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**Storm and Surface
Water Projects**





Storm and Surface Water

Storm and surface water management is a key environmental service provided by the City. Capital projects funded by the Storm and Surface Water Utility reflect a local responsibility to correct flooding problems, protect water quality, and enhance aquatic habitat in local creeks, wetlands and marine waters. Typical projects include:

- Stormwater pipe systems
- Regional stormwater storage ponds
- Neighborhood stormwater treatment facilities
- Storm and surface water planning
- Culvert replacements
- Stream bank stabilization
- Forest and wetland revegetation
- Demonstration projects using new technologies
- Environmental land purchase and stewardship

The effectiveness of the City's stormwater system at managing flooding and protecting the natural environment varies depending on location. Private developments and City capital projects constructed prior to the mid-1980s were required to provide modest stormwater conveyance capacity, no water quality

treatment, and very minimal storage of runoff in constructed ponds. Numerous complex flooding problems and irreversible habitat loss were caused by these early developments. Until recently, the majority of stormwater project funding has been spent addressing these historical concerns. Community expectations and regulations for managing stormwater have improved dramatically in recent years, resulting in a more holistic look at stormwater management.

The Storm and Surface Water program's success at resolving flooding problems during the last fifteen years has provided the City an opportunity to focus on water quality improvement, habitat protection, and scheduled replacement of aging pipe systems. The Storm and Surface Water Master Plan (2003) and its 2010 refinements emphasize the role of the Utility in environmental protection. The Plan provides guidance on Utility goals, implementation strategies, and expected outcomes. Capital projects, in concert with other elements of the Storm and Surface Water program, help meet these Utility goals:

- **Flooding**

Reduce the frequency and severity of flooding so hazards are eliminated, except during major storm events. The Utility will minimize potential flooding associated with new development through regulations for on site stormwater systems. Flooding

arising from existing inadequate public infrastructure will be addressed in a timely manner.

• **Water Quality**

Improve water quality Citywide, while focusing infrastructure upgrades to reduce stormwater contaminant loads from untreated areas of the City. Improving water quality in Budd Inlet by retrofitting older high-traffic arterials and adjacent areas for stormwater treatment is a high priority.

• **Aquatic Habitat**

Improve aquatic habitat functions Citywide, while focusing on protecting intact habitat, improving Budd Inlet and managing riparian area vegetation. The relationship between aquatic habitat conditions and land use impacts in urbanizing basins is scientifically complex and managerially challenging. Efforts include protecting high quality habitats while providing tangible improvements to other systems. Work to better quantify opportunities for land acquisition and stewardship is underway. This work will help prioritize future efforts.

Several new capital needs are facing the Utility including new State and Federal regulations and long-term infrastructure replacement. Regulations stemming from the Federal Clean Water Act (e.g., Total Maximum Daily Loads, National Pollution Discharge Elimination System) have led to new areas of water quality work. Equally significant from a financial perspective is the acknowledgement that numerous major stormwater conveyance systems are reaching, or have exceeded, their life expectancy. Efforts are underway to evaluate and document aging pipe systems. Prioritized pipe repairs and upgrades have become a regular component of the CFP.

The projects contained in the plan are financed annually through Storm and Surface Water Utility rates and General Facilities Charges. Loans and grants are used, especially for water quality projects. Debt financing has been only nominally used by the Utility.

Growth-Related Projects

Projects that fall under this category are associated with work to accommodate new development and are funded by General Facility Charge revenue. When a project serves both new and existing development, a portion of the project cost will also be funded through Stormwater Utility rates.

- Coleman, Bing and Walnut Conveyance Project – 25% expansion and upgrade-related
- Cooper Point and Black Lake Conveyance Project – 50% expansion-related
- Ken Lake Flood Conveyance Project addresses both existing and future flows – 50% expansion-related
- Indian Creek Culverts Modification Project – 25% expansion-and upgrade-related
- Division and Scammel Conveyance Project – 25% expansion-and upgrade-related

Following a cost sharing policy approved by City Council in 2009, the Storm and Surface Water Utility allocates funding annually to the Transportation Program to cover a portion of stormwater mitigation costs on transportation projects. In recent years, these funds have been directed to the Parks and Pathways sidewalk program to offset stormwater mitigation costs associated with sidewalk projects.

