PIERCE COUNTY
FLOOD CONTROL
ZONE DISTRICT

2017 - 2022
Capital Improvement Program



The Nisqually River near SR 706 and the Entrance to Mt. Rainier National Park
(Location of the Upper Nisqually Revetment Retrofit Project)

PIERCE COUNTY
FLOOD CONTROL
ZONE DISTRICT

Alward Road Acquisition & Setback Levee

Project # C4
Ranking 4



Project Area Southeast of the City of Orting



Flooding 2006



Carbon River near Alward Road 2008

Project Summary

Description	Acquire property along Alward Road and remove structures (Phase 1); construct a setback levee and install engineered log jams (ELJs) (Phase 2)
Location	Carbon River, left bank RM 6.4 - 8.3. County Council District 1
Sponsor	Pierce County
Benefit	Increased protection of Alward Road
Schedule	Currently purchasing property from willing sellers; long-term project dependent on grant funding
Notes	Since 1990, forty-nine properties have been purchased and structures removed; thirty-two additional properties have been identified for purchase
2017 Outcomes	Purchase additional properties

Project Cost & Funding

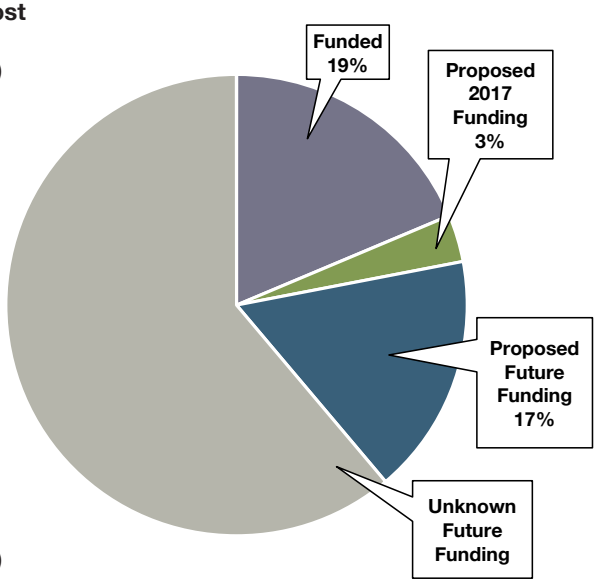
Estimated Project Cost
$14 million (Phase 1)
$15.6 million (Phase 2)

Funded
SWM = $605,586
Grants = $4 million
FCZD = $953,100

Proposed 2017
SWM = $675,000
FCZD = $300,000

Proposed Future**
SWM = $2.6 million
FCZD = $2.4 million

Unknown
$2.5 million (Phase 1)
$15.6 million (Phase 2)



** Per 2017 - 2022 CIP; dependent on SWM revenue and FCZD Board of Supervisors' approval

PIERCE COUNTY
FLOOD CONTROL
ZONE DISTRICT

Carbon River Bank Stabilization

Project # C2
Ranking 9



Project Area



Project Area near the City of Orting



Levee near Project Area

Project Summary

Description	Construct engineered log jams (ELJs) to deflect flow and install a box culvert on Cheese Creek
Location	Carbon River, left bank RM 3.2 - 4.9 County Council District 1
Sponsor	Pierce County
Benefit	Increased protection of existing levee and Foothills Trail
Schedule	Construction in 2021
Notes	In 2016, SWM applied for a Salmon Recovery Funding Board (SRFB) grant for feasibility study
2017 Outcomes	Project feasibility study if grant is awarded

