stormwater detention, oil control, and enhanced treatment to protect critical downstream creeks and waterways (i.e., Johnson and Ross Creeks). Detention was provided by two underground stormwater vaults, a 164-foot-long by 20-foot-wide by 10-foot deep vault on the west end of the project and 100-foot-long by 20-foot-wide by 10-feet-deep vault on the east end, to provide flow control for downstream water bodies and mitigate stormwater issues. Stormwater conveyance was also upgraded to properly accommodate the volume of flow in the area.

2020

The City began developing the Downtown Basin Stormwater Plan. The area surrounding the downtown basin is shown in Figure 6. This plan is developing a roadmap for implementing water quality treatment and flow control best management practices for water quality outcomes in receiving waters. It will include the identification of feasible actions and implementable capital improvement projects that will modernize infrastructure and provide flow control in the downtown and nearshore areas of Port Orchard.



Figure 6. Aerial Image of the City of Port Orchard's downtown Basin (photo courtesy of City of Port Orchard).

2021

City staff participated in the West Sound Partners for Ecosystem Recovery Lead Entity for Water Resource Inventory Area (WRIA) 15 and the Watershed Restoration and Enhancement Committee (WREC) for WRIA 15. This committee connected and engaged citizens and stakeholders in watershed level discussions and actions related to water quality, salmon enhancement, and stormwater. Participation in the WREC was completed in 2021.

## **Planning for Future Development**

Due to the City's proximity to the urban centers of Bremerton and Tacoma and connection to Seattle via ferry transportation, Port Orchard is designated as a "high capacity transit community" by the Puget Sound Regional Council (Puget Sound Regional Council 2020). The Office of Financial Management (OFM) estimates that the City's population is 16,400 people as of 2022 and is expected to grow by much as 36%, or to 28,086 people by 2024 (Kitsap Regional Coordinating Council 2022; OFM 2022). This is one of many reasons why new development within the city will be significant in the coming years.

Land development regulations and subarea planning efforts will be used to address environmental and water resource concerns. New development and redevelopment are and will continue to be regulated in accordance with the most recent flow control and water quality standards in the 2019 Public Works Engineering Standards and defined in POMC Chapter 20.150.06. The City adopts the following by reference:

- 2019 Washington State Department of Ecology Stormwater Management Manual
- 2012 Puget Sound Partnership Low Impact Development (LID)
   Technical Guidance Manual for Puget Sound
- Definitions, minimum requirements, and adjustment and variance criteria found in Appendix 1 of the 2019-2024 Permit, with exception of the erosivity waiver.

Critical areas are regulated in accordance with POMC Chapter 20.162 addressing wetlands, fish and wildlife habitat conservation areas and related plans, geologically hazardous areas and related reports, frequently flooded areas, and critical aquifer recharge areas.

Recently, the City completed the Ruby Creek Subarea Plan (City of Port Orchard 2022). The plan vision was to foster densification, future growth, walkable neighborhood, and business amenities, while accommodating the natural function of Ruby Creek and Blackjack Creek (see Figure 7). Similar planning efforts within the City will accommodate both people and aquatic species.



Aerial Rendition of the north end of the Ruby Creek Neighborhood.

(image courtesy of City of Port Orchard)

## **Climate Change**

In 2020, the City of Port Orchard collaborated with Kitsap County and the City of Bremerton to develop the Kitsap County Climate Change Resiliency Assessment (Kitsap County 2020). The assessment reviewed and summarized current and future climate change drivers, impacts, and risks for Kitsap County. These projected impacts were grouped into impacts to social and economic systems and biophysical impacts, of which the following are related to this Plan:

- Public infrastructure and support systems (stormwater),
- Hydrology & hydrogeology (hydrologic changes and stream and riverine flooding), and
- Habitat (freshwater and aquatichabitat).

As part of the assessment, specific impacts to the City of Port Orchard were evaluated and have been summarized by the City's stormwater management component in Table 2.

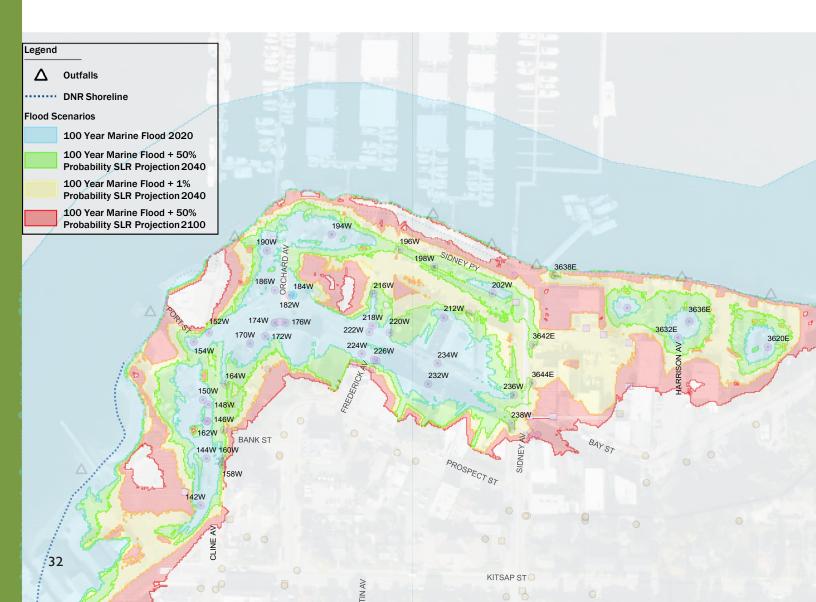


Table 2. Climate Change Impacts.	
STORMWATER MANAGEMENT COMPONENT	PREDICTED RESPONSE TO CLIMATE CHANGE
Stormwater Infrastructure	Potential overload, degradation, and damage of stormwater infrastructure from sea level rise and more intense rain storms
Stream Flows	Winter stream flooding will become more frequent Lower spring and summer flows
Groundwater Supply	Groundwater recharge may be affected by hydrologic changes (e.g., increasing temperatures and potential for saltwater intrusion; declining summer flows; low water tables; and sea level rise)
Flood Risk	Higher flood risk for low-lying coastal infrastructure, including stormwater conveyance and facilities
Water Quality	Regionally warmer stream temperatures
	Cold-water fish species across multiple life-cycle stages will be impacted by hydrologic changes.
	Possible loss of streamside vegetation
	Decrease in cooler/oxygenated aquatic habitat
Habitat	Wetland habitats are likely to contract and threaten shelter for juvenile fish and habitats for a variety of species
	Aquatic benthic invertebrates, amphibians, and salmonids will be impacted and will have downstream ecosystem and food-web impacts



## **CAPITAL IMPROVEMENT PROGRAM**

## **Capital Improvement Program (CIP)**

This section summarizes the surface water and stormwater capital improvement program (CIP). The purpose of the CIP is to define capital projects that make progress towards the City's long-term goals including:



Flood Reduction



**Groundwater and Surface Water Quality** 



**Groundwater and Surface Water Quantity** 



**Habitat Enhancement** 



**Public Participation (Education, Outreach, and Involvement)** 



**Infrastructure Operations & Maintenance** 



**Comprehensive Planning, Administration, and Funding** 

## **Problem and Project Identification**

Previous surface water and stormwater plans and input from City staff were used to develop an initial list of problems to be addressed during work on this Plan. Surface and stormwater plans reviewed included the following:

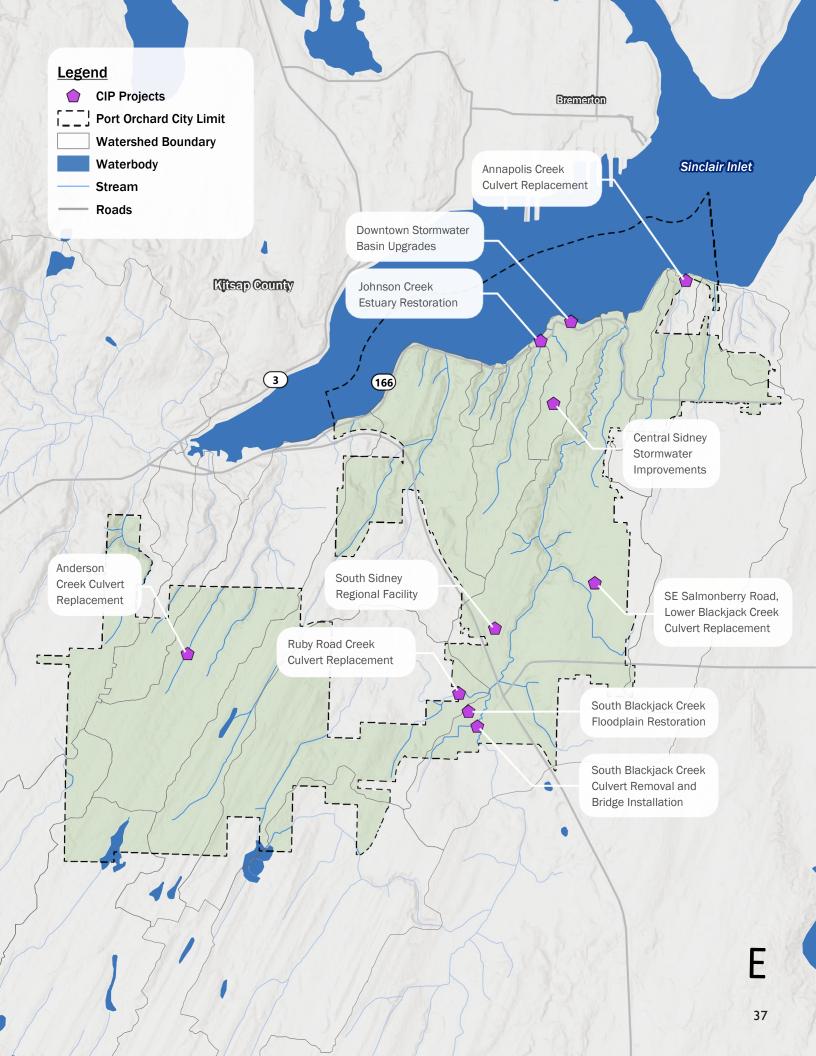
- 2018 Port Orchard Comprehensive Plan (City of Port Orchard 2018)
- Blackjack Creek Watershed Assessment and Protection and Restoration Plan (ESA 2017)
- · Ruby Creek Subarea Plan (City of Port Orchard 2022)
- · Downtown Basin Stormwater Plan (Reid Middleton 2020)
- 2018 Annapolis Creek Culvert Replacement 30% Design & Permitting Coordination Report (Reid Middleton 2018)
- Blackjack Creek Floodplain Restoration Project Engineering Design Plans (City of Port Orchard 2020)

Additional problems were identified by surveying City staff through Esri's ArcGIS Survey123 and hosting workshops with the City. Problems were evaluated using desktop methods and field evaluation to assess site-specific opportunities and constraints. Potential capital projects were developed to address the problems. The initial list of projects, problem descriptions, and solutions are provided in Appendix B.

## **Project Prioritization**

The initial surface water and stormwater CIP project list was ranked by City staff to determine the top 10 projects. The top 10 projects are shown in Figure 8. Once the top 10 projects were chosen, these projects were prioritized using a quantitative process that considered further input from City staff, review of background documents, and field reconnaissance of existing problems. This prioritization was then used to develop an implementation schedule that emphasized early completion of the projects providing the greatest benefit. An overview of the CIP project prioritization and goals is included in Table 3. Detailed prioritization results and CIP project summary sheets are provided in Appendix B. The CIP project implementation schedule is included in the Plan Implementation section of this Plan.

Table 3. Prioritized Projects and Ranking				
RANK	PROJECT NAME	GOALS	SCORE	
1	South Sidney Regional Facility		70	
	Johnson Creek Estuary Restoration		70	
	Downtown Basin Stormwater Upgrades		55	
3	South Blackjack Creek Floodplain Restoration			
	Central Sidney Stormwater Improvements			
6	Annapolis Creek Culvert Replacement		45	
7	SE Salmonberry Road, Lower Blackjack Creek Culvert Retrofit		40	
9	Ruby Creek Culvert Replacement		25	
	South Blackjack Creek Culvert Removal and Bridge Installation		35	
10	Anderson Creek Culvert Replacement		30	



## 4

## STORMWATER MANAGEMENT PROGRAM EVALUATION AND RECOMMENDATIONS

#### **Levels of Service**

This chapter summarizes surface water and stormwater recommendations for the City's stormwater management program. Recommendations are organized by the long-term goals and levels of service defined below.

The City has identified three levels of service for this Plan: Level 1, Level 2, and Level 3. Level 1 recommendations are shown for all long-term goals. Levels 2 and 3 are not included when no additional recommendations were identified. The levels of service are defined as follows:

#### Level 1

Represents activities needed to meet 2019-2024 Permit requirements, potential future permit requirements, and essential program activities.

#### Level 2

Includes everything in Level 1 and several additional improvements to expand public education and stewardship opportunities, implement the new asset management program, and increase staffing to adequately inspect construction projects and private stormwater facilities to improve environmental protection.

#### Level 3

Includes everything in Levels 1 and 2 and represents staffing and funding to move towards achieving the City's goals. This level of service would result in the greatest benefits for the community and the environment, but would have the highest cost. Level 3 includes expanding public involvement and environmental monitoring activities.

#### **Recommendations**

Recommendations are organized by the long-term goals and levels of service previously defined in this Plan. Detailed tables of recommendations with associated funding and staffing requirements are provided in City of Port Orchard Stormwater and Watersheds Program Evaluation and Recommendations (Herrera 2022c) and in Appendix A. Implementation of these recommendations are discussed in the Plan Implementation section of this Plan.

#### **Recommendations Continued...**



#### **Flood Reduction**

#### Level 1:

Design and construct upgrades to the existing conveyance infrastructure



#### **Groundwater and Surface Water Quality**

#### Level 1:

- Respond to spills and water quality complaints
- Develop Pollution Control Program Plans (Quality Assurance Project Plan [QAPP] equivalent) to monitor stream health and provide water quality status updates
- Make annual payments to the collective fund for S8 Monitoring and Assessment
- Seek opportunities to participate with Kitsap County and other local jurisdictions in an integrated and coordinated monitoring assessment program
- Provide information as requested for effectiveness and source identification studies that are under contract with Ecology as active Stormwater Action Monitoring (SAM) projects
- 0.25 FTE for Water Quality Technician



#### **Groundwater and Surface Water Quantity**

#### Level 1:

Design and construct upgrades to the existing conveyance infrastructure



#### **Habitat Enhancement**

#### Level 1:

 Conduct outreach on private property tree preservation and wetland buffers within Lower Blackjack Creek Catchment C



#### **Mapping and Asset Management**

#### Level 1:

- Update the City's MS4 map on an ongoing basis, including all known connections from the MS4 to a privately owned stormwater system
- Collect size and material data for known MS4 outfalls during the normal course of inspections and maintenance and update electronic records
- Locate and map additional outfall
- Additional 0.25 FTE for geographic information systems (GIS) Technician

#### Level 2:

- Includes all recommendations in Level 1
- Select and implement a computer maintenance management system (CMMS)
- Additional 0.50 FTE for Asset Management Specialist



## **Public Participation (Education, Outreach and Involvement)**

#### Level 1:

- Review and update existing public education materials as needed
- Develop materials for one new target audience and subject area annually
- Partner with West Sound Stormwater Outreach Group (WSSOG) on implementing social marketing campaigns
- Host and/or advertise volunteer events related to stewardship opportunities and provide opportunities for public input
- Continue collaborations with local builders' associations and participating in West Sound Partners for Ecosystem Recovery (WSPER)
- 0.25 FTE for Education Specialist

#### Level 2:

- Develop an education and outreach plan for commercial and private facility owners related to LID principles and practices
- Expand the partnership with South Kitsap School District
- Additional 0.25 FTE for Education Specialist (0.50 FTE total)

#### Level 3:

- Develop materials for two additional target audiences and two additional subject areas annually (three target audiences and three subject areas total when combined with the Level 1 tier)
- Create a volunteer stream team
- Additional 0.50 FTE for Education Specialist (1.0 FTE total)



#### **Pollutant Source Control**

#### Level 1:

- Update the City's website with pollution control best management practice (BMP) resources
- Perform field screening and tracking of illicit connections, illicit discharges, and spills
- Continue to implement spill hotline and staff training program
- Report illicit discharge data to Ecology using WQWebIDDE
- Review and update public education materials gathered by the Business Inspection Group (BIG) to create a basic set of resources for the City's source control program
- Provide enhanced source control technical assistances to businesses within the Lower Blackjack Creek Catchment C
- 0.25 FTE for Source Control Program Coordinator

#### Level 2:

- Increase staff support to screen outfalls on an annual basis
- Develop additional public education materials to supplement those gathered by the BIG to create a broader set of resources for the City's source control program



#### **Infrastructure Operations & Maintenance**

#### Level 1:

- Continue to implement a program to verify adequate long-term O&M of stormwater treatment and flow control BMPs/facilities
- Use a third-party contractor to conduct private facility inspections
- Document inspections and enforcement actions for private stormwater flow control and treatment BMPs/facilities
- Perform spot checks and inspections after storms
- Inspect catch basins and maintain as needed
- Conduct additional outfall inspections
- Clean targeted catch basins in Lower Black jack Creek Catchment C
- Continue to implement staff training program

#### Level 2:

- Have a dedicated inspector to conduct private facility inspections
- Inspect and maintain additional catch basins
- 0.50-1.0 FTE for O&M Technician (0.50 FTE in 2024, 1.0 FTE in 2025-2028)



#### **Development Practices**

#### Level 1:

- Continue to implement stormwater plan review, inspection, and escalating enforcement processes
- Refine and improve inspections and enforcement procedures
- Conduct annual review of stormwater standards
- Continue to implement staff training program
- Add engineering capacity to the capital project design team to assist with stormwater retrofit projects and upcoming SMAP implementation
- Develop a policy and standards for considering more intense future precipitation and sea level rise in stormwater capital improvement projects
- 0.25 FTE for Engineer

#### Level 2:

- Have a dedicated inspector to conduct construction inspections
- 1.0 FTE for Construction Inspector
- Increase engineering capacity for the capital project design team to assist with stormwater retrofit projects and upcoming SMAP implementation
- Additional 0.25 FTE for Engineer (0.50 FTE total)

#### Level 3:

- Increase engineering capacity for the capital project design team to assist with stormwater retrofit projects and upcoming SMAP implementation
- Develop a policy and standards for new and redevelopment projects to design for more intense future precipitation
- Additional 0.25 FTE for Engineer (0.75 FTE total)



## **Comprehensive Planning, Administration, and Funding**

#### Level 1:

- Continue to meet regularly to direct planning, development, and implementation of the City's Stormwater and Watersheds Comprehensive Plan, SMAP development, and continue to review and implement LID code updates
- Implement the SMAP activities
- Prepare annual reports summarizing coordination with longrange planning efforts
- Annually assess administrative or regulatory barriers to implementation of LID principles or LID BMPs
- 0.25 FTE for Planner



Marine Park Mural, Port Orchard Waterfront

### **WATERSHED PLANNING**

3

#### **City Watersheds**

The 2019-2024 Permit required the City to conduct watershed planning using a process defined by the permit as "Stormwater Management Action Planning" (SMAP). The SMAP process required the City to view watersheds through the lens of stormwater impacts to receiving water health and actions to protect or improve these water resources.

This planning was completed in three distinct steps:

- Develop an inventory of watershed characteristics, including water resource conditions, aquatic life and community uses, stormwater influence, and social equity (Herrera 2022a),
- Apply a prioritization process to identify the highest priority watershed (Herrera 2022b), and

Gorst Creek an "Action Plan" that includes retrofit projects, program enhancements, and land managederson tegies, associated costs, and schedule (Appendic Feek

The goal of SMAP was t**Stream** city watershed where investments in stormwater management are most likely to lead to environmental improvement.

Ruby Creek

Coulter Creek Ross Creek 166

Creek

Upper

Blackjack

Artwork at Blackjack Creek estuary

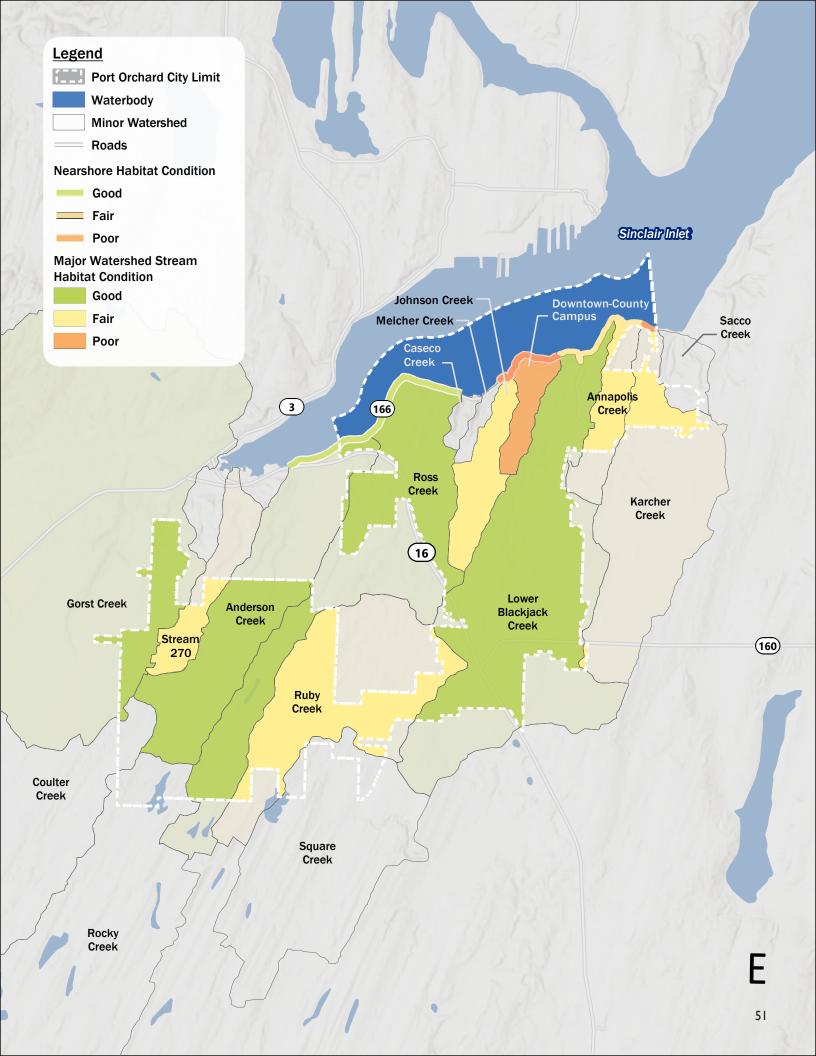
#### **City Watersheds Continued...**

Marine nearshore and stream habitat conditions within major watersheds informed the prioritization process (See Table 4 and Figure 9). As a guiding principle, water resources with moderate or good habitat conditions for salmon and nearshore forage fish would benefit from water quality and flow control actions. However, the City also intends to invest in watersheds with poor habitat conditions to alleviate flooding and address water quality issues, where feasible.

Table 4. Summary Of N	lajor Watershed	l Habitat Condit	ions for Salmo	n and Forage Fish
	Salmon Life Cycle	support		Salmon and Forage Fish in the Marine Nearshore
Major Watershed	Major Watershed	Spawning	Rearing	Sinclair Inlet Nearshore
Anderson Creek (Gorst)	Good	Good	Good	Good
Annapolis Creek	Poor	Good	Fair	Fair
Downtown County Campus	Poor	Poor	Poor	Poor
Gorst Creek	Fair	Good	Good	Fair
Johnson Creek	Poor	Good	Good	Poor
Karcher Creek	Poor	Good	Good	Poor
Lower Blackjack	Good	Good	Good	Fair
Ross Creek	Fair	Fair	Fair	Good
Ruby Creek	Good	Fair	Poor	NA*
Stream 270	Poor	Good	Good	NA

<sup>\*</sup>NA = Not Applicable,

<sup>\*</sup> = City lands within Ruby Creek and Stream 270 Watersheds are not directly connected to the marine nearshore



#### **Lower Blackjack Creek Watershed**

Lower Blackjack Creek watershed was selected as the highest priority watershed based on the following characteristics:

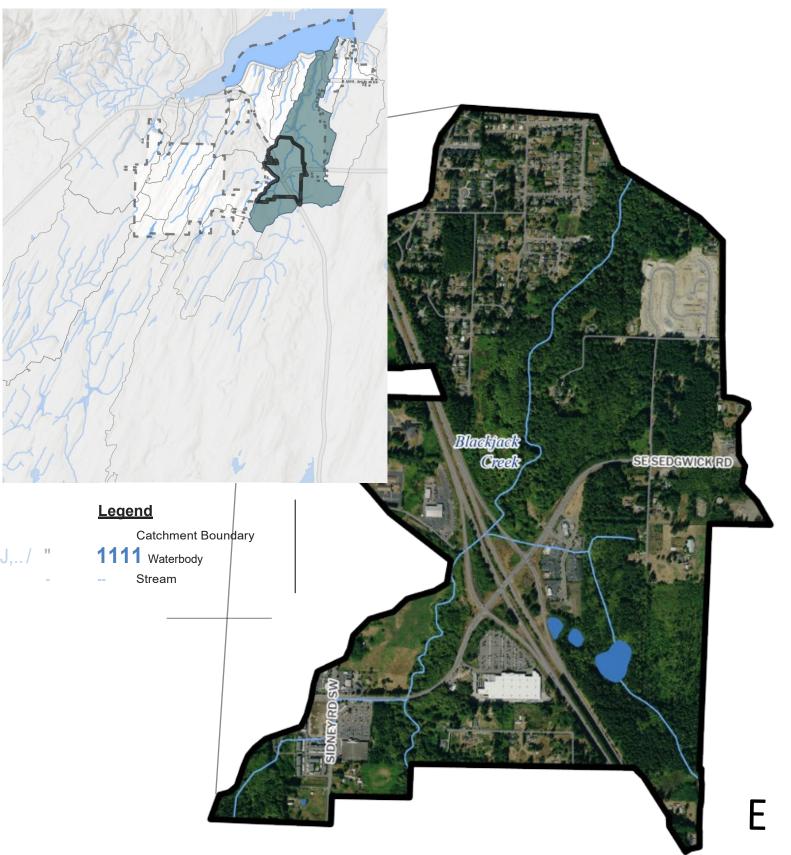
- · High receiving water use, including use by multiple salmonid species
- · Moderate level of development and future growth
- Good water quality and habitat condition
- Higher jurisdiction control
- Promotes other plans and projects, most notably the Blackjack Creek Watershed Assessment and Restoration Plan (ESA 2017).

Upon review with City staff, Catchment C (Figure 8) in the watershed was selected for the SMAP (Appendix C). The selected catchment was chosen due to the greater concentration of older development for retrofit opportunities.



Above: Blackjack Creek Floodplain

Right: Figure 8. City of Port Orchard Lower Blackjack Creek Catchment C



# 6

### **PLAN IMPLEMENTATION**

This section presents detailed information on implementing the recommended surface water and stormwater program activities presented in Stormwater Management Program Evaluation and Recommendations section and the capital projects described in Capital Improvement Program section. The major components of plan implementation include the completion of CIP projects, addressing staffing and resource needs, interdepartmental collaboration, interagency collaboration, and utility finances.

#### **CIP Plan Implementation**

The CIP projects are described in the Capital Improvement Program section and additional details on each project can be found in the project summary sheets (Appendix B). Table 5 presents an implementation schedule that aligns with the Level 1 level of service. Additional levels of services, which implement some CIP projects on accelerated schedules, are included in Appendix B.

This schedule balances project priority, project complexity, and coordination with other projects. Capital projects are reviewed regularly by the City and the implementation schedule shown in Table 5 is subject to change based on evolving regulatory requirements, City priorities, and available resources.

Table 5. Capital Impro	vement	Program I	mplemer	ntation Scl	nedulea.		
Project Name	2023b	2024	2025	2026	2027	2028	out years°
Annapolis Creek Culvert Replacement		\$400,000	\$800,000				
South Sidney Regional Facility		\$700,000		\$2,800,000			
Downtown Basin Stormwater Upgrades					\$1,760,000	\$1,100,000	\$982,000
Ruby Creek Culvert Replacement					\$400,000	\$1,200,000	
Johnson Creek Estuary Restoration							\$2,500,000
Ongoing Conveyance System Improvement Program	\$100,000	\$100,000	\$100,000	\$100,000			\$13,000,000
SE Salmonberry Road, Lower BlackJack Creek Culvert Retrofit							\$300,000
South Blackjack Creek Floodplain Restoration							\$7,000,000
South Blackjack Creek Culvert Removal and Bridge Installation							\$1,600,000
Central Sidney Stormwater Improvements							\$4,000,000
Anderson Creek Culvert Replacement							\$1,600,000
TOTAL	\$100,000	\$1,200,000	\$900,000	\$2,900,000	\$2,160,000	\$2,300,000	\$30,982,000

<sup>&</sup>lt;sup>a</sup> All costs are in 2022 dollars.

 $<sup>^{\</sup>mathrm{b}}$  In 2023, \$100,000 in capital funding is scheduled for Ongoing Conveyance System Improvement Program.

<sup>°</sup>The projects listed in the 'out years' column are scheduled after the six-year planning period.

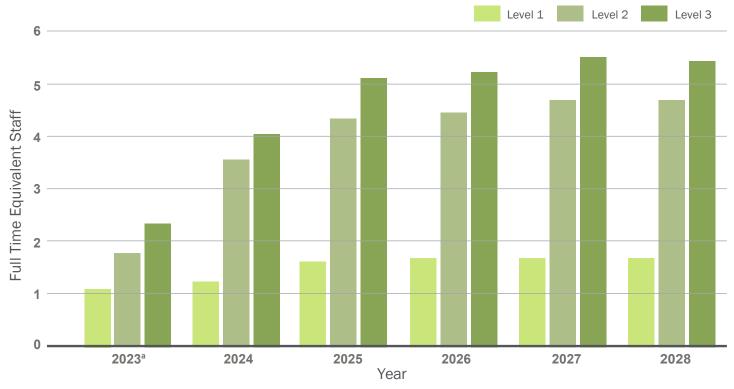
#### **Staffing and Funding Needs**

Under the current level of staffing, City staff can address surface water and stormwater problems that arise on a daily basis and troubleshoot specific issues that arise with development project reviews. However, they are not fully able to perform activities that would enable continual improvement of the City's stormwater management program. Current staffing levels will not be adequate to meet the rest of the requirements of the 2019–2024 Phase II Permit and make progress towards long-term goals defined as part of this Plan. The activities listed in the Stormwater Management Program Evaluation section of the Plan will require additional staffing and funding.

Below are the number of full time equivalents (FTEs) and funding that are recommended for each level of service (see Figure 11 and Tables 6 and 7). Additional staffing and funding will be needed in Level 2 to support the City's source control, private facility inspection, education and outreach, asset management, and O&M programs. In addition to the staffing and funding needed for Level 2, Level 3 includes an increase in education and outreach, and capital planning support.

It should be noted that these recommendations start in 2023, but no new staffing and funding is included in the financial analysis for 2023. Refer to the Financial Analysis section for further information about the rate impacts of implementing the levels of service. Detailed estimates of staffing and funding needs can be found in Appendix A.

Figure 9. Levels of Service and Full Time Equivalents.



<sup>&</sup>lt;sup>a</sup> No new staffing in 2023 is included in the financial analysis

Table 6. Staff FTE Su	ummary by	Year and	Tier			
Tion	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Tier	2023ª	2024	2025	2026	2027	2028
Level 1 Total	1.09	1.23	1.60	1.68	1.68	1.68
Level 2 Total	1.84	3.54	4.35	4.45	4.70	4.70
Level 3 Total	2.34	4.04	5.12	5.20	5.51	5.45

Table 7. Funding Su	mmary by	Year and <sup>·</sup>	Гier			
Tion	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Tier	2023b	2024	2025	2026	2027	2028
Level 1 Total	\$10,000	\$10,000	\$60,000	\$10,000	\$10,000	\$110,000
Level 2 Total	\$30,000	\$30,000	\$60,000	\$10,000	\$10,000	\$150,000
Level 3 Total	\$30,000	\$30,000	\$60,000	\$10,000	\$110,000	\$250,000

<sup>&</sup>lt;sup>a</sup> No new staffing in 2023 is included in the financial analysis

<sup>&</sup>lt;sup>b</sup> No new funding in 2023 is included in the financial analysis

#### **Financial Analysis**

The activities and projects listed in this section would be funded primarily by revenue from the storm drainage utility. A financial analysis was conducted to define utility rate adjustments that are necessary to implement the levels of service listed in this Plan. During the financial analysis, the City evaluated the regulatory needs and stormwater-related issues facing the City to find a balance between level of service and increased utility rates. Table 8 includes the monthly rate per impervious surface unit (ISU) for the six-year planning period by level of service and the change (increase) from the previous year's monthly rate. An ISU is defined as one residential unit or 3,000 impervious square feet on non-residential parcels (e.g., commercial, multi-family).

The full utility rate study report is included in Appendix D. The report documents assumptions for programmatic and capital project implementation for all three levels of service and includes monthly rates per ISU for years 2023 to 2041.

Table 8. Monthly Rate	per Imperv	ious Surfa	ace Unit by	y Level of	Service	
Monthly Rate per Impervious Surface Unit	2023	2024	2025	2026	2027	2028
Level 1	\$14.00	\$16.94	\$20.50	\$24.80	\$25.55	\$26.31
Change to Monthly Rate		\$2.94	\$3.56	\$4.30	\$0.75	\$0.76
Level 2	\$14.00	\$18.34	\$24.03	\$31.47	\$32.42	\$33.39
Change to Monthly Rate		\$4.34	\$5.69	\$7.44	\$0.95	\$0.97
Level 3	\$14.00	\$20.37	\$29.64	\$43.12	\$44.42	\$45.75
Change to Monthly Rate		\$6.37	\$9.27	\$13.48	\$1.30	\$1.33

The City is interested in considering a capital facilities charge (CFC) for stormwater, which would recover a proportionate share of the cost of existing and future system assets from new customers as growth occurs. The City already has CFCs for water and wastewater utilities. Table 9 presents the maximum defensible CFC that can be implemented by the City for each level of service. City Council could opt to adopt a lower CFC than shown in Table 9.



Tremont Street Widening Project, Courtesy City of Port Orchard, Public Works Dept.

Table 9. Capital Facility Charg	ge by Level of Service
Level of Service	Capital Facility Charge
Level 1	\$2,469
Level 2	\$3,087
Level 3	\$3,914

Lastly, the City should align its monthly rate and CFC choices. For example, if the City Council adopts a rate plan supporting the revenue requirement for Level 1, it should not adopt a CFC that aligns with Levels 2 or 3.

#### **Linkages to Other City Programs**

#### **Interdepartmental Collaboration**

The City's stormwater management program is led by staff in the Public Works Department. Plan implementation will require contributions from staff in the Public Works Operations and Maintenance, Engineering, Community Development, and Finance departments.

#### **Interagency Collaboration**

To address ongoing regional efforts, the City should continue to work with regional stakeholder groups and local governments in shared drainage basins to manage and treat stormwater effectively. Below are agencies and regional programs related to implementing program elements.

#### **Comprehensive Stormwater Planning**

- Coordinating with the Cities of Bremerton, Bainbridge Island, Poulsbo, and Kitsap County on the Dyes/Sinclair Inlets Fecal Coliform TMDL Implementation Plan
- Coordinating with the City of Bremerton, Kitsap County, and Pierce County on potential future Stormwater Management Action Planning for shared drainage basins

#### **Public Education and Public Involvement**

- Coordinating with the West Sound Stormwater Outreach Group (WSSOG) on regional messaging and programs
- Coordinating with the Kitsap Conservation District on potential future efforts including the homeowner rain garden cost share program
- Coordinating with the South Kitsap School District on a school stormwater curriculum and fieldvisits

#### **Capital Improvement Projects and Programs**

- Coordinating with the Suquamish Tribe and other relevant tribes on review of salmon habitat projects
- Coordinating with the West Sound Partners for Regional Recovery on prioritization of regional salmon habitat projects
- Coordinating with the Washington State Department of Fish and Wildlife on review of projects and their impacts to fish habitat
- Coordinating with the Washington State Department of Transportation on City projects adjacent to state lands
- Coordinating with Kitsap Regional Coordinating Council on regional transportation and land use decisions
- Coordinating with Puget Sound Regional Council on transportation, growth management, and economic development



Image from Kitsap Conservation District





#### **Pursuit of Outside Funding**

All of the CIP projects identified in this Plan are eligible for outside funding. The City should pursue state grants for stormwater retrofit projects; habitat, fish passage, and floodplain improvement grants for culvert, floodplain, and estuary projects; and low interest loans for capital projects that are purely conveyance improvements.



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#### **APPENDIX A**

## **Stormwater Management Program Staffing and Funding Recommendations**



		Table A-	1. Recomn	nended Ad	tivities fo	or Stormwater Planning.			Fur	nding					Staff I	Hours		
	One-	Time <sup>a</sup> Staff		Ongoing <sup>b</sup> Staff		A	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Recommendation	Funding	Support (hours)	Funding	Support (hours/ year)	FTE°	Assumptions		2024	2025	2026	2027	2028	2023	2024	2025	2026	2027	2028
				L	evel 1													
Interdisciplinary team	\$0	0	\$0	0	0	The interdisciplinary team will continue to meet regularly to direct planning, development, and implementation of the City's Stormwater and Watersheds Comprehensive Plan, SMAP development, and continue to review and implement LID code updates. Assumes funding and staff support would be included with the current level of storm drainage utility funding. (Ongoing)												
Long-range planning	\$0	0	\$0	0	0	Prepare report summarizing coordination with long-range planning efforts.  Assumes funding and staff support would be included with the current level of storm drainage utility funding. (Due January 2023)												
LID code review	\$0	0	\$10,000	40	0.023	The City will continue to annually assess whether any administrative or regulatory barriers to implementation of LID principles or LID BMPs were identified. Assumes \$10,000 of consultant support and 40 staff hours annually. (Ongoing starting 2023)	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	40	40	40	40	40	40
Receiving water assessment	\$0	0	\$0	0	0	Receiving water assessment has been completed. (Due March 2022)												
Receiving water prioritization	\$0	0	\$0	0	0	Receiving water prioritization has been completed. (Due June 2022)												
SMAP	\$0	0	\$0	0	0	Prepare a Stormwater Management Action Plan (SMAP) for one high priority area Assumes funding has already been set aside for this work and staff support would be included with the current level of storm drainage utility funding. (Due March 2023)												
SMAP implementation	\$0	0	\$0	442	0.25	Implement the SMAP. Assumes 0.25 FTE of staff time will be needed starting in 2026 to carry out activities defined in the SMAP.										442	442	442
Level 1 Total	\$0	0	\$10,000	482	0.27		\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	40	40	40	482	482	482
				L	evel 2													
All activities from Level 1	\$0	0	\$10,000	482	0.27	Same assumptions as Level 1.	\$10,000	\$10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	40	40	40	482	482	482
Level 2 Total	\$0	0	\$10,000	482	0.27		\$10,000	\$10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	40	40	40	482	482	482
	Level 3																	
All activities from Level 2	\$0	0	\$10,000	482	0.27	Same assumptions as Level 2.	\$10,000			\$ 10,000			40	40	40	482	482	482
Level 3 Total	\$0	0	\$10,000	482	0.27		\$10,000	\$10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	40	40	40	482	482	482

<sup>&</sup>lt;sup>a</sup> One-time activities are completed once, such as hiring a consultant to develop new training materials

<sup>&</sup>lt;sup>b</sup> Ongoing activities occur every year, such as continuing an inspection program or annual review of procedures

<sup>°</sup>FTE, or Full-time equivalent staff, assumes 1,768 hours worked per year for one full-time staff member

	Та	ble A-2. Ro	ecommend	ed Activiti	es for Pul	olic Education and Outreach.			Fur	nding					Staff	Hours		
	One-	Time <sup>a</sup>		Ongoing <sup>b</sup>														
Recommendation	Funding	Staff Support	Funding	Staff Support (hours/	FTE <sup>c</sup>	Assumptions	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		(hours)		year)			2023	2024	2025	2026	2027	2028	2023	2024	2025	2026	2027	2028
		<u> </u>			Level 1													<u> </u>
General awareness public education materials	\$0	0	\$0	221	0.125	Review and update existing public education materials as needed. Develop materials for one new target audience and one new subject area annually. Assumes 0.125 FTE of staff time will be needed starting in 2023. (Ongoing)							221	221	221	221	221	221
SMAP outreach	\$0	80	\$0	80	0.05	Add additional Mutt Mitt pet waste pick up stations and conduct outreach within Lower Blackjack Creek Catchment to align with the SMAP. Outreach topics include private property stormwater impacts, stormwater practices, tree preservation, and wetland buffers. Assumes 0.05 FTE of staff time will be needed starting in 2024. (Ongoing starting 2024)									80	80	80	80
Evaluate behavior change program	\$0	0	\$0	0	0	Evaluation of the Mutt Mitt program has been completed. (Due July 2020)												
Implement social marketing for existing program	\$0	80	\$0	0	0	Partner with WSSOG on implementing a natural lawn care social marketing campaign as a behavior enhancement in attempt to reduce the use of chemical lawn treatments from 2021-2023. Assumes 80 hours total of additional staff time needed for implementation in 2023. (Ongoing through 2023)							40	40				
Report behavior changes	\$0	160	\$0	0	0	Summarize the changes in understanding and adoption of targeted behaviors related to the behavior change program. Assumes 80 hours of additional staff time needed in 2023 and 2024. (Due March 2024).							80	80				
Continue stewardship opportunities	\$0	0	\$0	221	0.125	Continue to host and/or advertise volunteer events related to stewardship opportunities (shoreline cleanups and rain gardens). Assumes 0.125 FTE of staff time will be needed starting in 2023. (Ongoing)							221	221	221	221	221	221
Level 1 Total	\$0	320	\$0	522	0.3		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	562	562	522	522	522	522
				ı	Level 2													
All activities from Level 1	\$0	320	\$0	522	0.3	Same assumptions as Level 1.	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	562	562	522	522	522	522
Develop LID outreach materials	\$20,000	80	\$0	0	0	Develop education and outreach materials for commercial and private facility owners related to LID principles and practices. Assumes \$20,000 of consultant support and 80 hours of staff support in 2024. (Complete in 2024).		\$ 20,000						80				
Expand stewardship opportunities	\$0	0	\$0	442	0.25	Expand the public education program by creating two additional stewardship opportunities and including field demonstrations/ interactive monitoring in the partnership with South Kitsap School District. Assumes 0.25 FTE of staff time will be needed starting in 2023. (Ongoing starting 2023)							442	442	442	442	442	442
Level 2 Total	\$20,000	400	\$0	964	0.55		\$ -	\$ 20,000	\$ -	\$ -	\$ -	\$ -	1004	1084	964	964	964	964
					Level 3													
All activities from Level 2	\$20,000	400	\$0	964	0.55	Same assumptions as Level 2.	\$ -	\$ 20,000	\$ -	\$ -	\$ -	\$ -	1004	1084	964	964	964	964
Develop new general awareness public education materials	\$0	0	\$0	442	0.25	Develop materials for two additional target audiences and two additional subject areas annually. Assumes 0.25 FTE of staff time will be needed starting in 2023.  (Ongoing starting 2023)							442	442	442	442	442	442
Expand stewardship opportunities	\$0	0	\$0	442	0.25	Create a volunteer stream team for the City that would be trained on monitoring activities such as B-IBI sampling, and habitat/invasive species monitoring and management. Assumes 0.25 FTE of staff time will be needed starting in 2023. (Ongoing starting 2023)							442	442	442	442	442	442
Level 3 Total	\$20,000	400	\$0	1848	1.05		\$ -	\$ 20,000	\$ -	\$ -	\$ -	\$ -	1,888	1,968	1,848	1,848	1,848	1,848

<sup>&</sup>lt;sup>a</sup> One-time activities are completed once, such as hiring a consultant to develop new training materials

<sup>&</sup>lt;sup>b</sup> Ongoing activities occur every year, such as continuing an inspection program or annual review of procedures

<sup>&</sup>lt;sup>c</sup> FTE, or Full-time equivalent staff, assumes 1,768 hours worked per year for one full-time staff member

