

## 4.0 SERVICE AREA AND INFRASTRUCTURE DETAIL



### 4.1 Administration: Public Buildings

#### Overview

Kitsap County's public buildings, which include government administrative offices, courtrooms, juvenile justice, maintenance facilities, and community centers, serve the county as a whole, including incorporated and unincorporated populations.



Kitsap County Administration Building  
[www.wbdg.org](http://www.wbdg.org)



Kitsap County Coroner's Office

#### Inventory of Current Facilities

Exhibit 4-1 shows the location and size of each public building. The 2015 inventory shows that the County has approximately 193,350 square feet of administrative courthouse campus space, 106,417 square feet of administration space, 69,560 square feet of buildings serviced by parks space, 89,456 square feet of maintenance facilities, and 50,850 square feet of community centers space. In total, Kitsap County has approximately 509,633 square feet of public building space.

**Exhibit 4-1. County Public Buildings: Current Facilities Inventory (2015)**

Facility	Location	Size (Sq Ft)
<b>Administrative Courthouse Campus</b>		
Courthouse (includes 4 district and 7 superior) courtrooms)	614 Division Street, Port Orchard	105,000
Bullard Building		8,000
New Administration Building	619 Division Street, Port Orchard	80,350
<b>Total Administrative Courthouse Campus</b>		<b>193,350</b>
<b>Corrections Facility</b>		
Juvenile Jail Facility		35 beds
<b>Total Corrections Facility</b>		<b>35 beds</b>
<b>Other Administrative Facilities</b>		
Child Support*	730 Prospect, Port Orchard (Leased Building)	6,400
Public Works Annex	8600 SW Imperial Way, Port Orchard	44,978
Kingston Precinct/Commissioners**	26076 Illinois Avenue NE, Kingston (Leased)	1,200
KITZ Building - BKAT	7266 Tibardis Rd, Bremerton	2,000
Coroner/Morgue	5010 Linden, Bremerton	8,459
Recovery Center	1975 Fuson Road, Bremerton	13,000
CenCom & DEM***	5050 Linden, Bremerton	24,680
SAU Buliding	715 Sidney	5,700
<b>Total Administration</b>		<b>106,417</b>
<b>Buildings Serviced by Parks</b>		
Parks and Recreation Administration Office	1201 NW Fairgrounds Road, Bremerton	8,000
Fair Administration Office	1300 NW Fairgrounds Road, Bremerton	2,560
Fairgrounds Pavillion	1200 NW Fairgrounds Road, Bremerton	39,000
Presidents' Hall	1250 NW Fairgrounds Road, Bremerton	20,000
<b>Total Buildings Serviced by Parks</b>		<b>69,560</b>
<b>Maintenance Facilities</b>		
General Facilities Maintenance	717 Taylor Street, Port Orchard	7,900
Public Works Maintenance	1971 Seabeck Rd NE	38,697
Public Works Maintenance	2339 Cedar Road SW	21,495
Public Works Maintenance	301 Berndt Road NE	21,364
<b>Total Maintenance Facilities</b>		<b>89,456</b>
<b>Community Centers</b>		
Givens Community Center	1026 Sidney Avenue, Port Orchard	46,850
Kingston Community Center	11212 State Hwy 104, Kingston	4,000
<b>Total Community Centers</b>		<b>50,850</b>
<b>Total Public Buildings</b>		<b>509,633</b>

Notes:

\*Private building.

\*\* Buildings are privately owned, and rented by County staff.

\*\*\*Although CenCom is officially a County Department, it essentially operates as a separate entity and is operationally guided by a Policy Board consisting of County Commissioners, Mayors, and Fire Commissioners. Its building is managed and funded separately from Facilities Maintenance Capital Improvement Plans (CIP's). DEM has been historically housed with CenCom.

Source: Personal Communication with Bud Harris, Director of Kitsap County Department of Information Services, 2015; BERK, 2016.

## Level of Service Analysis

### County Administration Buildings

The County's Level of Service (LOS) for County Administration buildings is 952 square feet per 1,000 countywide population. This level was adopted in the 2012 Capital Facilities Plan Update and reflected a decrease from the previous LOS. Currently, the County has a deficit in County administration space, as shown in Exhibit 4-2. However, the County has been moving towards a more lean administration process, with the adoption of Six Sigma tools, backing up data to the cloud rather than keeping physical files, and flextime and telecommuting options for workers. A portion of the recent budget's requisition process included a study to consider how best to use County administration space.

**Exhibit 4-2. County Administration Buildings: LOS Requirements Analysis**

Time Period	Kitsap Countywide Population	Square Feet Needed to Meet LOS Standard	Current Square Feet Available	Net Reserve or Deficit
Current LOS Standard = 952 square feet per 1,000 population				
2015	258,200	245,806	106,417	(139,389)
2021 Preferred Alternative	278,691	265,314	106,417	(158,897)
2036 Preferred Alternative	333,053	317,067	106,417	(210,650)

Source: Personal Communication with Bud Harris, Director of Kitsap County Department of Information Service, 2015; BERK, 2016.

To address future LOS deficiencies, the County can lower its LOS standards to reflect space efficiencies, as shown in Exhibit 4-3.

**Exhibit 4-3. Potential LOS Adjustments for County Administration Buildings**

Alternative	Target LOS	Estimated Deficiency	LOS Needed to Address Deficiency (SF/ 1000 people)
2015	952 square feet per 1,000 population	(139,389)	412
2021 Preferred Alternative	952 square feet per 1,000 population	(158,897)	382
2036 Preferred Alternative	952 square feet per 1,000 population	(210,650)	320

Source: Kitsap County, 2015; BERK, 2016.

### County Maintenance Facilities

The LOS for County Maintenance Facilities is 109 square feet per 1,000 population. Currently and within the 6-year and 20-year planning periods, the County will be able to meet the County Maintenance Facility LOS standard, as shown in Exhibit 4-4. To be efficient with public funds, the County has outsourced its custodial services to a private company

**Exhibit 4-4. LOS Requirements Analysis – County Maintenance Facilities**

Time Period	Kitsap Countywide Population	Square Feet Needed to Meet LOS Standard	Current Square Feet Available	Net Reserve or Deficit
Current LOS Standard = 109 square feet per 1,000 population				
2015	258,200	28,144	89,456	61,312
2021 Preferred Alternative	278,691	30,377	89,456	59,079
2036 Preferred Alternative	333,053	36,303	89,456	53,153

Source: Personal Communication with Bud Harris, Director of Kitsap County Department of Information Service, 2015; BERK, 2016.

### County District Courtrooms

The LOS for County District Courtrooms is currently 0.012 courtrooms per 1,000 population. As shown in Exhibit 4-5, the County will not have a reserve of district courtrooms in 2036 and may need to build new courtrooms to accommodate population growth. To meet this need, the County plans to build a new complex, which will house the courthouse with additional courtrooms, as well as the Human Services Office and the Aging and Long-Term Care Office. A space needs analysis is pending.

**Exhibit 4-5. LOS Requirements Analysis – County District Courtrooms**

Time Period	Kitsap Countywide Population	Courtrooms Needed to Meet LOS Standard	Current Courtrooms Available	Net Reserve or Deficit
Current LOS Standard = 0.012 courtrooms per 1,000 population				
2015	258,200	3	4	1
2021 Preferred Alternative	278,691	3	4	1
2036 Preferred Alternative	333,053	4	4	0

Source: Personal Communication with Bud Harris, Director of Kitsap County Department of Information Service, 2015; BERK, 2016.

### County Superior Courtrooms

The LOS for County Superior Courtrooms is 0.021 courtrooms per 1,000 population. As shown in Exhibit 4-6, the County does not currently have a deficit of County Superior Courtrooms over the next 20 years; however, in 2036, the County will have a reserve of zero County Superior Courtrooms and may need to build new courtrooms to accommodate population growth. To meet this need, the County plans to build a new complex, which will house the courthouse with additional courtrooms as well as the Human Services Office and the Aging and Long-Term Care Office. A space needs analysis is pending.

**Exhibit 4-6. LOS Requirement Analysis – County Superior Courtrooms**

Time Period	Kitsap Countywide Population	Courtrooms Needed to Meet LOS Standard	Current Courtrooms Available	Net Reserve or Deficit
Current LOS Standard = 0.021 courtrooms per 1,000 population				
2015	258,200	5	7	2
2021 Preferred Alternative	278,691	6	7	1
2036 Preferred Alternative	333,053	7	7	0

Source: Personal Communication with Bud Harris, Director of Kitsap County Department of Information Service, 2015; BERK, 2016.

### Juvenile Jail Facility

The Juvenile Jail facility is overseen by the Superior Court. The current LOS for juvenile facilities is 0.084 beds per 1,000 population. The County is currently meeting the LOS standard, and has a surplus of 13 beds, as shown in Exhibit 4-7. This surplus is projected to decline to seven beds by 2036.

**Exhibit 4-7. LOS Requirement Analysis – Juvenile Jail Facility**

Time Period	Kitsap Countywide Population	Beds Needed to Meet LOS Standards	Beds Available	Net Reserve or Deficit
Current LOS Standard = 0.084 Beds per 1,000 Population				
2015	258,200	22	35	13
2021 Preferred Alternative	278,691	23	35	12
2036 Preferred Alternative	333,053	28	35	7

Source: David J. White, Chief of Detectives at Kitsap County Sheriff’s Office, 2015; BERK, 2016.

**County Community Centers**

The LOS for County community centers is 200 square feet per 1,000 population. The County currently has a deficit of 790 square feet, as shown in Exhibit 4-8. Additionally, there is no community center space in Silverdale, the community center in North Kitsap (Kingston) will require a move and replacement due to a road project, and the South Kitsap (Givens) facility is outdated and undersized. This is discussed in more detail in the next section, Public Buildings Capital Projects and Funding. The projected deficit in community center space for 2021 and 2036 under the Preferred Alternative is shown in Exhibit 4-8.

**Exhibit 4-8. LOS Requirement Analysis – County Community Centers**

Time Period	Kitsap Countywide Population	Square Feet Needed to Meet LOS Standard	Current Square Feet Available	Net Reserve or Deficit
Current LOS Standard = 200 square feet per 1,000 population				
2015	258,200	51,640	50,850	(790)
2021 Preferred Alternative	278,691	55,738	50,850	(4,888)
2036 Preferred Alternative	333,053	66,611	50,850	(15,761)

Source: Personal Communication with Bud Harris, Director of Kitsap County Department of Information Service, 2015; BERK, 2016.

To address future LOS deficiencies, the County can lower its LOS standards, as shown in Exhibit 4-9 for the 2016-2021 period and also for the 2022-2036 period.

**Exhibit 4-9. Potential LOS Adjustments for County Community Centers**

Alternative	Target LOS	Estimated Deficiency	LOS Needed to Address Deficiency (SF/ 1000 people)
2015	200 square feet per 1,000 population	(790)	197
2021 Preferred Alternative	200 square feet per 1,000 population	(4,888)	182
2036 Preferred Alternative	200 square feet per 1,000 population	(15,761)	153

Source: Personal Communication with Bud Harris, Director of Kitsap County Department of Information Service, 2015; BERK, 2016.

**Capital Projects and Funding**

Exhibit 4-10 shows the planned public building capital facilities projects. A new courthouse is planned to be built between 2022 and 2036, and is anticipated to include the Kitsap County Human Services Division and the Kitsap County Division of Aging and Long-Term Care. Its size and cost will be determined through a pending space needs study.

The Kingston Community Center will be relocated due to the realignment of state route 104, and will be re-built with private funding; it is not listed in the table as it is not a publicly funded project.

The Silverdale Community Center is a 16,070 square foot facility located in the heart of the Silverdale UGA, Regional Growth Center and contained within the boundaries of the County-

owned Central Kitsap Community Campus. This Community Center includes 4,380 square feet of public meeting space and over 6,000 square feet of performing arts space dedicated for use by a non-profit community theater association known as C-STOCK. In the winter of 2014, portions of the Silverdale Community Center were closed off to public access after extensive water damage. Following building assessments and identification of capital costs for replacement, the Center was closed permanently from public use in August 2015.

Following a successful partnership with the YMCA of Pierce and Kitsap Counties to construct a 85,785 square foot YMCA recreational facility on the Campus, the County is currently discussing with multiple public and private stakeholders on a future replacement of the Community Center and redevelopment of the Campus as a whole through a public-private partnerships. Feasibility assessments for development and associated costs are intended to be conducted in 2016. Demolition is shown in the capital project list in 2016.

Expansion or replacement of the Givens Community Center is anticipated in years 2022 and 2036, with costs and revenue sources to be determined. In addition is possible that there will be a South Kitsap Community Center developed in partnership between the YMCA, City of Port Orchard, and Kitsap County. A market analysis is pending on this potential center.

**Exhibit 4-10. Public Buildings Capital Facilities Projects, 2016-2036**  
(All numbers in 2015 \$1000s)

Category/ Project Description	Revenue Sources	Cost 2016-2018	Cost 2019-2021	Cost 2022-2036	Total Cost
<b>Category I: Capacity Increasing Projects</b>					
New Courthouse	TBD			TBD	TBD
Silverdale Community Center	Federal	TBD	TBD		TBD
Givens Community Center	TBD			TBD	TBD
<b>Category II: Capital Replacement, Maintenance and Operations</b>					
Silverdale Community Center Demolition, Asbestos Assessment/ Removal	Parks Capital Fund	200			200

Source: Personal Communication with Bud Harris, Director of Kitsap County Department of Information Service, 2015; Personal Communication with Angie Silva, Commissioner’s Office, 2015; BERK, 2016.

Exhibit 4-11 shows the public building capital facilities project costs, and Exhibit 4-12 shows the revenue sources for the planned capital facilities projects.

**Exhibit 4-11. Public Buildings Capital Facilities Project Costs, 2016-2036**  
(All numbers in 2015 \$1000s)

Category Summary	Cost Years 2016- 2021	Cost Years 2022- 2036	Total Cost
<b>Category I (Capacity Projects Required to Meet LOS)</b>	TBD	TBD	TBD
<b>Category II (Other Projects Needed for Maintenance and Operations)</b>	200		200
<b>Total</b>	200	TBD	200

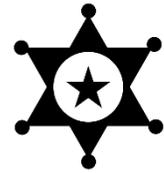
Source: Personal Communication with Bud Harris, Director of Kitsap County Department of Information Service, 2015; BERK, 2016.

**Exhibit 4-12. Public Buildings Capital Facilities Revenue Sources, 2016-2036**  
(All numbers in 2015 \$1000s)

Revenue Source	Revenue Year 2016-2021	Revenue Years 2022-2036	Total Revenue
<b>Parks Capital Fund</b>	200	TBD	200
<b>Total</b>	200	TBD	200

Source: Personal Communication with Bud Harris, Director of Kitsap County Department of Information Service, 2015; BERK, 2016.

## 4.2 Public Safety: Law Enforcement



### Overview

The Kitsap County Sheriff Department serves the population of unincorporated Kitsap County. The Department is responsible for law enforcement, maintaining order, crime investigation and prevention, traffic control, marine enforcement, process and service of civil papers for the courts, service of criminal warrants, and other emergency services.

The Sheriff's main office is located in Port Orchard, and is the home to the Sheriff, Undersheriff, records, detective, patrol chief, administration, corrections and the evidence/ storage rooms. The Patrol Chief has an office at the courthouse. Satellite offices include the North Office in Kingston which has been closed and is anticipated to be relocated in the future. The Sheriff's Office used to staff a storefront in Silverdale Mall that is now closed. The Silverdale office remains open.

The County correctional facilities, which service the population of incorporated cities and the unincorporated county, consist of a jail and a juvenile facility. The jail is located on the courthouse campus in Port Orchard. The jail is attached to the second floor of the courthouse and is accessible from the sheriff's main office. The County correctional facilities used a work release facility in the past; however, that facility is no longer used by the Sheriff's Office. The Superior Court operates the Juvenile Jail Facility.

### Inventory of Current Facilities

Law enforcement facilities include sheriff administration and operations offices (23,540 square feet), sheriff's office storage space (13,210 square feet), and sheriff's office corrections jail facility (519 beds).

**Exhibit 4-13. Law Enforcement Current Facilities Inventory**

Name	Location	Size/Quantity (SF and beds)
<b><i>Sheriff's Office Space</i></b>		
Main Office	614 Division Street, Port Orchard, WA	16,500
Central Office	3133 Randall Way, Silverdale, WA	5,620
Kitsap Community Resources	Jackson Avenue, Port Orchard, WA	110
Station 17	7990 McCormick Woods Dr. SW, Port Orchard	110
Drug Task Force/ SIU*		1,200
<b>Total Sheriff's Office Space</b>		<b>23,540</b>
<b><i>Sheriff's Office Storage Space</i></b>		
Readiness Center Space*	West Bremerton	10,000
Silverdale Storage Container*	3951 Randall Way, Silverdale, WA	250
Vehicle Impound lot, Carport and Storage South Road Shed off Cedar Street Building		2,960
<b>Total Sheriff's Office Storage Space</b>		<b>13,210</b>
<b><i>Sheriff's Office Corrections</i></b>		
Jail	614 Division Street, Port Orchard	519
<b>Total Sheriff's Office Corrections</b>		<b>519</b>

Notes: The Drug Task Force/ SIU location will not be released for Office Safety Reasons.

\* The County leases these spaces.

Source: David J. White, Chief of Detectives at Kitsap County Sheriff's Office, 2015; Ned Newlin, Chief of Corrections Division at Kitsap County Sheriff's Office, 2015; BERK, 2016.

The Sheriff's Office-operated Jail Facility does not use 40 of the 519 beds, because it does not need them to meet the regional incarceration needs of Kitsap County. It is anticipated that the jail will be at full capacity within the next 15 years depending on population trends and changes in criminal laws.

The Juvenile Correctional Facility is under the jurisdiction of the Superior Court.



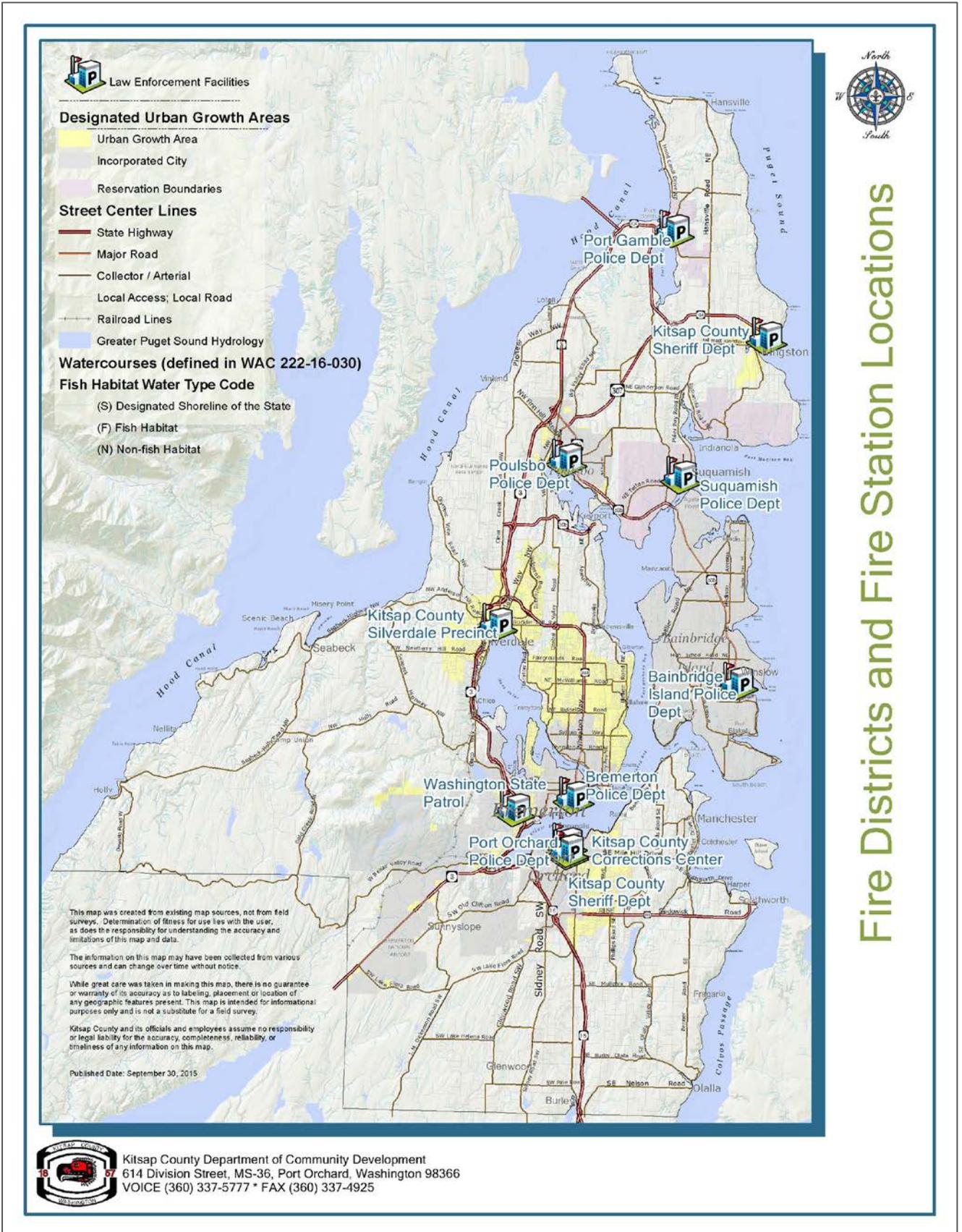
Sheriff's Office Car



Kitsap County Rescue Boat

A map of County and other law enforcement facilities provided by city and state agencies is provided on Exhibit 4-14.

Exhibit 4-14. Law Enforcement Facilities



Source: Kitsap County Community Development Department, 2015

## Level of Service Capacity Analysis

### Sheriff's Office

The Level of Service (LOS) standard for the Sheriff's Office space is 129 square feet per 1,000 unincorporated population. The County currently has a 1,360 feet surplus of office space; however, that surplus will become a deficit in 2021. This deficit is expected to grow through 2036 as the unincorporated population increases.

**Exhibit 4-15. LOS Requirement Analysis – Sheriff's Office Space**

Time Period	Kitsap Unincorporated County Population	Square Feet Needed to Meet LOS Standard	Square Feet Available	Net Reserve or (Deficit)
Current LOS Standard = 129 square feet per 1,000 population				
2015	171,940	22,180	23,540	1,360
2021 Preferred Alternative	183,029	23,611	23,540	(71)
2036 Preferred Alternative	213,983	27,604	23,540	(4,064)

Source: David J. White, Chief of Detectives at Kitsap County Sheriff's Office, 2015; BERK, 2016.

To address deficiencies, the County could choose to add facilities or adjust its LOS standards to reflect likely future service levels given estimated population growth and current facility plans. The County Sheriff's Office is planning to conduct a Needs Assessment of its facilities and space.

If the County elects to adjust LOS, even for the interim until the Needs Assessment is completed, the standards that would be needed to address the deficiency through 2036 are shown in Exhibit 4-16.

**Exhibit 4-16. Potential LOS Adjustments for Sheriff's Office**

Alternative	Target LOS	Estimated Deficiency	LOS Needed to Address Deficiency (SF/ 1000 people)
2015	129 square feet per 1,000 population	1,360	137
2021 Preferred Alternative	129 square feet per 1,000 population	(71)	129
2036 Preferred Alternative	129 square feet per 1,000 population	(4,064)	109

Source: David J. White, Chief of Detectives at Kitsap County Sheriff's Office, 2015; BERK, 2016.

The County Sheriff's Office 2015 space per capita is 0.14 square feet per person. The Pierce County Sheriff's office is at 0.5 square feet per person (Pierce County Comprehensive Plan, June 2015). Snohomish County does not appear to have a standard in its 2015 Capital Facilities Plan, but its plan describes that a 2008 needs assessment was conducted and that "on-campus needs of the Sheriff's office will be addressed in the current project to build a new courthouse and renovate the existing Mission Building" (Snohomish County Capital Facilities Plan, 2015) Whatcom County's per capita standard is 0.26 square feet per person, though that standard is changing in the Comprehensive Plan update to reflect the recent jail and Sherriff's office study rather than including a numeric standard (Whatcom County, 2015).

### County Jails

The LOS standard for County Jail Facilities is 1.43 beds per 1,000 countywide population. Based on this standard there is a surplus of jail beds, and this surplus would continue through 2036. The Sheriff's Office operated jail facility does not use 40 out of the 519 beds listed. It is anticipated that the jail will be at full capacity within the next 15 years or sooner depending on population trends and changes in criminal laws that may occur during that time frame (Newlin, 2015).

**Exhibit 4-17. LOS Requirement Analysis – County Jail Facilities**

Time Period	Kitsap Countywide Population	Beds Needed to Meet LOS Standards	Beds Available	Net Reserve or Deficit
Current LOS Standard = 1.43 Beds Per 1,000 Population				
2015	258,200	369	519	150
2021 Preferred Alternative	278,691	399	519	120
2036 Preferred Alternative	333,053	476	519	43

Source: David J. White, Chief of Detectives at Kitsap County Sheriff’s Office, 2015; BERK, 2016.

Kitsap County is considering an alternative level of service for its jail facility based on incarceration rates. The Bureau of Justice Statistics for jails estimated a typical incarceration rate of 234 inmates per 100,000 population in 2014 (Zhang, 2015). Kitsap County’s incarceration rate was only 168 per 100,000 population in 2014, 170 in 2013, and 167 in 2012. Kitsap County incarcerates 28% fewer people than the average for other jurisdictions in the nation.

The average daily population (i.e. beds used per day) for the jail for the years 2011 to 2014 ranged from 417 to 427. Using an incarceration rate of 168 inmates per 100,000 population, there would be adequate space in the six-year period, but a deficit in the 7-20 year period under the Preferred Alternative.

**Exhibit 4-18. Alternative LOS Based on Incarceration Rate**

Time Period	Kitsap Countywide Population	Beds Needed to meet LOS Standards	Beds Available	Net Reserve or Deficit
Alternative LOS Standard = Kitsap County Incarceration Rate: 168/100,000 Population				
2015	258,200	434	519	85
2021 Preferred Alternative	278,691	468	519	51
2036 Preferred Alternative	333,053	560	519	(41)

Source: Kitsap County Sheriff’s Office, 2015; BERK, 2016.

Changing to the alternative LOS standard may require spending more resources educating the community and preventing individuals from becoming incarcerated or reoffending.

**Exhibit 4-19. Potential LOS Adjustments for the Incarceration Rate**

Alternative	Target LOS	Estimated Deficiency	LOS Needed to Address Deficiency (SF/ 1000 people)
2015	168 people/ 100,000 population	0	201
2021 Preferred Alternative	168 people/ 100,000 population	0	186
2036 Preferred Alternative	168 people/ 100,000 population	(41)	156

Source: Kitsap County Sheriff’s Office, 2015; BERK, 2016.

**Capital Projects and Funding**

The County Sheriff’s Office is planning to conduct a Needs Assessment of its facilities and space. The Sheriff’s Office expressed a need for additional storage space for property, vehicles, equipment, and training space (fire arms training).The Sheriff’s Office also expressed a need for office space in Silverdale and potentially in south Kitsap County. The Needs Assessment will determine the future capital facilities projects for Sheriff facilities including offices, supporting facilities, and the jail.

**Exhibit 4-20. Sheriff’s Office Capital Facilities Projects**

Category/ Project Description	Revenue Sources	Cost 2016-2018	Cost 2019-2021	Cost 2022-2036	Total Cost
Category I: Capacity Increasing Projects					
TBD		TBD	TBD	TBD	TBD
Category II: Capital Replacement, Maintenance and Operations					
Project Description: None					

Source: David J. White, Chief of Detectives at Kitsap County Sheriff’s Office, 2015; BERK, 2016.

**Exhibit 4-21. Sheriff’s Office Capital Facilities Project Costs**

Category Summary	Cost Years 2016- 2021	Cost Years 2022- 2036	Total Cost
Category 1 (Capacity Projects Required to Meet LOS)	TBD	TBD	TBD
Category 2 (Other Projects Needed for Maintenance and Operations)			
<b>Total</b>	TBD	TBD	TBD

Source: David J. White, Chief of Detectives at Kitsap County Sheriff’s Office, 2015; BERK, 2016.

**Exhibit 4-22. Sheriff’s Office Capital Facilities Project Revenues**

Revenue Source	Revenue Year 2016-2021	Revenue Years 2022-2036	Total Revenue
<b>Name of Fund</b>	TBD	TBD	TBD
<b>Total</b>	TBD	TBD	TBD

Source: David J. White, Chief of Detectives at Kitsap County Sheriff’s Office, 2015; BERK, 2016.

## 4.3 Public Safety: Fire Protection



### Overview

Kitsap County is served by Central Kitsap Fire and Rescue (CKFR), Fire District 18/Poulsbo Fire Department, North Kitsap Fire and Rescue (NKFR), and South Kitsap Fire and Rescue (SKFR). The Cities of Bremerton and Bainbridge Island have their own fire departments. The cities of Port Orchard and Poulsbo, as well as unincorporated areas within the County, receive fire protection from SKFR and Fire District 18/Poulsbo Fire Department, respectively.

Excluding the Bainbridge Island Fire Department, there are a total of 34 fire stations in the county, 20 of which are staffed with career personnel. Other stations are staffed with volunteers, which is important for serving areas of the county that are more remote. Staffed and volunteer station locations are listed in Exhibit 4-23.

**Exhibit 4-23. Staffed and Non-Staffed Fire Stations in Kitsap County**

Fire District	Staffed Stations	Volunteer Stations
North Kitsap Fire and Rescue (NKFR)	4	1
Poulsbo Fire Department	2	2
Bainbridge Island	1	3
Central Kitsap Fire and Rescue (CKFR)	5	5
Bremerton	3	0
South Kitsap Fire and Rescue	6	6
<b>Total</b>	<b>21</b>	<b>17</b>
<b>Total Excluding Bainbridge Island</b>	<b>20</b>	<b>14</b>

Source: North Kitsap Fire and Rescue, 2015; Poulsbo Fire Department Website, 2015; Bainbridge Island Fire Department Website, 2015; Central Kitsap Fire and Rescue, 2015; Bremerton Fire Department, 2015; South Kitsap Fire and Rescue, 2015.

### County Fire Protection Districts

Fire protection districts in Kitsap County have entered into agreements with the Washington State Department of Natural Resources (DNR) to jointly fight fires on state-owned land and private forestland. DNR has no responsibility or authority in incorporated areas of the county. Each municipality is responsible for all fires within its boundaries. For the unincorporated lands, DNR and some fire districts have split up fire protection and suppression responsibility through creation of a fire protection zone (FPZ) (see WAC 332-24-710 Forest protection zone—Kitsap County). DNR has protection responsibility for non-structural fires within an FPZ. The fire district protects all other unincorporated areas as well as structures within the FPZ. DNR policy is that it will not fight structure fires. Any structure within a fire district's boundaries is the responsibility of the district. DNR also protects certain state land parcels regardless of location. DNR is a signatory on the countywide mutual aid agreement and will respond as mutual aid when requested.

### Inventory of Current Facilities

Exhibit 4-24 summarizes the capital facilities available for each fire district and includes each district's fire rating, presence of EMS service, and service area population.

**Exhibit 4-24. Kitsap County Fire Protection Facilities Inventory**

Fire Protection Provider	Number of Stations	WSRB 2012 Fire Rating	Fire Units*	EMS Services	2014 OFM Service Area Population**
North Kitsap Fire and Rescue (NKFR)	5	5	14	Y	19,387
Poulsbo Fire Department	4	4 - Within City Limits 5 - Outside City Limits	13	Y	14,705
Central Kitsap Fire and Rescue (CKFR)	10	4	34	Y	69,753
Bremerton Fire Department	3	3	13	Y	39,410
South Kitsap Fire and Rescue (SKFR)	12	4	34	Y	72,046***

Notes:

\* A unit is the combination of vehicle and equipment that responds to a fire or EMS situation, including engines, ladder trucks, water tenders, rescue units, aid cars and ambulances, and rehabilitation units, but not including staff or miscellaneous vehicles.

\*\* The Bremerton Fire Department serves the City of Bremerton, and the Service Area Population is from 2015.

\*\*\* The estimate shown is provided by the district. 2014 OFM Service Area Population estimate is 60,688 for the South Kitsap Fire and Rescue District. Source: North Kitsap Fire and Rescue, 2015; Poulsbo Fire Department Website, 2015; Bainbridge Island Fire Department Website, 2015; Central Kitsap Fire and Rescue, 2015; Bremerton Fire Department, 2015; South Kitsap Fire and Rescue, 2015.

**Response Time Objectives**

State statute (RCW 52.33) requires fire districts with a predominance of career staff (as opposed to volunteers) to adopt and annually report response time objectives. These objectives may change over time to respond to each district's resources and needs. Current response time objectives by fire department or district are shown in Exhibit 4-25.

**Exhibit 4-25. Response Time Objectives**

District / Department	Response Time Objective
<b>Bremerton Fire Department</b>	6 minute response time, City Services Element 2016
<b>Central Kitsap Fire &amp; Rescue</b>	Turnout time goal: 90 seconds, met 90% of the time. Travel time goals: suburban (fire/EMS 8:00), rural (fire/EMS 12:00), and wilderness areas (fire/EMS 20:00).
<b>North Kitsap Fire &amp; Rescue</b>	<b>Structure Fires</b> Turnout Time Goal: 165 seconds (2:45) or better 90% of the time Travel Time Goal First Arriving Engine Company: 7 minutes 50 seconds (7:50) or better 90% of the time <b>EMS (Basic Life Support)</b> Turnout Time Goal: 120 seconds (2:00) or better 90% of the time Travel Time Goal First Arriving BLS Unit with (2) EMT Qualified Personnel: 8 minutes 40 seconds (8:40) or better 90% of the time. <b>EMS (Advanced Life Support)</b> Turnout Time Goal: 120 seconds (2:00) or better 90% of the time Travel Time Goal First Arriving ALS Unit with (1) PM Qualified Personnel: 12 minutes 30 seconds (12:30) or better 90% of the time
<b>Poulsbo Fire Department</b>	Turnout Time: 2:00 minutes for fire and priority 1 and 2 events and 1:30 minutes for medical events. Response time of units to suburban calls for service at 8:00 minutes. Rural response time goals, at 11:00 minutes.
<b>South Kitsap Fire &amp; Rescue</b>	Turnout time, the district has a goal of 90 seconds or less 90% of the time. Travel times for fire responses range from 5:00 minutes to 10:50 minutes depending on the urban, suburban, or rural nature of the call. Travel times for EMS services ranged from 6:20 to 11:15 minutes also depending on the urban, suburban, or rural nature of the call.

Source: Bremerton Fire Department, 2015; Central Kitsap Fire and Rescue, 2015; North Kitsap Fire and Rescue, 2015; Poulsbo Fire Department, 2015; South Kitsap Fire & Rescue, 2015.

## CFP Level of Service Standard

Consistent with GMA requirements to establish levels of service for improvements necessary for development, this CFP provides a minimum countywide measure of need for fire services. All fire districts in Kitsap County must achieve the following minimum Washington Surveying and Ratings Bureau (WSRB) Ratings:

- Fire districts with career staff serving urban areas must have a minimum WSRB rating of 4. Urban areas include city limits and UGAs.
- The portions of districts serving rural areas with non-career staff must have a minimum WSRB Rating of 5. Rural areas consist of lands outside of UGAs and city limits.

## Fire Services and WSRB Ratings

The WSRB is a non-profit agency that evaluates fire protection capabilities of cities and fire protection districts. In turn, insurance companies use WSRB Protection Classes to help establish fair premiums for fire insurance. The evaluation process includes a review of the following that are relevant to capital facilities: distribution of fire stations and fire companies, apparatus equipment, water supply, and water pressure. Other activities reviewed include personnel and training, response to alarms, dispatching, code enforcement, and public education.

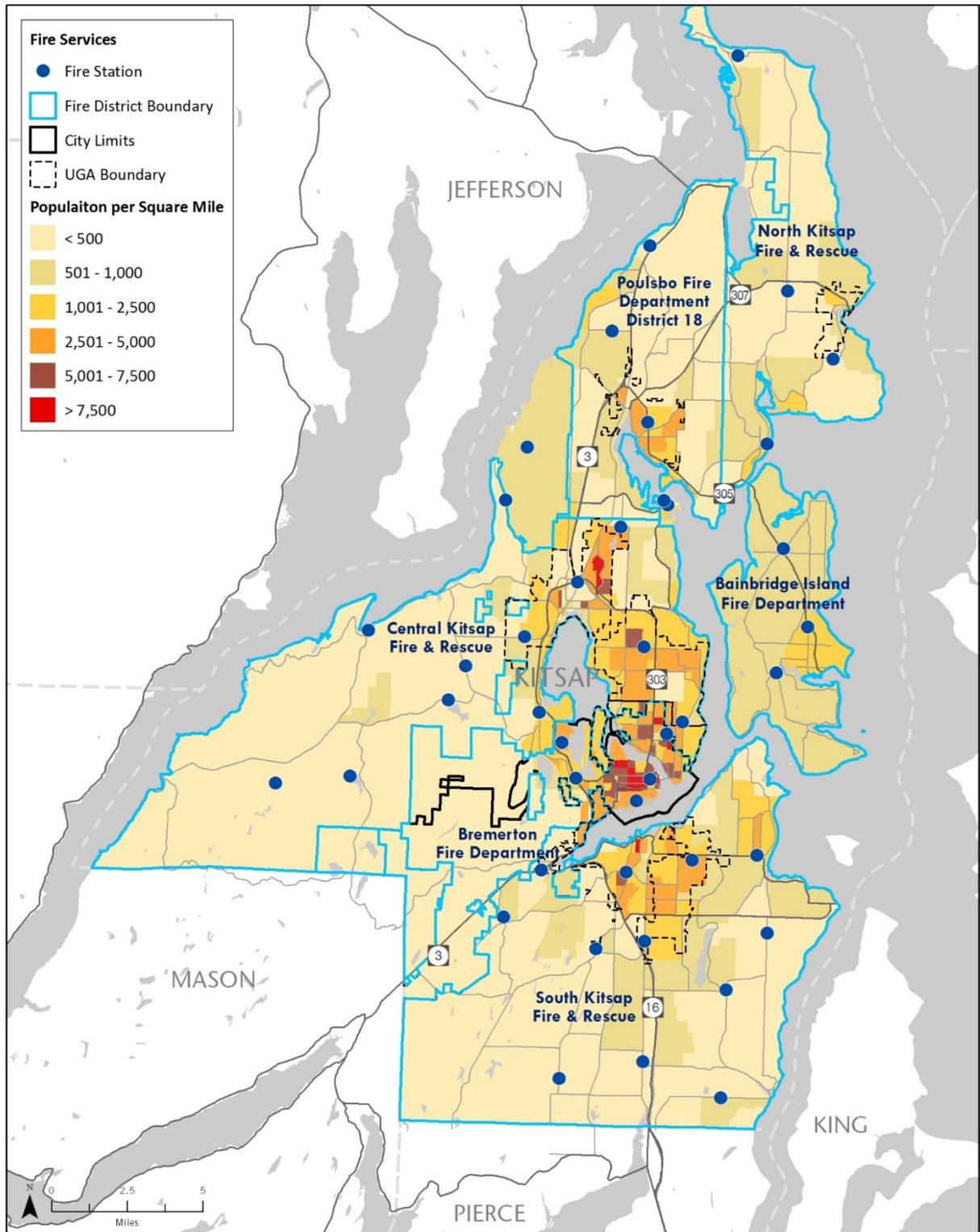
Fire districts and departments respond to fires and EMS calls from their stations with their apparatus, but their response occurs within a broader system where other agencies have important roles.

- Kitsap County is responsible for planning for population and employment growth under GMA and provides housing opportunities through zoning. As described above, proposed LOS standards for fire services rely on WSRB ratings and are higher in more densely populated areas than in rural areas. Exhibit 4-26 and Exhibit 4-27 below show fire services and population density in Kitsap County in 2036 under the Preferred Alternative and today, respectively. The population growth will increase not only the number of calls but also tax revenue available to service providers.
- The Kitsap County Fire Marshal's Office works to enhance fire safety through quality fire inspections, plan review, fire investigation, and fire prevention education; County fire marshal services are applicable in all districts except within the City of Bremerton that provides its own services.
- Water service providers are responsible for the water supply and fire flow pressure, in tandem with County building and fire codes.

Selection of the WSRB-based ratings for the Fire Service LOS reflects that fire protection is based on the collective efforts of the fire districts, Kitsap County, cities, and water providers. Ensuring adequate staff resources for planning and permitting (e.g. County fire marshal services) will be important to consider at the time of the County's annual budget. During the development review process, the County will require consistency with the fire code and water availability. The County will also interface with fire districts and cities, and discuss their fire protection capital investments at the time of CFP updates.

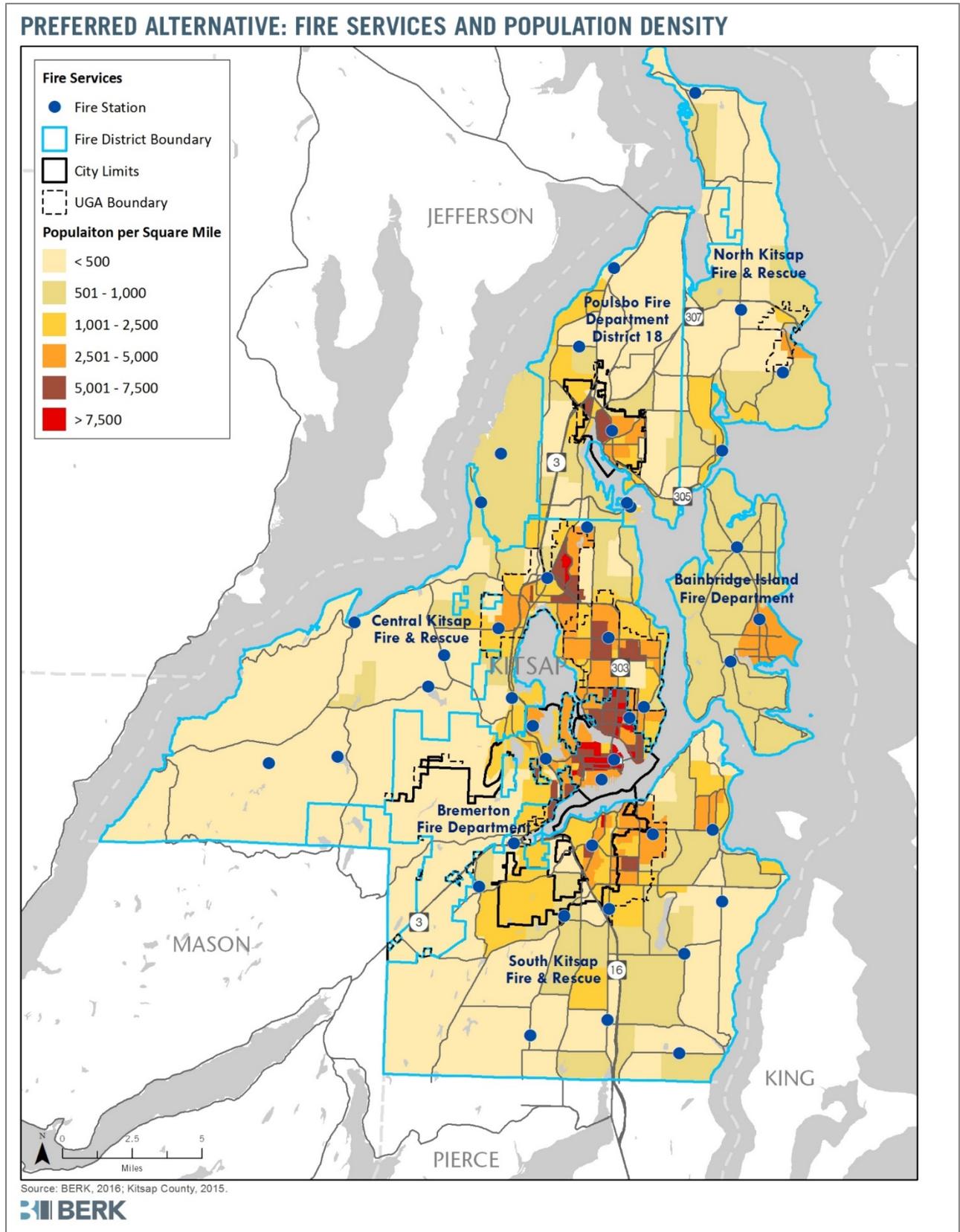
Exhibit 4-26. Kitsap County Fire Services and Population Density – Existing Conditions

**BASELINE 2012: FIRE SERVICES AND POPULATION DENSITY**



Source: Kitsap County, 2015; BERK Consulting 2016

Exhibit 4-27. Kitsap County Fire Services and Population Density, 2036  
 – Preferred Alternative



Source: Kitsap County, 2015; BERK Consulting 2016

The following sections look at some of the factors that make up the WSRB rating for each fire department: including apparatus equipment and personnel.