Project Cost & Funding

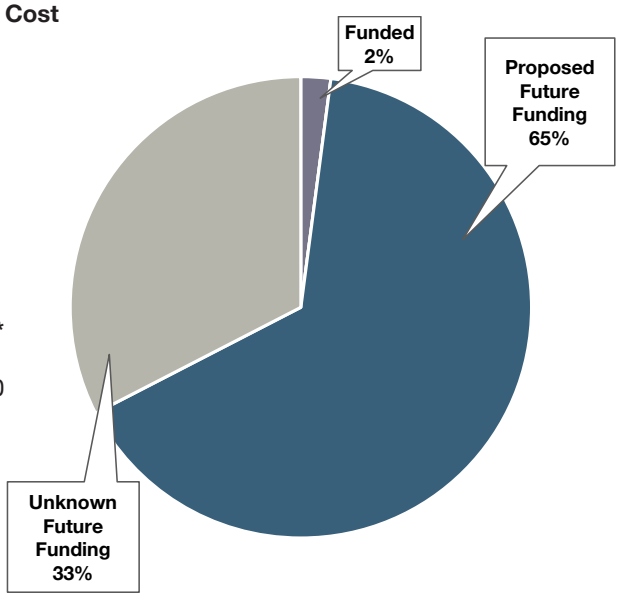
Estimated Project Cost
$2.8 million

Funded
SWM = $30,000
FCZD = $30,000

Proposed 2017
SWM = $0
FCZD = $0

Proposed Future**
SWM = $514,000
FCZD = $1,368,000

Unknown
$938,000



** Per 2017 - 2022 CIP; dependent on SWM revenue and FCZD Board of Supervisors' approval

PIERCE COUNTY
FLOOD CONTROL
ZONE DISTRICT

Calistoga Setback Levee

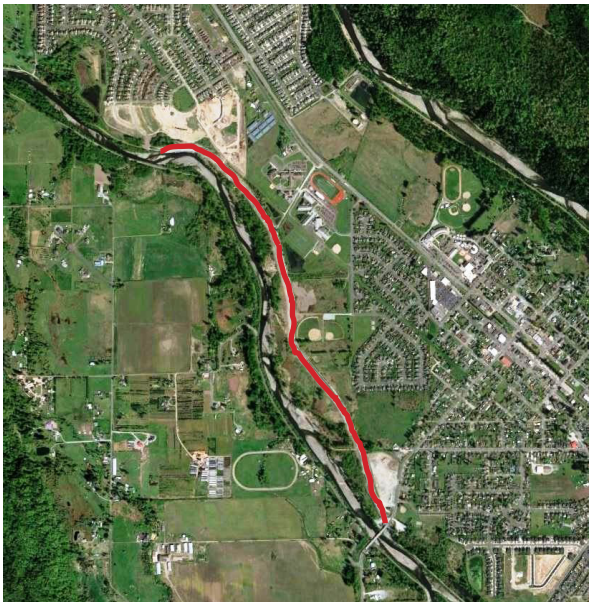
Project # UP1



Setback Levee During Construction



Building Setback Levee



Setback Levee in the City of Orting

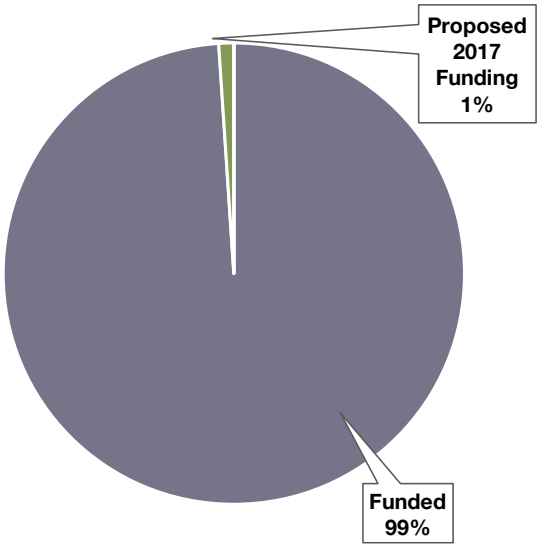
Project Summary	
Description	A 1.5 mile setback levee that reconnected 46 acres of floodplain to the Puyallup River
Location	Puyallup River, right bank; near the City of Orting; County Council District 1
Sponsor	City of Orting
Benefit	Increased protection of the City of Orting and surrounding area
Schedule	Completed in 2015
Notes	Currently pursuing levee accreditation through FEMA's Levee Analysis and Mapping Procedure (LAMP)
2017 Outcomes	Levee accreditation