	Table A	3. Recom	nmended	Activities	for Public	Involvement and Participation.			Fur	ding					Staff	Hours		
	One	-Time <sup>a</sup>		Ongoing <sup>b</sup>				., .	., .	., .	\	V 6	V 4	., .			\/ F	
Recommendation	Funding	Staff	Funding	Staff Support	FTE°	Assumptions	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Fullding	Support (hours)	runding	(hours/ year)	FIE		2023	2024	2025	2026	2027	2028	2023	2024	2025	2026	2027	2028
					Level 1													
Collaborate with local stakeholders	\$0	0	\$0	0	0	Continue collaborations with local builders' associations related to permit changes and stormwater issues. Continue participation in WSPER, WREC, WSSOG and expanding ways to reach and involve overburdened communities. Assumes funding and staff support would be included with the current level of storm drainage utility funding. (Ongoing)												
Post SWMP Plan and Annual Report	\$0	0	\$0	0	0	Continue to post SWMP and latest Annual Report on City's website. Assumes funding and staff support would be included with the current level of SWM funding. (Ongoing)												
Level 1 Total	\$0	0	\$0	0	0		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0	0	0	0	0	0
				I	Level 2													
All activities from Level 1	\$0	0	\$0	0	0	Same assumptions as Level 1.												
Level 2 Total	\$0	0	\$0	0	0		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0	0	0	0	0	0
					Level 3													
All activities from Level 2	\$0	0	\$0	0	0	Same assumptions as Level 2.												
Level 3 Total	\$0	0	\$0	0	0		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0	0	0	0	0	0

<sup>&</sup>lt;sup>a</sup> One-time activities are completed once, such as hiring a consultant to develop new training materials

<sup>&</sup>lt;sup>b</sup>Ongoing activities occur every year, such as continuing an inspection program or annual review of procedures

<sup>&</sup>lt;sup>c</sup>FTE, or Full-time equivalent staff, assumes 1,768 hours worked per year for one full-time staff member

	Table	e A-4. Rec	ommende	d Activitie	s for MS4	Mapping and Documentation.				Fund	ling					Staff I	Hours		
	One	-Time <sup>a</sup>		Ongoing <sup>b</sup> Staff			Year	1 Ye	ar 2	Year 3	Year 4	Year 5	Year 6	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Recommendation	Funding	Staff Support (hours)	Funding	Support (hours/ year)	FTE°	Assumptions	2023	20	)24	2025	2026	2027	2028	2023	2024	2025	2026	2027	2028
		•	•	ı	_evel 1														
Ongoing map updates	\$0	0	\$0	442	0.25	Continue to update the City's MS4 map on an ongoing basis. Assume 0.25 FTE additional staff time needed starting in 2023 to manage additions and updates to stormwater mapping. (Ongoing)								442	442	442	442	442	442
Locate and map additional outfalls	\$0	40	\$0	0	0	Locate and map additional outfalls. Assumes 40 hours total of additional staff time needed to find and document outfalls. (Complete by 2024)									40				
Map outfall attributes	\$0	0	\$0	0	0	Continue to collect size and material data for known MS4 outfalls during the normal course of inspections and maintenance and update records. Assumes funding and staff support would be included with the current level of storm drainage utility funding. (Ongoing)													
Map known private connections	\$0	0	\$0	0	0	Continue to map all known connections from the MS4 to a privately owned stormwater system. Assumes funding and staff support would be included with the current level of storm drainage utility funding. (Due August 2023)													
Continue to maintain electronic maps	\$0	0	\$0	0	0	Map new private connections when as-builts are received. Assumes funding and staff support would be included with the current level of storm drainage utility funding. (Ongoing)													
Level 1 Total	\$0	40	\$0	442	0.25		\$ -	\$	- 5	\$ -	\$ -	\$ -	\$ -	442	482	442	442	442	442
				L	_evel 2														
All activities from Level 1	\$0	40	\$0	442	0.25	Same assumptions as Level 1.	\$ -	\$	- 5	\$ -	\$ -	\$ -	\$ -	442	482	442	442	442	442
Implement computerized maintenance management system	\$0	0	\$0	884	0.50	Work with consultant to select a computerized maintenance management system (CMMS) and implement the CMMS. Assume that funding for consultant (and staff time to manage the consultant) is already in place and 0.5 FTE is needed to implement and manage the CMMS starting in 2023. (Ongoing)								884	884	884	884	884	884
Level 2 Total	\$0	40	\$0	1,326	0.75		\$ -	\$	- \$	\$ -	\$ -	\$ -	\$ -	1,326	1,366	1,326	1,326	1,326	1,326
	Level 3																		
All activities from Level 2	\$0	40	\$0	1,326	0.75	Same assumptions as Level 2.	\$ -	\$	- 5				\$ -	1,326	1,366	1,326	1,326	1,326	1,326
Level 3 Total	\$0	40	\$0	1,326	0.75		\$ -	\$	- 9	\$ -	\$ -	\$ -	\$ -	1,326	1,366	1,326	1,326	1,326	1,326

<sup>&</sup>lt;sup>a</sup> One-time activities are completed once, such as hiring a consultant to develop new training materials

<sup>&</sup>lt;sup>b</sup>Ongoing activities occur every year, such as continuing an inspection program or annual review of procedures

<sup>°</sup>FTE, or Full-time equivalent staff, assumes 1,768 hours worked per year for one full-time staff member

	Table A-	5. Recomi	nended Ad	tivities for	· Illicit Dis	charge Detection and Elimination.			Fur	ding					Staff I	lours		
	One-	·Time <sup>a</sup>		Ongoing <sup>b</sup> Staff			Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Recommendation	Funding	Staff Support (hours)	Funding	Support (hours/ year)	FTE°	Assumptions	2023	2024	2025	2026	2027	2028	2023	2024	2025	2026	2027	2028
		-		l	evel 1													
Post pollution control BMP resources	\$0	0	\$0	0	0	Continue to update the City's website with pollution control BMP resources. Assumes funding and staff support would be included with the current level of storm drainage utility funding. (Ongoing)												
Field screening	\$0	0	\$0	0	0	Continue field screening for illicit connections and illicit discharges. Assumes funding and staff support would be included with the current level of storm drainage utility funding. (Ongoing)												
Staff training program	\$0	0	\$0	0	0	Continue to implement staff training program. Assumes funding and staff support would be included with the current level of storm drainage utility funding. (Ongoing)												
Source tracing/respond to spills and water quality complaints	\$0	0	\$0	0	0	Continue to respond to spills and water quality complaints. Assumes funding and staff support would be included with the current level of storm drainage utility funding. (Ongoing)												
Report to Ecology	\$0	0	\$0	0	0	Report illicit discharge data to Ecology using WQWebIDDE. Assumes funding and staff support would be included with the current level of storm drainage utility funding. (Ongoing)												
Level 1 Total	\$0	0	\$0	0	0		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0	0	0	0	0	0
		_		l	evel 2													
All activities from Level 1	\$0	0	\$0	0	0	Same assumptions as Level 1.	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0	0	0	0	0	0
Integrate IDDE into computerized maintenance management system	\$0	0	\$0	0	0	Integrate IDDE tasks into the computerized maintenance management system (CMMS). Assume this work will be performed by staff implementing the CMMS (see Table B-4), so no additional staff time needed.												
Level 2 Total	\$0	0	\$0	0	0		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0	0	0	0	0	0
				L	_evel 3													
All activities from Level 2	\$0	0	\$0	0	0	Same assumptions as Level 2.	\$ -	<u> </u>	\$ -			\$ -	0	0	0	0	0	0
Level 3 Total	\$0	0	\$0	0	0		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0	0	0	0	0	0

<sup>&</sup>lt;sup>a</sup> One-time activities are completed once, such as hiring a consultant to develop new training materials

<sup>&</sup>lt;sup>b</sup> Ongoing activities occur every year, such as continuing an inspection program or annual review of procedures

<sup>°</sup>FTE, or Full-time equivalent staff, assumes 1,768 hours worked per year for one full-time staff member

Table A-6. Recon	nmended Act	ivities for	Controllin	g Runoff f	rom New	Development, Redevelopment, and Construction Sites.				Fundi	ng					Staff	Hours		
Recommendation	One-T	ime <sup>a</sup> Staff		Ongoing <sup>b</sup> Staff Support		Assumptions	Year 1	Year	· 2 Ye	ar 3	Year 4	Year 5	Year 6	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Recommendation	Funding	Support (hours)	Funding	(hours/ year)	FTE <sup>c</sup>			202	24 2	025	2026	2027	2028	2023	2024	2025	2026	2027	2028
				Le	vel 1			-											
Ordinance	\$0	0	\$0	0	0	The Port Orchard Municipal Code (POMC) update to adopt Ecology's 2019 SWMMWW has been completed. (Due June 30, 2022)													
Stormwater plan review	\$0	0	\$0	0	0	Continue to implement stormwater plan review program. Assumes funding and staff support (including the recent new hire) would be included with the current level of storm drainage utility funding. (Ongoing)													
Stormwater standards review	\$0	0	\$0	40	0.02	Conduct a review of stormwater standards on an annual basis. Assumes 0.02 FTE of staff time will be needed starting in 2024. (Ongoing starting 2024)									40	40	40	40	40
Permit tracking system	\$0	0	\$0	0	0	Refine and improve the stormwater plan review, inspection, and escalating enforcement processes. Assumes funding and staff support (including the recent new hire) would be included with the current level of storm drainage utility funding. (Ongoing)													
Staff training program	\$0	0	\$0	0	0	Provide training opportunities for inspection practices, recordkeeping, and erosion control, update the staff training plan as needed, and improve record keeping/documentation of training for City staff. Assumes funding and staff support would be included with the current level of storm drainage utility funding. (Ongoing)													
Level 1 Total	\$0	0	\$0	40	0		\$ -	\$	- \$	-	\$ -	\$ -	\$ -	0	40	40	40	40	40
	-			Le	vel 2			_											
All activities from Level 1	\$0	0	\$0	40	0	Same assumptions as Level 1.	\$	\$	- \$	-	\$ -	\$ -	\$ -		40	40	40	40	40
Construction inspections	\$0	0	\$0	1,768	1.00	Hire a dedicated stormwater inspector (1 FTE starting in 2024) to assist with construction inspections. (Ongoing)									1,768	1,768	1,768	1,768	1,768
Level 2 Total	\$0	0	\$0	1,808	1.02		\$ -	\$	- \$	-	\$ -	\$ -	\$ -	0	1,808	1,808	1,808	1,808	1,808
				-	vel 3														
All activities from Level 2	\$0	0	\$0	1,808	1.02	Same assumptions as Level 2.	\$	\$	- \$	-	\$ -	\$ -	\$ -		1,808	1,808	1,808	1,808	1,808
Level 3 Total	\$0	0	\$0	1,808	1.02		\$ -	\$	- \$	-	\$ -	\$ -	\$ -	0	1,808	1,808	1,808	1,808	1,808

<sup>&</sup>lt;sup>a</sup> One-time activities are completed once, such as hiring a consultant to develop new training materials

<sup>&</sup>lt;sup>b</sup>Ongoing activities occur every year, such as continuing an inspection program or annual review of procedures

<sup>°</sup>FTE, or Full-time equivalent staff, assumes 1,768 hours worked per year for one full-time staff member

Table A-7. Recommended Activities for Operations and Maintenance.									Fur	nding			Staff Hours						
Recommendation	One-T	Staff	Funding	Ongoing <sup>b</sup> Staff Support	FTE <sup>c</sup>	Assumptions	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	
	Funding	Support (hours)	Funding	(hours/ year)	F1E		2023	2024	2025	2026	2027	2028	2023	2024	2025	2026	2027	2028	
					Level 1														
Private facility inspections	\$0	0	\$0	0	0	Continue implement private facility inspectors via a third-party contractor.  Assumes funding and staff support would be included with the current level of storm drainage utility funding. (Ongoing)													
Maintenance SOPs	\$0	0	\$0	0	0	Stand-alone SOPs, to address the practices, policies, and procedures listed in the NPDES permit, have been developed. (Due December 2022)													
Public facility inspections and maintenance	\$0	0	\$0	0	0	Continue to annually inspect and maintain municipally owned or operated stormwater treatment and flow control BMPs/facilities according to permit conditions. Assumes funding and staff support would be included with the current level of storm drainage utility funding. (Ongoing)													
Spot checks	\$0	0	\$0	0	0	Continue to implement spot checks and inspections after major storms.  Assumes funding and staff support would be included with the current level of SWM funding. (Ongoing)													
Catch basin inspections	\$0	0	\$0	0	0	Continue to inspect catch basins and maintain as needed. Assumes funding and staff support would be included with the current level of storm drainage utility funding. (Ongoing)													
O&M training	\$0	0	\$0	0	0	Continue to implement training programs for staff whose work could impact stormwater. Assumes funding and staff support would be included with the current level of storm drainage utility funding. (Ongoing)													
Outfall inspections	\$0	200	\$0	0	0	Inspect additional outfalls. Assumes locating and mapping outfalls process is complete and 200 hours total of additional staff time needed to inspect the outfalls in 2025. (Complete in 2025)									200				
Catch basin cleanings	\$0	0	\$0	120	0.07	Clean targeted catch basins in the Lower Blackjack Creek Catchment to align with the SMAP. Assumes 0.07 FTE of staff time will be needed starting in 2024. (Ongoing starting 2024)								120	120	120	120	120	
Conduct annual SWPPP inspections	\$0	0	\$0	0	0	Continue to conduct annual SWPPP inspections. Assumes funding and staff support would be included with the current level of storm drainage utility funding. (Ongoing)													
SWPPP training	\$0	0	\$0	0	0	Conduct and document SWPPP training for staff. Assumes funding and staff support would be included with the current level of storm drainage utility funding. (Ongoing)													
Level 1 Total	\$0	200	\$0	120	0.07		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0	120	320	120	120	120	
Level 2																			
All activities from Level 1	\$0	200	\$0	120	0.07	Same assumptions as Level 1.	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		120	320	120	120	120	
Private facility inspections	\$0	0	\$0	884	0.50	Add 0.25 FTE in 2024 and increase to 0.5 FTE total in 2026 to implement private facility inspections with City inspectors. (Ongoing)									442	442	884	884	
Catch basin inspections	\$0	0	\$0	884	0.50	Add 0.5 FTE in 2024 to support catch basin inspection and cleaning. (Ongoing)								884	884	884	884	884	
Level 2 Total	\$0	200	\$0	1,888	1.1		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0	1004	1,646	1,446	1,888	1,888	
					Level 3						_								
All activities from Level 2	\$0	200	\$0	1,888	1.1	Same assumptions as Level 2.	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		1004	1,646	1,446	1,888	1,888	
a One-time activities are con	\$0	200		1,888	1.1		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0	1004	1,646	1,446	1,888	1,888	

<sup>&</sup>lt;sup>a</sup> One-time activities are completed once, such as hiring a consultant to develop new training materials

<sup>&</sup>lt;sup>b</sup> Ongoing activities occur every year, such as continuing an inspection program or annual review of procedures

<sup>&</sup>lt;sup>c</sup> FTE, or Full-time equivalent staff, assumes 1,768 hours worked per year for one full-time staff member

Table A-8. Recommended Activities for Source Control Program for Existing Development.									Fur	nding			Staff Hours						
Recommendation	One-Time <sup>a</sup>		Ongoing <sup>b</sup>																
	Funding	Staff Support (hours)	Funding	Staff Support (hours/	FTE°	Assumptions	Year 1 2023	Year 2 2024	Year 3	Year 4 2026	Year 5 2027	Year 6 2028	Year 1 2023	Year 2 2024	Year 3 2025	Year 4 2026	Year 5 2027	Year 6 2028	
		()		year)	ovol 1														
Level 1								т —											
Ordinance	\$0	0	\$0	0	0	The City's Stormwater Ordinance to address source control program and enforcement has been developed. (Due August 2022)													
Source control inventory	\$0	0	\$0	0	0	The City's initial source control inventory has been developed. (Due August 2022)													
Review/update public education materials	\$0	0	\$0	40	0.02	Review and update public education materials gathered by the Business Inspection Group (BIG) to create a basic set of resources for the City's source control program. Assumes ongoing staff support of 40 hours per year starting in 2023 to update materials. (Ongoing)							40	40	40	40	40	40	
Source control inspections	\$0	0	\$0	280	0.16	Conduct annual source control inspections on 20% of the businesses and/or properties included in the updated source control inventory. Prioritize inspections in the Lower Blackjack Creek Catchment to align with the SMAP. Assumes 0.16 FTE will be needed to implement the inspection program (total staff need for Source Control will be 0.25 FTE). (Ongoing starting in 2023)							280	280	280	280	280	280	
Investigate complaints	\$0	0	\$0	40	0.02	Investigate sites identified through legitimate complaints. Assumes approximately 40 hours of staff support needed annually. (Ongoing starting January 2023)							40	40	40	40	40	40	
Source control recordkeeping	\$0	0	\$0	80	0.05	Ongoing maintenance of inspection records and enforcement documentation. Assumes 80 hours of staff support needed annually starting in 2023 to implement recordkeeping system. (Ongoing)							80	80	80	80	80	80	
Enhanced business source control technical assistance	\$0	0	\$0	40	0.02	Provide enhanced source control technical assistances to businesses within the Lower Blackjack Creek Catchment. Assumes 0.02 FTE of staff time will be needed starting in 2024. (Ongoing starting 2024)								40	40	40	40	40	
Staff training program	\$0	0	\$0	0	0	Conduct and document source control training for staff. Assumes funding and staff support would be included with the current level of storm drainage utility funding. (Ongoing starting in 2023)													
Level 1 Total	\$0	0	\$0	480	0.27		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	440	480	480	480	480	480	
Level 2																			
All activities from Level 1	\$0	0	\$0	480	0.27	Same assumptions as Level 1.	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	440	480	480	480	480	480	
Develop additional public education materials	\$20,000	0	\$0	40	0.02	Develop additional public education materials to supplement those gathered by the BIG and developed as part of Level 1 to create a broader set of resources for the City's source control program. Assumes \$20,000 of consultant support in 2023 and ongoing staff support of 40 hours per year starting in 2024 to update materials. (Ongoing)	\$ 20,000							40	40	40	40	40	
Level 2 Total	\$20,000	0	\$0	520	0.29		\$ 20,000	\$ -	\$ -	\$ -	\$ -	\$ -	440	520	520	520	520	520	
Level 3																			
All activities from Level 2	\$20,000	0	\$0	520	0.29	Same assumptions as Level 2.	\$ 20,000		\$ -	\$ -		\$ -	440	520	520	520	520	520	
Level 3 Total	\$20,000	0	\$0	520	0.29		\$ 20,000	\$ -	\$ -	\$ -	\$ -	\$ -	440	520	520	520	520	520	

<sup>&</sup>lt;sup>a</sup> One-time activities are completed once, such as hiring a consultant to develop new training materials

<sup>&</sup>lt;sup>b</sup> Ongoing activities occur every year, such as continuing an inspection program or annual review of procedures

<sup>°</sup> FTE, or Full-time equivalent staff, assumes 1,768 hours worked per year for one full-time staff member

Т	able A-9. I	Recommer	nded Activ	ities for T	otal Maxin	num Daily Load (TMDL) Requirements.			Fur	nding					Staff	Hours		
	One	Time <sup>a</sup>		Ongoing <sup>b</sup> Staff			Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Recommendation	Funding	Staff Support (hours)	Funding	Support (hours/ year)	FTE°	Assumptions	2023	2024	2025	2026	2027	2028	2023	2024	2025	2026	2027	2028
					Level 1			_										
IDDE screening in high priority areas	\$0	0	\$0	0	0	Prioritize IDDE screening in areas discharging to Sinclair Inlet via Blackjack, Annapolis, and Karcher Creeks and to shorelines (2021-2023). Assumes funding and staff support would be included with the current level of storm drainage utility funding. (Continue into 2023)												
Pollution Prevention Control Plan and ongoing monitoring	\$0	0	\$0	442	0.25	Develop a Pollution Prevention Control Plan (QAPP equivalent) to monitor stream health and provide water quality status updates by the end of 2023. Assume cost to prepare Pollution Prevention Control Plan is included with the current level of storm drainage utility funding, but that implementation in 2023 and beyond would require 0.25 FTE staff support. (End of 2023 for Plan; Ongoing for monitoring)							442	442	442	442	442	442
Level 1 Total	\$0	0	\$0	442	0.25		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	442	442	442	442	442	442
					Level 2													
All activities from Level 1	\$0	0	\$0	442	0.25	Same assumptions as Level 1.	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	442	442	442	442	442	442
Level 2 Total	\$0	0	\$0	442	0.25		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	442	442	442	442	442	442
					Level 3													
All activities from Level 2	\$0	0	\$0	442	0.25	Same assumptions as Level 2.	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	442	442	442	442	442	442
Level 3 Total	\$0	0	\$0	442	0.25		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	442	442	442	442	442	442

<sup>&</sup>lt;sup>a</sup>One-time activities are completed once, such as hiring a consultant to develop new training materials

<sup>&</sup>lt;sup>b</sup>Ongoing activities occur every year, such as continuing an inspection program or annual review of procedures

<sup>&</sup>lt;sup>c</sup> FTE, or Full-time equivalent staff, assumes 1,768 hours worked per year for one full-time staff member

	Та	ble A-10.	Recomme	nded Activ	vities for N	Ionitoring and Assessment.			Fun	ding					Staff	Hours		
Recommendation		Time <sup>a</sup> Staff		Ongoing <sup>b</sup> Staff Support		Assumptions	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Funding	Support (hours)	Funding	(hours/ year)	FTE°		2023	2024	2025	2026	2027	2028	2023	2024	2025	2026	2027	2028
					Level 1			_		-								
Regional status and trends monitoring	\$0	0	\$0	0	0	The City should continue to pay into the Regional Status and Trends Monitoring at the annual contribution amount specified in Appendix 11 of the 2019-2024 permit. This is already included in the annual budget. The City should also seek opportunities to participate with Kitsap County and other local jurisdictions in an integrated and coordinated monitoring assessment program.												
Effectiveness studies and source identification studies	\$0	0	\$0	0	0	The City should continue to pay into the Regional Effectiveness Studies and Source Identification Studies at the annual contribution amount specified in Appendix 11 of the 2019-2024 permit. This is already included in the annual budget.												
TMDL requirements	\$0	0	\$0	0	0	The City will continue to implement monitoring required by TMDLs (see Table B-9 for funding and staffing).												
Level 1 Total	\$0	0	\$0	0	0		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0	0	0	0	0	0
					Level 2													
All activities from Level 1	\$0	0	\$0	0	0	Same assumptions as Level 1.	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -						
Level 2 Total	\$0	0	\$0	0	0		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0	0	0	0	0	0
					Level 3													
All activities from Level 2	\$0	0	\$0	0	0	Same assumptions as Level 2.	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -						
Level 3 Total	\$0	0	\$0	0	0		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0	0	0	0	0	0

<sup>&</sup>lt;sup>a</sup> One-time activities are completed once, such as hiring a consultant to develop new training materials

<sup>&</sup>lt;sup>b</sup> Ongoing activities occur every year, such as continuing an inspection program or annual review of procedures

<sup>&</sup>lt;sup>c</sup> FTE, or Full-time equivalent staff, assumes 1,768 hours worked per year for one full-time staff member

				_					_									
		Tal	ble A-11. F	Recommer	ided Activ	ities for Reporting.			Fun	ding					Staff	Hours		
	One-	-Time <sup>a</sup>		Ongoing <sup>b</sup>														
Recommendation	F	Staff	F	Staff Support		Assumptions	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Funding	Support (hours)	Funding	(hours/ year)	FTE°		2023	2024	2025	2026	2027	2028	2023	2024	2025	2026	2027	2028
					Level 1													
Annual report and SWMP plan updates	\$0	0	\$0	0	0	Continue to update the SWMP plan and answer the Annual Report questions each year. Assumes funding and staff support would be included with the current level of storm drainage utility funding. (Due March 31st each year)												
Record keeping	\$0	0	\$0	0	0	Continue retaining records for a minimum of 5 years. Assumes funding and staff support would be included with the current level of storm drainage utility funding. (Ongoing)												
Level 1 Total	\$0	0	\$0	0	0		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0	0	0	0	0	0
					Level 2													
All activities from Level 1	\$0	0	\$0	0	0	Same assumptions as Level 1.	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -						
Level 2 Total	\$0	0	\$0	0	0		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0	0	0	0	0	0
					Level 3													
All activities from Level 2	\$0	0	\$0	0	0	Same assumptions as Level 2.	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -						
Level 3 Total	\$0	0	\$0	0	0		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0	0	0	0	0	0

<sup>&</sup>lt;sup>a</sup> One-time activities are completed once, such as hiring a consultant to develop new training materials

<sup>&</sup>lt;sup>b</sup> Ongoing activities occur every year, such as continuing an inspection program or annual review of procedures

<sup>&</sup>lt;sup>c</sup> FTE, or Full-time equivalent staff, assumes 1,768 hours worked per year for one full-time staff member

	Tab	le A-12. R	ecommen	ded Activi	ties for Ot	her SWM Program Support.			Fu	nding					Staff	Hours		
	One-	Time <sup>a</sup> Staff		Ongoing <sup>b</sup> Staff			Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Recommendation	Funding	Support (hours)	Funding	Support (hours/ year)	FTE°	Assumptions	2023	2024	2025	2026	2027	2028	2023	2024	2025	2026	2027	2028
				L	evel 1													
Capital project design and project management	\$0	0	\$0	442	0.25	Add engineering capacity to the capital project design team to assist with stormwater retrofit projects and upcoming SMAP implementation projects.  Assumes the addition of 0.25 FTE starting in 2025. (Ongoing)									442	442	442	442
Climate change in capital improvement projects	\$50,000	100	\$0	0	0	Develop a policy and standards for considering more intense future precipitation and sea level rise in stormwater capital improvement projects. Assumes \$40,000 of consultant support and 100 hours of staff time in 2025.			\$ 50,000						100			
Level 1 Total	\$50,000	100	\$0	442	0.25		\$ -	\$ -	\$ 50,000	\$ -	\$ -	\$ -	0	0	542	442	442	442
				L	evel 2													
All activities from Level 1	\$50,000	100	\$0	442	0.25	Same assumptions as Level 1.	\$ -	\$ -	\$ 50,000	\$ -	\$ -	\$ -			542	442	442	442
Additional capital project design and project management	\$0	0	\$0	442	0.25	Increase engineering capacity for the capital project design team to assist with stormwater retrofit projects and upcoming SMAP implementation projects. Assumes the addition of 0.25 FTE starting in 2025. (Ongoing)									442	442	442	442
Level 2 Total	\$50,000	100	\$0	884	0.50		\$ -	\$ -	\$ 50,000	\$ -	\$ -	\$ -	0	0	984	884	884	884
				L	evel 3													
All activities from Level 2	\$50,000	100	\$0	884	0.50	Same assumptions as Level 2.	\$ -	\$ -	\$ 50,000	\$ -	\$ -	\$ -			984	884	884	884
Additional capital project design and project management	\$0	0	\$0	442	0.25	Increase engineering capacity for the capital project design team to assist with stormwater retrofit projects and upcoming SMAP implementation projects. Assumes the addition of 0.25 FTE starting in 2025.									442	442	442	442
Climate change in private development projects	\$100,000	100	\$0	0	0	Develop a policy and standards for new and redevelopment projects to design for more intense future precipitation. Assumes \$40,000 of consultant support and 100 hours of staff time in 2027.					\$ 100,000						100	
Level 3 Total	\$150,000	200	\$0	1,326	0.75		\$ -	\$ -	\$ 50,000	\$ -	\$ 100,000	\$ -	0	0	1,426	1,326	1,426	1,326

<sup>&</sup>lt;sup>a</sup> One-time activities are completed once, such as hiring a consultant to develop new training materials

<sup>&</sup>lt;sup>b</sup> Ongoing activities occur every year, such as continuing an inspection program or annual review of procedures

<sup>°</sup> FTE, or Full-time equivalent staff, assumes 1,768 hours worked per year for one full-time staff member

Tal	ole A-13. Cost S	Summary by	Program A	rea, Year, ar	nd Tier.			
Program Area	Tier	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Total
		2023	2024	2025	2026	2027	2028	
	Level 1	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$60,000
Stormwater Planning	Level 2	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$60,000
	Level 3	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$60,000
	Level 1	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Public Education and Outreach	Level 2	\$0	\$20,000	\$0	\$0	\$0	\$0	\$20,000
	Level 3	\$0	\$20,000	\$0	\$0	\$0	\$0	\$20,000
	Level 1	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Public Involvement and Participation	Level 2	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Level 3	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Level 1	\$0	\$0	\$0	\$0	\$0	\$0	\$0
MS4 Mapping and Documentation	Level 2	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Level 3	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Level 1	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Illicit Discharge Detection and Elimination	Level 2	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Level 3	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Controlling Punoff from New Development	Level 1	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Controlling Runoff from New Development, Redevelopment, and Construction Sites	Level 2	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Redevelopment, and Construction Sites	Level 3	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Level 1	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Operations and Maintenance	Level 2	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Level 3	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Level 1	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Source Control Program for Existing Development	Level 2	\$20,000	\$0	\$0	\$0	\$0	\$0	\$20,000
	Level 3	\$20,000	\$0	\$0	\$0	\$0	\$0	\$20,000
	Level 1	\$0	\$0	\$0	\$0	\$0	\$0	\$0
TMDL Requirements	Level 2	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Level 3	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Level 1	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Monitoring and Assessment	Level 2	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Level 3	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Level 1	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Reporting	Level 2	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Level 3	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Level 1	\$0	\$0	\$50,000	\$0	\$0	\$0	\$50,000
Other SWM Support	Level 2	\$0	\$0	\$50,000	\$0	\$0	\$0	\$50,000
	Level 3	\$0	\$0	\$50,000	\$0	\$100,000	\$0	\$150,000

		Table A-14.	Cost Summa	ary by Year a	and Tier.		
Tier	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Total
	2023	2024	2025	2026	2027	2028	
Level 1 Total	\$10,000	\$10,000	\$60,000	\$10,000	\$10,000	\$10,000	\$110,000
Level 2 Total	\$30,000	\$30,000	\$60,000	\$10,000	\$10,000	\$10,000	\$150,000
Level 3 Total	\$30,000	\$30,000	\$60,000	\$10,000	\$110,000	\$10,000	\$250,000

Table A	λ-15. Staff Hoυ	ırs Summar	y by Progra	ım Area, Ye	ar, and Tier			
Program Area	Tier	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Total
		2023	2024	2025	2026	2027	2028	
	Level 1	40	40	40	482	482	482	1,566
Stormwater Planning	Level 2	40	40	40	482	482	482	1,566
	Level 3	40	40	40	482	482	482	1,566
	Level 1	562	562	522	522	522	522	3,212
Public Education and Outreach	Level 2	1,004	1,084	924	964	964	964	5,904
	Level 3	1,888	1,968	1,848	1,848	1,848	1,848	11,248
	Level 1	0	0	0	0	0	0	0
Public Involvement and Participation	Level 2	0	0	0	0	0	0	0
	Level 3	0	0	0	0	0	0	0
	Level 1	442	482	442	442	442	442	2,692
MS4 Mapping and Documentation	Level 2	1,326	1,366	1,326	1,326	1,326	1,326	7,996
5	Level 3	1,326	1,366	1,326	1,326	1,326	1,326	7,996
	Level 1	0	0	0	0	0	0	0
Illicit Discharge Detection and Elimination	Level 2	0	0	0	0	0	0	0
	Level 3	0	0	0	0	0	0	0
0 1 11 12 15 15 15 15 15 15 15 15 15 15 15 15 15	Level 1	0	40	40	40	40	40	200
Controlling Runofffrom New Development,	Level 2	0	1,808	1,808	1,808	1,808	1,808	9,040
Redevelopment, and Construction Sites	Level 3	0	1,808	1,808	1,808	1,808	1,808	9,040
	Level 1	0	120	320	120	120	120	800
Operations and Maintenance	Level 2	0	1,004	1,646	1,446	1,888	1,888	7,872
	Level 3	0	1,004	1,646	1,446	1,888	1,888	7,872
Course Control December for Existing	Level 1	440	480	480	480	480	480	2,840
Source Control Program for Existing	Level 2	440	520	520	520	520	520	3,040
Development	Level 3	440	520	520	520	520	520	3,040
	Level 1	442	442	442	442	442	442	2,652
TMDL Requirements	Level 2	442	442	442	442	442	442	2,652
	Level 3	442	442	442	442	442	442	2,652
	Level 1	0	0	0	0	0	0	0
Monitoring and Assessment	Level 2	0	0	0	0	0	0	0
	Level 3	0	0	0	0	0	0	0
	Level 1	0	0	0	0	0	0	0
Reporting	Level 2	0	0	0	0	0	0	0
	Level 3	0	0	0	0	0	0	0
	Level 1	0	0	542	442	442	442	1,868
Other SWM Support	Level 2	0	0	984	884	884	884	3,636
	Level 3	0	0	1,426	1,326	1,426	1,326	5,504

	Table A	-16. Staff Hou	rs Summary by	Year and Tier.	1	
Tier	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	2023	2024	2025	2026	2027	2028
Level 1 Total	1,926	2,166	2,828	2,970	2,970	2,970
Level 2 Total	3,252	6,264	7,690	7,872	8,314	8,314
Level 3 Total	4,136	7,148	9,056	9,198	9,740	9,640

	Table <i>i</i>	A-17. Staff FT	E Summary by Y	ear and Tier.		
Tier	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	2023	2024	2025	2026	2027	2028
Level 1 Total	1.09	1.23	1.60	1.68	1.68	1.68
Level 2 Total	1.84	3.54	4.35	4.45	4.70	4.70
Level 3 Total	2.34	4.04	5.12	5.20	5.51	5.45

Table A-18. Fundin	g and Staffin	g Summary	by Program Ar	ea and Tier.		
		One	e-Time <sup>a</sup>		Ongoingb	
Program Area	Tier	Funding	Staff Support (hours)	Funding	Staff Support (hours/year)	FTE°
	Level 1	\$0	0	\$10,000	482	0.27
Stormwater Planning	Level 2	\$0	0	\$10,000	482	0.27
	Level 3	\$0	0	\$10,000	482	0.27
	Level 1	\$0	320	\$0	522	0.30
Public Education and Outreach	Level 2	\$20,000	400	\$280	964	0.30
	Level 3	\$20,000	400	\$0	1,848	1.05
	Level 1	\$0	0	\$0	0	0
Public Involvement and Participation	Level 2	\$0	0	\$0	0	0
·	Level 3	\$0	0	\$0	0	0
	Level 1	\$0	40	\$0	442	0.25
MS4 Mapping and Documentation	Level 2	\$0	40	\$0	1,326	0.75
1. 9	Level 3	\$0	40	\$0	1,326	0.75
	Level 1	\$0	0	\$0	0	0
Illicit Discharge Detection and Elimination	Level 2	\$0	0	\$0	0	0
, and the second	Level 3	\$0	0	\$0	0	0
	Level 1	\$0	0	\$0	40	0
Controlling Runoff from New Development,	Level 2	\$0	0	\$0	1,808	1.02
Redevelopment, and Construction Sites	Level 3	\$0	0	\$0	1,808	1.02
	Level 1	\$0	200	\$0	120	0
Operations and Maintenance	Level 2	\$0	200	\$0	1,888	1.07
·	Level 3	\$0	200	\$0	1,888	1.07
	Level 1	\$0	0	\$0	480	0.27
Source Control Program for Existing Development	Level 2	\$20,000	0	\$0	520	0.29
	Level 3	\$20,000	0	\$0	520	0.29
	Level 1	\$0	0	\$0	442	0
TMDL Requirements	Level 2	\$0	0	\$0	442	0
	Level 3	\$0	0	\$0	442	0
	Level 1	\$0	0	\$0	0	0
Monitoring and Assessment	Level 2	\$0	0	\$0	0	0
	Level 3	\$0	0	\$0	0	0
	Level 1	\$0	0	\$0	0	0
Reporting	Level 2	\$0	0	\$0	0	0
	Level 3	\$0	0	\$0	0	0
	Level 1	\$50,000	100	\$0	442	0.25
Other SWM Support	Level 2	\$50,000	100	\$0	884	0.50
	Level 3	\$150,000	200	\$0	1,326	0.75

<sup>&</sup>lt;sup>a</sup> One-time activities are completed once, such as hiring a consultant to develop new training materials

<sup>&</sup>lt;sup>b</sup> Ongoing activities occur every year, such as continuing an inspection program or annual review of procedures

<sup>°</sup>FTE, or Full-time equivalent staff, assumes 1,768 hours worked per year for one full-time staff member



# **APPENDIX B**

# **Capital Improvement Program**



# **APPENDIX B.1**

# Initial Capital Improvement Projects, Problem Descriptions, and Solutions



			Table 1. Initial Capital Improver	nent Projects, Problem Descriptions, and Solutio	ns.	
ID	Project Name	Basin	Problem Description	Solution	Phase II Scope <sup>a</sup>	Project Type
1	Anderson Creek Culvert Retrofits	Anderson Creek	The two existing culverts are undersized for fish passage and have not been able to be inspected in the past 10 years.	Replace undersized culverts with fish passable box culverts or a bridge. Coordinate the project with water main replacement on Old Clifton Road.	Conduct a site assessment to determine the necessary culvert size. Develop a summary sheet, figure, and analogous cost estimate.	Culvert Retrofits or Replacement
2	Annapolis Creek Culvert Replacement	Annapolis Creek	The existing culvert is failing, which is impairing upstream estuary conditions, and contributing to local flooding and property damage.	Replace the failing culvert with new modern fish passable culvert and restoring estuary processes upstream. 30% design has been completed by Reid Middleton. Currently in the process of selecting a preferred alternative.	Develop a project summary sheet and figure. The details in the summary sheet and cost estimate will come from design work that is underway.	Culvert Retrofits or Replacement
3	SE Salmonberry Road Lower Blackjack Creek Culvert Replacement	Lower Blackjack Creek	The existing culvert at SE Salmonberry Road crossing has collapsed.	Replace the failing culvert with new modern fish passable culvert. Coordinate with Bethel and Sedgwick Road Corridor Stormwater Improvement projects.	Identify a reference reach and conduct a site assessment to determine the necessary culvert size. Develop a summary sheet, figure, and analogous cost estimate.	Culvert Retrofits or Replacement
4	Blackjack Creek Floodplain Restoration and Stormwater Management	Lower Blackjack Creek	The mainstem of Blackjack Creek and the surrounding floodplain are impaired. The floodplain currently lacks adequate water storage.	Restore natural channel configuration and floodplain function on Blackjack Creek to improve stormwater treatment, infiltration, and water storage for low flows.	Develop conceptual solution for restoration of fluvial process and floodplain function, summary sheet, figure, and analogous cost estimate.	Floodplain and Stream Restoration
5	Blackjack Creek Storm Outfall Assessment and Retrofits	Lower Blackjack Creek	There are multiple storm outfalls that need rehabilitation. The outfalls have inadequate energy dissipation, infiltration, and water quality treatment.	Rehabilitate the outfalls.	Conduct site assessment to confirm existing conditions and develop conceptual solutions. Create a summary sheet, figure, and analogous cost estimate.	Outfall Condition Assessment and Rehabilitation



			Table 1. Initial Capital Improven	nent Projects, Problem Descriptions, and Solutio	ns.	
ID	Project Name	Basin	Problem Description	Solution	Phase II Scope <sup>a</sup>	Project Type
6	Central Sidney Stormwater Improvements	Downtown-County Campus	Old and undersized stormwater infrastructure is resulting in frequent flooding of the roadway and private property. Stormwater runoff currently discharges untreated to Unnamed Stream negatively affecting aquatic organisms.	Construct adequately sized stormwater conveyance infrastructure throughout the neighborhood and construct a regional facility / stormwater park to provide flow control and water quality treatment in accordance with current stormwater requirements.	Conduct hydrologic modeling to size the regional facility.  Develop conceptual plan for conveyance system and regional facility location. Create a summary sheet, figure, and analogous cost estimate.	Stormwater Conveyance and Water Quality Treatment
7	Downtown Basin Stormwater Upgrades	Downtown-County Campus	The Downtown-County Campus Basin has inadequate conveyance, water quality treatment, and flow control to manage stormwater runoff.	The Downtown Basin Stormwater Plan is underway. It includes infrastructure, condition assessment, and modeling. The work will define approximately five new capital projects.	Develop project summary sheets and figures for approximately five projects. The details in the summary sheet and cost estimate will come from the Downtown Basin Stormwater Plan.	Stormwater Conveyance and Water Quality Treatment
8	Glenwood Road Ruby Creek Culvert Replacement	Ruby Creek	There are multiple undersized fish barrier culverts and drainage issues near Glenwood Road.	Remove undersized culverts and replace with fish passable culverts.	Conduct a site assessment to determine the necessary culvert sizes. Develop a summary sheet, figure, and analogous cost estimate.	Culvert Retrofits or Replacement
9	Johnson Creek Stream Realignment	Johnson Creek	There are 18 fish barrier culverts along Johnson Creek, many of which are unnecessary. Johnson Creek also has alignment issues.	Feasibility assessment and alternatives analysis for realigning Johnson Creek and Port Orchard Boulevard to restore stream channel function and fish passage. This will involve removing the 18 culverts and potentially installing fish passable culverts.	Conduct field assessment to size the new culverts. Develop a summary sheet, figure, and analogous cost estimate.	Culvert Retrofits or Replacement (Full Stream Realignment)
10	Johnson Creek Estuary Restoration	Johnson Creek	The Johnson Creek estuary has been filled by development and contains potentially contaminated soils.	Feasibility assessment and alternatives analysis to restore the estuary. Remove two 30" pipes in the easement and restore the estuary. This will require property acquisition at the mouth of Johnson Creek.	Conduct field assessment to define estuary footprint. Develop a summary sheet, figure, and analogous cost estimate.	Estuary Restoration
11	McCormick Woods Drive Culvert Barrier Replacement	Anderson Creek	There are three failing culverts along McCormick Woods Drive that need to be removed and replaced.	Remove the three failing culverts and replace with fish passable culverts.	Conduct field assessment to size the culverts. Create a summary sheet, figure, and analogous cost estimate.	Culvert Retrofits or Replacement



			Table 1. Initial Capital Improven	nent Projects, Problem Descriptions, and Solutio	ns.	
ID	Project Name	Basin	Problem Description	Solution	Phase II Scope <sup>a</sup>	Project Type
12	Port Orchard East Shoreline Acquisition and Easement Right	Lower Blackjack Creek	Stormwater outfalls in the Eastern Shoreline are not accessible for inspection and maintenance.  The shoreline is currently inaccessible to the public.	Acquire access to all shoreline properties east of Rockwell Park to eastern city limit.	Confirm number of outfalls on public and private property. Develop a summary sheet, figure, and analogous cost estimate.	Shoreline Acquisition
13	Rockwell Area Stormwater Improvements	Lower Blackjack Creek	The Rockwell Area has inadequate water quality treatment. The area also has a high groundwater table and steep grade resulting in high stormwater flow rates and sediment accumulation at the following intersections: Bay Street and Seattle Avenue; Bay Street and Rockwell Avenue.	Install water quality treatment system(s) for the Rockwell Area.	Develop conceptual plan for water quality treatment system(s). Create a summary sheet, figure, and analogous cost estimate.	Water Quality Treatment
14	Ross Creek Beaver Dam Analogs Installation	Foce ( real   Impaired the floodplain currently lacks		Install beaver dam analogs or other in-stream elements to improve floodplain connectivity in the most effective areas.	Conduct field assessment to identify locations for beaver dam analogs or other in-stream elements along Ross Creek. Develop a summary sheet, figure, and analogous cost estimate.	Floodplain and Stream Restoration
15	Ross Creek Estuary Restoration and Beach Recreation Area	Ross Creek	The Ross Creek estuary is impaired and there is limited public recreation access at the nearby beaches.	Restore estuary function and processes in Ross Creek and open privately owned beaches for recreation activities.	Develop a summary sheet, figure, and analogous cost estimate.	Estuary Restoration Shoreline Acquisition
16	Sidney Road SW Ruby Creek Culvert Replacement and Bridge Installation	Ruby Creek	There is a failing culvert under Sidney Road SW. The culvert is a fish barrier due to a plunge pool and elevation drop.	Replace the culvert under Sidney Road SW.	Create a summary sheet, figure, and analogous cost estimate. The details in the summary sheet and cost estimate will come from design work that is underway (Brian Abbott grant).	Culvert Retrofits or Replacement
17	Silver Creek Rehabilitation	Lower Blackjack Creek	Silver Creek, a Type F tributary to Blackjack Creek, requires rehabilitation to restore its original fluvial function.	Redirect flow into a deep pipe, trapezoidal channel, or through private property.	Conduct a site assessment to define a conceptual solution. Develop a summary sheet, figure, and analogous cost estimate.	Floodplain and Stream Restoration Stormwater Conveyance



			Table 1. Initial Capital Improver	nent Projects, Problem Descriptions, and Solutio	ns.		
ID	Project Name	Basin	Problem Description Solution		Phase II Scope <sup>a</sup>	Project Type	
18	South Blackjack Creek Culvert Removal and Bridge Installation	Lower Blackjack Creek	There is a failing fish barrier culvert under Sedgwick Road. The culvert needs to be removed and replaced.	Remove culvert under Sedgwick Road and replace with a large span bridge. Coordinate with TIP projects.	Conduct site assessment to size the bridge. Develop a summary sheet, figure, and analogous cost estimate.	Culvert Retrofits or Replacement	
19	South Sidney Regional Facility	Lower Blackjack Creek	Old and undersized stormwater infrastructure is resulting in frequent flooding on Sherman Avenue and private property in nearby cul-desacs. There is no visible stormwater conveyance system nearby. Stormwater runoff currently discharges untreated to Blackjack Creek negatively affecting aquatic organisms. There is also a need for residential pedestrian connectivity between Bravo Terrace and South Sidney.	Construct a regional facility that includes infiltration. This project will require property acquisition.	Conduct hydrologic modeling to size the regional facility.  Develop conceptual plan for regional facility location.  Create a summary sheet, figure, and analogous cost estimate.	Water Quality Treatment	
20	Westbay Stormwater Improvements	Lower Blackjack Creek	Old and undersized stormwater infrastructure is resulting in localized flooding. There is currently no water quality treatment in the area. Stormwater runoff currently discharges untreated to Sinclair Inlet negatively affecting aquatic organisms. The area has steep slopes and limited right-of-way, making this a difficult project.	Install stormwater conveyance and water quality treatment infrastructure.	Develop conceptual plan for water quality treatment and conveyance upgrades. Create a summary sheet, figure, and analogous cost estimate.	Stormwater Conveyance and Water Quality Treatment	



# **APPENDIX B.2**

# **Capital Improvement Project Summary Sheets**







# City of Port Orchard Stormwater and Watersheds Comprehensive Plan – Capital Improvement Projects ANNAPOLIS CREEK CULVERT REPLACEMENT



# Problem Description

The existing wood-framed box culvert under Bay Street is deteriorating causing maintenance costs to increase. Flooding occurs in the area due to tidal influences. The 36-inch culvert that connects to the box culvert creates a fish passage barrier.