## Fire Districts

### Central Kitsap Fire and Rescue

Central Kitsap Fire and Rescue (CKFR) is one of the largest fire service providers in Kitsap County. CKFR provides fire and emergency medical services response to approximately 69,753 citizens in a service area of approximately 115 square miles. Because of its location, CKFR has a significant amount of waterfront in its service area—40 miles of tidal waterfront with adjacent saltwater area and numerous small lakes and ponds.

Communities recognized within CKFR are Silverdale, Olympic View, Seabeck, Lake Symington, Lake Tahuya, Island Lake, Ridgetop, Crosby, Hintzville, Holly, Brownsville, Gilberton, Meadowdale, North Perry, Illahee, Tracyton, Chico, Wildcat Lake, Kitsap Lake, and Erlands Point.

#### Capital Improvement Projects

Exhibit 4-28 shows CKFR’s planned capital projects. Exhibit 4-29 shows the capital projects costs for 2016-2021 and 2022-2036, and Exhibit 4-30 shows the capital project revenues for the same time periods.

### Central Kitsap Fire and Rescue

#### Fire Units

- 14 fire engines (1,000-1,500 gallons-per-minute pump capacity and 750-1,000-gallon tank capacity), seven of which are four-wheel-drive
- 1 brush engine
- 1 ladder truck (105-foot)
- 5 water tenders (four 3,000-gallon tank capacity tenders and one 1,250-gallon tank capacity tender)
- 1 rescue units
- 10 medical units (three advanced life support and seven basic life support )
- 1 emergency scene rehabilitation unit
- 1 rescue boat, 17-foot
- 20 miscellaneous vehicles (e.g., staff, utility, delivery)

#### Staff

- 1 Fire Chief
- 1 Deputy Chief
- 1 Division Chief
- 4 Battalion Chiefs
- 7 Captains
- 10 Lieutenants
- 56 FF/PM/EMT/AO
- 5 Support Staff
- 4 Mechanics
- 3 Facilities Maintenance
- 1 Public Information Officer
- 1 Inventory Supply Coordinator
- 1 HR Manager
- 1 Fiscal Services Manager
- 1 IT Manager
- 1 Maintenance/Mechanic Manager
- 1 Volunteer Program Manager
- 75 Volunteers (including 4 residents)

**Exhibit 4-28. Central Kitsap Fire and Rescue Capital Projects (All numbers in 2016 \$1000s)**

Category/ Project Description	Revenue Sources	Cost	Cost	Cost	Total Cost
		2016-2018	2019-2021	2022-2036	
<b>Category I: Capacity Increasing Projects</b>					
1. Apparatus	Bond	1,863			1,863
2. Equipment	Bond	1,442			1,442
<b>Category II: Capital Replacement, Maintenance and Operations</b>					
1. Maintenance and Operations	Capital Facilities Fund	624			624
2. Other Bond Expenses	Bond	54			54

Source: Central Kitsap Fire and Rescue, 2015; BERK, 2016.

**Exhibit 4-29. Central Kitsap Fire and Rescue Capital Project Costs (All numbers in 2016 \$1000s)**

Category Summary	Cost Years 2016-2021	Cost Years 2022-2036	Total Cost
<b>Category I (Capacity Projects Required to Meet LOS)</b>	3,304	TBD	3,304
<b>Category II (Other Projects Needed for Maintenance and Operations)</b>	677	TBD	677
<b>Total</b>	3,981	TBD	3,981

Source: Central Kitsap Fire and Rescue, 2015; BERK, 2016.

**Exhibit 4-30. Central Kitsap Fire and Rescue Capital Project Revenues (All numbers in 2016 \$1000s)**

Revenue Source	Revenue Year 2016-2021	Revenue Years 2022-2036	Total Revenue
Bond	3,358	TBD	3,358
Capital Facilities Bond	624	TBD	624
<b>Total</b>	3,981	TBD	3,981

Source: Central Kitsap Fire and Rescue, 2015; BERK, 2016.

**CKFR Fire Suppression and Rescue**



Apartment Fire, 2007

Source: CKFR, 2015.



Rescue, 2007

## North Kitsap Fire and Rescue

North Kitsap Fire and Rescue (NKFR), located in the northeast portion of the county, provides fire and emergency medical services (EMS) to an area of approximately 47 square miles and serves an estimated 2014 population of 19,387 (OFM, 2014). The product of multiple mergers, NKFR serves the communities of Kingston, Hansville, Eglon, Indianola, Gamblewood, Jefferson Beach, Miller Bay, Suquamish, and approximately 80% of the Suquamish Indian Reservation. By contract, the district also provides fire and EMS services to the Port Gamble S'Klallam Indian Reservation at Little Boston whose territory does not fall within the district's legal boundaries. The contract for services adds an estimated 682 persons and five square miles to its service responsibilities.

NKFR Accident Response 2002



### Capital Projects

Exhibit 4-31 shows the planned capital projects for North Kitsap Fire and Rescue. Exhibit 4-32 and Exhibit 4-33 show the planned project costs and revenues, respectively.

**Exhibit 4-31. NKFR Capital Projects  
2016-2036 (All numbers in 2015 \$1000s)**

Category/ Project Description	Revenue Sources	Cost	Cost	Cost	Total Cost
		2016-2018	2019-2021	2022-2036	
<b>Category I: Capacity Increasing Projects</b>					
1. Replace Fire Engines	Fire District Regular Tax Levy	778			778
2. Replace Aid Units	Fire District Regular Tax Levy	611.4			611
3. Replace Fire Station	GO Bond and/or Gov't-Tribal Partnerships		5,000		5,000
<b>Category II: Capital Replacement, Maintenance and Operations</b>					
Project Description: None					

Source: Personal Communication with Cindy Manlove, Administrative Assistant, North Kitsap Fire and Rescue; BERK, 2016.

## North Kitsap Fire and Rescue

### Fire Units

- 5 fire engines (1 reserve)
- 4 Ambulances (2 reserves)
- 3 Water Tenders
- 1 Wildland Engine
- 1 Fire Boat

### Staff

NKFR has a total of 74 staff and volunteers, 44 of whom are career staff, and includes the following:

- Administration – 2 Career FTEs
- Administrative Support – 2 Career FTEs
- Community Services: 1 Career FTE, 4 volunteers
- Emergency Services
  - Suppression/ EMS: 35 Career FTEs, 15 Volunteer FTEs
  - EMS: 2 Volunteers
  - Tender Operations: 6 Volunteers
- Chaplain Services: 4 Volunteers
- Facilities Management: 1 Career FTE
- Fleet Services: 3 Career FTEs
- t\*
- 3 full-time Mechanics\*
- 0.33 Facilities Maintenance Manager\*
- 3 Office Staff\*
- 15 Resident Volunteer Firefighters (on average)
- 5 Volunteers of Various Types (e.g. Tender Drivers and Child Car Seat Technicians)
- 3 Volunteer Chaplains

\*Paid Positions

**Exhibit 4-32. NKFR Capital Project Costs 2016-2036 (All numbers in 2015 \$1000s)**

Category Summary	Cost Years 2016-2021	Cost Years 2022-2036	Total Cost
<b>Category I (Capacity Projects Required to Meet LOS)</b>	6,389	TBD	6,389
<b>Category II (Other Projects Needed for Maintenance and Operations)</b>	0	0	0
<b>Total</b>	6,389	TBD	6,389

Source: Personal Communication with Cindy Manlove, Administrative Assistant, North Kitsap Fire and Rescue; BERK, 2016.

**Exhibit 4-33. NKFR Capital Project Revenues 2016-2036 (All numbers in 2015 \$1000s)**

Revenue Source	Revenue Year 2016-2021	Revenue Years 2022-2036	Total Revenue
Fire District Regular Tax Levy	1,389	TBD	1,389
GO Bond and/or Gov't-Tribal Partnerships	5,000	TBD	5,000
<b>Total</b>	1,389	TBD	1,389

Source: Personal Communication with Cindy Manlove, Administrative Assistant, North Kitsap Fire and Rescue; BERK, 2016.

### South Kitsap Fire and Rescue

South Kitsap Fire and Rescue (SKFR), located in the southern portion of Kitsap County, covers 118 square miles and serves a population of approximately 72,046 as of 2014<sup>1</sup>. Within the service area there are 22 miles of tidal waterfront with adjacent saltwater area, plus numerous small lakes and ponds. SKFR also covers a considerable amount of DNR land on a contractual basis.

SKFR serves the City of Port Orchard and the Port of Bremerton's Airport and Olympic View Industrial Park under a contractual agreement. Fourteen percent of the water for firefighting is provided by water districts and systems. Fire district tenders provide water for firefighting in the remaining 86% of the district.

The major water purveyors in South Kitsap are the West Sound Utility District; the Manchester Water District; the City of Port Orchard; Bremerton Water; and privately owned water systems such as Harbor Water, Crown Properties Incorporated, Long Lake View Estates, McCormick Woods Water Company, Rainier View Water, Sunnyslope Water, and Watauga Beach Community Water.

SKFR responds to all types of fire, medical, and related emergency situations from 12 stations throughout the district. Six stations are staffed with career employees 24 hours per day while another six stations are not.

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<sup>1</sup> The South Kitsap Fire and Rescue 2014 OFM Service Area Population estimate is 60,688.

## South Kitsap Fire and Rescue

### Fire Units

- 13 Engines
- 4 Medic Units
- 1 Brush Trucks
- 4 Aid Units
- 7 Tenders
- 1 Ladder Truck
- 1 Air Support Unit
- 2 Command Vehicle
- 1 MCI Unit

### Staff

- 5 Commissioners
- 1 Fire Chief
- 1 Deputy Chief
- 2 Division Chiefs
- 3 Battalion Chiefs
- 1 Deputy Fire Marshal
- 1 Computer Technician
- 3 Vehicle Maintenance
- 2 Facilities Maintenance
- 6 Admin Support Staff
- 19 Lieutenants
- 2 Captains
- 16 Paramedics
- 33 Career Fire Fighters
- 1 Volunteer Lead Battalion Chief
- 1 Volunteer Battalion Chiefs
- 3 Volunteer Captains
- 3 Volunteer Lieutenants
- 21 Volunteer Firefighters
- 8 Intern Firefighters
- 5 Chaplains
- 27 Volunteer Support Personnel



SKFR Vehicle Fire Response



SKFR Fire Response



SKFR Cedar Cove Days

### Capital Projects

Exhibit 4-34 shows SKFR’s planned projects. Exhibit 4-35 and Exhibit 4-36 show SKFR’s planned projects costs and revenues, respectively.

**Exhibit 4-34. SKFR Capital Projects, 2016-2036 (All numbers in 2015 \$1000s)**

Category/ Project Description	Revenue Sources	Cost	Cost	Cost	Total Cost
		2016-2018	2019-2021	2022-2036	
<b>Category I: Capacity Increasing Projects</b>					
Project Description: None					
<b>Category II: Capital Replacement, Maintenance and Operations</b>					
Tenant Improvements		375	125		500
Mobile Assets	Bonds	4,900			4,900

Source: Personal Communication with Guy Dalrymple, Deputy Chief of South Kitsap Fire and Rescue, 2015.

**Exhibit 4-35. SKFR Capital Project Costs (All numbers in 2015 \$1000s)**

Category Summary	Cost Years 2016-2021	Cost Years 2022-2036	Total Cost
<b>Category I (Capacity Projects Required to Meet LOS)</b>	0	0	0
<b>Category II (Other Projects Needed for Maintenance and Operations)</b>	5,400	TBD	5,400
<b>Total</b>	5,400	TBD	5,400

Source: Personal Communication with Guy Dalrymple, Deputy Chief of South Kitsap Fire and Rescue, 2015.

**Exhibit 4-36. SKFR Capital Project Revenues (All numbers in 2015 \$1000s)**

Revenue Source	Revenue Year 2016-2021	Revenue Years 2022-2036	Total Revenue
<b>Fund Source - Bonds</b>	4,900	TBD	4,900
<b>Fund Source - Levy, Other</b>	500		500
<b>Total</b>	5,400	TBD	5,400

Source: Personal Communication with Guy Dalrymple, Deputy Chief of South Kitsap Fire and Rescue.

## Bremerton Fire Department

The City of Bremerton Fire Department provides emergency and non-emergency fire, rescue, and medical services to approximately 39,410 residents of Bremerton (OFM, 2015).

### Bremerton Fire Department

#### Fire Units

- 1 Command
- 6 Engines
- 5 Medic Units
- 1 Ladder Truck

#### Staff

- 1 Battalion Chief/ Training-Safety
- 3 Battalion Chiefs
- 1 Capital/ Fire Marshal
- 1 Captain/ Medical Officer
- 1 Fire Chief
- 1 Fire Prevention Specialist
- 3 Firefighters/ Mechanics
- 3 Firefighters/ SCBA Repair Persons
- 15 Firefighters
- 9 Lieutenants
- 51 Line Personnel
- 1 Senior Specialist
- 14 Paramedics
- 5 Staff Personnel
- 2 Station Captains

Bremerton Fire Response, 2007



### Capital Projects

Exhibit 4-37 shows the capital projects planned for the Bremerton Fire Department from 2016 through 2036. Exhibit 4-38 and Exhibit 4-39 show the 2016-2036 capital project costs and revenues, respectively.

**Exhibit 4-37. Bremerton Fire Department Capital Projects 2016-2036**  
(All numbers in 2015 \$1000s)

Category / Project Description	Revenue Sources	Cost 2016-18	Cost 2019-21	Cost 2022-36	Total Cost
<b>Category I: Capacity Increasing Projects</b>					
Project Description: none					
<b>Category II: Capital Replacement and Maintenance</b>					
Station 2 and 3 remodel/ renovation/upgrade	Levy	1,000			1,000
Ladder Truck Replacement (1)	Levy	1,200			1,200
Fire Engine Replacement (2)	Levy	1,200			1,200
EMS Vehicle Replacement (2)	Levy	400			400
Air Tanks (44)	Levy		300		300
Staff Vehicles (6)	Levy		280		280
Portable Radios (40)	Levy		80		80
Thermal Imaging Cameras (3)	Levy		35		35

Source: Personal Communication with Al Duke, Fire Chief of the Bremerton Fire Department, 2015; BERK, 2016.

**Exhibit 4-38. Bremerton Fire Department Capital Project Costs (All numbers in 2015 \$1000s)**

Category Summary	Cost Years 2016-2021	Cost Years 2022-2036	Total Cost
Program or Project Type I: Capacity	0	0	0
Program or Project Type II: Capital Replacement and Maintenance	4,495	0	4,495
<b>Total</b>	<b>4,495</b>	<b>0</b>	<b>4,495</b>

Source: Personal Communication with Al Duke, Fire Chief of the Bremerton Fire Department, 2015; BERK, 2016.

**Exhibit 4-39. Bremerton Fire Department Fire Department Capital Project Revenues (All numbers in 2015 \$1000s)**

Revenue Source	Revenue Years 2016-2021	Revenue Years 2022-2036	Total Revenue
<b>November 2015 Levy (Proposed)</b>	4,495	-	4,495
<b>Total</b>	<b>4,495</b>	<b>-</b>	<b>4,495</b>

Source: Personal Communication with Al Duke, Fire Chief of the Bremerton Fire Department, 2015; BERK, 2016.

On average, the Bremerton Fire Department received 0.19 calls per capita annually between 2003 and 2013, including both fire and EMS calls (Fire Department, 2015). Assuming this per capita rate continues, the UGA areas will add around 2,600 calls by 2036. These added calls will impact the Department’s ability to respond quickly and it is likely that investments will be needed to run the service at the desired response time of 5.0 minutes.

East Bremerton is currently served by Central Kitsap Fire & Rescue (CKFR); the District has stations in proximity to the UGA and the Bremerton Fire Department also has a station in the Sylvan area. The City anticipates based on the 2015 UGA boundaries the City could serve East Bremerton even with the additional population allocation over 20 years. (Duke, 2015)

For the West Bremerton UGA areas, there are fire stations well-situated to respond to these areas. If annexed, the City would take over provision of fire and EMS services for West Hills (currently served by CKFR), Rocky Point (currently served by South Kitsap Fire and Rescue [SKFR]), and Navy Yard City (currently served by SKFR); no additional capital needs are anticipated though there would be a need to add staffing due to the calls for service for Navy Yard City. The Fire Department estimates that annexing Navy Yard City would require changes to the current response zones including the need for two additional firefighters. (BERK Consulting, 2015).

Just outside of the Gorst UGA there is a SKFR District station, which has the ability to provide rapid response times. The station has one engine, one medic unit and one brush truck for fighting wildland fires (AECOM and BERK, 2013). The short-term impacts of annexing the Gorst UGA will be addressed through a contract with SKFR, but in the long term, the City will need to look at providing these services directly. In that case, the City would need a fire station (there is one currently in Gorst), an engine/paramedic unit, and six to twelve FTEs to provide fire service. (BERK Consulting, 2015)

## Poulsbo Fire Department / Fire District 18



Poulsbo Fire Dept. Vehicle

The City of Poulsbo annexed to the Kitsap County Fire Protection District No.18 in 1998.

The District covers approximately 54 square miles and served a population of approximately 23,594 people as of 2010. District No. 18 extends north of Poulsbo to Port Gamble, west to Bangor Naval Base/Clear Creek Road, and south to Mountain View Road. The eastern boundary is approximately three miles east of Poulsbo. The Fire Department has four fire stations: Station 71 and Station 77 are staffed full time, Station 72 is flex-staffed, and Station 73 is staffed by volunteers.

### ***Capital Projects***

Capital projects adapted from a 2012 plan are listed below in Exhibit 4-40 and summarized in Exhibit 4-41 and Exhibit 4-42.

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### Poulsbo Fire Department/ Fire District 18

#### Fire Units

- 4 engines
- 2 tenders
- 2 medic units
- 3 aid units
- 1 rescue boat
- Several staff cars

#### Staff

- 1 fire chief
  - 2 deputy chiefs
  - 10 A Shift BC
  - 10 B Shift BC
  - 9 C Shift BC
  - 30 volunteer firefighters
  - 1 administrative services manager
  - 1 office manager
  - 1 public education PIO
  - 1 finance
  - 1 office assistant
-

**Exhibit 4-40. Poulsbo Fire Department Capital Projects 2016-2036 (All numbers in 2012 \$1000s)**

Category/ Project Description	Revenue Sources	Cost	Cost	Cost	Total Cost
		2016-2018	2019-2021	2022-2036	
<b>Category I: Capacity Increasing Projects</b>					
Project Description: None					
<b>Category II: Capital Replacement, Maintenance and Operations</b>					
Replace SCBAs (including SCBA Compressor)	Fire District Tax Levy		260		260
Replace Bunker Gear	Fire District Tax Levy	48	113		161
Medic Unit Replacement	Fire District Tax Levy	243	761		1,004
Ongoing Fire Hose Replacement	Fire District Tax Levy		64		64
MCT	Fire District Tax Levy		88		88
Replace Lifepack	Fire District Tax Levy		103		103
Other Fire Equipment	Fire District Tax Levy	9	86		95
Ongoing Miscellaneous Capital Improvements	Fire District Tax Levy	142	316		458
Replace Staff Vehicles	Fire District Tax Levy	72	113		185
Repair Station 71 Parking Lots & Drainage	TBD		500		500
Replace Flat Roofs at Station 71 with Peaked Roofs	TBD		300		300
Replace Station 73	TBD		3,500		3,500
Add Exhaust Capture Systems, Upgrade Bay Doors	TBD		450		450
Replace Engines at End of Useful Life	TBD	1,200	2,825		4,025

Source: Poulsbo Fire Department, 2012; BERK, 2016.

**Exhibit 4-41. Poulsbo Fire Department Capital Projects Costs 2016-2036 (All numbers are in 2012 \$1000s)**

Category Summary	Cost Years		Total Cost
	2016-2021	2022-2036	
<b>Category I (Capacity Projects Required to Meet LOS)</b>	0	0	0
<b>Category II (Other Projects Needed for Maintenance and Operations)</b>	11,193	TBD	11,193
<b>Total</b>	11,193	0	11,193

Source: Poulsbo Fire Department, 2012; BERK, 2016.

**Exhibit 4-42. Poulsbo Fire Department Capital Project Revenues 2016-2036 (All numbers are in 2012 \$1000s)**

Revenue Source	Revenue Years		Total Revenue
	2016-2021	2022-2036	
<b>Fire District Tax Levy</b>	2,418	TBD	2,418
<b>Source TBD</b>	8,775	TBD	8,775
<b>Total</b>	<b>11,193</b>	<b>TBD</b>	<b>11,193</b>

Source: Poulsbo Fire Department, 2012; BERK, 2016.

## 4.4 Parks and Recreation

### Overview

A variety of public agencies and private organizations provide parks and recreation facilities within Kitsap County, including Washington State Parks, Washington Department of Natural Resources (DNR), National Park Service-designated Kitsap Peninsula Water Trail, schools, and cities.



### Inventory of Current Facilities

Kitsap County owns approximately 7,278 acres of parkland, and other agencies own approximately 19,847 acres of parkland in the county, as shown in Exhibit 4-43. Kitsap County owns 8.5 miles of shoreline access and approximately 100 miles of trails in the county, while other agencies own 18 miles of shoreline access and 57 miles of trails in the county. Park space is generally used by all county residents. Out-of-county and out-of-state visitors and tourists also use a significant portion of these regional sites and facilities.



Playground

**Exhibit 4-43. County-Owned Parks, Shoreline Access, and Trails**

Type of Park	Kitsap County Capacity (Acres)	Other Agencies Capacity (Acres)	Total Capacity (Acres)
Natural Resource Areas	1,191	16,699	17,890
Heritage Parks	4,699	0	4,699
Regional Parks	590	2,342	2,932
Community Parks	339	806	1,145
Partnership Properties	459		459
<b>Total Acres</b>	<b>7,278</b>	<b>19,847</b>	<b>27,125</b>
Shoreline Access (Miles)	8.5	18	26.5
Trail Miles (Paved and Unpaved)	100	57	157

Source: Kitsap County Parks, Recreation & Open Space Plan, 2012; Kitsap County Parks Department, 2015; BERK, 2016.

### Active and Passive Recreation Facilities

The County owns and manages a wide variety of active and passive recreation facilities, including baseball and softball fields, soccer fields, tennis courts, and other venues, as shown in Exhibit 4-44 and Exhibit 4-45.

**Exhibit 4-44. County-Owned Active Recreation Facilities (Units)**

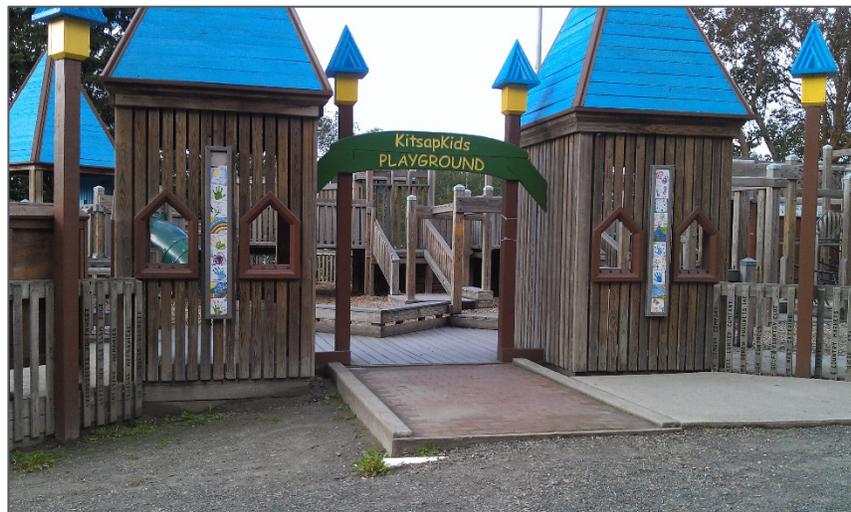
Type of Active Recreation Facility	Kitsap County Capacity
Baseball Fields (250"+)	8
Baseball Fields (200"+)	19
Indoor Gymnasium	1
Basketball	7
Volleyball	6
Soccer	18
Tennis Courts	9
Horseshoe Pits	32
BMX Track	1
Golf Course Holes	36
Skate Park	3

Source: Kitsap County Parks, Recreation & Open Space Plan, 2012; Kitsap County Parks Department, 2015; BERK, 2016.

**Exhibit 4-45. County-Owned Passive Recreation Facilities (Units)**

Type of Passive Recreation Facility	Kitsap County Capacity
Playgrounds	12
Garden features	1
Off-leash areas	3
<b>Trails</b>	
Trails (Paved)	1
Trails (Unpaved)	73
Total Trails (Miles)	74

Source: Kitsap County Parks, Recreation & Open Space Plan, 2012; Kitsap County Parks Department, 2015; BERK, 2016.



Kitsap Kids Playground, Fairgrounds and Events Center

**Other Recreation Facilities**

Exhibit 4-46 shows the inventory of additional recreational facilities owned and managed by the County, including beach and water activities, and community centers.

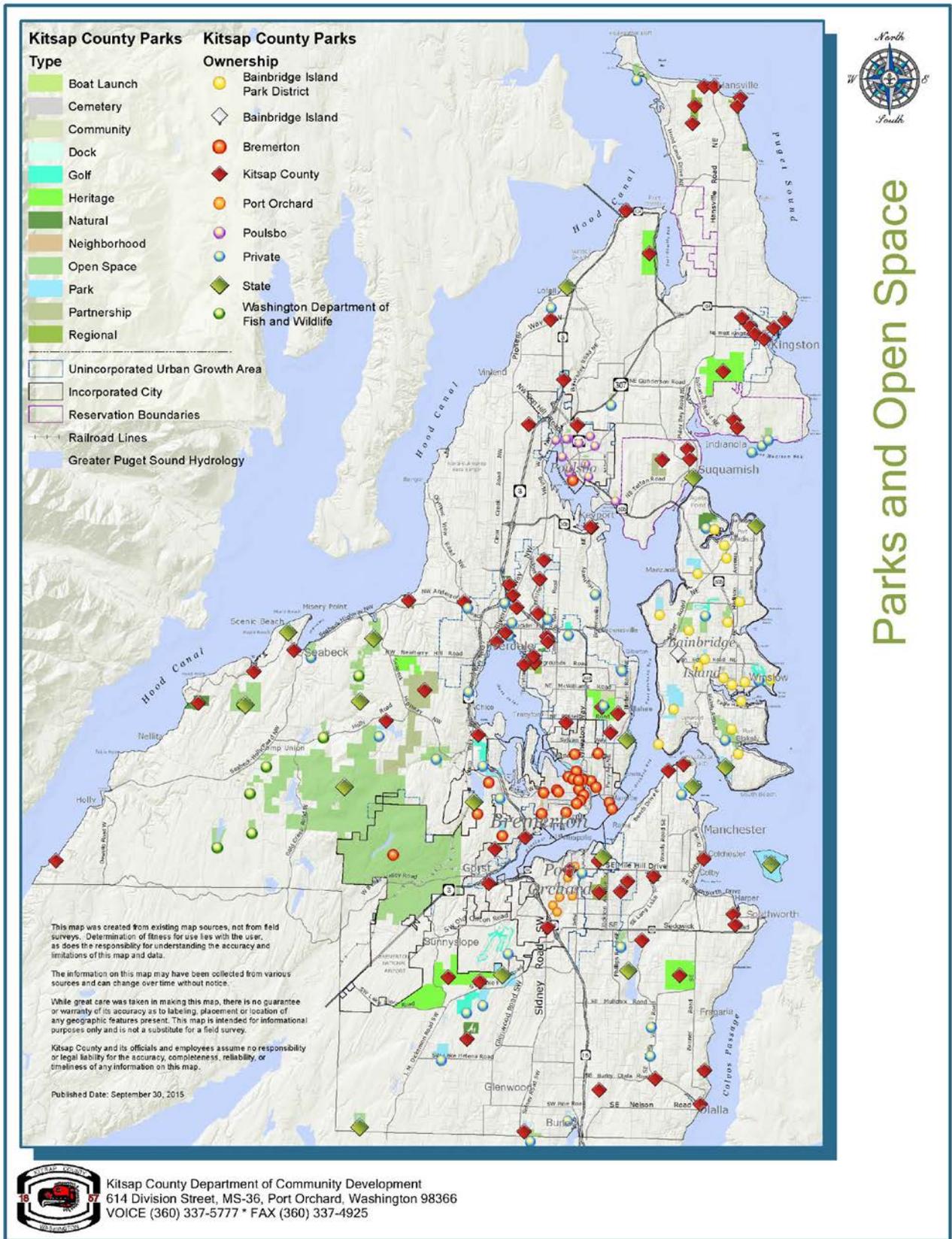
**Exhibit 4-46. County-Owned Facilities by Category (Units)**

Type of Passive Recreation Facility	Kitsap County Capacity
Boat launches - motorized	2
Boat launches - non-motorized	4
Docks	3
Piers	5
Benches	21
Shelters	5
Swimming Shoreline	1,512 linear feet
Saltwater Shoreline	29,051 linear feet
Freshwater Shoreline	5,361 linear feet
Showers	10
Restrooms	23
Drinking Fountains	14
Camp Sites	56
Parking Spaces	892

Source: Kitsap County Parks, Recreation & Open Space Plan, 2012; Kitsap County Parks Department, 2015; BERK, 2016.

A map of parks facilities provided by Kitsap County and other agencies is provided on Exhibit 4-47.

Exhibit 4-47. Kitsap County Parks Facilities



Source: Kitsap County Community Development 2015

## Level of Service Capacity Analysis

The LOS analysis for parks is based on the 2012 Kitsap County Parks, Recreation & Open Space (PROS) Plan that was adopted in March of 2012. For most of the parks and recreation facilities include two forms of LOS: The “target” LOS is from PROS, and “base” LOS was the standard adopted in the 2012 based on the fundable plan.

### Natural Resource Areas

The adopted LOS for natural resource areas is 71.1 acres per 1,000 population, including both County and non-County facilities. Currently, the County is not meeting this standard as shown in Exhibit 4-48.

**Exhibit 4-48. Target LOS Requirement Analysis – Natural Resource Areas**

Time Period	Kitsap Countywide Population	Acres to meet Target LOS Standard	Acres Available	Net Reserve or Deficit
Natural Resources Area LOS Standard = 71.1 Acres per 1,000 population				
2015	258,200	18,332	17,890	(442)
2021 Preferred Alternative	278,691	19,787	17,890	(1,897)
2036 Preferred Alternative	333,053	23,647	17,890	(5,757)

Source: Kitsap County Parks, Recreation & Open Space Plan, 2012; Kitsap County Parks Department, 2015; BERK, 2016.

The 2012 CFP included a base LOS of 57.1 acres per 1,000 population. The County has sufficient capacity to meet this LOS standard now and through the six-year planning period, but will have a deficit in the twenty-year planning period, as shown in Exhibit 4-49.

**Exhibit 4-49. Base LOS Requirement Analysis – Natural Resource Areas**

Time Period	Kitsap Countywide Population	Acres to meet Target LOS Standard	Acres Available	Net Reserve or Deficit
Natural Resources Area LOS Standard = 57.1 acres per 1,000 population				
2015	258,200	14,743	17,890	3,147
2021 Preferred Alternative	278,691	15,913	17,890	1,977
2036 Preferred Alternative	333,053	19,017	17,890	(1,127)

Source: Kitsap County CFP 2012; BERK, 2016.

To meet the target LOS in all periods and the base LOS in 2036, the County is working on a community effort called the Kitsap Forest and Bay Project that could double the County’s open space and passive recreational acres. The Forest and Bay project is anticipated to add up to 4,910 acres by purchasing Pope Resources land with public and private resources, and dedicating the land for public use. The land includes:

- Port Gamble Upland Block – 3,316 acres
- Port Gamble Shoreline Block - 564 acres, including 1.8 miles of shoreline (already acquired)
- Divide Block - 664 acres (180 acres already acquired)
- Park Expansion Block - 366 acres (already acquired)

Working with DNR, some State land may also be transferred to County ownership through the legislatively-funded Trust Land Transfer (TLT) Program. Under this program DNR’s timbered

properties are transferred to another public agency that will manage and protect it for public use and enjoyment. The current proposal includes:

- Olympic View proposed TLT - 50 acres

The additional Kitsap Forest and Bay Project properties are not currently classified as Natural Resource Areas, but these properties can be managed as natural resource areas or open spaces where logging is permitted, which could help solve the Natural Areas LOS deficit. The Parks Department can determine appropriate classifications and a management approach as it updates the PROS Plan scheduled for 2018.

### Regional Parks

The adopted target LOS for regional parks is 16 acres per 1,000 population, including County and non-County facilities. The County currently has a deficiency of 1,199 acres, and this deficiency continues and increases through 2036, as shown in Exhibit 4-50.

**Exhibit 4-50. Target LOS Requirement Analysis – Regional Parks**

Time Period	Kitsap Countywide Population	Acres to Meet Target LOS Standard	Acres Available	Net Reserve or Deficiency
Regional Parks LOS = 16 acres per 1,000 population				
2015	258,200	4,131	2,932	(1,199)
2021 Preferred Alternative	278,691	4,459	2,932	(1,527)
2036 Preferred Alternative	333,053	5,329	2,932	(2,397)

Source: Kitsap County Parks, Recreation & Open Space Plan, 2012; Kitsap County Parks Department, 2015; BERK, 2016.

In 2012, the CFP identified a base LOS of 8.9 acres per 1,000 people. At this standard, the County would meet the needs of growth in the 2016-2021 period, as shown in Exhibit 4-51, and would have a slight deficit by the 2022-2036 period. The deficit could be addressed by additions in non-County regional parkland or by changing the base LOS to 8.8 acres per 1,000 persons for the outer years of the planning period.

**Exhibit 4-51. Base LOS Adjustments for Regional Parks**

Time Period	Kitsap Countywide Population	Acres to Meet Target LOS Standard	Acres Available	Net Reserve or Deficiency
Regional Parks LOS = 8.9 acres per 1,000 population				
2015	258,200	2,298	2,932	634
2021 Preferred Alternative	278,691	2,480	2,932	452
2036 Preferred Alternative	333,053	2,964	2,932	(32)

Source: Kitsap County CFP, 2012; BERK, 2016.

If the County elected to adjust its LOS to a base level, the standards shown in Exhibit 4-52 would allow the County to meet the base standards under the Preferred Alternative for the 2016-2021 period and the 2022-2036 period.

**Exhibit 4-52. Potential LOS Adjustments for Regional Parks**

Alternative	Target LOS	Estimated Deficiency	LOS Needed to Address Deficiency (Acres/ 1000 people)
2015	16 acres/ 1,000 people	(1,199)	11.4
2021 Preferred Alternative	16 acres/ 1,000 people	(1,527)	10.5
2036 Preferred Alternative	16 acres/ 1,000 people	(2,397)	8.89

Source: Kitsap County Parks, Recreation & Open Space Plan, 2012; Kitsap County Parks Department, 2015; BERK, 2016.

**Heritage Parks**

The adopted target LOS for heritage parks is 19 acres per 1,000 population and assumes the full acres owned by the County. The County is currently deficient in heritage parks, as shown in Exhibit 4-53. Heritage parks are only provided by Kitsap County.

**Exhibit 4-53. Target LOS Requirement Analysis – Heritage Parks**

Time Period	Kitsap Countywide Population	Acres to Meet Target LOS Standard	Acres Available	Net Reserve or Deficiency
Heritage Parks LOS = 19 acres per 1,000 population				
2015	258,200	4,906	4,699	(207)
2021 Preferred Alternative	278,691	5,295	4,699	(596)
2036 Preferred Alternative	333,053	6,328	4,699	(1,629)

Source: Kitsap County Parks, Recreation & Open Space Plan, 2012; Kitsap County Parks Department, 2015; BERK, 2016.

The 2012 CFP base LOS is 11.5 acres per 1,000 population. Using this standard, the deficits would be reversed, as shown in Exhibit 4-54. Due to heritage park additions since 2012, it is likely the County could increase its base LOS.

**Exhibit 4-54. Base LOS Requirement Analysis for Heritage Parks**

Time Period	Kitsap Countywide Population	Acres to Meet Target LOS Standard	Acres Available	Net Reserve or Deficiency
Heritage Parks LOS = 11.5 acres per 1,000 population				
2015	258,200	2,969	4,699	1,730
2021 Preferred Alternative	278,691	3,205	4,699	1,494
2036 Preferred Alternative	333,053	3,830	4,699	869

Source: Kitsap County CFP 2012; BERK, 2016.

The County could reassess its LOS standards for heritage parks and adopt base LOS standards reflecting its larger inventory since 2012. The County could have a base LOS of 17 acres per 1,000 persons from 2015 to 2021 and a base LOS of 14 acres per 1,000 persons by the close of the 2036 planning period.

If the County elected to adjust its LOS to a base level, the standards shown in Exhibit 4-55 would allow the County to meet the base standards under the Preferred Alternative for the 2016-2021 period and also for the 2022-2036 period.

**Exhibit 4-55. Potential LOS Adjustments for Heritage Parks**

Alternative	Target LOS	Estimated Deficiency	LOS Needed to Address Deficiency (Acres/ 1000 people)
2015	19 acres/ 1,000 people	(207)	18
2021 Preferred Alternative	19 acres/ 1,000 people	(596)	17
2036 Preferred Alternative	19 acres/ 1,000 people	(1,629)	14

Source: Kitsap County Parks, Recreation & Open Space Plan, 2012; Kitsap County Parks Department, 2015; BERK, 2016.

**Community Parks**

The adopted target LOS for community parks is 4.65 acres per 1,000 population. There is a small deficit in 2015 that grows by 2036, as shown in Exhibit 4-56.

**Exhibit 4-56. Target LOS Requirement Analysis – Community Park**

Time Period	Kitsap Countywide Population	Acres to Meet Target LOS Standard	Acres Available	Net Reserve or Deficiency
Community Parks LOS = 4.65 acres per 1,000 population				
2015	258,200	1,201	1,145	(56)
2021 Preferred Alternative	278,691	1,296	1,145	(151)
2036 Preferred Alternative	333,053	1,549	1,145	(404)

Source: Kitsap County Parks, Recreation & Open Space Plan, 2012; Kitsap County Parks Department, 2015; BERK, 2016.

In 2012, a base LOS of 3.50 acres per 1,000 was adopted. That LOS would be sufficient through the six-year period and result in small deficiencies by year 20, as shown in Exhibit 4-57. Changing the base LOS to 3.44 acres per 1,000 persons would address deficiencies in the outer years of the planning period.

**Exhibit 4-57. Base LOS Requirement Analysis – Community Park**

Time Period	Kitsap Countywide Population	Acres to Meet Target LOS Standard	Acres Available	Net Reserve or Deficiency
Community Parks LOS = 3.5 acres per 1,000 population				
2015	258,200	904	1,145	241
2021 Preferred Alternative	278,691	975	1,145	170
2036 Preferred Alternative	333,053	1,166	1,145	(21)

Source: Kitsap County CFP 2012; BERK, 2016.

If the County elected to adjust its LOS to a base level, the standards shown in Exhibit 4-58 would allow the County to meet the base standards under the Preferred Alternative for the 2016-2021 period and also for the 2022-2036 period.

**Exhibit 4-58. Potential LOS Adjustments for Community Park**

Alternative	Target LOS	Estimated Deficiency	LOS Needed to Address Deficiency (Acres/ 1000 people)
2015	4.65 acres/ 1,000 people	(56)	4.4
2021 Preferred Alternative	4.65 acres/ 1,000 people	(151)	4.1
2036 Preferred Alternative	4.65 acres/ 1,000 people	(404)	4.1

Source: Kitsap County Parks, Recreation & Open Space Plan, 2012; Kitsap County Parks Department, 2015; BERK, 2016.

### Shoreline Access

The adopted LOS for shoreline access is 0.061 miles per 1,000 population and includes County and non-County miles of shoreline access. The County currently has a surplus of shoreline access, considering both County and non-County miles of shoreline access, as shown in Exhibit 4-59.

**Exhibit 4-59. LOS Requirement Analysis – Shoreline Access**

Time Period	Kitsap Countywide Population	Acres to Meet Target LOS Standard	Miles Available	Net Reserve or Deficiency
Shoreline Access LOS = 0.061 miles per 1,000 population				
2015	258,200	16	26.5	10.7
2021 Preferred Alternative	278,691	17	26.5	9.5
2036 Preferred Alternative	333,053	20	26.5	6.2

Source: Kitsap County Parks, Recreation & Open Space Plan, 2012; Kitsap County Parks Department, 2015; BERK, 2016.

### Trails

The adopted LOS for trails is 0.2 miles per 1,000 population and relies on the County’s inventory of trails. The County has a reserve of trail miles through 2036, as shown in Exhibit 4-60. Other agencies provide approximately 57 miles of trails in the county, which, if included in the adopted LOS standard, would increase the surplus.



Kitsap Park Volunteers

**Exhibit 4-60. LOS Requirement Analysis – Trails**

Time Period	Kitsap Countywide Population	Acres to Meet Target LOS Standard	Miles Available	Net Reserve or Deficiency
Trails LOS = 0.2 miles per 1,000 population				
2015	258,200	52	157	105
2021 Preferred Alternative	278,691	56	157	101
2036 Preferred Alternative	333,053	67	157	90

Source: Kitsap County Parks, Recreation & Open Space Plan, 2012; Kitsap County Parks Department, 2015; BERK, 2016.

### Facilities Objectives



SKRP Skate Park, Kitsap County



Example Spray Park, Snohomish Co.