Project Cost & Funding

Project Cost
$19 million

Funded
Orting = $2.2 million
Grants = $7.7 million
FCZD = $9 million

Proposed 2017
FCZD = $200,000



PIERCE COUNTY
FLOOD CONTROL
ZONE DISTRICT

Clear Creek Acquisition & Levee

Project # LP2
Ranking 5



Approximate Location of New Levee



Flooding 2009



Flooding October 2015

Project Summary

Description	Acquire property and remove structures (Phase 1); construct a new levee along Clear Creek and remove flood gates on the Puyallup River (Phase 2)
Location	Puyallup River, left bank RM 2.9 and Clear Creek; County Council District 5
Sponsor	Pierce County
Benefit	Increased protection of commercial and residential structures
Schedule	Currently purchasing property from willing sellers; long-term project dependent on grant funding
Notes	A portion of a Floodplain by Design grant ($3.2 million) will be used in 2016 -2017 to purchase property and support agriculture
2017 Outcomes	Project design and property purchases

Project Cost & Funding

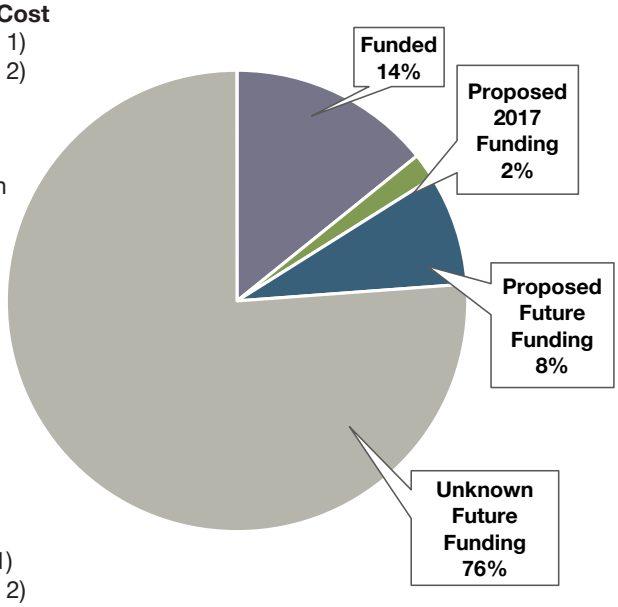
Estimated Project Cost
$15.1 million (Phase 1)
$39.9 million (Phase 2)

Funded
SWM = $733,779
Grants = $6.6 million
FCZD = $502,403

Proposed 2017
SWM = $30,000
Grants = $1 million
FCZD = $0

Proposed Future**
SWM = $460,000
FCZD = $3.8 million

Unknown
$2.1 million (Phase 1)
$39.9 million (Phase 2)



** Per 2017 - 2022 CIP; dependent on SWM revenue and FCZD Board of Supervisors' approval

PIERCE COUNTY
FLOOD CONTROL
ZONE DISTRICT

Neadham Road Acquisition & Revetment

Project # UP3
Ranking 7



Project Area



Flooding on Neadham Road 2006

Project Summary

Description	Acquire property along Neadham Road and remove the road, residential structures, and the remnant levee; install engineered log jams (ELJs) and a revetment along Brooks Road
Location	Puyallup River, right bank RM 25.3 - 26.9. County Council District 1
Sponsor	Pierce County
Benefit	Increased protection of Brooks Road
Schedule	Anticipate purchasing remaining properties in 2016 - 2017; construction is 2020 or sooner if funds are available
Notes	
2017 Outcomes	Property purchases and project design