## **Existing Conditions**



# City of Port Orchard Stormwater and Watersheds Comprehensive Plan – Capital Improvement Projects **ANNAPOLIS CREEK CULVERT REPLACEMENT**

# **Project Description**

Replace existing 36-inch culvert and wood-framed box culvert with a 12-ft wide bottomless concrete box culvert on concrete foundations. Existing utilities will continue to pass through the culvert walls.

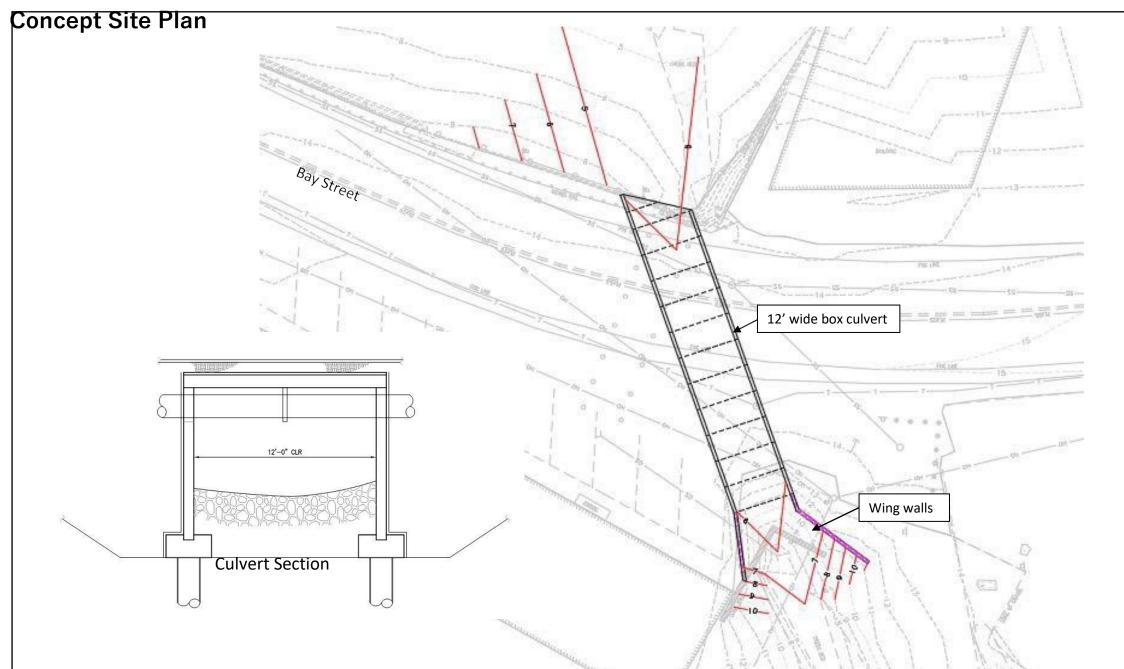
#### **Permits Required**

Hydraulic Project Approval (WDFW) **USACE Section 404 Permit SEPA DNS** Right-of-Way Permit Commercial Permit **Critical Areas Documentation Shoreline Permit** 

#### **Estimated Costs**

Total Construction Cost (2022)

\$1,200,000



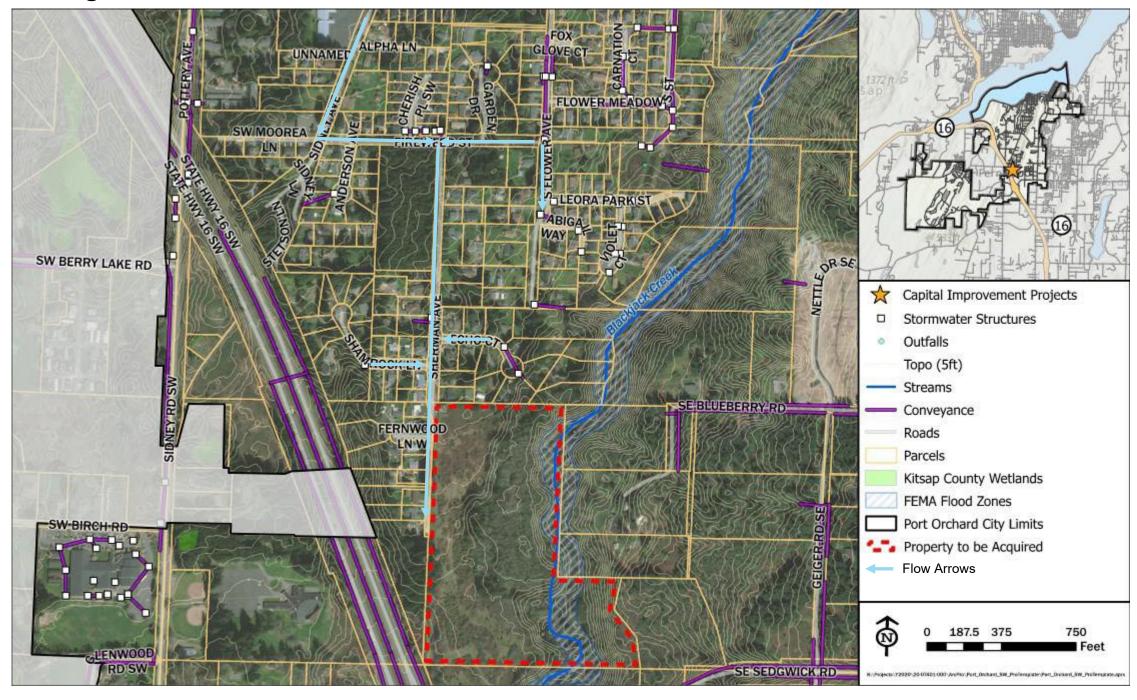
	Program Elements (0 - 15 Scale)										
Flood Reduction	Groundwater and Surface Water Quality	Groundwater and Surface Water Quantity	Habitat Enhancement	Infrastructure Operations and Maintenance	Public Participation (Education, Outreach, and Involvement)	Comprehensive Planning, Administration, and Funding	Total				
15	0	5	10	5	0	10	45				





# City of Port Orchard Stormwater and Watersheds Comprehensive Plan – Capital Improvement Projects **SOUTH SIDNEY REGIONAL FACILITY**

## **Existing Site Plan**



# **Problem Description**

Old and undersized stormwater infrastructure is resulting in frequent flooding on Sherman Avenue and private property in nearby cul-de-sacs. There is no visible stormwater conveyance system nearby. Stormwater runoff currently discharges untreated to Blackjack Creek negatively affecting aquatic organisms. The neighborhood currently lacks sidewalks and walkability.

## **Existing Conditions**





Undeveloped Parcel at the South End of Sherman Avenue (Photos Courtesy of Google Earth)

Basin	Available Space	Grades and Elevations	Soils and Groundwater	Critical Areas	Utilities
Lower Blackjack Creek	No available space without property acquisition	Steeper slopes on eastern and southern sides of the property	Mostly Kitsap Silt Loam (Hydrologic Soil Group A)	Stream buffer located on the east side of the property	<ul> <li>No known utility conflicts on the property</li> <li>Multiple ROW utilities (e.g., overhead power, gas, water, sewer) are present</li> </ul>





# City of Port Orchard Stormwater and Watersheds Comprehensive Plan – Capital Improvement Projects

#### **Project Description**

Build a new regional stormwater facility on the parcel southeast of Sherman Avenue. The facility will provide centralized flow control and treatment of an approximately 30-acre upstream drainage area extending from Sidney Avenue to Sherman Avenue. The facility could incorporate elements from constructed wetlands, bioretention, and infiltration ponds. The facility will serve as a neighborhood amenity and will enhance aesthetics, biodiversity, and habitat. A combination of surface (swale) and subsurface (piped) stormwater conveyance will be constructed to convey flow to the facility. This project will require property acquisition and facilitate the construction of sidewalks in the neighborhood.

**Design Precedent** 



## **Permits Required**

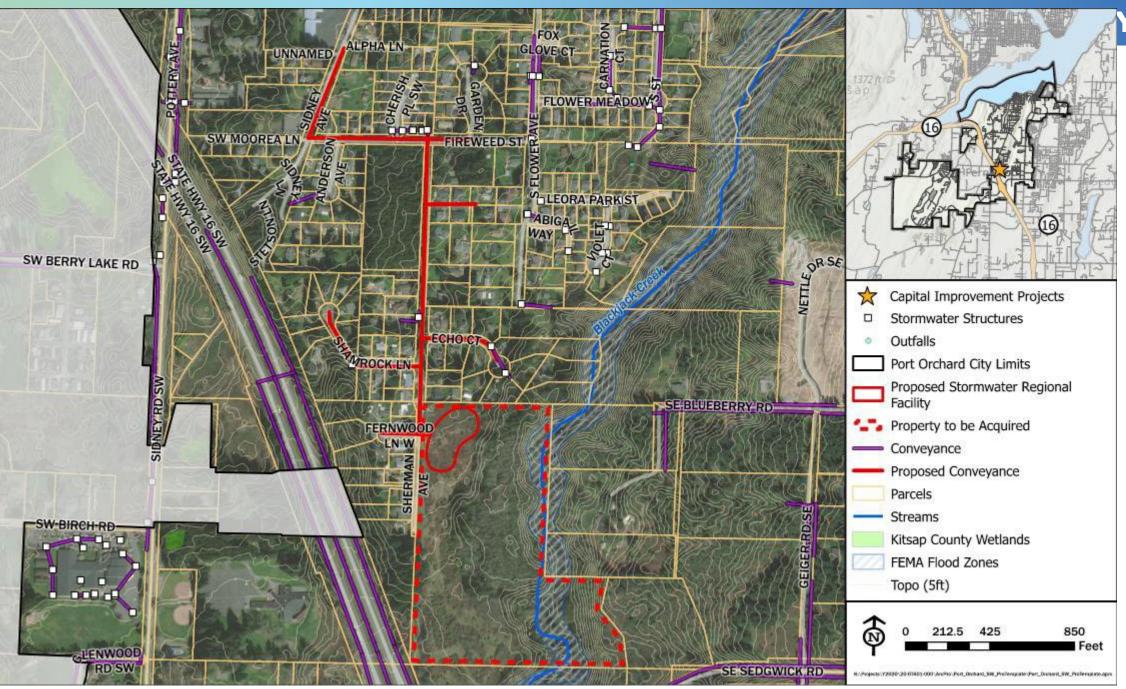
**Hydraulic Project Approval (WDFW) USACE Section 404 Permit SEPA DNS** 

#### **Estimated Costs**

Total design + permitting + construction cost does not include property acquisition.

Total Design + Permitting + Construction Cost (2022)

\$3,500,000



	Program Elements (0 - 15 Scale)									
Flood Reduction	Groundwater and Surface Water Quality	Groundwater and Surface Water Quantity	Habitat Enhancement	Infrastructure Operations and Maintenance	Public Participation (Education, Outreach, and Involvement)	Comprehensive Planning, Administration, and Funding	Total			
5	15	10	10	0	15	15	70			

# City of Port Orchard Stormwater and Watersheds Comprehensive Plan – Capital Improvement Projects **DOWNTOWN STORMWATER BASIN IMPROVEMENTS**



# **Problem Description**

Most of the stormwater from the basin discharges to Sinclair Inlet without treatment. Some of the existing infrastructure is under capacity and pipe routing is inefficient. Flooding of the lower basin occurs during high tide events.

**Existing Conditions** 



**Downtown Basin** 

October 2022









# City of Port Orchard Stormwater and Watersheds Comprehensive Plan – Capital Improvement Projects **DOWNTOWN STORMWATER BASIN IMROVEMENTS**

## **Project Description**

Install tide gates in new manhole structures at all outfall pipes directly discharging into Sinclair Inlet. Install water quality vaults in centralized locations to collect and treat stormwater runoff. Replace and reconfigure convoluted storm pipe systems to new water quality facilities. Remove smaller pipe outfalls prone to tidal flooding. Install optional detention vault (2500 CF) to reduce flooding during large tidal and storm events.

This project aligns with the Downtown Subarea Plan and Community Events Center (CEC), and is related to the federal funding to improve Bay Street in Downtown Port Orchard.

#### **Permits Required**

Right-of-Way Permit Commercial Permit

#### **Estimated Costs**

Total Design + Permitting + Construction Cost (2022)

\$1,760,000



	Program Elements (0 - 15 Scale)											
Flood Reduction	Groundwater and Surface Water Quality	Groundwater and Surface Water Quantity	Habitat Enhancement	Infrastructure Operations and Maintenance	Public Participation (Education, Outreach, and Involvement)	Comprehensive Planning, Administration, and Funding	Total					
15	15	0	0	10	0	15	55					

# City of Port Orchard Stormwater and Watersheds Comprehensive Plan – Capital Improvement Projects **DOWNTOWN STORMWATER BASIN IMROVEMENTS**

## **Project Description**

Install tide gates in new manhole structures at all outfall pipes directly discharging into Sinclair Inlet. Install water quality vaults in centralized locations to collect and treat stormwater runoff. Replace and reconfigure convoluted storm pipe systems to improve function and maintenance. Install optional detention vaults (2500 CF) to reduce flooding during large tidal and storm events.

This project aligns with the Downtown Subarea Plan and Community Events Center (CEC), and is related to the funding to improve Bay Street in Downtown Port Orchard.

#### **Permits Required**

Right-of-Way Permit **Commercial Permit** 

#### **Estimated Costs**

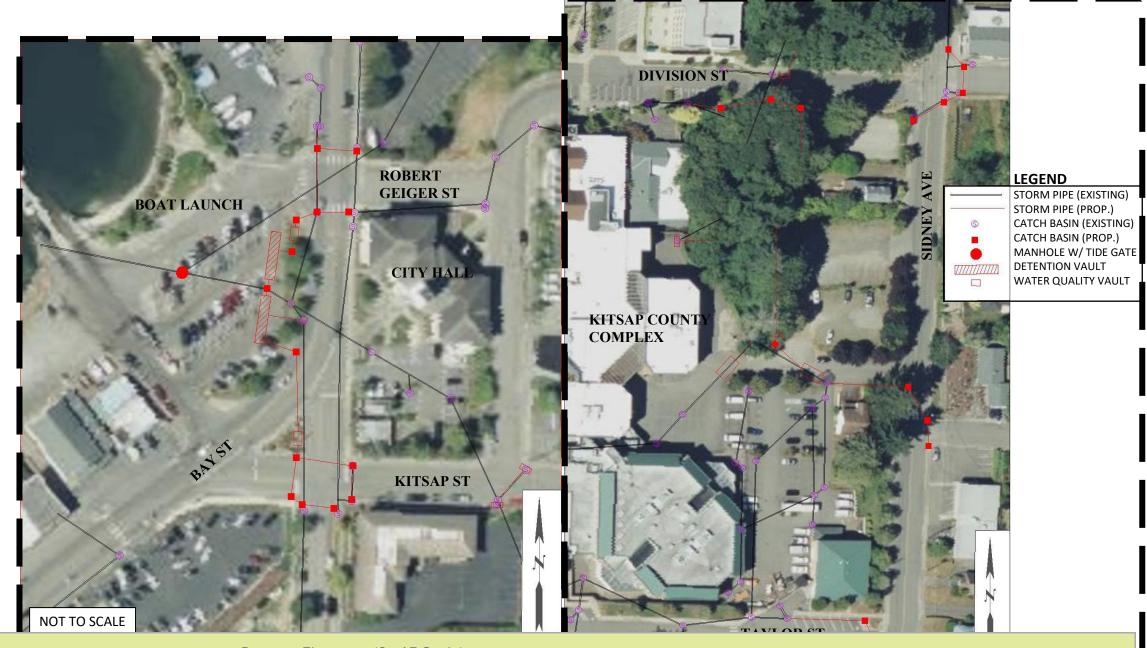
Total Design + Permitting + Construction Cost (2022)

\$970,000 (Near City Hall) or \$1,100,000 with Optional Detention

\$982,000 (Near Kitsap County Courthouse)

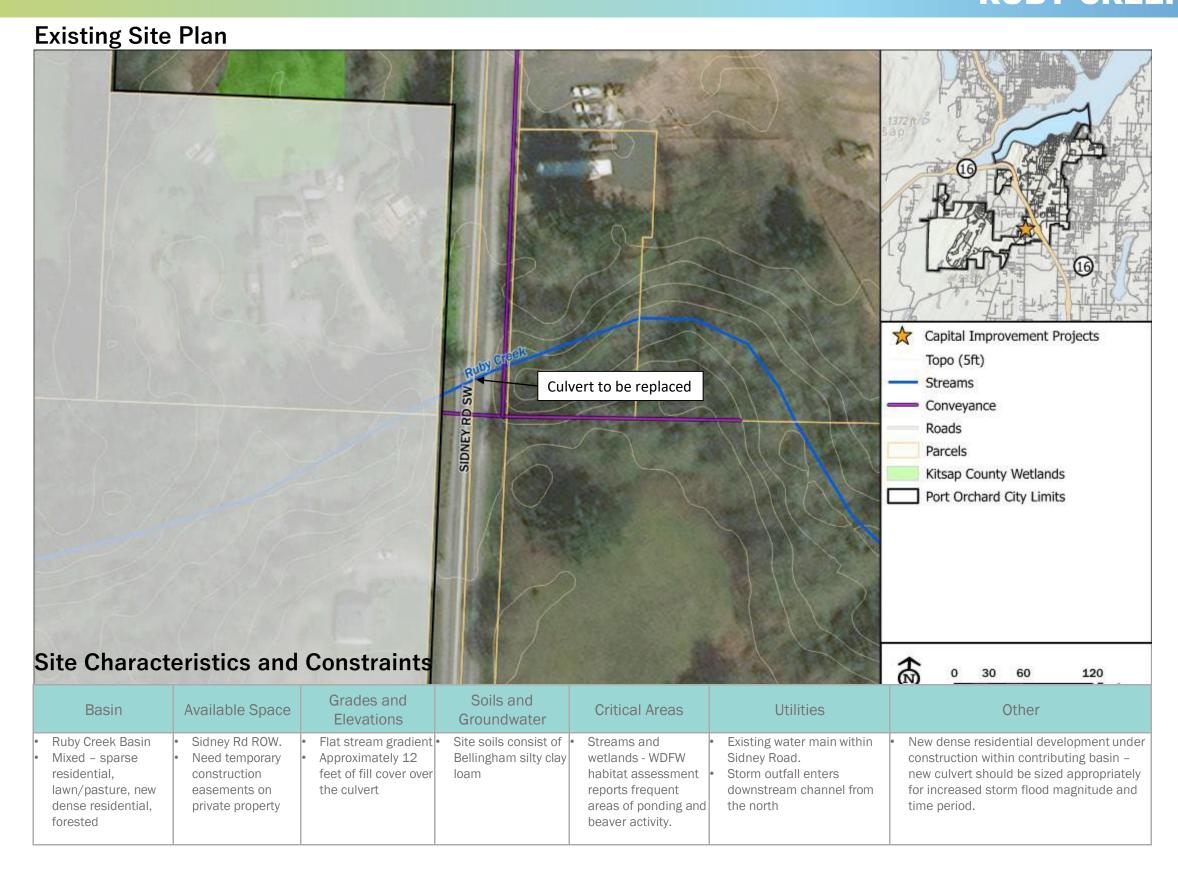
#### **Prioritization Matrix**

**Concept Site Plan** 



	Program Elements (0 - 15 Scale)											
Flood Reduction	Groundwater and Surface Water Quality	Groundwater and Surface Water Quantity	Habitat Enhancement	Infrastructure Operations and Maintenance	Public Participation (Education, Outreach, and Involvement)	Comprehensive Planning, Administration, and Funding	Total					
15	15	0	0	10	0	15	55					

# City of Port Orchard Stormwater and Watersheds Comprehensive Plan – Capital Improvement Projects **RUBY CREEK CULVERT REPLACEMENT**



#### **Problem Description**

Existing 8' wide CMP elliptical culvert has a damaged inlet and rusted bottom and is a partial fish barrier.

## **Existing Conditions**





Geotextile fabric-lined upstream right bank







# City of Port Orchard Stormwater and Watersheds Comprehensive Plan – Capital Improvement Projects **RUBY CREEK CULVERT REPLACEMENT**

## **Project Description**

Replace existing culvert under Sidney Road SW with a proposed bottomless 14-ft wide box culvert using trenchless methods for installation.

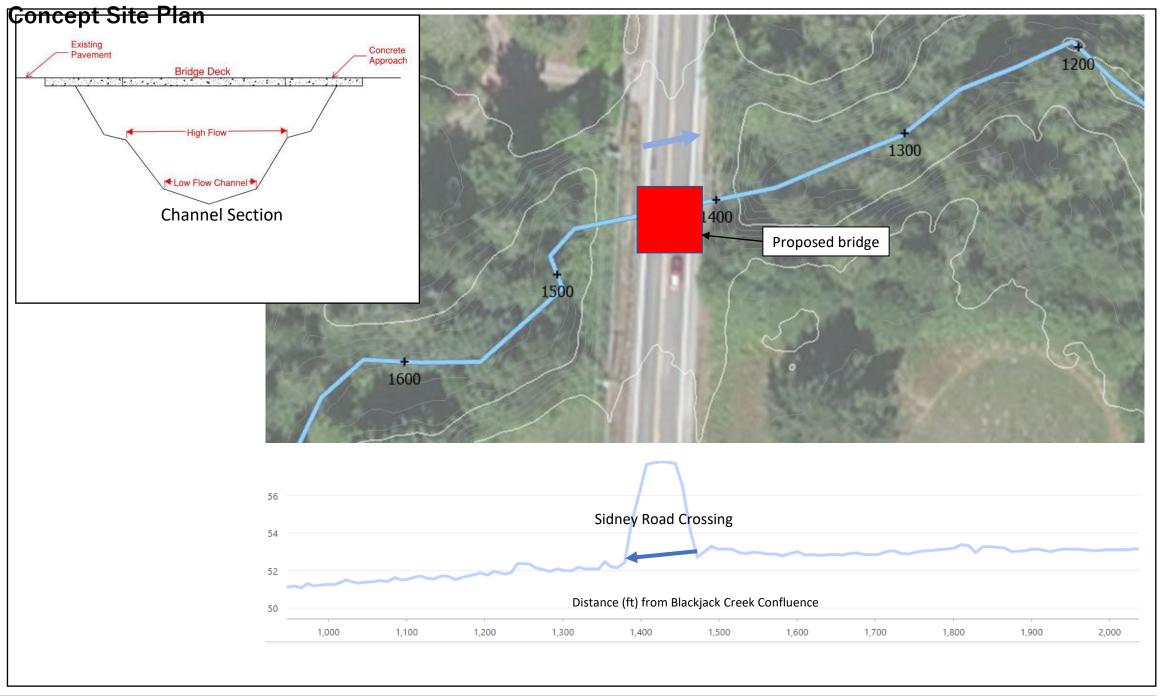
This project aligns with the Ruby Creek Subrea Plan and Parks Plan.

## **Permits Required**

Hydraulic Project Approval (WDFW) USACE Section 404 Permit **SEPA DNS** Right-of-Way Permit Commercial Permit **Critical Areas Documentation** 

#### **Estimated Costs**

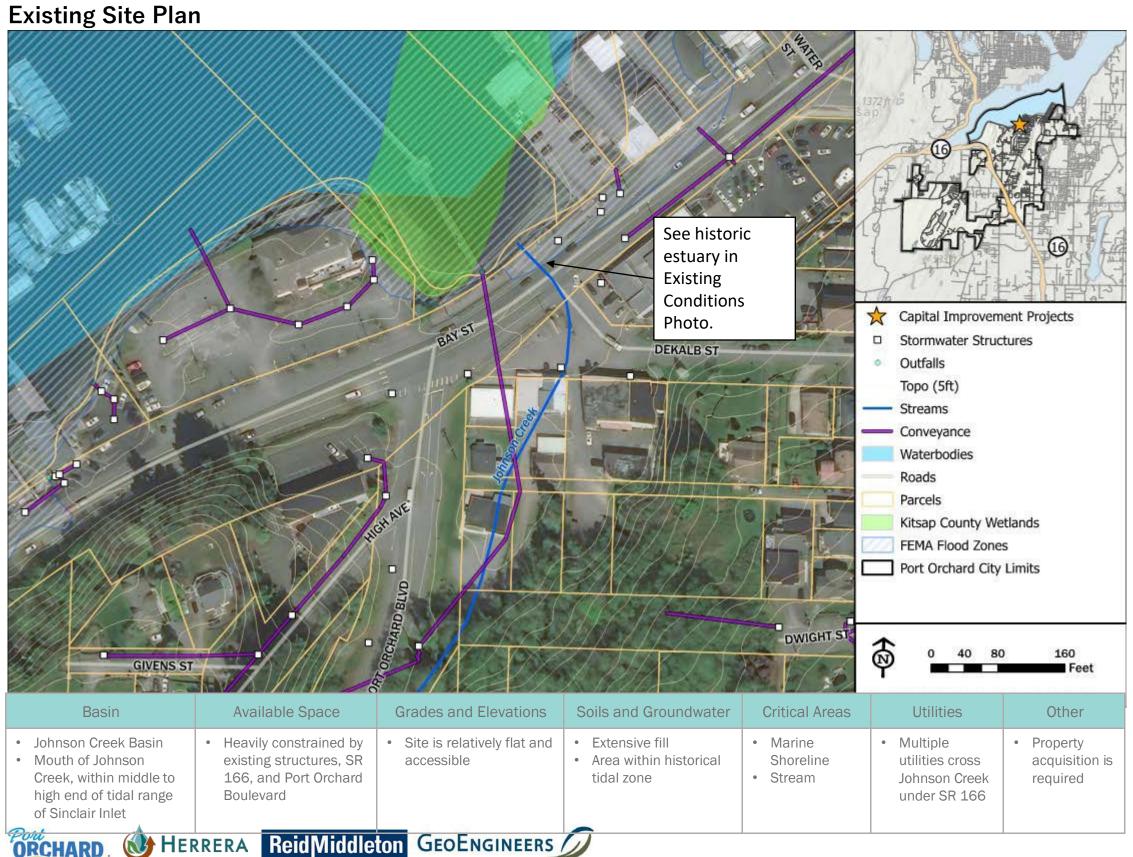
Total Design + Permitting + Construction Cost (2022) \$1,600,000



	Program Elements (0 - 15 Scale)											
Flood Reduction	Groundwater and Surface Water Quality	Groundwater and Surface Water Quantity	Habitat Enhancement	Infrastructure Operations and Maintenance	Public Participation (Education, Outreach, and Involvement)	Comprehensive Planning, Administration, and Funding	Total					
5	0	5	10	5	0	10	35					



# City of Port Orchard Stormwater and Watersheds Comprehensive Plan – Capital Improvement Projects **JOHNSON CREEK ESTUARY RESTORATION**



# **Problem Description**

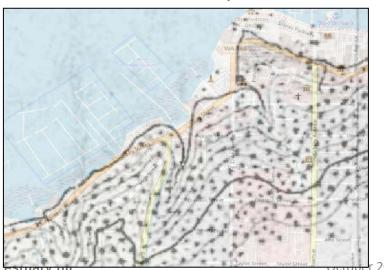
Johnson Creek and its estuary were piped and filled during development of Port Orchard. Estuary habitat has been completely lost and fish passage is difficult at best. Several businesses and houses as well as SR 166 are built over the fill. Multiple major utility lines are routed along SR 166.

**Existing Conditions** 





Downstream end of culvert under public dock









# City of Port Orchard Stormwater and Watersheds Comprehensive Plan - Capital Improvement Projects **JOHNSON CREEK ESTUARY RESTORATION**

## **Project Description**

Restoration of the Johnson Creek Estuary will require acquisition of multiple properties prior to removal of structures and fill from the nearshore. Coordination with WSDOT will be required for construction of a bridge on SR 166, replacement of existing utility lines, and connection of pedestrian access to the public pier. Additional investigation of the stability of Port Orchard Boulevard will be required. The central location and nearby parking makes the estuary an excellent location for walkways, overlooks, and educational opportunities.

This project aligns with the Downtown Subarea Plan and Parks Plan.

#### **Permits Required**

**Hydraulic Project Approval (WDFW) USACE Section 404 SEPA DNS Right-of-Way Permit Cultural Resources (DHAP) Critical Areas Documentation Shoreline Permit** 

#### **Estimated Costs**

#### Total Cost (2022)

Property Acquisition and Easements: \$2,500,000 Planning, Design, and Permitting: \$1,000,000 Construction: \$2,500,000 Total Project Cost: \$6,000,000

# **Concept Site Plan** New Johnson Creek channel New SR 166 bridge Extent of estuary grading Dekalb St Acquire 4 parcels Not to scale

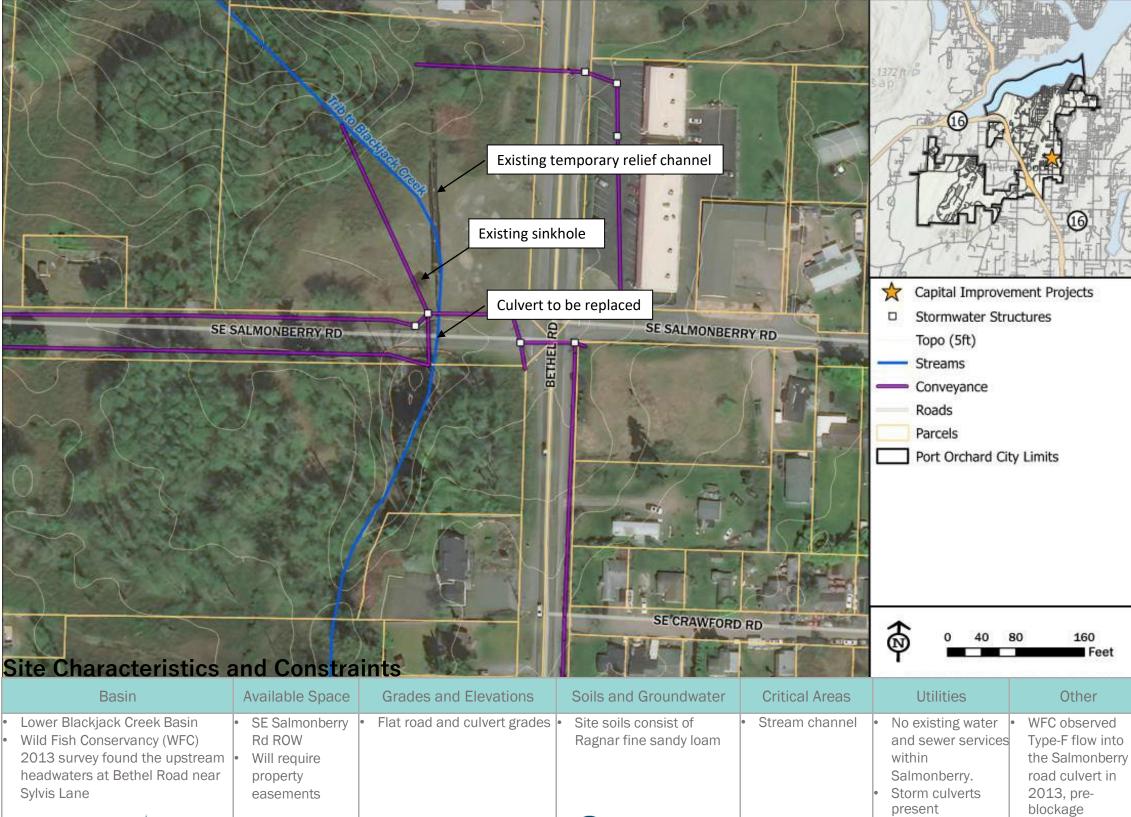
	Program Elements (0 - 15 Scale)											
Flood Reduction	Groundwater and Surface Water Quality	Groundwater and Surface Water Quantity	Habitat Enhancement	Infrastructure Operations and Maintenance	Public Participation (Education, Outreach, and Involvement)	Comprehensive Planning, Administration, and Funding	Total					
5	10	5	15	10	10	15	70					





# City of Port Orchard Stormwater and Watersheds Comprehensive Plan – Capital Improvement Projects SE SALMONBERRY RD, LOWER BLACKJACK CREEK CULVERT RETROFIT

## **Existing Site Plan**



# **Problem Description**

Previous work to convey stream channel under Salmonberry Road and through private property with a culvert has failed. Flooding occurs at the Salmonberry Road crossing. The culvert across the site is damaged and caused sinkhole on the property. Drainage fix with temporary relief channel and piping is not functioning properly.

**Existing Conditions** 

Sinkhole on property from damaged culvert











# City of Port Orchard Stormwater and Watersheds Comprehensive Plan – Capital Improvement Projects SE SALMONBERRY RD, LOWER BLACKJACK CREEK CULVERT RETROFIT

## **Project Description**

Remove and replace existing crossing culverts under SE Salmonberry Road with new storm conveyance system. New storm pipe system to extend from channel outfall to an existing swale channel west of the crossing. The swale drains to the Blackjack Creek tributary channel. It's anticipated that a fish passage culvert is not required since fish habitat only occurs north of SE Salmonberry Road.

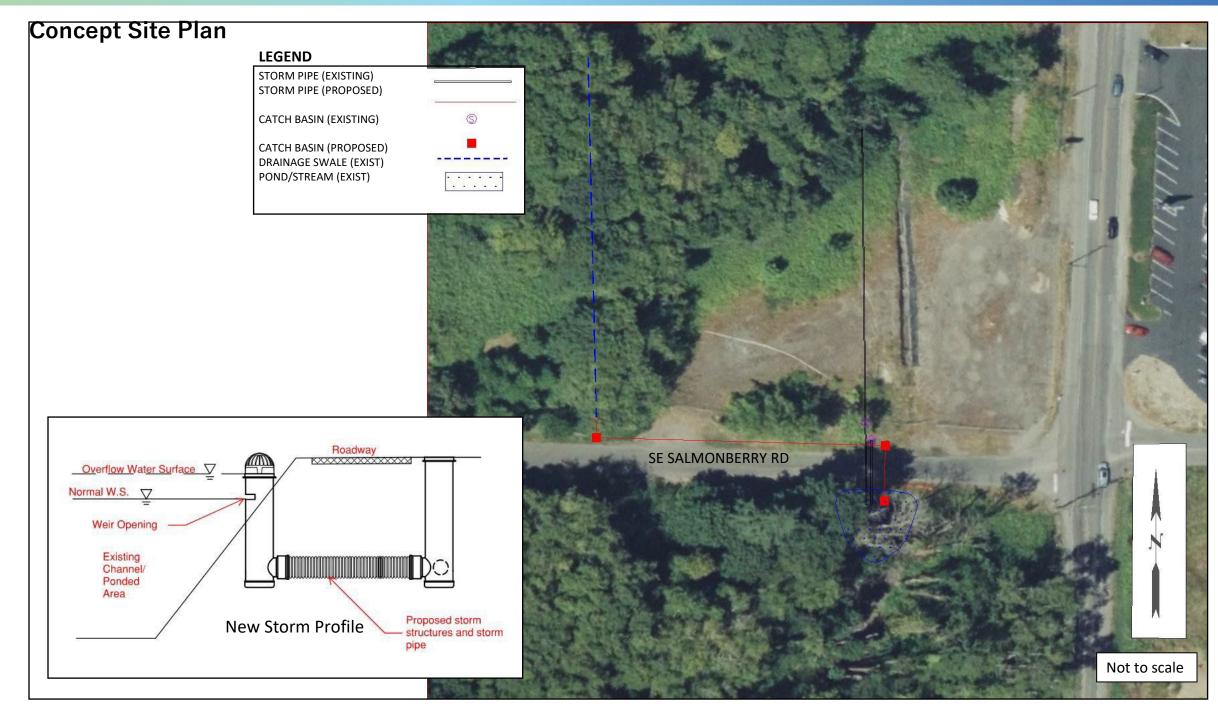
This project is adjacent to the City's Bethel and Sedgwick Road Corridor Plan.

## **Permits Required**

Hydraulic Project Approval (WDFW)
USACE Section 404 Permit
SEPA DNS
Right-of-Way Permit
Commercial Permit
Critical Areas Documentation

#### **Estimated Costs**

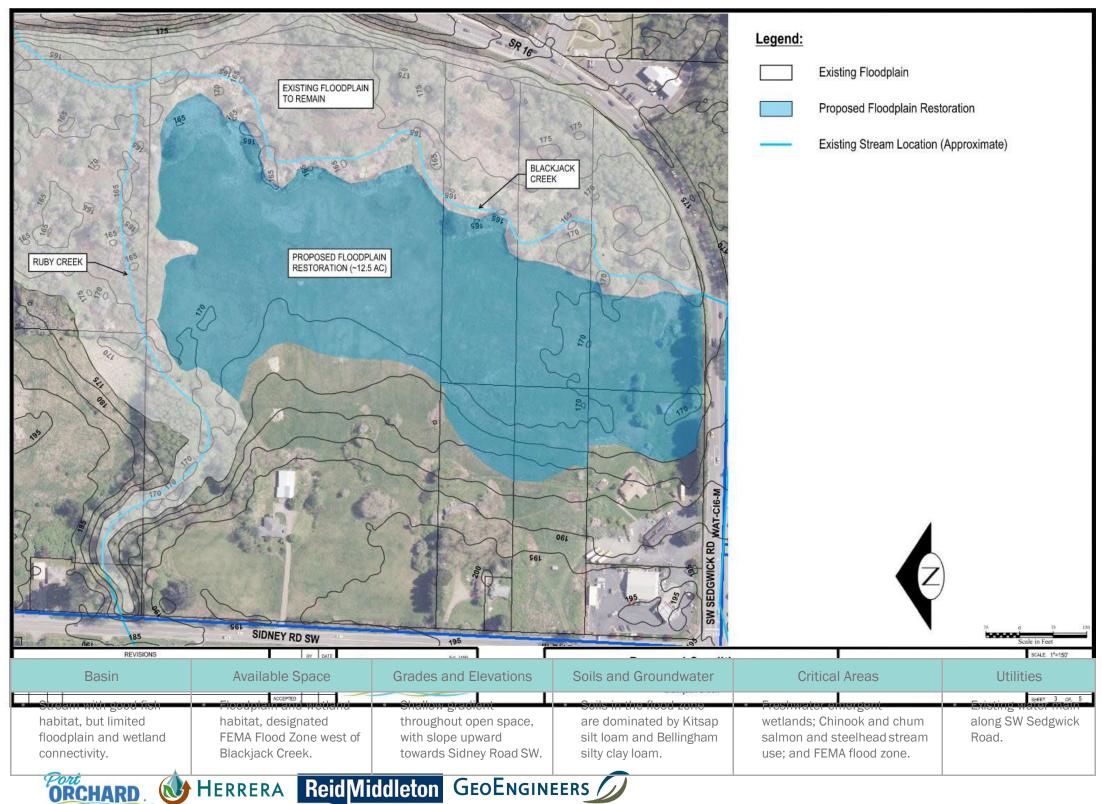
Total Design + Permitting + Construction Cost (2022) \$300,000



	Program Elements (0 - 15 Scale)										
Flood Reduction	Groundwater and Surface Water Quality	Groundwater and Surface Water Quantity	Habitat Enhancement	Infrastructure Operations and Maintenance	Public Participation (Education, Outreach, and Involvement)	Comprehensive Planning, Administration, and Funding	Total				
15	0	5	5	10	0	5	40				

# City of Port Orchard Stormwater and Watersheds Comprehensive Plan – Capital Improvement Projects SOUTH BLACKJACK CREEK FLOODPLAIN RESTORATION

# **Existing Site Plan**



# **Problem Description**

Existing reach of Blackjack Creek is confined along eastern edge of the open space with minimal floodplain and wetland connectivity. While the stream channel has good riparian cover, vegetation throughout the property is a mix of native and invasive species. A rock dam located approximately 50 feet upstream from the confluence with Ruby Creek likely contributes to the observed backwatered conditions and supports established wetlands within the floodplain.

## **Existing Conditions**







October 2022







# City of Port Orchard Stormwater and Watersheds Comprehensive Plan – Capital Improvement Projects SOUTH BLACKJACK CREEK FLOODPLAIN RESTORATION

#### **Project Description**

The main objective of the project is to increase floodplain connectivity. The project includes creating alluvial streambeds for off channel habitat with depressional water storage and placing large woody debris on Blackjack and Ruby Creeks. A mix of coniferous trees and riparian understory will be planted to create a wetland forest complex. This project was designed by the City of Port Orchard. It may be impacted by upcoming work by the Washington Department of Transportation and Kitsap Transit on State Road (SR) 16 and SR 16 Park and Ride, respectively.