PROJECT	2016	2017-2021	TOTAL
Sidewalks and Pathways	\$ 186,500	\$ 932,500	\$ 1,119,000
TOTAL	\$ 186,500	\$ 932,500	\$ 1,119,000





AQUATIC HABITAT IMPROVEMENTS (PROGRAM #9024)

Location	Various locations Citywide.
Links to Other Projects or Facilities	Critical Habitat Land Acquisition and Stewardship —Storm and Surface Water Section Water Quality Improvements—Storm and Surface Water Section Open Space Expansion—Parks, Arts and Recreation Section
Description	Implement habitat restoration strategies that protect and enhance aquatic and associated terrestrial habitat in Olympia.

Project List	YEAR	PROJECT	COST ESTIMATE
	2016-2021	Habitat Improvement – This project will protect and enhance aquatic and associated terrestrial habitat by implementing stewardship strategies as identified and prioritized in the Habitat and Stewardship Strategy developed by the Storm and Surface Water Utility.	\$ 875,000

Justification (Need/Demand)	The quality of aquatic habitat within Olympia continues to be challenged as land is developed for urban uses. The Storm and Surface Water Utility has a responsibility to help manage and enhance our aquatic habitats. The Planning Commission and Utility Advisory Committee have recently encouraged the Utility to increase emphasis on, and funding for, aquatic habitat land acquisition and stewardship.
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Comprehensive Plan and Functional Plan(s) Citations	This program implements the following Olympia Comprehensive Plan goals and policies: GN 6: Healthy aquatic habitat is protected and restored. PN 6.1: Restore and manage vegetation next to streams, with an emphasis on native vegetation, to greatly improve or provide new fish and wildlife habitat. PN 6.3: Establish and monitor water quality and aquatic habitat health indicators based on the best scientific information available. PN 6.6: Preserve and restore the aquatic habitat of Budd Inlet and other local marine waters. PN 6.7: Partner with other regional agencies and community groups to restore aquatic habitat through coordinated planning, funding, and implementation.
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Capital Costs:	2016	2017-2021	Total
Construction	\$ 225,000	\$ 562,500	\$ 787,500
Design & Engineering	\$ 25,000	\$ 62,500	\$ 87,500
TOTAL	\$ 250,000	\$ 625,000	\$ 875,000

Funding Sources:	2016	2017-2021	Total
Rates	\$ 250,000	\$ 625,000	\$ 875,000
TOTAL	\$ 250,000	\$ 625,000	\$ 875,000

Annual Operations and Maintenance

Estimated Costs	N/A
Estimated Revenues	N/A
Anticipated Savings Due to Project	Not yet determined
Department Responsible for Operations	Public Works
Quadrant Location	Citywide





FLOOD MITIGATION AND COLLECTION—STORMWATER (PROGRAM #9028)

Location Various locations Citywide.

Links to Other Projects or Facilities Infrastructure Pre-Design and Planning—Storm and Surface Water Section

Description Stormwater pipe systems collect and convey runoff to appropriate locations in order to prevent or mitigate flooding. Some projects identified in the program anticipate or correct flooding; others provide for the timely replacement of old, problematic pipe systems.

The replacement of aging and deteriorating pipe systems is an increasingly important financial responsibility of the Utility. Problematic pipes are identified through ongoing Citywide pipe televising and condition rating programs. Several pipes have been identified that are currently failing or are expected to fail within five years. Some of the problems involve long sections of pipes; others involve only isolated spot repairs. These pipes are prioritized and repaired.

Project List Project list and prioritization are subject to change. Priority is based on a condition rating system.