Project Cost & Funding

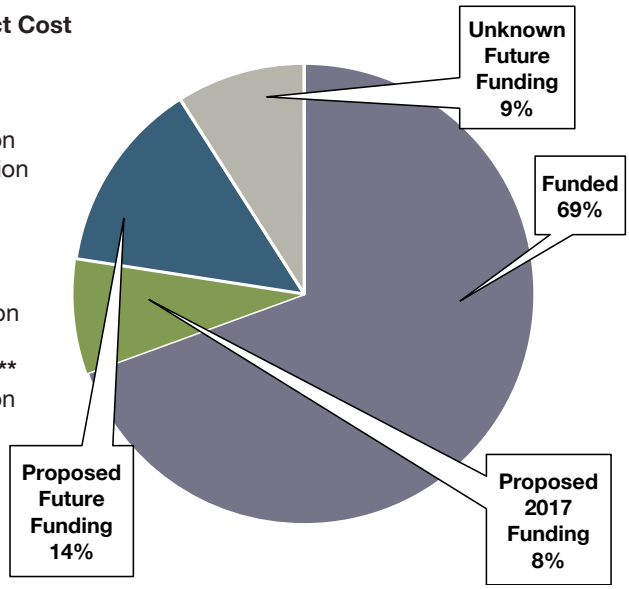
Estimated Project Cost
$15.4 million

Funded
SWM = $3.2 million
Grants = $6.9 million
FCZD = $606,000

Proposed 2017
SWM = $140,000
FCZD = $1.1 million

Proposed Future**
SWM = $1.1 million
FCZD = $1 million

Unknown
$1.4 million

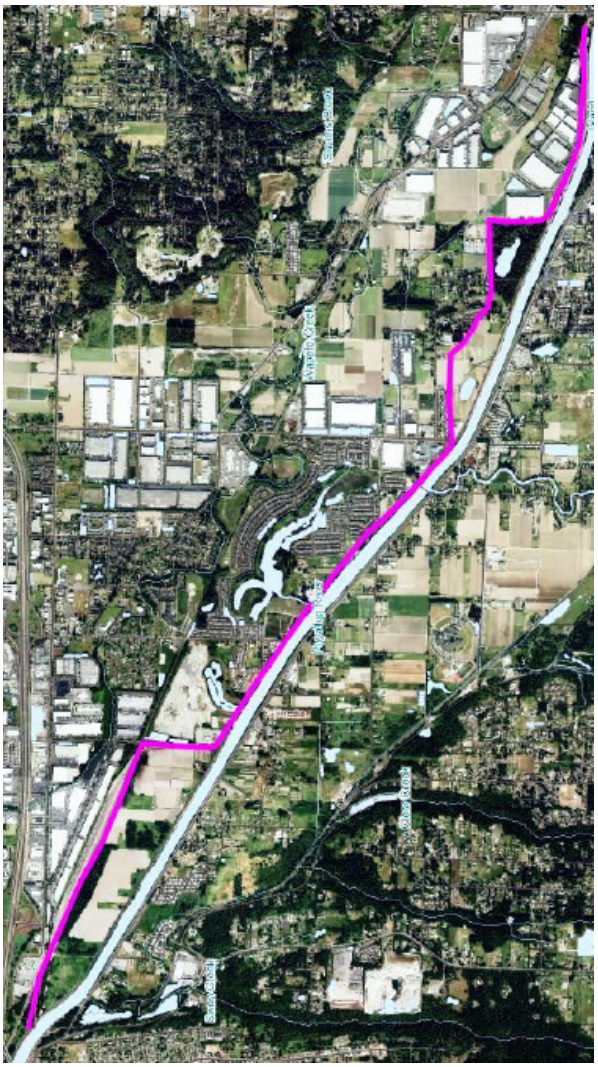


** Per 2017 - 2022 CIP; dependent on SWM revenue and FCZD Board of Supervisors' approval

PIERCE COUNTY
FLOOD CONTROL
ZONE DISTRICT

North Levee Road Setback Levee

Project # LP4
Ranking 2



Approximate Location of Setback Levee



Puyallup River within Existing Levee

Project Summary

Description	Scope project (Phase 1); construct a new levee setback from the existing levee along North Levee Road (Phase 2)
Location	Puyallup River, right bank RM 2.9 - 3.1 County Council Districts 2 & 5
Sponsor	Pierce County
Benefit	Increased protection of Fife, Tacoma, I-5 and the Port of Tacoma
Schedule	Currently scoping project; long term project dependent on grant and federal funding
Notes	Recommended project in the U.S. Army Corp's General Investigation (G.I.) Tentatively Selected Plan; project on hold pending G.I approval and funding.
2017 Outcomes	Additional project scoping