#### **Permits Required**

**Section 7 ESA Consultation and Magnuson-Stevens Fishery and Conservation Act Section 106 Review SEPA DNS Hydraulic Project Approval (WDFW) USACE Section 404 Permit Critical Areas Documentation** 

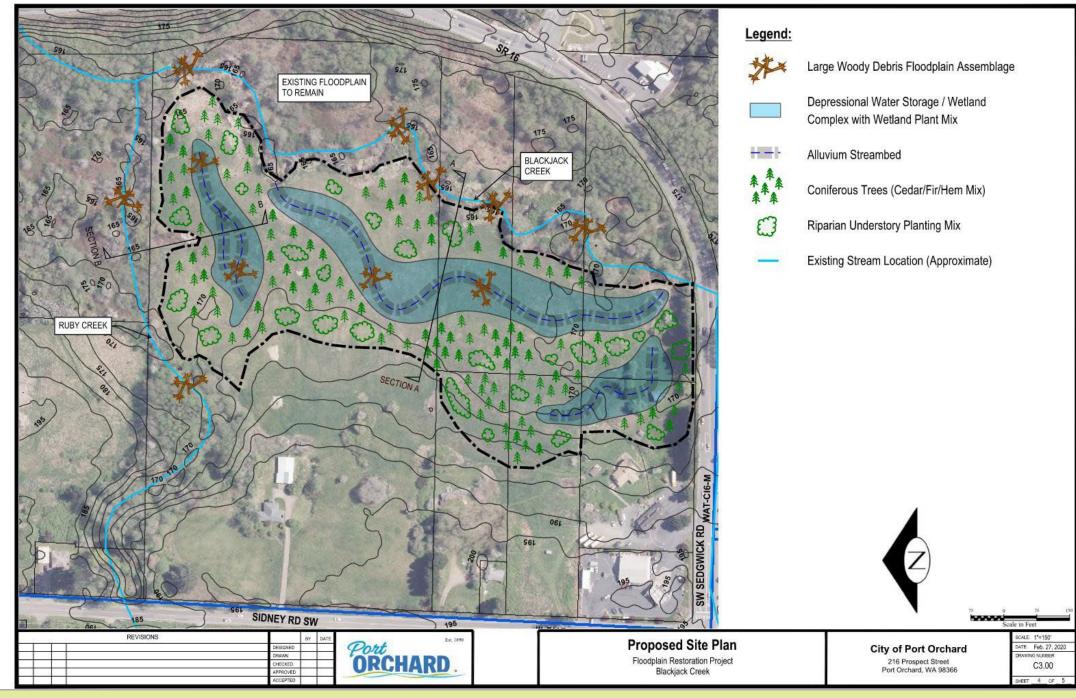
#### **Estimated Costs**

#### Total Cost (2022)

Planning, Design, and Permitting: \$1,000,000 Construction: \$5,000,000 Property Acquisition: \$1,000,000 Total Project Cost: \$7,000,000

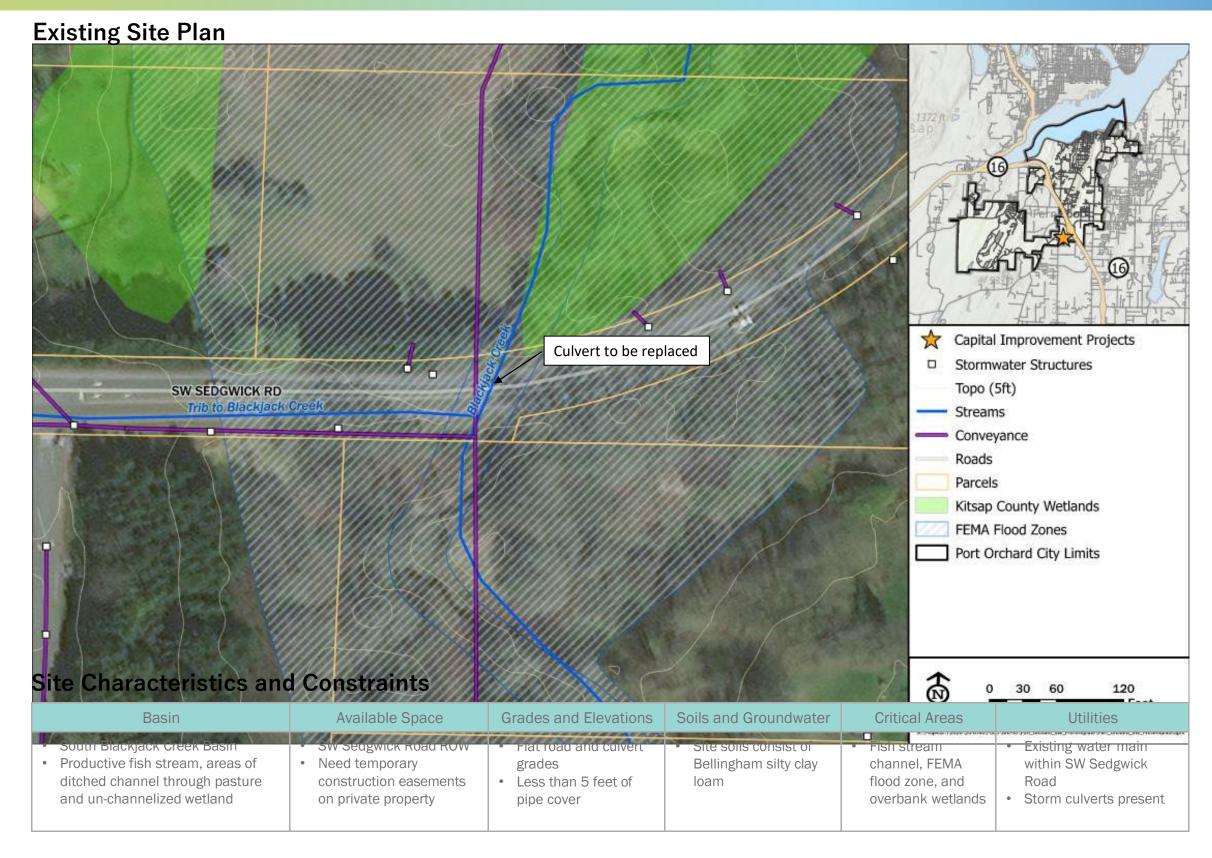
#### **Prioritization Matrix**

## **Concept Site Plan**



	Program Elements (0 - 15 Scale)											
Flood Reduction	Groundwater and Surface Water Quality	Groundwater and Surface Water Quantity	Habitat Enhancement	Infrastructure Operations and Maintenance	Public Participation (Education, Outreach, and Involvement)	Comprehensive Planning, Administration, and Funding	Total					
15	0	15	15	0	5	5	55					

# City of Port Orchard Stormwater and Watersheds Comprehensive Plan – Capital Improvement Projects SOUTH BLACKJACK CREEK CULVERT REPLACEMENT



# **Problem Description**

Existing CMP culvert is undersized for the site and restricts ecological and floodplain function.



SW Sedgewick Road











# City of Port Orchard Stormwater and Watersheds Comprehensive Plan – Capital Improvement Projects SOUTH BLACKJACK CREEK CULVERT REPLACEMENT

## **Project Description**

Replace existing culvert under SW Sedgwick Road with a bridge structure (40'x26'). A wider structure may be necessary to accommodate upstream debris potential and floodplain backwater effects. Further geomorphic investigation will be needed to access the stream sediment debris concerns.

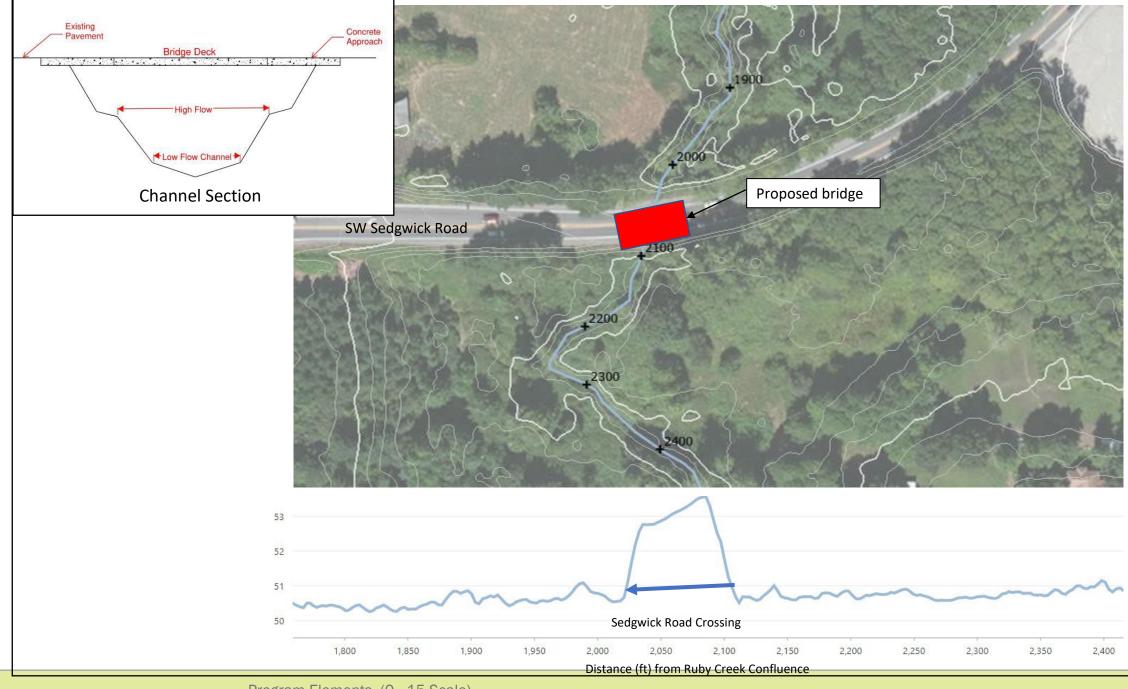
#### **Permits Required**

Hydraulic Project Approval (WDFW) **USACE Section 404 Permit** SEPA DNS Right-of-Way Permit Commercial Permit **Critical Areas Documentation** 

#### **Estimated Costs**

Total Design + Permitting + Construction Cost (2022)

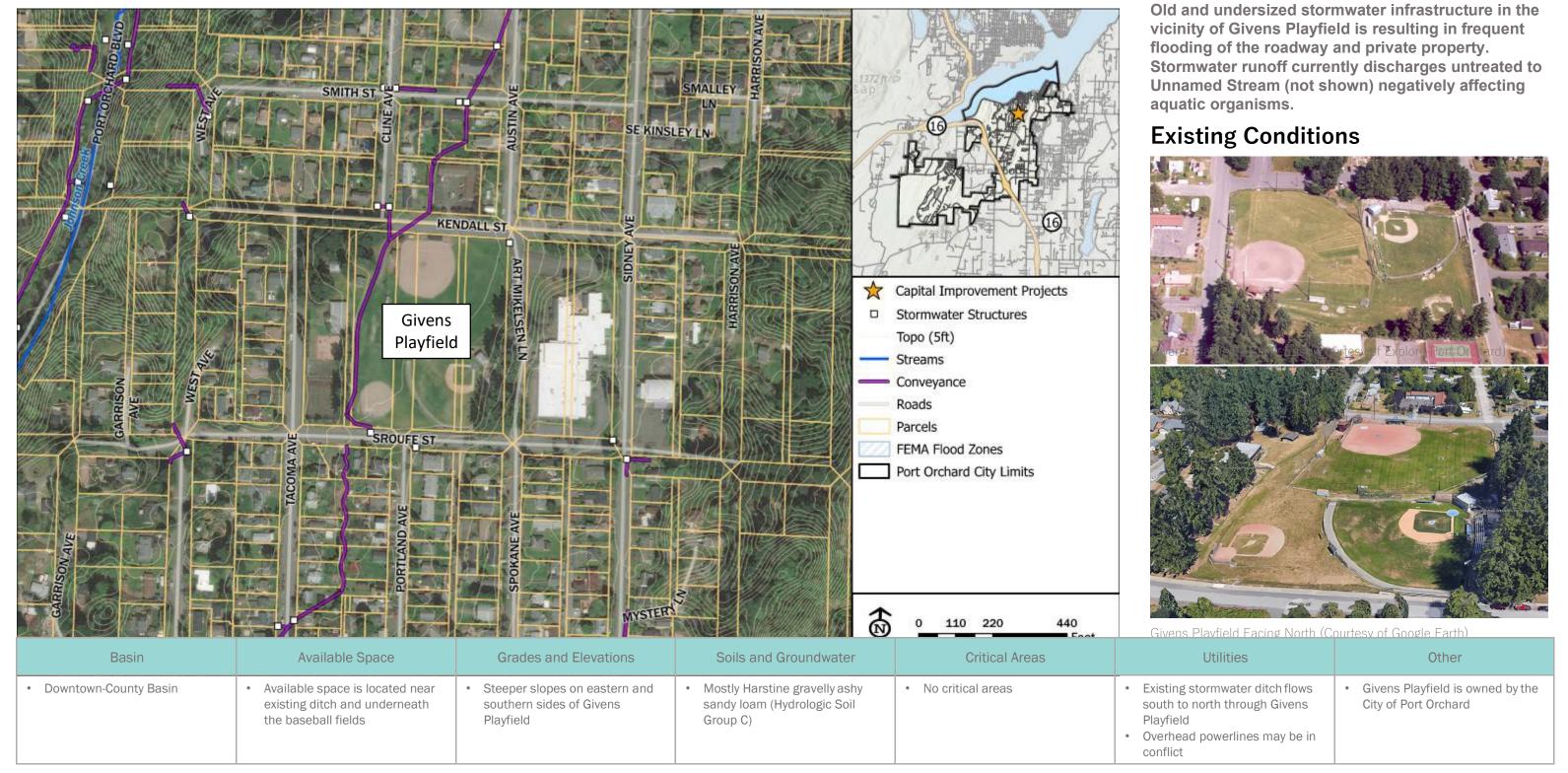
\$1,600,000



Program Elements (0 - 15 Scale)											
Flood Reduction	Groundwater and Surface Water Quality	Groundwater and Surface Water Quantity	Habitat Enhancement	Infrastructure Operations and Maintenance	Public Participation (Education, Outreach, and Involvement)	Comprehensive Planning, Administration, and Funding	Total				
5	15	10	5	5	0	10	35				

# City of Port Orchard Stormwater and Watersheds Comprehensive Plan – Capital Improvement Projects CENTRAL SIDNEY STORMWATER IMPROVEMENTS

# **Existing Site Plan**







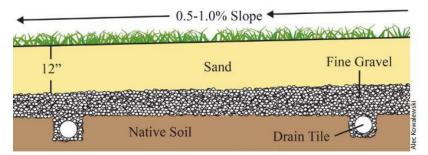
**Problem Description** 

# City of Port Orchard Stormwater and Watersheds Comprehensive Plan – Capital Improvement Projects **CENTRAL SIDNEY STORMWATER IMPROVEMENTS**

## **Project Description**

Construct a bioswale through Givens Playfield to help convey flow and treat stormwater. Install new synthetic turf with a subsurface drainage system at Givens Playfield to provide additional flow control in accordance with current stormwater requirements.

# **Design Precedents**





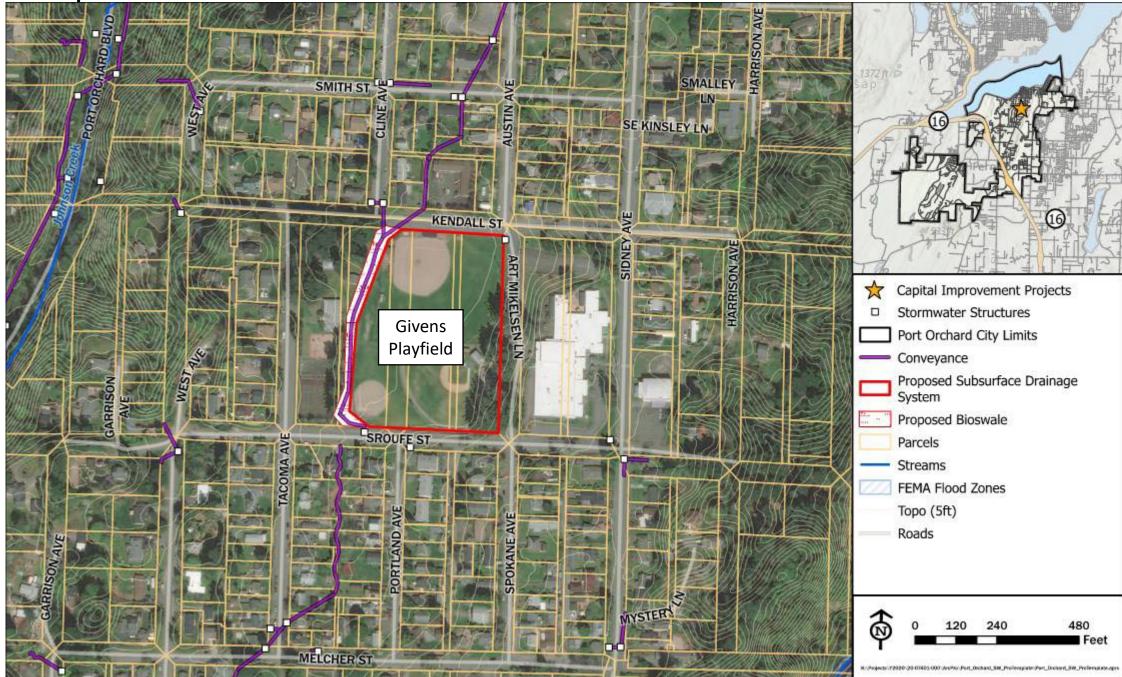
Bioswale Example

#### **Estimated Costs**

Total design + construction + permitting cost does not include lights, fencing, dugouts, walkways, and emergency vehicle access.

Total Design + Permitting + Construction Cost (2022) \$4,000,000

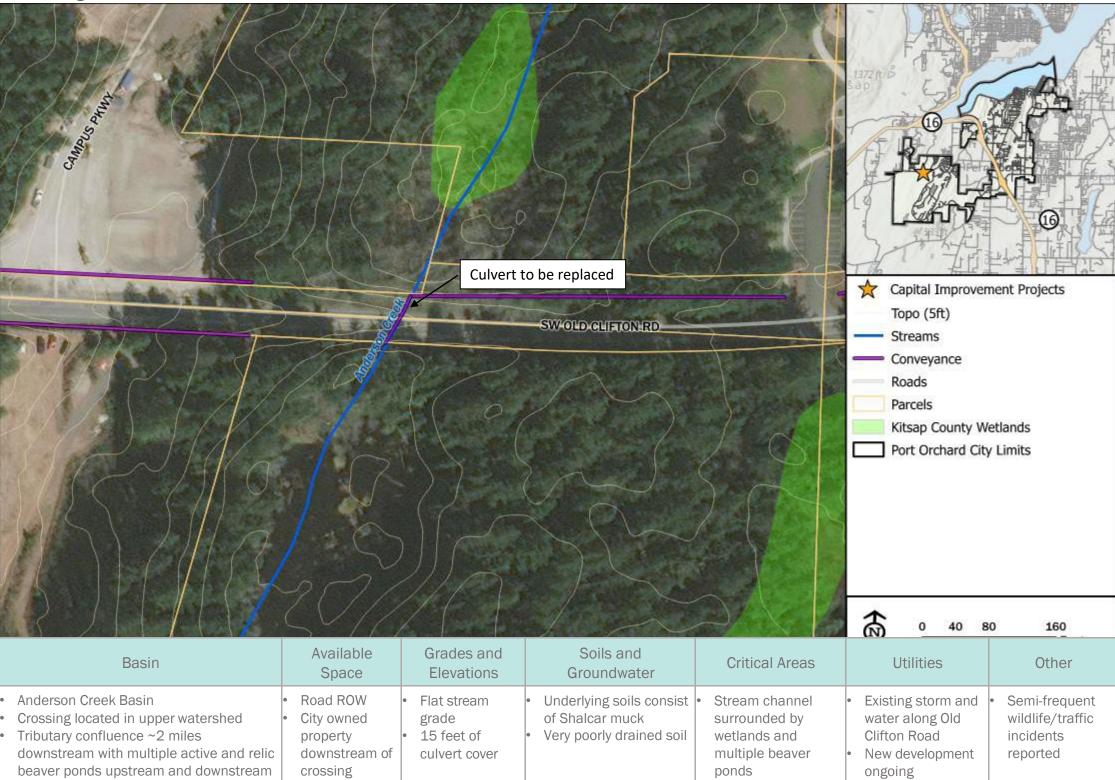
## **Concept Site Plan**



Program Elements (0 - 15 Scale)											
Flood Reduction	Groundwater and Surface Water Quality	Groundwater and Surface Water Quantity	Habitat Enhancement	Infrastructure Operations and Maintenance	Public Participation (Education, Outreach, and Involvement)	Comprehensive Planning, Administration, and Funding	Total				
5	10	10	10	0	10	10	55				

# City of Port Orchard Stormwater and Watersheds Comprehensive Plan – Capital Improvement Projects **ANDERSON CREEK CULVERT REPLACEMENT**

## **Existing Site Plan**



## **Problem Description**

The existing 36-inch concrete culvert is undersized and submerged due to upstream and downstream beaver activity, creating backwater conditions through the crossing.

## **Existing Conditions**



Wetland and stream conditions looking downstream from the crossing outlet





# City of Port Orchard Stormwater and Watersheds Comprehensive Plan – Capital Improvement Projects

**ANDERSON CREEK CULVERT REPLACEMENT** 

## **Project Description**

Replace existing 36-inch culvert with a bridge structure or large arch/box culvert to accommodate fish and wildlife passage through the crossing. A larger structure sized to accommodate flow, debris, and sediment transport during high flow events, including potential failure of the beaver dam will provide long-term resilience to local infrastructure and restore natural ecological processes.

Structure size likely 25 – 35 feet to accommodate geomorphic setting with wetlands and beaver activity.

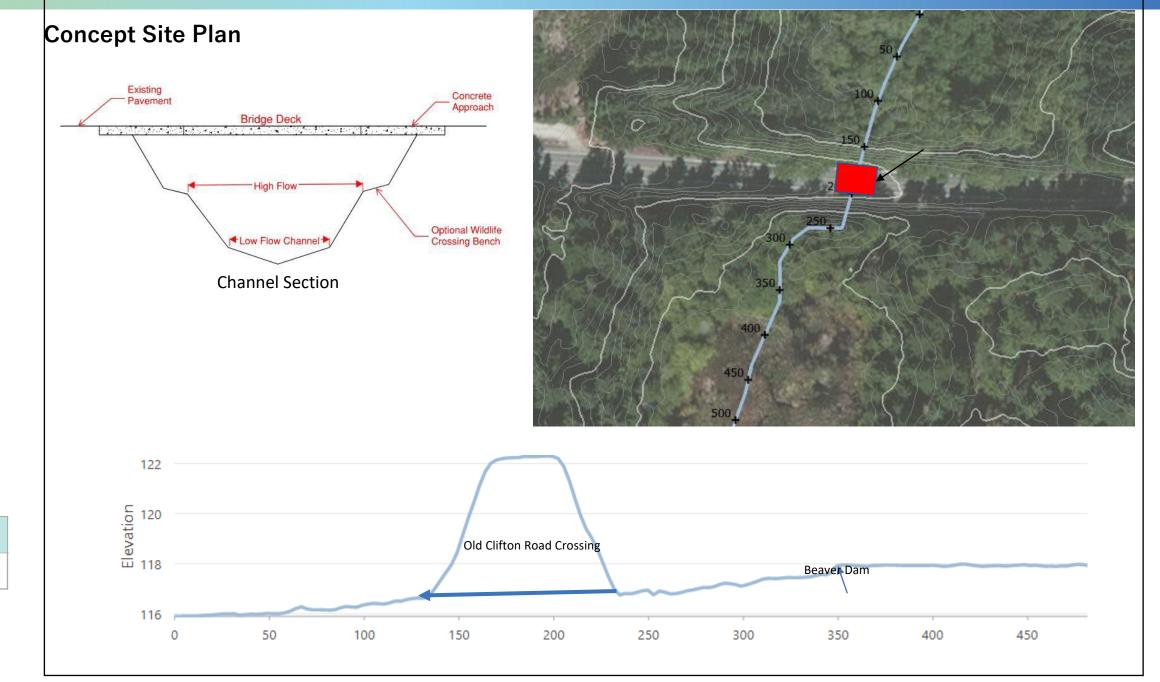
## **Permits Required**

**Hydraulic Project Approval (WDFW) USACE Section 404 Permit SEPA DNS** Right-of-Way Permit **Commercial Permit Critical Areas Documentation** 

### **Estimated Costs**

Total Design + Permitting + Construction Cost (2022) \$1,600,000

## **Prioritization Matrix**



Program Elements (0 - 15 Scale)										
Flood Reduction	Groundwater and Surface Water Quality	Groundwater and Surface Water Quantity	Habitat Enhancement	Infrastructure Operations and Maintenance	Public Participation (Education, Outreach, and Involvement)	Comprehensive Planning, Administration, and Funding	Total			
5	0	5	10	5	0	5	30			

## **APPENDIX B.3**

## **Prioritization Results**











		Anderson Creek Culvert Retrofits	Annapolis Creek Culvert Replacement	South Blackjack Creek Floodplain Restoration	Central Sidney Stormwater Improvements	Downtown Basin Stormwater Upgrades	Johnson Creek Estuary Restoration	Ruby Creek Culvert Replacement	SE Salmonberry Road, Lower Blackjack Creek Culvert Replacement	South Blackjack Creek Culvert Removal and Bridge Installation	South Sidney Regional Facility
Goals and Outcomes	Primary Criteria	Habitat Enhancement	Flood Reduction	Groundwater and Surface Water Quality	Flood Reduction	Groundwater and Surface Water Quality	Groundwater and Surface Water Quality	Habitat Enhancement	Flood Reduction	Groundwater and Surface Water Quality	Flood Reduction
Flood Reduction Outcomes	Points										
Prevents property damage caused by flooding or damage to other utilities	15		15	15		15			15		
Prevents flooding of a major street (arterial or larger)	10									10	
Prevent flooding of a low-volume street or improves City's ability to respond to flood events or minor nuisance flooding	5	5			5		5	5			5
No impact to flood reduction	0										
Groundwater and Surface Water Quality Improvement Outcomes	Points						l.				
Major water quality improvements for receiving water bodies	15					15					15
Moderate water quality improvements for receiving water bodies or improves City's ability to control pollutants and perform water quality improvement activities	10				10		10				
Minor water quality improvements for receiving water bodies	5										
No water quality improvements for receiving water bodies	0	0	0	0				0	0	0	
Groundwater and Surface Water Quantity Improvement Outcomes	Points		,	,					, and the second	Ţ.	
Major improvements to summer streamflow and/or groundwater supply	15			15							
Moderate improvements to summer streamflow and/or groundwater supply	10				10						10
Minor improvements to summer streamflow and/or groundwater supply	5	5	5				5	5	5	5	
No improvements to summer streamflow and/or groundwater supply	0	-	,			0	-		-	-	
Habitat Enhancement Outcomes	Points					-					
Corrects a significant fish passage barrier or creates significant habitat	15			15			15				
Corrects a fish passage barrier (but immediate benefits are limited due to other											
barriers) or creates a moderate amount of new habitat/public amenity	10	10	10		10			10			10
Minor improvements to habitat or public amenity	5								5	5	
No habitat enhancement	0					0					
Infrastructure Operations and Maintenance Outcomes	Points					-					
Major reduction level of effort needed by operations and maintenance	15										
Moderate reduction of level of effort needed by operations and maintenance	10					10	10		10		
Minor reduction of level of effort needed by operations and maintenance	5	5	5					5		5	
No benefit to operations and maintenance personnel	0			0	0						0
Public Participation (Education, Outreach, and Involvement) Outcomes	Points										
High-level opportunity for public participation	15										15
Mid-level opportunity for public participation	10				10		10				
Limited opportunity for public participation	5			5							
No opportunity for public participation	0	0	0			0		0	0	0	
Comprehensive Planning, Administration, and Funding Outcomes	Points										
Strong candidate for external funding (e.g., fish passage grant, water quality grant,	15					15	15				15
transportation grant)	10					10	10				10
Average candidate for external funding (e.g., fish passage grant, water quality grant, transportation grant)	10		10		10			10		10	
Weak candidate for external funding (e.g., fish passage grant, water quality grant, transportation grant)	5	5		5					5		
Not a candidate for external funding	0										
TOTAL SCORE		30	45	55	55	55	70	35	40	35	70
RANK		10	6	3	3	3	1	8	7	8	1

City of Port Orchard Stormwater and Watersheds Comprehensive Plan

## **APPENDIX B.4**

## **Level 2 and Level 3 Implementation Schedules**



City of Port Orchard Stormwater and Watersheds Capital Improvement Program (CIP) Projects Stormwater and Watersheds Long-term CIP Project Implementation Schedule Herrera Environmental Consultants

#### Level 2 includes:

Implementation of all projects within 20 years

Moderate grant funding. (projects would not proceed without grants)

Earlier implementation of Johnson Creek Estuary Restoration (begin 2027) and Downtown Basin Stormwater Upgrades (2024)

Infrastructucture rehab replacement funding increases to \$1M+ per year in 2024 and continues through 2042 - Downtown Basin Plan Implementation and then \$1M per year for ongoing conveyance system rehab / replacement

No funding for projects that are not currently defined aside from infrastructure rehab above. Costs in 2022 dollars.

 •••	 ac	

Project Name (Prioritization Score) 20	23 2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	Total Cost to City
South Sidney Regional Facility (70)	\$700,000		\$2,800,000																	
South Sidney Regional Facility (70) - SFAP Grant 50%	-\$350,000	-	-\$1,400,000																	
Johnson Creek Estuary Restoration (70)	7550,000	7	71,400,000	\$2,500,000	\$500,000	\$500,000	\$2,500,000													
				-\$1,250,000		-\$250,000														
Johnson Creek Estuary Restoration - Estuary restoration, floodplains by design grant 50%				-31,230,000	-3230,000	-3230,000	-51,230,000			\$1,000,000	\$1,000,000	\$5,000,000								
South Blackjack Creek Floodplain Restoration (55)			+							-\$500,000	+	-\$2,500,000								
South Blackjack Creek Floodplain Restoration - Salmon Recovery 50%	\$1.760.00	0 \$1,100,00	0 \$982,000							-3300,000	-3300,000	-32,300,000								
Downtown Basin Stormwater Upgrades (55)	\$1,700,00	31,100,00	3982,000								1									
Downtown Basin Stormwater Upgrades - Low Interest Loan	,000 \$100,000	,		¢1 000 000	¢1 000 000	¢1 000 000	¢1 000 000	¢1 000 000	¢1 000 000	¢1 000 000	\$1,000,000	¢1 000 000	¢1 000 000	¢1 000 000	\$1,000,000	\$1,000,000	¢1 000 000	¢1 000 000	¢1 000 000	
- No. of the state	,000 \$100,000	'		\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000			\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	
Central Sidney Stormwater Improvements (55)															\$3,500,000					
Central Sidney Stormwater Improvements - SFAP Grant 50%	÷ 400 000	4000.000												-\$250,000	-\$1,750,000					
Annapolis Creek Culvert Replacement (45)	\$400,000	<u> </u>									1									
Annapolis Creek Culvert Replacement - Brian Abbott Grant 50%	-\$200,000	-\$400,00	)					4000 000			1									
SE Salmonberry Road, Lower Blackjack Creek Culvert Retrofit (40)								\$300,000												
None																				
South Blackjack Creek Culvert Removal and Bridge Installation (35)													\$1,200,000							
South Blackjack Creek Culvert Removal and Bridge Installation - Fish Passage Grant (TBD) 50%												-\$200,000	-\$600,000							
Ruby Creek Culvert Replacement (35)				\$400,000	\$1,200,000															
Ruby Creek Culvert Replacement - Brian Abbott Grant 50%				-\$200,000	-\$600,000															
Anderson Creek Culvert Replacement (30)																\$400,000	\$1,200,000			
Anderson Creek Culvert Replacement - Fish Passage Grant (TBD) 50%																-\$200,000	-\$600,000			
TOTAL - Cost to City (CIP Cost - Grant Funding) \$100	,000 \$2,410,00	0 \$1,500,00	0 \$2,382,000	\$2,450,000	\$1,850,000	\$1,250,000	\$2,250,000	\$1,300,000	\$1,000,000	\$1,500,000	\$1,500,000	\$3,700,000	\$1,600,000	\$1,250,000	\$2,750,000	\$1,200,000	\$1,600,000	\$1,000,000	\$1,000,000	\$33,592,000

12/15/2022

City of Port Orchard Stormwater and Watersheds Capital Improvement Program (CIP) Projects Stormwater and Watersheds Long-term CIP Project Implementation Schedule Herrera Environmental Consultants

Level 3 includes:

Implementation of all projects within 6 years.

No grant funding.

Infrastructucture rehab replacement funding of \$1M per year begins in 2028 and continues through 2042.

No funding for projects that are not currently defined aside from infrastructure rehab above.

Costs in 2022 dollars.

Project Name (Prioritization Score)	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	Total Cost to City
South Sidney Regional Facility (70)		\$700,000	\$700,000	\$2,100,000																	
Johnson Creek Estuary Restoration (70)		\$2,500,000	\$500,000	\$500,000	\$2,500,000																
South Blackjack Creek Floodplain Restoration (55)			\$1,000,000	\$5,000,000																	
Downtown Basin Stormwater Upgrades (55)			\$1,760,000	\$1,100,000	\$982,000																
Ongoing Conveyance System Rehab / Replacement Program	\$100,000	\$100,000				\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	
Central Sidney Stormwater Improvements (55)				\$500,000	\$3,500,000																
Annapolis Creek Culvert Replacement (45)					\$400,000	\$800,000															
SE Salmonberry Road, Lower Blackjack Creek Culvert Retrofit (40)						\$300,000															
South Blackjack Creek Culvert Removal and Bridge Installation (35)					\$400,000	\$1,200,000															
Ruby Creek Culvert Replacement (35)					\$400,000	\$1,200,000															
Anderson Creek Culvert Replacement (30)					\$400,000	\$1,200,000															
TOTAL	\$100,000	\$3,300,000	\$3,960,000	\$9,200,000	\$8,582,000	\$5,700,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$44,842,000

12/15/2022 1/1



## **APPENDIX C**

# Stormwater Management Action Plan



# CITY OF PORT ORCHARD STORMWATER MANAGEMENT ACTION PLAN

Prepared for City of Port Orchard

Prepared by Herrera Environmental Consultants, Inc.



#### Note:

Some pages in this document have been purposely skipped or blank pages inserted so that this document will print correctly when duplexed.

# CITY OF PORT ORCHARD STORMWATER MANAGEMENT ACTION PLAN

Prepared for
Zack Holt
City of Port Orchard
216 Prospect Street
Port Orchard, Washington 98366

Prepared by
Herrera Environmental Consultants, Inc.
2200 Sixth Avenue, Suite 1100
Seattle, Washington 98121
Telephone: 206-441-9080

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### **PURPOSE**

The City of Port Orchard (City) Stormwater Management Action Plan (SMAP) is prepared pursuant to requirements of S5.C.1.d.iii of the 2019 -2024 Western Washington Phase II National Pollutant Discharge Elimination System (NPDES) Stormwater Permit issued by the Washington Department of Ecology (Ecology).

The Plan is organized according to the permit language and identifies the following for the high priority catchment located in the Lower Blackjack Creek watershed:

A description of the stormwater facility retrofits needed for the area, including the best management practice (BMP) types and preferred locations.

Land management/development strategies and/or actions identified for water quality management.

Targeted, enhanced, or customized implementation of stormwater management actions related to permit sections within S5, including:

Illicit discharge detection and elimination (IDDE) field screening,

Prioritization of Source Control inspections,

Operations and Maintenance (O&M) inspections or enhanced maintenance, or

Public Education and Outreach behavior change programs.

If applicable, identification of changes needed to local long-range plans, to address SMAP priorities.

A proposed implementation schedule and budget sources for:

Short-term actions (i.e., actions to be accomplished within six years), and

Long-term actions (i.e., actions to be accomplished within seven to 20 years).

A process and schedule to provide future assessment and feedback to improve the planning process and implementation of procedures or projects.



## **BACKGROUND**

The City completed the "City of Port Orchard Watershed Inventory and Assessment" March 21, 2022 (Herrera 2022a) and the "City of Port Orchard Watershed Prioritization" June 22, 2022 (Herrera 2022b). Additionally, the City is in the process of developing their "Stormwater and Watersheds Comprehensive Plan", anticipated in 2023. This SMAP will be incorporated within the stormwater comprehensive planning process when developing programmatic and capital improvement programs. Additionally, much of the watershed data and analysis conducted for meeting the SMAP permit requirements will serve to better understand stormwater pressures upon water resources on a watershed basis.



## WATERSHED PRIORITIZATION SUMMARY

Eighteen watersheds were originally identified during the first step of the City's watershed inventory. Thirteen watersheds were removed from the prioritization process due to low or no City stormwater influence or because the watershed was smaller than the 400 acre size threshold identified by Ecology in their SMAP guidance (Ecology 2019). The remaining five candidate watersheds were subjected to a prioritization and scoring process. The prioritization process resulted in selection of Lower Blackjack Creek watershed as the highest priority watershed based on the following characteristics:

High receiving water use support

Moderate level of development and future growth

Good water and habitat condition

Highest jurisdiction control

Promotes other plans and projects, most notably the Blackjack Creek Watershed Assessment Plan and Protection and Restoration Plan (ESA 2017).

#### LOWER BLACKJACK CREEK WATERSHED FUNCTION

Lower Blackjack Creek watershed processes are considered "functioning" for hydrologic regime, sediment regime, riparian areas and wetlands, nutrient supply, floodplain channel interactions, habitat connectivity, fish passage and water quality (ESA 2017). Organic matter input is rated "Moderately Impaired" However, elevated summer stream temperatures and low dissolved oxygen levels are a concern.

Lower Blackjack Creek supports an abundance of salmonid species. The creek supports spawning and rearing activity for fall and summer chum and coastal cutthroat trout. The stream corridor supports migration of coho salmon to extensive upper watershed areas for spawning and rearing. Blackjack Creek is included in the area for endangered species for fall chinook and winter steelhead.

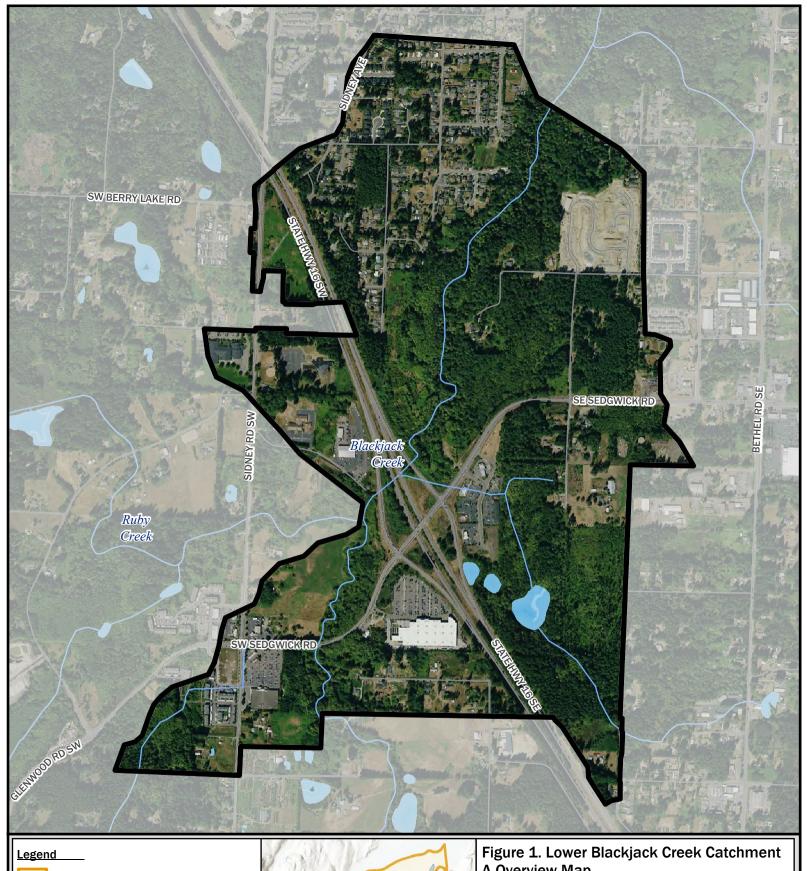
Lower Blackjack Creek stream health is good based upon aquatic insect scores. Aquatic insect diversity is monitored at multiple locations within the Lower Blackjack Creek watershed. This benthic index of biotic integrity (B-IBI) and many of the sub-indexes are strongly correlated with stormwater impacts (both erosive flows and water quality). Station KCSSWM-035 (Blackjack Middle) was monitored for 7 years between 2011 to 2021 with an average score of 52 and a standard deviation of 12. Scores range from 33 (2014) to 76 (2019). Overall, the stream aquatic



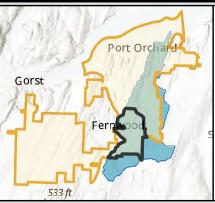
insect community index is classified as "Fair", where some years the score classifies as "Poor" and other years as "Good" (Puget Sound Benthos Database, 2022).

The watershed was subdivided into three catchments, A, B and C, and Catchment A was selected for development of the SMAP. This catchment has a greater concentration of older development for retrofit opportunities. Catchment A is depicted in Figure 1.









A Overview Map.

0 500 1,000 2,000
Feet



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#### **CATCHMENT CONDITIONS**

Below is a brief description of the catchment for land use, growth and City stormwater influence. This information provides background about Catchment A existing characteristics and potential future conditions considered during development of the SMAP.

#### Land Use and Future Growth

Catchment A is 615 acres. Land use is diverse and comprised of commercial, single-family residential, multi-family residential, high use state highways and City roads. Vacant lands are targeted for development and the watershed within the City limits is developing rapidly. The City of Port Orchard, due to its proximity to the urban centers of Bremerton and Tacoma and connection to Seattle via ferry transportation, is designated as a "high capacity transit community" by the Puget Sound Regional Council (Puget Sound Regional Coordination Council, 2020). The City is expected to grow as much as 36% by 2044 (Kitsap Regional Coordinating Council, 2022).

#### **Stormwater Influence**

The City has four major stormwater outfalls (greater than 24" diameter) within Catchment A, and multiple smaller outfalls. Washington State Department of Transportation also discharges runoff within the catchment. Fourteen public and private stormwater ponds are located within the catchment.



## STORMWATER MANAGEMENT ACTIONS

#### PROCESS TO IDENTIFY STORMWATER MANAGEMENT ACTIONS

The process to identity stormwater management actions included a detailed evaluation of landscape characteristics and the existing stormwater system. Landscape characteristics reviewed included zoning, vacant lands, stream buffers, wetlands, geohazard areas and roadways. In general, actions potentially effective to protect the receiving water of Lower Blackjack Creek were identified. All retrofit projects are one-time actions. However, programmatic and land management strategy actions can be conducted one time, annually during the term, or conducted during a three-year pilot project. Annual and pilot projects are evaluated to determine if it is beneficial to continue the action or to end the action due to completion, or if the action is determined to be ineffective.

The assessment of the stormwater system included identifying stormwater ponds (both City and private) and stormwater outfalls. Stormwater pond owners were identified and the year the pond built determined to assess the level of water quality and or flow control according to the design requirements of the era it was designed. For all roadways the owners (City or State) were identified. Current capital improvement projects (CIPs) that improve stormwater quality and/or flow control or floodplain reconnection were identified including the location, drainage area, and best management practice (BMP) type. Existing and future potential partnerships with local agencies were also reviewed.

Based on this information a series of 'actions' were identified to further protect and/or enhance ecosystem function of Catchment A. The actions cover three categories: strategic retrofits, land management strategies and stormwater program enhancements. These actions were presented to internal City and local stormwater and natural resource stakeholders prior to conducting two workshops in August 2022. General cost estimates were provided for each action and stakeholders provided their input on selection of Catchment A and prioritization of actions. Stakeholder feedback was incorporated into this plan.

#### STRATEGIC STORMWATER RETROFIT PROJECTS

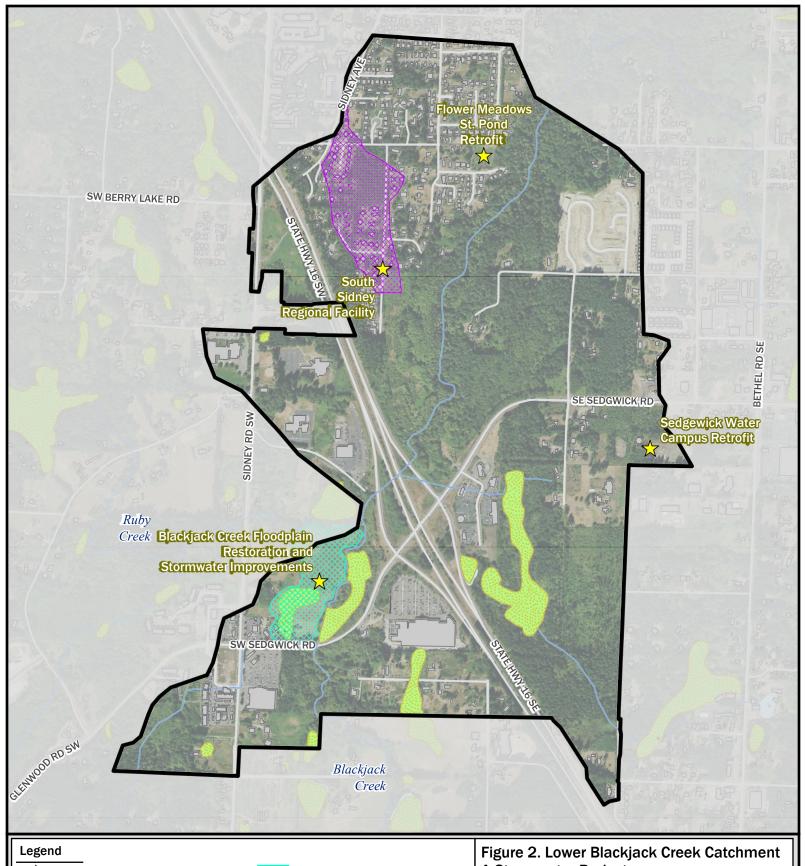
The potential benefits of stormwater retrofit implementation opportunities were examined based on factors including location, degree of existing water quality or flow control, ownership (more challenging to implement for private ownership versus City ownership), and likelihood to succeed.

Three retrofit projects were identified in Lower Blackjack Creek Catchment A. The projects are the South Sidney Regional Facility, Flowers Meadows St. Pond Retrofit and Naturalization, and



the Sedgewick Water Campus Pond Naturalization. The locations of the three projects and preliminary drainage areas are depicted in Figure 2. The projects and BMP types are described in Table 1. The project summary sheet for the South Sidney Regional Facility project is included in Appendix A.