Year	Project	Cost Estimate
2016	North Percival Stormwater Facility Modifications—This project will modify the North Percival Stormwater Facility for easier maintenance and access. It will replace a new outfall structure with one less prone to clogging by beavers as well as enhance the passive education and recreational use of the site.	\$ 288,300
2016-2021	City-Owned Stormwater Pond Rehabilitation—These projects rehabilitate City-owned stormwater facilities including removing sediments, amending soils, establishing attractive low maintenance landscaping and modifying the structures within the facility as needed. Rehabilitation involves more work than is typically performed during routine maintenance, and is intended to enhance the function of the facility. This project will provide for the rehabilitation of one facility per year, on average.	\$ 260,000
2016-2021	Condition Rating of Existing Conveyance—Television inspection and condition rating is provided for existing stormwater conveyance systems. Condition rating outcomes are used to determine replacement and repair schedules. There are approximately 172 miles of storm sewer owned and operated by the Storm and Surface Water Utility.	\$ 853,200
2016-2021	Conveyance Spot Repairs (Pipe Replacement)—This project provides for relatively minor spot repairs to the stormwater conveyance system at locations determined by the condition rating database. Repairs to the worst portions of the storm sewer system are typically accomplished within two years of problem identification.	\$ 474,000
2017-2019	Downtown Flood Mitigation—Olympia’s downtown is currently vulnerable to tidal flooding. In the years to come, the problem could be exacerbated by sea level rise. The project will install tidal gates on key stormwater out falls to Budd Inlet thereby preventing tides from flowing up the pipes and discharging to low lying downtown streets.	\$ 367,500
2017	Cooper Point and Black Lake Conveyance—This project increases the capacity of an extensive Westside stormwater conveyance system serving approximately 700 acres of development. The project builds on recent work to improve the capacity of Yauger Park. The project will reduce the potential for flooding of the Cooper Point Road and Black Lake Boulevard intersection. This project is partially funded by General Facility Charges (GFCs).	\$ 3,360,000
2018	Ascension and 4th Avenue Pond Construction—This project will construct a stormwater facility on City-owned land between 4th and Ascension Avenues. It will provide flow control and water quality treatment to flows generated from existing developed areas that discharge to the downstream stormwater conveyance system.	\$ 271,200
2019	Ken Lake Flood Conveyance—This project will construct a stormwater conveyance system which will eliminate historical overland flooding associated with the Gruen Swale and Stonewall Swale tributary to Ken Lake. This project is partially funded by GFCs.	\$ 630,000



FLOOD MITIGATION AND COLLECTION—STORMWATER (PROGRAM #9028) CONTINUED

Project List (continued)

Project list and prioritization are subject to change. Priority is based on a condition rating system.

Year	Project	Cost Estimate
2019	Indian Creek Culverts and Conveyance Modifications—This project will make modifications to the streambeds at the confluence of Indian and Moxlie Creeks to reduce culvert maintenance and prevent plugging and potential flooding. This project is partially funded by GFCs.	\$ 467,300
2020	Coleman, Bing and Walnut Conveyance—This project will replace an existing regional conveyance system in the vicinity of Coleman Avenue, Bing Street and Walnut Road will be replaced. The current stormwater system was installed by private properties over a period of many years. Due to increasing regional flows using the system, the City took over its maintenance and operation. This project is partially funded by GFCs.	\$ 486,400
2020	Division and Scammel Conveyance—The project will correct deficiencies in the stormwater conveyance system capacity and reduce the potential for flooding along Division Street. This project is partially funded by GFCs.	\$ 552,900

Justification (Need/Demand)

The stormwater infrastructure needs repairs and upgrade to prevent flooding and update aging components. This program replaces parts of the existing system based on televising and a condition pipe rating system. Flooding problems have been reduced in recent years through capital development. However, some regional and localized problems still exist.

Comprehensive Plan and Functional Plan(s) Citations

This program implements the following Olympia Comprehensive Plan goals and policies:

GU 10: The frequency and severity of flooding are reduced and hazards are eliminated, except during major storm events.