Project Cost & Funding

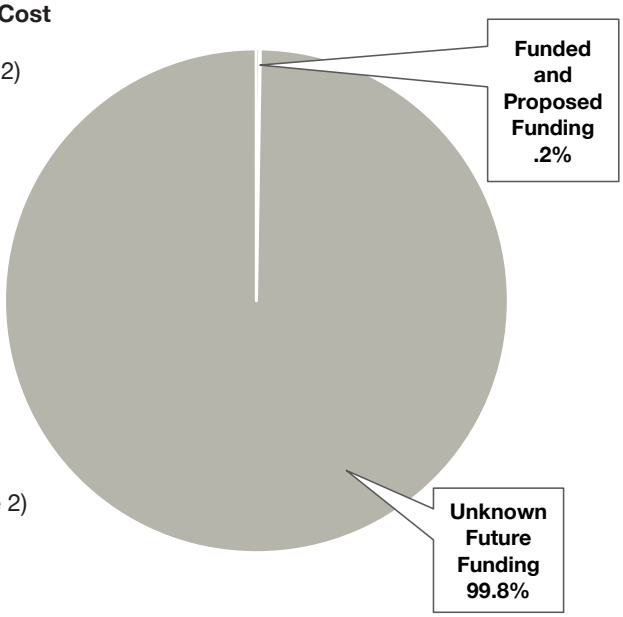
Estimated Project Cost
$244,451 (Phase 1)
$104 million (Phase 2)

Funded
SWM = $20,970
FCZD = $193,481

Proposed 2017
SWM = $30,000
FCZD = $0

Proposed Future**
SWM = $0
FCZD = $0

Unknown
$104 million (Phase 2)



** Per 2017 - 2022 CIP; dependent on SWM revenue and FCZD Board of Supervisors' approval

PIERCE COUNTY
FLOOD CONTROL
ZONE DISTRICT

Orville Road Revetment (Kapowsin Creek)

Project # UP4
Ranking 8



Project Area South of the City of Orting



Project Area



ELJs Constructed Upriver (Orville Road Phase 1)

Project Summary

Description	Construct a revetment along Orville Road and install engineered log jams (ELJs)
Location	Puyallup River, left bank RM 26.2 - 26.6 County Council District 3
Sponsor	Pierce County
Benefit	Increased protection of Orville Road
Schedule	Design and permitting 2017 - 2020; construction in 2021
Notes	Adjacent to Kapowsin Creek; monitoring river conditions to inform project design
2017 Outcomes	Initial project design

Project Cost & Funding

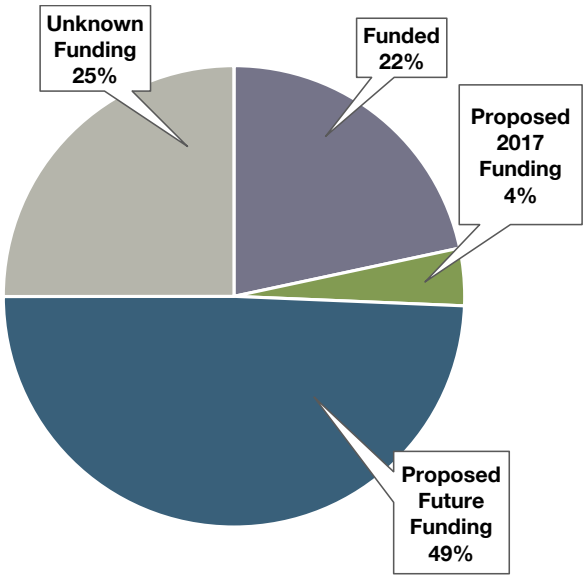
Estimated Project Cost
$7 million

Funded
SWM = $1.1 million
Grants = $175,000
FCZD = $202,920

Proposed 2017
SWM = $280,000
FCZD = $0

Proposed Future**
SWM = $950,000
FCZD = $2.5 million

Unknown
$1.8 million



** Per 2017 - 2022 CIP; dependent on SWM revenue and FCZD Board of Supervisors' approval

PIERCE COUNTY
FLOOD CONTROL
ZONE DISTRICT

Orville Road Revetment (Phase 2)

Project # UP5
Ranking 6



Project Area



Flooding near Orville Road 2008

Project Summary

Description	Acquire property along Orville Road and construct a revetment and engineered log jams (ELJs)
Location	Puyallup River, left bank RM 26.3 - 28.6 County Council District 3
Sponsor	Pierce County
Benefit	Increased protection of Orville Road
Schedule	Construction in 2017 - 2012
Notes	Long term solution is to relocate Orville Road out of the floodplain; Phase 1 (completed) included ELJs downriver from Phase 2
2017 Outcomes	Begin construction of project area outside the ordinary high water mark