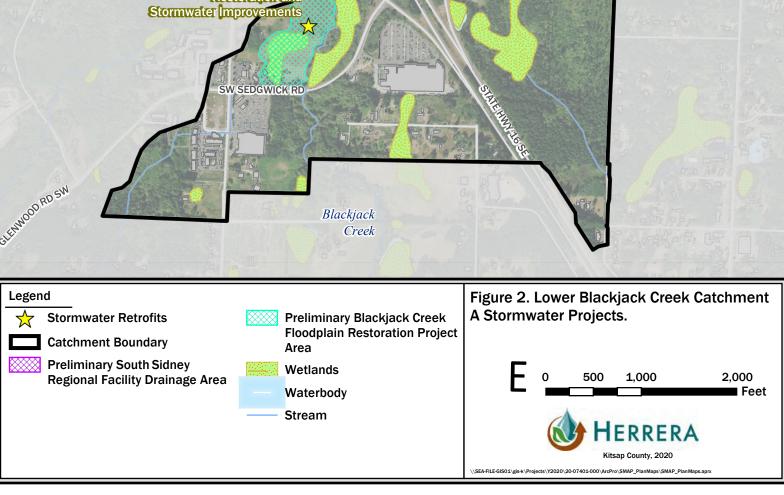


Table 1. City of Port Orchard Lower Blackjack Creek Catchment A Stormwater Retrofit Projects.								
Action	Cost							
South Sidney Regional Facility	Constructed wetlands Biofiltration Infiltration ponds	Design: \$1,400,000 Construction: \$2,100,000						
Flower Meadows St. Pond Retrofit and Naturalization	Enhance flow control and water quality Naturalize pond	\$45,000						
Sedgewick Water Campus Pond Naturalization	Naturalize pond	\$45,000						
	Total Cost	\$3,590,000						

<sup>&</sup>lt;sup>a</sup> These projects are still in early design phase and the specific BMP that will be implemented may change.

#### LAND MANAGEMENT STRATEGIES

The potential benefits of land management strategies were examined based on factors including but not limited to the age of existing development, potential future land use, and opportunities to enhance stream function. These were evaluated for opportunities to leverage and mitigate future development to improve watershed health and reduce negative impacts from development. As a result of this evaluation, three land management strategies were identified to help protect or enhance ecosystem functions in Lower Blackjack Creek Catchment A (Table 2). The strategies are the South Blackjack Creek Floodplain Restoration project, a pilot rain garden and low impact development cost share program and regular review of stormwater standards for new development and re-development. The project summary sheet for the South Blackjack Creek Floodplain Restoration project is included as Appendix B.

Table 2. City of Port Orchard Lower Blackjack Creek Catchment A  Land Management Strategies.					
Action	Description	Cost			
South Blackjack Creek Floodplain Restoration	Increase floodplain connectivity creating alluvial streambeds for off channel habitat with depressional water storage, plant coniferous trees and riparian buffer areas, and add large woody debris	Design: \$1,000,000 Construction: \$5,000,000			
Rain Garden and Low Impact Development Cost Share Pilot Program	Implement a pilot private property rain garden or other low impact retrofit program with cost-share from the City	\$60,000			
Regular Review of Stormwater Standards	Annual meeting of stormwater review staff to identify process improvements in review, inspection and enforcement of new development projects	\$5,000			
	\$6,065,000				



#### STORMWATER PROGRAM ENHANCEMENTS

The City conducts a number of activities for compliance with the 2019–2024 Western Washington Phase II NPDES Stormwater Permit (permit). These include activities associated with Illicit Discharge Detection and Elimination, Source Control, Operations and Maintenance, and Public Education and Outreach.

The City's existing procedures for implementing these activities were reviewed to consider what enhancements would be beneficial for accelerating water quality and habitat improvements in the Catchment A. This section describes the enhancements implemented within Catchment A that will exceed NPDES permit required actions. Table 3 summarizes stormwater program enhancement actions.

#### Illicit Discharge Detection and Elimination Field Screening

The City is required to inspect 12 percent of stormwater outfalls annually. The City will conduct the following additional actions in Lower Blackjack Creek Catchment A:

Locate and map additional outfalls.

Visit and inspect stormwater outfalls annually.

#### **Source Control Program for Existing Development**

The City is required to implement an inspection program January 1, 2023. Twenty percent of the inventory list is to be inspected annually with provisions for response to complaints and reinspection visits. The City will conduct the following additional actions in Lower Blackjack Creek Catchment A:

Prioritize businesses for inspections the first year of the Source Control Program.

Revisit Source Control Program sites that require additional attention to promote better use of BMPS to reduce pollution sources entering the storm drainage system.

Add multi-family properties to the Source Control Business Inspection inventory list.

#### **Operations and Maintenance**

The City is required to clean catch basins every two years, with provisions for reduced cleaning based upon inspection. The City will conduct the following additional actions in Lower Blackjack Creek Catchment A:

Clean City catch basins where inspection shows areas which accumulate sediment at higher rates annually.



#### **Public Education and Outreach**

The City is required to implement public education and outreach programs to build awareness, foster behavior change, and provide stewardship opportunities all related to water resource protection. The City will conduct the following additional actions in Lower Blackjack Creek Catchment A:

Identify new locations and add Mutt Mitt pet waste stations to key pet walking areas.

Conduct a one-time targeted public education effort to property owners to build awareness about stormwater impacts to surface waters and best management practices, including car washing, pet waste pickup, and other practices to reduce pollution.

Develop and distribute education materials to property owners about tree preservation and wetland buffer best management practices.

Implement a three year pilot program for education and public participation in a citizen volunteer stream team.

Implement a three year pilot program for technical assistance to property owners to improve or establish riparian plantings.

Table 3. City of Port Orchard Lower Blackjack Creek Catchment A Stormwater Program Enhancements.					
Permit Section	Action	Cost			
Illicit Discharge Detection and Elimination S.5.C.5	Locate and map additional outfalls one time	\$1,200			
	Inspect City stormwater outfalls annually	\$7,200			
Source Control Program for Existing Development S.5.C.8	Inspect businesses the first year of the program	\$0			
	Conduct enhanced technical assistance	\$7,200			
	Include and inspect multi-family properties	\$0			
Operations and Maintenance S.5.C.7	Clean targeted City catch basins annually	\$25,000			
Public Education and Outreach S.5.C.2	Add Mutt Mitt pet waste pick up stations	\$4,000			
	Conduct one time public education to build awareness about stormwater impacts to surface waters and best management practices	\$6,000			
	Conduct one time education about tree preservation and wetland buffer best management practices	\$12,000			
	Implement a citizen stream team pilot program	\$60,000			
	Implement a stream riparian planting pilot program	\$60,000			
	\$182,600				

#### **CHANGES TO LONG RANGE PLANS**

The SMAP will be incorporated into the City 2024 Comprehensive Plan Periodic Update by reference.



## **BUDGET AND SCHEDULE**

Cost estimates for each SMAP action were developed and identified for either short-term (2024–2030) or long-term(2031–2044) implementation. These costs may be mitigated by grant funding programs; the retrofit projects, the floodplain project and some of the education projects may be grant eligible. For the purpose of this document, no assumptions have been included about grant funds.

Some actions are implemented annually while others are a one-time project implemented as a 3-year pilot (see Table 4). The schedule does not assume continuation of programs identified as "short-term" or "pilot" projects beyond the minimum time frame, either 2024–2030 or three year pilot.

The total estimated cost for short-term actions is \$1,467,600. The total estimated cost for long-term actions is \$8,370,000.

A summary of short-term and long-term actions costs are shown in Table 4.



Table 4. Lower Blackjack Creek Catchment A Stormwater Management Actions Schedule and Cost Summary.

	Schedule			
Action	Short- or Long-Term <sup>a</sup>	Duration	Cost	
Design South Sidney Regional Facility	Short	One time	\$1,400,000	
Construct South Sidney Regional Facility	Long	One time	\$2,100,000	
Design and Construct Flower Meadows St. Pond Retrofit and Naturalization	Long	One time	\$45,000	
Design and Construct Sedgewick Water Campus Pond Naturalization	Long	One time	\$45,000	
Design South Blackjack Creek Floodplain Restoration	Long	One time	\$1,000,000	
Construct South Blackjack Creek Floodplain Restoration	Long	One time	\$5,000,000	
Conduct private property rain garden & LID retrofit program	Long	Annual for 3 year pilot	\$60,000 (over 3 years)	
Conduct review of stormwater standards	Short	Annual	\$5,000 (over 5 years)	
Locate and map additional outfalls	Short	One time	\$1,200	
Inspect City outfalls	Short	One time	\$7,200	
Inspect businesses the first year of the program	Short	One time	\$0	
Conduct enhanced Business Source Control technical assistance	Short	Annual	\$7,200 (over 5 years)	
Include and inspect multi-family properties in Business Source Control Program	Short	One time	\$0	
Clean targeted City catch basins	Short	Annual	\$25,000	
Add Mutt Mitt pet waste pick up stations	Short	One time	\$4,000	
Conduct private property stormwater impacts & practices outreach	Short	One time	\$6,000	
Conduct private property tree preservation and wetland buffer Outreach Program	Short	Annual for 3 year pilot	\$12,000	
Implement a citizen stream team pilot program	Long	Annual for- 3 year pilot	\$60,000	
Implement a stream riparian planting pilot program	Long	Annual for 3 year pilot	\$60,000	
Total Short-Term Costs				
Total Long-Term Costs				

Note=Cost estimates are in 2022 dollars. Inflation and escalation of costs were not incorporated into cost estimates.

Long-term = implementation between 2031 and 2044

LID= low impact development



<sup>&</sup>lt;sup>a</sup> Short-term = implementation between 2024 to 2030

#### FUTURE ASSESSMENT AND FEEDBACK

The purpose of the SMAP is to conduct actions in Catchment A to protect or enhance the receiving water of Lower Blackjack Creek. The SMAP is comprised of retrofit projects, land management strategies and enhanced programmatic activities. The City will assess implementation by tracking project implementation, effectiveness and demand for programs, and environmental monitoring data. This tracking will provide feedback to the City about SMAP implementation.

Projects are typically reviewed and tracked as part of capital project planning and budgeting. More detailed program analysis, financial assessment and capital project planning occurs on a 6- to 7-year cycle as part of comprehensive planning and provides an additional opportunity for tracking. Projects (those shown in Figure 2) will be tracked for implementation. Design, construction, and potential grant oversight will require City staff time. Staff capacity or lack of grant funding may be limiting factors for implementation.

Programs are typically reviewed annually for NPDES permit reporting The City desires to implement programs that are effective, in demand, and worthwhile continuing. Programs will be evaluated to determine if they are not effective (due to lack of response or engagement) or no longer effective (catch basin cleaning, business source control assistance). Successful programs may be continued through the long term depending upon staff capacity and funding.

Environmental data collection also occurs annually as part of routine monitoring for stream flow and benthic macroinvertebrates. These data may be useful in assessing trends of stream health over time. B-IBI data will be evaluated for long-term trends and stream flow metrics related to stormwater impacts will be evaluated.



#### REFERENCES

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## **APPENDIX D**

## **Financial Analysis**





# **City of Port Orchard**



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December 15, 2022

Zack Holt, Public Works Stormwater Manager City of Port Orchard, WA 216 Prospect St. Port Orchard, WA 98366

**Subject: Stormwater Utility Rate Study** 

Dear Mr. Holt:

FCS GROUP is pleased to submit this report summarizing the results of the Stormwater Utility Rate Study. We want to thank you and City staff for your assistance and participation in data collection, analysis review, and discussion of key policy topics. This report includes consideration of three stormwater levels of service, each with varying levels of staffing and capital project considerations. The detailed methodologies used to derive the revenue needs for all levels of service (and a capital facility charge for each) are included in this report. It has been a pleasure to work with you and City staff on this study. Please let us know if you have any questions. Tage can be reached at (425) 615- 6487 or TageA@fcsgroup.com.

Sincerely,

John Ghilarducci

Project Principal

Tage Aaker

Project Manager

Type Andre

Luke Rosson

Sules Rosson

Analyst

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## Section I. INTRODUCTION/SUMMARY

## **Utility Background**

According to the City's Stormwater and Watersheds Comprehensive Plan 2023 (Comprehensive Plan) by Herrera Environmental Consultants, "the City of Port Orchard (City) operates a system of drainage pipes and ditches to convey stormwater runoff to receiving waters including streams and the Sinclair Inlet. The drainage system prevents and minimizes damage to private properties, city streets, and other infrastructure... The City is faced with the challenge to convey runoff safely, while minimizing adverse high-flow impacts (erosion, flooding, and sediment deposition) and water quality degradation to receiving waters." The City bills and collects fees from customers within its service area to provide resources needed to plan, manage, design, construct, maintain, revise, and upgrade its stormwater system.

### Rate Study

The rate study has two main goals – to develop revenue requirement analyses and capital facility charges for the City's stormwater utility. The results corresponding to each level of service vary because each level of service incorporates different operational and capital project needs.

#### Revenue Requirement

One main purpose of this rate study is to develop a funding plan ("revenue requirement") for the City's stormwater utility for the 2022-2041 study period. The revenue requirement identifies the total amount of rate revenue needed to fully fund the utility on a standalone basis, considering operating and maintenance expenditures, existing debt service, capital funding needs identified in the City's capital plan, and fiscal policies. **Exhibit 1** shows the general methodology of the rate study process.

Capital Plan

Capital Funding

Financial Policies

REVENUE
REQUIREMENT

CFC

Economic Assumptions

Operating Costs

Existing Debt

New Debt Service

Exhibit 1: Revenue Requirement Overview

#### Capital Facility Charge (CFC)

The other purpose of this rate study is to develop a capital facility charge, or CFC, for the City's stormwater utility. The City currently has water and sewer utility CFCs, but none for its stormwater utility. CFCs are designed to recover from new development a proportionate share of the cost of capital facilities. CFCs are one-time charges, not ongoing rates. They are typically payable at the time of development (or redevelopment to a higher intensity of development).

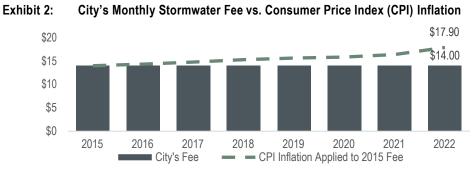
Capital facility charges serve two primary purposes: to provide equity between existing and new customers; and to provide a source of capital funding for system capital costs, as growth occurs.



## Utility Rate and Inflation

In June 2015, the City increased its monthly stormwater utility fee from \$9.70 to \$14.00 per impervious surface unit (ISU). It has not increased since that time. **Exhibit 2** compares that fee against what that fee would have been if annual inflationary adjustments had been applied. The fee would need to be roughly \$18 in 2022 to have a similar amount of buying power as it did in 2015.

Since 2015, the utility has faced significant cost inflation and development. While new development does result in new customers who pay the monthly rate, new development may also require additional services and can result in additional costs for the utility to build and maintain the infrastructure that serves the new development. Additionally, the City has gone through another iteration of the National Pollutant Discharge Elimination System (NPDES) Municipal stormwater permit (2019) which has resulted in increased regulatory requirements for the City's stormwater program.



Revenue Requirement Results by Level of Service

The following sections summarize revenue requirement results by level of service (LOS). In each LOS, there is a three-year phase-in to help rates "catch up" to the level of service needs. After that, inflationary-level adjustments are assumed -3% per year for each level of service. In LOS 3, increases drop to 1.5% in 2033 to avoid a large buildup of reserves. As previously noted, the forecast goes through the end of 2041, but the tables below show results through 2031 due to space limitations. To give City staff and City Council time to consider each level of service, and the associated rate adjustments, it is assumed initial rate adjustments would not be made until 2024. If the City were to incorporate rate increases earlier, say effective July 1, 2023, it would reduce future rate increases by roughly \$1-2 per month per ISU.

#### Level of Service 1

Level of Service 1 requires monthly rate increases averaging \$3.60 per year for 2024-26. This level of service funds approximately \$36 million in capital projects (net of grants) inflated to the year of construction (2022-2041) and provides funding for up to 1.7 additional FTEs.

2023 2024 2025 2026 2027 2028 2029 2030 2031 Monthly Rate / ISU \$14.00 \$16.94 \$20.50 \$24.80 \$25.55 \$26.31 \$27.10 \$27.91 \$28.75 Change in \$2.94 \$3.56 \$4.30 \$0.75 \$0.76 \$0.79 \$0.81 \$0.84 Monthly Rate

Exhibit 3: Level of Service 1: Rate Adjustments



Level of Service 2 requires monthly rate increases averaging \$5.82 per year for 2024-26. This level of service funds approximately \$48 million in capital projects (net of grants) inflated to the year of construction (2022-2041) and provides funding for up to 4.7 additional FTEs.

Exhibit 4: Level of Service 2: Rate Adjustments

	2023	2024	2025	2026	2027	2028	2029	2030	2031
Monthly Rate / ISU	\$14.00	\$18.34	\$24.03	\$31.47	\$32.42	\$33.39	\$34.39	\$35.42	\$36.49
Change in Monthly Rate		\$4.34	\$5.69	\$7.44	\$0.95	\$0.97	\$1.00	\$1.03	\$1.07

#### Level of Service 3

Level of Service 3 requires monthly rate increases averaging \$9.71 per year for 2024-26. This level of service funds approximately \$58 million in capital projects (net of grants) inflated to the year of construction (2022-2041) and provides funding for up to 5.5 additional FTEs.

Exhibit 5: Level of Service 3: Rate Adjustments

	2023	2024	2025	2026	2027	2028	2029	2030	2031
Monthly Rate / ISU	\$14.00	\$20.37	\$29.64	\$43.12	\$44.42	\$45.75	\$47.12	\$48.54	\$49.99
Change in Monthly Rate		\$6.37	\$9.27	\$13.48	\$1.30	\$1.33	\$1.37	\$1.42	\$1.45

## Capital Facility Charge by Level of Service

The calculated stormwater capital facility charge varies by level of service. Each level of service assumes a different amount of grants which are subtracted from the recoverable cost basis. The CFCs by level of service, per impervious surface unit (ISU), are shown below. Per the City's municipal code, one ISU is defined as one single-family residential account (including a mobile home) or 3,000 impervious square feet of ground cover for all other developed parcels.

- LOS 1: \$2,469 per impervious surface unit
- LOS 2: \$3,087 per impervious surface unit
- LOS 3: \$3,914 per impervious surface unit

These charges reflect the maximum defensible CFC that the City Council could adopt, by level of service. The Council could adopt, by policy, a CFC that is lower than the indicated amounts. Lastly, the City should align its revenue requirement and CFC choices. For example, if the City Council adopts a rate plan supporting the revenue requirement for level of service 1, it should not adopt a CFC that aligns with level of service 2 or 3.



## Section II. FISCAL POLICIES

The basic framework for evaluating utility revenue needs includes sound fiscal policies. Several policy topics are important to consider further as part of managing the finances of the City, including operating reserves, capital reserves, debt management, and rate funded capital. The City makes use of four different funds / reserves: operating, stabilization, capital, and debt service.

When evaluating reserve levels and objectives, it is important to recognize that the value of reserves lies in their potential use. A reserve strategy that deliberately avoids any use of reserves negates their purpose. The fluctuation of reserve levels may indicate that the system is working, while the lack of variation over many years strongly suggests that the reserves are, in fact, unnecessary.

## Operating Reserve - Fund 421

An operating reserve is designed to provide a liquidity cushion; it protects the utility from the risk of short-term variation in the timing of revenue collection or payment of expenses. Industry practice for utility operating reserves typically ranges from 30 days (8%) to 120 days (33%) of operating expenses, with the lower end more appropriate for utilities with stable revenue streams and the higher end of the range more appropriate for utilities with significant seasonal or consumption-based fluctuations.

**Recommended Policy:** Achieve a year-end balance target of 90 days (25%) of total annual operating *expenditures*. This equates to \$397,000 for the 2022 budget, \$486,000 for the 2023 budget, and \$483,000 for the 2024 budget.

## Capital Reserve - Fund 423

This reserve provides a source of emergency funding for unexpected asset failures or other unanticipated capital needs. This capital reserve policy is not intended to guard against catastrophic system failure or extreme acts of nature. Minimum balances for capital reserves are often based on a percentage (commonly 1% to 2%) of the original cost of utility fixed assets or an amount determined sufficient to fund an emergency capital project or equipment failure. Capital reserves larger than these amounts may be prudent if the City is saving for future capital projects that cannot be funded with same-year rate revenues.

**Recommended Policy:** Achieve a year-end target of at least 1% of the original cost of fixed assets. In 2022, the City had over \$16 million in stormwater assets plus construction in progress, which results in a \$160,000 capital reserve target. Capital reserves larger than this may be prudent if the City is saving in advance for future capital projects. This target is projected to grow over time as the City executes its capital improvement program.



### Adopted City Fiscal Policies

Per <u>Resolution No. 053-20</u>, the City's stormwater operating reserve (Fund 421) balance must be sufficient to meet roughly two months of recurring *revenue*, with a goal to work towards a maximum of three months of *revenues*. The City does not have an adopted policy regarding its capital reserve (Fund 423).

Calculating a reserve based on revenue in the rate forecast model can create a circular type of argument, so it was not modeled that way. As previously noted, operating reserves are typically based on a certain number of days of operating *expenditures*. The American Water Works Association (AWWA) published a 2018 *Cash Reserve Policy Guidelines*, and it cites recommended reserve levels from the Water Environment Federation, International City/County Management Association, and the Government Finance Officers Association, all of which reference a certain number of days of operating expenses. Capital reserves are typically based on a percentage of fixed assets or an amount sufficient to respond to an emergency capital project.

To make sure the rate plan in each level of service met the City's adopted policy, we tested the combined operating reserve (90 days of operating expenses) plus the capital reserve (1% of fixed assets) to ensure that it was equal to or greater than two months of *revenues*.

#### Stabilization Reserve - Fund 422

The City maintains stabilization reserves for each of its water, sewer, and stormwater utilities. Per the City's adopted fiscal policies, this reserve "shall be used if all efforts have been exhausted to fund a qualifying event and no reasonable budget adjustments are available to continue to provide essential services to the public." The policy notes qualifying events as follows:

- The State of Washington or the Federal government formally declares a disaster or emergency.
- A natural or urgent event that jeopardizes public safety, impedes commerce, or threatens additional damage to City infrastructure.
- Unforeseen events or situations outside of the scope of contingency planning or planned normal course of government operations.
- An act of war, terrorism, or declaration of Martial law.

**Recommended Policy:** Per Resolution No. 053-20, the stabilization reserve should target having 90 days (25%) of annual expenditures. Per discussions with City staff, this reserve is fully funded through the end of 2024. The forecast did not assume these funds were available for use, nor did the forecast add any funds to this reserve throughout the study period.

## **Debt Management**

The City currently has two outstanding stormwater utility-related loans. For the management of current as well as potential future debt, some considerations are provided below.

Types of Debt Considered as Part of this Forecast

For utilities, there are two primary sources of debt financing: State or federal loan programs, and market debt financing.



#### **State-Administered Loan Programs**

State-administered loans (including federal loans administered by the State) are generally preferable to market debt financing. The interest rate is generally lower for State loans, and the loan terms often offer more flexibility in administering the debt. For instance, most State loan programs do not include a requirement that the utility maintain a certain minimum level of debt service coverage.

#### **Market Debt Financing**

#### General Obligation Bonds

General Obligation (G.O.) bonds are voter-approved bonds secured by the full faith and credit of the issuing agency, committing all available tax and revenue resources to debt repayment. With this high level of commitment, G.O. bonds have relatively low interest rates. General Obligation taxing authority can be sought as a backup pledge to reduce the interest rate of utility debt, even if the actual source of repayment is intended to be utility rates. However, the use of G.O. bond financing is limited in relation to assessed valuation, and G.O. bonds must be authorized by 60% of the voters. For these reasons, G.O. bonds are not often used for utility capital projects.

Limited Tax General Obligation (LTGO) bonds can also be issued up to a statutory ceiling without a vote of the people. In Washington, they are sometimes referred to as "councilmanic" bonds. Unlike G.O. bonds, LTGO debt does not authorize additional property taxes; instead, it must be repaid within the City's existing taxing authority. Usually there are competing demands for that funding within a City, and for that reason, LTGO debt is not often used for utility capital projects either.

#### Revenue Bonds

Revenue bonds are secured by the revenues of the issuing utility; the debt obligation does not extend to the City's other revenue sources. With this limited commitment, revenue bonds usually bear higher interest rates than G.O. bonds. Revenue bonds typically require the achievement of minimum debt service coverage each year. Revenue bonds can be issued in Washington without a public vote. There is no limit, except the practical limit of the utility's ability to generate revenue to repay the debt and meet debt service coverage each year.

**Forecast Assumption:** The forecast assumes that the City will issue revenue bonds when debt is needed. While low-cost state loans are typically preferred, revenue bonds are conservatively assumed as they require the forecast to cover higher interest rates and debt service coverage requirements. If the City secures low-cost state loans, that will be a positive result that will not negatively impact the forecast, while the inverse could have a negative impact on the forecast (relying on state loans but ultimately needing to rely on revenue bonds instead which have higher interest and debt service coverage requirements).

#### Debt Service / Reserve - Fund 424

A debt reserve is most often required as a condition of bond issuance, though some state loan programs also require a reserve. The reserve intends to protect bondholders (or the agency issuing loans) from the risk of the borrower defaulting on their payments and is most often linked to either average annual debt service or maximum annual debt service.

**Recommended Policy:** The policy should be dictated by terms outlined in contracts for debt obligations.



#### **Debt Service Coverage**

Debt service coverage is typically a requirement associated with revenue bonds and some state loans, and it is an important benchmark to measure the riskiness of the water utility's capital funding plans. Coverage is most easily understood as a factor applied to annual debt service. In such a case, if it issues revenue bonds, the utility agrees to collect enough revenue to meet operating expenses and not only pay debt service but to collect an additional factor (often 25%) above bonded debt service. The extra revenue is a "cushion" that makes bondholders more confident that debt service will be paid on time.

**Recommended Policy:** While a factor of 1.25 is a common legal minimum coverage requirement for revenue bonds, we recommend a more conservative internal policy coverage target of at least 1.50 to 2.00 for revenue bond debt. We are not currently aware of any debt service coverage requirements related to the City's existing stormwater-related loans.

## Rate Funded System Reinvestment (Rate Funded Capital)

Rate funded system reinvestment is the funding of long-term infrastructure replacement needs through a regular (annual) and predictable rate provision. Most commonly, utilities that have addressed replacement funding needs have used historical (original cost) depreciation expense as the basis for a reasonable level of reinvestment in the system. In other cases, utilities strive to rate fund routine repair and replacement projects, saving debt for larger and / or more one-time type projects.

**Recommended Policy:** Set rates to fund a majority of routine repair and replacement projects with cash, such as the City's *Ongoing Conveyance System Improvement Program*. This annual program is expected to cost approximately \$1,000,000 per year in 2022 dollars.

## Summary of Fiscal Policies

**Exhibit 6** provides a summary of the recommended fiscal policies for the City.

**Exhibit 6: Summary of Fiscal Policies** 

Policy	Recommended Target
Operating Reserve	Achieve a year-end minimum balance target of 90 days (25%) of total annual operating expenditures. This target increases as the City's operating costs increase.
Capital Reserve	Achieve a year-end target of at least 1% of the original cost of fixed assets.
Operating plus Capital	Compare the combined operating plus capital targets against the City's adopted policy of two to three months of recurring revenues.
Rate Funded Capital	Strive to rate fund a majority of the City's ongoing Conveyance System Improvement Program, which is estimated to be roughly \$1,000,000 per year, plus inflation.
Debt Service Coverage	While a factor of 1.25 is a common legal minimum coverage for revenue bonds, achieve an internal policy coverage target of at least 1.50 to 2.00 when possible.



## Section III. REVENUE REQUIREMENT

As previously mentioned, the main purpose of the revenue requirement analysis is to develop a funding plan ("revenue requirement") for the 2022-2041 study period. For each level of service, the revenue requirement identifies the total rate revenue needed to fully fund the utility on a standalone basis considering current financial obligations including operating expenditures, existing debt service, policy-driven commitments, and future capital project needs. Rate increases are applied "across-the-board" – that is, it is assumed that each charge on the rate schedule increases by the same percentage, which maintains the existing rate structure.

#### **Economic & Inflation Factors**

The operating and maintenance expenditure forecast largely relies on the City's 2022-2024 budgets. The line items in the budget are then adjusted each year by utilizing one of the following applicable factors:

- **General Cost Inflation**. Assumed to be 3.0 percent per year based on both the Washington State Economic & Revenue Forecast Council projection for the Consumer Price Index and the recent historical performance of the Seattle-Tacoma-Bellevue Consumer Price Index.
- **Construction Cost Inflation.** Assumed to be 3.5 percent per year based on the Engineering News-Record's Construction Cost Index (20-City Average).
- **Taxes.** State Business and Occupation tax rate of 1.75 percent (taxable revenue goes above the \$1.0 million threshold) and the City utility tax rate of 5.00 percent.
- **Personnel Cost Inflation**. Based on Employment Cost Indices (U.S. Bureau of Labor Statistics), experience with other stormwater utilities, and discussions with City staff.
  - » Labor inflation: assumed to be 3.0 percent per year.
  - » Benefits inflation: assumed to be 5.0 percent per year.
- Cost per Additional Full-Time Equivalent (FTE). Each level of service incorporates additional staff. Based on discussions with City staff, we assumed a "fully loaded" cost of \$125,000 per FTE (2022 \$), which is assumed to include both wages and benefits.
- Fund Earnings. Assumed to be 2.25% percent per year based on recent earnings reports from the State's Local Government Investment Pool (LGIP) at the time of the analysis.
- Customer Account Growth. City staff provided a detailed growth forecast for the 2023-2025 period, based on projects currently identified in the City's permitting pipeline. Based on that forecast, City staff estimated that 300 impervious surface units would be added each year through 2025, and that 150 units per year would be added after that. This equates to annual growth rates of approximately 2.75% per year through 2025 and 1.25% for each year thereafter.

#### **Fund Balances**

The 2022 starting cash balances associated with the stormwater utility funds are shown below in **Exhibit 7** and total \$2.5 million.



Exhibit 7: 2022 Beginning Fund Balances

Fund	Balance
Operating Reserve - 421	\$2,116,000
Rate Stabilization Reserve - 422	343,000
Capital Reserve - 423	94,000
Debt Reserve - 424	0
Total	\$2,553,000

## Staffing & Other Operational Funding Needs

According to the City's 2023 Comprehensive Plan, "City staff can address surface water and stormwater problems that arise on a daily basis and troubleshoot specific issues that arise with development project reviews. However, they are not fully able to perform activities that would enable continual improvement of the City's surface water management program. Current staffing levels will not be adequate to meet the rest of the requirements of the 2019–2024 Phase II Permit and long-term goals defined as part of this Plan." The resulting staffing requirements and other funding needs (e.g., consultant support) are shown by level of service in **Exhibits 8** and **9**.

#### Additional Staffing Requirements

Herrera Environmental Consultants (Herrera) worked with City staff to identify the following staffing requirements (above those that are included in the 2023-24 budget). By 2029, LOS 1 would require 1.7 additional full-time equivalents (FTEs), LOS 2 would require 4.7 additional FTEs, and LOS 3 would require 5.5 additional FTEs.

Exhibit 8: Total Additional Staffing Needs by Level of Service

6
5
1
0
2024
2025
2026
2027
2028
2029

LOS 1 LOS 2 LOS 3

**♦ FCS** GROUP

#### Other Operational Funding Needs

Herrera worked with City staff to identify other funding needs, primarily in the form of consultant support to assist City staff in certain programmatic areas. These costs, shown in **Exhibit 9**, are in addition to the City's adopted 2023-24 budget and are summarized below:

- LOS 1: Stormwater planning, climate change in capital projects support.
- LOS 2: LOS 1, plus public education & outreach for low impact development practices.
- LOS 3: LOS 2, plus climate change in private development projects support. The \$100,000 bump in 2028 is related to developing policy and standards for new and redevelopment projects to design for more intense future precipitation.

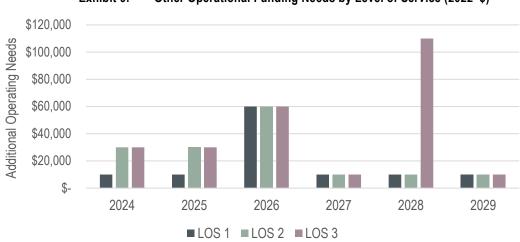


Exhibit 9: Other Operational Funding Needs by Level of Service (2022 \$)

## Capital Expenditures

Herrera worked with City staff to develop three levels of service for the stormwater capital program, each with varied timelines and grant assumptions, shown in **Exhibit 10**.

Level of Service	Capital Timeline	Capital Grants
Level of Service 1	Implementation of all projects within 20 years	Maximum grant funding (many projects would not proceed without grants)
Level of Service 2	Implementation of all projects within 20 years	Moderate grant funding (some projects would not proceed without grants)
Level of Service 3	Implementation of all projects within 6 years	No grant funding assumed

Exhibit 10: Capital Program Assumptions by Level of Service

Given these assumptions, **Exhibit 11** shows the assumed level of annual capital expenditures, after the assumed grants have been deducted.



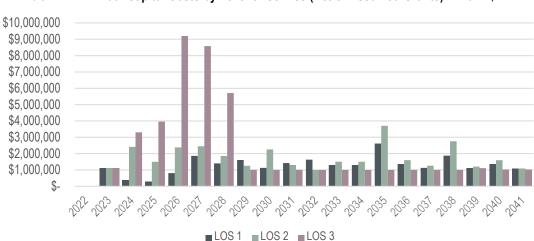


Exhibit 11: Annual Capital Costs by Level of Service (Net of Assumed Grants) in 2022 \$

Summary notes related to the capital plan are provided below for the three levels of service:

- Level of Service 1: The 2022-2041 CIP totals \$25 million (\$1.2 million per year) in 2022 dollars and \$36 million with forecasted inflation (\$1.8 million per year).
- Level of Service 2: The 2022-2041 CIP totals \$34 million (\$1.7 million per year) in 2022 dollars and \$48 million with forecasted inflation (\$2.4 million per year).
- Level of Service 3: The 2022-2041 CIP totals \$45 million (\$2.3 million per year) in 2022 dollars and \$58 million with forecasted inflation (\$2.9 million per year).

## Capital Funding Strategy

The 2022-2041 capital plan varies in funding sources as well as total capital. The latter is due to changes in capital timing and associated inflation. A few observations are shown below:

- Rate funded capital ranges from \$17.4 to \$23.4 million in each level of service.
- Borrowing increases from \$15 million in LOS 1 to \$34 million in LOS 3.
- Assumed grants and other sources decrease from \$28.6 million in LOS 1 to just \$0.5 million in LOS 3; it is assumed that the general fund contributes \$0.5 million in each level of service for a multi-purpose land acquisition budgeted for 2023.
- Total capital in LOS 3 is much less than LOS 1 or LOS 2 because most projects are assumed to be completed in the next six years, which reduces the impact of inflation compared to a twenty-year completion schedule.

Exhibit 12: Capital Funding Strategy by Level of Service

Description	Level of Service 1	Level of Service 2	Level of Service 3		
Drawdown of Existing Reserves	\$640,000	\$530,000	\$-		
Rate Funded Capital	\$19,900,000	\$17,240,000	\$23,350,000		
Debt (Borrowing)	\$15,300,000	\$29,700,000	\$33,800,000		
Grants & General Fund	\$28,550,000	\$19,480,000	\$500,000		
Total	\$64,390,000	\$66,950,000	\$57,650,000		

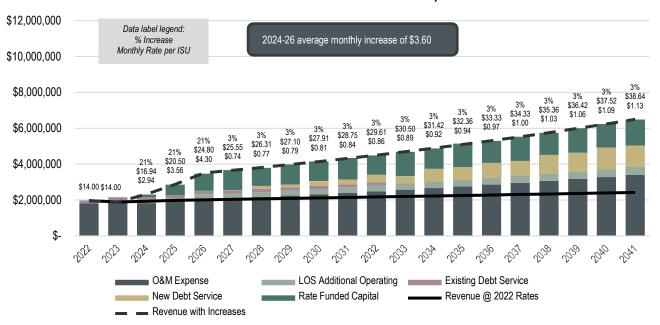


### Revenue Requirement for Level of Service 1

**Exhibit 13** graphically represents the LOS 1 revenue requirement forecast through 2041. The stacked columns represent the costs and obligations of the utility such as operating expenses and annual rate spending for capital projects, while the lines represent utility revenues.

- Solid black line: Revenue at existing rates.
  - » Stormwater rate revenue is expected to be roughly \$1.8 million in 2022 and is expected to grow at a varying rate ranging from 1.2%-2.5% per year with customer growth.
- <u>Dashed black line</u>: Revenues with rate increases.
  - » Rate revenue must increase to allow the utility to cover its financial obligations.
- Dark blue bar: 2022-24 budgets plus inflation.
  - » Operating expenses are based on the adopted 2022-2024 budgets and increase with the annual cost escalation assumptions previously discussed.
- Green bar: Additional FTEs and operating costs associated with each LOS.
  - » Level of Service 1 incorporates funding for 1.7 FTEs and the other operational needs identified in **Exhibit 9**.
- Purple bar: Existing debt service.
  - The stormwater utility has two loans with annual debt service totaling \$177,000 per year.
- Gold bar: Net debt service.
  - » Annual principal and interest resulting from this borrowing are expected to be \$1.2 million per year by 2041.
- Dark green bar: Rate Funded Capital (i.e., cash available for capital).
  - » Rates cannot support annual rate funded capital until the first scheduled increase in 2024. With rate increases, this amount is projected to increase to \$1.4 million by 2041.

Exhibit 13: Level of Service 1: Annual Revenue Requirement Forecast 2022-2041



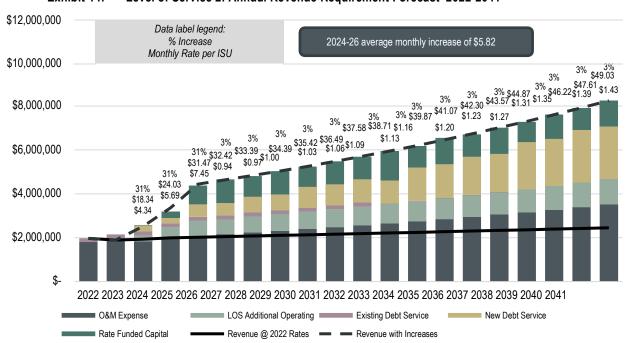


### Revenue Requirement for Level of Service 2

**Exhibit 14** graphically represents the LOS 2 revenue requirement forecast through 2041.

- Solid black line: Revenue at existing rates.
  - » Stormwater rate revenue is expected to be roughly \$1.8 million in 2022 and is expected to grow at a varying rate ranging from 1.2%-2.5% per year with customer growth.
- <u>Dashed black line</u>: Revenues with rate increases.
  - » Rate revenue must increase to allow the utility to cover its existing financial obligations while also funding capital improvement projects. These rate increases start in 2024.
- Dark blue bar: 2022-24 Budgets plus Inflation
  - » Operating expenses are based on the adopted 2022-2024 budgets and increase with the annual cost escalation assumptions previously discussed.
- Green bar: Additional FTEs and Operating Costs from LOS.
  - » Level of Service 2 incorporates funding for 4.7 FTEs and the other operational needs identified in **Exhibit 9**.
- Purple bar: Existing debt service.
  - » The stormwater utility has two loans with annual debt service totaling \$177,000 per year.
- Gold bar: Net debt service.
  - » Annual principal and interest resulting from this borrowing are expected to be \$2.4 million per year by 2041.
- Dark green bar: Rate Funded Capital (i.e., cash available for capital).
  - » Rates cannot support meaningful annual rate funded capital until 2025. With rate increases, this amount is projected to increase to \$1.2 million by 2041.

Exhibit 14: Level of Service 2: Annual Revenue Requirement Forecast 2022-2041



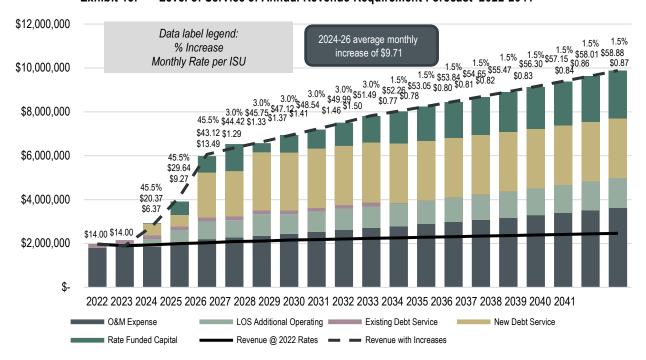


### Revenue Requirement for Level of Service 3

**Exhibit 15** graphically represents the LOS 3 revenue requirement forecast through 2041.

- Solid black line: Revenue at existing rates.
  - » Stormwater rate revenue is expected to be roughly \$1.8 million in 2022 and is expected to grow at a varying rate ranging from 1.2%-2.5% per year with customer growth.
- <u>Dashed black line</u>: Revenues with rate increases.
  - » Rate revenue must increase to allow the utility to cover its existing financial obligations while also funding capital improvement projects. These rate increases start in 2024.
- Dark blue bar: 2022-24 Budgets plus Inflation
  - » Operating expenses are based on the adopted 2022-2024 budgets and increase with the annual cost escalation assumptions previously discussed.
- Green bar: Additional FTEs and Operating Costs from LOS.
  - » Level of Service 3 incorporates funding for 5.5 FTEs and the other operational needs identified in Exhibit 9.
- Purple bar: Existing debt service.
  - » The stormwater utility has two loans with annual debt service totaling \$177,000 per year.
- Gold bar: Net debt service.
  - » Annual principal and interest resulting from this borrowing are expected to be \$2.7 million per year by 2041.
- Dark green bar: Rate Funded Capital (i.e., cash available for capital).
  - » Rates cannot support meaningful annual rate funded capital until 2025. With rate increases, this amount is projected to increase to \$2.2 million by 2041.

Exhibit 15: Level of Service 3: Annual Revenue Requirement Forecast 2022-2041





## Section IV. CAPITAL FACILITY CHARGES

#### Introduction

Capital Facility Charges (CFCs) are one-time fees, paid at the time of development, intended to recover a share of the cost of system capacity needed to serve growth. As part of the rate study, the City tasked FCS GROUP with calculating a CFC for the City's stormwater utility. As noted previously, some of the capital cost elements vary based on the level of service which results in a unique CFC for each level of service. CFCs serve two primary purposes:

- to provide equity between existing and new customers; and
- to provide a source of funding for system capital costs, as growth occurs.

The CFC is an upfront charge imposed on growth and is primarily a charge on new development, although also applicable to expansion or densification of development when such actions increase requirements for utility system capacity. Charges imposed on redevelopment should be net of any existing developed area on the site.

The City of Port Orchard has water and sewer CFCs but does not currently have a stormwater CFC. This report documents the methodology and resulting CFC for the City's consideration.

### Legal Basis

There are a variety of approaches that are used in the industry to establish a defensible capital facility charge. The City is authorized to assess such charges under Section 35.92.025 of the Revised Code of Washington (RCW). It is important that the City's methodology to determine cost-based CFCs is consistent with RCW 35.92.025 and applicable case law. Additionally, under RCW 35.67.010, "system of sewerage" is defined to include stormwater facilities.

RCW 35.92.025: "Cities and towns are authorized to charge property owners seeking to connect to the water or sewerage system of the city or town as a condition to granting the right to so connect, in addition to the cost of such connection, such reasonable connection charge as the legislative body of the city or town shall determine proper in order that such property owners shall bear their equitable share of the cost of such system."

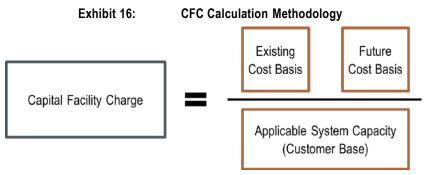
RCW 35.92.025 is silent regarding specific methodology to be used in the charge calculation. However, language contained in the Special District RCW 57.08.005 (11) does provide some guidance regarding specific methodology. While this guidance does not legally apply to municipal stormwater utilities, there are elements that help inform the methodology used for stormwater CFCs. Since the calculated charges represent the maximum allowable charge, the City may choose to implement a charge at any level up to the calculated charge.

## Methodology

**Exhibit 16** shows the recommended approach for the CFC calculation. Under this methodology, all capital costs (existing assets and future projects net of provisions for retirement) are divided by the estimated future customer base. This calculation is like a simple buy-in charge (which consists of



existing costs divided by existing customers), except that it is projected into a future year after the planned capital projects are completed and after incorporating estimated customer growth. The resulting CFC is generally stable over time. The main policy emphasis here is on intergenerational equity — there is no cost advantage for either existing or new customers.



The capital costs used in the CFC calculation can be separated into two major categories:

- Existing system costs: These costs represent the net investment in assets that currently provide service to customers (and that presumably have some amount of capacity to serve growth).
- Future capital costs: These costs refer to capital improvement projects that the utility plans to undertake within a period of time specified in the system planning documents. A provision for capital retirement a calculation to account for the original value of the assets any new capital projects are repairing or replacing is deducted from the total future capital projects.