The 2012 Kitsap County PROS Plan contains a demand and needs analysis. The levels of service in the plan for park land, open space, and trails are addressed in this CFP as target levels of service. The PROS Plan also includes a demand analysis for two additional categories of facilities:

- Athletic Facilities: ballfields (baseball, soccer, football), sport courts (basketball, tennis, volleyball), multipurpose fields, jogging tracks, gyms, alternative sports facilities (skate park, BMX track), swimming pools, and others.
- Outdoor Leisure Facilities: Playgrounds, picnic shelters, camp sites, swimming shoreline, boat launches, golf course holes, nature/interpretive centers, and community centers.

The Athletic Facilities and Outdoor Leisure Facilities needs analysis from the PROS Plan is hereby incorporated by reference.

Because needs, costs, and management approaches can change over time, this CFP provides the following facility objectives:

- A. Based on community needs, provide outdoor leisure and athletic facilities to advance the PROS Plan vision and meet community needs.
- B. Recognizing differences in park classifications, site conditions, costs, maintenance and operations, and other relevant considerations, allow for a variety of outdoor leisure and athletic facilities listed under the two categories or similar to listed facilities. For example, Outdoor Leisure includes playgrounds. The form of playgrounds may vary and include traditional play structures, spray parks, adventure playgrounds, sensory gardens, or others.
- C. Promote a minimum standard of facilities to encourage community access to new parks within funding constraints. For example, full implementation of park master plan may be staged over multiple years. An early phase could install basic amenities such as a loop trail, parking, restrooms, and multipurpose lawn with later phases installed as funding and management considerations allow.



Salsbury Point Boat Ramp



Gordon Field Opening

### Land Acquisition and Management Objectives

Much of Kitsap County's inventory of land has been donated or acquired. Some of the land is ecologically sensitive and cannot be used for parks and recreation purposes. Given limited management resources and the need to create a regional connected parks and recreation system, it is important to identify objectives for land acquisition.

Land that is acquired or proposed for donation to Kitsap County should have the following characteristics to ensure it contributes to the envisioned regional park system and can be efficiently managed within limited funding resources:

- A. The property meets a parkland or facility need identified in the adopted PROS plan or approved park master plan.
- B. The property contains adequate usable area for active or leisure recreation purposes.
- C. If used for active recreation, multiple recreation activities in multiple seasons are feasible.
- D. If intended for open space conservation, a management plan is prepared demonstrating how natural resources are to be managed for ecosystem services, the level of maintenance resources needed, and the suitability for public access.
- E. The property can be feasibly maintained and operated.
- F. The property has suitable physical conditions for the intended park use, including soil structure, topography, natural features, vegetation, structures, existing facilities, and local conditions, etc.
- G. Appropriate vehicular and pedestrian access to the site is feasible.
- H. Appropriate utilities and public works systems in relationship to location and intended use of site are available.
- I. The future park, recreation, or open space use is consistent with Comprehensive Plan policies and zoning districts.

### Health Objectives

The Growth Management Act promotes planning for healthy lifestyles, such as by promoting well-designed neighborhoods with access to parks, non-motorized trails, and other recreation facilities. Parks capital projects that advance the following health objectives should be prioritized for funding and implementation:

- A. Improve the connectivity of parks, trails, and open space systems, particularly in proximity to population and job centers, to encourage more frequent recreation use.
- B. Promote the design and implementation of facilities that are usable by persons of all ages and abilities, such as improvements implementing ADA requirements.
- C. Provide active or outdoor leisure facilities usable in multiple seasons for a variety of activities.
- D. Advance sustainable design principles such as low impact development, conservation, and other environmentally best management practices.

## Capital Projects and Funding

Capital facilities projects for parks are shown in Exhibit 4-61. Exhibit 4-62 shows the capital facilities costs from 2016 through 2036 and Exhibit 4-63 shows the capital facilities revenues for the same time period.

**Exhibit 4-61. Parks Capital Facilities Projects 2016-2036 (All numbers in 2015 \$1000s)**

Category/ Project Description	Revenue Sources	Cost 2016-2018	Cost 2019-2021	Cost 2022-2036	Total Cost
<b>Category I: Capacity Increasing Projects</b>					
Acquisition - Heritage General	Construction Futures	410	250	TBD	660
<b>Category II: Capital Replacement, Maintenance and Operations</b>					
Improvements	REET II, Construction Fund, General Fund	4,064	3,785	TBD	7,849
Maintenance	REET II, General Fund, Fund Balance	972	780	TBD	1,752

Note: This project list may be further updated based on the 2016 Budget that is under review, and based on further Department review in association with the Preferred Alternative.

Source: Kitsap County Parks Department, 2016; BERK, 2016

**Exhibit 4-62. Parks Capital Facilities Costs 2016-2036 (In 2015 dollars)**

Category Summary	Cost Years 2016-2021	Cost Years 2022-2036	Total Cost
<b>Category I (Capacity Projects Required to Meet LOS)</b>	660	TBD	660
<b>Category II (Other Projects Needed for Maintenance and Operations)</b>	9,601	TBD	9,601
<b>Total</b>	<b>10,261</b>	<b>TBD</b>	<b>10,261</b>

Source: Kitsap County Parks Department, 2016; BERK, 2016.

**Exhibit 4-63. Parks Capital Facilities Revenues 2016-2036**

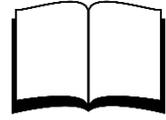
Revenue Source	Revenue Year 2016-2021	Revenue Years 2022-2036	Total Revenue
<b>REET II, Construction Fund, General Fund</b>	9,601	TBD	9,601
<b>Construction Futures</b>	660	TBD	660
<b>Total</b>	<b>10,261</b>	<b>TBD</b>	<b>10,261</b>

Note: Funding may be further updated based on the 2016 Budget that is under review, and based on further Department review in association with the Preferred Alternative.

Source: Kitsap County Parks Department, 2016; BERK, 2016.

## 4.5 Schools

The purpose of this section is to ensure that adequate educational facilities will be available to serve the increasing population of Kitsap County. This section evaluates the four school districts that serve unincorporated Kitsap County: North Kitsap, Central Kitsap, South Kitsap, and Bremerton. Two districts were excluded: Bainbridge Island Schools, because the entire district is located in the City of Bainbridge Island, and the North Mason School District, because it does not have schools or facilities in Kitsap County and serves only a very small area in the southwestern corner of the County. Exhibit 4-64 shows the school district boundaries.



### Inventory of Current Facilities

The inventories and analyses of capacity requirements are presented in two ways: with interim (i.e., portable) facilities and without interim facilities. The districts' capital improvement projects are based on the capacity without portables because portables have significant limitations, including heating, ventilation, noise, security, restrooms, storage cupboards, and intercom communications. For these reasons, portables are not considered permanent capacity by the state or by the districts. The capacity of portable rooms is presented to show the interim facilities the districts use (1) to meet short-term enrollment fluctuations, or (2) to serve as temporary facilities until permanent facilities are built.

Capacity figures are generally based on teacher-to-student ratios (expressed as students per classroom) that the school district determines to be most appropriate to accomplish its educational program. These ratios are often contained in employment agreements between districts and their teachers. Inventories of the school districts' existing facilities in Kitsap County are presented in this section.



## North Kitsap School District

North Kitsap School District (NKSD) is located at the north end of the Kitsap Peninsula and is almost completely surrounded by water. To the west, the district is bordered by Hood Canal and includes the Port Gamble Inlet. To the north and east, Puget Sound borders the district. Port Madison and Liberty Bay surround the district on its southernmost borders. NKSD schools are generally clustered around the City of Poulsbo and the unincorporated community of Kingston. The district currently uses the following grade level configurations: K–5 housed in elementary schools, 6-8 housed in middle schools, and 9-12 housed in senior high schools. Exhibit 4-65 lists North Kitsap Schools and their enrollment capacity.

**Exhibit 4-65. North Kitsap School District Current Enrollment Capacity**

<b>Schools</b>	<b>Current Enrollment Capacity</b>
<i>Elementary Schools (K-5)</i>	
Breidablik	391
Gordon	320
Pearson	296
Poulsbo	382
Suquamish	345
Vinland	467
Wofle	391
<b>Total Elementary Permanent Facilities</b>	<b>2,592</b>
<b>Total Elementary Interim (Portable) Facilities</b>	<b>1,200</b>
<b>Total Elementary Permanent and Interim Facilities</b>	<b>3,792</b>
<i>Middle School</i>	
Kingston	958
Poulsbo	721
<b>Total Middle School Permanent Facilities</b>	<b>1,679</b>
<b>Total Middle School Interim (Portable Facilities)</b>	<b>525</b>
<b>Middle School School Permanent and Portable Classrooms</b>	<b>2,204</b>
<i>High School</i>	
Kingston	806
North Kitsap	1,313
Spectrum School	75
<b>Total High School Permanent Facilities</b>	<b>2,194</b>
<b>Total High School Interim (Portable Facilities)</b>	<b>250</b>
<b>High School School Permanent and Portable Classrooms</b>	<b>2,444</b>
<b>Overall Total Permanent Facilities Capacity</b>	<b>6,465</b>
<b>Overall Total Interim (Portable) Facilities</b>	<b>1,975</b>
<b>Overall Total Permanent and Interim Facilities</b>	<b>8,440</b>

Source: North Kitsap School District Facility Master Plan, 2015.

## Central Kitsap School District

Central Kitsap School District is located on the Kitsap Peninsula, surrounding Dyes Inlet and extending west to the Hood Canal. Currently, there are twelve elementary schools, three middle schools, one 7–12 secondary school, and two senior high schools in the district. The District also provides alternative middle and high school programs. The grade configuration is based on grades K–6, elementary; grades 7–8, middle school that will include grade 6 in the future; and 9–12, high school. Exhibit 4-66 presents the schools of Central Kitsap and their enrollment capacity.

**Exhibit 4-66. Central Kitsap School District Inventory**

School	Current Enrollment Capacity
<i>Elementary Schools (K–6)</i>	
Brownsville	408
Clear Creek	480
Cottonwood	384
Cougar Valley	480
Emerald Heights	528
Esquire Hills	432
Green Mountain	432
Jackson Park	480
Pinecrest	504
Silverdale	432
Silver Ridge	432
Woodlands	432
<b>Total Elementary Permanent Facilities</b>	<b>5,424</b>
<b>Total Elementary Interim (Portable) Facilities</b>	<b>456</b>
<b>Total Elementary Permanent and Interim Facilities</b>	<b>5,880</b>
<i>Middle Schools (7–8)</i>	
Central Kitsap	875
Fairview	750
Ridgetop	1,025
<b>Total Middle School Permanent Facilities</b>	<b>2,650</b>
<b>Total Middle School Interim (Portable Facilities)</b>	<b>325</b>
<b>Middle School School Permanent and Portable Classroom</b>	<b>2,975</b>
<b>High Schools (9–12)</b>	
Central Kitsap	1,200
Olympic	1,050
Klahowya (7-12)	725
<b>Total High School Permanent Facilities</b>	<b>2,975</b>
<b>Total High School Interim (Portable Facilities)</b>	<b>850</b>
<b>High School School Permanent and Portable Classrooms</b>	<b>3,825</b>
<b>Overall Total Permanent Facilities Capacity</b>	<b>11,049</b>
<b>Overall Total Interim (Portable) Facilities</b>	<b>1,631</b>
<b>Overall Total Permanent and Interim Facilities</b>	<b>12,680</b>

Source: Central Kitsap School District, 2015; BERK, 2016.

## Bremerton School District

The Bremerton School District (BSD) is located on the Kitsap Peninsula between Port Orchard Bay, Dyes Inlet, and Sinclair Inlet. The district is adjacent to the Puget Sound Naval Shipyard, and its enrollment is directly related to the military base. The school district serves the City of Bremerton and unincorporated areas adjacent to the city.

BSD comprises six elementary schools, one middle school, one traditional high school, and one alternative high school. The district also administers a vocational skills center that serves other school districts. The current grade configuration in the district is based on grades K–5, elementary; grades 6–8, middle school; and grades 9–12, high school. Exhibit 4-67 lists the schools of Bremerton School District and their enrollment capacity.

**Exhibit 4-67. Bremerton School District Inventory**

<b>Schools</b>	<b>Current Enrollment Capacity</b>
<i>Elementary Schools</i>	
Armin Jahr	481
Crownhill	528
Kitsap Lake	528
Naval Avenue Early Learning Center	484
View Ridge	528
West Hills S.T.E.M. Academy (K-8)	528
<b>Total Elementary Permanent Facilities</b>	<b>3,077</b>
<b>Total Elementary Interim (Portable) Facilities</b>	<b>840</b>
<b>Total Elementary Permanent and Interim Facilities</b>	<b>3,917</b>
<i>Middle Schools</i>	
Mountain View Middle School (7-8)	1,274
<b>Total Middle School Permanent Facilities</b>	<b>1,274</b>
<b>Total Middle School Interim (Portable Facilities)</b>	<b>120</b>
<b>Middle School School Permanent and Portable Classrooms</b>	<b>1,394</b>
<i>High Schools</i>	
Bremerton High School	1,671
Renaissance High School	136
West Sound Technical Skills Center	515
<b>Total High School Permanent Facilities</b>	<b>2,322</b>
<b>Total High School Interim (Portable Facilities)</b>	<b>120</b>
<b>High School School Permanent and Portable Classrooms</b>	<b>2,442</b>
<b>Overall Total Permanent Facilities Capacity</b>	<b>6,673</b>
<b>Overall Total Interim (Portable) Facilities</b>	<b>1,080</b>
<b>Overall Total Permanent and Interim Facilities</b>	<b>7,753</b>

Notes: The West Sound Technical Skill Center may include students that are enrolled at Bremerton High School and Renaissance High School.

Source: Bremerton School District No. 100-C Study and Survey, 2012; BERK, 2016.

The Bremerton School District has stated that their classrooms tend to be overcrowded at the listed capacity; therefore, they are often not used at capacity numbers. This should be taken into consideration for future capital planning. (Steedman, 2015)

## South Kitsap School District

South Kitsap School District (SKSD) is located in the southern portion of Kitsap County. Pierce County and Mason County border the District to the south and west. To the north and east, the District is bordered by the Sinclair Inlet, Rich Passage, Colvos Passage, and Puget Sound. The district includes 10 elementary schools, three junior high schools, and one alternative and one comprehensive high school. The majority of the schools are located throughout the southern portion of unincorporated Kitsap County, while South Kitsap High School, Cedar Heights Junior High School, and Sidney Glen Elementary School are located within the Port Orchard city limits. The grade configuration is based on grades K–6, elementary; grades 7–9, junior high; and grades 10–12, senior high school. Exhibit 4-68 lists the schools of the South Kitsap School District and their enrollment capacity.

**Exhibit 4-68. South Kitsap School District Inventory**

Schools	Current Enrollment Capacity
<i>Elementary Schools</i>	
Burley-Glenwood	528
East Port Orchard	467
Hidden Creek	526
Manchester	441
Mullenix Ridge	480
Olalla	408
Orchard Heights	729
Sidney Glen	467
South Colby	216
Sunnyslope	417
<b>Total Elementary Permanent Facilities</b>	<b>4,679</b>
<b>Total Elementary Interim (Portable) Facilities</b>	<b>456</b>
<b>Total Elementary Permanent and Interim Facilities</b>	<b>5,135</b>
<i>Junior High Schools</i>	
Cedar Heights	605
John Sedgwick	839
Marcus Whitman	796
<b>Total Middle School Permanent Facilities</b>	<b>2,240</b>
<b>Total Middle School Interim (Portable Facilities)</b>	<b>325</b>
<b>Middle School School Permanent and Portable Classrooms</b>	<b>2,565</b>
<i>High Schools</i>	
South Kitsap	1,972
Alternative High School	174
<b>Total High School Permanent Facilities</b>	<b>2,146</b>
<b>Total High School Interim (Portable Facilities)</b>	<b>850</b>
<b>High School School Permanent and Portable Classrooms</b>	<b>2,996</b>
<b>Overall Total Permanent Facilities Capacity</b>	<b>9,065</b>
<b>Overall Total Interim (Portable) Facilities</b>	<b>1,631</b>
<b>Overall Total Permanent and Interim Facilities</b>	<b>10,696</b>

Source: Personal Communication with Tom O'Brien, Director of Facilities and Operations at South Kitsap School District, 2015; BERK, 2016.

## Level of Service Analysis

An LOS capacity analysis was applied to each county school district based on a student-to-household ratio that was developed by comparing the enrollment numbers from the Washington State Office of Superintendent of Public Instruction (OSPI) to household estimates by school district. The results, expressed as the number of students a school is able to accommodate based on the enrollment capacity inventories above, are shown below. Where numbers are positive, a school district is projected to have a net reserve of school capacity. Where numbers are negative, a school district is projected to have a deficit of school capacity.

The school analysis in this CFP is conservatively high by assuming that total growth estimated in 2021 and 2036 occurs all at the same time. However, depending on the timing of the development in the planning period and the total amount of growth, districts with strained capacity may need to split attendance boundaries, add portables, or ultimately develop new schools.

## Enrollment Projections

Enrollment data is measured by OSPI, which conducts student counts in October and May of each school year. The current enrollment levels presented in this section reflect the May 2015 student count for each district.

Future enrollment projections are complex, and there are many possible approaches for estimating student growth. This analysis strives to provide a consistent planning effort across all four districts by using the same base data for each (OSPI's student count and OFM's small area estimates of occupied housing units based on the 2012 Small Area Estimates) and a standard land capacity methodology to project households by district for 2021 and 2036. It is recognized that the CFP estimates are conservative, and that the Districts have a refined approach for determining future enrollment and space needs, which they generally revisit every six years.

This CFP analysis bases future enrollment levels on a student-per-household ratio using the number of households projected from the land capacity analysis described in Section 1.2. The net change in household growth for each alternative was added to the 2012 base household number from OFM's small area estimates. The student-per household ratios were developed as follows:

- Three of the districts, SKSD, NKSD, and BSD developed their own student generation rates for use in their capital facility plans. These estimates were incorporated into this analysis and applied to the projected growth in households, separating out multifamily (MF) and single-family (SF) dwelling unit growth. Estimates of future enrollment may differ from those used in these Districts' CFPs since the projected growth in households is different from those based on this land capacity analysis.
- For CKSD, which did not include their own student-per-household generation assumptions in their adopted CFPs, this analysis assumes that the current student-per-household ratio observed in the district will continue going forward.

### North Kitsap School District

NKSD is currently meeting its LOS standard through the use of permanent facilities. However, with an increase in households expected over the planning period, the District is not expected to meet its LOS in 2021 or 2036, as shown in Exhibit 4-69.

In its CFP, NKSD has its own student generation rates based on the demographics in the district. The District uses the student generation rates to project future enrollment based on anticipated housing unit growth. Generation rates for NKSD are 0.52 students per single-family dwelling unit and 0.36 students per multi-family dwelling unit (NKSD CFP 2009).



Richard Gordon Elementary



North Kitsap High School

### Central Kitsap School District

CKSD is currently meeting the LOS standard through the use of portables, which gives it a total available capacity that is greater than current enrollment. It is not meeting its standard through permanent facilities alone. With expected enrollment growth within the district, CKSD will have a deficit under the Preferred Alternative, even with the addition of portable capacity, as shown in Exhibit 4-70.



Central Kitsap High School

**Exhibit 4-69. North Kitsap School District Level of Service Analysis – Student Capacity**

Time Period	Student per SF Household Ratio	Student per MF Household Ratio	SF Households	MF Households	Total Enrollment	Permanent Capacity	Permanent Capacity Net Reserve or Deficit	Total Capacity	Total Capacity Net Reserve or Deficit
2015	0.52	0.36	15,890	4,934	6,137	6,465	328	8,440	2,303
2021 Preferred Alternative	0.52	0.36	17,464	5,472	11,051	6,465	(4,586)	8,440	(2,611)
2036 Preferred Alternative	0.52	0.36	22,053	5,573	13,474	6,465	(7,009)	8,440	(5,034)

Notes:

2015 Total Enrollment is from May 2015.

The 2015 SF Households and MF Households are 2012 household numbers.

Source: OSPI, 2015; OFM, 2015; BERK, 2016.

**Exhibit 4-70. Central Kitsap School District Level of Service Analysis: Student Capacity**

Time Period	Student per Household Ratio	Households	Total Enrollment	Permanent Capacity	Permanent Capacity Net Reserve or Deficit	Total Capacity	Total Capacity Net Reserve or Deficit
2015	0.46	27,081	11,108	11,049	(59)	12,680	1,572
2021 Preferred Alternative	0.46	29,285	13,471	11,049	(2,422)	12,680	(791)
2036 Preferred Alternative	0.46	35,124	16,157	11,049	(5,108)	12,680	(3,477)

Notes:

2015 Total Enrollment is from May 2015.

The 2015 SF Households and MF Households are 2012 household numbers.

Source: OSPI, 2015; OFM, 2015; BERK, 2016.

**Bremerton School District**



Bremerton High School  
Graduation 2015

BSD is currently meeting its LOS standard through the use of permanent facilities. However, with an increase in households expected over the planning period, the District is not expected to meet its LOS, as shown in Exhibit 4-71. In 2021, BSD will see a surplus if temporary capacity is considered and a deficit with permanent capacity. With permanent or temporary capacity there would be a deficit by 2036, and the District does not have adequate portable facilities to serve total enrollment under the Preferred Alternative.

**South Kitsap School District**

SKSD is currently meeting the LOS standard through the use of portables, which gives it a total available capacity greater than current enrollment. It is not meeting its standard through permanent facilities alone.

In its CFP, SKSD has its own student generation rates based on the demographics within the district. The district uses the student generation rates to project future enrollment based on anticipated housing unit growth. Generation rates for SKSD are 0.52 students per single-family dwelling unit and 0.32 students per multifamily dwelling unit (South Kitsap School District CFP, 2014-19).

Exhibit 4-72 shows the estimated level of service under the Preferred Alternative. If growth in households occurs as predicted with the land capacity analysis, SKSD would need to increase capacity to meet its LOS standard.



Students at a Festival



Orchestra Students

**Exhibit 4-71. Bremerton School District Level of Service Analysis: Student Capacity**

Time Period	Student per SF Household Ratio	Student per MF Household Ratio	SF Households	MF Households	Total Enrollment	Permanent Capacity	Permanent Capacity Net Reserve or Deficit	Total Capacity	Total Capacity Net Reserve or Deficit
2015	0.37	0.22	13,801	7,821	5,111	6,673	1,562	7,753	2,642
2021 Preferred Alternative	0.37	0.22	15,081	8,642	7,481	6,673	(808)	7,753	272
2036 Preferred Alternative	0.37	0.22	17,462	10,799	8,837	6,673	(2,164)	7,753	(1,084)

Notes:

2015 Total Enrollment is from May 2015.

The 2015 SF Households and MF Households are 2012 households.

Source: OSPI, 2015; OFM, 2015; BERK, 2016.

**Exhibit 4-72. South Kitsap School District Level of Service Analysis: Student Capacity**

Time Period	Student per SF Household Ratio	Student per MF Household Ratio	SF Households	MF Households	Total Enrollment	Permanent Capacity	Permanent Capacity Net Reserve or Deficit	Total Capacity	Total Capacity Net Reserve or Deficit
2015	0.52	0.36	20,208	6,994	9,628	9,065	(563)	10,696	1,068
2021 Preferred Alternative	0.52	0.36	22,238	7,667	14,324	9,065	(5,259)	10,696	(3,628)
2036 Preferred Alternative	0.52	0.36	29,422	7,268	17,916	9,065	(8,851)	10,696	(7,220)

Notes:

2015 Total Enrollment is from May 2015.

The 2015 SF Households and MF Households are 2012 households.

Source: OSPI, 2015; OFM, 2015; BERK, 2016.

## Capital Projects and Funding

### North Kitsap School District

Exhibit 4-73 shows North Kitsap School District capital projects planned for 2016 through 2036.

#### Exhibit 4-73. North Kitsap School District Capital Projects (All numbers are in 2012 \$1000s)

Category/ Project Description	Revenue Sources	Cost 2016- 2018	Cost 2019- 2021	Cost 2022- 2036	Total Cost
<b>Category I: Capacity Increasing Projects</b>					
None					
<b>Category II: Capital Replacement, Maintenance and Operations</b>					
Renovation of Breidablik Elementary	Bond, State Match, Impact Fees	2,750			2,750
Renovation of Wolfle Elementary	Bond, State Match, Impact Fees		5,000		5,000
Renovation of Building One: Kingston Middle School	Bond, State Match, Impact Fees		14,500		14,500
Renovation of Building Two: Poulsbo Middle School	Bond, State Match, Impact Fees		8,000		8,000
Renovation of Voc Tech Building at North Kitsap HS	Bond, State Match, Impact Fees		7,500		7,500

Source: North Kitsap School District, 2012; BERK, 2016.

Exhibit 4-74 and Exhibit 4-75 show North Kitsap School District Capital Project costs and revenues from 2016 through 2036, respectively.

#### Exhibit 4-74. North Kitsap School District Capital Projects (All numbers are in 2012 \$1000s)

Category Summary	Cost Years 2016-2021	Cost Years 2022-2036	Total Cost
<b>Category I (Capacity Projects Required to Meet LOS)</b>	0	0	0
<b>Category II (Other Projects Needed for Maintenance and Operations)</b>	37,750	TBD	37,750
<b>Total</b>	37,750	TBD	37,750

Source: North Kitsap School District, 2012; BERK, 2016.

#### Exhibit 4-75. North Kitsap School District Capital Project Revenues (All numbers are in 2012 \$1000s)

Revenue Source	Revenue Years 2016-2021	Revenue Years 2022-2036	Total Revenue
<b>Bond</b>	27,136	TBD	27,136
<b>State Match</b>	12150	TBD	12,150
<b>Impact Fees</b>	1216	TBD	1,216
<b>Total</b>	<b>40,502</b>	<b>TBD</b>	<b>40,502</b>

Source: North Kitsap School District, 2012; BERK, 2016.

Central Kitsap School District

Exhibit 4-76 shows Central Kitsap School District capital projects planned for 2016 through 2036.

**Exhibit 4-76. Central Kitsap School District Capital Projects (All numbers are in 2012 \$1000s)**

Category/ Project Description	Revenue Sources	Cost 2016-2018	Cost 2019- 2021	Cost 2022- 2036	Total Cost
<b>Category I: Capacity Increasing Projects</b>					
Central Kitsap Junior High Replacement	Capital Project Levy; OSPI Matching		56,935		56,935
<b>Category II: Capital Replacement, Maintenance and Operations</b>					
Transportation/Warehouse/Food Service Consolidation	Capital Project Levy; OSPI Matching; Federal Heavy Impact Funds	5,719			5,719
Silverdale Elementary Renovation	Capital Project Levy; OSPI Matching; Federal Heavy Impact Funds	9,399			9,399
Cottonwood Elementary Miscellaneous Repairs	Capital Project Levy; Federal Heavy Impact Funds	66			66
Miscellaneous Repairs and Upgrades	Capital Projects Levy; Federal Heavy Impact Funds	5,375			5,375
Brownsville Elementary Miscellaneous Repairs	Capital Projects Levy	398			398
Silverdale Stadium Turf Replacement and Other Upgrades	Federal Heavy Impact Funds; Capital Projects Levy	91			91
Ridgetop Junior High Miscellaneous Repairs	Capital Projects Levy	292			292
Esquire Hills Elementary Miscellaneous Repairs	Capital Projects Levy	2			2
Pine Crest Elementary Miscellaneous Repairs	Capital Projects Levy	108			108
Woodlands Elementary Miscellaneous Repairs	Federal Heavy Impact Funds	444			444
Klahowya Secondary Miscellaneous Repairs	Capital Projects Levy	321			321
Olympic High Miscellaneous Repairs	Federal Heavy Impact Funds; Capital Projects Levy	745			745
Silver Ridge Elementary Miscellaneous Repairs	Capital Projects Levy	529			529
Maintenance Facilities Miscellaneous Repairs	Capital Projects Levy	835			835

Source: Central Kitsap School District, 2012; BERK, 2016.

Exhibit 4-77 and Exhibit 4-78 show Central Kitsap School District planned capital project costs and revenues for 2016 through 2036, respectively.

**Exhibit 4-77. Central Kitsap School District Capital Project Costs  
(All numbers are in 2012 \$1000s)**

Category Summary	Cost Years 2016- 2021	Cost Years 2022- 2036	Total Cost
<b>Category I (Capacity Projects Required to Meet LOS)</b>	56,935	TBD	56,935
<b>Category II (Other Projects Needed for Maintenance and Operations)</b>	24,324	TBD	24,324
<b>Total</b>	81,259	TBD	81,259

Source: Central Kitsap School District, 2012; BERK, 2016.

**Exhibit 4-78. Central Kitsap School District Capital Project Revenues**  
(All numbers are in 2012 \$1000s)

Revenue Source	Revenue	Revenue	Total Revenue
	Years 2016-2021	Years 2022-2036	
<b>Capital Projects Levy</b>	58,312	TBD	58,312
<b>Federal Heavy Impact Funds</b>	4,378	TBD	4,378
<b>OSPI Matching</b>	18,570	TBD	18,570
<b>Total</b>	<b>81,260</b>	<b>TBD</b>	<b>81,260</b>

Source: Central Kitsap School District, 2012; BERK, 2016.

**Bremerton School District**

Exhibit 4-79 shows Bremerton School District capital projects planned for 2016 through 2036. The project list includes one capacity project, West Hills STEM Capacity Analysis, paid for with state funding assistance and bonds. The table also lists non capacity-increasing projects that include capital maintenance and replacement. The Bremerton School District future plans include approximate cost but do not specify the years for planned projects other than a range of 10-15 years from the date of the 2012 study. This CFP assumes these projects will all occur by 2036.

**Exhibit 4-79. Bremerton School District Capital Projects (All numbers are in 2015 \$1000s)**

Category / Project Description	Revenue Sources	Total Cost
<b>Category I (Capacity Projects Required to Meet LOS)</b>		
West Hills STEM Capacity Expansion	State Funding Assistance, Bonds	4,000
<b>Category II (Non-Capacity Projects Needed for Maintenance and Operations)</b>		
Kitsap Lake Re-Roof	Bonds	600
Crown Hill Re-Roof	Bonds	600
View Ridge Re-Roof	Bonds	600
Administration Building Re-Roof	Bonds	500
Memorial Stadium Restroom/Concessions	Bonds	400
Upgrade Fire Alarm Panels multiple sites	State Funding Assistance, Bonds	500
Update Student Technology	Bonds	500
Replace telephone system	Bonds	900
Add Surveillance cameras	Bonds	300
Demolish old East High building except for gyms	Bonds	100
Fix parking and traffic	Bonds	1,200
Upgrade sports fields at MVMS, Memorial Stadium, and old East High site	Bonds	1,200
Add fire sprinklers to the Admin Building	Bonds	-

Source: Bremerton School District No. 100-C Study and Survey, 2012; OSPI School Construction Assistance, 2015; BERK 2016.

Exhibit 4-80 and Exhibit 4-81 shows the Bremerton School District capital project costs and revenues, respectively.

**Exhibit 4-80. Bremerton School District Capital Project Costs (All numbers are in 2015 \$1000s)**

Category Summary	2016 - 2018	2019 - 2021	2020 - 2036	Total
<b>Category I (Capacity Projects Required to Meet LOS)</b>	N/A	N/A	N/A	4,000
<b>Category II (Other Projects Needed for Maintenance and Operations)</b>	N/A	N/A	N/A	7,400
<b>TOTAL</b>	N/A	N/A	N/A	11,400

Source: Bremerton School District No. 100-C Study and Survey, 2012; OSPI School Construction Assistance, 2015; BERK 2016.

**Exhibit 4-81. Bremerton School District Capital Project Revenues  
(All numbers are in 2015 \$1000s)**

Revenue Source	Revenue Year 2016-2021	Revenue Years 2022-2036	Total Revenue
<b>State Funding Assistance, Bonds</b>			4,500
<b>Bonds</b>			6,900
<b>Total</b>			<b>11,400</b>

Source: Bremerton School District No. 100-C Study and Survey, 2012; OSPI School Construction Assistance, 2015; BERK 2016.

**South Kitsap School District**

SKSD’s planned projects include two capacity-increasing projects: modular classrooms and a high school site purchase, which will increase capacity in the long term. SKSD plans to pay for these projects with impact fees.

The District plans to use capital maintenance funds to make improvements to existing facilities that include electrical upgrades, fire alarm system replacements, BG plumbing replacement, CH roofing facial/ beam repairs, BG gym wall replacement, parking lot/ asphalt repairs, asbestos abatement, pool maintenance/ upgrades, school flooring projects, ADA access projects, hydraulic lift stations, admin roof replacement, skylight replacement/ repairs, seismic upgrades. Exhibit 4-82 shows the list of planned capital projects.

The South Kitsap School District has a 2015-20 Capital Facilities Plan, which provides additional information about capital projects.

**Exhibit 4-82. South Kitsap School District Capital Projects (All numbers are in 2015 \$1000s)**

Category/ Project Description	Revenue Sources	Cost	Cost	Cost	Total Cost
		2016-2018	2019-2021	2022-2036	
<b>Category I: Capacity Increasing Projects</b>					
Modular Classrooms	Impact Fees	300	305	TBD	605
High School Site Purchase	Impact Fees	879	884	293	2,053
<b>Category II: Capital Replacement, Maintenance and Operations</b>					
Electrical Upgrades	Capital Maint Funds	750	750		1,500
Fire Alarm System Replacements	Capital Maint Funds	225	225		500
BG Plumbing Replacement	Capital Maint Funds	200	0		200
CH Roofing Facia/Beam Repairs	Capital Maint Funds	75	75		150
BG Gym Wall Replacement	Capital Maint Funds	50	0		50
Parking Lot/Asphalt Repairs	Capital Maint Funds	350	350		700
Asbestos Abatement	Capital Maint Funds	50	50		100
Pool Maintenance/Upgrades	Capital Maint Funds	0	500		500
School Flooring Projects	Capital Maint Funds	750	0		750
ADA Access Projects	Capital Maint Funds	250	0		250
Hydraulic Lift Stations	Capital Maint Funds	0	150		150
Admin Roof Replacement	Capital Maint Funds	0	500		500
Skylight Replacement/Repairs	Capital Maint Funds	100	0		100
Seismic Upgrades	Capital Maint Funds	0	150		150

Source: Personal Communication with Tom O'Brien, Director of Facilities and Operations for South Kitsap School District, 2015; BERK, 2016.

Exhibit 4-83 shows costs for South Kitsap School District planned capital projects for 2016 through 2036, and Exhibit 4-84 shows revenues for planned capital projects in the same time period.

**Exhibit 4-83. South Kitsap School District Capital Projects Costs  
(All numbers are in 2015 \$1000s)**

Category Summary	Cost Years 2016-2021	Cost Years 2022-2036	Total Cost
<b>Category I (Capacity Projects Required to Meet LOS)</b>	TBD	TBD	TBD
<b>Category II (Other Projects Needed for Maintenance and Operations)</b>	7,500	18,500	26,000
<b>Total</b>	7,500	18,500	26,000

Source: Personal Communication with Tom O'Brien, Director of Facilities and Operations for South Kitsap School District, 2015; BERK, 2016.

**Exhibit 4-84. South Kitsap School District Capital Project Revenues  
(All numbers are in 2015 \$1000s)**

Revenue Source	Revenue Year 2016-2021	Revenue Years 2022-2036	Total Revenue
<b>Impact Fees</b>	2,368	293	2,661
<b>Capital Maintenance Funds</b>	5,550	TBD	5,550
<b>Total</b>	7,918	293	8,211

Source: Personal Communication with Tom O'Brien, Director of Facilities and Operations for South Kitsap School District, 2015; BERK, 2016.

## 4.6 Solid Waste



### Overview

Washington State law (RCW 70.95) requires counties to plan an integrated solid waste management system that emphasizes waste reduction and recycling. Chapter 70.105 RCW requires local governments to develop plans for managing moderate risk waste, which includes hazardous wastes produced by households, businesses, and other entities in small quantities. Kitsap County Public Works/Solid Waste Division is the lead planning agency for solid waste management in Kitsap County.

In 2011, Kitsap County adopted its Comprehensive Solid and Hazardous Waste Management Plan, entitled *Waste Wise Communities: The Future of Solid and Hazardous Waste Management in Kitsap County* (Kitsap County 2011). This Plan and personal communication with Kitsap County Public Works/Solid Waste Division staff are the sources for this analysis.

The Plan specifies the management actions that will be taken over a six-year (detailed) and 20-year (general) time period. The plan is developed with participation from the cities, tribes, and the Navy, as well as a solid waste advisory committee. Through this planning process, counties are encouraged to allow private industry to provide services as much as possible (RCW 70.95.020). The Kitsap County solid waste system is a combination of private companies and public agencies. Components of an integrated solid waste management program are:

- System planning, administration, and enforcement
- Collection, transfer, and disposal of solid waste
- Collection and processing of recyclables
- Moderate risk waste transfer and collection programs



Olympic View Transfer Station



Silverdale RAGF

### Inventory of Current Facilities

Exhibit 4-85 shows the current inventory of solid waste facilities in Kitsap County, which are owned and operated by a variety of entities.

**Exhibit 4-85. Current Facilities Inventory – Solid Waste**

Name	Owner	Operator	Location
<i>Solid Waste Disposal</i>			
Olympic View Transfer Station (OVTS)	Kitsap County Public Works (KCPW)	Waste Management Washington, Inc. (WMWI)	City of Bremerton
Olalla Recycling and Garbage Facility (RAGF)	KCPW	Contractor Operated	South Kitsap
Hansville RAGF	KCPW	KCPW	North Kitsap
Silverdale RAGF	KCPW	Contractor Operated	Central Kitsap
Bainbridge Island Transfer Station	Bainbridge Disposal	Bainbridge Disposal	City of Bainbridge Island
<i>Moderate Risk Waste Disposal</i>			
Household Hazardous Waste Collection Facility	KCPW	KCPW	City of Bremerton
<i>Residential Recyclables Collection</i>			
OVTS Recycling Area	KCPW	WMWI	City of Bremerton
Olalla RAGF	KCPW	Contractor Operated	South Kitsap
Hansville RAGF	KCPW	KCPW	North Kitsap
Silverdale RAGF	KCPW	Contractor Operated	Central Kitsap
Bainbridge Island Transfer Station	Bainbridge Disposal	Bainbridge Disposal	City of Bainbridge Island
Poulsbo Recycle Center	KCPW	KCPW	City of Poulsbo

Source: Keli McKay-Means, Projects and Operations Manager, Kitsap County Public Works Solid Waste Division, 2015.

**Level of Service Capacity Analysis**

The existing level of service for solid waste is calculated on estimated countywide population and the average per capita generation rates for solid waste and recycling. The rates used in this table were taken from Kitsap County’s Solid and Hazardous Waste Management Plan.

**Exhibit 4-86. Level of Service Requirement Analysis – Kitsap County Solid Waste System**

Time Period	Countywide Populations	SW Disposal Rate (lbs/ cap/ day)	SW Tons Disposed per Year	SW Recycling Rate (lbs/ cap/ day)	Recycled Tons per Year
2015	258,200	5	235,608	2	94,243
2021 Preferred Alternative	278,691	5	254,306	2	101,722
2036 Preferred Alternative	333,053	5	303,911	2	121,564

Source: Personal Communication with Keli McKay-Means, Projects and Operations Manager, Kitsap County Public Works Solid Waste Division, 2015; BERK, 2016.

The County is currently under contract with Waste Management, Inc. to operate the County’s Olympic View Transfer Station (OVTS) and send solid waste by rail to Waste Management’s Columbia Ridge Landfill. This contract expires in 2022. OVTS is designed for a maximum daily processing of 1,000 tons of waste, which exceeds the maximum projected volume of 800-900 tons per day in 2036. The landfill has capacity for 50 to 100 years and has additional acreage that could be permitted to increase its capacity further.

Planning at Kitsap County and Waste Management occurs on a yearly basis based on future projected needs. The County has adequate time to plan for 2036 levels of waste generation, and projected levels could be accommodated at OVTS and the current landfill site. Prior to the

expiration of the existing contract, the County will issue a Request for Proposals for qualified contractors to continue to maintain solid waste levels of service.

## Capital Projects and Funding

Exhibit 4-87 shows the planned capital facilities projects from 2016 through 2021. The Kitsap County Public Works Solid Waste Division plans six years in advance.

**Exhibit 4-87. Solid Waste Capital Facilities Projects 2016-2036 (All numbers are in 2015 \$1000s)**

Category/ Project Description	Revenue Sources	Cost 2016-2018	Cost 2019-2021	Cost 2022-2036	Total Cost
<b>Category I: Capacity Increasing Projects</b>					
Silverdale Recycling and Garbage Facility Master Plan, Improvements	Tipping Fees	1,275			1,275
North-End Household Hazardous Waste Facility	Tipping Fees	300			300
Household Hazardous Waste Collection Facility Floor Repairs and	Tipping Fees	50			50
OVTS Improvements - Master Plan, Paving and Improvements,	Tipping Fees	2,225	500		2,725
Poulsbo Recycle Center Attendant's Booth (Temporary)	Tipping Fees	200			200
<b>Category II: Capital Replacement, Maintenance and Operations</b>					
Hansville Landfill Closure Operations	Hansville Post-Closure Fund	195	195		390
Olalla Landfill Closure Operations	Olalla Post-Closure Fund	195	230		425

Source: Personal Communication with Keli McKay-Means, Projects and Operations Manager, Kitsap County Public Works Solid Waste Division, 2015; BERK, 2016.

Exhibit 4-88 shows the costs of the planned capital facilities 2016 through 2021, and Exhibit 4-89 shows the revenues for the planned capital facilities for that time period.

**Exhibit 4-88. Solid Waste Capital Facilities Costs 2016-2036 (All numbers are in 2015 \$1000s)**

Category Summary	Cost Years 2016-2021	Cost Years 2022-2036	Total Cost
<b>Category I. (Capacity Projects Required to Meet LOS)</b>			
Silverdale Recycling and Garbage Facility Master Plan, Improvements	1,275		1,275
North-End Household Hazardous Waste Facility	300		300
Household Hazardous Waste Collection Facility Floor Repairs and Improvements	50		50
OVTs Improvements - Master Plan, Paving and Improvements, Construction & Demolition	2,725		2,725
Poulsbo Recycle Center Attendant's Booth (Temporary)	200		200
<b>Category II. (Other Projects Needed for Maintenance and Operations)</b>			
Hansville Landfill Closure Operations	390		390
Olalla Landfill Closure Operations	425		425

Source: Personal Communication with Keli McKay-Means, Projects and Operations Manager, Kitsap County Public Works Solid Waste Division, 2015; BERK, 2016.

**Exhibit 4-89. Solid Waste Capital Facilities Revenues 2016-2036  
(All numbers are in 2015 \$1000s)**

Revenue Source	Revenue Year 2016-2021	Revenue Years 2022-2036	Total Revenue
<b>Tipping Fees</b>	4,550		4,550
<b>Hansville Landfill Post-Closure Fund</b>	390		390
<b>Olalla Landfill Post-Closure Fund</b>	425		425
<b>Total</b>	5,365		5,365

Source: Personal Communication with Keli McKay-Means, Projects and Operations Manager, Kitsap County Public Works Solid Waste Division, 2015; BERK, 2016.