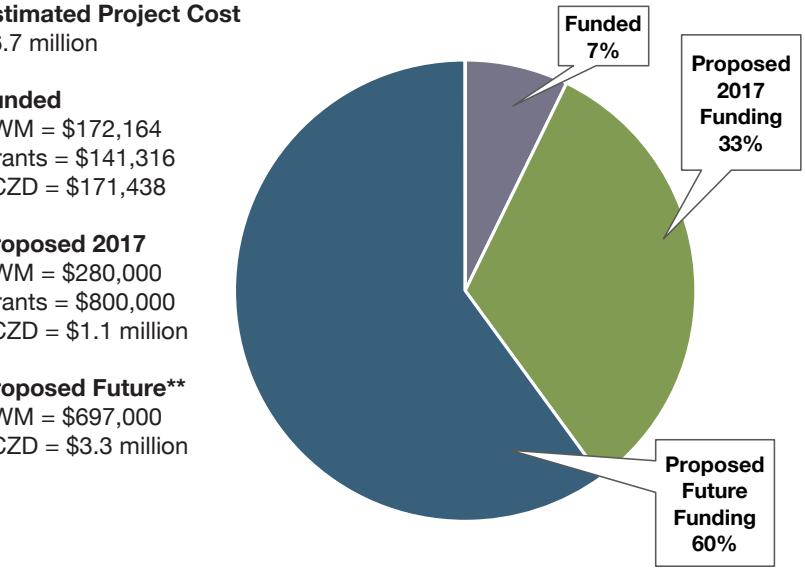
Project Cost & Funding

Estimated Project Cost
$6.7 million

Funded
SWM = $172,164
Grants = $141,316
FCZD = $171,438

Proposed 2017
SWM = $280,000
Grants = $800,000
FCZD = $1.1 million

Proposed Future**
SWM = $697,000
FCZD = $3.3 million

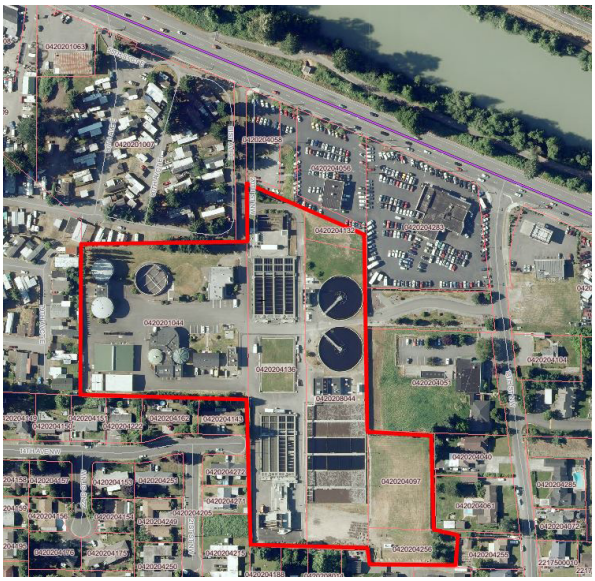


** Per 2017 - 2022 CIP; dependent on SWM revenue and FCZD Board of Supervisors' approval

PIERCE COUNTY
FLOOD CONTROL
ZONE DISTRICT

Puyallup Wastewater Treatment Plant Flood Protection

Project # LP5
Ranking 3



Project Area in the City of Puyallup



Flood Walls will be Installed for the Digester



The Gas Flare Control System will be Raised

Project Summary	
Description	Improve facilities and equipment to allow plant operation during a flood and prevent flood damage; new access road, relocating and raising equipment, flood walls and floodproofing
Location	Puyallup River, left bank RM 6.8 - 6.9. County Council District 2
Sponsor	City of Puyallup
Benefit	Increased protection of the Puyallup wastewater treatment plant
Schedule	Project design in 2016; construction in 2017
Notes	
2017 Outcomes	Project construction