The existing estimated system capacity is measured in impervious service units (ISUs).

## **Existing Cost Basis**

The existing cost portion of the calculation is intended to recognize the current ratepayers' net investment in the original cost of system assets. The main provisions of the calculation include the following elements:

- <u>Utility Plant-In-Service:</u> The existing cost basis is comprised of the original cost of plant-in-service, as documented in the fixed asset schedule of the stormwater utility.
  - » The City's records as of the end of 2021 identify \$13.3 million in stormwater-related assets.
- <u>Plus: Construction-Work-in-Progress</u>: Projects that the City is currently constructing are eligible to be included in the cost basis, similar to an existing asset.
  - » As of the end of 2021, the City had \$3.0 million in construction-work-in-progress.
- <u>Less: Contributed Capital</u>: Assets funded by developers, grants, or from any agency other than the City of Port Orchard are excluded from the cost basis on the premise that the CFC should only recover costs actually incurred by City ratepayers.
  - » The City's records identified \$5.0 million in stormwater grants and contributions in aid of construction (developer donations) received by the utility.
- <u>Plus: Interest on Non-Contributed Plant</u>: The RCW and subsequent legal interpretations provide
  such charges can include interest on an asset at the rate applicable at the time of construction.
  Interest can accumulate for a maximum of ten years from the date of construction for any
  particular asset. Conceptually, this interest provision attempts to account for the opportunity



costs that the City's customers incurred by supporting investments in infrastructure rather than having it available for other needs.

- » Accumulated interest on non-contributed assets adds approximately \$2.4 million to the existing cost basis.
- Less: Net Debt Principal Outstanding: Another adjustment to the existing cost basis is to deduct the net liability of outstanding utility debt, since that new customers will bear a proportionate share of annual debt service through ongoing utility rates. Outstanding debt represents assets that have been placed into service, but that today's ratepayers have not yet paid for.
  - » The City currently has two outstanding loans relating to its stormwater utility, with \$1.8 million in debt principal outstanding. As of the beginning of 2022, however, beginning cash balances total \$2.5 million. Since cash balances exceed the outstanding debt, no deduction is made from the cost basis as cash could theoretically be used to reduce the debt principal.

The sum of these elements results in a total existing cost basis of \$13.6 million.

DescriptionAmountUtility Capital Assets\$13,264,328Less: Contributed Capital(5,010,051)Plus: Interest on Non-Contributed Plant2,353,859Plus: Construction-Work-in-Progress2,976,234Less: Net Debt Principal Outstanding-Total Existing Cost Basis\$ 13,584,371

Exhibit 17: Stormwater Utility Existing Cost Basis

### **Future Cost Basis**

The future cost basis is intended to recognize the ratepayers' net investment in the projects to be completed in the future. The main elements of the calculation include the capital improvement plan, and in some cases, offsetting grants. One additional adjustment to these numbers is a provision for capital retirements, which is also discussed below. **Exhibit 18** summarizes these elements for each level of service. Each level of service has a unique future cost basis.

• <u>Capital Improvement Plan</u>: A utility capital improvement plan (CIP) includes projects that address many needs, including system expansion, upgrades and the repair and replacement of infrastructure. In some cases, a single CIP project can serve more than one of these purposes. The City's CIP covers years 2022 through 2041 and project costs are in 2022 dollars.

Note: We do not escalate capital projects in a CFC for a couple of reasons. First, we do not know with certainty when projects will be constructed or what inflation will be. Second, we prefer to use the original cost in the calculation, and then the City can increase the charges with the Engineering News-Record Construction Cost Index or another inflator to accomplish the same thing with more accuracy.



- <u>Less: Developer Contributions/Grants</u>: Projects or portions of projects assumed to be funded by grants may be excluded from the calculation. It is assumed that without the level of grant funding noted, corresponding projects would not be executed.
  - » All levels of service include \$500,000 in assistance from the general fund, as listed in the City's 2023 budget. Our understanding is that this is a contribution from the general fund for a portion of a multi-purpose property acquisition.
- Less: Provision for Capital Retirement: Many capital projects are replacing existing assets. To avoid including the value of these projects twice − once in the existing assets and again in the capital plan − a provision for capital retirement is used on projects or portions thereof that are deemed repair and replacement (R&R). The provision for capital retirement determines the approximate original cost of the asset the R&R project is replacing, using the useful life of the new project and the historic ENR Construction Cost Index. The sum of the provision for capital retirement calculations is then removed from the future capital project total. In simple terms, if a retention pond expected to last 50 years is being installed in 2018 (and replacing an existing pond), the provision for retirement determines how much that asset cost in 1968 and removes that portion of the project cost from the calculation.

Exhibit 18: SWM Utility Future Project Costs Summary by LOS (2022 \$)

Description	LOS 1	LOS 2	LOS 3		
Total Citywide Projects (uninflated, before grants)	\$44,150,628	\$46,950,628	\$45,010,628		
Less: Assumed Grants	(19,365,000)	(13,250,000)			
Less: General Fund Contribution	(500,000)	(500,000)	(500,000)		
Less: Provision for Repair & Replacement	(3,487,088)	(3,797,339)	(3,584,445)		
Total Future Cost Basis	\$20,798,540	\$29,403,289	\$40,926,183		

## Estimated Customer Base (System Capacity)

So far, the report has discussed the numerator in the CFC, with its two main components: the value of existing assets and future capital costs. The denominator in the CFC calculation is the projected number of impervious surface units, or ISUs. The same time horizon for both the capital improvement plan and assumed customer growth is used in the CFC calculation – 2022 through 2041. This ensures that the numerator and the denominator cover the same period.



Exhibit 19: Estimated Customer Base by 2041

Customer Base	ISUs
Existing ISUs as of 8/2022	10,376
Estimated ISUs added from 8/2022 through 12/2022	250
Additional ISUs with Growth 2023-2041	3,300
Projected ISUs by 2041	13,926

#### **CFC Results**

The following exhibit shows summary calculations for the City's stormwater CFC for each level of service. Per the City's municipal code, one impervious surface unit (ISU) is defined as a single-family residential account (including mobile homes) or 3,000 impervious square feet of ground cover for all other developed parcels. It is assumed that the City would use the same definition when administering a stormwater capital facility charge if a stormwater CFC were to be implemented.

Exhibit 20: CFC Calculation

Description	LOS 1	LOS 2	LOS 3
Existing Cost Basis	\$13,584,371	\$13,584,371	\$13,584,371
Future Cost Basis	20,798,540	29,403,289	40,926,183
Total Cost Basis	34,283,911	42,987,660	54,510,554
Future System Capacity	13,926 ISUs	13,926 ISUs	13,926 ISUs
Calculated Maximum CFC per ISU	\$2,469	\$3,087	\$3,914

As noted previously, these charges reflect the maximum defensible CFC by level of service. The Council could adopt, by policy, a CFC that is lower than the indicated amounts and / or choose to phase-in to a targeted level over a multi-year period.



## Section V. SUMMARY

Exhibits 21, Exhibit 22, and Exhibit 23 detail the rate plans that support each defined level of service. These increases allow the utility to accomplish the following:

- Fund existing and forecasted operating expenses, plus cost escalation;
- Cover existing and future debt service obligations;
- Allow the utility to fund \$36 to \$58 million in capital projects from 2022-2041, net of grants;
- Generate \$1.4 to \$2.2 million per year for rate-funded capital by 2041; and
- Maintain utility reserves at recommended levels throughout the forecast.

Exhibit 21: Level of Service 1: Rate Increases

	2023	2024	2025	2026	2027	2028	2029	2030	2031
Monthly Rate / ISU	\$14.00	\$16.94	\$20.50	\$24.80	\$25.55	\$26.31	\$27.10	\$27.91	\$28.75
Change in Monthly Rate		\$2.94	\$3.56	\$4.30	\$0.75	\$0.76	\$0.79	\$0.81	\$0.84

Exhibit 22: Level of Service 2: Rate Adjustments

	2023	2024	2025	2026	2027	2028	2029	2030	2031
Monthly Rate / ISU	\$14.00	\$18.34	\$24.03	\$31.47	\$32.42	\$33.39	\$34.39	\$35.42	\$36.49
Change in Monthly Rate		\$4.34	\$5.69	\$7.44	\$0.95	\$0.97	\$1.00	\$1.03	\$1.07

Exhibit 23: Level of Service 3: Rate Adjustments

	2023	2024	2025	2026	2027	2028	2029	2030	2031
Monthly Rate / ISU	\$14.00	\$20.37	\$29.64	\$43.12	\$44.42	\$45.75	\$47.12	\$48.54	\$49.99
Change in Monthly Rate		\$6.37	\$9.27	\$13.48	\$1.30	\$1.33	\$1.37	\$1.42	\$1.45

## Capital Facility Charge

The recommended maximum CFC is \$2,469 per ISU for Level of Service 1, \$3,087 for Level of Service 2, and \$3,914 for Level of Service 3. It is recommended that the CFC be revisited every few years to ensure that the charge is keeping pace with the utility's capital investments and that the adopted charge be indexed for inflation.

## Single-Family Residential Rate Comparison

As a resource to the City and its customers, a rate survey of western Washington stormwater utilities was performed. **Exhibit 24** shows monthly single-family residential stormwater bills for a few



neighboring jurisdictions. It also features Port Orchard's existing rate as well as potential rates for each level of service in 2024.

\$35 \$30 \$25.06 Monthly Single-Family Rate \$25 to \$20 to \$10 ORCHARD \$20.36 \$20.37 \$20.88 \$16.94 \$17.00 \$17.01 \$17.54 \$18.34 \$15.67 \$13.93 \$14.00 \$12.08 \$12.65 \$10.80 \$10.83 \$5 \$0 Gig Harbor (Small) Gig Harbor (Medium) Poulsbo Gig Harbor (2023) (Large) Pierce Kitsap Pierce Pierce Pierce Port Port Bainbridge Port Bremerton Port Port County (Base + County (Base + County (Base + Orchard LOS 1 Orchard LOS 2 Orchard LOS 3 County (Base) County (2023) Orchard Island Angeles (2023) River) (2023) (2023)Water WQ & (2024)(2024)(2024)Quality) River) (2023)

Exhibit 24: Regional Jurisdictional Survey – Monthly Single Family Stormwater Rates

**Exhibit 25** shows a wider range of jurisdictions from around western Washington in case that type of comparison is helpful to the City or its customers.

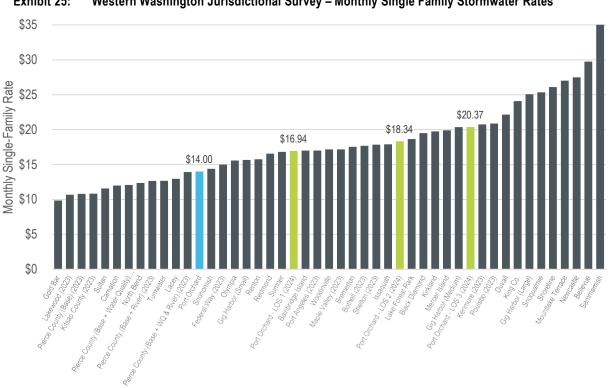


Exhibit 25: Western Washington Jurisdictional Survey – Monthly Single Family Stormwater Rates

## Single-Family Stormwater CFC Comparison

FCS GROUP also conducted a survey of western Washington stormwater CFCs. The three potential CFCs of \$2,469 for Level of Service 1, \$3,087 for Level of Service 2, and \$3,914 for Level of Service 3 are on the higher end of charges in the area, but it is important to remember these are simply legal maximums, not required charges. By policy, the City could adopt a charge at any amount up to the calculated charge. Note that some cities, such as Bothell and Redmond, have basin-specific charges that range from \$6,000 to \$15,000.

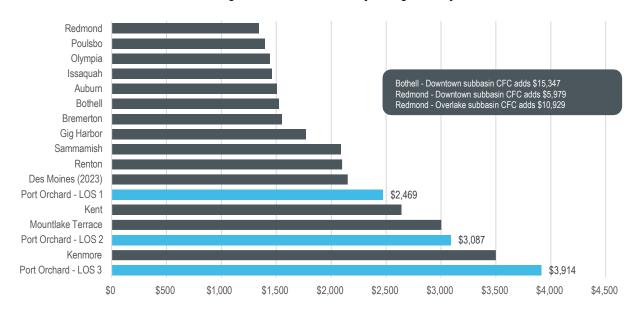


Exhibit 26: Western Washington Jurisdictional Survey - Single Family Stormwater CFC

## **Updating This Study's Findings**

It is recommended that the City revisit the study findings during the forecast period to check that the assumptions used are still appropriate and no significant changes have occurred that would alter the results of the study. The City should use the study findings as a living document, routinely comparing the study outcomes to actual revenues and expenses. Any significant or unexpected changes will require adjustments to the rate strategy proposed in this report.



## MODEL APPENDICES



Revenue Requirement	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
Bayanyaa																				
Revenues Rate Revenues Under Existing Rates	\$ 1.766.827	\$ 1.816.709	\$ 1,866,592	\$ 1.916.474	\$ 1,941,415	\$ 1.966.356	\$ 1,991,297	\$ 2,016,238	\$ 2,041,179	\$ 2,066,120	\$ 2,091,061	\$ 2,116,003	\$ 2,140,944	\$ 2,165,885	\$ 2,190,826	\$ 2,215,767	\$ 2,240,708	\$ 2,265,649	\$ 2,290,590	\$ 2,315,531
Non-Rate Revenues	201,380	72,892	66,976	67,861	68,475	70,184	70,559	74,266	74.737	77.394	77,900	81,858	82,402	89,650	90,234	93,730	94,358	100,068	100,742	105,055
Total Revenues	\$ 1,968,207					\$ 2,036,540		\$ 2,090,504	\$ 2,115,917	\$ 2,143,514	\$ 2,168,962	\$ 2,197,860	\$ 2,223,345	\$ 2,255,535	\$ 2,281,060		\$ 2,335,066	\$ 2,365,717	\$ 2,391,332	\$ 2,420,586
Expenses																				
Cash Operating Expenses	\$ 1,610,383	\$ 1,974,677	\$ 1,957,605	\$ 2,041,830	\$ 2,218,577	\$ 2,245,086	\$ 2,318,786	\$ 2,395,059	\$ 2,474,002	\$ 2,555,716	\$ 2,640,307	\$ 2,727,883	\$ 2,818,558	\$ 2,912,450	\$ 3,009,683	\$ 3,110,383	\$ 3,214,685	\$ 3,322,726	\$ 3,434,652	\$ 3,550,611
Existing Debt Service	177.047	177.877	176,883	177.604	178,251	177.075	177,612	178.077	178.468	177,036	189,615	16,525	16.525	16,525	16,525	8,263	-	-	-	-
New Debt Service	-	-		-	24,088	24.088	168,615	168.615	264,966	264,966	417,522	417,522	714.606	714,606	843.074	843,074	1,067,894	1.067.894	1,228,479	1,228,479
Total Expenses	\$ 1,787,429	\$ 2,152,554	\$ 2,134,488	\$ 2,219,434		\$ 2,446,249	\$ 2,665,013	\$ 2,741,750	\$ 2,917,436	\$ 2,997,718	\$ 3,247,444	\$ 3,161,931	\$ 3,549,689	\$ 3,643,581		\$ 3,961,720	\$ 4,282,579	\$ 4,390,620	\$ 4,663,131	\$ 4,779,090
Net Surplus (Deficiency)	\$ 180,778	\$ (262,953)	\$ (200,921)	\$ (235,099)	\$ (411,026)	\$ (409,710)	\$ (603,158)	\$ (651,247)	\$ (801,519)	\$ (854,204)	\$ (1,078,482)	¢ (064 070)	\$ (1,326,343)	\$ (1,388,046)	¢ (1 588 222)	¢ (1 652 222)	\$ (1,947,512)	\$ (2.024.003)	\$ (2,271,798)	\$ (2.358.504)
Additions to Meet Coverage	ψ 100,770	Ψ (202,333)	ψ (200,321)	ψ (233,033)	ψ (+11,020)	ψ (403,710)	ψ (000,100)	ψ (031,241)	ψ (001,515)	ψ (034,204)	ψ (1,070,402)	ψ (304,070)	(45,169)	ψ (1,500,040)	(72,770)		(141,254)	(122,588)	(176,114)	(157,428)
Total Surplus (Deficiency)	\$ 180,778	\$ (262,953)	\$ (200,921)	\$ (235,099)	\$ (411,026)	\$ (409,710)	\$ (603,158)	\$ (651,247)	\$ (801,519)	\$ (854,204)	\$ (1,078,482)	\$ (964,070)	\$ (1,371,513)	\$ (1,388,046)	,	\$ (1,718,141)		\$ (2,147,491)	\$ (2,447,913)	\$ (2,515,932)
Annual Rate Increase		0.00%	21.00%	21.00%	21.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
Cumulative Rate Increase		0.00%	21.00%	46.41%	77.16%	82.47%	87.94%	93.58%	99.39%	105.37%	111.53%	117.88%	124.42%	131.15%	138.08%	145.23%	152.58%	160.16%	167.96%	176.00%
Revenues After Rate Increases Additional Taxes from Rate Increase	\$ 1,766,827	\$ 1,816,709	\$ 2,258,576 26,459	\$ 2,805,909 60,037	\$ 3,439,335 101,110	\$ 3,588,025 109,463	\$ 3,742,541 118,209	\$ 3,903,099 127,363	\$ 4,069,923 136,940	\$ 4,243,242	\$ 4,423,299 157,426	\$ 4,610,339 168,368	\$ 4,804,621 179,798	\$ 5,006,411 191,736	\$ 5,215,984 204,198	\$ 5,433,625 217,205	\$ 5,659,630 230,777	\$ 5,894,306 244,934	\$ 6,137,969 259,698	\$ 6,390,946 275,090
Net Cash Flow After Rate Increase	\$ 180,778	\$ (262,953)	\$ 164,604	\$ 594,299	\$ 985,785	\$ 1,102,497	\$ 1,029,878	\$ 1,108,252	\$ 1,090,284	146,956 \$ 1,175,963	\$ 1,096,329	\$ 1,361,899	\$ 1,157,536	\$ 1,260,744	\$ 1,232,738	\$ 1,348,430	\$ 1,240,633	\$ 1,358,819	\$ 1,315,882	\$ 1,441,820
				. ,																
Coverage After Rate Increase: Bonded Debt Coverage After Rate Increase: Total Debt	n/a 2.03	n/a 0.22	n/a 2.57	n/a 4.96	54.16 6.45	59.32 7.10	8.77 4.27	9.39 4.56	6.20 3.70	6.59 3.95	4.35 2.99	4.61 4.43	2.81 2.74	3.04 2.97	2.63 2.58	2.77 2.74	2.28 2.28	2.41 2.41	2.18 2.18	2.30 2.30
•																				
Sample Residential Bill (1 ISU)	\$14.00	\$14.00	\$16.94	\$20.50	\$24.80	\$25.55	\$26.31	\$27.10	\$27.91	\$28.75	\$29.61	\$30.50	\$31.42	\$32.36	\$33.33	\$34.33	\$35.36	\$36.42	\$37.52	\$38.64
Increase (\$)		\$0.00	\$2.94	\$3.56	\$4.30	\$0.74	\$0.77	\$0.79	\$0.81	\$0.84	\$0.86	\$0.89	\$0.92	\$0.94	\$0.97	\$1.00	\$1.03	\$1.06	\$1.09	\$1.13
Fund Balance	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
Fund Balance Operating Reserve - 421												2033	2034	2035	2036		2038			
Operating Reserve - 421 Beginning Balance	\$ 2,116,332	\$ 706,309	\$ 443,357	\$ 482,697	\$ 509,989	\$ 561,850	\$ 578,514	\$ 598,746	\$ 619,710	\$ 641,433	\$ 663,943	\$ 687,270	\$ 711,446	\$ 736,502	\$ 762,472	\$ 789,391	\$ 817,294	\$ 846,220	\$ 876,206	\$ 907,295
Operating Reserve - 421 Beginning Balance plus: Net Cash Flow after Rate Increase	\$ 2,116,332 180,778		\$ 443,357 164,604	\$ 482,697 594,299	\$ 509,989 985,785	\$ 561,850 1,102,497	\$ 578,514 1,029,878	\$ 598,746 1,108,252	\$ 619,710 1,090,284	\$ 641,433 1,175,963	\$ 663,943 1,096,329	\$ 687,270 1,361,899	\$ 711,446 1,157,536	\$ 736,502 1,260,744	\$ 762,472 1,232,738	\$ 789,391 1,348,430	\$ 817,294 1,240,633	\$ 846,220 1,358,819	\$ 876,206 1,315,882	\$ 907,295 1,441,820
Operating Reserve - 421 Beginning Balance plus: Net Cash Flow after Rate Increase less: Transfer of Surplus to Capital Fund	\$ 2,116,332 180,778 (1,400,000)	\$ 706,309	\$ 443,357	\$ 482,697	\$ 509,989	\$ 561,850	\$ 578,514	\$ 598,746	\$ 619,710	\$ 641,433	\$ 663,943	\$ 687,270	\$ 711,446	\$ 736,502	\$ 762,472	\$ 789,391 1,348,430	\$ 817,294 1,240,633	\$ 846,220	\$ 876,206	\$ 907,295
Operating Reserve - 421 Beginning Balance plus: Net Cash Flow after Rate Increase less: Transfer of Surplus to Capital Fund less: Transfer to Stabilization Fund	\$ 2,116,332 180,778 (1,400,000) (190,800)	\$ 706,309 (262,953) - -	\$ 443,357 164,604 (125,264)	\$ 482,697 594,299 (567,007)	\$ 509,989 985,785 (933,924)	\$ 561,850 1,102,497 (1,085,833)	\$ 578,514 1,029,878 (1,009,646)	\$ 598,746 1,108,252 (1,087,288)	\$ 619,710 1,090,284 (1,068,561)	\$ 641,433 1,175,963 (1,153,452)	\$ 663,943 1,096,329 (1,073,002)	\$ 687,270 1,361,899 (1,337,723)	\$ 711,446 1,157,536 (1,132,480)	\$ 736,502 1,260,744 (1,234,774)	\$ 762,472 1,232,738 (1,205,819)	\$ 789,391 1,348,430 (1,320,527)	\$ 817,294 1,240,633 (1,211,707)	\$ 846,220 1,358,819 (1,328,832)	\$ 876,206 1,315,882 (1,284,793)	\$ 907,295 1,441,820 (1,409,587)
Operating Reserve - 421  Beginning Balance plus: Net Cash Flow after Rate Increase less: Transfer of Surplus to Capital Fund less: Transfer to Stabilization Fund Ending Balance	\$ 2,116,332 180,778 (1,400,000) (190,800) <b>\$ 706,309</b>	\$ 706,309 (262,953) - - \$ 443,357	\$ 443,357 164,604 (125,264) - \$ 482,697	\$ 482,697 594,299 (567,007) - \$ 509,989	\$ 509,989 985,785 (933,924) - \$ 561,850	\$ 561,850 1,102,497 (1,085,833) - \$ 578,514	\$ 578,514 1,029,878 (1,009,646) - \$ 598,746	\$ 598,746 1,108,252 (1,087,288) - \$ 619,710	\$ 619,710 1,090,284 (1,068,561) - \$ 641,433	\$ 641,433 1,175,963 (1,153,452) - \$ 663,943	\$ 663,943 1,096,329 (1,073,002) 	\$ 687,270 1,361,899 (1,337,723) 	\$ 711,446 1,157,536 (1,132,480) 	\$ 736,502 1,260,744 (1,234,774) 	\$ 762,472 1,232,738 (1,205,819) 	\$ 789,391 1,348,430 (1,320,527) 	\$ 817,294 1,240,633 (1,211,707) 	\$ 846,220 1,358,819 (1,328,832) 	\$ 876,206 1,315,882 (1,284,793) 	\$ 907,295 1,441,820 (1,409,587) 
Operating Reserve - 421 Beginning Balance plus: Net Cash Flow after Rate Increase less: Transfer of Surplus to Capital Fund less: Transfer to Stabilization Fund Ending Balance Actual Days of O&M	\$ 2,116,332 180,778 (1,400,000) (190,800) <b>\$ 706,309</b> 160 days	\$ 706,309 (262,953) - - \$ 443,357 82 days	\$ 443,357 164,604 (125,264) - \$ 482,697 90 days	\$ 482,697 594,299 (567,007) - \$ <b>509,989</b> 90 days	\$ 509,989 985,785 (933,924) - \$ 561,850 90 days	\$ 561,850 1,102,497 (1,085,833) - \$ 578,514 90 days	\$ 578,514 1,029,878 (1,009,646) - \$ 598,746 90 days	\$ 598,746 1,108,252 (1,087,288) - \$ 619,710 90 days	\$ 619,710 1,090,284 (1,068,561) - \$ 641,433 90 days	\$ 641,433 1,175,963 (1,153,452) - \$ 663,943 90 days	\$ 663,943 1,096,329 (1,073,002) 	\$ 687,270 1,361,899 (1,337,723) 	\$ 711,446 1,157,536 (1,132,480) 	\$ 736,502 1,260,744 (1,234,774) 	\$ 762,472 1,232,738 (1,205,819) 	\$ 789,391 1,348,430 (1,320,527) 	\$ 817,294 1,240,633 (1,211,707) 	\$ 846,220 1,358,819 (1,328,832) 	\$ 876,206 1,315,882 (1,284,793) 	\$ 907,295 1,441,820 (1,409,587) 
Operating Reserve - 421 Beginning Balance plus: Net Cash Flow after Rate Increase less: Transfer of Surplus to Capital Fund less: Transfer to Stabilization Fund Ending Balance Actual Days of O&M Minimum Balance Requirement	\$ 2,116,332 180,778 (1,400,000) (190,800) <b>706,309</b> 160 days \$ 264,720	\$ 706,309 (262,953) - - \$ 443,357 82 days \$ 324,605	\$ 443,357 164,604 (125,264) - \$ 482,697 90 days \$ 321,798	\$ 482,697 594,299 (567,007) - \$ 509,989 90 days \$ 339,993	\$ 509,989 985,785 (933,924) - \$ 561,850 90 days \$ 374,567	\$ 561,850 1,102,497 (1,085,833) - \$ 578,514 90 days \$ 385,676	\$ 578,514 1,029,878 (1,009,646) - \$ 598,746 90 days \$ 399,164	\$ 598,746 1,108,252 (1,087,288) - \$ 619,710 90 days \$ 413,140	\$ 619,710 1,090,284 (1,068,561) - \$ 641,433 90 days \$ 427,622	\$ 641,433 1,175,963 (1,153,452) - \$ 663,943 90 days \$ 442,628	\$ 663,943 1,096,329 (1,073,002) 	\$ 687,270 1,361,899 (1,337,723) 	\$ 711,446 1,157,536 (1,132,480) \$ 736,502 90 days \$ 491,001	\$ 736,502 1,260,744 (1,234,774) 	\$ 762,472 1,232,738 (1,205,819) 	\$ 789,391 1,348,430 (1,320,527) 	\$ 817,294 1,240,633 (1,211,707) 	\$ 846,220 1,358,819 (1,328,832) 	\$ 876,206 1,315,882 (1,284,793) \$ 907,295 90 days \$ 604,863	\$ 907,295 1,441,820 (1,409,587) 
Operating Reserve - 421 Beginning Balance plus: Net Cash Flow after Rate Increase less: Transfer of Surplus to Capital Fund less: Transfer to Stabilization Fund Ending Balance Actual Days of O&M  Minimum Balance Requirement Maximum Balance Requirement	\$ 2,116,332 180,778 (1,400,000) (190,800) <b>\$ 706,309</b> 160 days	\$ 706,309 (262,953) - - \$ 443,357 82 days	\$ 443,357 164,604 (125,264) - \$ 482,697 90 days	\$ 482,697 594,299 (567,007) - \$ <b>509,989</b> 90 days	\$ 509,989 985,785 (933,924) - \$ 561,850 90 days	\$ 561,850 1,102,497 (1,085,833) - \$ 578,514 90 days	\$ 578,514 1,029,878 (1,009,646) - \$ 598,746 90 days	\$ 598,746 1,108,252 (1,087,288) - \$ 619,710 90 days	\$ 619,710 1,090,284 (1,068,561) - \$ 641,433 90 days	\$ 641,433 1,175,963 (1,153,452) - \$ 663,943 90 days \$ 442,628	\$ 663,943 1,096,329 (1,073,002) 	\$ 687,270 1,361,899 (1,337,723) 	\$ 711,446 1,157,536 (1,132,480) 	\$ 736,502 1,260,744 (1,234,774) 	\$ 762,472 1,232,738 (1,205,819) 	\$ 789,391 1,348,430 (1,320,527) 	\$ 817,294 1,240,633 (1,211,707) 	\$ 846,220 1,358,819 (1,328,832) 	\$ 876,206 1,315,882 (1,284,793) 	\$ 907,295 1,441,820 (1,409,587) 
Operating Reserve - 421 Beginning Balance plus: Net Cash Flow after Rate Increase less: Transfer of Surplus to Capital Fund less: Transfer to Stabilization Fund Ending Balance Actual Days of O&M Minimum Balance Requirement Maximum Balance Requirement Capital Reserve - 423	\$ 2,116,332 180,778 (1,400,000) (190,800) <b>*706,309</b> 160 days \$ 264,720 \$ 397,081	\$ 706,309 (262,953) - \$ 443,357 82 days \$ 324,605 \$ 486,907	\$ 443,357 164,604 (125,264) - \$ 482,697 90 days \$ 321,798 \$ 482,697	\$ 482,697 594,299 (567,007) - \$ 509,989 90 days \$ 339,993 \$ 509,989	\$ 509,989 985,785 (933,924) - \$ 561,850 90 days \$ 374,567 \$ 561,850	\$ 561,850 1,102,497 (1,085,833) - \$ 578,514 90 days \$ 385,676 \$ 578,514	\$ 578,514 1,029,878 (1,009,646) - \$ 598,746 90 days \$ 399,164 \$ 598,746	\$ 598,746 1,108,252 (1,087,288) - \$ 619,710 90 days \$ 413,140 \$ 619,710	\$ 619,710 1,090,284 (1,068,561) - \$ <b>641,433</b> 90 days \$ 427,622 \$ 641,433	\$ 641,433 1,175,963 (1,153,452) - \$ 663,943 90 days \$ 442,628 \$ 663,943	\$ 663,943 1,096,329 (1,073,002) \$ 687,270 90 days \$ 458,180 \$ 687,270	\$ 687,270 1,361,899 (1,337,723) - <b>711,446</b> 90 days \$ 474,297 \$ 711,446	\$ 711,446 1,157,536 (1,132,480) - \$ 736,502 90 days \$ 491,001 \$ 736,502	\$ 736,502 1,260,744 (1,234,774) - \$ 762,472 90 days \$ 508,315 \$ 762,472	\$ 762,472 1,232,738 (1,205,819) <b>789,391</b> 90 days \$ 526,261 \$ 789,391	\$ 789,391 1,348,430 (1,320,527) - - \$ 817,294 90 days \$ 544,863 \$ 817,294	\$ 817,294 1,240,633 (1,211,707) <b>\$ 846,220</b> 90 days \$ 564,146 \$ 846,220	\$ 846,220 1,358,819 (1,328,832) - - \$ 876,206 90 days \$ 584,138 \$ 876,206	\$ 876,206 1,315,882 (1,284,793) - - \$ 907,295 90 days \$ 604,863 \$ 907,295	\$ 907,295 1,441,820 (1,409,587) 
Operating Reserve - 421  Beginning Balance plus: Net Cash Flow after Rate Increase less: Transfer of Surplus to Capital Fund less: Transfer to Stabilization Fund Ending Balance Actual Days of O&M  Minimum Balance Requirement Maximum Balance Requirement Capital Reserve - 423 Beginning Balance	\$ 2,116,332 180,778 (1,400,000) (190,800) <b>\$ 706,309</b> 160 days \$ 264,720 \$ 397,081	\$ 706,309 (262,953) - - \$ 443,357 82 days \$ 324,605	\$ 443,357 164,604 (125,264) - \$ 482,697 90 days \$ 321,798 \$ 482,697 \$ 872,113	\$ 482,697 594,299 (567,007) <b>\$ 509,989</b> 90 days \$ 339,993 \$ 509,989 \$ 615,290	\$ 509,989 985,785 (933,924) - \$ 561,850 90 days \$ 374,567 \$ 561,850 \$ 863,525	\$ 561,850 1,102,497 (1,085,833) - \$ 578,514 90 days \$ 385,676 \$ 578,514 \$ 1,198,860	\$ 578,514 1,029,878 (1,009,646) 	\$ 598,746 1,108,252 (1,087,288) \$ 619,710 90 days \$ 413,140 \$ 619,710 \$ 1,193,566	\$ 619,710 1,090,284 (1,068,561) - \$ 641,433 90 days \$ 427,622 \$ 641,433 \$ 263,157	\$ 641,433 1,175,963 (1,153,452) - \$ 663,943 90 days \$ 442,628 \$ 663,943 \$ 1,056,229	\$ 663,943 1,096,329 (1,073,002) 	\$ 687,270 1,361,899 (1,337,723) \$ 711,446 90 days \$ 474,297 \$ 711,446 \$ 978,651	\$ 711,446 1,157,536 (1,132,480) \$ 736,502 90 days \$ 491,001 \$ 736,502	\$ 736,502 1,260,744 (1,234,774) 	\$ 762,472 1,232,738 (1,205,819) 	\$ 789,391 1,348,430 (1,320,527) 	\$ 817.294 1,240,633 (1,211,707) \$ 846,220 90 days \$ 564,146 \$ 846,220 \$ 608,192	\$ 846,220 1,358,819 (1,328,832) 	\$ 876,206 1,315,882 (1,284,793) 	\$ 907,295 1,441,820 (1,409,587) 
Operating Reserve - 421  Beginning Balance plus: Net Cash Flow after Rate Increase less: Transfer of Surplus to Capital Fund less: Transfer to Stabilization Fund Ending Balance Actual Days of O&M  Minimum Balance Requirement Maximum Balance Requirement Capital Reserve - 423 Beginning Balance plus: Transfers from Operating Fund	\$ 2,116,332 180,778 (1,400,000) (190,800) <b>*706,309</b> 160 days \$ 264,720 \$ 397,081	\$ 706,309 (262,953) 	\$ 443,357 164,604 (125,264) - \$ 482,697 90 days \$ 321,798 \$ 482,697	\$ 482,697 594,299 (567,007) - \$ 509,989 90 days \$ 339,993 \$ 509,989	\$ 509,989 985,785 (933,924) - \$ 561,850 90 days \$ 374,567 \$ 561,850	\$ 561,850 1,102,497 (1,085,833) - \$ 578,514 90 days \$ 385,676 \$ 578,514	\$ 578,514 1,029,878 (1,009,646) - \$ 598,746 90 days \$ 399,164 \$ 598,746	\$ 598,746 1,108,252 (1,087,288) - \$ 619,710 90 days \$ 413,140 \$ 619,710	\$ 619,710 1,090,284 (1,068,561) - \$ <b>641,433</b> 90 days \$ 427,622 \$ 641,433	\$ 641,433 1,175,963 (1,153,452) - \$ 663,943 90 days \$ 442,628 \$ 663,943	\$ 663,943 1,096,329 (1,073,002) \$ 687,270 90 days \$ 458,180 \$ 687,270	\$ 687,270 1,361,899 (1,337,723) - <b>711,446</b> 90 days \$ 474,297 \$ 711,446	\$ 711,446 1,157,536 (1,132,480) - \$ 736,502 90 days \$ 491,001 \$ 736,502	\$ 736,502 1,260,744 (1,234,774) - \$ 762,472 90 days \$ 508,315 \$ 762,472	\$ 762,472 1,232,738 (1,205,819) <b>789,391</b> 90 days \$ 526,261 \$ 789,391	\$ 789,391 1,348,430 (1,320,527) - - \$ 817,294 90 days \$ 544,863 \$ 817,294	\$ 817,294 1,240,633 (1,211,707) <b>\$ 846,220</b> 90 days \$ 564,146 \$ 846,220	\$ 846,220 1,358,819 (1,328,832) - - \$ 876,206 90 days \$ 584,138 \$ 876,206	\$ 876,206 1,315,882 (1,284,793) - - \$ 907,295 90 days \$ 604,863 \$ 907,295	\$ 907,295 1,441,820 (1,409,587) - - \$ 939,528 90 days \$ 626,352 \$ 939,528
Operating Reserve - 421  Beginning Balance plus: Net Cash Flow after Rate Increase less: Transfer of Surplus to Capital Fund less: Transfer to Stabilization Fund Ending Balance Actual Days of O&M  Minimum Balance Requirement Maximum Balance Requirement Capital Reserve - 423 Beginning Balance	\$ 2,116,332 180,778 (1,400,000) (190,800) <b>\$ 706,309</b> 160 days \$ 264,720 \$ 397,081	\$ 706,309 (262,953) - \$ 443,357 82 days \$ 324,605 \$ 486,907	\$ 443,357 164,604 (125,264) - \$ 482,697 90 days \$ 321,798 \$ 482,697 \$ 872,113	\$ 482,697 594,299 (567,007) <b>\$ 509,989</b> 90 days \$ 339,993 \$ 509,989 \$ 615,290	\$ 509,989 985,785 (933,924) - \$ 561,850 90 days \$ 374,567 \$ 561,850 \$ 863,525	\$ 561,850 1,102,497 (1,085,833) - \$ 578,514 90 days \$ 385,676 \$ 578,514 \$ 1,198,860	\$ 578,514 1,029,878 (1,009,646) 	\$ 598,746 1,108,252 (1,087,288) \$ 619,710 90 days \$ 413,140 \$ 619,710 \$ 1,193,566	\$ 619,710 1,090,284 (1,068,561) - \$ 641,433 90 days \$ 427,622 \$ 641,433 \$ 263,157	\$ 641,433 1,175,963 (1,153,452) - \$ 663,943 90 days \$ 442,628 \$ 663,943 \$ 1,056,229	\$ 663,943 1,096,329 (1,073,002) 	\$ 687,270 1,361,899 (1,337,723) \$ 711,446 90 days \$ 474,297 \$ 711,446 \$ 978,651	\$ 711,446 1,157,536 (1,132,480) \$ 736,502 90 days \$ 491,001 \$ 736,502	\$ 736,502 1,260,744 (1,234,774) 	\$ 762,472 1,232,738 (1,205,819) 	\$ 789,391 1,348,430 (1,320,527) 	\$ 817.294 1,240,633 (1,211,707) \$ 846,220 90 days \$ 564,146 \$ 846,220 \$ 608,192	\$ 846,220 1,358,819 (1,328,832) 	\$ 876,206 1,315,882 (1,284,793) 	\$ 907,295 1,441,820 (1,409,587) 
Operating Reserve - 421 Beginning Balance plus: Net Cash Flow after Rate Increase less: Transfer of Surplus to Capital Fund less: Transfer to Stabilization Fund Ending Balance Actual Days of O&M  Minimum Balance Requirement Maximum Balance Requirement Capital Reserve - 423 Beginning Balance plus: Transfers from Operating Fund plus: Transfers From General Fund plus: Assumed Capital Grants plus: CFC Revenue	\$ 2,116,332 180,778 (1,400,000) (190,800) <b>\$ 706,309</b> 160 days \$ 264,720 \$ 397,081	\$ 706,309 (262,953) 	\$ 443,357 164,604 (125,264) <b>\$ 482,697</b> 90 days \$ 321,798 \$ 482,697 \$ 872,113 125,264	\$ 482,697 594,299 (567,007) - \$ <b>509,989</b> 90 days \$ 339,993 \$ 509,989 \$ 615,290 567,007	\$ 509,989 985,785 (933,924) <b>\$ 561,850</b> 90 days \$ 374,567 \$ 561,850 \$ 863,525 933,924 2,409,798	\$ 561,850 1,102,497 (1,085,833) <b>578,514</b> 90 days \$ 385,676 \$ 578,514 \$ 1,198,860 1,085,833	\$ 578,514 1,029,878 (1,009,646) \$ 598,746 90 days \$ 399,164 \$ 598,746 \$ 102,570 1,009,646 1,106,330	\$ 598,746 1,108,252 (1,087,288) <b>\$ 619,710</b> <i>90 days</i> \$ 413,140 \$ 619,710 \$ 1,193,566 1,087,288	\$ 619,710 1,090,284 (1,068,561) - \$ 641,433 90 days \$ 427,622 \$ 641,433 \$ 263,157 1,068,561 - 493,803	\$ 641,433 1,175,963 (1,153,452) - \$ 663,943 90 days \$ 442,628 \$ 663,943 \$ 1,056,229 1,153,452	\$ 663,943 1,096,329 (1,073,002) 	\$ 687,270 1,361,899 (1,337,723) <b>711,446</b> 90 days \$ 474,297 \$ 711,446 \$ 978,651 1,337,723	\$ 711,446 1,157,536 (1,132,480) 	\$ 736,502 1,260,744 (1,234,774) 	\$ 762,472 1,232,738 (1,205,819)  \$ 789,391 90 days \$ 526,261 \$ 789,391 \$ 530,307 1,205,819  1,359,703	\$ 789,391 1,348,430 (1,320,527) 	\$ 817,294 1,240,633 (1,211,707) 	\$ 846,220 1,358,819 (1,328,832) \$ 876,206 90 days \$ 584,138 \$ 876,206 \$ 1,382,360 1,328,832	\$ 876,206 1,315,882 (1,284,793) 	\$ 907,295 1,441,820 (1,409,587) 
Operating Reserve - 421 Beginning Balance plus: Net Cash Flow after Rate Increase less: Transfer of Surplus to Capital Fund less: Transfer to Stabilization Fund Ending Balance Actual Days of O&M  Minimum Balance Requirement Maximum Balance Requirement  Capital Reserve - 423 Beginning Balance plus: Transfers from Operating Fund plus: Transfers From General Fund plus: Assumed Capital Grants plus: CFC Revenue plus: Revenue Bond Proceeds	\$ 2,116,332 180,778 (1,400,000) (190,800) <b>\$ 706,309</b> 160 days \$ 264,720 \$ 397,081 \$ 94,014 1,400,000	\$ 706,309 (262,953) 	\$ 443,357 164,604 (125,264) - \$ 482,697 90 days \$ 321,798 \$ 482,697 \$ 872,113 125,264 - 883,761	\$ 482,697 594,299 (567,007) - \$ <b>509,989</b> 90 days \$ 339,993 \$ 509,989 \$ 615,290 567,007 - 665,231	\$ 509,989 985,785 (933,924) - \$ 561,850 90 days \$ 374,567 \$ 561,850 \$ 863,525 933,924 - 2,409,798 - 300,000	\$ 561,850 1,102,497 (1,085,833) - \$ 578,514 90 days \$ 385,676 \$ 578,514 \$ 1,198,860 1,085,833 - 356,306	\$ 578,514 1,029,878 (1,009,646)	\$ 598,746 1,108,252 (1,087,288)	\$ 619,710 1,090,284 (1,068,561) - \$ 641,433 90 days \$ 427,622 \$ 641,433 \$ 263,157 1,068,561 - 493,803 - 1,200,000	\$ 641,433 1,175,963 (1,153,452) - \$ 663,943 90 days \$ 442,628 \$ 663,943 \$ 1,056,229 1,153,452 - 511,087	\$ 663,943 1,096,329 (1,073,002) 	\$ 687,270 1,361,899 (1,337,723) 	\$ 711,446 1,157,536 (1,132,480) 	\$ 736,502 1,260,744 (1,234,774) 	\$ 762,472 1,232,738 (1,205,819) 	\$ 789,391 1,348,430 (1,320,527) 	\$ 817,294 1,240,633 (1,211,707) 	\$ 846,220 1,358,819 (1,328,832) 	\$ 876,206 1,315,882 (1,284,793) 	\$ 907,295 1,441,820 (1,409,587) 
Operating Reserve - 421 Beginning Balance plus: Net Cash Flow after Rate Increase less: Transfer of Surplus to Capital Fund less: Transfer to Stabilization Fund Ending Balance Actual Days of O&M  Minimum Balance Requirement Maximum Balance Requirement  Capital Reserve - 423 Beginning Balance plus: Transfers from Operating Fund plus: Transfers From General Fund plus: CFC Revenue plus: Revenue Bond Proceeds plus: Interest Earnings	\$ 2,116,332 180,778 (1,400,000) (190,800) <b>\$ 706,309</b> 160 days \$ 264,720 \$ 397,081 \$ 94,014 1,400,000	\$ 706,309 (262,953) 	\$ 443,357 164,604 (125,264) - \$ 482,697 90 days \$ 321,798 \$ 482,697 \$ 872,113 125,264 - 883,761 - 19,623	\$ 482,697 594,299 (567,007) - \$ <b>509,989</b> 90 days \$ 339,993 \$ 509,989 \$ 615,290 567,007 - 665,231	\$ 509,989 985,785 (933,924) - \$ 561,850 90 days \$ 374,567 \$ 561,850 \$ 863,525 933,924 - 2,409,798 - 300,000 19,429	\$ 561,850 1,102,497 (1,085,833) - \$ 578,514 90 days \$ 385,676 \$ 578,514 \$ 1,198,860 1,085,833 - 356,306 - - 26,974	\$ 578,514 1,029,878 (1,009,646)	\$ 598,746 1,108,252 (1,087,288) - \$ 619,710 90 days \$ 413,140 \$ 619,710 \$ 1,193,566 1,087,288 - 2,385,524 - 26,855	\$ 619,710 1,090,284 (1,068,561) - \$ 641,433 90 days \$ 427,622 \$ 641,433 \$ 263,157 1,068,561 - 493,803 1,200,000 5,921	\$ 641,433 1,175,963 (1,153,452) - \$ 663,943 90 days \$ 442,628 \$ 663,943 \$ 1,056,229 1,153,452 - 511,087 - 23,765	\$ 663,943 1,096,329 (1,073,002) 	\$ 687,270 1,361,899 (1,337,723) 	\$ 711,446 1,157,536 (1,132,480) 	\$ 736,502 1,260,744 (1,234,774) 	\$ 762,472 1,232,738 (1,205,819) 	\$ 789,391 1,348,430 (1,320,527) 	\$ 817,294 1,240,633 (1,211,707) 	\$ 846,220 1,358,819 (1,328,832) 	\$ 876,206 1,315,882 (1,284,793) 	\$ 907,295 1,441,820 (1,409,587) 
Operating Reserve - 421 Beginning Balance plus: Net Cash Flow after Rate Increase less: Transfer of Surplus to Capital Fund less: Transfer to Stabilization Fund Ending Balance Actual Days of O&M  Minimum Balance Requirement Maximum Balance Requirement Capital Reserve - 423 Beginning Balance plus: Transfers from Operating Fund plus: Transfers From General Fund plus: CFC Revenue plus: Revenue Bond Proceeds plus: Interest Earnings Total Funding Sources	\$ 2,116,332 180,778 (1,400,000) (190,800) \$ 706,309 160 days \$ 264,720 \$ 397,081 \$ 94,014 1,400,000 - - - 2,115 \$ 1,496,130	\$ 706,309 (262,953) - \$ 443,357 82 days \$ 324,605 \$ 486,907 \$ 1,488,130 - 500,000 - - 33,483 \$ 2,021,613	\$ 443,357 164,604 (125,264) - \$ 482,697 90 days \$ 321,798 \$ 482,697 \$ 872,113 125,264 - 883,761 - 19,623 \$ 1,900,760	\$ 482,697 594,299 (567,007) - \$ 509,989 90 days \$ 339,993 \$ 509,989 \$ 615,290 567,007 - 665,231 - 13,844 \$ 1,861,371	\$ 509,989 985,785 (933,924) - \$ 561,850 90 days \$ 374,567 \$ 561,850 \$ 863,525 933,924 - 2,409,798 - 300,000 19,429 \$ 4,526,677	\$ 561,850 1,102,497 (1,085,833) - \$ 578,514 90 days \$ 385,676 \$ 578,514 \$ 1,198,860 1,085,833 - 356,306 - - 26,974 \$ 2,667,973	\$ 578,514 1,029,878 (1,009,646) 	\$ 598,746 1,108,252 (1,087,288)	\$ 619,710 1,090,284 (1,068,561) - \$ 641,433 90 days \$ 427,622 \$ 641,433 \$ 263,157 1,068,561 - 493,803 - 1,200,000 5,921 \$ 3,031,443	\$ 641,433 1,175,963 (1,153,452) - \$ 663,943 90 days \$ 442,628 \$ 663,943 \$ 1,056,229 1,153,452 - 511,087 - 23,765 \$ 2,744,533	\$ 663,943 1,096,329 (1,073,002) 	\$ 687,270 1,361,899 (1,337,723) 	\$ 711,446 1,157,536 (1,132,480) 	\$ 736,502 1,260,744 (1,234,774) 	\$ 762,472 1,232,738 (1,205,819) 	\$ 789,391 1,348,430 (1,320,527) 	\$ 817,294 1,240,633 (1,211,707) 	\$ 846,220 1,358,819 (1,328,832) \$ 876,206 90 days \$ 584,138 \$ 876,206 \$ 1,382,360 1,328,832 - 502,509 - 31,103 \$ 3,244,805	\$ 876,206 1,315,882 (1,284,793) 	\$ 907,295 1,441,820 (1,409,587) 
Operating Reserve - 421 Beginning Balance plus: Net Cash Flow after Rate Increase less: Transfer of Surplus to Capital Fund less: Transfer to Stabilization Fund Ending Balance Actual Days of O&M  Minimum Balance Requirement Maximum Balance Requirement  Capital Reserve - 423 Beginning Balance plus: Transfers from Operating Fund plus: Transfers From General Fund plus: Assumed Capital Grants plus: CFC Revenue plus: Revenue Bond Proceeds plus: Interest Earnings Total Funding Sources less: Capital Expenditures (Before Grants)	\$ 2,116,332 180,778 (1,400,000) (190,800) \$ 706,309 160 days \$ 264,720 \$ 397,081 \$ 94,014 1,400,000 	\$ 706,309 (262,953) - - - \$ 443,357 82 days \$ 324,605 \$ 486,907 \$ 1,488,130 - - 500,000 - - - 33,483 \$ 2,021,613 (1,149,500)	\$ 443,357 164,604 (125,264) - \$ 482,697 90 days \$ 321,798 \$ 482,697 \$ 872,113 125,264 883,761 - 19,623 \$ 1,900,760 (1,285,470)	\$ 482,697 594,299 (567,007) <b>\$ 509,989</b> <i>90 days</i> \$ 339,993 \$ 509,989 \$ 615,290 567,007 665,231 - 13,844 <b>\$ 1,861,371</b> (997,846)	\$ 509,989 985,785 (933,924) - \$ 561,850 90 days \$ 374,567 \$ 561,850 \$ 863,525 933,924 - 2,409,798 - 300,000 19,429 \$ 4,526,677 (3,327,817)	\$ 561,850 1,102,497 (1,085,833) - \$ 578,514 90 days \$ 385,676 \$ 578,514 \$ 1,198,860 1,085,833 356,306 - - 26,974 \$ 2,667,973 (2,565,402)	\$ 578,514 1,029,878 (1,009,646) \$ 598,746 90 days \$ 399,164 \$ 598,746  \$ 102,570 1,009,646 1,106,330 1,800,000 2,308 \$ 4,020,854 (2,827,287)	\$ 598,746 1,108,252 (1,087,288)	\$ 619,710 1,090,284 (1,068,561) - \$ 641,433 90 days \$ 427,622 \$ 641,433 \$ 263,157 1,068,561 493,803 - 1,200,000 5,921 \$ 3,031,443 (1,975,214)	\$ 641,433 1,175,963 (1,153,452) - \$ 663,943 90 days \$ 442,628 \$ 663,943 \$ 1,056,229 1,153,452 - 511,087 - 23,765 \$ 2,744,533 (2,453,215)	\$ 663,943 1,096,329 (1,073,002) 	\$ 687,270 1,361,899 (1,337,723) 	\$ 711,446 1,157,536 (1,132,480) \$ 736,502 90 days \$ 491,001 \$ 736,502 \$ 440,433 1,132,480 1,057,748 3,700,000 9,910 \$ 6,340,570 (3,022,137)	\$ 736,502 1,260,744 (1,234,774) 	\$ 762,472 1,232,738 (1,205,819) 	\$ 789,391 1,348,430 (1,320,527) 	\$ 817,294 1,240,633 (1,211,707) 	\$ 846,220 1,358,819 (1,328,832) 	\$ 876,206 1,315,882 (1,284,793) 	\$ 907,295 1,441,820 (1,409,587) 
Operating Reserve - 421 Beginning Balance plus: Net Cash Flow after Rate Increase less: Transfer of Surplus to Capital Fund less: Transfer to Stabilization Fund Ending Balance Actual Days of O&M  Minimum Balance Requirement Maximum Balance Requirement  Capital Reserve - 423 Beginning Balance plus: Transfers from Operating Fund plus: Transfers From General Fund plus: CFC Revenue plus: Revenue Bond Proceeds plus: Interest Earnings Total Funding Sources	\$ 2,116,332 180,778 (1,400,000) (190,800) \$ 706,309 160 days \$ 264,720 \$ 397,081 \$ 94,014 1,400,000 - - - 2,115 \$ 1,496,130	\$ 706,309 (262,953) - \$ 443,357 82 days \$ 324,605 \$ 486,907 \$ 1,488,130 - 500,000 - - 33,483 \$ 2,021,613	\$ 443,357 164,604 (125,264) - \$ 482,697 90 days \$ 321,798 \$ 482,697 \$ 872,113 125,264 - 883,761 - 19,623 \$ 1,900,760	\$ 482,697 594,299 (567,007) - \$ 509,989 90 days \$ 339,993 \$ 509,989 \$ 615,290 567,007 - 665,231 - 13,844 \$ 1,861,371	\$ 509,989 985,785 (933,924) - \$ 561,850 90 days \$ 374,567 \$ 561,850 \$ 863,525 933,924 - 2,409,798 - 300,000 19,429 \$ 4,526,677	\$ 561,850 1,102,497 (1,085,833) - \$ 578,514 90 days \$ 385,676 \$ 578,514 \$ 1,198,860 1,085,833 - 356,306 - - 26,974 \$ 2,667,973	\$ 578,514 1,029,878 (1,009,646) 	\$ 598,746 1,108,252 (1,087,288)	\$ 619,710 1,090,284 (1,068,561) - \$ 641,433 90 days \$ 427,622 \$ 641,433 \$ 263,157 1,068,561 - 493,803 - 1,200,000 5,921 \$ 3,031,443	\$ 641,433 1,175,963 (1,153,452) - \$ 663,943 90 days \$ 442,628 \$ 663,943 \$ 1,056,229 1,153,452 - 511,087 - 23,765 \$ 2,744,533	\$ 663,943 1,096,329 (1,073,002) 	\$ 687,270 1,361,899 (1,337,723) 	\$ 711,446 1,157,536 (1,132,480) 	\$ 736,502 1,260,744 (1,234,774) 	\$ 762,472 1,232,738 (1,205,819) 	\$ 789,391 1,348,430 (1,320,527) 	\$ 817,294 1,240,633 (1,211,707) 	\$ 846,220 1,358,819 (1,328,832) \$ 876,206 90 days \$ 584,138 \$ 876,206 \$ 1,382,360 1,328,832 - 502,509 - 31,103 \$ 3,244,805	\$ 876,206 1,315,882 (1,284,793) 	\$ 907,295 1,441,820 (1,409,587) 
Operating Reserve - 421 Beginning Balance plus: Net Cash Flow after Rate Increase less: Transfer of Surplus to Capital Fund less: Transfer to Stabilization Fund Ending Balance Actual Days of O&M  Minimum Balance Requirement Maximum Balance Requirement  Capital Reserve - 423 Beginning Balance plus: Transfers from Operating Fund plus: Transfers From General Fund plus: Assumed Capital Grants plus: CFC Revenue plus: Revenue Bond Proceeds plus: Interest Earnings Total Funding Sources less: Capital Expenditures (Before Grants)	\$ 2,116,332 180,778 (1,400,000) (190,800) \$ 706,309 160 days \$ 264,720 \$ 397,081 \$ 94,014 1,400,000 	\$ 706,309 (262,953) - - - \$ 443,357 82 days \$ 324,605 \$ 486,907 \$ 1,488,130 - - 500,000 - - - 33,483 \$ 2,021,613 (1,149,500)	\$ 443,357 164,604 (125,264) - \$ 482,697 90 days \$ 321,798 \$ 482,697 \$ 872,113 125,264 883,761 - 19,623 \$ 1,900,760 (1,285,470)	\$ 482,697 594,299 (567,007) <b>\$ 509,989</b> <i>90 days</i> \$ 339,993 \$ 509,989 \$ 615,290 567,007 665,231 - 13,844 <b>\$ 1,861,371</b> (997,846)	\$ 509,989 985,785 (933,924) - \$ 561,850 90 days \$ 374,567 \$ 561,850 \$ 863,525 933,924 - 2,409,798 - 300,000 19,429 \$ 4,526,677 (3,327,817)	\$ 561,850 1,102,497 (1,085,833) - \$ 578,514 90 days \$ 385,676 \$ 578,514 \$ 1,198,860 1,085,833 356,306 - - 26,974 \$ 2,667,973 (2,565,402)	\$ 578,514 1,029,878 (1,009,646) \$ 598,746 90 days \$ 399,164 \$ 598,746  \$ 102,570 1,009,646 1,106,330 1,800,000 2,308 \$ 4,020,854 (2,827,287)	\$ 598,746 1,108,252 (1,087,288)	\$ 619,710 1,090,284 (1,068,561) - \$ 641,433 90 days \$ 427,622 \$ 641,433 \$ 263,157 1,068,561 493,803 - 1,200,000 5,921 \$ 3,031,443 (1,975,214)	\$ 641,433 1,175,963 (1,153,452) - \$ 663,943 90 days \$ 442,628 \$ 663,943 \$ 1,056,229 1,153,452 - 511,087 - 23,765 \$ 2,744,533 (2,453,215)	\$ 663,943 1,096,329 (1,073,002) 	\$ 687,270 1,361,899 (1,337,723) 	\$ 711,446 1,157,536 (1,132,480) \$ 736,502 90 days \$ 491,001 \$ 736,502 \$ 440,433 1,132,480 1,057,748 3,700,000 9,910 \$ 6,340,570 (3,022,137)	\$ 736,502 1,260,744 (1,234,774) 	\$ 762,472 1,232,738 (1,205,819) 	\$ 789,391 1,348,430 (1,320,527) 	\$ 817,294 1,240,633 (1,211,707) 	\$ 846,220 1,358,819 (1,328,832) 	\$ 876,206 1,315,882 (1,284,793) 	\$ 907,295 1,441,820 (1,409,587) 
Operating Reserve - 421 Beginning Balance plus: Net Cash Flow after Rate Increase less: Transfer of Surplus to Capital Fund less: Transfer to Stabilization Fund Ending Balance Actual Days of O&M  Minimum Balance Requirement Maximum Balance Requirement  Capital Reserve - 423 Beginning Balance plus: Transfers from Operating Fund plus: Transfers From General Fund plus: Assumed Capital Grants plus: CFC Revenue plus: Revenue Bond Proceeds plus: Interest Earnings Total Funding Sources less: Capital Expenditures (Before Grants) Ending Capital Fund Balance  Minimum Target Balance  Combined Beginning Balance	\$ 2,116,332 180,778 (1,400,000) (190,800) \$ 706,309 160 days \$ 264,720 \$ 397,081 \$ 94,014 1,400,000 	\$ 706,309 (262,953) - \$ 443,357 82 days \$ 324,605 \$ 486,907 \$ 1,488,130 - 500,000 - - 33,483 \$ 2,021,613 (1,149,500) \$ 872,113 \$ 144,218 \$ 2,194,439	\$ 443,357 164,604 (125,264) - \$ 482,697 90 days \$ 321,798 \$ 482,697 \$ 872,113 125,264 - 883,761 - 19,623 \$ 1,900,760 (1,285,470) \$ 615,290 \$ 148,235 \$ 1,315,470	\$ 482,697 594,299 (567,007) <b>\$ 509,989</b> <i>90 days</i> \$ 339,993 \$ 509,989 \$ 615,290 567,007 665,231 13,844 <b>\$ 1,861,371</b> (997,846) <b>\$ 863,525</b> \$ 151,562	\$ 509,989 985,785 (933,924) 	\$ 561,850 1,102,497 (1,085,833) 578,514 90 days \$ 385,676 \$ 578,514 \$ 1,198,860 1,085,833 - 356,306 - 26,974 \$ 2,667,973 (2,565,402) \$ 102,570 \$ 182,833 \$ 1,760,710	\$ 578,514 1,029,878 (1,009,646)	\$ 598,746 1,108,252 (1,087,288)	\$ 619,710 1,090,284 (1,068,561) - \$ 641,433 90 days \$ 427,622 \$ 641,433 \$ 263,157 1,068,561 - 493,803 - 1,200,000 5,921 \$ 3,031,443 (1,975,214) \$ 1,056,229 \$ 235,302	\$ 641,433 1,175,963 (1,153,452) 	\$ 663,943 1,096,329 (1,073,002) 	\$ 687,270 1,361,899 (1,337,723) 	\$ 711,446 1,157,536 (1,132,480) 	\$ 736,502 1,260,744 (1,234,774) 	\$ 762,472 1,232,738 (1,205,819)	\$ 789,391 1,348,430 (1,320,527) \$ 817,294 90 days \$ 544,863 \$ 817,294 \$ 1,146,633 1,320,527 628,256 628,256 (2,513,023) \$ 608,192 \$ 398,106 \$ 1,936,024	\$ 817,294 1,240,633 (1,211,707) 	\$ 846,220 1,358,819 (1,328,832) 	\$ 876,206 1,315,882 (1,284,793) 	\$ 907,295 1,441,820 (1,409,587) 
Operating Reserve - 421 Beginning Balance plus: Net Cash Flow after Rate Increase less: Transfer of Surplus to Capital Fund less: Transfer to Stabilization Fund Ending Balance Actual Days of O&M  Minimum Balance Requirement Maximum Balance Requirement Capital Reserve - 423 Beginning Balance plus: Transfers from Operating Fund plus: Transfers From General Fund plus: Assumed Capital Grants plus: CFC Revenue plus: Revenue Bond Proceeds plus: Interest Earnings Total Funding Sources less: Capital Expenditures (Before Grants) Ending Capital Fund Balance  Minimum Target Balance	\$ 2,116,332 180,778 (1,400,000) (190,800) \$ 706,309 160 days \$ 264,720 \$ 397,081 \$ 94,014 1,400,000 	\$ 706,309 (262,953) 	\$ 443,357 164,604 (125,264) - \$ 482,697 90 days \$ 321,798 \$ 482,697 \$ 872,113 125,264 883,761 - 19,623 \$ 1,900,760 (1,285,470) \$ 615,290 \$ 148,235	\$ 482,697 594,299 (567,007) <b>\$ 509,989</b> 90 days \$ 339,993 \$ 509,989 \$ 615,290 567,007 665,231 - 13,844 <b>\$ 1,861,371</b> (997,846) <b>\$ 863,525</b> \$ 151,562	\$ 509,989 985,785 (933,924) 	\$ 561,850 1,102,497 (1,085,833) - \$ 578,514 90 days \$ 385,676 \$ 578,514 \$ 1,198,860 1,085,833 356,306 - 26,974 \$ 2,667,973 (2,565,402) \$ 182,833	\$ 578,514 1,029,878 (1,009,646) 5 598,746 90 days \$ 399,164 \$ 598,746 \$ 102,570 1,009,646 1,106,330 1,800,000 2,308 \$ 4,020,854 (2,827,287) \$ 1,193,566 \$ 200,042	\$ 598,746 1,108,252 (1,087,288)	\$ 619,710 1,090,284 (1,068,561) \$ 641,433 90 days \$ 427,622 \$ 641,433 \$ 263,157 1,068,561 493,803 - 1,200,000 5,921 \$ 3,031,443 (1,975,214) \$ 1,056,229 \$ 235,302	\$ 641,433 1,175,963 (1,153,452) - \$ 663,943 90 days \$ 442,628 \$ 663,943 \$ 1,056,229 1,153,452 - 511,087 - 23,765 \$ 2,744,533 (2,453,215) \$ 291,318 \$ 254,723	\$ 663,943 1,096,329 (1,073,002) 	\$ 687,270 1,361,899 (1,337,723) <b>711,446</b> 90 days \$ 474,297 \$ 711,446 \$ 978,651 1,337,723 1,021,979 	\$ 711,446 1,157,536 (1,132,480) \$ 736,502 90 days \$ 491,001 \$ 736,502 \$ 440,433 1,132,480 1,057,748 3,700,000 \$ 6,340,570 (3,022,137) \$ 3,318,433 \$ 316,269	\$ 736,502 1,260,744 (1,234,774) 	\$ 762,472 1,232,738 (1,205,819)	\$ 789,391 1,348,430 (1,320,527) 	\$ 817,294 1,240,633 (1,211,707) 	\$ 846,220 1,358,819 (1,328,832)  \$ 876,206 90 days \$ 584,138 \$ 876,206 \$ 1,382,360 1,328,832  502,509  31,103 \$ 3,244,805 (2,512,546) \$ 732,259 \$ 450,719	\$ 876,206 1,315,882 (1,284,793) \$ 907,295 90 days \$ 604,863 \$ 907,295 \$ 732,259 1,284,793 1,560,291 2,000,000 16,476 \$ 5,593,819 (4,086,476) \$ 1,507,343 \$ 475,981	\$ 907,295 1,441,820 (1,409,587) 
Operating Reserve - 421 Beginning Balance plus: Net Cash Flow after Rate Increase less: Transfer of Surplus to Capital Fund less: Transfer to Stabilization Fund Ending Balance Actual Days of O&M  Minimum Balance Requirement Maximum Balance Requirement  Capital Reserve - 423 Beginning Balance plus: Transfers from Operating Fund plus: Transfers From General Fund plus: Assumed Capital Grants plus: CFC Revenue plus: Revenue Bond Proceeds plus: Interest Earnings Total Funding Sources less: Capital Expenditures (Before Grants) Ending Capital Fund Balance  Minimum Target Balance  Combined Beginning Balance	\$ 2,116,332 180,778 (1,400,000) (190,800) \$ 706,309 160 days \$ 264,720 \$ 397,081 \$ 94,014 1,400,000 	\$ 706,309 (262,953) - \$ 443,357 82 days \$ 324,605 \$ 486,907 \$ 1,488,130 - 500,000 - - 33,483 \$ 2,021,613 (1,149,500) \$ 872,113 \$ 144,218 \$ 2,194,439	\$ 443,357 164,604 (125,264) - \$ 482,697 90 days \$ 321,798 \$ 482,697 \$ 872,113 125,264 - 883,761 - 19,623 \$ 1,900,760 (1,285,470) \$ 615,290 \$ 148,235 \$ 1,315,470	\$ 482,697 594,299 (567,007) <b>\$ 509,989</b> <i>90 days</i> \$ 339,993 \$ 509,989 \$ 615,290 567,007 665,231 13,844 <b>\$ 1,861,371</b> (997,846) <b>\$ 863,525</b> \$ 151,562	\$ 509,989 985,785 (933,924) 	\$ 561,850 1,102,497 (1,085,833) 578,514 90 days \$ 385,676 \$ 578,514 \$ 1,198,860 1,085,833 - 356,306 - 26,974 \$ 2,667,973 (2,565,402) \$ 102,570 \$ 182,833 \$ 1,760,710	\$ 578,514 1,029,878 (1,009,646)	\$ 598,746 1,108,252 (1,087,288)	\$ 619,710 1,090,284 (1,068,561) - \$ 641,433 90 days \$ 427,622 \$ 641,433 \$ 263,157 1,068,561 - 493,803 - 1,200,000 5,921 \$ 3,031,443 (1,975,214) \$ 1,056,229 \$ 235,302	\$ 641,433 1,175,963 (1,153,452) 	\$ 663,943 1,096,329 (1,073,002) 	\$ 687,270 1,361,899 (1,337,723) 	\$ 711,446 1,157,536 (1,132,480) 	\$ 736,502 1,260,744 (1,234,774) 	\$ 762,472 1,232,738 (1,205,819)	\$ 789,391 1,348,430 (1,320,527) \$ 817,294 90 days \$ 544,863 \$ 817,294 \$ 1,146,633 1,320,527 628,256 628,256 (2,513,023) \$ 608,192 \$ 398,106 \$ 1,936,024	\$ 817,294 1,240,633 (1,211,707) 	\$ 846,220 1,358,819 (1,328,832) 	\$ 876,206 1,315,882 (1,284,793) 	\$ 907,295 1,441,820 (1,409,587) 