Hansville Landfill

## 4.7 Stormwater

Kitsap County has three types of drainage facilities:

- Conveyance network
- Runoff quantity and flow-control facilities
- Stormwater quality treatment systems

The drainage infrastructure is guided by topography and flows, without consideration to property ownership, land use, or political boundaries. The conveyance network includes all natural (streams and swales) and constructed open channels (swales and ditches), as well as piped drainage systems (including catch basins and conveyance structures) and culverts. These systems may be located on private property or within the County right-of-way.

Quantity and flow-control facilities include infiltration facilities, retention and detention ponds, tanks, vaults, and bioretention systems. The purpose of these facilities is to reduce the rate of stormwater flow from a specific site or area to reduce the potential for localized flooding, minimize flow damage to natural water courses, and prevent downstream erosion problems. These facilities are designed to hold a volume of runoff based on the amount of impervious area and a specific design storm event. Quality and flow-control facilities can be located on either public or private property, depending upon the area being served. See Exhibit 4-90.

Stormwater quality enhancement facilities include water-quality (wet) ponds, biofiltration swales, infiltration facilities, and bioretention systems. The purpose of these facilities is to remove a certain type and/or amount of pollutant from the runoff before it is discharged into a water body or collection system or dispersed over the ground for infiltration. These facilities may be located on public or private property depending upon the area being served. See Exhibit 4-90.

Permit conditions may apply to development activities taking place within Kitsap County, for compliance with minimum requirements of the Kitsap County Stormwater Management Ordinance. Drainage control and water quality enhancement facilities constructed for large residential projects are dedicated to Kitsap County Stormwater Division for maintenance. Facilities constructed for commercial and multifamily developments are maintained privately.

**Exhibit 4-90 Current Stormwater Facilities Inventory**

Type of System	Quantity
Detention Pond	259
Detention Tank or Vault	74
Retention Pond	71
Water Quality Wet-Pond	34
Biofiltration Sw ale	139
Bioretention Facility	6
Infiltration Basin	112
Infiltration Trench	31
Underground Water Quality Filter	7
Tidegate	13
Hydro-Dynamic WQ Treatment Device	25
Tree-Box Filter	??
<b>Total Facilities</b>	<b>771</b>

Source: Kitsap County Stormwater Division 2015.

**Level of Service Capacity Analysis**

The Kitsap County Stormwater Division has maintenance responsibility for more than 615 stormwater retention/detention and runoff quality enhancement facilities. More than 55 newly constructed and private residential facilities are expected to be included in the Stormwater Division Inspection and Maintenance Programs within the next two years. Approximately 43% of the 2016 Stormwater Division Program budget is slated for inspection, maintenance, and retrofitting of County stormwater facilities.

The goals and objectives of the County’s Stormwater Program reflect the level of service (LOS) for stormwater management facilities. The Stormwater Capital Improvement Program, adoption of the Kitsap County Stormwater Management Ordinance, and watershed planning activities undertaken by the Department of Community Development all contribute to the public's level of service expectations.

**Current Level of Service**

The current level of service complies with a 2007 National Pollution Discharge Elimination System permit. Land development activities requiring land use approval from Kitsap County are conditioned to meet the water quality, runoff control, and erosion control requirements of Kitsap County’s Stormwater Design Manual, which was adopted by the Board of Commissioners, amended in August of 2009, and implemented in February of 2010.

The Kitsap County Stormwater Design Manual requires development projects to provide water quality enhancement for 91% of the runoff volume generated at the project site. When discharging to streams or open channels, runoff rates from development sites are required to be controlled to meet stream bank erosion control standards. These standards require that post-developed peak flow runoff rates do not exceed pre-developed rates for all stormwater flows ranging from 50% of the two-year flow through the 50-year flow as predicted by the Western Washington Hydrology Model. Alternative design criteria are pending by December 2013 based on the National Pollution Discharge Elimination System permit for Western Washington Phase II, issued by the Department of Ecology in 2013.

## Capital Projects and Funding

The Stormwater Capital Improvement Program focuses on correction of drainage problems that are not likely to be financed by the County's road fund. The objective of the program element is to secure enough funding to construct projects that address identified water quality problems, publicly owned fish passage barriers, and serious flooding problems located beyond County rights-of-way.

The County's stormwater facilities include 15 capital projects in the six-year planning period at a cost of \$15.5 million. See Exhibit 4-91.

New development in the 2022-2036 period will meet LOS criteria through compliance with applicable regulatory criteria. Other stormwater capital projects in the 2022-2036 period may include regional retrofits or restoration projects designed to address historical problems. The specific schedule, costs, and revenue sources for these 2022-2036 projects will be identified through future six-year CIP planning processes.

**Exhibit 4-91. Kitsap County Stormwater Capital Projects 2016-2036 (All numbers are in 2015 \$1000s)**

Category / Project Description	Revenue Sources	Cost Years 2016-2018	Cost Years 2019-2021	Cost Years 2022-2036	Total Cost
<b>Category I (Capacity Projects Required to Meet LOS)</b>					
<p><b>Dickerson Creek Culvert Replacement &amp; Floodplain Restoration Project (97003093)</b></p> <p>This project replaces two fish-passage barrier culverts (Taylor &amp; David Roads) on Dickerson Creek and restores floodplain function in this critical salmon stream system (both Dickerson &amp; Chico Mainstem). Property Purchases Completed in 2012. Design &amp; Permitting Completed in 2014. Construction scheduled for 2015-16. Phase I (David Road) completed in 2015. Phase II (Taylor Road) to be constructed in 2016.</p>	Grant Storm + Roads	\$500 \$300			\$800
<p><b>Clear Creek Culvert Floodplain Restoration &amp; Culvert Removal Project (97003096)</b></p> <p>This project replaces two fish-passage barrier culverts and removes a section of Schold Road to restore floodplain function on lower Clear Creek. Design &amp; Permitting Completed in 2013-15. Construction scheduled for 2016.</p>	Grant Storm + Roads	\$2,000 \$600			\$2,600
<p><b>Manchester Stormwater Treatment &amp; Outfall Replacement (97003107)</b></p> <p>This project is partially funded by an Ecology Stormwater Grant. The project will design and construct a new stormwater outfall for Manchester, provide water quality treatment for runoff draining to that outfall in the form of a multi-use stormwater park, add GSI components [Green Stormwater Infrastructure] to Manchester residential streets, and provide transportation (road and pedestrian) improvements in the Colchester-Main commercial center of Manchester. Stormwater Division is the lead for Public Works. Property purchase completed in 2013. Design and Permitting completed in 2014. Phase I construction completed in 2014-15 &amp; Phase II completed in 2015. Phase III construction scheduled for 2016.</p>	Storm + Roads	\$200			\$200
<p><b>Illahee Regional Stormwater Retrofit Project (97003088)</b></p> <p><b>This project will design and construct a regional stormwater facility (Water Quality &amp; Flow-Control) in the Illahee Creek headwaters sub-watershed. Design &amp; Permitting in 2014-16. Construction scheduled for 2017-19.</b></p>	Storm	\$750	\$750		\$1,500
<p><b>Silverdale Way Regional Stormwater Treatment &amp; Flow-Control Facility (97003137)</b></p> <p>This project will design and construct a regional stormwater facility (Water Quality &amp; Flow-Control) in the Clear Creek Ridgetop-Silverdale Way headwaters sub-watershed. Property purchased and grant funding obtained in 2015. Design is underway. Tentative construction in 2017-18.</p>	Grant	\$1,000			\$1,000
<p><b>Koch Creek Regional Stormwater Treatment &amp; Flow-Control Facility (97003127)</b></p> <p>This project will design and construct multiple stormwater facilities (Water Quality &amp; Flow-Control) in the Koch Creek headwaters sub-watershed. The project will also include GSS components. Design &amp; Permitting in 2016-17 and construction scheduled for 2018-19.</p>	Storm	\$720	\$255		\$975

Category / Project Description	Revenue Sources	Cost Years 2016-2018	Cost Years 2019-2021	Cost Years 2022-2036	Total Cost
<b>Ridgetop Blvd Green Street Retrofit (97003121)</b> This project will retrofit Ridgetop Boulevard as a Green Street. The project will also add pedestrian safety features, bike lanes, and traffic safety improvements. Design and permitting will be completed in 2015-16. The project will be constructed in multiple phases in 2017-20.	Grant + Loan Storm + Roads	\$595  \$215	\$1,680		\$2,490
<b>Silverdale Way Green Street (97003118)</b> This project is a joint Roads-Stormwater project to add WQ treatment to Silverdale Way between Byron Street and Bucklin Hill Road. This is a multi-year, phased project.	Storm + Roads	\$145	\$500		\$645
<b>Category II (Non-Capacity Projects Needed for Maintenance and Operations)</b>					
<b>Old Town Silverdale (Bayshore &amp; Washington) Water Quality Treatment Project (97003118)</b> This is a joint Sewer-Stormwater project to replace aging infrastructure and add WQ treatment in the form of tree-box filters. Design & Permitting to be completed in 2015. Construction scheduled for 2018.	Grant Storm + Roads + Sewer	\$275 \$85			\$360
<b>Keyport Water Quality Treatment Project (97003130)</b> This is a joint Sewer-Stormwater project to replace aging infrastructure and add WQ treatment in the form of bioretention & permeable pavers. Design & Permitting to be completed in 2015. Construction scheduled for 2016.	Grant Storm + Roads + Sewer	\$250 \$250			\$500
<b>Silverdale Duwe'iq Stormwater Water Quality Treatment Facility (97003081)</b> This project will design and construct a stormwater treatment facility (water quality) and restore wetlands in lower Clear Creek. The project will treat runoff from existing development along Silverdale Way. Property purchase completed in 2013. Design & Permitting completed in 2014. Construction scheduled for 2016-17.	Grant	\$950			\$950
<b>Strawberry Creek Culvert Replacement - Silverdale Loop Road (97003102)</b> This project replaces a fish-passage barrier culvert on Strawberry Creek at Silverdale Loop Road. Design & Permitting underway. Construction scheduled for 2019.	Storm	\$50	\$950		\$1,000
<b>Kingston Regional Stormwater Facility (97003138)</b> This project involves water quality retrofit of existing development in Kingston. Feasibility and Preliminary Design Underway. Design and Construction will depend on grant funding.	Storm + Roads	\$25	\$975		\$1,000
<b>Duncan Creek Fish Passage Improvements (97003110)</b> This project replaces a fish-passage barrier culvert on Duncan Creek at Colchester. The project also addresses failing infrastructure and local flooding. Only preliminary design and modeling are scheduled at this time.	Storm	\$45			\$45

Category / Project Description	Revenue Sources	Cost Years 2016-2018	Cost Years 2019-2021	Cost Years 2022-2036	Total Cost
<b>Silverdale Water Quality Treatment Projects - Mickleberry, Myhre, &amp; Blaine (97003135)</b> This project involves water quality retrofit of existing development in Silverdale. Preliminary design underway. Design and Construction will depend in grant funding.	Storm	\$45	\$1,390		\$1,435
<b>Wildcat Tributary Culvert Replacements (97003132)</b>	TBD			TBD	TBD
<b>Blackjack Tributary Culvert Replacements (97003133)</b>	TBD			TBD	TBD
<b>Thomas Creek Culvert Replacement (97003111)</b>	TBD			TBD	TBD
<b>Indianola - Indianola Road Green Street Project (97003129)</b>	TBD			TBD	TBD
<b>Suquamish - Brockton Green Street Project (97003074)</b>	TBD			TBD	TBD
<b>Manchester - Alaska Green Street Project (97003119)</b>	TBD			TBD	TBD
<b>Manchester - California Green Street Project (97003120)</b>	TBD			TBD	TBD
<b>Kingston - Bannister Green Street Project (97003123)</b>	TBD			TBD	TBD
<b>Kingston - Eastside Green Street Project (97003124)</b>	TBD			TBD	TBD
<b>Kingston - Main Street WQ Treatment Project (97003125)</b>	TBD			TBD	TBD
<b>Beach Drive Stormwater WQ Treatment Project (97003134)</b>	TBD			TBD	TBD

Source: Kitsap County Public Works Stormwater Division, BHC 2015

Costs and revenues for Kitsap County stormwater capital projects for the 2016-2036 time period are shown in Exhibit 4-92 and Exhibit 4-93, respectively.

**Exhibit 4-92. Kitsap County Stormwater Capital Project Costs, 2016-2036**  
(All numbers are in 2015 \$1000s)

Category Summary	Cost 2016-2021	Cost 2022-2036	Total Cost
<b>Capacity</b>	\$10,210	TBD	\$10,210
<b>Non-Capacity*</b>	\$5,290	TBD	\$5,290
<b>Sum</b>	\$15,500	TBD	\$15,500

\*Non-Capacity: Infrastructure upgrade, water quality benefit, energy efficiency  
Source: Kitsap County Public Works Stormwater Division, BHC 2015

**Exhibit 4-93. Kitsap County Stormwater Capital Project Revenues, 2016-2036**  
(All numbers are in 2015 \$1000s)

Revenue Source	Revenues 2016-2021	Revenues 2022-2036	Total Cost
<b>Potential State Grants &amp; Loans</b>	\$7,250	TBD	\$7,250
<b>Utility Fees</b>	\$8,250	TBD	\$8,250
<b>Sum</b>	\$15,500	TBD	\$15,500

Source: Kitsap County Public Works Stormwater Division, BHC 2015

## 4.8 Transportation

This section addresses motorized and non-motorized modes of travel. The section provides an inventory of existing facilities, an analysis of levels of service, a six-year transportation improvement program and a 20-year project list describing improvements and costs. Detailed revenue sources are provided for the six-year program. Long-range revenue projections and alternative sources are addressed in Chapter 3.

### Inventory

#### Roads

Exhibit 4-94 summarizes the existing miles of county arterial roadways by federal functional classification. The majority of roads in Kitsap County are local streets.

**Exhibit 4-94. Existing County-Owned Roadway Mileage by Functional Classification within Kitsap County**

Functional Classification	Total Miles of Roadway	Percentage of Total
<b>Urban Principal Arterial</b>	9.85	<b>1.1%</b>
<b>Urban Minor Arterial</b>	95.15	<b>10.2%</b>
<b>Urban Collector</b>	48.04	<b>5.1%</b>
<b>Rural Minor Arterial</b>	18.37	<b>2.0%</b>
<b>Rural Major Collector</b>	94.13	<b>10.1%</b>
<b>Rural Minor Collector</b>	51.25	<b>5.5%</b>
<b>Local</b>	614.12	<b>66.0%</b>
<b>Total</b>	930.91	<b>100.0%</b>

Source: Kitsap County Public Works Department, 2015a.

The Draft Supplemental EIS, November 2015, includes Appendix H with a detailed roadway inventory. That appendix is hereby incorporated by reference as a roadway inventory.

#### Pedestrian Facilities

Pedestrian facilities are an integral part of the transportation system. For some citizens, particularly elderly residents and children, walking is the primary mode of travel. It is also a key link to transit service and between land uses in urban areas. In general, sidewalks are present in the urbanized areas of Silverdale and Kingston and along many urban arterials. Roadways in rural areas generally do not have sidewalks, but many have shoulders that can be used for non-motorized travel. The Draft Supplemental EIS, November 2015, includes Appendix H with a roadway inventory identifying sidewalks presence. That appendix is hereby incorporated by reference as a sidewalk inventory.

#### Bicycle Facilities

Exhibit 4-95 shows bicycle routes in Kitsap County. The Bicycle Facilities Plan strives to provide non-motorized transportation facilities for bicycle and mixed bicycle/pedestrian user groups. Recommended goals and policies related to non-motorized transportation facilities are outlined in the *Kitsap County Bicycle Facilities Plan* (Kitsap County Public Works Department, 2014).

## Multi-Use Trails

For more than 20 years, the County has had planning programs for non-motorized modes, including several trail plans. Major trails within the county include the Clear Creek Trail in central Kitsap, the Hansville Greenway Trails in north Kitsap.



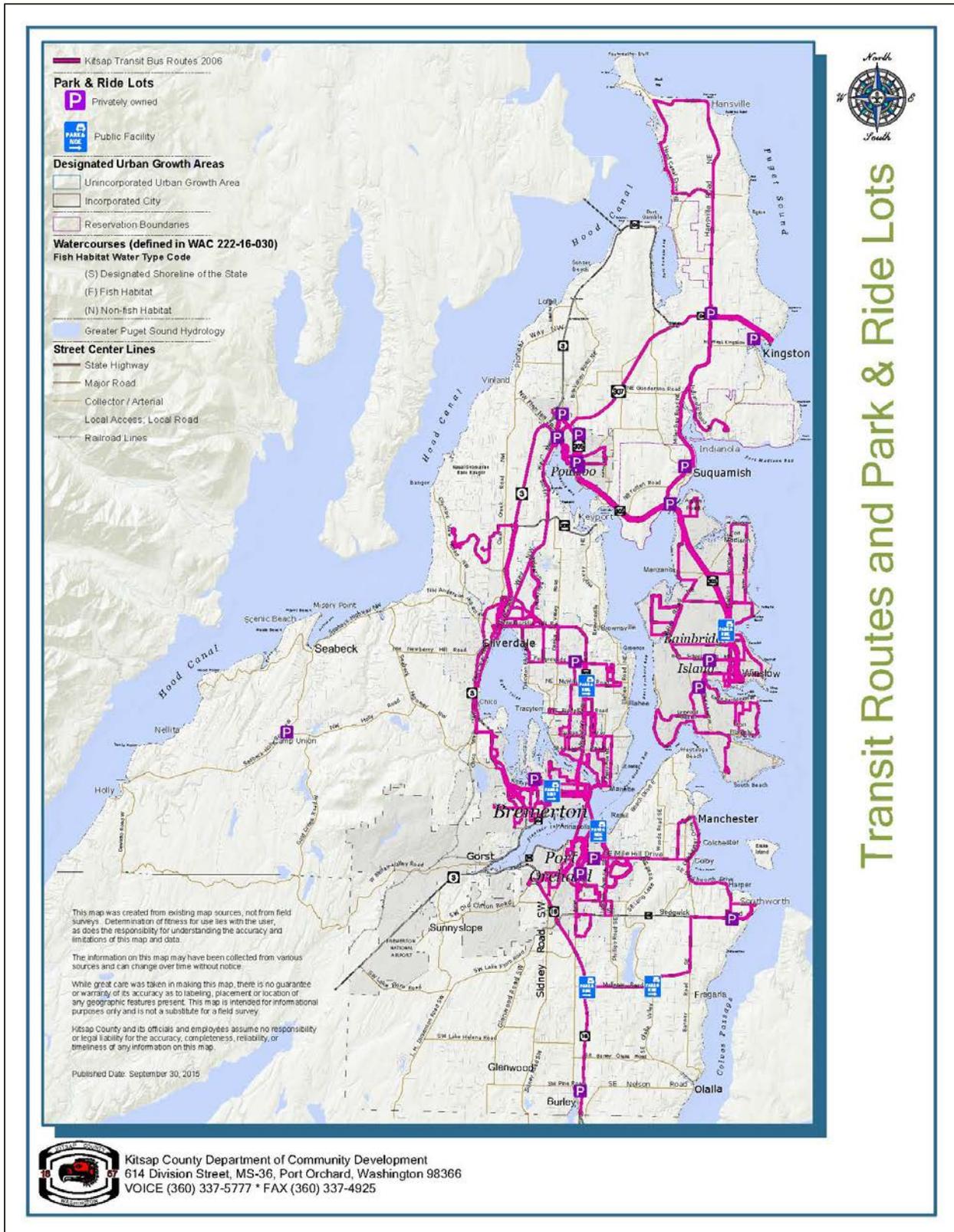
## Transit

Kitsap Transit is the public transportation provider in Kitsap County. Formally known as the Kitsap Public Transportation Authority, it was established by the voters in the fall of 1982. Its mission initially was to provide public transportation services in the greater Bremerton and Port Orchard areas. Since then, Kitsap Transit has expanded through a number of annexations to cover the entire county.

Kitsap Transit is a multi-program system that provides fixed route and paratransit bus service, manages a park-and-ride lot system, operates a passenger-only ferry service between Bremerton and Port Orchard, and supports transit-oriented development. The *2015-2020 Transit Development Plan* (Kitsap Transit, 2015), assesses existing service and facilities and lays out a six-year transit improvement plan.

Exhibit 4-96 shows existing fixed transit routes and park-and-ride facilities within the county. Transit service and facilities are described in the following sections.

Exhibit 4-96. Transit Routes and Park & Ride Lots



Source: Kitsap County Department of Community Development, 2015

## Rail and Freight

Kitsap County has one rail line that is located roughly parallel to SR 3 between the Mason County line and the Gorst area. Near Gorst, it splits into two spurs, with one terminating at the Navy Shipyard in Bremerton, and the other terminating at the Bangor Naval Base. This rail line is operated as part of the Puget Sound and Pacific Railroad (PSAP), but the segments in Kitsap County are owned by the US Navy. This line is designated as a Class III (short line and terminal/switching) railroad (WSDOT, 2009b) and has a Washington State Freight and Goods Transportation System (FGTS) classification of R-3 (rail economic corridor that carries 500,000 to 1 million tons of freight per year) (WSDOT, 2013). It connects directly to two Class I railroads—Union Pacific and BNSF Railway—at Centralia, and offers service to the Port of Aberdeen. Under current conditions, rail lines primarily serve military functions, and the majority of non-military freight movement (as well as additional military freight movement) in Kitsap County relies on trucks.

SR-3 is a primary freight route in Kitsap County and designated as a T-1 freight route (highest tonnage of a 5-class system) south of SR 308 and a T-2 route elsewhere. The Washington State Freight Mobility Plan, October 2014, is hereby incorporated by reference with regard to inventory information.

## Washington State Ferries

The Washington State Ferries (WSF) System is an important element of Kitsap County's transportation system. Four WSF terminals are located in Kitsap County: at Bremerton, Bainbridge Island, Southworth, and Kingston. Service between Kitsap County and the Seattle metropolitan area is provided by four state ferry routes, with endpoints at each of these terminals. Exhibit 4-97 summarizes ridership in 2014 and 2015 for each route. A description of each route is found in the Draft Supplemental EIS, November 2015.

**Exhibit 4-97. Washington State Ferries Traffic Statistics**

	2014			
	Vehicles	Passengers	Total Riders	% Change from 2010
Edmonds/ Kingston	2,098,533	1,904,234	4,002,767	3.2%
Seattle/ Bremerton	645,628	1,876,988	2,522,616	10.0%
Seattle/ Bainbridge Island	1,953,466	4,367,354	6,320,820	0.5%
Fauntleroy/ Southworth	497,522	321,557	819,079	2.3%
Vashon Island/ Southworth	85,610	80,882	166,492	3.7%

Source: (Washington State Department of Transportation (WSDOT), 2015)

## Level of Service and Capacity Analysis

Level of service standards are used to evaluate the transportation impacts of long-term growth and to ensure concurrency. Jurisdictions must adopt standards by which the minimum acceptable roadway operating conditions are determined and deficiencies may be identified.

Kitsap County's level of service policy generally recognizes that urban areas are likely to have more congestion than rural areas. This reflects the different characteristics of land use and transportation in these areas. For purposes of defining level of service standards, urban areas are

the geographic areas located within a UGA boundary, and rural areas are the geographic areas located outside UGA boundaries.

In rural areas, the system of major roads must have sufficient access to the abutting land uses, but because of the low level of land development, rural roads have small capacity requirements. In contrast, urban areas typically attract and generate high volumes of traffic. In order to facilitate through traffic and minimize congestion, major roads may have limited access to adjacent land uses while the more minor roads serve as access points to the surrounding development. The increased density and activity in an urban area inherently results in higher levels of congestion. Drivers are aware of the differences in land use between urban and non-urban areas and generally are more tolerant of congestion and the associated lower level of service in urban areas than in rural areas.

The level of service standards shown in Exhibit 4-98 are based on the location and functional classification of the roadway facilities to which they apply. Kitsap County uses traditional engineering methodology to evaluate level of service of roadway segments, which are sections of roadway located between major intersections. Level of service is based on the Volume-to-Capacity ratio (V/C), which is calculated by dividing the traffic volume on a roadway by the roadway’s vehicle capacity. However, the measure is multimodal in nature: For each street, the capacity is based upon its multimodal characteristics, including the number of lanes, traffic control, and whether or not it has transit, pedestrian, and bicycle facilities. The County has adopted roadway volume-to-capacity (V/C) thresholds of 0.79 to 0.89 (depending on rural versus urban respectively) that indicate the highest level of traffic that a roadway can carry before it is considered deficient.

**Exhibit 4-98. County Roadway Level of Service Standards**

Functional Classification	Maximum V/C Ratio/LOS Standard	
	Urban <sup>1</sup>	Rural <sup>2</sup>
<b>Principal Arterial</b>	0.89/D	0.79/C
<b>Minor Arterial</b>	0.89/D	0.79/C
<b>Collector</b>	0.89/D	0.79/C
<b>Minor Collector</b>	0.89/D	0.79/C
<b>Residential/Local</b>	0.79/C	0.79/C

Source: Kitsap County Public Works Department, 2014.

<sup>1</sup> Urban area is located within UGA boundaries.

<sup>2</sup> Rural area is located outside UGA boundaries.

The Kitsap County Concurrency Ordinance, codified in KCC 20.04, establishes the process for determining whether a development project meets concurrency. Though the County’s goal is to have no LOS deficiencies, it is recognized that not all roadways will meet the standards all the time given the limits of county, state, and federal funding and timing of project improvements. Therefore, 15% of lanes miles tested for concurrency will be allowed to temporarily exceed LOS standards. This 15% allowance shall be applied at both the system wide and project site level. Generally, the 15% threshold for road concurrency is the County’s adopted strategy to ensure LOS standards are within an accepted range and is not an acknowledgement of an LOS deficiency. This 15% is evaluated on a county wide basis and includes both rural and urban areas. Concurrency is satisfied if no more than 15% of county road lane-miles exceed LOS standards.

By adopting an area-wide standard, the County acknowledges the fact that not every roadway facility or link in the network will meet the adopted facility LOS standards all the time. Measures of area-wide concurrency are conducted periodically, such as during updates of the Comprehensive Plan, for sub-area planning, and when corridor studies are conducted.

The 15% allowance relates to individual development proposals undergoing a concurrency test. If LOS is equal to or better than the adopted standard, the concurrency test is passed, and an applicant is issued a Capacity Reservation Certificate. For purposes of concurrency determination, the analysis of LOS adequacy would only be applied to County arterials and collectors in rural areas and urban areas under the County’s jurisdiction. A Certificate of Concurrency is not issued to any proposed development if the standards in this section are not achieved and maintained within the six-year period allowed by GMA for transportation concurrency. The applicant has the option of accepting the denial of application; appealing the denial of application; or accepting a 90-day reservation period and, within this time, revising the development proposal to bring transportation within concurrency requirements.

Exhibit 4-99 summarizes the lane-miles of county roadway (classified as collector or above) that exceed standards under existing conditions (based on 2012 data). Approximately 2.2% of lane-miles of functionally classified roadways in Kitsap County currently exceed adopted segment LOS standards. This is well below the 15% concurrency threshold, and indicates that under the current concurrency management program, the system-wide concurrency test would be passed for a considerable level of additional development.

**Exhibit 4-99. Existing Roadway Deficiencies on County Roadways**

Region	Total Lane-Miles <sup>1,2</sup>	Number of Road Sections with Deficiencies <sup>3</sup>	Lane-Miles of Deficient Segments <sup>3</sup>	Percent of Deficient Lane-Miles	Concurrency Threshold
<b>North</b>	191.0	4	7.9	4.1%	<b>15%</b>
<b>Central</b>	221.3	6	3.4	1.5%	<b>15%</b>
<b>South</b>	263.0	2	3.6	1.4%	<b>15%</b>
<b>Total</b>	<b>675.3</b>	<b>12</b>	<b>14.9</b>	<b>2.2%</b>	<b>15%</b>

Source: Kitsap County Public Works Department, 2015b.

<sup>1</sup>Segments include all functionally classified roadways (principal arterials, minor arterials, and collectors).

<sup>2</sup>Lane-miles are calculated by multiplying the length of the roadway by the number of travel lanes on that roadway.

<sup>3</sup>Deficient segments are those for which V/C ratio exceeds standards defined in Exhibit 4-98.

Exhibit 4-100 summarizes the lane-miles of deficient county roadway segments projected by 2036. Exhibit 4-100 shows that the percentage of deficient lane-miles would not exceed the County concurrency standard of 15%.

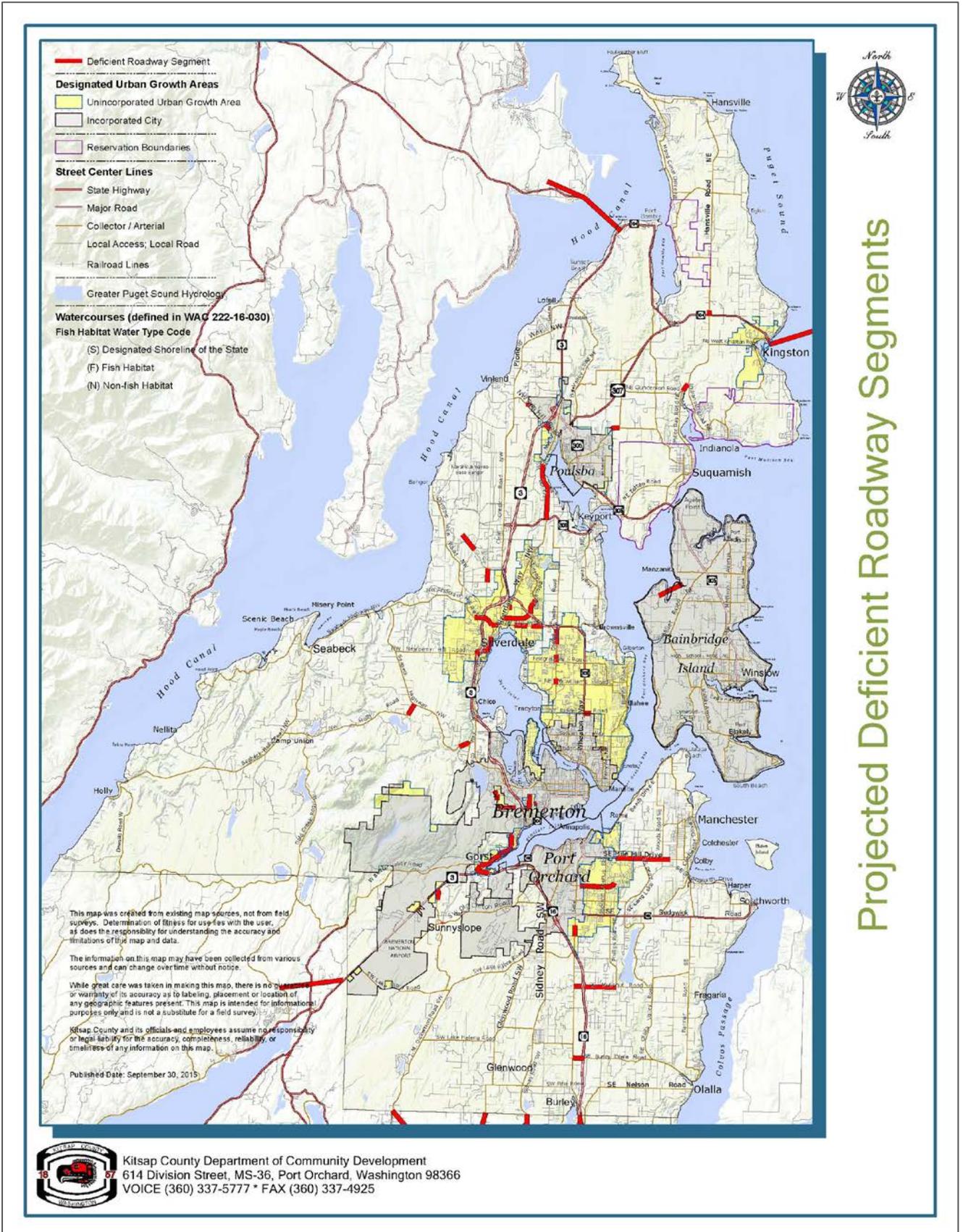
**Exhibit 4-100. Projected 2036 Roadway Segment Deficiencies**

	Preferred Alternative
North County	7.2 lane-miles
Central County	17.1 lane-miles
South County	13.5 lane-miles
<b>Total Deficient Lane-Miles</b>	<b>37.8 lane-miles</b>
Total 2036 County Roadway Lane-Miles	675.3 lane-miles
Percent of Deficient Lane-miles	5.6%
Exceeds Countywide Concurrency Standard of 15%	No

Source: Kitsap County Public Works Department, 2015b.

Locations of deficient segments are shown on Exhibit 4-101.

Exhibit 4-101. Projected 2036 Deficient Roadway Segments



Source: Kitsap County Department of Community Development, 2015

## Recommended Roadway Improvements

Exhibit 4-102 summarizes the roadway segments identified for improvement under the three alternatives in order to meet adopted County roadway segment LOS standards. The Preferred Alternative would have a need for 17 projects through the year 2036.

**Exhibit 4-102. Locations of Recommended Roadway Improvements by 2036**

Roadway	Location	Preferred Alt
<b>North County</b>		
Viking Way NW	SR 308 - Poulsbo City Limits	X
	<b>Total # Improvement Locations – North County</b>	<b>1</b>
<b>Central County</b>		
Anderson Hill Road NW	Apex Road NW – Bucklin Hill Road NW	X
Bucklin Hill Road NW	Anderson Hill Road NW – Silverdale Way NW	X
Central Valley Road NW	NW Fairgrounds Road – SR 303 On-Ramp	X
Kent Avenue W	Sherman Heights Road – 3rd Avenue	X
Newberry Hill Road NW	Provost Road NW - Silverdale Way NW	X
Riddell Road NE	SR 303 – Almira Drive NE	X
Ridgetop Boulevard NW	Silverdale Way NW – SR 303	X
Sherman Heights Road	Belfair Valley Road – Kent Avenue	X
Silverdale Way NW	NW Newberry Hill Road – NW Byron Street	X
	<b>Total # Improvement Locations – Central County</b>	<b>9</b>
<b>South County</b>		
Belfair Valley Road	Sam Christopherson Ave W – SR 3	X
Bethel Road SE	Cedar Road E – Ives Mill Road SE	X
Burley-Olalla Road	Bethel-Burley Road SE – SR 16	X
Lund Avenue	Madrone Drive SE – Cathie Avenue SE	X
Mile Hill Drive SE	Woods Road E – Whittier Avenue SE	X
Mullenix Road SE	Bethel-Burley Road SE – Phillips Road SE	X
Sunnyslope Road SW	SW Rhododendron Drive – SR 3	X
	<b>Total # Improvement Locations – South County</b>	<b>7</b>
<b>Countywide Total Number of Improvement Locations</b>		<b>17</b>

Source: Kitsap County Public Works Department, 2015b.

## Capital Projects and Costs

Transportation facilities include improvements to capital facilities at various locations throughout the County at a cost of \$76.1 million, as listed in Kitsap County’s *Six Year Transportation Improvement Program – 2016 to 2021*. The Transportation Improvement Program is updated annually. The County will update this section periodically as appropriate. The proposed financing plan is shown on Exhibit 4-103. The table does not show transportation improvements that will be financed and constructed by private parties, for example, improvements that are conditions of a project approval.

**Exhibit 4-103. Six Year Transportation Improvement Project Costs (All numbers are in 2015 \$1000s)**

PRIORITY NO.	PROJECT IDENTIFICATION A. Federal Aid No. B. Road Log Number - Bridge Number C. Project / Road Name E. Beginning and End E. Description of Work	Funding Source Information					Cost by Year							
		FEDERAL FUND CODE	FEDERAL COST BY PHASE	RAP / CAPP / TIA / UATA / PWTF / OTHER	STATEOR OTHER FUNDS	IMPACT FEES	LOCAL FUNDS	TOTAL	YEAR 1 2016	YEAR 2 2017	YEAR 3 2018	YEAR 4 2019	YEAR 5 2020	YEAR 6 2021
	21709 / 31009 CRP# 2572													
<b>1</b>	Bethel Burley Road / Mullenix Road Intersection Improvements						20	20	20					
							20	20	20					
	57740 CRP# 3644													
<b>2</b>	Bucklin Hill Road Bridge						150	150	150					
	Clear Creek crossing	STP	3,000	TIB	2,190		810	6,000	6,000					
	Replace culvert w/ new bridge		3,000		2,190		960	6,150	6,150					
	CRP# 2568													
<b>3</b>	Main Street / Madrone Avenue													
	Alaska Avenue to Beach Drive						1,300	1,300	1,300					
	Pave shoulders and sidewalk						1,300	1,300	1,300					
	Various Locations CRP # 1592	STP	12				2	14	14					
<b>4</b>	Kingston Complete Streets & SR 104 Corridor Study													
	Develop Complete Streets Plan with emphasis on downtown parking and pedestrian needs		12				2	14	14					
	74597 CRP # 1585													

PRIORITY NO.	PROJECT IDENTIFICATION A. Federal Aid No. B. Road Log Number - Bridge Number C. Project / Road Name E. Beginning and End E. Description of Work	Funding Source Information					Cost by Year							
		FEDERAL FUND CODE	FEDERAL COST BY PHASE	RAP / CAPP / TIA / UATA / PWTF / OTHER	STATEOR OTHER FUNDS	IMPACT FEES	LOCAL FUNDS	TOTAL	YEAR 1 2016	YEAR 2 2017	YEAR 3 2018	YEAR 4 2019	YEAR 5 2020	YEAR 6 2021
<b>5</b>	Orseth Road Culvert													
	Replace Deteriorated 72" Culvert						20	20	20					
							20	20	20					
	11709 CRP# 3624													
	Seabeck Highway													
<b>6</b>	Calamity Lane to Gross Road													
	Pave shoulders and channelization						50	50	50					
	at Holly Road intersection						50	50	50					
	56140 CRP# 3654													
							10	10	10					
<b>7</b>	McWilliams Road / Old Military Road Intersection						10	10	10					
	Construct left-turn channelization on McWilliams Road						863	863	863					
							883	883	883					
	Various Locations CRP # 5026													
							20	20	10	10				
<b>8</b>	Seal Coat Pilot Project													
	Apply variety of surface treatments as preservation tool						730	730	490	240				
							750	750	500	250				
	70400 CRP# 1579													
							50	50	10	10	10	10	10	
<b>9</b>	Hansville Road Pave Shoulders													
	Eglon Road to Twin Spits Road						1,600	1,600	320	320	320	320	320	
	Construct paved shoulders with County Forces						1,650	1,650	330	330	330	330	330	

PRIORITY NO.	Funding Source Information						Cost by Year							
	PROJECT IDENTIFICATION A. Federal Aid No. B. Road Log Number - Bridge Number C. Project / Road Name E. Beginning and End E. Description of Work	FEDERAL FUND CODE	FEDERAL COST BY PHASE	RAP / CAPP / TIA / UATA / PWTF / OTHER	STATEOR OTHER FUNDS	IMPACT FEES	LOCAL FUNDS	TOTAL	YEAR 1 2016	YEAR 2 2017	YEAR 3 2018	YEAR 4 2019	YEAR 5 2020	YEAR 6 2021
	56409 / 59050 CRP # 3655													
							10	10	10					
<b>10</b>	Fairgrounds Road / Central Valley Road													
	Channelization Improvements all legs of Intersection						2,200	2,200	2,200					
							2,210	2,210	2,210					
	57720 / 19515 CRP # 3656													
							15	15	15					
<b>11</b>	Myhre Road / Silverdale Way						10	10	10					
	Intersection Improvements						850	850	850					
							875	875	875					
	71530 / 70509 CRP# 1588													
							10	10	10					
<b>12</b>	Widme Road / Totten Road Intersection													
	Intersection widening to accommodate truck turning						250	250	250					
	movements with paved shoulders - County Forces						260	260	260					
	19519 CRP # 3670													
							10	10	10					
<b>13</b>	Chico Way													
	Overlay with 2" ACP	STP	720				102	822	822					
	SR 3 off-ramp to Newberry Hill Rd. Roundabout		720				112	832	832					
	19000 CRP# 3673													

PRIORITY NO.	PROJECT IDENTIFICATION A. Federal Aid No. B. Road Log Number - Bridge Number C. Project / Road Name E. Beginning and End E. Description of Work	Funding Source Information					Cost by Year						
		FEDERAL FUND CODE	FEDERAL COST BY PHASE	RAP / CAPP / TIA / UATA / PWTF / OTHER	STATEOR OTHER FUNDS	IMPACT FEES	LOCAL FUNDS	TOTAL	YEAR 1 2016	YEAR 2 2017	YEAR 3 2018	YEAR 4 2019	YEAR 5 2020
<b>14</b>	Taylor Road - Culvert												
	Replace culvert at Dickerson Creek for						700	700	700				
	Fish Passage - Participation with Stormwater						700	700	700				
	20509 CRP # 2555												
							30	30	30				
<b>15</b>	Glenwood Road # 2			RAP	180		20	200	200				
	Wildwood Road to J H Road			RAP	2,046		227	2,273	2,273				
	Widen, paved shoulders, intersection improvements				2,226		277	2,503	2,503				
	19801 CRP# 3667												
							10	10	10				
<b>16</b>	Provost Road - Culvert						5	5	5				
	Slip Line deteriorated 48" CMP Culvert						40	40	40				
	County Forces						55	55	55				
	CRP # 3677												
<b>17</b>	Clear Creek Floodplain												
	Construct Trail Bridge						500	500	500				
	Participation with Stormwater Division						500	500	500				
	Various Locations CRP # 5029												
							5	5	5				
<b>18</b>	2015 - 2016 County Wide Sidewalk Repair												
	Replacement/repair of sidewalks and						200	200	200				

PRIORITY NO.	PROJECT IDENTIFICATION A. Federal Aid No. B. Road Log Number - Bridge Number C. Project / Road Name E. Beginning and End E. Description of Work	Funding Source Information					Cost by Year							
		FEDERAL FUND CODE	FEDERAL COST BY PHASE	RAP / CAPP / TIA / UATA / PWTF / OTHER	STATEOR OTHER FUNDS	IMPACT FEES	LOCAL FUNDS	TOTAL	YEAR 1 2016	YEAR 2 2017	YEAR 3 2018	YEAR 4 2019	YEAR 5 2020	YEAR 6 2021
	pedestrian ramps at various locations 14390 CRP # 3668						205	205	205					
							50	50	50					
<b>19</b>	Bay Shore Drive						10	10	10					
	Construct sidewalk curb and gutter with 2" Overlay						625	625		600	25			
	Participation with Sewer Utility, and Stormwater 19140						685	685	60	600	25			
<b>20</b>	Golf Club Hill Road Bridge Replacement													
	Replace bridge to improve fish passage on Chico Creek						450	450		450				
	Participation w/ Suquamish Tribe CRP# 1584						450	450		450				
							250	250	200	50				
<b>21</b>	Mosquito Fleet Trail Extension						20	20	20					
	White Horse to West Kingston Road						2,000	2,000		2,000				
	Construct trail 19515 CRP# 3662						2,270	2,270	220	2,050				
							400	400	350	50				
<b>22</b>	Silverdale Way Road Improvements						150	150	150					
	350 feet south of Byron Street to Anderson Hill Road	STP	2,419				1,081	3,500		3,500				
	Widening, intersection improvements 11300 CRP# 3665		2,419				1,631	4,050	500	3,550				