PU 10.1: Improve stormwater systems in areas that are vulnerable to flooding.

PU 10.3: Evaluate the structural integrity of aging stormwater pipes and repair as needed.

PU 10.6: Ensure that private pipe and pond systems are maintained.

Capital Costs:	2016	2017-2021	Total
Construction	\$ 427,675	\$ 5,858,725	\$ 6,286,400
Design & Engineering	\$ 91,825	\$ 1,632,575	\$ 1,724,400
TOTAL	\$ 519,500	\$ 7,491,300	\$ 8,010,800

Funding Sources:	2016	2017-2021	Total
General Facility Charges	\$ -	\$ 2,371,650	\$ 2,371,650
Rates	\$ 519,500	\$ 5,119,650	\$ 5,639,150
TOTAL	\$ 519,500	\$ 7,491,300	\$ 8,010,800

Annual Operations and Maintenance

Estimated Costs	Not yet determined
Estimated Revenues	N/A
Anticipated Savings Due to Project	Decreases likelihood of system failure
Department Responsible for Operations	Public Works
Quadrant Location	Citywide



INFRASTRUCTURE PRE-DESIGN & PLANNING - STORMWATER (PROGRAM #9903)

Location City stormwater service area.

Links to Other Projects or Facilities Flood Mitigation and Collection—Storm and Surface Water Section

Description This program provides funds for specific pre-design and planning efforts associated with the stormwater system construction, including emergency projects. Additional funding is provided under the program for pervious pavement contingency/repair work. Funding for pre-design is not needed at the present time, but could be requested in future CFPs.

Project List

YEAR	PROJECT	COST ESTIMATE
2016-2021	Pervious Pavement Contingency Fund—This project provides a means for the City to manage one of its key innovative technologies, pervious pavement in sidewalks. In the long run, the technology is seen as an effective means for managing stormwater runoff. However, in the short-term, some level of problems or failures can be expected. The contingency fund is jointly funded by the General Fund and Stormwater as pervious pavement projects are built. The fund builds over time and is used to repair or mitigate the impacts of a potential failure of pervious pavement projects.	\$ 170,400

Justification (Need/Demand) New technologies for stormwater management are needed. This program supports applied research in the area of pervious pavement. The work is supported by City policy decisions.

Other potential projects in this program evaluate future projects prior to their appropriation in the annual Capital Facilities Plan to ensure accurate scope of work, cost estimates, and a full evaluation of project alternatives. Initial work on emergencies and other unanticipated needs can be funded at a limited level under this program.

Comprehensive Plan and Functional Plan(s) Citations This program implements the following Olympia Comprehensive Plan goals and policies:

PU 3.9: Ensure consistent maintenance, asset management, and emergency management practices for all utilities.

Water Quality Improvements

This program implements the following Olympia Comprehensive Plan goals and policies:

GN 4: The waters and natural processes of Budd Inlet and other marine waters are protected from degrading impacts and significantly improved through upland and shoreline preservation and restoration.

Capital Costs:	2016	2017-2021	Total
Pre-Design & Planning	\$ 28,400	\$ 142,000	\$ 170,400
TOTAL	\$ 28,400	\$ 142,000	\$ 170,400

Funding Sources:	2016	2017-2021	Total
Rates	\$ 28,400	\$ 142,000	\$ 170,400
TOTAL	\$ 28,400	\$ 142,000	\$ 170,400

Annual Operations and Maintenance	
Estimated Costs	N/A
Estimated Revenues	N/A
Anticipated Savings Due to Project	N/A
Department Responsible for Operations	Public Works
Quadrant Location	Citywide





WATER QUALITY IMPROVEMENTS (PROGRAM #9027)

Location Various locations Citywide. See Project List.