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Revenue Requirement	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
Revenues																				
Rate Revenues Under Existing Rates	\$ 1,766,827	\$ 1,816,709	\$ 1,866,592	\$ 1,916,474	\$ 1,941,415	\$ 1,966,356	\$ 1,991,297	\$ 2,016,238	\$ 2,041,179	\$ 2,066,120	\$ 2,091,061	\$ 2,116,003	\$ 2,140,944	\$ 2,165,885	\$ 2,190,826	\$ 2,215,767	\$ 2,240,708	\$ 2,265,649	\$ 2,290,590	\$ 2,315,5
Non-Rate Revenues	201,380	72,892	66,976	71,854	76,234	84,666	85,304	89,504	90,084	95,925	96,548	99,543	100,212	111,746	112,465	117,908	118,681	128,514	129,345	
Total Revenues	\$ 1,968,207	\$ 1,889,601	\$ 1,933,567	\$ 1,988,328	\$ 2,017,649	\$ 2,051,021	\$ 2,076,601	\$ 2,105,742	\$ 2,131,263	\$ 2,162,045	\$ 2,187,610	\$ 2,215,545	\$ 2,241,156	\$ 2,277,631	\$ 2,303,291	\$ 2,333,675	\$ 2,359,389	\$ 2,394,164	\$ 2,419,935	\$ 2,451,1
Expenses																				
Cash Operating Expenses	\$ 1,610,383	\$ 1,974,677	\$ 2,079,445	\$ 2,385,850	\$ 2,614,565	\$ 2,658,705	\$ 2,785,932	\$ 2,879,022	\$ 2,975,388	\$ 3,075,152	\$ 3,178,443	\$ 3,285,391	\$ 3,396,137	\$ 3,510,822	\$ 3,629,596	\$ 3,752,613	\$ 3,880,035	\$ 4,012,029	\$ 4,148,769	\$ 4,290,4
Existing Debt Service	177.047	177.877	176.883	177.604	178,251	177.075	177.612	178.077	178.468	177,036	189.615	16,525	16,525	16.525	16.525	8,263	-	-	-	+ .,=,
New Debt Service	-	177,077	256,937	256,937	562,049	562,049	714,606	714,606	947,455	947,455	1,051,835	1,051,835	1,533,592	1,533,592	1,742,353	1,742,353	2,143,817	2,143,817	2,384,695	2,384
Total Expenses	\$ 1,787,429	\$ 2,152,554	\$ 2,513,265	\$ 2,820,391	\$ 3,354,865	\$ 3,397,829	\$ 3,678,150	\$ 3,771,704	\$ 4,101,310	\$ 4,199,643	\$ 4,419,892	\$ 4,353,752	\$ 4,946,254	\$ 5,060,939	\$ 5,388,474	\$ 5,503,229	\$ 6,023,852	\$ 6,155,846	\$ 6,533,464	\$ 6,675
Net Surplus (Deficiency)	\$ 180,778	\$ (262,953)	\$ (579,698)	\$ (832,063)	\$ (1,337,216)	\$ (1,346,808)	\$ (1,601,549)	\$ (1,665,963)	\$ (1,970,047)	\$ (2,037,597)	\$ (2,232,283)		\$ (2,705,098)	\$ (2,783,308)	,	\$ (3,169,554)	\$ (3,664,463)	,	,	
Additions to Meet Coverage										-		(110,588)	(248,804)	(141,863)	(295,871)	(279,605	(407,182)	(379,925)	(462,461)	
Total Surplus (Deficiency)	\$ 180,778	\$ (262,953)	\$ (579,698)	\$ (832,063)	\$ (1,337,216)	\$ (1,346,808)	\$ (1,601,549)	\$ (1,665,963)	\$ (1,970,047)	\$ (2,037,597)	\$ (2,232,283)	\$ (2,248,795)	\$ (2,953,902)	\$ (2,925,171)	\$ (3,381,053)	\$ (3,449,159)	\$ (4,071,645)	\$ (4,141,608)	\$ (4,575,990)	\$ (4,662
Annual Rate Increase Cumulative Rate Increase		0.00% 0.00%	31.00% 31.00%	31.00% 71.61%	31.00% 124.81%	3.00% 131.55%	3.00% 138.50%	3.00% 145.65%	3.00% 153.02%	3.00% 160.62%	3.00% 168.43%	3.00% 176.49%	3.00% 184.78%	3.00% 193.32%	3.00% 202.12%	3.00% 211.19%	3.00% 220.52%	3.00% 230.14%	3.00% 240.04%	
Sumulative Rate increase		0.00%	31.00%	71.0170	124.0176	131.33%	130.50%	145.05%	153.02 %	160.62 %	100.43 %	170.45 %	104.70 %	193.32%	202.1270	211.137	220.5276	230.14 //	240.04 /	250.
Revenues After Rate Increases	\$ 1,766,827	\$ 1,816,709	\$ 2,445,235	\$ 3,288,861	\$ 4,364,477	\$ 4,553,164	\$ 4,749,243	\$ 4,952,989	\$ 5,164,686	\$ 5,384,627	\$ 5,613,116	\$ 5,850,469	\$ 6,097,010	\$ 6,353,079	\$ 6,619,024	\$ 6,895,209	\$ 7,182,007	\$ 7,479,808	\$ 7,789,013	,
Additional Taxes from Rate Increase			39,058	92,636	163,557	174,610	186,161	198,231	210,837	223,999	237,739	252,076	267,034	282,636	298,903	315,862	333,538	351,956	371,144	391
Net Cash Flow After Rate Increase	\$ 180,778	\$ (262,953)	\$ (40,113)	\$ 447,688	\$ 922,290	\$ 1,065,391	\$ 970,235	\$ 1,072,558	\$ 942,623	\$ 1,056,910	\$ 1,052,033	\$ 1,344,183	\$ 983,934	\$ 1,121,250	\$ 1,044,112	\$ 1,194,026	\$ 943,299	\$ 1,100,521	\$ 1,013,750	\$ 1,179
Coverage After Rate Increase: Bonded Debt	n/a 2.03	n/a 0.22	1.97 1.17	3.94 2.33	3.14 2.38	3.47 2.64	2.75 2.20	2.92 2.33	2.30 1.93	2.44 2.05	2.29 1.94	2.42 2.39	1.73 1.71	1.89 1.87	1.68 1.66	1.77 1.77	1.50 1.50	1.59 1.59	1.48 1.48	
Coverage After Rate Increase: Total Debt																				
Sample Residential Bill (1 ISU) Increase (\$)	\$14.00	\$14.00 \$0.00	\$18.34 \$4.34	\$24.03 \$5.69	\$31.47 \$7.45	\$32.42 \$0.94	\$33.39 \$0.97	\$34.39 \$1.00	\$35.42 \$1.03	\$36.49 \$1.06	\$37.58 \$1.09	\$38.71 \$1.13	\$39.87 \$1.16	\$41.07 \$1.20	\$42.30 \$1.23	\$43.57 \$1.27	\$44.87 \$1.31	\$46.22 \$1.35	\$47.61 \$1.39	\$4 \$
Fund Balance	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
Operating Reserve - 421	2022	2020		1010	1010	2027	2020	2020	2000	2001	1001	2000	2004	2000	2000	2001	2000	2000	2040	
Beginning Balance	\$ 2,116,332	\$ 706,309	\$ 443,357	\$ 403,244	\$ 597,923	\$ 667,529	\$ 695,900	\$ 729,997	\$ 755,799	\$ 782,536	\$ 810,244	\$ 838,958	\$ 868,717	\$ 899,559	\$ 931,526	\$ 964,660	\$ 999,004	\$ 1,034,605	\$ 1,071,510	\$ 1,109
plus: Net Cash Flow after Rate Increase	180,778	(262,953)	(40,113)		922,290	1,065,391	970,235	1,072,558	942,623	1,056,910	1,052,033	1,344,183	983,934	1,121,250	1,044,112	1,194,026	943,299	1,100,521	1,013,750	1,179
less: Transfer of Surplus to Capital Fund	(1,400,000)	-	-	(253,009)	(852,684)	(1,037,019)	(936,139)	(1,046,756)	(915,886)	(1,029,202)	(1,023,319)	(1,314,424)	(953,092)	(1,089,283)	(1,010,979)	(1,159,682)	(907,698)	(1,063,616)	(975,492)	(1,139
less: Transfer to Stabilization Fund	(190,800)		-	-	-	-	-	-	-											
Ending Balance	\$ 706,309	\$ 443,357	\$ 403,244	\$ 597,923	\$ 667,529	\$ 695,900	\$ 729,997	\$ 755,799	\$ 782,536	\$ 810,244	+,	\$ 868,717	\$ 899,559	\$ 931,526	\$ 964,660	\$ 999,004	\$ 1,034,605	\$ 1,071,510	\$ 1,109,768	
Actual Days of O&M	160 days	82 days	71 days	90 days	90 days	90 days	90 days	90 days	90 days	90										
Minimum Balance Requirement	\$ 264,720	\$ 324,605	\$ 341,826	\$ 398,615	\$ 445,019	\$ 463,933	\$ 486,664	\$ 503,866	\$ 521,691	\$ 540,163	\$ 559,306	\$ 579,145	\$ 599,706	\$ 621,017	\$ 643,107	\$ 666,003	\$ 689,737	\$ 714,340	\$ 739,845	\$ 766
Maximum Balance Requirement	\$ 397,081	\$ 486,907	\$ 512,740	\$ 597,923	\$ 667,529	\$ 695,900	\$ 729,997	\$ 755,799	\$ 782,536	\$ 810,244	\$ 838,958	\$ 868,717	\$ 899,559	\$ 931,526	\$ 964,660	\$ 999,004	\$ 1,034,605	\$ 1,071,510	\$ 1,109,768	\$ 1,149
Capital Reserve - 423																				
Beginning Balance	\$ 94,014	\$ 1,488,130	\$ 872,113		\$ 133,992	\$ 2,056,291	\$ 229,746	\$ 796,932	\$ 271,269	\$ 1,130,438	\$ 413,309	\$ 1,335,328	\$ 489,843	\$ 5,187,353	\$ 606,715	\$ 1,641,433		\$ 1,899,834	\$ 852,586	\$ 1,875
plus: Transfers from Operating Fund	1,400,000		-	253,009	852,684	1,037,019	936,139	1,046,756	915,886	1,029,202	1,023,319	1,314,424	953,092	1,089,283	1,010,979	1,159,682	907,698	1,063,616	975,492	1,139
plus: Transfers From General Fund	-	500,000	589.174	443,487	1 606 533	4 700 445	1 044 967	240.070	1 646 044	-	-	700.005	755 504	4 222 624	074 047	440.027	2 024 476	250.025	1 111 101	
plus: Assumed Capital Grants plus: CFC Revenue	-	-	569,174	443,467	1,606,532	1,722,145	1,044,867	318,070	1,646,011	-	-	729,985	755,534	4,222,681	971,217	418,837	3,034,476	358,935	1,114,494	
plus: Revenue Bond Proceeds	-		3,200,000	_	3,800,000	_	1,900,000	_	2,900,000	-	1,300,000	-	6,000,000		2,600,000	_	5,000,000	_	3,000,000	
plus: Interest Earnings	2,115	33,483	19,623	33,977	3,015	46,267	5,169	17,931	6,104	25,435	9,299	30,045	11,021	116,715	13,651	36,932	16,737	42,746	19,183	4:
Total Funding Sources	\$ 1,496,130	\$ 2,021,613	\$ 4,680,909	\$ 2,240,556		\$ 4,861,722	\$ 4,115,921	\$ 2,179,688	\$ 5,739,270	\$ 2,185,075	\$ 2,745,927	\$ 3,409,782	\$ 8,209,490	\$ 10,616,033	\$ 5,202,561	\$ 3,256,884	\$ 9,702,771	\$ 3,365,132	\$ 5,961,755	
less: Capital Expenditures (Before Grants)	(8,000)	(1,149,500)	(3,170,826)	(2,106,564)	(4,339,932)	(4,631,977)	(3,318,989)	(1,908,419)	(4,608,832)	(1,771,767)	(1,410,599)	(2,919,939)	(3,022,137)	(10,009,319)	(3,561,128)	(2,513,023	(7,802,937)	(2,512,546)	(4,086,476)	
Ending Capital Fund Balance	\$ 1,488,130	\$ 872,113	\$ 1,510,083	\$ 133,992	\$ 2,056,291	\$ 229,746	\$ 796,932	\$ 271,269	\$ 1,130,438	\$ 413,309		\$ 489,843	\$ 5,187,353	\$ 606,715	\$ 1,641,433	\$ 743,861	\$ 1,899,834	\$ 852,586	\$ 1,875,278	
Minimum Target Balance	\$ 132,723	\$ 144,218	\$ 170,035	\$ 186,666	\$ 214,000	\$ 243,098	\$ 265,839	\$ 281,743	\$ 311,371	\$ 329,088	\$ 343,194	\$ 365,094	\$ 387,760	\$ 445,626	\$ 471,526	\$ 492,467	\$ 540,152	\$ 561,688	\$ 591,408	\$ 612
Combined Beginning Balance	\$ 2,210,346	. , . ,	. ,	\$ 1,913,327	\$ 731,915	\$ 2,723,820	\$ 925,646	\$ 1,526,928	\$ 1,027,068	\$ 1,912,974	\$ 1,223,553	\$ 2,174,286	\$ 1,358,560	\$ 6,086,912	\$ 1,538,241	\$ 2,606,093	\$ 1,742,865	\$ 2,934,439	\$ 1,924,096	
Combined Ending Balance	\$ 2,194,439	\$ 1,315,470	\$ 1,913,327	\$ 731,915	\$ 2,723,820	\$ 925,646	\$ 1,526,928	\$ 1,027,068	\$ 1,912,974	\$ 1,223,553	\$ 2,174,286	\$ 1,358,560	\$ 6,086,912	\$ 1,538,241	\$ 2,606,093	\$ 1,742,865	\$ 2,934,439	\$ 1,924,096	\$ 2,985,046	\$ 2,111,
Ending Total Days of Operating Expenditures	497 days	242 days	222 -1	100 /																105
Combined Minimum Target Balance	397,444	243 days 468,823	330 days 511.861	108 days 585,281	358 days 659,019	119 days 707,031	188 days 752,504	122 days 785,608	219 days 833,062	135 days 869,251	232 days 902,500	140 days 944,239	607 days 987.466	148 days 1,066,644	242 days 1,114,632	156 days 1,158,470	254 days 1,229,889	161 days 1,276,028	241 days 1,331,253	