PRIORITY NO.	PROJECT IDENTIFICATION A. Federal Aid No. B. Road Log Number - Bridge Number C. Project / Road Name E. Beginning and End E. Description of Work	Funding Source Information					Cost by Year						
		FEDERAL FUND CODE	FEDERAL COST BY PHASE	RAP / CAPP / TIA / UATA / PWTF / OTHER	STATEOR OTHER FUNDS	IMPACT FEES	LOCAL FUNDS	TOTAL	YEAR 1 2016	YEAR 2 2017	YEAR 3 2018	YEAR 4 2019	YEAR 5 2020
		STP	186				29	215	195	20			
<b>23</b>	Seabeck-Holly Road Bridge #20						10	10	10				
	Replace existing timber bridge at Anderson Creek	STP	1,000				440	1,440		1,440			
	55275 CRP# 3666		1,186				479	1,665	205	1,460			
							25	25	20	5			
<b>24</b>	Tracyton Blvd. - Culvert						25	25	15	10			
	Replace existing culvert with structure meeting WDFW Fish Passage design criteria						385	385		385			
	86671 CRP # 1591						435	435	35	400			
		NAVFAC	400					400	300	100			
<b>25</b>	West Kingston Road	NAVFAC	75					75	50	25			
	Replace existing culvert at Carpenter Creek with a Bridge - Participation with Navy	NAVFAC	2,297					2,297		2,297			
	11870 CRP # 3671		2,772					2,772	350	2,422			
							55	55	50	5			
<b>26</b>	Panther Lake Road - Culvert												
	Replace existing culvert with structure meeting WDFW Fish Passage design criteria						283	283		283			
	84370 CRP # 1595						338	338	50	288			
		STP	30				83	113	113				
<b>27</b>	Washington Boulevard Corridor Improvements						5	5		5			
	3rd Street to SR 104 (First Street)	STP	420				70	490		490			

PRIORITY NO.	PROJECT IDENTIFICATION A. Federal Aid No. B. Road Log Number - Bridge Number C. Project / Road Name E. Beginning and End E. Description of Work	Funding Source Information					Cost by Year							
		FEDERAL FUND CODE	FEDERAL COST BY PHASE	RAP / CAPP / TIA / UATA / PWTF / OTHER	STATEOR OTHER FUNDS	IMPACT FEES	LOCAL FUNDS	TOTAL	YEAR 1 2016	YEAR 2 2017	YEAR 3 2018	YEAR 4 2019	YEAR 5 2020	YEAR 6 2021
	Pedestrian and bicycle facilities		450			158	608	113	495					
	56791 CRP # 1593													
	Ridgetop Boulevard - Widening Phase 1					200	200	100	100					
<b>28</b>	SR 303 to 500 ft past Quail Run Dr.					25	25		25					
	Participation w/stormwater, widening, channelization, bioretention cells					1,581	1,581		1,581					
	56791 CRP # 1593					1,806	1,806	100	1,706					
	Ridgetop Boulevard - Phase 2					300	300	100	100	100				
<b>29</b>	500 ft past Quail Run Dr. to 250 ft past Tower View Cir./					25	25			25				
	Pinnacle Ct Intersection - Participation w/stormwater					710	710			710				
	Intersection improvements, bioretention cells					1,035	1,035	100	100	835				
	56791 CRP # 1593													
	Ridgetop Boulevard - Phase 3					300	300		100	100	100			
<b>30</b>	250 ft past Tower View Cir./Pinnacle Ct. intersection					25	25					25		
	to Silverdale Way					690	690					690		
	Participation w/stormwater, bioretention cells					1,015	1,015		100	100	815			
	22840 CRP# 2576													
						35	35		25	10				
<b>31</b>	Spruce Road Bridge # 22													
	Implement bridge scour counter measures					200	200			200				

PRIORITY NO.	PROJECT IDENTIFICATION A. Federal Aid No. B. Road Log Number - Bridge Number C. Project / Road Name E. Beginning and End E. Description of Work	Funding Source Information					Cost by Year							
		FEDERAL FUND CODE	FEDERAL COST BY PHASE	RAP / CAPP / TIA / UATA / PWTF / OTHER	STATEOR OTHER FUNDS	IMPACT FEES	LOCAL FUNDS	TOTAL	YEAR 1 2016	YEAR 2 2017	YEAR 3 2018	YEAR 4 2019	YEAR 5 2020	YEAR 6 2021
	to protect bridge footings. 56409 CRP# 3664						235	235		25	210			
							140	140	50	50	40			
<b>32</b>	Fairgrounds Road - Sidewalk Improvements						380	380		200	180			
	Construct sidewalk both sides from Central Valley Road to Nels Nelson Road 70310 CRP# 1589						800	800			800			
							1,320	1,320	50	250	1,020			
							50	50	5	35	10			
<b>33</b>	Suquamish Way - Shoulders and Sidewalk Hyak Lane to Division Avenue						465	465			465			
	Construct paved shoulders and sidewalk 21109 CRP# 2585						515	515	5	35	475			
							75	75	10	40	25			
<b>34</b>	Sidney Road - Shoulders 106 feet south of Lider Road to Port Orchard City Limits						25	25		15	10			
	Construct 6 feet paved shoulders 21709 / 23760 CRP# 2584						650	650			650			
							750	750	10	55	685			
							15	15	5	5	5			
<b>35</b>	Bethel-Burley Road / Burley-Olalla Road Intersection Improvements						10	10		10				
							376	376			376			
							401	401	5	15	381			

PRIORITY NO.	PROJECT IDENTIFICATION A. Federal Aid No. B. Road Log Number - Bridge Number C. Project / Road Name E. Beginning and End E. Description of Work	Funding Source Information					Cost by Year							
		FEDERAL FUND CODE	FEDERAL COST BY PHASE	RAP / CAPP / TIA / UATA / PWTF / OTHER	STATEOR OTHER FUNDS	IMPACT FEES	LOCAL FUNDS	TOTAL	YEAR 1 2016	YEAR 2 2017	YEAR 3 2018	YEAR 4 2019	YEAR 5 2020	YEAR 6 2021
	47250 CRP # 2560													
						160	160	100	50	10				
<b>36</b>	Alaska Avenue					150	150		150					
	Mile Hill Drive to Madrone Avenue					1,000	1,000			1,000				
	Construct paved shoulders					1,310	1,310	100	200	1,010				
	57610 CRP # 1594													
						62	62	10	42	10				
<b>37</b>	Island Lake Road - Shoulders													
	Construct paved shoulders from Gallery Street to					523	523			523				
	Camp Court, County Forces					585	585	10	42	533				
	13549 CRP # 3672													
						53	53	10	33	10				
<b>38</b>	Anderson Hill Road - Shoulders													
	Construct paved shoulders from 300 feet west of the					332	332			332				
	roundabout to 480 feet east of the roundabout					385	385	10	33	342				
	21139 CRP # 2587													
						110	110	40	60	10				
<b>39</b>	Carney Lake Road - Shoulders and Realignment					50	50		50					
	306 ft. NE of Alta Vista Dr. to 90° curve					450	450			450				
	Construct 6 ft. paved shoulders and realign curve					610	610	40	110	460				
	32799 CRP # 2588													

PRIORITY NO.	PROJECT IDENTIFICATION A. Federal Aid No. B. Road Log Number - Bridge Number C. Project / Road Name E. Beginning and End E. Description of Work	Funding Source Information					Cost by Year						
		FEDERAL FUND CODE	FEDERAL COST BY PHASE	RAP / CAPP / TIA / UATA / PWTF / OTHER	STATEOR OTHER FUNDS	IMPACT FEES	LOCAL FUNDS	TOTAL	YEAR 1 2016	YEAR 2 2017	YEAR 3 2018	YEAR 4 2019	YEAR 5 2020
						85	85	10	50	25			
40	Horizon Lane SE					10	10		10				
	Replace Deteriorated 42" Culvert					475	475			475			
						570	570	10	60	500			
	21320 / 21310 CRP # 2589												
						66	66	20	41	5			
41	Lake Helena Road / Wicks Lake Road – Culverts					4	4		4				
	Replace culverts with structure meeting					597	597			597			
	WDFW Fish Passage Design Criteria					667	667	20	45	602			
	13549 19801 57810 CRP# 3674												
						35	35	10	20	5			
42	Anderson Hill Road / Provost Road / Old Frontier Road												
	Intersection Improvements			SEPA	47	110	157			157			
					47	145	192	10	20	162			
	41409 CRP#2586												
						55	55	20	25	10			
43	Olympiad Drive - Culvert												
	Replace Deteriorated Culvert					240	240			240			
						295	295	20	25	250			
	13429												
						138	138		50	88			
44	Newberry Hill Road - Culvert												
	Replace culvert with structure meeting					830	830			830			

PRIORITY NO.	PROJECT IDENTIFICATION A. Federal Aid No. B. Road Log Number - Bridge Number C. Project / Road Name E. Beginning and End E. Description of Work	Funding Source Information					Cost by Year							
		FEDERAL FUND CODE	FEDERAL COST BY PHASE	RAP / CAPP / TIA / UATA / PWTF / OTHER	STATEOR OTHER FUNDS	IMPACT FEES	LOCAL FUNDS	TOTAL	YEAR 1 2016	YEAR 2 2017	YEAR 3 2018	YEAR 4 2019	YEAR 5 2020	YEAR 6 2021
	WDFW Fish Passage Design Criteria 21709 CRP # 2579					968	968		50	918				
						350	350		25	300	25			
<b>45</b>	Bethel-Burley Road Bridge					10	10			10				
	Replace fish-passage barrier culvert with a short span bridge					1,800	1,800				1,800			
	43809 CRP # 2559					2,160	2,160		25	310	1,825			
						54	54		30	19	5			
<b>46</b>	E. Chester Road / E. Madrone Avenue California Avenue to Alaska Avenue					100	100		50	50				
	Construct paved shoulders					480	480				480			
	42510 CRP# 2557					634	634		80	69	485			
						193	193		98	80	15			
<b>47</b>	Beach Drive #2					85	85			85				
	Daniels Loop (E) to Jessica Way (E)					715	715				715			
	Pave Shoulders with drainage improvements					993	993		98	165	730			
	N/A CRP # 3656													
						145	145	5	65	70	5			
<b>48</b>	Markwick / DNR Trail													
	Silverdale Way to Ridgetop Blvd.					775	775				775			
	Construct multi use trail					920	920	5	65	70	780			
	40700 / 40490 CRP# 2583													
						85	85	30	40	10	5			

PRIORITY NO.	PROJECT IDENTIFICATION A. Federal Aid No. B. Road Log Number - Bridge Number C. Project / Road Name E. Beginning and End E. Description of Work	Funding Source Information					Cost by Year							
		FEDERAL FUND CODE	FEDERAL COST BY PHASE	RAP / CAPP / TIA / UATA / PWTF / OTHER	STATEOR OTHER FUNDS	IMPACT FEES	LOCAL FUNDS	TOTAL	YEAR 1 2016	YEAR 2 2017	YEAR 3 2018	YEAR 4 2019	YEAR 5 2020	YEAR 6 2021
49	Lund Avenue / Harris Road Intersection						20	20			20			
	Construct signal at intersection			SEPA	180		420	600					600	
					180		525	705	30	40	30		605	
	42910 / 40609 CRP# 2591													
							90	90	10	60	10		10	
50	Jackson Avenue / Salmonberry Road Intersection Improvements						24	24			24			
							554	554					554	
	Various Locations CRP# 1587						668	668	10	60	34		564	
							300	300		25	200		75	
51	Spirit Ridge						10	10					10	
	Selected Neighborhood Roads within Plat, Drainage,						1,400	1,400					1,400	
	Pavement Rehabilitation, Participation w/ Stormwater						1,710	1,710		25	200		1,485	
	57740 / 56950 CRP#3675													
							130	130	5	25	95		5	
52	Bucklin Hill Road / Nels Nelson Road Intersection						25	25			25			
	Construct signal with channelization at the intersection						850	850					850	
	of Nels Nelson Road and Bucklin Hill Road						1,005	1,005	5	25	120		855	
	21709 CRP# 2592													
							71	71	5	5	56		5	
53	Bethel Burley Road - Culvert						2	2			2			

PRIORITY NO.	PROJECT IDENTIFICATION A. Federal Aid No. B. Road Log Number - Bridge Number C. Project / Road Name E. Beginning and End E. Description of Work	Funding Source Information					Cost by Year							
		FEDERAL FUND CODE	FEDERAL COST BY PHASE	RAP / CAPP / TIA / UATA / PWTF / OTHER	STATE OR OTHER FUNDS	IMPACT FEES	LOCAL FUNDS	TOTAL	YEAR 1 2016	YEAR 2 2017	YEAR 3 2018	YEAR 4 2019	YEAR 5 2020	YEAR 6 2021
	Replace failing 24" dia. culvert with a fish passage structure						322	322				322		
	12259 / 12256 / 12250 CRP# 3676						395	395	5	5	58	327		
							90	90	5	25	55	5		
54	Tahuyeh Lake Rd / Gold Creek Rd / Kingsway Intersection						10	10			10			
	Realign Intersection						386	386				386		
	70509						486	486	5	25	65	391		
							260	260		100	140	20		
55	Totten Road													
	Sackman Lane to Suquamish Way - Pedestrian / Bike path			TRIBE	500		840	1,340				1,340		
	Participation with Suquamish Tribe				500		1,100	1,600		100	140	1,360		
	70400													
							75	75		5	5	60	5	
56	Hansville Road - Right Turn Lane													
	Construct right turn lane for southbound traffic at intersection of Hansville Rd and SR 104			SEPA	328		52	380					380	
	56140				328		127	455		5	5	60	385	
	McWilliams Road - Two-way Left-turn Lane						200	200			50	125	25	
57	Gentile Lane to Athens Way						20	20				5	15	
	Add two-way left-turn, street lights and sidewalk on the						1,200	1,200					1,200	

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		FEDERAL FUND CODE	FEDERAL COST BY PHASE	RAP / CAPP / TIA / UATA / PWTF / OTHER	STATEOR OTHER FUNDS	IMPACT FEES	LOCAL FUNDS	TOTAL	YEAR 1 2016	YEAR 2 2017	YEAR 3 2018	YEAR 4 2019	YEAR 5 2020
	north side 11709					1,420	1,420			50	130	1,240	
				RAP	275	31	306		75	100	100	31	
<b>58</b>	Seabeck Highway #2												
	Pave shoulders and resurfacing			RAP	1,525	1,035	2,560					2,560	
	Gross Road to Newberry Hill Road 59725				1,800	1,066	2,866		75	100	100	2,591	
						75	75		20	25	20	10	
<b>59</b>	Scandia Road												
	Replace deteriorated culvert at Little Sandia Creek					317	317					317	
						392	392		20	25	20	327	
	56409					500	500				225	225	50
<b>60</b>	Fairgrounds Road - Sidewalks												
	Central Valley Road to SR 303					1,500	1,500						1,500
	Construct sidewalks 56791					2,000	2,000				225	225	1,550
						1,500	1,500					250	1,250
<b>61</b>	Ridgetop Boulevard - South					1,000	1,000						1,000
	Silverdale Way to SR 303												
	Widen to 5 lanes 70370 / 70320					2,500	2,500					250	2,250
						1,000	1,000				100	750	150
<b>62</b>	Miller Bay Road / Augusta Avenue					200	200					100	100
	Gunderson Road to Geneva Street					3,145	3,145						3,145

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		FEDERAL FUND CODE	FEDERAL COST BY PHASE	RAP / CAPP / TIA / UATA / PWTF / OTHER	STATEOR OTHER FUNDS	IMPACT FEES	LOCAL FUNDS	TOTAL	YEAR 1 2016	YEAR 2 2017	YEAR 3 2018	YEAR 4 2019	YEAR 5 2020	YEAR 6 2021
	Pave shoulders					4,345	4,345					100	850	3,395
	Various Locations					150	150		50			50		50
<b>63</b>	County Wide Bridge Repair													
	Bridge repairs at various locations					600	600	200		200			200	
						750	750	200	50	200	50	200		50
	Various Locations					60	60		20			20		20
<b>64</b>	County Wide Sidewalk Repair													
	Replacement/repair of sidewalks and pedestrian ramps at various locations					540	540		180			180		180
						600	600		200			200		200
	Various Locations					120	120	20	20	20	20	20	20	20
<b>65</b>	County Wide Culvert Projects					60	60	10	10	10	10	10	10	10
	Replacement of emergent structurally or capacity deficient culverts					420	420	70	70	70	70	70	70	70
						600	600	100	100	100	100	100	100	100
	Various Locations													
<b>66</b>	County Wide Surfacing Upgrades													
	Base stabilization and paving of structurally deficient pavements at various locations					1,200	1,200	200	200	200	200	200	200	200
						1,200	1,200	200	200	200	200	200	200	200
	Various Locations					90	90	30		30				30

PRIORITY NO.	PROJECT IDENTIFICATION A. Federal Aid No. B. Road Log Number - Bridge Number C. Project / Road Name E. Beginning and End E. Description of Work	Funding Source Information					Cost by Year							
		FEDERAL FUND CODE	FEDERAL COST BY PHASE	RAP / CAPP / TIA / UATA / PWTF / OTHER	STATEOR OTHER FUNDS	IMPACT FEES	LOCAL FUNDS	TOTAL	YEAR 1 2016	YEAR 2 2017	YEAR 3 2018	YEAR 4 2019	YEAR 5 2020	YEAR 6 2021
<b>67</b>	County Wide Safety Improvements					90	90	30		30		30		
	Spot improvements for guardrail, and traffic safety improvements					570	570	140	50	140	50	140	50	
	CRP # 5028					750	750	200	50	200	50	200	50	
	Various Locations													
<b>68</b>	County Wide Bicycle/Ped. Improvements													
	Spot improvements for bicycle/pedestrian					1,500	1,500	250	250	250	250	250	250	
	County Force Electrical Work < \$10,000					1,500	1,500	250	250	250	250	250	250	
	Various Locations													
<b>69</b>	WSDOT Project Participation													
	County participation in State Projects involving County Roads					600	600	100	100	100	100	100	100	
	<b>TOTAL</b>		<b>\$10,559</b>	<b>\$-</b>	<b>\$7,271</b>	<b>\$-</b>	<b>\$58,333</b>	<b>\$76,163</b>	<b>\$20,540</b>	<b>\$16,764</b>	<b>\$11,329</b>	<b>\$12,137</b>	<b>\$7,248</b>	<b>\$8,145</b>

Source: Kitsap County, 2015.

The six-year transportation improvement program through the year 2021 identifies \$76.2 million dollars of multimodal improvement projects. Over 40% of the investment would include projects with sidewalks, shoulder widenings, bicycle facilities, and multi-use trails.

The estimated transportation costs under the Preferred Land Use Plan are estimated to be about \$133.3 million. The County’s road standards require inclusion of sidewalks in urban areas and widened shoulders in rural areas. The *Kitsap County Bicycle Facilities Plan 2014* and the County’s Non-Motorized Facilities Citizens Advisory Committee help prioritize non-motorized facilities for inclusion in the six-year transportation improvement program each year.

**Exhibit 4-104. Transportation Projects Needed by 2036 (2015\$ Millions)**

Road Project	Preferred Alternative
<b>North County</b>	
Viking Way	\$9.8
<b>Central County</b>	
Anderson Hill Road NW	\$10.2
<b>Stoli Lane NW - Bucklin Hill Road</b>	
Bucklin Hill Road	\$4.9
Central Valley Road NW	\$9.4
Kent Avenue W	\$1.8
Newberry Hill Road NW	\$4.1
Riddell Road NE	\$2.2
Ridgetop Boulevard NW	\$15.0
Sherman Heights Road	\$4.3
Silverdale Way NE	\$24.8
<b>South County</b>	
Belfair Valley Road	\$3.4
Bethel Road SE	\$2.5
<b>Cedar Road E - Ives Mill Road SE</b>	
Burley-Olalla Road	\$1.6
Lund Avenue	\$14.2
Mile Hill Dr SE	\$14.8
Mullenix Road SE	\$6.8
Sunnyslope Road SW	\$3.5
<b>Sum</b>	<b>\$133.3</b>

Source: BHC, Heffron Transportation, Kitsap County 2015 and 2016

Exhibit 4-105 summarizes the total cost of the projects recommended countywide by the Year 2036.

**Exhibit 4-105. Summary of Cost of Roadway Improvements Recommended by 2036  
(in 2015\$ Millions)**

Location	Preferred Alternative
North	\$9.8
Central	\$76.7
South	\$46.8
<b>Total</b>	<b>\$133.3</b>

Source: BHC, Heffron Transportation, Kitsap County 2015 and 2016

In addition to Kitsap County’s investments in multimodal transportation, Kitsap Transit intends to improve its system. One improvement that would also support the Silverdale Regional Growth Center is a planned transit center. Kitsap Transit is considering relocating its current Silverdale

Transfer Center (STC) to an area that can support improved waiting environments, pedestrian connections, a park & ride function and better bus bays to improve safety for the buses. The STC is presently located along Greaves Way near a major intersection with Highway 3. It is next to a large retail development set to open in early 2016. A location across from the Harrison Medical Center has been chosen by the Kitsap Transit Board for further study as of late 2015. An approximate cost estimate equals \$12.9 million total for the entire project. (Kitsap Transit 2016)

## 4.9 Wastewater: Sanitary Sewer

### Overview

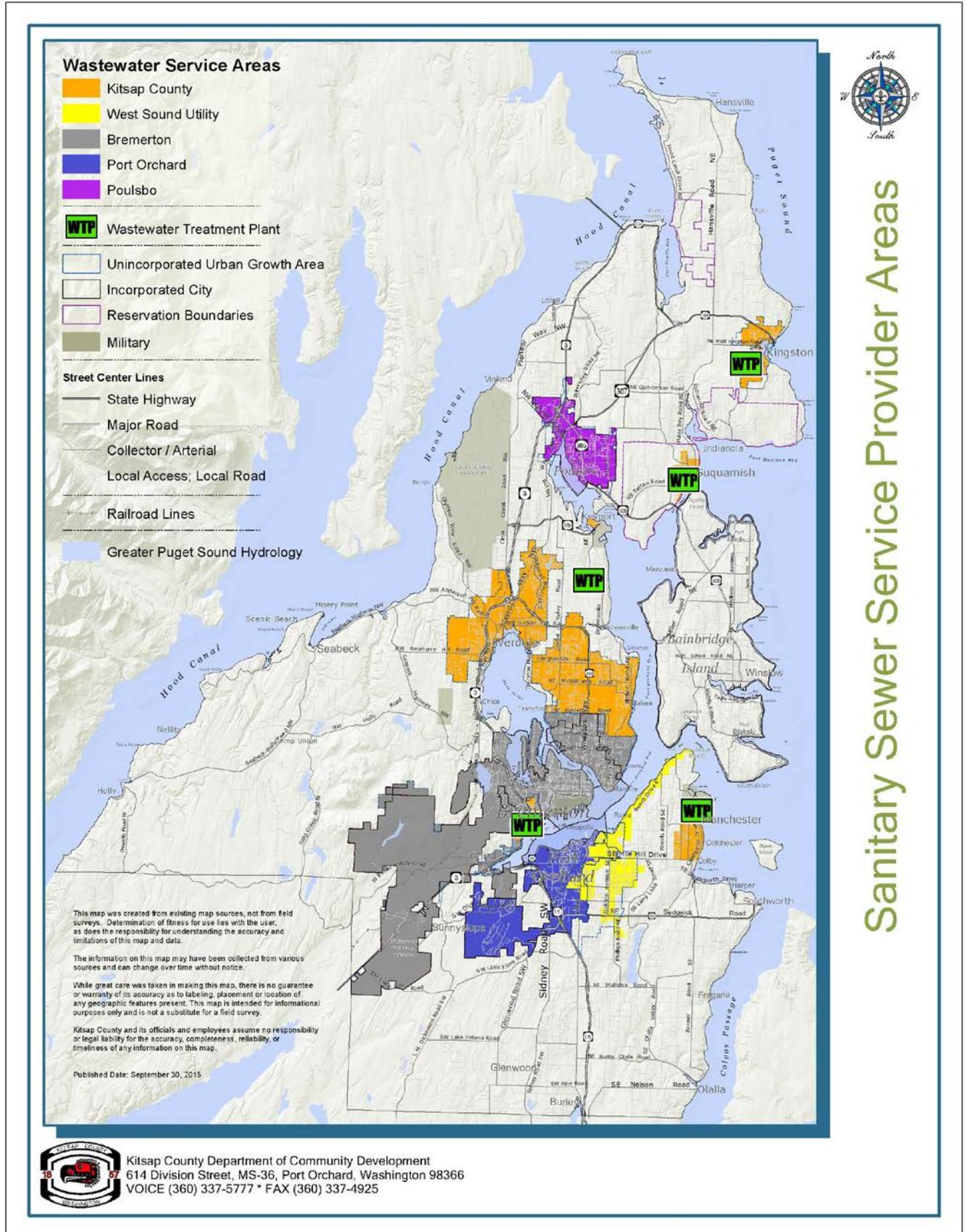
According to the *2012 Kitsap County Capital Facilities Plan*, there are a total of 13 wastewater collection systems and 10 wastewater treatment facilities in Kitsap County, which serve approximately 40% of the total County population. The majority of the rural population uses on-site septic systems.

Several agencies within the County provide sanitary sewer services:

1. Kitsap County manages five wastewater collection systems: Central Kitsap, Kingston, Manchester, Navy Yard City, and Suquamish, and four treatment plants servicing Central Kitsap, Manchester, Suquamish, and Kingston.
2. The City of Bremerton maintains and operates collection and treatment systems for the East Bremerton UGA, portions of the West Bremerton UGAs, and the Gorst UGA.
3. The City of Poulsbo maintains a collection system and contracts with the County to treat city wastewater at the Central Kitsap Treatment Plant in Brownsville.
4. The City of Port Orchard and West Sound Utility District independently operate their respective collection systems and jointly own the treatment facility at Annapolis. West Sound Utility District is responsible for daily operation of the treatment plant.
5. The Port Gamble/S'Klallam Tribe owns and operates a small collection system and treatment facility that serves the community east of Port Gamble Bay.
6. Pope Resources owns and operates a collection system and secondary treatment plant serving the Port Gamble town site and mill site.
7. The Port of Bremerton owns and operates a collection and treatment system that serves the commercial development on Port property.
8. The U.S. Navy manages wastewater collection systems on federal reservations and contracts with Kitsap County and the City of Bremerton to treat its effluent. It is a major contributor to several wastewater treatment plants in Kitsap County, with the Central Kitsap plant receiving the most.

8yh6543w5403Major providers to urban areas are shown in Exhibit 4-106.pl;

Exhibit 4-106. Wastewater Service Areas



Source: Kitsap County Department of Community Development 2015

## Inventory of Current Facilities

An inventory of the existing municipal, county, and private wastewater facilities located in Kitsap County is presented in this section. This inventory is summarized in Exhibit 4-107. Columns (4) – (6) show the LOS as flow design capacity in millions of gallons per day (mgd), 2014 existing flow capacity, and corresponding 2014 flow capacity surpluses or deficits for each of the 10 major wastewater management systems in the County. Column (7) shows the existing populations served within each wastewater system. Maps are provided in Appendix A that show location and type of existing and future sanitary sewer facilities. Appendix B includes a list of potential wastewater funding sources to be used for the 20-year planning period.

**Exhibit 4-107. Kitsap County Public Sewer System Inventory**

Name	Collection System		Treatment Plant			Service Area		
	Miles of Pipe (1)	Collection System Existing Conditions	Existing Flow, mgd (1)	Design Flow, mgd (1)	Surplus/Deficit, (mgd)	2015 Population Served	Existing Connections ERU (2)	Surplus/Deficit ERU (3)
<b>CITY SEWER SYSTEMS</b>								
<b>City of Bremerton [2013]</b>	176	Completed improvements to reduce overflows to one event per year, per outfall on 5-year avg. during design storm, in all drainage basins. Minor overflows to be reduced to one event/yr in 5 years.	10.0	15.5	5.5	38,309		
<b>City of Port Orchard</b>	70	5 pump station upgrades are included in the six-year CIP. 1 pump station upgrade and 8,500 LF of gravity pipe upgrades are included in the 20-year CIP. 1 additional pump station will be upgraded with developer funding.	0.9	2.1	1.1	11,550	5,509	6,100
NOTE: Treatment plant is jointly owned by the City of Port Orchard and WSUD with a design flow capacity of 4.2 mgd. WSUD is responsible for daily operation of the plant.								
<b>City of Poulsbo</b>	31	The City currently pumps sewage for Central Kitsap Wastewater Plant.	0.61	0.95	0.34	9,950	4,540	1,940
NOTE: The 6.0 mgd design flow for CKTP includes the 0.95 mgd allocated to the City of Poulsbo. Kitsap County reserves treatment capacity to Poulsbo for 0.95 mgd ADF. City of Poulsbo currently removes infiltration and inflow.								

Name	Collection System		Treatment Plant			Service Area		
	Miles of Pipe (1)	Collection System Existing Conditions	Existing Flow, mgd (1)	Design Flow, mgd (1)	Surplus/Deficit, (mgd)	2015 Population Served	Existing Connections ERU (2)	Surplus/Deficit ERU (3)
<b>West Sound Utility District</b>	55	Upgraded to replace mains with insufficient capacity. Can meet current community needs.	1.0	2.1	1.1	14,000	5,705	6,100
NOTE: Treatment plant is jointly owned by Port Orchard and the District. The District is responsible for operation of the plant. The plant capacity has been increased.								
<b>KITSAP COUNTY SYSTEMS</b>								
<b>Central Kitsap Wastewater Facilities</b>	145	Several flow capacity and aging infrastructure problems have been identified.	3.7	6.0	2.3	44,476	14,042	6,240
NOTE: The Central Kitsap treatment plant serves the Silverdale and Central UGAs (existing connections), as well as is contracted to receive sewage from US Navy at Bangor and Keyport and also from City of Poulsbo.								
<b>Kingston Sewer Facilities</b>	14.1	Wastewater collection system has sufficient capacity for projected future flows.	0.127	0.292	0.165	1,900	754	660
NOTE: The Kingston treatment plant serves the Kingston UGA.								
<b>Suquamish Sewer System</b>	10	No critical pipe flow problems identified. Average of 3 highest monthly flows at WWTP is 0.37 mgd.	0.43	0.40	-0.03	2,248	944	-120
NOTE: The Suquamish treatment plant serves the Suquamish LAMIRD and is contracted to receive sewage from the Suquamish Tribal community.								
<b>Manchester Sewer Facilities</b>	12.3	Facility Plan does not address existing conditions of the collection system.	0.28	0.46	0.18	2,193	925	720
NOTE: The Manchester treatment plant serves the Manchester LAMIRD.								
<b>Navy Yard City (Sewer Dist. #1)</b>	9.2	Significant amount of I/I identified in the older sewers in this service area.		0.40 (see notes)		2,947	2,258	
NOTE: The Navy Yard City sewer system serves a portion of the West Bremerton UGA. The conveyance systems is owned and managed by Kitsap County and current discharge contract with the City of Bremerton limits flows to 0.40 mgd ADF.								
<b>OTHER SYSTEMS</b>								
<b>Port of Bremerton Industrial Area</b>	1.6		10,000-15,000 gpd	72,500 gpd	57,000-62,500 gpd	400	160	1000

Sources: Kitsap County; Cities of Bremerton, Port Orchard, and Poulsbo; West Sound Utility District; BHC Consultants 2015; Parametrix 2012

Table Notes:

mgd = million gallons per day

1. Based on the average day flow during the peak flow month (ADF: basis of National Pollutant Discharge Elimination System [NPDES] permits)
2. "ERU" means equivalent residential unit. For Kitsap County owned and operated WWTPs, ERUs include residential, multi-family, commercial and restaurant accounts as provided by Kitsap County Public Works.
3. Residential connections assume 100 gallons per capita per day and an average of 2.5 persons per residence (250 gpd/ERU).

### City of Bremerton Sewer Facilities

The City of Bremerton maintains and operates a wastewater collection and treatment system that provides service to the West Bremerton, East Bremerton, and Gorst UGAs.

The system also accepts wastewater flows from the Puget Sound Naval Shipyard (PSNS), other U.S. Navy facilities, and Kitsap County Sewer District No. 1 (KCSD No. 1) in West Bremerton. Other than the U.S. Navy, the system does not provide sewer service for any significant industrial dischargers. The components of the City's sewer system are listed below:

- Combined sanitary and stormwater sewers
- Gravity sewers
- Gravity-pressure sewers
- Sanitary sewer pump stations and force mains
- Combined sewer overflow (CSO) structures
- Wet weather treatment facility
- Conventional wastewater treatment facilities
- Odor control stations

Since a portion of the City of Bremerton sanitary sewer collection system is composed of combined sewers, flows are derived from the following types of sources:

- Conventional wastewater and sanitary sewage
- Stormwater inflow
- Groundwater infiltration, including rainfall-induced infiltration

The City of Bremerton currently operates two wastewater treatment facilities. The Westside Wastewater Treatment Plant (WWTP) in West Bremerton provides secondary wastewater treatment for the entire service area and discharges to Sinclair Inlet. Biosolids produced at the Westside Plant are treated through anaerobic digestion, dewatered by centrifuge, transported and applied to permitted forestland owned by the City. The Eastside Treatment Facility provides treatment for combined wet weather and sewer flows from East Bremerton and discharges to Port Washington Narrows.

A network of gravity sanitary sewer pipelines, pump stations, and force mains delivers flows from the collection system to these treatment facilities. The various East Bremerton collection facilities deliver combined sanitary sewer flows to the East Bremerton beach main. During normal dry weather operations East Bremerton flows are delivered from the East Bremerton beach main to West Bremerton through 16- and 24-inch inverted siphons.

The wastewater is then pumped into the Crosstown Pipeline force main and gravity-pressure sewer main system by pump station CE-1, along with flows from various West Bremerton basins. The Crosstown Pipeline delivers these pumped flows to the Westside WWTP. Wastewater from the remaining West Bremerton service areas is delivered to the WWTP via gravity sewer mains and pump stations.

During wet-weather conditions the East Bremerton beach main is pressurized by pump station EB-2 to increase peak flow capacity and most of the combined sewage flow is diverted to the Eastside Treatment Facility. The flow is treated at the facility and discharged to Port Washington Narrows.

The hydraulic capacity of the city's combined wastewater collection system and associated components is adequate to convey dry weather wastewater flows to the Westside WWTP for treatment. However, during extreme wet weather storm events, combined wet weather and wastewater flows can exceed the hydraulic capacity of the city's existing conveyance. When this occurs, excess untreated combined sanitary sewer flows have historically been allowed to overflow to receiving waters of Puget Sound. As a result of increasing water quality and environmental mandates, federal and state regulations have been developed to limit the occurrence of untreated CSOs.

The Eastside Treatment Facility was designed to provide treatment for the East Bremerton sewer flows during wet weather storm events to meet Puget Sound water quality standards. The facility was functional in December 2001 and completed in 2002.

The Health District declared Gorst and the surrounding area a "severe public health hazard" in 1997, due to the large number of failing septic systems in the area. The City of Bremerton received American Resource Recovery Act and other grant funding to construct two new municipal pump stations and a collection system that covers a 326-acre area. A total of 103 residences and 29 existing commercial businesses are connected to the Gorst sewer system. Flows are pumped to the Westside Wastewater Treatment Plant.

The City of Bremerton updated the Combined Sewer Overflow (CSO) Reduction Plan for Bremerton's drainage basins and began the "Cooperative Approach to CSO Reduction" in 2000. A total of 23 projects were completed, including two new pump stations, seven pump station upgrades, over 12 miles of new sanitary and storm sewers, construction of the new Eastside Wet Weather Treatment Plant, and a major upgrade to the Westside Wastewater Treatment Plant. The final CSO project was completed in 2009.

The city produces a CSO report that is submitted to Ecology on an annual basis. The 2010 report shows that the CSO reduction program has been very successful in reducing total overflow volume and frequency, with overflow volume reduced by 96.4 percent, frequency of events reduced by 99 percent, and compliance with CSO reduction requirements at all 15 sites. See the Bremerton Comprehensive Plan, 2014 Wastewater Comprehensive Plan Update, 2008 Wastewater Conveyance Planning document, and 2016 Capital Improvement Plan for further details.

### City of Poulsbo Sewer Facilities

The current sanitary sewer service area for the City of Poulsbo is primarily within the city limits. The city contracts with Kitsap County for wastewater treatment at the Central Kitsap Treatment Plant. The City and County are currently planning and implementing improvements to both the City and County's existing systems to reduce infiltration and inflow and to increase the capacity of the conveyance system. As Exhibit 4-107 shows, the City of Poulsbo wastewater system has a

current (2015) surplus of 1,940 equivalent residential units (ERUs), which has sufficient capacity to accommodate population growth for the City of Poulsbo during the planning period.

### City of Port Orchard Sewer Facilities

The City of Port Orchard maintains and operates a wastewater collection system that provides service to the City of Port Orchard. The collection system includes 49 miles of gravity sewers, 8 miles of force mains, and 14 miles of septic tank effluent pumping (STEP) mains where effluent is pumped from conventional septic tanks to a sewer main located in the street. Pipes range from 2-inch to 24-inch in diameter. The collection system also includes 16 pump stations.

The City of Port Orchard and West Sound Utility District (WSUD) jointly own the South Kitsap Water Reclamation Facility located east of Port Orchard along the south shore of Sinclair Inlet. The facility is operated by WSUD.

2015 City of Port Orchard population is approximately 11,550. New residential development is occurring primarily along Sidney Road SW and SW Sedgwick Road, and on the west side of town along Old Clifton Road. Future wastewater collection system needs for the City are described in the City of Port Orchard 2015 Comprehensive Sanitary Sewer Plan Update, which is currently being updated.

### West Sound Utility District

West Sound Utility District (WSUD) generally serves the City of Port Orchard, including the UGA east and south of the city limits. The district also provides sewer collection service in the rural area along Beach Drive to Watauga Beach. The current service area is approximately 5.5 square miles. The collection system consists of 15 pumping stations and about 55 miles of pipeline. The maximum capacity of the conveyance system is estimated to be 6.0 million gallons per day (mgd). Exhibit 4-107 shows the joint West Sound-Port Orchard wastewater system has a current surplus of about 12,200 ERUs, which has sufficient capacity to accommodate the combined growth population of Port Orchard and WSUD under the Preferred Alternative. Future wastewater collection system needs for portions of the Port Orchard UGA that are within the WSUD service area are described in Karcher Creek Sewer District Comprehensive Sewer Plan (2007).

The City of Port Orchard and West Sound Utility District (WSUD) jointly own the South Kitsap Water Reclamation Facility located east of Port Orchard along the south shore of Sinclair Inlet. The facility is operated by WSUD and treats wastewater from the service areas of both West Sound and the City of Port Orchard totaling approximately 25,500 people, and discharges to Sinclair Inlet. WSUD and the City jointly own the facility; however, the West Sound Utility District is responsible for daily operation. Annual average day flow for 2014 was approximately 1.9 mgd. WSUD and the City expect to continue sharing treatment capacity equally. Upon the expansion in 2006, the facility was re-rated, increasing its capacity from 2.8 mgd to 4.2 mgd, with a peak day capacity of 16 mgd, which provides sufficient capacity to serve population growth within the City during the planning period. Along with the expansion, the treatment process was upgraded and can now produce Class A reclaimed water and Class A biosolids, which can be used for revegetation of commercial/industrial areas and as composting cover for tree farms.

### Port of Bremerton Sewer Facilities

According to the 2012 *Kitsap County Capital Facilities Plan*, the Port of Bremerton operates a public wastewater treatment plant located in the Olympic View Industrial Park on State Route 3 west of Gorst. The service area encompasses the Port's 1,800 acres, which includes the Bremerton National Airport and the Olympic View Industrial Park.

Constructed in the 1970s and expanded in the mid-1980s, the plant serves the vast majority of businesses at the airport and industrial park. A few older business locations operate septic tank and drainfield systems. Ecology has designated the plant as a municipal plant and has rated the plant capacity at 72,500 gallons per day (average daily flow). The plant uses a combination gravity and pump station collection system with aeration lagoons and settling ponds for treatment and drainfields for disposal.

The plant is currently treating between 10,000 and 15,000 gallons per day depending on weather and business cycles, and is serving approximately 400 persons. Typical levels of sewage generation for light industrial business activity are 25 to 35 gallons of wastewater per day per person. The plant serves two commercial/industrial areas (the airport and industrial park) that have been designated for business, industrial, and airport activity since the first County comprehensive plan was developed in the 1970s.

## Kitsap County Sanitary Sewer Facilities

### *Central Kitsap Wastewater Facilities*

Kitsap County owns and operates conveyance and treatment facilities in the Central Kitsap service area. This service area is the largest system in Kitsap County and includes the naval facilities at Bangor, Keyport, and the City of Poulsbo along with the Silverdale and Central Kitsap UGAs. The plant also treats septic tank waste hauled to the plant.

The Central Kitsap collection system consists of approximately 44 lift stations and over 145 miles of gravity mains and force mains ranging in size from 2-36 inches in diameter. In 1997, Pump Stations 3, 4, 12, 13, and 17 were converted from gaseous chlorine to sodium hypochlorite for odor control. In 2003, gaseous chlorine was also removed from the Johnson Road Chlorine Station and replaced with sodium hypochlorite.

Flows from the City of Poulsbo enter the northern portion of the collection system via a gravity siphon crossing from Lemolo to Keyport, across the mouth of Liberty Bay. Some of the collection and transfer systems serving the Meadowdale areas, downtown Silverdale, and northern portion of the Central Kitsap collection system are undersized for existing wastewater flows. A phased expansion of the conveyance and treatment facilities is planned to repair and replace worn facilities, and to extend service to surrounding areas. Modifications to accommodate current flows are included in the design phase.

Treatment facilities at the Central Kitsap Wastewater Treatment Plant (CKWWTP) are currently rated for an Average Daily Flow (ADF) of 6.0 mgd, with a peak hour flow of 15 mgd. The plant utilizes an activated sludge/solids contact process for tertiary treatment of wastewater and an ultraviolet light disinfection system. The County plans to expand the plant based on the extent of growth predicted within the existing sewer service area. The second phase of construction at the plant will upgrade to 10.6 mgd ADF. The existing 68-acre site is expected to accommodate layout of facilities for capacity in excess of 25 mgd ADF.

Treated wastewater from the CKWWTP is discharged into the northern portion of Port Orchard Bay in Puget Sound. The outfall pipe has a maximum hydraulic capacity of approximately 31 mgd. The diffuser has a maximum hydraulic capacity of 16 mgd. Future extension of the existing diffuser is expected to provide sufficient dilution for the increased flow. The Central Kitsap Treatment Plant treats 3.7 mgd average annual flow (2014). The effluent is discharged approximately 3,200 feet offshore at a depth of 46 feet below mean low water.

The CKWWTP is the regional sludge treatment center for all County-owned treatment plants and septage from on-site treatment systems. Approximately 30 to 40 percent of the solids treated at the CKWWTP are derived from septage or sludge from the County's outlying treatment plants. Sludge treatment facilities at the CKWWTP include gravity thickening and dewatering. Currently, dewatered sludge is hauled to eastern or southwestern Washington for composting or land application. Future wastewater collection systems for the Silverdale and Central Kitsap UGAs include a total of 52 new pumping stations, with 135 miles of new gravity sewer and force mains to complete the major sewer collection system of these UGAs.