Links to Other Projects or Facilities N/A

Description Continue to improve water quality in Olympia’s creeks, wetlands, lakes, and marine environments through projects that treat contaminated stormwater runoff. Projects are identified and prioritized based on Citywide needs. Water quality projects are subject to grant and/or loan funding.

Project List	YEAR	PROJECT	COST ESTIMATE
	2016	East Bay Water Quality Retrofit–The project would provide water quality treatment for a portion of East Bay Drive which discharges directly to Budd Inlet. Approximately 1,000 linear feet of the center turn lane, north of Glass Avenue, would be replaced with bioretention facilities (rain gardens).	\$ 761,300*
	2018	Capitol Way Water Quality Retrofit–The project would construct a water quality treatment facility to treat runoff from an area roughly bounded by Capitol Way, Adams Street, 7th Avenue and Union Avenue. The drainage basin is tributary to Capitol Lake and comprises approximately 20 fully developed acres.	\$ 472,900*
	2018	Harrison Avenue Water Quality Retrofit–A water quality treatment facility would be constructed to treat runoff from Harrison Avenue between West Bay Drive and Milroy Street. The Harrison Avenue drainage basin is tributary to Budd Inlet and comprises more than 20 acres zoned predominately high density corridor.	\$ 523,500*
	2019	Evergreen Park Drive Treatment Facility–This project would create a stormwater treatment facility for currently untreated runoff from Evergreen Park Drive. The project shall evaluate different treatment technologies and locations for the project. It shall also evaluate providing water quality treatment for water which currently discharges directly to Capital Lake or to Percival Cove.	\$ 360,600*
	2021	Plum Street Water Quality Retrofit–The project would construct water quality facilities providing treatment of stormwater runoff from Plum Street and areas east to Quince Street, zoned Downtown Business, Professional Office, High Density Commercial Service, and Residential Mixed Use. The Plum Street arterial and adjacent areas are tributary to Moxlie Creek and comprise approximately 42 acres of untreated high use area..	\$ 800,000*
* These projects, if qualified, will be 75% funded with available stormwater grants and loans.			

Justification (Need/Demand) Managing water quality problems associated with stormwater runoff is a primary responsibility of the Storm and Surface Water Utility. Increasingly stringent Federal and State requirements (e.g., National Pollutant Discharge Elimination System) necessitate increased efforts to manage water quality.

Comprehensive Plan and Functional Plan(s) Citations This program implements the following Olympia Comprehensive Plan goals and policies:
 GN 4: The waters and natural processes of Budd Inlet and other marine waters are protected from degrading impacts and significantly improved through upland and shoreline preservation and restoration.
 GN 5: Ground and surface waters are protected from land uses and activities that harm water quality and quantity.
 PN 5.3: Retrofit existing infrastructure for stormwater treatment in areas with little or no treatment.

WATER QUALITY IMPROVEMENTS (PROGRAM #9027) CONTINUED

Capital Costs:	2016	2017-2021	Total
Construction	\$ 539,000	\$ 1,667,570	\$ 2,206,570
Design & Engineering	\$ 222,300	\$ 489,430	\$ 711,730
TOTAL	\$ 761,300	\$2,157,000	\$ 2,918,300

Funding Sources:	2016	2017-2021	Total
Grant	\$ 570,975	\$ 1,617,750	\$ 2,188,725
Rates	\$ 190,325	\$ 539,250	\$ 729,575
TOTAL	\$ 761,300	\$2,157,000	\$ 2,918,300

Annual Operations and Maintenance

Estimated Costs	4th Ave Treatment Facility:.....	\$ 10,000 annually
	East Bay Water Quality Retrofit:.....	\$ 4,000 annually
	Harrison Ave Treatment Facility:.....	\$ 10,000 annually
	Capitol Way Treatment Facility:.....	\$ 6,000 annually
	Evergreen Park Dr Treatment Facility:.....	\$ 4,000 annually

Estimated Revenues	N/A
Anticipated Savings Due to Project	N/A
Department Responsible for Operations	Public Works
Quadrant Location	Citywide