Revenue Requirement	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
Revenues																				
Rate Revenues Under Existing Rates	\$ 1,766,827	\$ 1,816,709	\$ 1,866,592	\$ 1,916,474	\$ 1,941,415	\$ 1,966,356	\$ 1,991,297	\$ 2,016,238	\$ 2,041,179	\$ 2,066,120	\$ 2,091,061	\$ 2,116,003	\$ 2,140,944	\$ 2,165,885	\$ 2,190,826	\$ 2,215,767	\$ 2,240,708	\$ 2,265,649	\$ 2,290,590	\$ 2,315,53
Non-Rate Revenues	201,380	72,892	66,976	76,023	82,864	119,173	120,132	134,666	134,636	136,737	137,417	138,482	139,212	139,925	140,663	141,426	142,215	143,032	143,877	144,75
Total Revenues	\$ 1,968,207	\$ 1,889,601	\$ 1,933,567	\$ 1,992,497	\$ 2,024,279	\$ 2,085,529	\$ 2,111,429	\$ 2,150,904	\$ 2,175,816	\$ 2,202,858	\$ 2,228,478	\$ 2,254,485	\$ 2,280,156	\$ 2,305,810	\$ 2,331,488	\$ 2,357,192	\$ 2,382,923	\$ 2,408,681	\$ 2,434,467	\$ 2,460,28
Expenses																				
Cash Operating Expenses	\$ 1,610,383	\$ 1,974,677	\$ 2,146,526	\$ 2,455,346	\$ 2,725,819	\$ 2,770,589	\$ 3,029,991	\$ 3,008,164	\$ 3,109,179	\$ 3,213,759	\$ 3,322,039	\$ 3,434,158	\$ 3,550,259	\$ 3,670,492	\$ 3,795,014	\$ 3.923.987	\$ 4,057,578	\$ 4,195,964	\$ 4,339,325	\$ 4,487,85
Existing Debt Service	177.047	177.877	176,883	177.604	178,251	177.075	177,612	178,077	178,468	177,036	189,615	16,525	16,525	16,525	16,525	8,263	-	-	-	
New Debt Service	-	-	529,932	529,932	2,055,495	2.055.495	2.633.603	2.633.603	2.697.837	2.697.837	2,713,895	2,713,895	2,713,895	2,713,895	2,713,895	2,713,895	2,713,895	2,713,895	2,713,895	2,713,89
Total Expenses	\$ 1,787,429	\$ 2,152,554		\$ 3,162,882	\$ 4,959,565	\$ 5,003,159	\$ 5,841,206	\$ 5,819,843	\$ 5,985,483	\$ 6,088,632	\$ 6,225,549	\$ 6,164,578	\$ 6,280,679	\$ 6,400,913		\$ 6,646,144	\$ 6,771,473	\$ 6,909,859	\$ 7,053,221	\$ 7,201,74
Net Surplus (Deficiency)	\$ 180,778	\$ (262,953)	\$ (Q1Q 77 <i>1</i> )	\$ (1,170,385)	\$ (2 035 286)	¢ (2 017 630)	¢ (3 720 777)	¢ (3 668 038)	\$ (3.809.667)	\$ (3.885.774)	\$ (3,997,071)	\$ (3,910,094)	\$ (4,000,523)	\$ (4,095,103)	\$ (A 103 QA6)	\$ (4,288,952)	\$ (4,388,550)	\$ (4 501 178)	\$ (4,618,753)	\$ (A 7A1 A6
Additions to Meet Coverage	ψ 100,770	ψ (202,333)	ψ (313,774)	ψ (1,170,303)	(234,568)	(27.737)	, , , , ,	, , , , ,	(381,437)	(373,694)	(370.751)	(542.673)	(541.336)	(539.218)	(536,382)		,	(539.774)		(532,93
Total Surplus (Deficiency)	\$ 180,778	\$ (262,953)	\$ (919,774)	\$ (1,170,385)							\$ (4,367,822)	\$ (4,452,766)	\$ (4,541,859)	\$ (4,634,321)		\$ (4,830,064)	\$ (4,933,538)			
Annual Rate Increase		0.00%	45.50%	45.50%	45.50%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50
Cumulative Rate Increase		0.00%		111.70%	208.03%	217.27%			246.69%	257.09%	267.80%	273.32%	278.92%	284.60%	290.37%		302.17%		314.32%	320.54
Revenues After Rate Increases	\$ 1,766,827	\$ 1,816,709	\$ 2,715,891	\$ 4,057,223	\$ 5,980,085	\$ 6,238,617	\$ 6,507,280	\$ 6,786,447	\$ 7,076,508	\$ 7,377,865	\$ 7,690,935	\$ 7,899,408	\$ 8,112,405	\$ 8,330,015	\$ 8,552,328	\$ 8,779,436	\$ 9,011,433	\$ 9,248,414	\$ 9,490,478	\$ 9,737,722
Additional Taxes from Rate Increase		=	57,328	144,501	272,610	288,378	304,829	321,989	339,885	358,543	377,991	390,380	403,074	416,079	429,401	443,048	457,024	471,337	485,992	500,99
Net Cash Flow After Rate Increase	\$ 180,778	\$ (262,953)	\$ (127,803)	\$ 825,864	\$ 830,774	\$ 1,066,254	\$ 481,377	\$ 779,282	\$ 885,777	\$ 1,067,428	\$ 1,224,811	\$ 1,482,932	\$ 1,567,865	\$ 1,652,949	\$ 1,738,155	\$ 1,831,670	\$ 1,925,151	\$ 2,010,251	\$ 2,095,142	\$ 2,179,728
Coverage After Rate Increase: Bonded Debt	n/a	n/a	1.31	3.24	1.54	1.76	1.29	1.41	1.44	1.51	1.56	1.60	1.63	1.66	1.69	1.73	1.76	1.79	1.82	1.86
Coverage After Rate Increase: Total Debt	2.03	0.22	0.98	2.43	1.42	1.62	1.21	1.32	1.35	1.41	1.46	1.59	1.62	1.65	1.68	1.72	1.76	1.79	1.82	1.86
Sample Residential Bill (1 ISU)	\$14.00	\$14.00	\$20.37	\$29.64	\$43.12	\$44.42	\$45.75	\$47.12	\$48.54	\$49.99	\$51.49	\$52.26	\$53.05	\$53.84	\$54.65	\$55.47	\$56.30	\$57.15	\$58.01	\$58.88
Increase (\$)		\$0.00	\$6.37	\$9.27	\$13.49	\$1.29	\$1.33	\$1.37	\$1.41	\$1.46	\$1.50	\$0.77	\$0.78	\$0.80	\$0.81	\$0.82	\$0.83	\$0.84	\$0.86	\$0.87
Fund Balance	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
Operating Reserve - 421																				
Beginning Balance								\$ 818,228	\$ 816,902	\$ 846,041		\$ 907,541	\$ 939,982	\$ 971,664	C 4 004 444					
	\$ 2,116,332	\$ 706,309	\$ 443,357	\$ 315,554	\$ 619,563	\$ 707,750	\$ 750,378				T				\$ 1,004,441	\$ 1,038,352	\$ 1,073,438	\$ 1,109,743		
plus: Net Cash Flow after Rate Increase	180,778	\$ 706,309 (262,953)		825,864	830,774	1,066,254	481,377	779,282	885,777	1,067,428	1,224,811	1,482,932	1,567,865	1,652,949	1,738,155	1,831,670	1,925,151	2,010,251	2,095,142	2,179,72
plus: Net Cash Flow after Rate Increase less: Transfer of Surplus to Capital Fund	180,778 (1,400,000)															1,831,670	1,925,151		2,095,142	2,179,72
plus: Net Cash Flow after Rate Increase less: Transfer of Surplus to Capital Fund less: Transfer to Stabilization Fund	180,778 (1,400,000) (190,800)	(262,953)	(127,803)	825,864 (521,855)	830,774 (742,587)	1,066,254 (1,023,626)	481,377 (413,527)	779,282 (780,607)	885,777 (856,638)	1,067,428 (1,037,228)	1,224,811 (1,193,511)	1,482,932 (1,450,491)	1,567,865 (1,536,182)	1,652,949 (1,620,172)	1,738,155 (1,704,244)	1,831,670 (1,796,583)	1,925,151 (1,888,846)	2,010,251 (1,972,682)	2,095,142 (2,056,263)	2,179,728 (2,139,49
plus: Net Cash Flow after Rate Increase less: Transfer of Surplus to Capital Fund	180,778 (1,400,000)		(127,803) - - - \$ 315,554	825,864	830,774	1,066,254	481,377	779,282	885,777 (856,638) - \$ 846,041	1,067,428	1,224,811 (1,193,511)	1,482,932 (1,450,491)	1,567,865	1,652,949	1,738,155	1,831,670	1,925,151 (1,888,846)	2,010,251	2,095,142 (2,056,263)	2,179,728 (2,139,49) \$ 1,226,428
plus: Net Cash Flow after Rate Increase less: Transfer of Surplus to Capital Fund less: Transfer to Stabilization Fund Ending Balance Actual Days of O&M	180,778 (1,400,000) (190,800) \$ 706,309 160 days	(262,953) - - \$ 443,357 82 days	(127,803) - - \$ 315,554 54 days	825,864 (521,855) - \$ 619,563 90 days	830,774 (742,587) - \$ 707,750 90 days	1,066,254 (1,023,626) • <b>750,378</b> 90 days	481,377 (413,527) - \$ 818,228 90 days	779,282 (780,607) - \$ 816,902 90 days	885,777 (856,638) - \$ 846,041 90 days	1,067,428 (1,037,228) - \$ 876,241 90 days	1,224,811 (1,193,511) - \$ 907,541 90 days	1,482,932 (1,450,491) \$ 939,982 90 days	1,567,865 (1,536,182) \$ 971,664 90 days	1,652,949 (1,620,172) - \$ 1,004,441 90 days	1,738,155 (1,704,244) ** 1,038,352 90 days	1,831,670 (1,796,583) - \$ 1,073,438 90 days	1,925,151 (1,888,846) - \$1,109,743 90 days	2,010,251 (1,972,682) - \$ 1,147,312 90 days	2,095,142 (2,056,263) ** 1,186,191 90 days	2,179,728 (2,139,491 \$ 1,226,428 90 days
plus: Net Cash Flow after Rate Increase less: Transfer of Surplus to Capital Fund less: Transfer to Stabilization Fund Ending Balance	180,778 (1,400,000) (190,800) \$ 706,309	(262,953) - - \$ 443,357	(127,803) - - - \$ 315,554	825,864 (521,855) - \$ 619,563	830,774 (742,587) - \$ <b>707,750</b>	1,066,254 (1,023,626) - \$ 750,378	481,377 (413,527) - \$ 818,228	779,282 (780,607) - \$ 816,902	885,777 (856,638) - \$ 846,041	1,067,428 (1,037,228) - \$ 876,241	1,224,811 (1,193,511) - \$ 907,541	1,482,932 (1,450,491)	1,567,865 (1,536,182) \$ 971,664 90 days	1,652,949 (1,620,172) - \$ 1,004,441 90 days	1,738,155 (1,704,244) 	1,831,670 (1,796,583) - \$ 1,073,438 90 days	1,925,151 (1,888,846) \$ 1,109,743 90 days \$ 739,829	2,010,251 (1,972,682) - \$ 1,147,312	2,095,142 (2,056,263) <b>\$ 1,186,191</b> 90 days \$ 790,794	2,179,728 (2,139,49) \$ 1,226,428 90 day \$ 817,618
plus: Net Cash Flow after Rate Increase less: Transfer of Surplus to Capital Fund less: Transfer to Stabilization Fund Ending Balance Actual Days of O&M  Minimum Balance Requirement Maximum Balance Requirement	180,778 (1,400,000) (190,800) \$ 706,309 160 days \$ 264,720	(262,953) \$ 443,357 82 days \$ 324,605	\$ 315,554 54 days \$ 352,854	825,864 (521,855) - \$ 619,563 90 days \$ 413,042	830,774 (742,587) - \$ 707,750 90 days \$ 471,833	1,066,254 (1,023,626) * <b>750,378</b> 90 days \$ 500,252	481,377 (413,527) - \$ 818,228 90 days \$ 545,485	779,282 (780,607) - \$ 816,902 90 days \$ 544,602	885,777 (856,638) - \$ 846,041 90 days \$ 564,028	1,067,428 (1,037,228) - \$ 876,241 90 days \$ 584,161	1,224,811 (1,193,511) 	1,482,932 (1,450,491)	1,567,865 (1,536,182) <b>971,664</b> 90 days \$ 647,776	1,652,949 (1,620,172) \$ 1,004,441 90 days \$ 669,627	1,738,155 (1,704,244) <b>\$ 1,038,352</b> 90 days \$ 692,234	1,831,670 (1,796,583) \$ 1,073,438 90 days \$ 715,625	1,925,151 (1,888,846) \$ 1,109,743 90 days \$ 739,829	2,010,251 (1,972,682) <b>\$ 1,147,312</b> 90 days \$ 764,875	2,095,142 (2,056,263) <b>\$ 1,186,191</b> 90 days \$ 790,794	2,179,726 (2,139,49) <b>\$ 1,226,42</b> 6 <i>90 day</i> \$ 817,616
plus: Net Cash Flow after Rate Increase less: Transfer of Surplus to Capital Fund less: Transfer to Stabilization Fund Ending Balance Actual Days of O&M	180,778 (1,400,000) (190,800) \$ 706,309 160 days \$ 264,720	(262,953) \$ 443,357 82 days \$ 324,605	\$ 315,554 54 days \$ 352,854 \$ 529,280	825,864 (521,855) - \$ 619,563 90 days \$ 413,042 \$ 619,563	830,774 (742,587) - \$ 707,750 90 days \$ 471,833	1,066,254 (1,023,626) * <b>750,378</b> 90 days \$ 500,252	481,377 (413,527) - \$ 818,228 90 days \$ 545,485	779,282 (780,607) - \$ 816,902 90 days \$ 544,602	885,777 (856,638) - \$ 846,041 90 days \$ 564,028	1,067,428 (1,037,228) - \$ 876,241 90 days \$ 584,161 \$ 876,241	1,224,811 (1,193,511) 	1,482,932 (1,450,491) \$ 939,982 90 days \$ 626,655 \$ 939,982	1,567,865 (1,536,182) \$ 971,664 90 days \$ 647,776 \$ 971,664	1,652,949 (1,620,172) \$ 1,004,441 90 days \$ 669,627 \$ 1,004,441	1,738,155 (1,704,244) \$ 1,038,352 90 days \$ 692,234 \$ 1,038,352	1,831,670 (1,796,583) \$ 1,073,438 90 days \$ 715,625	\$ 1,925,151 (1,888,846) \$ 1,109,743 90 days \$ 739,829 \$ 1,109,743	2,010,251 (1,972,682) <b>\$ 1,147,312</b> 90 days \$ 764,875	2,095,142 (2,056,263) <b>\$ 1,186,191</b> 90 days \$ 790,794	\$ 1,226,42 90 day \$ 1,226,42 \$ 1,226,42
plus: Net Cash Flow after Rate Increase less: Transfer of Surplus to Capital Fund less: Transfer to Stabilization Fund Ending Balance Actual Days of O&M  Minimum Balance Requirement Maximum Balance Requirement Capital Reserve - 423	180,778 (1,400,000) (190,800) \$ 706,309 160 days \$ 264,720 \$ 397,081	\$ 443,357 82 days \$ 324,605 \$ 486,907	\$ 315,554 54 days \$ 352,854 \$ 529,280	825,864 (521,855) - \$ 619,563 90 days \$ 413,042 \$ 619,563	830,774 (742,587) - \$707,750 90 days \$471,833 \$707,750	1,066,254 (1,023,626) - \$ 750,378 90 days \$ 500,252 \$ 750,378	481,377 (413,527) - \$ 818,228 90 days \$ 545,485 \$ 818,228	779,282 (780,607) - \$ 816,902 90 days \$ 544,602 \$ 816,902	885,777 (856,638) - \$ 846,041 90 days \$ 564,028 \$ 846,041	1,067,428 (1,037,228) - \$ 876,241 90 days \$ 584,161 \$ 876,241	1,224,811 (1,193,511) <b>907,541</b> 90 days \$ 605,027 \$ 907,541	1,482,932 (1,450,491) \$ 939,982 90 days \$ 626,655 \$ 939,982	1,567,865 (1,536,182) \$ 971,664 90 days \$ 647,776 \$ 971,664	1,652,949 (1,620,172) \$ 1,004,441 90 days \$ 669,627 \$ 1,004,441	1,738,155 (1,704,244) \$ 1,038,352 90 days \$ 692,234 \$ 1,038,352	1,831,670 (1,796,583) \$ 1,073,438 90 days \$ 715,625 \$ 1,073,438	1,925,151 (1,888,846) \$1,109,743 90 days \$ 739,829 \$ 1,109,743	2,010,251 (1,972,682) \$ 1,147,312 90 days \$ 764,875 \$ 1,147,312	2,095,142 (2,056,263) \$ 1,186,191 90 days \$ 790,794 \$ 1,186,191	2,179,72 (2,139,49) \$ 1,226,42 90 day \$ 817,61 \$ 1,226,42
plus: Net Cash Flow after Rate Increase less: Transfer of Surplus to Capital Fund less: Transfer to Stabilization Fund Ending Balance Actual Days of O&M  Minimum Balance Requirement Maximum Balance Requirement  Capital Reserve - 423 Beginning Balance plus: Transfers from Operating Fund plus: Transfers From General Fund	180,778 (1,400,000) (190,800) \$ 706,309 160 days \$ 264,720 \$ 397,081	\$ 443,357 82 days \$ 324,605 \$ 486,907	\$ 315,554 54 days \$ 352,854 \$ 529,280	825,864 (521,855) \$ 619,563 90 days \$ 413,042 \$ 619,563 \$ 3,956,693	830,774 (742,587) - \$ 707,750 90 days \$ 471,833 \$ 707,750	\$ 750,378 90 days \$ 500,252 \$ 750,378 \$ 9,366,409	481,377 (413,527) - \$ 818,228 90 days \$ 545,485 \$ 818,228 \$ 408,055	779,282 (780,607) 	885,777 (856,638) \$ 846,041 90 days \$ 564,028 \$ 846,041 \$ 555,376	1,067,428 (1,037,228) - \$ 876,241 90 days \$ 584,161 \$ 876,241 \$ 907,701	1,224,811 (1,193,511) <b>907,541</b> 90 days \$ 605,027 \$ 907,541 \$ 602,456	1,482,932 (1,450,491) \$ 939,982 90 days \$ 626,655 \$ 939,982 \$ 598,923	1,567,865 (1,536,182) \$ 971,664 90 days \$ 647,776 \$ 971,664 \$ 602,920	1,652,949 (1,620,172) \$ 1,004,441 90 days \$ 669,627 \$ 1,004,441 \$ 641,599	\$1,738,155 (1,704,244) \$1,038,352 90 days \$692,234 \$1,038,352 \$712,251	1,831,670 (1,796,583) \$ 1,073,438 90 days \$ 715,625 \$ 1,073,438 \$ 813,826	1,925,151 (1,888,846) \$1,109,743 \$1,109,743 \$739,829 \$1,109,743 \$953,372	2,010,251 (1,972,682) \$ 1,147,312 90 days \$ 764,875 \$ 1,147,312 \$ 1,129,682	2,095,142 (2,056,263) \$ 1,186,191 90 days \$ 790,794 \$ 1,186,191 \$ 1,135,692	2,179,72 (2,139,49) \$ 1,226,42 90 day \$ 817,61 \$ 1,226,42
plus: Net Cash Flow after Rate Increase less: Transfer of Surplus to Capital Fund less: Transfer to Stabilization Fund Ending Balance Actual Days of O&M  Minimum Balance Requirement Maximum Balance Requirement  Capital Reserve - 423 Beginning Balance plus: Transfers from Operating Fund plus: Transfers From General Fund plus: Assumed Capital Grants	180,778 (1,400,000) (190,800) \$ 706,309 160 days \$ 264,720 \$ 397,081	\$ 443,357 \$ 2 days \$ 324,605 \$ 486,907 \$ 1,488,130	\$ 315,554 54 days \$ 352,854 \$ 529,280	825,864 (521,855) \$ 619,563 90 days \$ 413,042 \$ 619,563 \$ 3,956,693	830,774 (742,587) - \$ 707,750 90 days \$ 471,833 \$ 707,750	\$ 750,378 90 days \$ 500,252 \$ 750,378 \$ 9,366,409	481,377 (413,527) - \$ 818,228 90 days \$ 545,485 \$ 818,228 \$ 408,055	779,282 (780,607) 	885,777 (856,638) \$ 846,041 90 days \$ 564,028 \$ 846,041 \$ 555,376	1,067,428 (1,037,228) - \$ 876,241 90 days \$ 584,161 \$ 876,241 \$ 907,701	1,224,811 (1,193,511) <b>907,541</b> 90 days \$ 605,027 \$ 907,541 \$ 602,456	1,482,932 (1,450,491) \$ 939,982 90 days \$ 626,655 \$ 939,982 \$ 598,923	1,567,865 (1,536,182) \$ 971,664 90 days \$ 647,776 \$ 971,664 \$ 602,920	1,652,949 (1,620,172) \$ 1,004,441 90 days \$ 669,627 \$ 1,004,441 \$ 641,599	\$1,738,155 (1,704,244) \$1,038,352 90 days \$692,234 \$1,038,352 \$712,251	1,831,670 (1,796,583) \$ 1,073,438 90 days \$ 715,625 \$ 1,073,438 \$ 813,826	1,925,151 (1,888,846) \$1,109,743 \$1,109,743 \$739,829 \$1,109,743 \$953,372	2,010,251 (1,972,682) \$ 1,147,312 90 days \$ 764,875 \$ 1,147,312 \$ 1,129,682	2,095,142 (2,056,263) \$ 1,186,191 90 days \$ 790,794 \$ 1,186,191 \$ 1,135,692	\$ 1,226,42 90 day \$ 1,226,42 \$ 1,226,42 \$ 1,226,42 \$ 1,322,86 2,139,49
plus: Net Cash Flow after Rate Increase less: Transfer of Surplus to Capital Fund less: Transfer to Stabilization Fund Ending Balance Actual Days of O&M  Minimum Balance Requirement Maximum Balance Requirement  Capital Reserve - 423 Beginning Balance plus: Transfers from Operating Fund plus: Transfers From General Fund plus: Assumed Capital Grants plus: CFC Revenue	180,778 (1,400,000) (190,800) \$ 706,309 160 days \$ 264,720 \$ 397,081	\$ 443,357 \$ 2 days \$ 324,605 \$ 486,907 \$ 1,488,130	\$ 315,554 54 days \$ 352,854 \$ 529,280 \$ 872,113	825,864 (521,855) \$ 619,563 90 days \$ 413,042 \$ 619,563 \$ 3,956,693	830,774 (742,587) 	\$ 750,378 90 days \$ 500,252 \$ 750,378 \$ 9,366,409	481,377 (413,527) 	779,282 (780,607) 	885,777 (856,638) \$ 846,041 90 days \$ 564,028 \$ 846,041 \$ 555,376 856,638	1,067,428 (1,037,228) - \$ 876,241 90 days \$ 584,161 \$ 876,241 \$ 907,701	1,224,811 (1,193,511)	1,482,932 (1,450,491) \$ 939,982 90 days \$ 626,655 \$ 939,982 \$ 598,923	1,567,865 (1,536,182) \$ 971,664 90 days \$ 647,776 \$ 971,664 \$ 602,920	1,652,949 (1,620,172) \$ 1,004,441 90 days \$ 669,627 \$ 1,004,441 \$ 641,599	\$1,738,155 (1,704,244) \$1,038,352 90 days \$692,234 \$1,038,352 \$712,251	1,831,670 (1,796,583) \$ 1,073,438 90 days \$ 715,625 \$ 1,073,438 \$ 813,826	1,925,151 (1,888,846) \$1,109,743 \$1,109,743 \$739,829 \$1,109,743 \$953,372	2,010,251 (1,972,682) \$ 1,147,312 90 days \$ 764,875 \$ 1,147,312 \$ 1,129,682	2,095,142 (2,056,263) \$ 1,186,191 90 days \$ 790,794 \$ 1,186,191 \$ 1,135,692	2,179,72: (2,139,49) \$ 1,226,42: 90 day \$ 817,61: \$ 1,226,42: \$ 1,322,86: 2,139,49
plus: Net Cash Flow after Rate Increase less: Transfer of Surplus to Capital Fund less: Transfer to Stabilization Fund Ending Balance  Actual Days of O&M  Minimum Balance Requirement  Maximum Balance Requirement  Capital Reserve - 423  Beginning Balance plus: Transfers from Operating Fund plus: Transfers From General Fund plus: Assumed Capital Grants plus: CFC Revenue plus: Revenue Bond Proceeds	180,778 (1,400,000) (190,800) \$706,309 160 days \$ 264,720 \$ 397,081 \$ 94,014 1,400,000	\$443,357 82 days \$324,605 \$486,907 \$1,488,130 - 500,000	\$ 315,554 \$ 4 days \$ 352,854 \$ 529,280 \$ 872,113 - - - - - - - - - - - - -	\$25,864 (521,855) \$619,563 90 days \$413,042 \$619,563 \$3,956,693 521,855	830,774 (742,587) \$ 707,750 90 days \$ 471,833 \$ 707,750 \$ 177,050 742,587 - 19,000,000	1,066,254 (1,023,626) \$750,378 90 days \$500,252 \$750,378 \$9,366,409 1,023,626	481,377 (413,527) \$ 818,228 90 days \$ 545,485 \$ 818,228 \$ 408,055 413,527 - - - 7,200,000	779,282 (780,607) \$ 816,902 90 days \$ 544,602 \$ 816,902 \$ 1,024,008 780,607	885,777 (856,638) <b>\$ 846,041</b> 90 days \$ 564,028 \$ 846,041 \$ 555,376 856,638	1,067,428 (1,037,228) \$ 876,241 90 days \$ 584,161 \$ 876,241 \$ 907,701 1,037,228	\$ 907,541 907,541 907,541 90 days \$ 605,027 \$ 907,541 \$ 602,456 1,193,511 - 200,000	1,482,932 (1,450,491) \$ 939,982 90 days \$ 626,655 \$ 939,982 \$ 598,923 1,450,491	1,567,865 (1,536,182) \$ 971,664 \$ 04ys \$ 647,776 \$ 971,664 \$ 602,920 1,536,182	1,652,949 (1,620,172) \$ 1,004,441 90 days \$ 669,627 \$ 1,004,441 \$ 641,599 1,620,172	\$ 1,738,155 (1,704,244) \$ 1,038,352 90 days \$ 692,234 \$ 1,038,352 \$ 712,251 1,704,244	1,831,670 (1,796,583) \$ 1,073,438 90 days \$ 715,625 \$ 1,073,438 \$ 813,826 1,796,583	1,925,151 (1,888,846) \$ 1,109,743 \$ 1,109,743 \$ 739,829 \$ 1,109,743 \$ 953,372 1,888,846	2,010,251 (1,972,682) \$ 1,147,312 \$ 0 days \$ 764,875 \$ 1,147,312 \$ 1,129,682 1,972,682	2,095,142 (2,056,263) \$ 1,186,191 90 days \$ 790,794 \$ 1,186,191 \$ 1,135,692 2,056,263	\$ 1,226,42 90 day \$ 1,226,42 \$ 1,226,42 \$ 1,226,42 \$ 1,226,42 \$ 1,322,86 2,139,49
plus: Net Cash Flow after Rate Increase less: Transfer of Surplus to Capital Fund less: Transfer to Stabilization Fund Ending Balance	180,778 (1,400,000) (190,800) \$706,309 160 days \$ 264,720 \$ 397,081 \$ 94,014 1,400,000	\$443,357 82 days \$324,605 \$486,907 \$1,488,130 - 500,000 - 33,483	\$ 315,554 54 days \$ 352,854 \$ 529,280 \$ 872,113 - - - - - - - - - - - - -	\$25,864 (521,855) \$619,563 90 days \$413,042 \$619,563 \$3,956,693 521,855	\$30,774 (742,587) \$707,750 90 days \$471,833 \$707,750 \$177,050 742,587 - - 19,000,000 3,984	1,066,254 (1,023,626) \$750,378 90 days \$500,252 \$750,378 \$9,366,409 1,023,626	\$818,228 \$18,228 \$18,228 \$18,228 \$408,055 \$413,527 	779,282 (780,607) \$ 816,902 90 days \$ 544,602 \$ 816,902 \$ 1,024,008 780,607 - - - 23,040	\$85,777 (856,638) - \$846,041 90 days \$564,028 \$846,041 \$555,376 856,638 - - 800,000 12,496	1,067,428 (1,037,228) \$ 876,241 90 days \$ 584,161 \$ 907,701 1,037,228 - - - - - - - - - - - - -	1,224,811 (1,193,511)	1,482,932 (1,450,491)	1,567,865 (1,536,182)  \$ 971,664 90 days \$ 647,776 \$ 971,664  \$ 602,920 1,536,182	1,652,949 (1,620,172) \$1,004,441 90 days \$ 669,627 \$1,004,441 \$ 641,599 1,620,172	\$ 1,738,155 (1,704,244) \$ 1,038,352 90 days \$ 692,234 \$ 1,038,352 \$ 712,251 1,704,244 - - - 16,026	1,831,670 (1,796,583) \$ 1,073,438 90 days \$ 715,625 \$ 1,073,438 \$ 813,826 1,796,583	1,925,151 (1,888,846) \$1,109,743 90 days \$739,829 \$1,109,743 \$953,372 1,888,846	\$1,147,312 90 days \$1,147,312 91,147,312 \$1,147,312 \$1,147,312 \$1,129,682 1,972,682 - - 25,418	\$ 1,186,191 90 days \$ 790,794 \$ 1,186,191 \$ 1,186,191 \$ 1,135,692 2,056,263 - - - 25,553	2,179,72 (2,139,49) \$ 1,226,42 90 day \$ 817,61 \$ 1,226,42 \$ 1,322,86 2,139,49
plus: Net Cash Flow after Rate Increase less: Transfer of Surplus to Capital Fund less: Transfer to Stabilization Fund Ending Balance	180,778 (1,400,000) (190,800) \$ 706,309 160 days \$ 264,720 \$ 397,081  \$ 94,014 1,400,000	\$443,357 82 days \$324,605 \$486,907 \$1,488,130 500,000 - - 33,483 \$2,021,613	\$ 315,554 54 days \$ 352,854 \$ 529,280 \$ 872,113 - - - - - - - - - - - - -	825,864 (521,855) \$ 619,563 \$ 00 days \$ 413,042 \$ 619,563 \$ 3,956,693 \$ 521,855 - - - 89,026 \$ 4,567,573	830,774 (742,587) \$ 707,750 90 days \$ 471,833 \$ 707,750 \$ 177,050 742,587 - - - 19,000,000 3,984 \$19,923,621	1,066,254 (1,023,626) \$ 750,378 90 days \$ 500,252 \$ 750,378 \$ 9,366,409 1,023,626 - - - 210,744 \$10,600,779	\$818,228 \$818,228 90 days \$545,485 \$818,228 \$408,055 413,527 	779,282 (780,607) \$ 816,902 90 days \$ 544,602 \$ 816,902 \$ 1,024,008 780,607 - - 23,040 \$ 1,827,656	885,777 (856,638)  \$ 846,041  90 days  \$ 564,028 \$ 846,041  \$ 555,376 856,638  800,000 12,496 \$ 2,224,510	1,067,428 (1,037,228) \$ 876,241 90 days \$ 584,161 \$ 876,241 \$ 907,701 1,037,228 - - - 20,423 \$ 1,965,353	1,224,811 (1,193,511)	1,482,932 (1,450,491) \$ 939,982 90 days \$ 626,655 \$ 939,982 \$ 598,923 1,450,491 	1,567,865 (1,536,182)  \$ 971,664 90 days \$ 647,776 \$ 971,664  \$ 602,920 1,536,182	1,652,949 (1,620,172) \$ 1,004,441 90 days \$ 669,627 \$ 1,004,441 \$ 641,599 1,620,172 	\$ 1,738,155 (1,704,244) \$ 1,038,352 90 days \$ 692,234 \$ 1,038,352 \$ 712,251 1,704,244 - - - 16,026 \$ 2,432,521	1,831,670 (1,796,583) \$ 1,073,438 90 days \$ 715,625 \$ 1,073,438 \$ 813,826 1,796,583 - - - - - - - - - - - - - - - - - - -	1,925,151 (1,888,846) \$1,109,743 90 days \$ 739,829 \$ 1,109,743 \$ 953,372 1,888,846 	\$1,147,312 90 days \$764,875 \$1,147,312 \$1,147,312 \$1,147,312 \$1,129,682 1,972,682 - - 25,418 \$3,127,782	2,095,142 (2,056,263)  \$ 1,186,191 90 days  \$ 790,794 \$ 1,186,191  \$ 1,135,692 2,056,263	\$ 1,226,42 90 day \$ 1,226,42 \$ 1,226,42 \$ 1,322,86 2,139,49 29,76 \$ 3,492,12
plus: Net Cash Flow after Rate Increase less: Transfer of Surplus to Capital Fund less: Transfer to Stabilization Fund Ending Balance     Actual Days of O&M      Minimum Balance Requirement     Maximum Balance Requirement  Capital Reserve - 423 Beginning Balance plus: Transfers from Operating Fund plus: Assumed Capital Grants plus: CFC Revenue plus: Revenue Bond Proceeds plus: Interest Earnings	180,778 (1,400,000) (190,800) \$706,309 160 days \$ 264,720 \$ 397,081 \$ 94,014 1,400,000	\$443,357 82 days \$324,605 \$486,907 \$1,488,130 - 500,000 - 33,483	\$ 315,554 54 days \$ 352,854 \$ 529,280 \$ 872,113 - - - - - - - - - - - - -	\$25,864 (521,855) \$619,563 90 days \$413,042 \$619,563 \$3,956,693 521,855	\$30,774 (742,587) \$707,750 90 days \$471,833 \$707,750 \$177,050 742,587 - - 19,000,000 3,984	1,066,254 (1,023,626) \$750,378 90 days \$500,252 \$750,378 \$9,366,409 1,023,626	\$818,228 \$18,228 \$18,228 \$18,228 \$408,055 \$413,527 	779,282 (780,607) \$ 816,902 90 days \$ 544,602 \$ 816,902 \$ 1,024,008 780,607 - - - 23,040	\$85,777 (856,638) - \$846,041 90 days \$564,028 \$846,041 \$555,376 856,638 - - 800,000 12,496	1,067,428 (1,037,228) \$ 876,241 90 days \$ 584,161 \$ 907,701 1,037,228 - - - - - - - - - - - - -	1,224,811 (1,193,511)	1,482,932 (1,450,491) \$ 939,982 90 days \$ 626,655 \$ 939,982 \$ 598,923 1,450,491 	1,567,865 (1,536,182)  \$ 971,664 90 days \$ 647,776 \$ 971,664  \$ 602,920 1,536,182	1,652,949 (1,620,172) \$1,004,441 90 days \$ 669,627 \$1,004,441 \$ 641,599 1,620,172	\$ 1,738,155 (1,704,244) \$ 1,038,352 90 days \$ 692,234 \$ 1,038,352 \$ 712,251 1,704,244 - - - 16,026	1,831,670 (1,796,583) \$ 1,073,438 90 days \$ 715,625 \$ 1,073,438 \$ 813,826 1,796,583 - - 18,311 \$ 2,628,720 (1,675,349)	\$ 1,925,151 (1,888,846) \$ 1,109,743 90 days \$ 739,829 \$ 1,109,743 \$ 953,372 1,888,846 	\$1,147,312 90 days \$1,147,312 91,147,312 \$1,147,312 \$1,147,312 \$1,129,682 1,972,682 - - 25,418	\$ 1,186,191 90 days \$ 790,794 \$ 1,186,191 \$ 1,186,191 \$ 1,135,692 2,056,263 - - - 25,553	\$ 1,226,42 90 day \$ 1,226,42 \$ 1,226,42 \$ 1,322,86 2,139,49 29,76 \$ 3,492,12 (1,960,95
plus: Net Cash Flow after Rate Increase less: Transfer of Surplus to Capital Fund less: Transfer to Stabilization Fund Ending Balance Actual Days of O&M  Minimum Balance Requirement Maximum Balance Requirement  Capital Reserve - 423 Beginning Balance plus: Transfers from Operating Fund plus: Transfers From General Fund plus: Assumed Capital Grants plus: CFC Revenue plus: Revenue Bond Proceeds plus: Interest Earnings Total Funding Sources less: Capital Expenditures (Before Grants)	180,778 (1,400,000) (190,800) \$ 706,309 160 days \$ 264,720 \$ 397,081  \$ 94,014 1,400,000	\$443,357 82 days \$324,605 \$486,907 \$1,488,130 500,000 - - 33,483 \$2,021,613 (1,149,500)	\$ 315,554 54 days \$ 352,854 \$ 529,280 \$ 872,113 - - - - - - - - - - - - -	825,864 (521,855) \$ 619,563 90 days \$ 413,042 \$ 619,563 \$ 3,956,693 \$ 521,855 - - - 89,026 \$ 4,567,573 (4,390,523)	830,774 (742,587) \$ 707,750 90 days \$ 471,833 \$ 707,750 \$ 177,050 742,587 - - 19,000,000 3,984 \$19,923,621 (10,557,212)	1,066,254 (1,023,626) \$750,378 90 days \$500,252 \$750,378 \$9,366,409 1,023,626 - - 210,744 \$10,600,779 (10,192,724)	481,377 (413,527) \$ 818,228 90 days \$ 545,485 \$ 818,228 \$ 408,055 413,527 - - - - - - - - - - - - -	779,282 (780,607) \$ 816,902 90 days \$ 544,602 \$ 816,902 \$ 1,024,008 780,607 - - 23,040 \$ 1,827,656 (1,272,279)	885,777 (856,638)  \$ 846,041  90 days  \$ 564,028 \$ 846,041  \$ 555,376 856,638  800,000 12,496 \$ 2,224,510 (1,316,809)	1,067,428 (1,037,228) \$ 876,241 90 days \$ 584,161 \$ 876,241 \$ 907,701 1,037,228 - - - 20,423 \$ 1,965,353 (1,362,897)	1,224,811 (1,193,511) 907,541 90 days \$ 605,027 \$ 907,541 \$ 602,456 1,193,511 - - 200,000 13,555 \$ 2,009,522 (1,410,599)	1,482,932 (1,450,491) \$ 939,982 90 days \$ 626,655 \$ 939,982 \$ 598,923 1,450,491 	1,567,865 (1,536,182)  \$ 971,664 90 days  \$ 647,776 \$ 971,664  \$ 602,920 1,536,182	1,652,949 (1,620,172) \$ 1,004,441 90 days \$ 669,627 \$ 1,004,441 \$ 641,599 1,620,172 	\$ 1,738,155 (1,704,244) \$ 1,038,352 90 days \$ 692,234 \$ 1,038,352 \$ 712,251 1,704,244 - - - - - - - - - - - - - - - - - -	1,831,670 (1,796,583) \$ 1,073,438 90 days \$ 715,625 \$ 1,073,438 \$ 813,826 1,796,583 - - - - - - - - - - - - - - - - - - -	\$ 1,925,151 (1,888,846) \$ 1,109,743 90 days \$ 739,829 \$ 1,109,743 \$ 953,372 1,888,846 	\$1,147,312 90 days \$764,875 \$1,147,312 \$1,147,312 \$1,129,682 1,972,682 	\$ 1,186,191 90 days \$ 790,794 \$ 1,186,191 \$ 1,186,191 \$ 1,135,692 2,056,263 	\$ 1,226,42 \$ 1,322,86 \$ 1,322,86 2,139,49 \$ 1,322,86 2,139,49 29,76 \$ 3,492,12 (1,960,95 \$ 1,531,17
plus: Net Cash Flow after Rate Increase less: Transfer of Surplus to Capital Fund less: Transfer to Stabilization Fund Ending Balance     Actual Days of O&M      Minimum Balance Requirement     Maximum Balance Requirement  Capital Reserve - 423 Beginning Balance plus: Transfers from Operating Fund plus: Transfers From General Fund plus: Assumed Capital Grants plus: CFC Revenue plus: Revenue Bond Proceeds plus: Interest Earnings Total Funding Sources less: Capital Expenditures (Before Grants) Ending Capital Fund Balance  Minimum Target Balance	180,778 (1,400,000) (190,800) \$ 706,309 160 days \$ 264,720 \$ 397,081  \$ 94,014 1,400,000 2,115 \$ 1,496,130 (8,000) \$ 1,488,130	\$443,357 82 days \$324,605 \$486,907 \$1,488,130 500,000 	\$ 315,554 54 days \$ 352,854 \$ 529,280 \$ 872,113 	\$25,864 (521,855) \$619,563 90 days \$413,042 \$619,563 \$3,956,693 521,855 - - - 89,026 \$4,567,573 (4,390,523) \$177,050	\$30,774 (742,587) \$707,750 90 days \$471,833 \$707,750 \$177,050 742,587 - 19,000,000 3,984 \$19,923,621 (10,557,212) \$9,366,409	\$750,378 90 days \$ 500,252 \$ 750,378 90 days \$ 500,252 \$ 750,378 \$ 9,366,409 1,023,626 	\$818,228 90 days \$ 545,485 \$ 818,228 \$ 408,055 413,527 	779,282 (780,607) \$ 816,902 90 days \$ 544,602 \$ 816,902 \$ 1,024,008 780,607 	885,777 (856,638)  \$ 846,041  90 days  \$ 564,028 \$ 846,041  \$ 555,376 856,638  800,000 12,496 \$ 2,224,510 (1,316,809) \$ 907,701 \$ 526,932	1,067,428 (1,037,228) \$ 876,241 90 days \$ 584,161 \$ 907,701 1,037,228 - - - 20,423 \$ 1,965,353 (1,362,897) \$ 602,456	1,224,811 (1,193,511) \$ 907,541 90 days \$ 605,027 \$ 907,541 \$ 602,456 1,193,511 	1,482,932 (1,450,491) \$ 939,982 90 days \$ 626,655 \$ 939,982 \$ 598,923 1,450,491 	1,567,865 (1,536,182) \$ 971,664 90 days \$ 647,776 \$ 971,664 \$ 602,920 1,536,182 	1,652,949 (1,620,172) \$1,004,441 90 days \$ 669,627 \$1,004,441 \$ 641,599 1,620,172 	\$ 1,738,155 (1,704,244) \$ 1,038,352 90 days \$ 692,234 \$ 1,038,352 \$ 712,251 1,704,244 - - - - - - - - - - - - - - - - - -	1,831,670 (1,796,583) \$ 1,073,438 90 days \$ 715,625 \$ 1,073,438 \$ 813,826 1,796,583 	\$ 1,925,151 (1,888,846) \$ 1,109,743 90 days \$ 739,829 \$ 1,109,743 \$ 953,372 1,888,846 	\$ 1,147,312 90 days \$ 1,147,312 90 days \$ 764,875 \$ 1,147,312 \$ 1,129,682 1,972,682 	2,095,142 (2,056,263)  \$ 1,186,191 90 days  \$ 790,794 \$ 1,186,191  \$ 1,135,692 2,056,263  25,553 \$ 3,217,508 (1,894,639) \$ 1,322,869 \$ 689,164	2,179,728 (2,139,49° \$ 1,226,428 90 day \$ 817,618 \$ 1,226,428 \$ 1,322,866 2,139,49° 29,76° \$ 3,492,124 (1,960,95° \$ 1,531,17° \$ 708,774
plus: Net Cash Flow after Rate Increase less: Transfer of Surplus to Capital Fund less: Transfer to Stabilization Fund Ending Balance  Actual Days of O&M  Minimum Balance Requirement  Maximum Balance Requirement  Capital Reserve - 423  Beginning Balance plus: Transfers from Operating Fund plus: Transfers From General Fund plus: Assumed Capital Grants plus: CFC Revenue plus: Revenue Bond Proceeds plus: Interest Earnings Total Funding Sources less: Capital Expenditures (Before Grants) Ending Capital Fund Balance	180,778 (1,400,000) (190,800) \$ 706,309 160 days \$ 264,720 \$ 397,081  \$ 94,014 1,400,000	\$443,357 82 days \$324,605 \$486,907 \$1,488,130 500,000 	\$ 315,554 54 days \$ 352,854 \$ 529,280 \$ 872,113 - 6,600,000 19,623 \$ 7,491,735 (3,535,043) \$ 3,956,693 \$ 1,79,569 \$ 1,315,470	825,864 (521,855) \$ 619,563 \$ 00 days \$ 413,042 \$ 619,563 \$ 3,956,693 \$ 521,855 	830,774 (742,587) \$ 707,750 90 days \$ 471,833 \$ 707,750 \$ 177,050 742,587 	1,066,254 (1,023,626) \$750,378 90 days \$500,252 \$750,378 \$9,366,409 1,023,626 - 210,744 \$10,600,779 (10,192,724) \$408,055 \$430,973	481,377 (413,527) \$ 818,228 90 days \$ 545,485 \$ 818,228 \$ 408,055 413,527 	779,282 (780,607) \$ 816,902 90 days \$ 544,602 \$ 816,902 \$ 1,024,008 780,607 - - 23,040 \$ 1,827,656 (1,272,279) \$ 555,376	885,777 (856,638)  \$ 846,041 90 days  \$ 564,028 \$ 846,041  \$ 555,376 856,638	1,067,428 (1,037,228) \$ 876,241 90 days \$ 584,161 \$ 876,241 \$ 907,701 1,037,228 - - - 20,423 \$ 1,965,353 (1,362,897) \$ 602,456 \$ 540,561	1,224,811 (1,193,511) 907,541 90 days \$ 605,027 \$ 907,541 \$ 602,456 1,193,511 - 200,000 13,555 \$ 2,009,522 (1,410,599) \$ 598,923	1,482,932 (1,450,491)  \$ 939,982 90 days \$ 626,655 \$ 939,982  \$ 598,923 1,450,491	1,567,865 (1,536,182)  \$ 971,664 90 days \$ 647,776 \$ 971,664  \$ 602,920 1,536,182	1,652,949 (1,620,172) \$1,004,441 90 days \$669,627 \$1,004,441 \$641,599 1,620,172 	\$1,738,155 (1,704,244) \$1,038,352 90 days \$692,234 \$1,038,352 \$712,251 1,704,244 - - - - - - - - - - - - - - - - - -	1,831,670 (1,796,583) \$ 1,073,438 90 days \$ 715,625 \$ 1,073,438 \$ 813,826 1,796,583 	1,925,151 (1,888,846) \$1,109,743 90 days \$ 739,829 \$ 1,109,743 \$ 953,372 1,888,846 	\$ 1,147,312 90 days \$ 764,875 \$ 1,147,312 1,147,312 \$ 1,129,682 1,972,682 	2,095,142 (2,056,263)  \$ 1,186,191 90 days  \$ 790,794 \$ 1,186,191  \$ 1,135,692 2,056,263  25,553 \$ 3,217,508 (1,894,639) \$ 1,322,869 \$ 689,164	2,179,728 (2,139,491 \$ 1,226,428 90 days \$ 817,618 \$ 1,226,428 \$ 1,322,868 2,139,491 29,768 \$ 3,492,124 (1,960,951 \$ 1,531,173 \$ 708,774
plus: Net Cash Flow after Rate Increase less: Transfer of Surplus to Capital Fund less: Transfer to Stabilization Fund Ending Balance Actual Days of O&M  Minimum Balance Requirement Maximum Balance Requirement  Capital Reserve - 423 Beginning Balance plus: Transfers from Operating Fund plus: Transfers From General Fund plus: Assumed Capital Grants plus: CFC Revenue plus: Revenue Bond Proceeds plus: Interest Earnings Total Funding Sources less: Capital Expenditures (Before Grants) Ending Capital Fund Balance  Minimum Target Balance  Combined Beginning Balance	180,778 (1,400,000) (190,800) \$ 706,309 160 days \$ 264,720 \$ 397,081  \$ 94,014 1,400,000 2,115 \$ 1,496,130 (8,000) \$ 1,488,130 \$ 132,723	\$443,357 82 days \$324,605 \$486,907 \$1,488,130 500,000 	\$ 315,554 54 days \$ 352,854 \$ 529,280 \$ 872,113 - - - - - - - - - - - - -	825,864 (521,855) \$619,563 90 days \$413,042 \$619,563 \$3,956,693 521,855 - - - 89,026 \$4,567,573 (4,390,523) \$177,050 \$223,474	830,774 (742,587) \$ 707,750 90 days \$ 471,833 \$ 707,750 \$ 177,050 742,587 	\$ 750,378 \$ 750,378 \$ 90 days \$ 500,252 \$ 750,378 \$ 9,366,409 1,023,626 	\$818,228 \$818,228 90 days \$545,485 \$818,228 \$408,055 413,527 	779,282 (780,607) \$ 816,902 90 days \$ 544,602 \$ 816,902 \$ 1,024,008 780,607 	885,777 (856,638)  \$ 846,041  90 days  \$ 564,028 \$ 846,041  \$ 555,376 856,638  800,000 12,496 \$ 2,224,510 (1,316,809) \$ 907,701 \$ 526,932	1,067,428 (1,037,228) \$ 876,241 90 days \$ 584,161 \$ 876,241 \$ 907,701 1,037,228 - - - 20,423 \$ 1,965,353 (1,362,897) \$ 602,456 \$ 540,561 \$ 1,753,743	1,224,811 (1,193,511) 907,541 90 days \$ 605,027 \$ 907,541 \$ 602,456 1,193,511 - 200,000 13,555 \$ 2,009,522 (1,410,599) \$ 598,923 \$ 554,667	1,482,932 (1,450,491) \$ 939,982 90 days \$ 626,655 \$ 939,982 \$ 598,923 1,450,491 	1,567,865 (1,536,182) \$ 971,664 90 days \$ 647,776 \$ 971,664 \$ 602,920 1,536,182 	1,652,949 (1,620,172) \$ 1,004,441 90 days \$ 669,627 \$ 1,004,441 \$ 641,599 1,620,172 	\$1,738,155 (1,704,244) \$1,038,352 90 days \$692,234 \$1,038,352 \$712,251 1,704,244 	1,831,670 (1,796,583) \$ 1,073,438 90 days \$ 715,625 \$ 1,073,438 \$ 813,826 1,796,583 18,311 \$ 2,628,720 (1,675,349) \$ 953,372 \$ 632,957	\$ 1,925,151 (1,888,846) \$ 1,109,743 \$ 739,829 \$ 1,109,743 \$ 953,372 1,888,846 \$ 21,451 \$ 2,863,668 \$ (1,733,986) \$ 1,129,682 \$ 650,297	\$ 2,010,251 (1,972,682) \$ 1,147,312 90 days \$ 764,875 \$ 1,147,312 \$ 1,129,682 1,972,682 	\$ 2,095,142 (2,056,263) \$ 1,186,191 90 days \$ 790,794 \$ 1,135,692 2,056,263 	\$ 1,226,426 \$ 1,322,866 2,139,491 29,766 \$ 3,492,124 (1,960,951 \$ 1,531,173