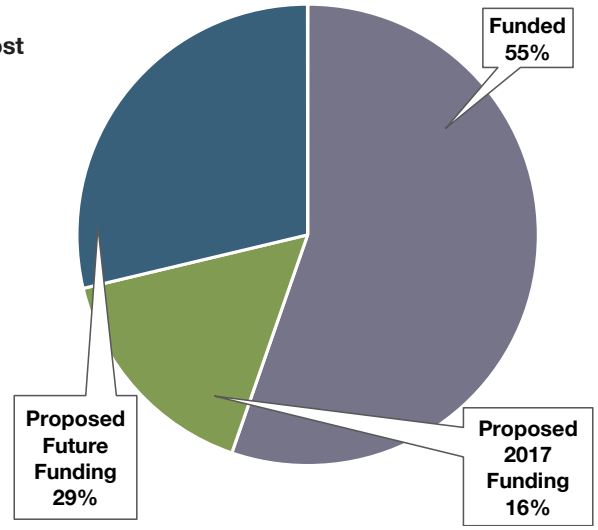
Project Cost & Funding

Estimated Project Cost
$6.3 million

Funded
CITY = $3,468,250
FCZD = $32,058

Proposed 2017
FCZD = $1,000,000

Proposed Future**
FCZD = $1.8 million



** Per 2017 - 2022 CIP; dependent on City of Puyallup revenue and FCZD Board of Supervisors' approval

PIERCE COUNTY
FLOOD CONTROL ZONE DISTRICT

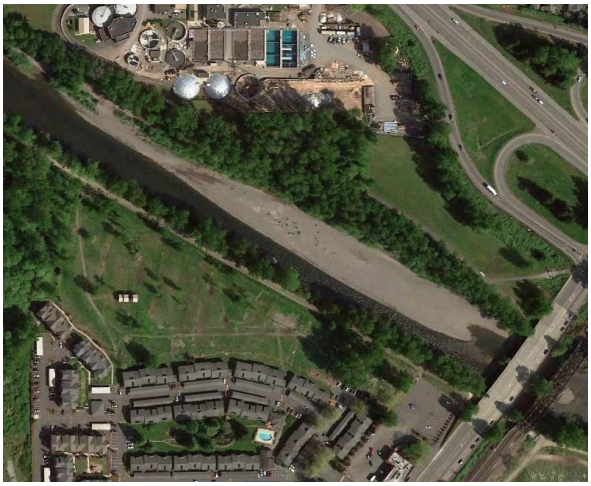
Sediment Management as a Risk Reduction Tool



Sediment in the Puyallup River



Carbon River Rails to Trails



Sediment in the Puyallup River near Sumner

Project Summary	
Description	Pilot project study to determine if targeted sediment removal is feasible and effective
Location	Puyallup River Watershed
Sponsor	Flood Control Zone District
Benefit	A posssible tool to reduce flood hazard risk in areas where it would be difficult to implement other strategies, such as setback levees
Schedule	Anticipate completing pilot project study in 2018 or 2019
Notes	This is a pilot project study and will only look at one location; any potential future locations will require additional environmental and technical analysis
2017 Outcomes	Technical analysis and Environmental Impact Statement (EIS)

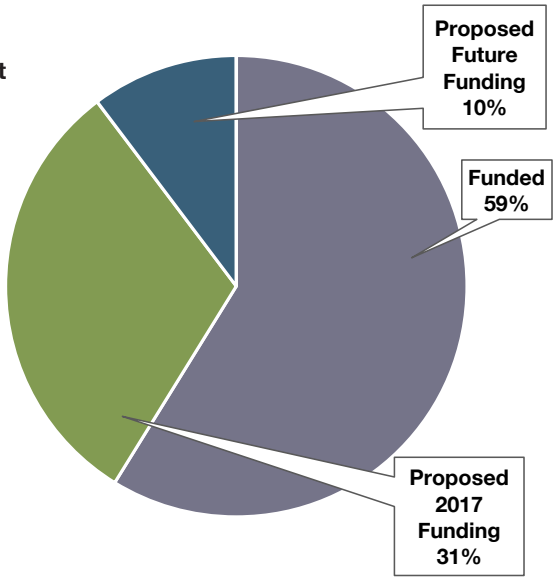
Project Cost & Funding

Estimated Project Cost
$2.9 million

Funded
SWM = $302,343
FCZD = $1.4 million

Proposed 2017
FCZD = $900,000

Proposed Future**
FCZD = $300,000



** Per 2017 - 2022 CIP; dependent on FCZD Board of Supervisors' approval

PIERCE COUNTY
FLOOD CONTROL
ZONE DISTRICT

Project # LP1

Tacoma Wastewater Treatment Plant Flood Wall



Tacoma Wastewater Treatment Plant



Flood Wall Ranges in Height from 1' to 8'