#### *Kingston Wastewater Facilities*

Sewer service in the Kingston area is owned and maintained by Kitsap County. The existing Kingston collection system consists of approximately 39,000 feet of gravity sewer pipe ranging in size from 6 to 12 inches in diameter and approximately 18,500 feet of force main ranging from two to six inches in diameter. Six pump stations serve the Kingston area, which serves approximately 777 ERUs.

Completed in May 2005, the Kingston wastewater treatment facility is designed to treat an average daily flow of 292,000 gallons per day. This is a 95% increase in capacity from the previous facility, and will accommodate residential and commercial growth in the Kingston area for the next 20 years. The plant utilizes an oxidation ditch, with two rotating stainless steel brushes, for biological treatment. Two oxidation ditches were constructed; one for current flows and one to accommodate future growth (500,000 gallons per day). Only the active ditch contains rotating brushes.

Built in conjunction with the new treatment plant and located on the old plant grounds, Pump Station 71 pumps all of the sewage generated in Kingston approximately 1.8 miles to the new plant.

Construction of a new outfall into Puget Sound was included in the improvements. Since the previous outfall was damaged during dredging operations by the State ferry system, the new pipe was located well outside the ferry corridor and extended to 165 feet below sea level to limit impacts on shellfish harvesting areas. Waste sludge from the Kingston WWTP is currently trucked to the Central Kitsap WWTP for digestion and treatment.

As Exhibit 4-107 shows, the Kingston wastewater system has a current (2012) surplus of 1,280 ERUs (2,925 additional people) which has enough capacity to accommodate the projected 2036 growth population. Future wastewater collection systems, as described in the 2007 Kingston Wastewater Facilities Plan Addendum, include a total of eight new pumping stations, with 47,000 feet of new gravity sewer and force mains, ranging from 4-10 inches in diameter to complete the major sewer collection system for the Kingston UGA. Sludge from the plant is hauled for further treatment at the CKWWTP.

#### *Suquamish Wastewater Facilities*

Kitsap County owns and operates the Suquamish wastewater conveyance and treatment facilities that provide sewer service to approximately 1,871 residents in the Suquamish area with sewer service available within the LAMIRD. The newest extension of the existing service area beyond the LAMIRD covers about 37 acres and lies west of Urban Avenue between Geneva Street and South Street. The plant serves the Suquamish Tribal Casino. The Tribal Casino pump station and collection system consist of approximately 48,200 linear feet of pipeline.

The McKinstry Street pumping station and the Division Street pump station are the pumping stations in the collection system. All wastewater in the system flows by gravity to these stations

for transfer to the Suquamish WWTP. Existing sewers are sufficient to accommodate additional growth within the existing service area.

The Suquamish WWTP is a secondary plant with an ADF capacity of 0.4 mgd. The U.S. Environmental Protection Agency (EPA) is responsible for issuing the required National Pollutant Discharge Elimination System (NPDES) permit since the treatment plant is located within the Port Madison Tribal Reservation boundary. The County upgraded the existing facilities in 1997, expanding the plant from 0.2 to 0.4 mgd ADF capacity. Sludge from the plant is hauled for further treatment at the Central Kitsap WWTP.

#### ***Manchester Wastewater Facilities***

Kitsap County owns and operates a small sewer collection and treatment system in Manchester. This system serves a population of approximately 1,000 people and treats an average flow of 0.19 mgd. The Manchester collection system consists of five pumping stations and approximately 60,000 linear feet of pipeline. Public sewers now serve approximately 25% of the land within the LAMIRD boundary, although the remaining area is subdivided into smaller parcels and much of it is built out.

The current service area includes the EPA laboratory at Clam Bay and the Manchester Naval Fuel Depot. Waste flows from the Manchester Naval Fuel Depot originate from ships discharging sewage at the facility. Kitsap County has an agreement with the Navy that requires the County to be notified when the Navy plans to discharge wastewater to the County's system. The Navy has storage facilities at the depot to allow holding of wastewater if the County does not permit immediate discharge.

The plant provides for an ADF capacity of 0.46 mgd. Sludge from the Manchester WWTP is thickened, temporarily stored on the plant site and then hauled to the Central Kitsap WWTP for treatment. The outfall provides sufficient capacity for discharge of the projected future wastewater flows. Sludge from the plant is hauled for further treatment at the Central Kitsap WWTP.

#### ***Navy Yard City Sanitary Sewer Facilities (Sewer District 1)***

Kitsap County owns and maintains a sewage collection system in the area commonly referred to as Navy Yard City within the West Bremerton UGA. The collection system consists of two pump stations and 9.2 miles of pipeline and serves approximately 970 residential and commercial units.

Over the years, Kitsap County and the City of Bremerton have discussed the possibility of transferring a collection system. Currently, the County contracts with the City for treatment capacity at the West Bremerton treatment facility. Kitsap County and the City of Bremerton expect to continue to discuss the possibility of transferring the collection system to the city through an ILA and Resolution.

#### **Private Sanitary Sewer Facilities**

##### ***Port Gamble/S'Klallam Tribe Reservation Sewer Facilities***

The Port Gamble/S'Klallam reservation is located along the northeast shore of Port Gamble. Failing septic drainfields and concern for the environment of Port Gamble Bay have prompted the Port Gamble/S'Klallam Tribe to construct wastewater collection and secondary treatment facilities. The collection system uses gravity sewers and septic tank effluent pumping (STEP) systems to convey wastewater to a recirculating sand filter for secondary treatment and subsurface disposal of the liquid effluent.

According to the 2012 CIP, four lift stations and associated pipeline are constructed along Little Boston Road. Solids accumulating in the septic tanks continue to require removal and hauling to a regional plant that accepts such wastes (e.g., Central Kitsap WWTP). Treatment facilities are designed for an initial average design flow capacity of 0.05 mgd with ultimate expansion to 0.1 mgd to serve a projected population of 1,565 people.

### *Port Gamble Sewer Facilities*

Pope Resources (Olympic Resource Management) owns and operates the sewer collection and treatment system in Port Gamble. This system is a small, prefabricated plant.

The current outfall is located in relatively shallow water in Hood Canal. Pope Resources also provides potable water and solid waste removal services for this area. Any changes or upgrades to the Port Gamble system will be subject to conditions in the operating permit. A new treatment plant is currently under construction to replace the existing plant.

## Sewer Facilities Needs Forecast

The purpose of the Sewer Facilities Plan of the Capital Facility Element is to ensure there are adequate facilities for sewer service as the population increases. This plan addresses existing and future facility needs, and provides a financial plan to indicate revenue sources for funding the increase in sewer services. Facilities and financial planning for sewer service purveyors other than Kitsap County Department of Public Works (e.g. cities, tribes, private districts) are summarized in this plan and are described in greater detail in each of the City's and district's CFPs.

Sewer system planning is based on the assumption that sewer service will only be provided in areas located within UGA boundaries or Limited Areas of More Intense Rural Development (LAMIRD) except where a significant threat to human and/or environmental health is identified. Projects planned in the six-year CFP are for service to areas within UGA boundaries or LAMIRDs. Most of these projects are physically located within UGA boundaries, or are associated with existing facilities located outside UGA boundaries (e.g., improvements to the Central Kitsap WWTP). Sewer projects planned for 2013-2018 as well as in 2019-2025 focus on providing service to customers located within (1) existing sewer districts (i.e., in-fill), and (2) UGAs (i.e., extensions).

The sewer facility forecast assumes that existing, acceptably operating, on-site sewage (OSS) disposal systems will continue to be used for some existing developments within the UGAs until such time that municipal sanitary sewers are available, and replacement of the existing OSS is required to support redevelopment or meet applicable public health statutes. The sewer facility forecast also assumes that new OSS disposal systems or other approved wastewater treatment and disposal options may be used for new development where urban densities, lot sizes, and physical characteristics meet applicable regulatory criteria such as soil type and setbacks to surface water or wells. However, Kitsap County and its wastewater service providers assumed the possibility of all OSS disposal systems transitioning to traditional wastewater collection service by 2036. This need is documented in plant capacity plans and evaluation procedures<sup>2</sup>,

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<sup>2</sup> Whenever any of the actual flows or loadings reaches 85% of the design criteria for three consecutive months or if projected increases in flows or loadings would reach design capacity within five years, the NPDES discharge permit

conveyance infrastructure<sup>3</sup>, as well as secured and potential future funding sources as reflected in this CFP and associated appendices. Funding for these facilities is expected to include private funding sources such as Local Improvement Districts (LIDs) and developer extensions for conveyance infrastructure.

## Level of Service

The adequacy of existing sewer facilities to meet present and future needs is based on the estimated gallons per day of wastewater for the current sewered population and for the projected future sewered population. It is also based on an assumed existing and planned Level of Service (LOS) for sewer service. There is an average of 2.5 people per household in Kitsap County. Current wastewater flow data indicates that an average of 70 to 100 gallons per capita per day (GPCD) is used. With an average of 2.5 people per dwelling unit, a residential connection will generate a demand for treatment of 250 gallons per day. These characteristics serve as a planning standard or LOS for sewer service during the next 20-year planning period. Based on this standard and sewered population allocation, it is possible to identify future deficiencies in various sewer systems and the capital projects necessary to correct those deficiencies. Current wastewater flow data from Kitsap County facilities indicates that approximately 70 GPCD may be a more representative of typical sewer service demand, so the 250 gpd LOS standard is likely somewhat conservative.

## Capital Projects and Funding

Sewer system capital projects have been identified based on a combination of existing Sewer Comprehensive Plans, work that was conducted for the County's 2007 Wastewater Infrastructure Task (WIT) Force and supplemental technical analysis associated with each UGA. Individual projects for each UGA and each land-use alternative are summarized in the following exhibits and include both capital cost and expected revenue sources. Additional information on potential revenue sources that may be used for sewer facilities is provided in Appendix B.

For summary purposes, Exhibit 4-108 provides an overview of capital costs for the Preferred Alternative. Details of the projects are found below by each service provider.

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states that the County must begin a plan to expand the capacity of the plant or take other actions to avoid exceeding the design criteria.

<sup>3</sup> See Appendix A for maps showing coverage of facilities in existing developed areas and future development areas in UGAs.

**Exhibit 4-108. Sewer Cost by Provider under the Preferred Alternative  
2016-2036 (All numbers are in 2015 \$1000s)**

UGA	Preferred Alternative
Bremerton (City)	\$304,633
Port Orchard (City)	\$7,470
WSUD	\$27,835
Poulsbo (City)	\$11,655
Kitsap County	\$341,263

Source: BHC 2015

**Kitsap County 2016-2036 Capital Improvement Projects – Overview**

The County's sanitary sewer facilities improvements are summarized in Exhibit 4-109, including the proposed implementation schedule, costs, and financing plan. Costs and revenues are further summarized in Exhibit 4-110 and Exhibit 4-111. The 2016-2021 six-year CIP section is presented as two three-year budgets and are primarily publicly funded projects.<sup>4</sup> Projects that are in the 2022-2036 period could move up to the 2016-2021 period based on specific requirements to serve new development, or environmental or public health concerns that warrant sewer service extension. Specific revenue sources for these projects would be identified and reflected in annual wastewater CIP updates prepared by service providers.

CIPs for the period 2022 through 2036 are also presented in Exhibit 4-109 as a total cost for each category of improvements. These costs are for the upgrade/replacement of other existing pump stations, force mains and gravity sewers as well as new pump stations, force mains and gravity collectors and interceptors to provide sewer service beyond the existing County sewer systems. Individual projects have been combined into sets of projects based on the types of projects or areas being served. The sets of capital projects associated with the Kitsap County wastewater system are summarized below for each UGA and service area having sewer utilities owned and operated by Kitsap County.

Several improvement projects have been identified in Exhibit 4-109 for three of the four wastewater treatment plants owned and operated by Kitsap County. Some of these projects include upgrades for additional treatment capacity as indicated in Exhibit 4-109. However, National Pollutant Discharge Elimination System (NPDES) discharge permit issued by Ecology to Kitsap County for each of these plants has design criteria for maximum month influent flow and maximum month loadings of biochemical oxygen demand and total suspended solids. Whenever any of the actual flows or loadings reaches 85% of the design criteria for three consecutive months or if projected increases in flows or loadings would reach design capacity within five years, the NPDES discharge permit states that the County must begin a plan to expand the capacity of the plant or take other actions to avoid exceeding the design criteria. Thus, as wastewater flows and loadings increase, Kitsap County will be required to review the adopted CIP for each facility and take appropriate actions to remain in compliance with the NPDES discharge permit.

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<sup>4</sup> The draft six-year CIP is being reviewed and revised by County staff. It is possible that projects would be moved from the six-year to the seven-20 year timeframe or broken down further to assist with phasing and funding opportunities.

### Central Kitsap System

Six improvement projects have been identified for the existing Central Kitsap UGA sewer system in the six-year CFP consisting of pump station upgrades and pipe replacements projects. One set of projects has been identified in the 2016-2021 CIP:

- PS 6, PS 8 and PS 18 and related conveyance systems

Five sets of projects have been identified in the 2022-2036 CIP:

- PS 32, PS 33, PS 69 PS 32 force main and PS 69 conveyance systems
- PS 34
- PS 62, PS 65 and PS 65 forcemain
- PS 10 upgrades
- Old Military Road piping upgrades

New infrastructure improvements to extend sewer service beyond the existing Central Kitsap system would be implemented as development occurs in those areas including:

- 2 new medium sized pump stations (200-500 gpm capacity)
- 13 new small pump stations (<200 gpm capacity)
- 33,000 feet of new force mains
- 69,800 feet of new gravity sewers

### Silverdale System

Nine improvement projects are scheduled for the existing Silverdale UGA sewer system in the six-year CFP consisting of pump station upgrades and pipe replacements projects. Five of these projects are in the 2016-2021 CIP including:

- PS 1 improvements
- PS 3, PS 4 and collection system improvements
- PS 19 Upgrades
- Bucklin Hill Bridge Project forcemain pipe
- Bay Shore Drive gravity pipe upgrade

The remaining existing infrastructure projects are scheduled for completion during 2022-2036 including the following projects:

- PS 12 and Provost Road conveyance system upgrades
- PS 21, PS 22 and PS 22 conveyance system improvements
- Upper Anderson Hill Road gravity sewer
- Silverdale Way to PS 1 and Levin Road gravity pipe

New infrastructure improvements to extend sewer service beyond the existing Silverdale system are also summarized in Exhibit 4-109 and would be implemented as development occurs in those areas. These facilities include:

- 6 new medium sized pump stations

- 16 new small pump stations
- 31,000 feet of new force mains
- 119,000 feet of new gravity sewers

### Central Kitsap Wastewater Treatment Plant

The Central Kitsap Wastewater Treatment Plant (CKTP) provides secondary treatment for wastewater flows generated in the Central Kitsap and Silverdale UGAs, the City of Poulsbo, the Keyport area and the naval facilities at Bangor. Biosolids generated at the Kingston, Suquamish and Manchester Wastewater Treatment Plants are transported to CKTP for treatment and processing with biosolids generated at CKTP. In addition, nitrogen is removed to meet reclaimed water standards for a portion of the wastewater flows treated at CKTP.

The CIP for the Central Kitsap Wastewater Treatment Plant (CKTP) consists of three projects completed during the six-year CIP:

- CKTP ultraviolet disinfection system upgrades
- CKTP screw press
- CKTP campus buildings

One project is scheduled for completion during 2022-2036:

- CKTP primaries and aeration tanks 5 and 6

Two of these projects are capacity related while the others are scheduled for implementation as funding becomes available in the planning period.

### Kingston System

Three improvements projects at the Kingston Wastewater Treatment Plant (KTP) and existing collection/conveyance system have been identified in the six-year CIP. All other infrastructure improvements implemented during the 20-year planning period extend sewer service beyond the existing system in response to growth in the Kingston UGA. The six-year CIP projects consist of the following:

- KTP water reclamation and reuse
- KTP oxidation ditch upgrades
- West Kingston Road bridge pipeline replacements

New infrastructure improvements to extend sewer service beyond the existing Kingston system are scheduled to occur in the 2022-2036 period and would be implemented as development occurs. These projects consist of the following:

- 1 new medium sized pump station
- 4 new small pump stations
- 12,000 feet of new force main
- 36,000 feet of new gravity sewers

### Keyport LAMIRD System

CIP improvements identified for the Keyport LAMIRD consist of one project to eliminate one pump station (PS 16) with an upgrade to a second pump station (PS 67), both located in the

Keyport community. The majority of wastewater flows through these pump stations originate in the City of Poulsbo. The pipeline conveying these flows is called the Lemolo Shores pipeline which must be replaced as the flows from Poulsbo increase. Both projects are scheduled for implementation in the six-year CIP and would be funded jointly by Kitsap County and the City of Poulsbo.

### Manchester LAMIRD System

Two projects have been identified for the sewer system serving the Manchester area during the six-year CIP. One project is required to replace outdated equipment and to upgrade failing pipe within the Puget Sound shoreline:

- PS 45, PS 46, and PS 47, and gravity pipe improvements

The second project consists of a new pump station, force main, and gravity sewer system and the individual pump stations to serve 121 homes along Yukon Harbor.

Future sewer system infrastructure improvements to serve growth within the Manchester LAMIRD have been identified in the Manchester Sewer Facilities Strategy Plan (BHC Consultants, 2014). These facilities consist of approximately 42,000 feet of new gravity sewers extending into new service areas and one new pump station. These facilities would be constructed as growth occurs in the sewer subbasins.

### Suquamish System

One project has been identified for the Suquamish system consisting of an upgrade to the solids handling system at the Suquamish Wastewater Treatment Plant (STP). This project will be completed during the six-year CIP. Pipe replacement projects throughout collection system will be continued as necessary.

**Exhibit 4-109 Sanitary Sewer -- Kitsap County Systems Capital Facilities Projects 2016-2036 (All numbers are in 2015 \$1000s) – Preferred Alternative**

Category / Project Description	Capacity Project (√)	Revenue Sources	Cost Years 1-3*	Cost Years 4-6*	Cost Years 7-20	Total Cost
(All Amounts in \$1,000s)						
<b>KTP Water Reclamation and Reuse (4102007)</b> The project would upgrade the Kingston Treatment Plant from secondary to tertiary to provide reclaimed water for irrigation use.		Grants, Partner Funding	\$3,550			\$3,550
<b>KTP Oxidation Ditch Upgrades (4102009)</b> The project would upgrade the secondary treatment processes to replace outdated equipment and improve nutrient removal.		See Exhibit 4-111	\$750			\$750
<b>STP Solids Handling Upgrades (4103004)</b> The project is to replace the outdated and inefficient solids handling process at the Suquamish Treatment Plant. The project will include upgrades to the obsolete instrumentation and controls software and hardware in order to run on current Windows operating system.	√	See Exhibit 4-111	\$3,306			\$3,306
<b>CKTP Primaries and Aeration Tanks 5 &amp; 6</b> This project will address primary treatment effectiveness, nitrification capacity, hydraulic capacity, updating outdated equipment.	√	See Exhibit 4-111			\$28,643	\$28,643
<b>CKTP UltraViolet Disinfection Upgrade (410139*)</b> This project will replace the outdated and inefficient UV Disinfection System.		See Exhibit 4-111	\$2,000			\$2,000
<b>CKTP Screw Press</b> This project will provide redundancy in solids dewatering system.	√	See Exhibit 4-111		\$1,050		\$1,050
<b>CKTP Campus Buildings</b> Replace and upgrade admin building, laboratory, storage/maintenance building to improve energy efficiency and capacity.		See Exhibit 4-111		\$1,400	\$10,400	\$11,800
<b>PS's 1, 6, 8, &amp; 18, and Collection System Improvements (4101019)</b> The project is to upgrade the pump station components at Pump Stations 1, 6, 8, and 18 in the Silverdale and E. Bremerton area, and to increase associated forcemain and gravity pipe capacity. There will be separate contracts for the pump station and conveyance line portions.	√	See Exhibit 4-111	\$17,551			\$17,551

Category / Project Description	Capacity Project (√)	Revenue Sources	Cost Years 1-3*	Cost Years 4-6*	Cost Years 7-20	Total Cost
(All Amounts in \$1,000s)						
<p><b>PS's 16 &amp; 67 Improvements (4101033*)</b> The project in Keyport is to change the hydraulics on the Poulsbo side of the piping system in order to eliminate PS16 on the water and reroute all the Poulsbo flow to PS 67. Upgrades to PS67 are needed to handle the increase in flow. Joint project with the Stormwater Division.</p>	√	City of Poulsbo (93.6%)	\$3,448			\$3,448
<p><b>PS 3 Collection System Improvements (4101037)</b> The project is to replace equipment and upsize the capacity at Pump Station 3 in Silverdale including collection system upgrades including replacing lower Anderson Hill gravity sewer across Silverdale Way to PS3.</p>	√	See Exhibit 4-111	\$8,796			\$8,796
<p><b>PS 19 Upgrades (4101038)</b> The project is to replace equipment at Pump Station 19 including collection system upgrades in the vicinity of Waaga Way and Stampede Blvd.</p>	√	See Exhibit 4-111	\$2,300			\$2,300
<p><b>PS's 45, 46, &amp; 47 and Gravity Pipe Improvements (4105002)</b> The project is to rebuild Pump Stations 45, 46, &amp; 47 in Manchester due to outdated infrastructure. The project includes replacing or upgrading the gravity pipe along the beach between the pump stations.</p>	√	Low interest loans, Ecology	\$5,460			\$5,460
<p><b>PS 4 Collection System Improvements</b> The project is to replace equipment and upsize the capacity of Pump Station 4 in Silverdale including collection system upgrades of 1,600 ft. of PS 4 force main along Waaga Way and Fredrickson Rd. gravity sewer.</p>	√			\$14,779		\$14,779
<p><b>PS 12 and Provost Rd. Conveyance</b> Upgrade to replace outdated infrastructure and increase capacity in Chico Way area of Silverdale, including replacing 3,750 ft. of gravity sewer along Provost Rd.</p>	√	See Exhibit 4-111			\$8,580	\$8,580
<p><b>PS 21, PS 22, and PS 22 Conveyance</b> Upgrade to replace outdated infrastructure and increase capacity in north Silverdale area in the vicinity of Island Lake, including 1,050 ft. of forcemain west of PS 22.</p>	√	See Exhibit 4-111			\$6,600	\$6,600
<p><b>PS 32, PS 33, PS 69, PS 32 FM, PS69 Conveyance (4105002)</b> Upgrade to replace outdated infrastructure and increase capacity near the southern edge of the CK UGA west of Hwy. 303 between Riddell Rd. and McWilliams Rd.</p>	√	See Exhibit 4-111			\$10,560	\$10,560
<p><b>PS 34 (4105002)</b> Upgrade to replace outdated infrastructure and increase capacity in vicinity of Central Valley and McWilliams Rd.</p>	√	See Exhibit 4-111			\$4,703	\$4,703

Category / Project Description	Capacity Project (√)	Revenue Sources	Cost Years 1-3*	Cost Years 4-6*	Cost Years 7-20	Total Cost
(All Amounts in \$1,000s)						
<b>PS 36 and PS 36 FM (4105002)</b> Upgrade to replace outdated infrastructure and increase capacity south of Fairgrounds Rd. between Hwy. 303 and Central Valley Rd.	√	See Exhibit 4-111			\$1,825	\$1,825
<b>PS 62, PS 65 and PS 65 FM (4105002)</b> Upgrade to replace outdated infrastructure and increase capacity serving the Illahee area of the CK UGA	√	See Exhibit 4-111			\$8,600	\$8,600
<b>PS 10</b> Upgrade to replace outdated infrastructure and increase capacity in the Meadowdale West area.	√	See Exhibit 4-111			\$2,925	\$2,925
<b>Bucklin Hill Bridge Project (4101035)</b> The project is to replace the existing from along Bucklin Hill in conjunction with the Road's Div. building the new bridge in Silverdale. Joint project with Roads Division.		See Exhibit 4-111	\$423			\$423
<b>Bay Shore Drive Gravity Pipe Upgrade (4101029)</b> The project is to replace and upsize the existing outdated gravity pipe along Bay Shore Dr. and Washington Ave. in Silverdale. Joint project with Roads & Stormwater Divisions.	√	See Exhibit 4-111	\$1,678			\$1,678
<b>Yukon Harbor</b> This project provides sewer service along Colchester Drive in Manchester to 121 homes currently on septic.	√	Grants (\$4.6M), ULID	\$7,255			\$7,255
<b>Lemolo Shores Pipeline Upgrade (4101036*)</b> This project replaces the existing forcemain with a new upsized pipe for capacity and replace outdated material.	√	City of Poulsbo	\$350	\$3,150		\$3,500
<b>Silverdale Way to PS 1 and Levin Rd.</b> This project upsizes the existing sewer main from Waaga Way south along Levin Rd. to PS 1.	√	See Exhibit 4-111			\$6,787	\$6,787
<b>Old Military Rd. Piping Upgrades</b> Replacing existing sewer on North Old Military to the CKTP to increase capacity.	√	See Exhibit 4-111		\$9,648		\$9,648
<b>Upper Anderson Hill Rd.</b> Replacing existing sewer on Upper Anderson Hill Rd. to increase capacity.	√	See Exhibit 4-111		\$218	\$1,670	\$1,888

Category / Project Description	Capacity Project (√)	Revenue Sources	Cost Years 1-3*	Cost Years 4-6*	Cost Years 7-20	Total Cost
(All Amounts in \$1,000s)						
<b>Manchester Gravity Pipe Replacement</b> Replace gravity pipe in Basins 49 and E per the 2014 Manchester Sewer Strategy Plan. Work includes replacement of 3 tees within these basins.		See Exhibit 4-111		\$378		\$378
<b>West Kingston Road Bridge</b> Replace existing pipeline with bridge. Joint project with Roads Division		See Exhibit 4-111	\$480			\$480
<b>Sewer System Expansion – Central Kitsap UGA</b> New medium PS (2) New small PS (13) New forcemain (33,000 LF) New gravity pipe (69,800 LF)	√	See Exhibit 4-111			\$4,900 \$12,200 \$7,100 \$29,900	\$4,900 \$12,200 \$7,100 \$29,900
<b>Sewer System Expansion – Silverdale UGA</b> New medium PS (6) New small PS (16) New forcemain (31,000 LF) New gravity pipe (119,000 LF)	√	See Exhibit 4-111			\$14,500 \$15,000 \$3,400 \$47,000	\$14,500 \$15,000 \$3,400 \$47,000
<b>Sewer System Expansion – Kingston UGA</b> New PS (5) New forcemain (12,000 LF) New gravity pipe (36,000 LF)	√	See Exhibit 4-111			\$6,600 \$4,400 \$17,000	\$6,600 \$4,400 \$17,000
<b>TOTALS</b>			\$57,347	\$15,844	\$253,293	\$341,263

Note: The draft six-year CIP is being reviewed and revised by County staff. It is possible that projects would be moved from the six-year to the seven-20 year timeframe or broken down further to assist with phasing and funding opportunities.

Source: Kitsap County Public Works Wastewater Division, BHC 2015

**Exhibit 4-110. Sanitary Sewer -- Kitsap County Systems Capital Facilities Project Costs  
2016-2036 (All numbers are in 2015 \$1000s) – Preferred Alternative**

Category Summary	Cost Years 2016-2021	Cost Years 2022-2036	Total Cost
<b>Capacity</b>	\$64,210	\$257,672	\$334,435
<b>Non-Capacity*</b>	\$8,981	\$10,400	\$19,381
<b>Sum</b>	\$73,191	\$268,072	\$341,263

Source: Kitsap County Public Works Wastewater Division, BHC 2015

**Exhibit 4-111. Sanitary Sewer -- Kitsap County Systems Capital Facilities Project Revenues  
2016-2036 (All numbers are in 2015 \$1000s) – Preferred Alternative**

Revenue Source	Projection Years 1-6	Projection Years 7-20	Total Cost
<b>Revenue Bonds</b>	\$28,000	\$0	\$28,000
<b>Potential State Grants &amp; Loans</b>	\$10,241	\$0	\$10,241
<b>Utility Fees, ULID, Developer, and Poulsbo share *</b>	\$49,729	\$253,293	\$303,022
<b>Sum</b>	\$87,970	\$253,293	\$341,263

Note: \*The Poulsbo share of costs for all improvements at CKTP is 15.8%, for PS 16&67 improvements is 93.6% and for the Lemolo Shores Upgrade project is 100%.

Source: Kitsap County Public Works Wastewater Division, BHC 2015 Kitsap County Sewer Service – Alternatives Comparison

Exhibit 4-112 provides Kitsap County Sewer Utility costs by the Preferred Alternative, and shows the relative demand for sewer facilities.

Capacity upgrades at the four wastewater treatment plants would be constructed when increasing wastewater flows and/or loadings approach the threshold limits stated in the discharge permits issued for each facility.

**Exhibit 4-112. Kitsap County Sewer Utility Cost – Preferred Alternative  
(All numbers are in 2015 \$1000s)**

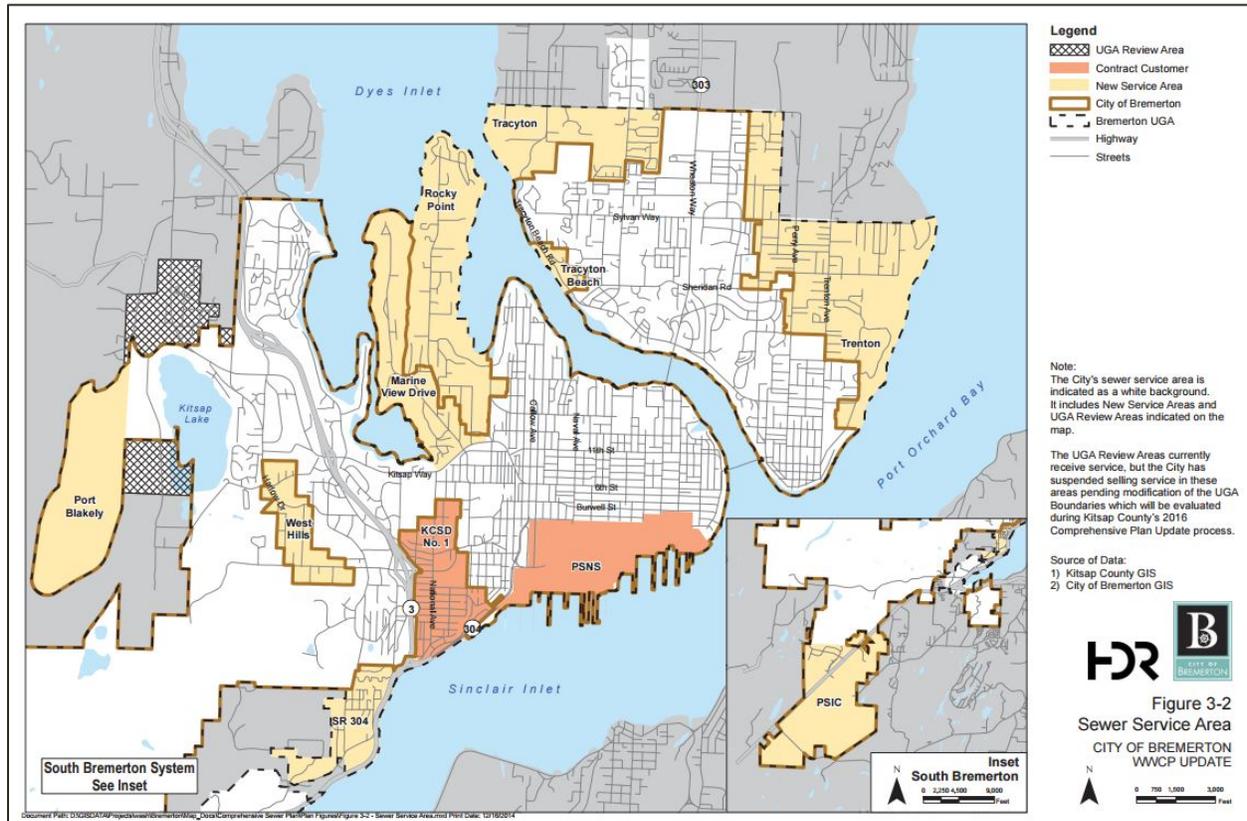
UGA	Preferred Alternative
Central County Sewer Service Area	
Central Kitsap UGA (Conveyance)	106,053
Silverdale UGA (Conveyance)	135,590
Keyport LAMIRD (Conveyance)	6,948
Central Kitsap WWTP	43,493
Kingston	
Kingston Conveyance	28,480
Kingston WWTP	4,300
Manchester Conveyance	13,093
Suquamish WWTP	3,306
<b>TOTAL</b>	<b>341,263</b>

Source: BHC 2015 and 2016

## City of Bremerton

The City of Bremerton’s Sewer System Plan (HDR 2014) illustrates the City’s sewer planning area with city limits, assigned UGAs, and an area around Kitsap Lake that the City considered for future service if the UGA is changed in the future. For each sewer basin area, the City has estimated projects and costs, and detailed plans in the Sewer System Plan may be consulted and are summarized here.

**Exhibit 4-113. Bremerton Sewer Service Area**



Source: HDR 2014

The City of Bremerton capital projects for the planning period are shown in Exhibit 4-114. These projects are associated with providing sewer service to the West Bremerton, East Bremerton, Gorst, and SKIA UGAs. The projects currently identified within the City’s 2015 CIP all pertain to providing service to the City and these UGA areas, as assumed under the Preferred Alternative. Capital sewer projects through the year 2036 are estimated at a cost of \$334,969,000.

The proposed schedule, costs, and financing plan for projects that will be needed for all alternatives are shown in Exhibit 4-114. A summary of project categories, costs, and revenues are found in Exhibit 4-115 and Exhibit 4-116.

**Exhibit 4-114. Sanitary Sewer – City of Bremerton Capital Facilities Projects 2015-2036**  
**(All numbers are in 2016 – 2036 YOES, \$1000s)**

Category / Project Description	Revenue Sources	Cost 2015 - 2017	Cost 2018 - 2020	Cost 2020-2036	Total Cost
<b>Category I (Capacity Projects Required to Meet LOS)</b>					
<b>New Service Areas</b>	UFA/G	\$10,191	\$43,276	\$212,711	\$266,178
<b>Category II (Non-Capacity Projects Needed for Maintenance and Operations)</b>					
<b>Collection System</b>	UFA	\$9,625	\$9,545	\$24,256	\$43,426
<b>Facilities and Equipment</b>	UFA/G	\$2,868	\$348	\$5,728	\$8,944
<b>Wastewater Treatment Plant</b>	UFA/G	\$1,479	\$2,730		\$4,209
<b>Operations and Maintenance</b>	UFA	\$5,171	\$5,791	\$1,250	\$12,213

Note: Assumptions based on the 2013 rate study.

Source: Wastewater Comprehension Plan, 2014; BERK, 2016.

**Exhibit 4-115. Sanitary Sewer – City of Bremerton Capital Facilities Costs 2015-2036**  
**(All numbers are in 2016 – 2036 YOES, \$1000s)**

Category Summary	Costs 2015 - 2017	Costs 2018 - 2020	Costs 2020 – 2036	Total Costs
<b>Category I (Capacity Projects Required to Meet LOS)</b>	\$10,191	\$43,276	\$212,711	\$266,178
<b>Category II (Other Projects Needed for Maintenance and Operations)</b>	\$19,143	\$18,414	\$31,234	\$68,791
<b>TOTAL</b>	<b>\$29,334</b>	<b>\$61,690</b>	<b>\$243,945</b>	<b>\$334,969</b>

Note: Assumptions based on the 2013 rate study.

Source: Wastewater Comprehensive Plan, 2014; City of Bremerton, 2015; BERK, 2016.

The 2014 Bremerton Wastewater Comprehensive Plan provides a more detailed summary of funding for years one through six (ending in 2020) included in Exhibit 4-116. Additionally, regular updates to the 6-year Capital Improvements Program are anticipated. Beyond 2020, each project in the plan is assigned a revenue source of either 1) user fee assessments, 2) grants and ULIDs, or 3) user fee assessments/grants and ULIDs. The 2014 Bremerton Wastewater Comprehensive Plan and the City’s Capital Facilities Plan may be referenced for more detailed information after 2020.

**Exhibit 4-116. Sanitary Sewer – City of Bremerton Capital Facilities Revenues 2015-2020  
(All numbers are in 2013 \$1000s)**

Category Summary	Revenues 2015 - 2017	Revenues 2018 - 2020	Total Revenues
<b>Capital Fund Reserves</b>	\$1,622	\$9,800	\$11,422
<b>General Facility Charges</b>	\$1,509	\$1,561	\$3,070
<b>Grant Funding/Developer Contributions</b>	\$12,196	\$9,862	\$22,058
<b>Assumed New Revenue Bonds</b>	\$17,500	\$8,000	\$25,500
<b>Subtotal Funding Sources</b>	<b>\$32,827</b>	<b>\$29,223</b>	<b>\$62,050</b>
<b>Capital Funded by Rates</b>	\$2,600	\$4,100	\$6,700
<b>Total Funding Sources Through 2020</b>	<b>\$35,427</b>	<b>\$33,323</b>	<b>\$68,750</b>

Note: Assumptions based on the 2013 rate study.

Source: Wastewater Comprehensive Plan, 2014; BERK, 2016.

**City of Port Orchard**

Capital projects for the City of Port Orchard sewer system are associated with expanding conveyance capacity within the existing system. Capital project and revenue information is shown in Exhibit 4-117, Exhibit 4-118, and Exhibit 4-119 and is based on information contained in the City of Port Orchard 2015 General Sewer Plan Update, currently in progress. Projected costs for the sewer projects total approximately \$7,470,000 for the six-year CIP through 2021.

**Exhibit 4-117. Sanitary Sewer – City of Port Orchard Capital Facilities Project Costs 2016-2036  
(All numbers are in 2015 \$1000s)**

Category Summary	2016-2018	2019-2021	2020-2036
<b>Capacity</b>	\$6,370	See Note 1	\$6,370
<b>Non-Capacity*</b>	\$1,100	See Note 1	\$1,100
<b>Total</b>	<b>\$7,470</b>	<b>See Note 1</b>	<b>\$7,470</b>

Projects are identified for this timeframe. However, costs have not been estimated for projects in years 7-20.

Source: BHC 2015\*Non-Capacity: Infrastructure upgrade, water quality benefit, energy efficiency.

**Exhibit 4-118. Sanitary Sewer – City of Port Orchard Capital Facilities Project Revenues  
2016-2036 (All numbers are in 2015 \$1000s)**

Revenue Source	Revenue Year 2016-2021	Revenue Years 2022-2036	Total Revenue
<b>Potential State Grants &amp; Loans</b>	\$1,396	See Note 2-	\$1,396
<b>Utility Fees</b>	\$6,074	See Note 2	\$6,074
<b>Developer</b>	See Note 1	See Notes 1 and 2	See Note 1
<b>Total</b>	<b>\$7,470</b>	<b>\$0</b>	<b>\$7,470</b>

1. The Albertsons Pump Station will be funded and constructed by a developer. Costs have not been estimated.

2. Projects are identified for this timeframe, but costs are not available.

Source: BHC 2015

**Exhibit 4-119. Sanitary Sewer – City of Port Orchard Capital Facilities Projects 2016-2036 (All numbers are in 2015 \$1000s)**

Category / Project Description	Capacity Project (√)	Revenue Sources	Cost Years 1-3	Cost Years 4-6	Cost Years 7-20 <sup>1</sup>	Total Cost <sup>1</sup>
(All Amounts in \$1,000s)						
<p><b>Marina Pump Station Improvements</b></p> <ul style="list-style-type: none"> <li>• Replace existing high flow pumps and install Variable Frequency Drives (VFDs) for new Pumps.</li> <li>• Install bypass vault</li> <li>• Replace mechanical equipment</li> <li>• Replace the existing emergency generator set, automatic transfer switch, and upgrade the fuel storage to include secondary containment.</li> <li>• Upgrade electrical, instrumentation, and controls equipment</li> <li>• Upgrade the drywell ventilation to meet Department of Ecology requirements.</li> <li>• Remove sanitary sewer overflow pipe.</li> <li>• Relocate 8” sewer inlet</li> <li>• Replace sea wall</li> </ul>	√	FEMA (\$1,396), Sewer Fund	\$3,800			\$3,800
<p><b>Bay Street Pump Station Improvements</b></p> <ul style="list-style-type: none"> <li>• Replace dilapidated wet well riser</li> <li>• Replace dry well access with flush hatch</li> <li>• Coat interiors of existing wet well and dry well</li> <li>• Replace existing constant speed dry pit pumps with new constant speed dry pit pumps</li> <li>• Replace all mechanical components</li> <li>• Replace all electrical components</li> <li>• Reroute gravity main from the west around the north side of dry well</li> <li>• Install generator set</li> <li>• Relocate sidewalk to provide better access for wet well manhole lid</li> <li>• Site paving/restoration</li> <li>• Install fencing around site</li> </ul>		Sewer Fund		\$1,100		\$1,100
<p><b>McCormick Pump Station 2 – Design</b></p> <ul style="list-style-type: none"> <li>• Replace pump system including pumps, controls and panels, level sensors, rails and reducers</li> <li>• connecting to existing discharge elbows</li> </ul>	√	Sewer Fund		\$190		\$190

Category / Project Description	Capacity Project (√)	Revenue Sources	Cost Years 1-3	Cost Years 4-6	Cost Years 7-20 <sup>1</sup>	Total Cost <sup>1</sup>
(All Amounts in \$1,000s)						
<ul style="list-style-type: none"> <li>Provide free standing roof structure above the pump control panel with integrated lights to illuminate area and to protect workers from the rain with a design similar to the McCormick Ridge installation</li> <li>Replace check valves, plug valves and saddles downstream of the pump station in kind</li> <li>Reduce the volume of storage in the wet well to reduce odors caused by long residence time</li> <li>Employ new corrosion control system utilizing less toxic chemicals</li> <li>If odor remains an issue at the station with the new corrosion control system, provide an odor control system that treats hydrogen sulfide and also the complex odors formed by STEP system effluent</li> </ul>						
<p><b>McCormick Pump Station 2 – Construction</b></p> <ul style="list-style-type: none"> <li>Replace pump system including pumps, controls and panels, level sensors, rails and reducers connecting to existing discharge elbows</li> <li>Provide free standing roof structure above the pump control panel with integrated lights to illuminate area and to protect workers from the rain with a design similar to the McCormick Ridge installation</li> <li>Replace check valves, plug valves and saddles downstream of the pump station in kind</li> <li>Reduce the volume of storage in the wet well to reduce odors caused by long residence time</li> <li>Employ new corrosion control system utilizing less toxic chemicals</li> <li>If odor remains an issue at the station with the new corrosion control system, provide an odor control system that treats hydrogen sulfide and also the complex odors formed by STEP system effluent</li> </ul>	√	Sewer Fund		\$1,100		\$1,100
<p><b>McCormick Pump Station 1 – Design</b></p> <ul style="list-style-type: none"> <li>Replace pump system including pumps, controls and panels, level sensors, rails and reducers connecting to existing discharge elbows</li> <li>Provide free standing roof structure above the pump control panel with integrated lights to illuminate area and to protect workers from the rain with a design similar to the McCormick Ridge installation</li> <li>Replace check valves, plug valves and saddles downstream of the pump station in kind</li> <li>Reduce the volume of storage in the wet well to reduce odors caused by long residence time</li> <li>Employ new corrosion control system utilizing less toxic chemicals</li> </ul>	√	Sewer Fund		\$180		\$180

Category / Project Description	Capacity Project (√)	Revenue Sources	Cost Years 1-3	Cost Years 4-6	Cost Years 7-20 <sup>1</sup>	Total Cost <sup>1</sup>
(All Amounts in \$1,000s)						
<ul style="list-style-type: none"> <li>If odor remains an issue at the station with the new corrosion control system, provide an odor control system that treats hydrogen sulfide and also the complex odors formed by STEP system effluent</li> </ul>						
<p><b>McCormick Pump Station 1 – Construction</b></p> <ul style="list-style-type: none"> <li>Replace pump system including pumps, controls and panels, level sensors, rails and reducers connecting to existing discharge elbows</li> <li>Provide free standing roof structure above the pump control panel with integrated lights to illuminate area and to protect workers from the rain with a design similar to the McCormick Ridge installation</li> <li>Replace check valves, plug valves and saddles downstream of the pump station in kind</li> <li>Reduce the volume of storage in the wet well to reduce odors caused by long residence time</li> <li>Employ new corrosion control system utilizing less toxic chemicals If odor remains an issue at the station with the new corrosion control system, provide an odor control system that treats hydrogen sulfide and also the complex odors formed by STEP system effluent</li> </ul>	√	Sewer Fund		\$1,100		\$1,100
<p><b>Albertsons Pump Station<sup>2</sup></b></p> <ul style="list-style-type: none"> <li>Replace pumps</li> <li>Replace all electrical equipment</li> <li>Replace all mechanical equipment</li> <li>Clean and re-coat wet well</li> </ul>	√	Developer		See Note 2		
<p><b>McCormick Woods Drive SW Gravity Sewer Upgrades</b></p> <ul style="list-style-type: none"> <li>Replace 1,390 lf of 10-inch pipe with 15-inch pipe from manhole 115-2-2-0200 to manhole 115-2-2-0020</li> <li>May not be necessary depending on future development patterns</li> </ul>	√	Sewer Fund			See Note 1	
<p><b>Flower Meadows Pump Station</b></p> <ul style="list-style-type: none"> <li>Replace pumps</li> <li>Replace all electrical equipment</li> <li>Replace all mechanical equipment</li> <li>Clean and re-coat wet well</li> </ul>	√	Sewer Fund			See Note 1	
<p><b>Bay Street Gravity Sewer Upgrades</b></p> <ul style="list-style-type: none"> <li>Replace 1,330 lf of 18-inch pipe with 30-inch pipe from manhole 115-2-2-0200 to manhole 115-2-2-0020</li> </ul>	√	Sewer Fund			See Note 1	

Category / Project Description	Capacity Project (√)	Revenue Sources	Cost Years 1-3	Cost Years 4-6	Cost Years 7-20 <sup>1</sup>	Total Cost <sup>1</sup>
(All Amounts in \$1,000s)						
<b>Port Orchard Boulevard Gravity Sewer Upgrades</b> <ul style="list-style-type: none"> <li>• Replace 5,760 lf of 12-inch pipe with 15-inch pipe from manhole 312-2-2-0220 to manhole 115-2-2-0200</li> </ul>	√	Sewer Fund			See Note 1	
<b>TOTALS</b>			<b>\$3,800</b>	<b>\$3,670</b>	<b>See Note 1</b>	<b>\$7,470</b>

1 Costs have not been estimated for projects in years 7-20.

2 The Albertsons Pump Station will be funded and constructed by a developer. Costs have not been estimated.

Source: Draft Sewer CIP, 2015 (BHC)

### City of Poulsbo

The City of Poulsbo is currently updating their Comprehensive Sewer Plan (CSP) and sewer utility Capital Improvement Program (CIP). Exhibit 4-120, Exhibit 4-121, and Exhibit 4-122 shows the costs and revenue sources of capital projects that have yet to be completed under their current CSP as updated with City input. All project costs portrayed were escalated from the year they were formulated (2008) to year 2015 using comparative industry construction cost indexes or are based on more current information based on the ongoing formulation of the CSP update. The City will also contribute to the funding of County-led sewer projects as described under the Kitsap County sewer capital plans above.