Project Summary	
Description	Construct a 2,500 foot long flood wall on the east, west and south sides of the Tacoma Wastewater Treatment Plant
Location	Puyallup River, left bank RM 2.9 - 3.1 County Council District 4
Sponsor	City of Tacoma
Benefit	Increased protection of the wastewater treatment plant and preventing untreated wastewater to overflow into Puget Sound
Schedule	Completed in 2015
Notes	FCZD committed to reimbursing the City of Tacoma $1 million a year through 2019

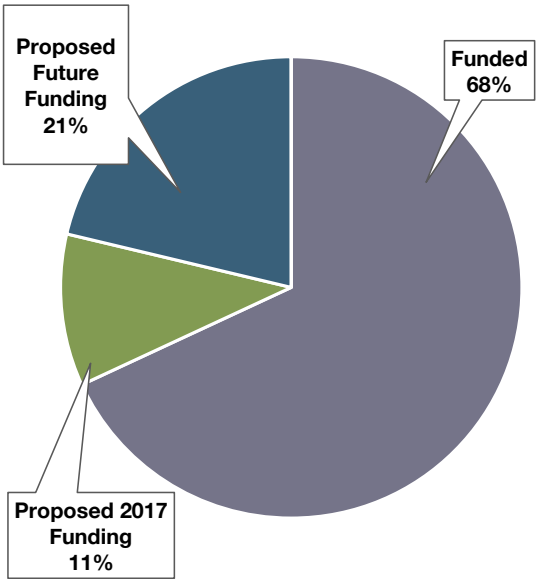
Project Cost & Funding

Project Cost
$9.4 million

Funded
CITY = $3.4 million
FCZD = $3 million

Proposed 2017
FCZD = $1 million

Proposed Future**
FCZD = $2 million



** Per 2017 - 2022 CIP; dependent on FCZD Board of Supervisors' approval

PIERCE COUNTY
FLOOD CONTROL
ZONE DISTRICT

Upper Nisqually Revetment Retrofit

Project # UN2
Ranking 1



Project Area Adjacent to HIghway 706



Nisqualy River Adjacent to Highway 706



Channel Migration during 2008 Flood Event

Project Summary

Description	Construct 28 rock "deflectors" adjacent to existing revetment and levee to deflect flows away from Hwy 706 near the entrance to Mt. Rainier National Park
Location	Nisqually River, right bank RM 64.9 - 65.3. County Council District 3
Sponsor	Pierce County
Benefit	Increased protection of Highway 706, the highway to the main entrance to Mt. Rainier National Park
Schedule	Construction in 2018
Notes	Revetment damaged in 2015 flooding; needs repair in 2016
2017 Outcomes	Permitting and final design

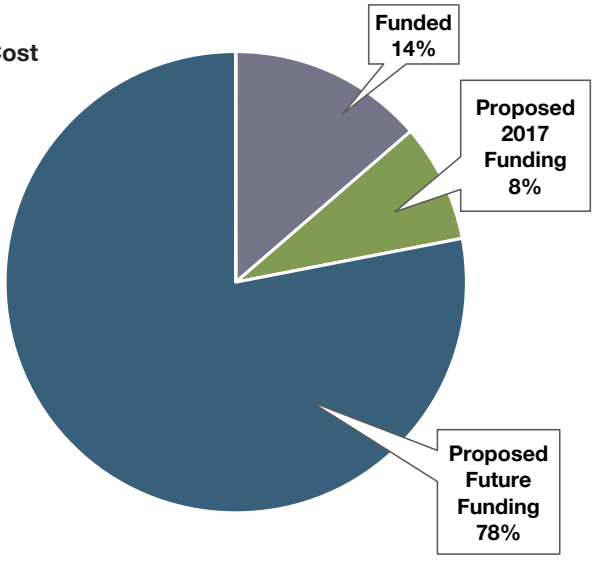
Project Cost & Funding

Estimated Project Cost
$1.4 million

Funded
SWM = $78,866
FCZD = $119,031

Proposed 2017
SWM = $60,000
FCZD = $60,000

Proposed Future**
SWM = $30,000
FCZD = $1.1 million



** Per 2017 - 2022 CIP; dependent on SWM revenue and FCZD Board of Supervisors' approval