As Poulsbo projected growth is limited to small portions adjacent to city limits that are designated as Urban Transition Areas, the projects portrayed within Exhibit 4-122 remain the same.

#### **Exhibit 4-120. Sanitary Sewer – City of Poulsbo Capital Facilities Project Costs 2016-2036 (All numbers are in 2015 \$1000s)**

Category Summary	Cost Years 2016-2021	Cost Years 2020-2036	Total Cost
<b>Capacity</b>	\$3,790	\$1,400	\$5,190
<b>Non-Capacity*</b>	\$2,485	\$1,400	\$3,885
<b>Sum</b>	\$6,275	\$2,800	\$9,075

\*Non-Capacity: Infrastructure upgrade, water quality benefit, energy efficiency.

Source: City of Poulsbo, 2008; BHC 2015

#### **Exhibit 4-121. Sanitary Sewer – City of Poulsbo Capital Facilities Project Revenues 2016-2036 (All numbers are in 2015 \$1000s)**

Revenue Source	Revenue Year 2016-2021	Revenue Year 2020-2036	Total Cost
<b>Utility Fees</b>	\$6,275	\$2,800	\$9,075
<b>Sum</b>	\$6,275	\$2,800	\$9,075

Source: City of Poulsbo, 2008; BHC 2015

**Exhibit 4-122. Sanitary Sewer – City of Poulsbo Capital Facilities Projects 2016-2036 (All Amounts in \$1,000)**

Category / Project Description	Capacity Project (√)	Revenue Sources	Cost Years 1-3	Cost Years 4-6	Cost Years 7-20	Total Cost
(All Amounts in \$1,000s)						
<p><b>Annual Inflow Reduction Program</b> Flow monitoring data shows that the existing sewer system experiences high levels of inflow during storm events. This inflow may be associated with leaking manholes, storm drain connections, or roof drain connections. Starting in 2007-2008, the City implemented an annual inflow reduction program consisting of identifying and repairing inflow sources.</p>	√	Utility Fees	\$400	\$200	\$1,400	\$2,000
<p><b>Village Pump Station Upgrade</b> Upgrades are currently under design.</p>		Utility Fees	\$500			\$500
<p><b>Replace Force Main Between Marine Science Center and Harrison Street</b> This project replaces the 12-inch force main from the Marine Science Center pump station that runs along the beach. The existing main is subject to damage or failure which would result in release of sewage to Liberty Bay. The force main will be rerouted along Fjord Drive and then tie into the existing Central Interceptor main in SR 305 at Harrison Street.</p>		Utility Fees	\$250			\$250
<p><b>305 Interceptor Capacity Upgrade</b> This project would increase the capacity in the 305 Interceptor by either extending the Bond Road Pump Station force main or by constructing a parallel gravity main.</p>	√	Utility Fees	\$2,810			\$2,810
<p><b>Telemetry System</b> This project would update the telemetry system.</p>		Utility Fees	\$175			\$175
<p><b>Liberty Bay Pump Station Upgrades</b> The south end of the Viking Way basin is expected to experience significant development. This project would upgrade and expand the pump station from the current 100 gpm, to 400 gpm (0.58 mgd).</p>	√	Utility Fees	\$360			\$360
<p><b>Purchase and Demolition of Lemolo House</b></p>		Utility Fees	\$350			\$350
<p><b>Public Works Facility</b></p>		Utility Fees	\$450	\$450	\$1,350	\$2,250
<p><b>Noll Road Sewer Improvements</b> This project will construct new sewer improvements to allow for the Alasund Pump Station to be abandoned.</p>		Utility Fees	\$20	\$210		\$230
<p><b>Applewood Pump Station Replacement</b></p>		Utility Fees	\$730			\$730

Category / Project Description	Capacity Project (√)	Revenue Sources	Cost Years 1-3	Cost Years 4-6	Cost Years 7-20	Total Cost
(All Amounts in \$1,000s)						
This project will replace old and obsolete electrical and mechanical equipment. Existing structures would be rehabilitated and recoated.						
<b>Annual Pump Station Rehabilitation/Replacement</b> This is an ongoing program to rehabilitate and replace equipment and structures to ensure well maintained pump stations. This includes replacement of mechanical and electrical equipment that has reached the end of its useful life, recoating structures to extend the life, and replacement of corroded valves, and piping.		Utility Fees	\$300	\$300	\$1,400	\$2,000
<b>TOTALS</b>			<b>\$6,345</b>	<b>\$1,160</b>	<b>\$4,150</b>	<b>\$11,655</b>

Source: City of Poulsbo, BHC 2015

## West Sound Utility District

Twenty-two improvement projects were identified for the WSUD sewer system in their six-year CFP starting in 2016. A summary of costs is provided in Exhibit 4-123; revenues are summarized in Exhibit 4-124; and a breakdown of capital projects is shown in Exhibit 4-125. All project costs are in their original 2014 dollars and have not been escalated. More than 50 projects are planned for the 2016-2034 period including a variety of lift station upgrades, repairing or replacing force mains and gravity sewer pipes, and building new lift stations and conveyance systems to accommodate growth. The largest project is the 6-phase East Port Orchard Sewer Replacement Project. This \$8.3 million dollar project is planned to start in 2018 and continue through 2026 with a one year gap between phases 4 (2021) and 5 (2023) and a 2 year gap between phases 5 (2023) and 6 (2026).

The 2016-2021 six-year CIP consists of:

- 6 Lift Station Upgrades: \$ 505,000
- 8 Repair / Replace Gravity Sewer and Manholes Projects: \$ 1.63 Million
- 4 Phases of the East Port orchard Sewer Replacement Project: \$5.2 Million
- Phillips Road sewer utility extension project, including 4 lift stations: \$4.6 Million

The 2022 – 2034 CIP consists of:

- 13 Lift Station Upgrade Projects: \$3.05 Million
- 4 Repair / Replace Gravity Sewer and Manhole Projects: \$600,000
- 2 Phases of the East Port Orchard Sewer Replacement Project: \$3.1 Million
- West Port orchard Sewer Replacement Project: \$4.5 Million
- 11 New Lift Station and Collection Systems: \$8.5 Million

### Exhibit 4-123. Sanitary Sewer – Port Orchard UGA – West Sound Utility District Capital Facilities Project Costs 2016-2034 (All Amounts in \$1,000)

Category Summary	Cost 2016-2021	Cost Years 2022-2034	Total Cost
<b>Capacity</b>	\$4,600	\$8,500	\$4,600
<b>Non-Capacity*</b>	\$7,335	\$19,750	\$27,085
<b>Total</b>	\$11,935	\$19,750	\$31,685

Source: WSUD, BHC 2015

\*Non-Capacity: Infrastructure upgrade, water quality benefit, energy efficiency.

### Exhibit 4-124. Sanitary Sewer – Port Orchard UGA – West Sound Utility District Capital Facilities Project Revenues 2016-2034 (All Amounts in \$1,000)

Revenue Source	Revenue Year 2016-2021	Revenue Year 2022-2034	Total Cost
<b>Revenue Bonds</b>	\$4,600	0	\$4,600
<b>Utility Fees</b>	\$ 7335	\$ 19,750	\$ 27,085
<b>Total</b>	\$ 11,935	\$ 19,750	\$ 31,685

Source: WSUD, BHC 2015

**Exhibit 4-125. Sanitary Sewer – Port Orchard UGA – West Sound Utility District Capital Facilities Projects 2016-2034 (All Amounts in \$1,000)**

Category / Project Description	Revenue Sources	Cost 2016-2018	Cost 2019-2021	Cost 2022-2034	Total Cost
<b>Category I (Capacity Projects Required to Meet LOS)</b>					
<b>New Lift Station and Collection System</b> These projects are designed to increase system capacity by constructing new lift stations and conveyance systems.	Revenue Bonds, Utility Fees	\$4,600 1 project		\$8,500 11 Projects	\$ 13,100 12 Projects
<b>Category II (Non-Capacity Projects Needed for Maintenance and Operations)</b>					
<b>Lift Station Upgrades</b> These projects include pump replacements, wetwell upsizing, SCADA improvements and complete lift station replacements.	Revenue Bonds, Utility Fees	\$ 505 6 Projects		\$ 3,050 13 Projects	\$ 3,555 19 Projects
<b>Repair / Replace Gravity Sewer and Manholes</b> These projects include repairing, moving, replacing and upsizing gravity sewer pipes and manholes.	Revenue Bonds, Utility Fees	\$ 1,630 8 Projects		\$ 600 4 Projects	\$ 2,230 12 Projects
<b>East Port Orchard Sewer Replacement</b> Phase 1 Phases 2, 3 and 4 Phases 5 and 6	Revenue Bonds, Utility Fees	\$1,300	\$3,900	\$3,100	\$8,300 6 Projects
<b>West Port Orchard Sewer Replacement</b> Phases 1, 2 and 3	Revenue Bonds, Utility Fees			\$4,500 3 Projects	\$4,500 3 Projects
<b>Totals: 2015 UGA Boundaries</b>	Revenue Bonds, Utility Fees	<b>\$8,035</b> <b>16 Projects</b>	<b>\$3,900</b> <b>3 Projects</b>	<b>\$19,750</b> <b>33 Projects</b>	<b>\$31,685</b> <b>52 Projects</b>
<b>2016 Preferred Alternative UGA – Reduced Costs</b>					<b>\$ 27,835</b>

Note: A full list of CIP projects can be found in the West Sound Utilities District Wastewater Utility Capital Improvement Fund (2015-16).

Source: West Sound Utilities District Wastewater Utility Capital Improvement Fund (2015-16).

## 4.10 Water

### Overview

Water systems are classified into two categories, Group A (former Classes 1–3) and Group B (former Class 4) systems. According to the Washington State Department of Health (DOH), Group A systems, which have 15 or more service connections or regularly serve 25 or more people 60 or more days per year, currently comprise approximately 95% of all the County’s public connections; Group B systems, which have less than 15 connections or serve less than 25 people, serve approximately 5% of the connections. Most of the Group B systems were developed with a shallow well to serve short plats or small subdivisions and serve only that development. Exhibit 4-126 below shows the breakdown of population in the County served by each type of water system.

**Exhibit 4-126. Percent Connections Served by Type of Water Supply System**

Type of Water Supply System	Percent (%) Public Connections
<b>Group A Public Water Systems</b>	<b>95</b>
<b>Group B Public Water Systems</b>	<b>5</b>
<b>Total</b>	<b>100</b>

Source: Washington State Department of Health, 2015.

### Kitsap County Water Planning Programs

Kitsap Public Utility District (KPUD) has been designated by the Kitsap County Board of Commissioners as having countywide responsibility for technical, managerial, financial, operational, and support services needed to provide satisfactory water resource development, protection, and utility service. KPUD also functions as a Satellite System Management Operator throughout the County by provision of direct service, contract service, and support service.

The KPUD has worked cooperatively with the County and local water purveyors to conduct the Groundwater Management Plan (GWMP) process. The District and County have also jointly sponsored the preparation of a Coordinated Water System Plan (CWSP) for Kitsap County. The District, in coordination with Ecology, completed the initial basin assessment for Kitsap County. Each of these planning processes is described in more detail below.

### Kitsap County Ground Water Management Plan

To meet the requirements of the Ground Water Management Act, the KPUD served as a co-lead agency to develop the Draft Kitsap County Groundwater Management Plan completed in 2004. All of Kitsap County has been identified as a groundwater management area. KPUD coordinated with water purveyors in the County, as well as other members of the Kitsap County Groundwater Advisory Committee.

Preparation of the GWMP was done in accordance with the requirements of Chapter 173-100 WAC, Groundwater Management Areas, and Programs. These regulations led to the designation of Kitsap County as a Groundwater Management Area (GWMA) on October 7, 1986. An Interlocal Agreement was entered into between the KPUD and the Kitsap County Board of Commissioners on December 15, 1986. This Agreement established both entities as co-lead agencies for the evaluation and preparation of the GWMP.

## Kitsap County Coordinated Water System Plan (CWSP)

The Kitsap County CWSP (revised May 9, 2005) presents an assessment of municipal and industrial water supply needs in Kitsap County and a program to effectively provide water supply and service to customers throughout the area. The CWSP was developed to comply with Chapter 70.116 RCW and Chapter 246-293 WAC by the Water Utility Coordinating Committee (WUCC). The WUCC consists of representatives from each purveyor with over fifty services within the declared area, the county legislative authority, the Kitsap County Department of Community Development and the Kitsap County Health District.

The CWSP provides a process and strategy for the existing water utilities to define their role in a program consistent with adopted land use polices and the projected growth strategy. The regional water supply, transmission, and storage plan represents the collective views of the WUCC and integrates the findings of the Kitsap County GWMP (Water Conservation per Groundwater Plan Volume III).

The September 2011 CWSP Update addresses only those eight water systems that meet the Department of Health definition of “expanding.” These include the Indian Hills, Indianola, Keyport, North Bainbridge, North Peninsula, Suquamish, Vinland, and West Kitsap systems.

### Water Conservation in the County

County government supports Group-A water utilities as they pursue ongoing conservation programs. These programs include both supply and demand management measures within individual service areas.

In June 2009, the Board of County Commissioners adopted by resolution a new policy treating water as a resource, not a waste stream. This policy establishes a culture of innovative development and operating practices in order to preserve this natural resource on public property.

Members of the Water Purveyors of Kitsap County (WATERPAK) provide basic conservation kits and literature for water users. They also evaluate the advisability of countywide programs to retrofit existing homes with low flow toilets, low-flow shower heads, restricted flow aerators, and other appropriate devices on a cost-effective basis.

Water utilities conduct leak detection programs that identify problem water losses in distribution systems. The Kitsap County WATERPAK plans to evaluate a regional approach to leakage analysis efforts.

The WATERPAK developed a comprehensive, model water conservation program for small utilities. The conservation program includes conservation objectives, demand forecasting methods, program activities, and level of effort, budget estimates, savings estimates, and evaluation and monitoring criteria. Program activities include education, system monitoring and improvements, promotion of conservation devices, incentives for customers, water production monitoring, drought response conservation, and other appropriate supply and demand management measures. WATERPAK plans to conduct joint conservation efforts with Pierce and Mason counties.

### Inventory of Current Facilities

Exhibit 4-127 shows the current inventory and capacity for the Group “A” Community Water Systems that currently serve the County with 50 approved DOH connections or more. The

inventory includes the name of the water system, existing and approved DOH connections, and the capacity of each system.

**Exhibit 4-127. Current Facilities Inventory –  
Group “A” Community Water Systems Over 50 Connections**

50+ Connections  System Name	Connections(1)		Water Rights (2)			System Information		
	Existing	Approved	Qa (afy)	Qi (gpm)	Qi (cfs)	Source Capacity (gpm)(2)	Storage Capacity(1) (gal in 1,000)	System Owner/ Op (1,3)
<b>Alpinewood</b>	98	99	44.6	161		300	0	WW
<b>Bainbridge Island, City of</b>	2,709	Unspec	2,564	3,456	0.35	1,993	2,800	COBI
<b>Bear Cub</b>	55	70	49.5	107		160	17	NWW
<b>Bethel East</b>	52	55	17	20		120	11	NWW
<b>Bill Point Water</b>	84	84	64.2	42		66	30	NWW
<b>BKS</b>	71	73	35	126		180	0	WW
<b>Bremerton West 517 Zone, City of</b>	137	Unspec	6,658	5,743		8,820	1,210	
<b>Bremerton, City of</b>	18,063	Unspec	N/A	17,952	40	13,200	33,200	COB
<b>Bucklin</b>	92	121	42.5	139		114	117	WW
<b>Cedar Glen Mobile Home Park</b>	137	137	31	100		120	32	NWW
<b>Cedarbrook</b>	34	56	30	600		232	0	WW
<b>Driftwood Cove</b>	67	120	32	50		50	83	KPUD
<b>Eldorado Hills</b>	153	157	69	225		210	254	KPUD
<b>Emerald Heights</b>	84	92	90	150		152	95	
<b>Erland Point Water Co</b>	936	Unspec	1344	900	0.25	500	385	
<b>Foss Road</b>	42	51	-	-		-	35	WW
<b>Fragaria Landing</b>	85	86	32	98		177	28	
<b>Gala Pines Water</b>	52	52	54	154		150	50	KPUD
<b>Glenwood Station</b>	60	62	25	100		100	47	WW
<b>Harbor Heights</b>	71	71	22	100		135	20	WW
<b>Hintzville Acres</b>	66	66	32.5	105		82	11	WW
<b>Holly</b>	84	107	26	110		85	30	NWW
<b>Horizons West</b>	998	Unspec	449	856		1,210	555	WW
<b>Indian Hills Estates</b>	141	148	75	100		110	31	KPUD
<b>Indianola Water</b>	699	Unspec	300.4	500		481	287	KPUD
<b>Island Lake</b>	316	441	92	80		140	209	AU
<b>Island Utility</b>	171	455	336	300		310	406	KPUD
<b>Jackson Park Naval Hospital</b>	320	Unspec	-	-		-	3,500	
<b>Johanson</b>	54	56	-	-		-	35	WW
<b>Keyport Water</b>	422	Unspec	858	650		600	401	KPUD
<b>Kitsap Memorial State Pk</b>	38	50	-	-		-	20	

KITSAP COUNTY  
CAPITAL FACILITIES PLAN

50+ Connections  System Name	Connections(1)		Water Rights (2)			System Information		
	Existing	Approved	Qa (afy)	Qi (gpm)	Qi (cfs)	Source Capacity (gpm)(2)	Storage Capacity(1) (gal in 1,000)	System Owner/ Op (1,3)
<b>Kitsap West MHC Water Co</b>	96	146	45	250		80	7	
<b>Little Tree</b>	54	54	36	100		70	35	WW
<b>Long Lake View Est 2 5</b>	364	399	152.4	260		212	187	KPUD
<b>Mainland View Manor</b>	54	57	32.5	150		150	0	WW
<b>Manchester Water District</b>	3,253	Unspec	1,673.7	2,260		3,630	3,200	
<b>Martell Mobile Manor</b>	79	79	39.5	171		140	38	NWW
<b>McCormick Woods</b>	803	Unspec	450	600		1,830	569	
<b>Meadowmeer</b>	306	335	150	250		320	225	
<b>Miller Bay</b>	420	460	112	200		170	167	KPUD
<b>Minter Creek Rapids</b>	49	55	93	250		235	0	WW
<b>Naval Base Kitsap At Bangor (Subbase Bangor)</b>	2,348	Unspec	N/A	N/A		3,050	3,500	
<b>Naval Base Kitsap At Bremerton (Puget Sound Naval Yard)</b>	1,042	Unspec	N/A	N/A		INPORT	2,500	
<b>Naval Base Kitsap At Keyport (Navy Undersea War Ctr.)</b>	176	Unspec	N/A	N/A		1,000	600	
<b>Navy Yard Park</b>	105	121	48	52		52	110	KPUD
<b>Newberry Hill</b>	76	140	1,720	1,950		100\200	749	KPUD
<b>North Bainbridge Water Co</b>	1,800	Unspec	1974	1475		911	842	KPUD
<b>North Peninsula</b>	4,975	Unspec	2,341.5	1,880		1,880	2,602	KPUD
<b>North Perry Ave Water District</b>	7,589	Unspec	4,089.6	4,540		3,560	4,750	
<b>Olalla</b>	74	99	55	130		130	24	WW
<b>Olympic View Mobile Manor</b>	76	76	13	26		70	5	PLC
<b>Parkview Terrace</b>	806	1067	587.1	748		1,580	699	WW
<b>Pine Lake Mobile Home Est 1 3</b>	79	82	48.6	112		138	0	
<b>Port Gamble</b>	48	61	-	-		-	46	KPUD
<b>Port Madison Water Company</b>	100	144	80	30		158	65	KPUD
<b>Port Orchard Water Dept</b>	3,132	Unspec	2,330	1,600		2,600	4,300	
<b>Poulsbo, City Of</b>	5,396	Unspec	2,147	1,940	1.2	2,060	3,050	
<b>Priddy Vista</b>	83	85	56	47		123	47	KPUD
<b>Rockaway Beach Water</b>	69	88	80	34		80	132	
<b>Rocky Point Water District 12</b>	687	1,000	N/A	N/A		INPORT	0	

50+ Connections  System Name	Connections(1)		Water Rights (2)			System Information		
	Existing	Approved	Qa (afy)	Qi (gpm)	Qi (cfs)	Source Capacity (gpm)(2)	Storage Capacity(1) (gal in 1,000)	System Owner/ Op (1,3)
<b>Sandy Hook Park Community Club</b>	97	189	80	160		57	61	NWW
<b>Seabeck</b>	212	300	3,000	2,000		600	580	KPUD
<b>Silverdale Water Dist 16</b>	8,688	Unspec	4,664.9	4,835	0.78	6,730	5,184	
<b>South Bainbridge</b>	1,145	1,416	902.5	767	0.11	625	807	KPUD
<b>Strattonwood</b>	80	99	40.5	160		160	37	WW
<b>Strawberry Hill</b>	94	94	83.7	125		125	80	KPUD
<b>Sunnyslope</b>	375	455	1,456.6	200		270	375	
<b>Suquamish</b>	1,470	Unspec	800	1,650		1,240	816	KPUD
<b>Surfrest Park Water Company</b>	48	54	47	105		110	50	KPUD
<b>Tahuyeh Lake Community Club</b>	224	259	2,000	334		196	106	NWW
<b>Viewside Community</b>	49	64	36	125		175	40	KPUD
<b>Vinland</b>	1,258	Unspec	1,008	1,183		1,530	1,150	KPUD
<b>West Kitsap</b>	665	740	596	1,475		-	278	KPUD
<b>West Sound Utility District #1</b>	7,707	Unspec	-	-		-	4,100	
<b>Wicks Lake Ranches</b>	228	355	142	300		225	56	WW
<b>Total</b>	<b>88,741</b>	<b>11,282</b>	<b>57,680.8</b>	<b>56,239</b>	<b>42.94</b>	<b>63,216</b>	<b>84,898</b>	

Notes:

<sup>1</sup> Data obtained from Department of Health Drinking Water Sentry Database September 2015

<sup>2</sup> Data from 2012 Kitsap County Capital Facilities Plan

<sup>3</sup> System Operator or Owner: AU –Aquarius Utilities; COB – City of Bremerton; COBI – City of Bainbridge Island; COPO – City of Port Orchard, KPUD – Kitsap Public Utility District; NWW – Northwest Water; PLC – Peninsula Light; WW – Washington Water Service

Qa = Annual Quantity; Qi = Instantaneous Quantity; afy = Acre Feet per Year; gpm = gallons per minute; cfs = cubic feet per second.

Unspec – Unspecified by DOH – System sets capacity; NA = Not Applicable

Note: Totals are shown for systems with multiple water rights, not by water system name. This table may not present water rights information pertaining to those systems for which the owner’s name differs from the water system name.

All of the Group “A” water systems inventoried in Exhibit 4-127 for Kitsap County have sufficient water resources to meet existing average demand. See Exhibit 4-128.

**Exhibit 4-128. Summary of Existing Water Rights Information<sup>(1,2)</sup>**

	North Kitsap	Bainbridge Island	Central Kitsap	South Kitsap	Total
<b>Ground Water Rights</b>					
<b>Qa (afy)</b>	10,965	10,282	26,649	17,044	64,940
<b>Qa (mgd)</b>	9.78	9.17	23.77	15.2	57.93
<b>Qi (gpm)</b>	12,864	11,618	26,424	23,452	74,358
<b>Qi (mgd)</b>	18.52				
<b>Surface Water Rights</b>					
<b>Qa (afy)</b>	762	102	715	626	2205
<b>Qa (mgd)</b>	0.68	0.09	0.64	0.56	1.97
<b>Qi (cfs)</b>	28.89	2.71	38.13	41.26	110.99
<b>Qi (mgd)</b>	0.04	0	0.05	0.06	0.16
<b>Total</b>					
<b>Qa (mgd)</b>	10.46	9.26	24.41	15.76	59.9
<b>Qi (mgd)</b>	18.57	16.73	38.1	33.83	107.24

Notes:

Data from 2012 Kitsap County Capital Facilities Plan.

All water rights, permits, and certificates within Kitsap County, including municipal, commercial/industrial, domestic, irrigation, and rights for all other purposes of use.

Qa = Annual Quantity; Qi = Instantaneous Quantity; afy = acre-feet per year; cfs = cubic feet per second; mgd = million gallons per day

Responses from water purveyors indicate that a majority of the systems in Kitsap County have a range of deficiencies when meeting the requirements as outlined in the Kitsap County Uniform Fire Code. These systems generally need to increase the size of piping, need to install additional looping to increase water pressure for fire flow, or increase frequency of hydrant placement to meet spacing requirements.

### Kitsap Public Utility District Water System Facilities

The general characteristics of five major water systems managed by the KPUD are summarized below. Detailed information on each system is included in Exhibit 4-127.

**Eldorado Hills.** Eldorado Hills is located in Section 31 and 32, Township 25N, Range 1E. It serves an area that ranges from approximately 100 feet to 500 feet in elevation. Eldorado Hills serves only residential customers.

**Keyport Water System.** A majority of the Keyport Water System is located in Section 35 and 36, Township 26N, Range 1E, along the south end of Liberty Bay, north of Bremerton along the western shores of the Puget Sound. The remainder of the system is situated in Sections 1 and 2, Township 25N, Range 1E. The topography within this system also varies substantially, rising from sea level to approximately 260 feet. The water system supplies a mix of residential, multi-family, and commercial uses within Keyport.

**North Peninsula.** The North Peninsula water system was created in 1995 through the consolidation of seven District systems, including Kingston, Hansville, Jefferson Beach, Jefferson Point, Gamblewood, Cedar Acre 5, and Kingston Farms. The North Peninsula Water System is located on the northern end of the Kitsap Peninsula between the communities of Jefferson Beach and Hansville. The system serves residential and commercial customers.

**Suquamish Water System.** The Suquamish Water System includes Indianola, Miller Bay, and Suquamish. It is located along Puget Sound north of the Agate Passage Bridge in Sections 8, 9, 16, 17, 20, 21, 28 and 29, Township 26N, Range 2E. Approximately 75 percent of the system is within the Port Madison Indian Reservation. The system serves a diverse mix of residential and commercial customers.

**Vinland.** The Vinland system was formed in October 1994 through the intertie of the Edgewater Estates and Bella Vista systems. The system is located north of the Bangor Submarine Base in Sections 4 and 5 of Township 26N, Range 1E and Section 27, Township 27N Range 1E. The topography within the area rises from sea level near Hood Canal to elevations of 260 feet along Pioneer Way and 280 feet at Edgewater Estates to the north. As reported in the 2012 Kitsap County CFP, the District is under contract with the City of Poulsbo to sell 120 gpm continuously from the Vinland system.

### Municipal Water Systems

**City of Bremerton.** The City of Bremerton Water Utility's system serves over 54,000 residents in Bremerton and portions of Kitsap County, including the Gorst area to the south and the western portion of the Manette Peninsula in central Kitsap County, from the city limits to Bucklin Hill Road. The current service area includes approximately 8,724 acres within the Bremerton City limits and approximately 3,376 acres within Kitsap County. This description does not include other areas with service area agreements, such as PSNS, Jackson Park, and Rocky Point Water District, or the City of Port Orchard. In 2004, the city assumed the Tracyton water system.

The City of Bremerton Water Utility service area is essentially contiguous with the surrounding water purveyors. Erland Point Water District is located at the northwestern boundary of the Bremerton Water Utility service area. The Silverdale Water District is to the northeast. The City of Bremerton Water Utility service area is bounded to the east by the North Perry Avenue Water District, and to the south by the City of Port Orchard and the Sunnyslope Water Districts.

**City of Port Orchard.** The Port Orchard existing service area includes the majority of the current city limits, as well as the annexed community of McCormick Woods in the western portion of the service area. The City maintains service to the majority of its residents and a variety of commercial and governmental activities within the City limits, and the West Sound Utility District serves a small area in the eastern portion of the City.

State Highway 166 extends along the north of the city and travels eastward from it. Commercial development has typically occurred along the corridor. Since the opening of the Port Orchard Bypass, commercial development has begun to accelerate in the Bethel corridor. Residential development is occurring primarily in the center of the city and in the McCormick Woods subdivision within the City UGA.

The northern half of the city has the greatest population density. The property development becomes more rural toward the south. It is the policy of the city to provide utility service outside its corporate limits if the city council approves the action.

**City of Poulsbo.** The City of Poulsbo is a community of about 9,950 people located at the north end of Liberty Bay in Kitsap County. The center of the city is on the east shore of the bay about one mile south of the head of the bay. The city extends around the head of the bay and about 0.5 mile south on the west side, and the city limits are about two miles down the east side of the bay. The incorporated area extends up from the shore into the low hills. It reaches elevations of 300 to 400 feet on the east, and 100 to 200 feet on the north and west.

The City has a policy of requiring new customers outside city limits to file petitions for annexation and to provide power of attorney to the mayor to file petitions of annexation. This has assured that the water system service area is within the City of Poulsbo.

### Other Water Systems

**West Sound Utility District.** West Sound Utility District was formed by the consolidation of Annapolis Water District and Karcher Creek Sewer District in November 2007. The district provides potable water in the Port Orchard urban area and south Kitsap County. It serves from Watauga Beach to Long Lake and includes Beach Drive, East Port Orchard, south of Sedgwick Road, and portions of the City of Port Orchard. The 8.3 square miles of service area with three primary pressure zones range from sea level to an upper pressure zone of 487 feet.

**Manchester Water District.** The Manchester Water District serves the Southworth, Colby, and Manchester areas. The district's southern boundary borders Sedgwick Road and extends to Colvos Passage of Puget Sound. To the west, the boundary follows Woods Road and a portion overlaps into the Annapolis (now West Sound) Water District.

The existing water system serving the district is composed of two service levels. There is a storage reservoir in each subsystem. These service levels are delineated by the 180-foot contour running through the district. The low-level system (elevation 275 feet) serves the majority of the customers. The high level (elevation 430 feet) system has a majority of the Water District supply and storage capacity.

**North Perry Avenue Water District.** North Perry Avenue Water District extends from Illahee to Keyport Road along Port Orchard Bay and is bounded to the south and west by the City of Bremerton. Although the two systems are connected, this interconnection is not currently utilized. However, it could be activated to aid either district under emergency conditions.

Silverdale Water District bounds North Perry Avenue Water District to the west. The long-range plan for the North Perry Avenue and Silverdale districts is to enter into an agreement to intertie strictly for emergency use. A portion of North Perry Avenue Water District's service area west of Central Valley Road was designated an uncontested overlap with Silverdale Water District. This designation took into consideration demand and growth factors to the area, and therefore no further changes to the North Perry Avenue service area are anticipated in the near future.

KPUD bounds North Perry Avenue Water District to the north. At the end of 1989, the KPUD took over a small section of the north end of the North Perry Avenue Water District. This change had a minimal effect on the North Perry Avenue water system because the rural area had only a minor influence on the overall demand.

**Rocky Point Water District.** The Rocky Point Water District serves an area on the west side of City of Bremerton that is outside the city limits and generally encompasses the peninsula known as Rocky Point. The southern boundary is Kitsap Way. The majority of the system was constructed in the early 1940s, but several extensions have been made since that time to complete the system as it exists today. The City of Bremerton's existing water systems surround the district. The system serves mostly residential customers, with a few commercial customers adjacent to Kitsap Way in the southern end of the district. There is some vacant land in the district that could provide space for the construction of additional residential units. However, part of the area is not suitable for septic tanks, which will likely preclude home construction at this time. Therefore, it is not anticipated that much expansion will occur in the near future.

**Silverdale Water District.** The Silverdale Water District provides water service to approximately 8,688 customer connections within the district's retail water service area (DOH, 2015), which primarily serves the community of Silverdale and its outlying areas. The district's existing retail service water service area comprises an area of approximately 25.22 square miles within unincorporated Kitsap County according to their 2013 Comprehensive Water System Plan. This area includes portions of the Silverdale and Central Kitsap UGAs. The current population served by the district is estimated at 20,665 (DOH, 2015).

**Sunnyslope Water District.** The service area includes the community of Sunnyslope primarily south of SR 3, northeast of the Bremerton National Airport, and east of McCormick Woods. The 2012 Kitsap County CFP reported that there is an approximately 1,600-acre service area that crosses the highway and is contiguous with the City of Bremerton watershed. The district serves Sunnyslope Elementary School and several commercial businesses, but primarily serves single-family residential units at one dwelling unit per acre or greater.

## Level of Service Capacity Analysis

Exhibit 4-129 from the CWSP shows the projected water demands for the county in 2010, 2020, and 2030. These calculations were based on the Puget Sound Regional Council's (PSRC) demographic forecasts for each forecast analysis zone (FAZ), on past water consumption rates and peaking factors, estimates of future commercial/industrial demand, and effects of conservation. Each of these is described in more detail in the following paragraphs.

The CWSP used water consumption rate estimates of 356 gallons per household per day (gphpd) inside UGAs and 237 gphpd outside UGAs, and a peaking factor of 2.32 to calculate future water demand. These figures are based on average trends in several representative water systems within the county. PSRC demographic forecasts were made at the FAZ level, and then FAZs, UGAs, and sub-areas were used to assess water demand and water use characteristics. When water districts plan for future growth, each calculates future demand based on past water use trends within the individual district.

Since rate estimates are based on past water consumption rates and do not account for the possibility of a new, large commercial or industrial water consumer, it was assumed in the CWSP that between 2000 and 2010 new industries with a total demand of 1.25 mgd would locate in the City of Bremerton's service area, while an additional 0.25 mgd of new industrial demand would develop elsewhere throughout the County. Additional new industrial demands of these same amounts were estimated to develop between the years of 2010 and 2020, and between 2020 and 2030 an additional 0.5 mgd industrial demand would develop in the City of Bremerton.

Effects of conservation were also incorporated into demand calculations to account for implementation of conservation and efficiency measures. WATERPAK, an organization of the larger water purveyors, has pursued an effective conservation program over the past decade. In most cases, larger systems have reduced water losses below ten percent of their water production. For the CWSP, a one percent per year reduction in water supply requirements was assumed for years 2001 through 2010. Further reductions beyond 2010 were not included, based on the assumption that the majority of conservation gains, using current technology, will likely be realized by that time.

**Exhibit 4-129. Water Demand Projections (in mgd) from the CWSP**

Year	Average Day Demand <sup>(1)</sup>	Maximum Day Demand <sup>(2)</sup>
2010	30.03	69.67
2020	37.57	87.16
2030	42.89	99.5

Notes:

<sup>1</sup> Based on per household approach, including conservation and additional industrial water supply requirements.

<sup>2</sup> Based on peak day factor of 2.32

Source: Kitsap County Water Utility Coordinating Committee. 2005 (CWSP Table 7-10 Kitsap County Water Supply Requirement Projections (in mgd))

**Capital Facility Plan Growth Estimates and Provider Plans**

Population estimates used in functional plans prepared by the water purveyors vary from the estimates used in the preparation of this CFP. This is attributable to two factors. The County’s population estimates for each district are based on transportation analysis zones which overlap but do not coincide with the district’s water service area boundaries. The result is a likely overestimation of the current and future population of each district. Further, water districts’ baseline population estimates are taken from existing connections, which are converted to population estimates through persons per household assumptions. This approach does not account for households served by private systems and therefore may result in an under-estimate of actual population located within the district service area (but not an under-estimate of actual population served by the district).

**Capital Projects and Funding**

**West Sound Utility District** has 56 maintenance and distribution water projects planned through the year 2032. Exhibit 4-130 and Exhibit 4-131 summarize costs and revenues. Exhibit 4-132 below shows the projected year and cost of the projects in detail.

**Exhibit 4-130 – Water Systems – West Sound Utility District Capital Facilities Project Costs, 2015-2036 (All Amounts in 2014 \$1,000)**

Category Summary	Costs 2016-2021	Cost 2022-2036	Total Cost
<b>Capacity</b>	\$2,942	\$7,589	\$10,531
<b>Non-Capacity*</b>	\$11,298	\$7,658	\$18,956
<b>Sum</b>	\$14,240	\$15,247	\$29,487

\* Non-Capacity: Infrastructure upgrade, water quality benefit, energy efficiency

Source: West Sound CIP, 2015-2034

**Exhibit 4-131 – Water Systems – West Sound Utility District Capital Facilities Project Revenues, 2015-2036 (All Amounts in 2014 \$1,000)**

Revenue Source	Revenues 2016-2021	Revenues 2022-2036	Total Cost
<b>OI</b>	\$9,475	\$10,063	\$19,538
<b>OI/Dev</b>	\$0	\$550	\$550
<b>OI or RB</b>	\$2,165	\$0	\$2,165
<b>Dev</b>	\$0	\$4,634	\$4,634
<b>RB</b>	\$2,600	\$0	\$2,600
<b>Sum</b>	\$14,240	\$15,247	\$29,487

Funding Key: OI = Operating Income (Rates); Dev = Developer Funded/Contributed; RB = Revenue Bonds Source: West Sound CIP, 2015-2034

**Exhibit 4-132. Water Systems – West Sound Utility District Capital Facilities Projects and Financing 2015-2036**  
(All numbers are in 2014 \$1000s)

Category / Project Description	Capacity Project (√)	Revenue Sources	Cost Years 1- 3	Cost Years 4- 6	Cost Years 7- 20 <sup>1</sup>	Total Cost
(All Amounts in \$1,000s)						
<b>Water Supply</b>						
<b>S-1 Salmonberry Aeration Facility Upgrades</b> The existing capacity of the Salmonberry Aeration Facility Booster Pump Station (i.e., the two existing pumps that convey water from the aeration clearwell to the Salmonberry Reservoir) limits the combined pumping capacity of this site to 1,200 gpm, although the total combined source capacity of Wells 14, 17, and 21 is greater at approximately 1,850 gpm. This project would increase the pumping capacity of the Aeration Facility Booster Pump Station by installing three pumps each with a capacity of approximately 1,000 gpm. Two pumps would therefore be able to convey the combined capacity of the three wells, with one pump available for redundancy. In addition, the volume of the clearwell will be expanded to approximately 20,000 gallons to improve the operational efficiency of the facility (i.e., by reducing booster pump cycling due to short on/off levels). The conceptual-level cost estimate developed for this project assumes that portions of the existing aeration facility and structure will be retained to the extent possible.	√	OI	\$270			\$270
<b>S-2 Construct Well 22 Infrastructure</b> Well 22 has been drilled and developed. Drawdown pump tests have indicated a well production rate of 500 gpm. This project involves installing a well pump and associated wellhead infrastructure and site piping. Chlorine injection would be installed for disinfection prior to connection with the distribution system. This project would increase the District's supply capacity to serve long-term growth in the system. Currently, the District plans to bring Well22 online before Well9R, due to water quality concerns with that new source, as described below.	√	OI/Dev			\$500	\$ 500
<b>S-3 Construct Well 9R Infrastructure</b> Well 9R has been drilled and developed as a replacement well to the original Well 9. Drawdown tests for this well indicate a reliable yield of 200 gpm. However, water quality tests indicate levels of manganese (0.076 mg/L) above the EPAs Secondary Maximum Contaminant Level (MCL of 0.05 mg/L). This project involves installing a well pump and associated wellhead infrastructure and site piping. The disinfection system installed for Well 22 would be sized and designed to accommodate water from Well 9R, and would likely be sufficient to address the hydrogen sulfide concern.	√	OI/Dev			\$50	\$ 50

Category / Project Description	Capacity Project (√)	Revenue Sources	Cost Years 1-3	Cost Years 4-6	Cost Years 7-20 <sup>1</sup>	Total Cost
(All Amounts in \$1,000s)						
<b>S-4 Develop New Source, Well 23</b> This project would install a future Well 23, most likely in the southern portion of the system for future source capacity. The timing, magnitude, and location of such a source will be further considered in the future as the District nears the need for such capacity increases.	√	Dev			\$1,500	\$1,500
<b>Interties</b>						
<b>INT-1 Manchester Intertie (PRV and Pump), 50% Cost Share Between Districts</b> This project involves a new intertie with the Manchester Water District water system. A PRV and pump will be installed on Beach Drive and Beaver Creek Road near the abandoned Watauga Wells. This will increase supply reliability to the Beach Drive area which is currently connected with a single 8-inch water main to the 314 pressure zone. The project cost assumes a 50% cost share between the two Districts.		OI	\$75			\$75
<b>INT-2 Port Orchard Intertie (Including Pump and Check Valve)</b> The project would install a pump and associated enclosure and appurtenances at the existing intertie with the City of Port Orchard's water system. The hydraulic grade line in Port Orchard's system varies between 380'- 390'. A pump and check valve will be installed to enable the District to pump water into the City's system.		OI			\$70	\$70
<b>Well Improvements</b>						
<b>W-1 Annual Well Rehabilitation</b>		OI	\$180	\$360	\$660	\$1,200
<b>W-2 Construct Well #19 Pumphouse</b>		OI	\$80			\$80
<b>W-3 Replace Well #1/#5 Pumphouse</b>		OI		\$500		\$500
<b>W-4 Install Onsite Generator at Well #1</b>		OI		\$60		\$60
<b>W-5 Install Onsite Generator at Well #20</b>		OI		\$60		\$60
<b>W-6 Replace Well #16 &amp; #17 Pumphouse</b>		OI		\$500		\$500
<b>W-7 Replace Salmonberry / Well #21 Pumphouse</b>		OI			\$300	\$300
<b>Water Storage</b>						
<b>ST-1 Well 1 Reservoir Replacement</b> This project would replace the existing Well 1 Tank. The existing tank is open on its top, and for the purpose of increasing security to the water storage, a new tank will be installed that is closed.		OI	\$305			\$305
<b>ST-2 New South Reservoir</b>	√	Dev			\$1,505	\$1,505

Category / Project Description	Capacity Project (√)	Revenue Sources	Cost Years 1-3	Cost Years 4-6	Cost Years 7-20 <sup>1</sup>	Total Cost
(All Amounts in \$1,000s)						
This project would install a new storage tank in the south portion of the 487 pressure zone. A location has not been selected, and for planning purposes it is assumed the new reservoir would provide 0.5 million gallons.						
<b>ST-3 New Reservoir (Joint with Port Orchard)</b> This project would install a new reservoir shared between the District and the City of Port Orchard. The new reservoir is assumed to be 1.0 million gallons in size.	√	Dev			\$1,500	\$1,500
<b>ST-4 Demolish Karcher Springs Reservoir</b> The old Karcher Reservoir is not used in the water system and would be demolished in this project. Project cost will include demolition, disposal, and restoration of the site area.		OI	\$65			\$65
<b>Water Pump Stations</b>						
<b>PS-1 Replace Powell Booster Pump House and Pumps</b> This project would replace the existing Powell Booster Pump House and install new pumps.		OI	\$100			\$100
<b>PS-2 Karcher Pump Station Improvements – Upsize Pump and Wire, Correct Ground Issues</b> This project would provide engineering support to develop a plan to move the booster pump control valves out of the vaults or add additional stages to the well pumps eliminating the need for the booster pumps. The pump station capacity will be increased and electrical ground issues will be corrected.		OI	\$30			\$30
<b>Water Distribution System</b>						
<b>D-1 Annual Pipeline Replacement Program (aging lines/deadends, multiple projects)</b> This is an annual program to replace pipe that has unexpectedly experienced water quality issues, high failure rates, or become impacted by a Kitsap County Road Department Capital Improvement Project.		OI	\$150	\$300	\$550	\$1,000
<b>D-2. Demolish Watanga Reservoirs</b>		OI		\$300		\$300
<b>D-3 Install 1,300' of 12" DI watermain on Bethel Rd from Salmonberry Rd to Walmart</b> Install approximately 1,300 LF of 12-inch ductile iron (DI) pipe along Bethel Road from Salmonberry Road to an existing 12- inch watermain near Walmart. This project increases fire flow to the commercial area in the vicinity of Lund Avenue and Bethel Road.	√	OI	\$277			\$277
<b>D-4 Install 2,400' of 12" OJ watermain on Bethel Rd from Salmonberry Rd to Sedgewick Rd</b> Install approximately 2,400 LF of 12-inch DI pipe to replace the existing 8-inch watermain on Bethel Road from Salmonberry Road to Sedgewick Road. This project increases fire flows in the commercial area at Sedgewick Road and Bethel Road.	√	OI	\$516			\$516

Category / Project Description	Capacity Project (√)	Revenue Sources	Cost Years 1-3	Cost Years 4-6	Cost Years 7-20 <sup>1</sup>	Total Cost
(All Amounts in \$1,000s)						
<p><b>D-5 Install 2,300' of 12" DI watermain on Bethel Rd from Fred Meyers to Oregon St</b> Install approximately 2,300 LF of 12-inch DI pipe and hydrants along Bethel Road from the Fred Meyers to connect to an existing 8-inch watermain at Oregon Street. This project increases fire flow in a commercial area along Bethel Road south of Sedgwick Road and in the residential area along Cedar Road.</p>	√	OI		\$674		\$674
<p><b>D-6 Install 500' 12" watermain on Mile Hill Dr from 4586 to Baby Doll Rd</b> Install approximately 500 LF of 12-inch DI pipe to replace an existing 6-inch watermain on Mile Hill Drive from street number 4586 to Baby Doll Road. This project increases fire flow to the northeast portion of the 487 pressure zone in the vicinity of Foss Road, Horstman Road, and Baby Doll Road. It will also decrease the number of leaks due to the existing system's substandard pipe.</p>	√	OI	\$202			\$202
<p><b>D-7 Install 550' of 8" watermain on Grand Fir Pl from Fire Hydrant to Dead End</b> Install approximately 550 LF of 8-inch DI pipe to replace the existing 6-inch watermain along Grand Fir Place from the fire hydrant to the end of the street.</p>		OI		\$94		\$94
<p><b>D-8 Install 700 LF of 8" DI Pipe on Wynn Jones, Install PRV on Wynn Jones, and on Beach Drive.</b> This will eliminate the Watanga Storage Tanks</p>		OI	\$200			\$200
<p><b>D-8 Install 225 LF of 8" DI Pipe to Connect Dead End Mains on Aiken</b></p>		OI	\$40			\$40
<p><b>D-9 Replace 1,500' of 4" with 8" watermain on Lidstrom Rd from Beach Dr to Lidstrom Pl, 350' of 6" with 8" on Lidstrom from Rama Drive to 350' East</b> Install approximately 1,500 LF of 8-inch DI pipe to replace the existing 4-inch AC watermain on Lidstrom Road from Beach Drive to Lidstrom Place. This project will increase a small diameter pipe AC watermain.</p>		OI	\$325			\$325
<p><b>D-10 Install 750' of 8" watermain on Downing Pl from Higgins Rd to end of Downing Pl</b> Install approximately 750 LF of 8-inch DI pipe on Downing Place from Higgins Road to the end of Downing. This project will connect new services to the water system.</p>	√	Dev			\$129	\$129
<p><b>D-11 Replace 1,300' of 6" AC with 8" watermain on Colonial Ln from Salmonberry Rd to Berger Ln</b> Install approximately 1,300 LF of 8-inch DI pipe to replace the existing 6-inch AC watermain on Colonial Lane from Salmonberry Road to Berger Lane. This project will replace an AC watermain.</p>		OI			\$223	\$223
<p><b>D-12 Replace 1,000' of 4" AC with 8" watermain on Russell Ave from Horstman Rd to Lovell St</b> Install approximately 1,000 LF of 8-inch DI pipe to replace the existing 4-inch AC watermain on Russell Avenue from Horstman Road to Lovell Street. This project increases fire flow to a hydrant on Russell Avenue and replaces a small diameter AC watermain.</p>	√	OI			\$175	\$175

Category / Project Description	Capacity Project (√)	Revenue Sources	Cost Years 1-3	Cost Years 4-6	Cost Years 7-20 <sup>1</sup>	Total Cost
(All Amounts in \$1,000s)						
<b>D-13 Replace 900' of 8" AC with 12" watermain on Mile Hill Dr from Fircrest Dr to Harrison Ave</b> Install approximately 900 LF of 12-inch DI pipe to replace the existing 8-inch AC watermain on Mile Hill Drive from Fircrest Drive to connect to an existing 12-inch watermain on Harrison Avenue. This project increases fire flow to the commercial area along Mile Hill Drive.	√	OI	\$224			\$224
<b>D-14 Replace 1,100' of 4" AC with 8" watermain on Orchard Ln from Horstman Rd to Gregory Ln</b> Install approximately 1,100 LF of 8-inch DI pipe to replace the existing 4-inch AC watermain on Orchard Lane from Horstman Road to Gregory Lane. This project increases fire flow to a deficient hydrant on Orchard Lane and replaces small diameter AC watermain.	√	OI			\$233	\$233
<b>D-15 Replace 4,000' of 4" AC with 8" watermain on Horstman Rd from Lidstrom Rd to Peru Ave</b> Install approximately 4,000 LF of 8-inch DI pipe to replace the existing 4-inch watermain on Horstman Road from Baby Doll Road to Peru Avenue. This project increases fire flow to hydrants along Horstman Road and replaces small diameter AC watermain.	√	OI			\$844	\$844
<b>D-16 Replace 650' of 8" with 12" watermain on Fircrest Dr from Mile Hill Dr to Larch Ln</b> Install approximately 650 LF of 12-inch DI pipe to replace the existing 8-inch watermain on Fircrest Drive from Mile Hill Drive to Larch Lane. This project increases fire flow to hydrants in a commercial area along Fircrest Drive.	√	OI	\$139			\$139
<b>D-17 Replace 1,400' of 8" with 12" watermain on Mile Hill Dr from Baby Doll Rd to Saddle Club Rd</b> Install approximately 1,400 LF of 12-inch DI pipe to replace the existing 8-inch watermain on Mile Hill Drive from Baby Doll Road to Saddle Club Road. This project increases fire flow in the vicinity of Long Lake Road and Mile Hill Drive.	√	OI			\$350	\$350
<b>D-18 Beach Dr Connection with 13,000' of 8" Watermain</b> Install approximately 13,000 LF of 8-inch DI pipe to provide an additional connection to the Watauga Beach area. The proposed alignment begins by connecting to an existing 8-inch watermain one Collins Road, following E Collins to Woods Road, and heading north on Woods Road to connect to an existing 8-inch water main north of Beaver Creek Road on Woods Road. This connection is between the 487 and 314 pressure zones and requires a new PRV to be installed. Based on County contour data, the location of a new PRV could be on Woods Road south of Beaver Creek Road. A final location of the PRV will be determined during design. This project improves reliability to the Watauga Beach area and increases fire flow in the area.		OI or RB		\$2,165		\$2,165
<b>D-19 Install 2,600 LF of 12" DI Pipe on Jackson from Salmonberry to Sedgewick</b> This project increases capacity to the SE For Future Development		OI		\$670		\$670
<b>D-20 Construct New Water Main on Phillips Road.</b>		RB	\$2,600			\$2,600

Category / Project Description	Capacity Project (√)	Revenue Sources	Cost Years 1-3	Cost Years 4-6	Cost Years 7-20 <sup>1</sup>	Total Cost
(All Amounts in \$1,000s)						
The project will provide a 12" DI Main for Future Development						
<b>D-21 Replace 2,600' of 8" with 12" watermain on Sedgwick Rd from Phillips Rd to Long Lake Rd</b> Install approximately 2,600 LF of 12-inch DI pipe to replace the existing 8-inch watermain on Sedgwick Road from Phillips Road to Long Lake Road. This project increases fire flow to the residential area in the southeastern portion of the 487 pressure zone.	√	OI			\$648	\$648
<b>D-22 Replace 200' of 4" with 8" watermain on Bethel Road from 2500 to 2530</b> Install approximately 200 LF of 8-inch DI pipe to replace the existing 4-inch watermain on Bethel Road from an approximate street address of 2530 to 2500. This project increases fire flow to 3 hydrants in the Jefferson- Mitchell pressure zone.	√	OI			\$50	\$50
<b>D-22 Install 2,200' of 8" on Eisenhower Avenue and Lincoln Road</b> Install approximately 1,200 LF of 8-inch DI pipe on Eisenhower Avenue from Lincoln Avenue to Karcher Road. Abandon existing 8- inch main in backyards and move meters to the new main in the street. Install approximately 1,000 LF of 8-inch DI on Lincoln Avenue from Eisenhower Avenue to Sinclair View Drive. Move meters from backyards on Pioneer Lane to new main on Lincoln Avenue.	√	OI	\$640			\$640
<b>D-23 Lincoln Avenue PRV</b> Install a new PRV on Lincoln Avenue between 487 and 314 Zones to increase fire flow to the Mile Hill Drive and Mitchell Avenue area.	√	OI			\$105	\$105
<b>Water Maintenance and Operations</b>						
<b>M- 1 SCADA Improvements</b> Improvements to the existing SCADA system, such as remote chlorine residual sampling.		OI	\$150	\$300	\$550	\$1,000
<b>M-2 Paint Interior and Exterior of Powell Tank, Install Cathodic Protection</b> Paint Exterior of Powell Tank. Routine maintenance of an existing tank.		OI	\$129			\$129
<b>M-3 Install 2,700 LF of 12" DI on Vanskiver Rd from Bethel to Zion Place</b>		OI			\$700	\$700
<b>M-4 Install 2,000 LF of 12" DI on Vanskiver Rd from Zion Place to N Van De Carr Rd</b>		OI			\$600	\$600
<b>M-5 Install 3,900 LF of 12" DI on N Van De Carr Rd on Bielmeir and on Phillips</b>		OI			\$840	\$840
<b>M-6 Install 2,600 LF of 8" DI on E. Hillcrest Dr. Connecting Saran to Woods Rd</b>		OI			\$650	\$650
<b>M-7 Install 5,400 LF of 8" DI on Mountain View Rd from Hillcrest to Collins</b>		OI			\$945	\$945
<b>M-8 Replace 350' of 1" Galvanized with 4" DI on Ahlstrom Rd E</b>		OI	\$35			\$35
<b>M-9 Transient Voltage Protection</b> Install transient voltage protection measures at all pumping facilities.		OI	\$180	\$180	\$120	\$480

Category / Project Description	Capacity Project (√)	Revenue Sources	Cost Years 1-3	Cost Years 4-6	Cost Years 7-20 <sup>1</sup>	Total Cost
(All Amounts in \$1,000s)						
<b>M-10 Storage Building</b> Installation of a storage building at the Salmonberry site.		OI		\$75		\$75
<b>M-11 Double Check Valve Installation</b> Purchase of parts for double check valves on private fire lines.		OI	\$90	\$60		\$150
<b>M-12 Salmonberry Elevated</b> Paint Interior and Exterior, Install Cathodic Protection		OI			\$800	\$800
<b>M-13 Fircrest Elevated</b> Paint Interior and Exterior, Install Cathodic Protection		OI	\$820			\$820
<b>M-14 Fircrest Standpipe</b> Repair Coating, Reseam Foundation		OI	\$120			\$120
<b>M-15 Salmonberry Ground</b> Paint Interior and Exterior		OI			\$200	\$200
<b>M-16 Paint Interior of Powell Reservoir, Caulk Seams</b>		OI			\$130	\$130
<b>M-17 Paint Exterior of Powell Reservoir</b>		OI			\$120	\$120
<b>M-18 Paint Interior and Exterior of Well #1 Reservoir</b>		OI			\$200	\$200
<b>TOTALS</b>			\$7,942	\$6,298	\$15,247	\$29,487

<sup>1</sup> Costs have not been estimated for projects in years 7-20.

Notes:

All future costs are shown in 2014 dollars. Escalation is required to determine anticipated changes in cost at time of construction/purchase.

Purpose of Project: Deficiency =Addresses deficiencies identified in the Water System Plan; Improve= Does not address a deficiency, but improves overall system operation; Growth = Required to address growth/expansion of the distribution system; O&M =Necessary for proper system maintenance.

Source of Funding: OI = Operating Income (Rates); Dev = Developer Funded/Contributed; RB = Revenue Bonds.

For projects involving ongoing annual costs the base cost is depicted as the typical annual cost (not the total for the planning period).

Source: West Sound CIP, 2015-2034.

The City of Bremerton water capital projects for the period 2016 through 2018 include approximately \$159 million in planned improvements. Exhibit 4-133 shows the projected years and cost of projects.

**Exhibit 4-133. Water Systems - City of Bremerton Capital Facilities Projects, 2016-2036**  
(All numbers are in 2016 – 2036 YOES, \$1000s)

Category	Revenue Sources	Costs 2016 - 2018	Costs 2019 - 2021	Costs 2022-2036	Total Costs
Repair, Replacement, or Extensions	UFA/G	\$16,568	\$18,248	\$105,659	\$140,475
Growth	UFA/G	\$605	\$1,316	\$16,299	\$18,220
Other	UFA/G	\$0	\$0	\$76	\$76
Regulation	UFA/G	\$0	\$206	\$0	\$206
<b>Total</b>		<b>\$17,173</b>	<b>\$19,771</b>	<b>\$122,034</b>	<b>\$158,978</b>

UFA = User fee assessment; G = Grants & ULID

Source: City of Bremerton Department of Public Works & Utilities, 2016; BERK, 2016.

**Exhibit 4-134. Water Systems - City of Bremerton Capital Facilities Project Costs, 2016-2036**  
(All numbers are in 2016 – 2036 YOES, \$1000s)

Category Summary	Costs 2016 - 2018	Costs 2019 - 2021	Costs 2022-2036	Total Costs
Category I (Capacity Projects Required to Meet LOS)	\$390	\$5,542	\$9,472	\$15,404
Category II (Other Projects Needed for Maintenance and Operations)	\$16,783	\$14,228	\$112,562	\$143,574
<b>TOTAL</b>	<b>\$17,173</b>	<b>\$19,771</b>	<b>\$122,034</b>	<b>\$158,978</b>

Source: City of Bremerton, 2016; BERK, 2016.

**Exhibit 4-135. Water Systems - City of Bremerton Capital Facilities Project Revenues, 2016-2036** (All numbers are in 2016 – 2036 YOES, \$1000s)

Category Summary	Percent Share 2016-2021*	Percent Share 2022-2036*	Revenues 2016 - 2021	Revenues 2022-2036	Total Revenues
GFC Revenue Towards Capital	14%	28%	\$5,258	\$34,015	\$39,273
Rate Funded System Reinvestment	10%	11%	\$3,660	13,811	\$17,471
Cash Financing	15%	5%	\$5,623	\$5,493	\$11,115
Revenue Bond Financing	61%	56%	\$22,403	\$68,715	\$91,118
<b>TOTAL</b>	<b>100%</b>	<b>100%</b>	<b>\$36,943</b>	<b>\$122,034</b>	<b>\$158,978</b>

\* Based on the 2012 Water System Plan Update, Capital Funding Strategy.

Source: City of Bremerton, 2015; BERK, 2016. Source: City of Bremerton, BERK Consulting 2016

The Kitsap Public Utility District has been contacted to provide growth estimates and to obtain their capital plans. While no new information was received from the district, the growth is not substantively different than that reviewed in the County’s 2012 Capital Facility Plan. Further the district serves largely rural areas. In any case, the County requires adequate water supply at the time of development permit application.

The North Perry Water District is currently updating their CIP. Their 2015 draft list of capital improvement projects extends over the next 20 years. A summary of costs and revenues is provided in Exhibit 4-136 and Exhibit 4-137. The proposed projects are shown in Exhibit 4-138.

**Exhibit 4-136. Water Systems - North Perry Water District Capital Facilities Project Cost, 2016-2036 (All numbers are in 2015 \$1000s)**

Category Summary	Cost 2016-2021	Cost 2022-2036	Total Cost
Capacity	\$609	\$3,049	\$3,658
Non-Capacity*	\$1,947	\$5,492	\$7,439
<b>Total</b>	<b>\$2,556</b>	<b>\$8,541</b>	<b>\$11,097</b>

\* Non-Capacity: Infrastructure upgrade, water quality benefit, energy efficiency.

**Exhibit 4-137. Water Systems – North Perry Water District Capital Facilities Project Revenues, 2016-2036 (All numbers are in 2015 \$1000s)**

Revenue Source	Projection Years 1-6	Projection Years 7-20	Total Cost
Utility Fees	\$2,556	\$1,899	\$1,889
Developer	--	\$6,642	\$6,642
Sum	\$2,556	\$8,541	\$11,097

Source: BHC 2015

Exhibit 4-138. Water Systems - North Perry Water District Capital Facilities Projects and Financing, 2016-2036  
(All numbers are in 2015 \$1000s)

Category / Project Description	Capacity Project (√)	Revenue Sources	Cost Years 1-3	Cost Years 4-6	Cost Years 7-20	Total Cost
(All Amounts in \$1,000s)						
<b>North Perry Avenue Water District – Water System</b>						
California/6 <sup>th</sup> Ave to Gilberton Wells Water Main Replacement form 2” to 8”	√	Rates	\$132			\$132
Repipe and Relocate PRV at Gilberton Wells			\$56			\$56
Hillside Water Main Replacement from 2” to 6”	√	Rates	\$50			\$50
East 30 <sup>th</sup> St. Water Main Replacement 4” to 8”	√	Rates	\$60			\$60
Denny Water Main Replacement 2” to 8”	√	Rates		\$110		\$110
South Madrona Water Main Replacement 2” to 8”	√	Rates		\$132		\$132
Highway 303 8” Extension		Rates		\$156		\$156
East Sutton 8” Connection		Rates			\$90	\$90
Riddell and Pine Water Main Replacement 2” to 6”	√	Rates			\$80	\$80
Petersville/Riddell 4” CI Replacement with 8” DI	√	Rates			\$144	\$144
Trenton AC Replacement with 8” DI		Rates			\$180	\$180
Well 14 Chlorine Room Construction		Rates	\$50			\$50
Sunset Well Chlorine Room Construction		Rates	\$40			\$40
Sunset Chlorine Building Construction		Rates	\$160			\$160
Sunset Storage Building Replacement		Rates	\$480			\$480
Olympus Reservoir Flow Meter / Chlorine Analyzer Building		Rates	\$10			\$10
Sunset Reservoir Flow Meter / Chlorine Analyzer Installation		Rates	\$10			\$10
Riddell Reservoir Flow Meter / Chlorine Analyzer Installation		Rates	\$10			\$10
Install Olympus Reservoir Drain Line		Rates	\$75			\$75
Brownsville School Water Meter Move		Rates	\$15			\$15
Construct New Sunset Reservoir Equipment Carport		Rates	\$90			\$90
Keyport, Cantershire, Riddell Reservoir Seismic Evaluation		Rates	\$50			\$50
Reservoir Interior Cleaning (Every 5 Years)		Rates		\$10	\$30	\$40
Recoat Keyport 0.3 MG Reservoir		Rates		\$100		\$100

Category / Project Description	Capacity Project (√)	Revenue Sources	Cost Years 1-3	Cost Years 4-6	Cost Years 7-20	Total Cost
(All Amounts in \$1,000s)						
Recoat Sunset 0.5 MG		Rates	\$152			\$152
Recoat Sunset 2.0 MG		Rates	\$308			\$308
Perry Site – Drill Test Well	√	Rates		\$125		\$125
Perry Site – Convert Test Well To Production Well	√	Rates			\$125	\$125
Flush 315/490 (W)		Rates	\$10	\$20	\$70	\$100
Flush 345/490 (E)		Rates	\$20	\$10	\$80	\$110
Center 2 Well Rehabilitation		Rates	\$25			\$25
Well 14 Rehabilitation		Rates			\$25	\$25
Meadowdale #2 Rehabilitation		Rates			\$25	\$25
ESRI Install		Rates	\$20			\$20
Rack Server Update		Rates	\$30			\$30
Update to the District GIS Database (20130823-05)		Rates	\$20			\$20
Update to the District GIS Database (20130823-05)		Rates	\$20			\$20
New 1MG Tank in 400 Pressure Zone	√	Developer			\$2,000	\$2,000
Develop Paulson Well	√	Rates			\$200	\$200
Well Drilling	√	Developer			\$250	\$250
Acquire Future Well Sites	√	Rates			\$250	\$250
New District Office		Rates			\$600	\$600
New Water Mains (315 Pressure Zone)		Developer			\$3,156	\$3,156
New Water Mains (345 Pressure Zone)		Developer			\$1,236	\$1,236
<b>TOTALS</b>			<b>\$1,893</b>	<b>\$663</b>	<b>\$8,541</b>	<b>\$11,097</b>

Source: Draft North Perry Avenue CIP, 2015 (BHC)

The City of Port Orchard is currently updating their CIP. According to the *City of Port Orchard 2009 Comprehensive Water System Plan* (incorporated by reference in the 2012-2018 Capital Facilities Plan), 18 projects were identified to be completed between 2009 and 2018. Costs and revenue sources are summarized in Exhibit 4-139 and Exhibit 4-140. A detailed project list is provided in Exhibit 4-141.

**Exhibit 4-139. Water Systems - City of Port Orchard Capital Facilities Project Costs, 2016-2036 (All Amounts in 2008 \$1,000s)**

Category Summary	Cost 2016-2021	Cost 2022-2036	Total Cost
<b>Capacity</b>	\$8,650	-	\$8,650
<b>Non-Capacity*</b>	\$16,459	-	\$16,459
<b>Sum</b>	\$25,109	-	\$25,109

Source: City of Port Orchard Capital Facilities Plan 2012 – 2018/ City of Port Orchard 2009 Comprehensive Water System Plan

**Exhibit 4-140. Water Systems - City Of Port Orchard Capital Facilities Project Revenues, 2016-2036 (All Amounts in 2008 \$1,000s)**

Revenue Source	Revenues 2016-2021	Revenue 2022-2036	Total Revenue
<b>Utility Fees</b>	\$19,934	-	\$19,934
<b>Developer</b>	\$5,175	-	\$5,175
<b>Sum</b>	\$25,109	-	\$25,109

Source: City of Port Orchard Capital Facilities Plan 2012 – 2018 / City of Port Orchard 2009 Comprehensive Water System Plan.

**Exhibit 4-141. Water Systems - City of Port Orchard Capital Facilities Projects and Financing, 2016-2036 (All Amounts in \$1,000s)**

Category / Project Description	Capacity Project (√)	Revenue Sources	Cost 2016-2021	Cost 2022-2036	Total Cost
<b>Telemetry Upgrades</b> Upgrades of Telemetry equipment at various well and reservoir locations	√	Rates CC	\$75		\$75
<b>Well 11 Treatment Upgrade</b> Drilling of a new deep aquifer well that will produce 750 gpm, installing a well pump and controls, modifying treatment to include hydrogen sulfide removal, and reusing the existing chlorination system.	√	Dev. CC	\$675		\$675
<b>Well 10 Pump, Generator, &amp; Building</b> Construct a small building to house the well, on-site generator, and controls.	√	Rates CC	\$650		\$650
<b>Wells 6 &amp; 10 Treatment Improvements</b> This project combines treatment for the new Well 10 and the upgrade/replacement for treatment of Well 6. The new facility will be constructed on the Well 6 site. Treatment will include hydrogen sulfide, chlorination, and fluoridation. A pump station will be constructed to deliver water to both the 260 and 390 Zones as needed.	√	Rates CC	\$2,000		\$2,000
<b>Well 10 Transition Main</b> Design and construction of a 12-inch transmission main from the Well 10 site to the Well 6 site, then west and south along the west side of the cemetery to the extension of Kendall Street and connect to a 12-inch, 390 Zone main at that location.	√	Rates CC	\$1,600		\$1,600
<b>Pressure Release Valves High to Low Zone</b> This project involves installing three PRVs to provide connection between the 390 and 260 Zones to improve storage for its 260 Zone, circulation, and water quality. - Melcher/Pottery & Eaglecrest - Mitchell & Dwight - Kendall & Maple	√	Rates CC	\$165		\$165
<b>City Hall Pump Station Upgrade</b> The City desires to eliminate Wells 4 & 5 by transferring water rights to Well 10. By installing treatment for Well 7 at the Well 7 site, or another location, the City Hall facilities can be abandoned.	√	Rates CC	\$735		\$735
<b>1.1 Million Gallon 580 Reservoir</b> This project includes the construction of a new reservoir sized for ultimate development in the 580 and 660 Zones. Preliminary studies indicate the reservoir should have about 1.1 million gallons of usable storage.	√	Dev. CC	\$2,200		\$2,200

Category / Project Description	Capacity Project (√)	Revenue Sources	Cost 2016-2021	Cost 2022-2036	Total Cost
<b>390 to 580 Booster Pump Station</b> Construction of a transfer booster station. This will include 2 650-gpm pumps with room for a future 600 gpm pump.	√	Dev. CC	\$450		\$450
<b>390 to 580 12- inch Transmission Main</b> Provide a pipeline to transfer water from the City's 390 Zone to the McCormick Woods area.	√	Dev. CC	\$1,600		\$1,600
<b>580 to 660 Constant Pressure Booster Station</b> Construction of a water booster station to pump from the City 580 reservoir(s) to the new 660 Zone.	√	Dev.	\$450		\$450
<b>Melcher Street Pump Station Upgrade</b> Install additional pumps and controls to accommodate the added transfer of water from the City 260 Zone to the 390 Zone.	√	Dev. CC	\$250		\$250
<b>390 Zone Storage</b> Alternatives are discussed in the Port Orchard 2009 Water System Plan.	√	Rates CC	\$500		\$500
<b>Well 9 Water Treatment</b> Provide treatment of Well 9 water to eliminate customer complaints. Options include filtration or discharging water to the adjacent Park Reservoir where oxidized iron/manganese can be captured.		Rates	\$850		\$850
<b>Systems Operation Study</b> An operations study is needed to assess system improvements to simplify the operation of the water system.		Rates	\$100		\$100
<b>Water Main Replacement Program, Phase 1</b> Detailed in the Port Orchard 2009 Water System Plan Page 7-6, Table 7-1A.		Rates	\$6,306		\$6,306
<b>East City Water Main Replacement Program</b> Detailed in the Port Orchard 2009 Water System Plan, page 7-7, Table 7-1B.		Rates	\$2,374		\$2,374
<b>Miscellaneous Improvements</b> Detailed in the Port Orchard 2009 Water System Plan.		Rates	\$4,129		\$4,129
<b>TOTALS</b>			<b>\$25,109</b>		<b>\$25,109</b>

Legend: CC – Connection Charge, Dev. – Developer

Source: City of Port Orchard Capital Facilities Plan 2012 - 2018 / City of Port Orchard 2009 Comprehensive Water System Plan

The City of Poulsbo has identified \$13 million in capital improvement projects to the water system through the year 2036. Summary costs and revenues are shown in Exhibit 4-142 and Exhibit 4-143. The projects and revenue sources are listed in Exhibit 4-144.

**Exhibit 4-142. City of Poulsbo Water System –  
Cost and Revenue Comparison (All numbers are in 2015 \$1000s)**

Category Summary	Cost 2016-2021	Cost 2022-2036	Total Cost
<b>Capacity</b>	\$3,730	\$4,362	\$8,092
<b>Non-Capacity*</b>	\$4,973	\$	\$4,973
<b>Sum</b>	\$8,703	\$4,362	\$13,065

Source: City of Poulsbo, BHC 2015

\* Non-Capacity: Infrastructure upgrade, water quality benefit, energy efficiency

**Exhibit 4-143. City of Poulsbo Water System - Project Revenues, 2016-2036  
(All numbers are in 2015 \$1000s)**

Revenue Source	Revenues 2016-2021	Revenue 2022-2036	Total Revenue
<b>Utility Fees</b>	\$8,703	\$4,362	\$13,065
<b>Sum</b>	\$8,703	\$4,362	\$13,065

Source: City of Poulsbo, BHC 2015

**Exhibit 4-144. Water Systems - City of Poulsbo Capital Facilities Projects and Financing (All numbers are in 2015 \$1000s)**

Category / Project Description	Capacity Project (√)	Revenue Sources	Cost Years 1-3	Cost Years 4-6	Cost Years 7-20	Total Cost
(All Amounts in \$1,000s)						
<p><b>Water Supply Project WS-1: Pugh Well and Lincoln Wells No. 1 and No. 2 Manganese Treatment</b></p> <p>The Pugh Well and Lincoln Wells have higher than normal manganese concentrations in the raw water. High concentrations cause the City to frequently have to flush its water mains and it can add an unwanted color, odor, and taste to the water. The City plans on installing a pilot test system (\$200,000) and a treatment facility (\$600,000). The treatment system would reduce or eliminate the manganese from the raw water concentration of 0.109 mg/L to below the EPA secondary MCL concentration of 0.05 mg/L in the finished water.</p>			\$800			\$800
<p><b>Water Supply Project WS-2: Westside Well Treatment</b></p> <p>The Westside well also has manganese concentrations in the raw water that are slightly higher than the EPA’s Secondary MCL. Manganese can add an unwanted color, odor, and taste to the water. The City plans on installing a pilot test system in 2015 (\$150,000) and a treatment facility in 2016 (\$450,000). The treatment system would reduce the manganese from the raw water concentration of 0.085 mg/L to below 0.05 mg/L in the finished water.</p>			\$600			\$600
<p><b>Water Supply Project WS-4: Big Valley Well No. 3</b></p> <p>The City Plans to drill, develop, and equip a third well at the Big Valley Well site. Additional source capacity is necessary to provide maximum day demand and replenish fire suppression storage by 2034 and a new 500 gpm well will provide sufficient flows.</p>	√				\$450	\$450
<p><b>Water Supply Project WS-5: Westside Well No. 2</b></p> <p>The City plans to drill, develop, and equip a second well at the Westside Well site. Existing sources will need to pump for more than 18 hours to meet MDD beyond 2019. Additional supply capacity should be installed shortly after to reduce the demand on the aquifers and equipment. This project will be re-evaluated upon completion of the long-term water supply study (WS-3).</p>	√				\$412	\$412
<p><b>Storage Project ST-1: Wilderness Park Reservoir Repairs</b></p> <p>Based on a seismic study which evaluated the City’s reservoirs, the Wilderness Park Reservoir does not meet current seismic design standards. This project will retrofit the existing reservoir to have additional ties to the foundation to resist overturning forces induced by seismic loads. The foundation itself might need to be reinforced to be able to withstand overturning loads and bearing capacity.</p>			\$500			\$500

Category / Project Description	Capacity Project (√)	Revenue Sources	Cost Years 1-3	Cost Years 4-6	Cost Years 7-20	Total Cost
(All Amounts in \$1,000s)						
<p><b>Storage Project ST-2: Raab Park Reservoir Replacement</b></p> <p>The City plans to replace the existing 150,000-gallon tanks with a 300,000-gallon tank. The existing tank does not meet seismic design standards and is at the end of its useful life. Additional capital improvements may be determined based on the findings of the evaluation.</p>			\$680			\$680
<p><b>Storage Project ST-3: Reservoir Coating Program</b></p> <p>The City plans to recoat the interior and exterior of the Finn Hill and Olhava Reservoirs. Periodic coatings need to be applied to protect the structural steel from corrosion damage. These coatings are normal maintenance.</p>				\$600		\$600
<p><b>Booster Station Project BS-1: Wilderness Park Booster Station Replacement</b></p> <p>The City plans to construct a new booster station at the Wilderness Park Reservoir site. The new booster station will transfer supply from the Low Zone to the East High Zone to eliminate the storage deficiency in the East High Zone and provide redundancy to the Pugh and Lincoln Wells. Currently, the City does not have a pumping facility to transfer supply to the East High Zone. The booster station will consist of three 750 gpm pumps, integrated control systems, standby generator, and an automatic transfer switch with a new CMU building.</p>	√		\$500			\$500
<p><b>Booster Station Project BS-2: 340 Zone Fire Flow Pump and Zone Expansion</b></p> <p>The 340 Zone currently has houses served by a pump for average day and maximum day demands but is served by gravity for fire flow. The high elevations cause pressures to drop below 20 psi during fire flow emergencies when the reservoirs are depleted of operational storage. A fire flow pump is needed to boost flows and pressures in the 340 Zone and would decrease the large dead storage in the Low Zone. This project will be coupled with a zone expansion to address the low pressure at the 4th Avenue Townhomes since work will need to be performed at the existing booster station. This project will include an additional 250 feet of pipe to expand the zone and the pumps necessary to meet projected demands.</p>	√			\$250		\$250
<p><b>Distribution System Project DS-1: Old Town Water Main Replacement</b></p> <p>The City plans to replace the undersized and aging water mains in the “old town” area located south of downtown. This area is primarily residential although a few businesses are located along the waterfront. Existing piping serving the area is approximately 9,000 LF of 4-inch water main and 5,450 LF of 6-inch water main. This project will replace 3,140 LF of 4-inch piping with 8-inch piping along 6th Avenue and Haugen Street. The new piping will serve as a “backbone” for the area and increase fire flow availability.</p>	√		\$750	\$330		\$1,080

Category / Project Description	Capacity Project (√)	Revenue Sources	Cost Years 1-3	Cost Years 4-6	Cost Years 7-20	Total Cost
(All Amounts in \$1,000s)						
<p><b>Distribution System Project DS-2: Viking Avenue PRV</b></p> <p>The Viking Ave water main currently has very high pressures (180 psi) that need to be reduced. High pressure in the main has caused pipes to burst several times. The City plans to install two PRV systems, including one at the old Viking Avenue Booster station site, to reduce pressure along this main.</p>			\$220			\$220
<p><b>Distribution System Project DS-3: Hostmark Transmission Main</b></p> <p>The City plans to install a transmission main between the Wilderness Park Booster Station (BS-1) and the East High Zone along Hostmark Street. This project will allow the City to transfer supply between the Low and East High Zones to improve supply redundancy to both areas. The project consists of approximately 3,000 LF of 12-inch water main along Hostmark Street. A new pressure reducing valve station will be installed to transfer supply from the East High Zone to the Middle Zone.</p>	√		\$500			\$500
<p><b>Distribution System Project DS-4: Hostmark Distribution Main</b></p> <p>The City plans to replace the transmission main from Caldart Avenue to the west side of SR 305 and Front Street along Hostmark Street. The existing water main is undersized and limits the flow to and from the reservoir. This project will result in an increase in available fire flow to the Low Zone and improved water quality in the area around the reservoir. The project consists of 2,200 LF of 12-inch water main on Hostmark from the Caldart Avenue to SR 305 and an additional 1,500 LF from SR 305 to Front Street.</p>	√		\$600			\$600
<p><b>Distribution System Project DS-5: SR 305 Crossing</b></p> <p>The City plans to replace the transmission main that crosses SR 305 at Hostmark. The existing water main is an old and undersized pipe that serves the downtown area.</p>	√		\$200			\$200
<p><b>Distribution System Project DS-6: Liberty Ridge Fire Flow</b></p> <p>The City plans to replace the transmission main that crosses SR 305 at Hostmark. The existing water main is an old and undersized pipe that serves the downtown area.</p>	√			\$100		\$100
<p><b>Distribution System Project DS-7: Water Main Replacement Program</b></p> <p>The City has schedule specific water main replacements for the next 6 years and will continue replacing aging water mains annually beyond the six-year timeframe. Which mains will be replaced beyond what is currently scheduled will depend on the needs of the system and the known pipe conditions at that time. To show the City is dedicated to increasing the reliability of the system and reducing DSL by replacing leaky water mains, the City has allocated \$250,000 per year for main replacement beyond 2020.</p>	√			\$500	\$3,500	\$4,000

Category / Project Description	Capacity Project (√)	Revenue Sources	Cost Years 1-3	Cost Years 4-6	Cost Years 7-20	Total Cost
(All Amounts in \$1,000s)						
<b>Miscellaneous Project M-1: Meter Upgrade and Replacement Program</b> The City plans to replace all existing meters in their water system. The new meters will have remote read capability and will be a higher quality magnetic meter. This project is intended to help reduce water loss and improve the efficiency of the water system.			\$350			\$350
<b>Miscellaneous Project M-2: Telemetry System Upgrades</b> The City plans to replace the current telemetry system. This project will upgrade the central control system so that the City will have better remote operation of its water and sewer facilities.			\$50			\$50
<b>Miscellaneous Project M-3: Public Works Complex</b> The City plans to construct a Public Works Complex which will provide a maintenance and operations center for the water, sanitary sewer, storm sewer, solid waste, roads, and parks departments. This project will be financed through utility reserve funds, land sales, and bond issuance. The water utility is expected to fund 20 percent of the project cost, excluding revenue generated through land sales.			\$1,173			\$1,173
<b>TOTALS</b>			\$6,923	\$1,780	\$4,362	\$13,065

Source: City of Poulsbo, BHC 2015

Silverdale Water District No. 16 plans 67 capital facilities projects for the 2016-2032 time period. Summary costs and revenues are shown in Exhibit 4-145 and Exhibit 4-146. Detailed projects and revenue sources are listed in Exhibit 4-147.

**Exhibit 4-145. Silverdale Water District No. 16 Cost and Revenue Comparison**  
(All numbers are in 2015 \$1000s)

Category Summary	Cost 2016-2021	Cost 2022-2036	Total Cost
<b>Capacity</b>	-	-	-
<b>Non-Capacity*</b>	\$9,787	\$5,298	\$36,865
<b>Sum</b>	\$9,787	\$5,298	\$36,865

\* Non-Capacity: Infrastructure upgrade, water quality benefit, energy efficiency

Source: Silverdale Water District No. 16, 2015

**Exhibit 4-146. Silverdale Water District No. 16 Water Systems - Project Revenues, 2016-2036**  
(All numbers are in 2015 \$1000s)

Revenue Source	Revenues 2016-2021	Revenue 2022-2036	Total Revenue
<b>Utility Fees</b>	\$9,787	\$5,298	\$36,865
<b>Sum</b>	\$9,787	\$5,298	\$36,865

Source: Silverdale Water District No. 16, 2015

**Exhibit 4-147. Water Systems - Silverdale Water District No. 16 Capital Facilities Projects and Financing (All numbers are in 2015 \$1000s)**

Category / Project Description	Capacity Project (√)	Revenue Sources	Cost Years 1-3	Cost Years 4-6	Cost Years 7-20	Total Cost
(All Amounts in \$1,000s)						
<p><b>Viking Way – Viking Way Extension</b> Install approximately 4,200 feet of 8” DI pipe along Viking Way to a proposed intertie with the PUD. This project creates a new connection with the PUD’s water system at this location</p>		Utility Fees	\$390			\$390
<p><b>SR 308 – Silverdale Way to Central Valley Rd</b> Install approximately 1,400 feet of 8” DI pipe along SR 308 from Silverdale Way to Central Valley Road. This project creates a loop between two existing dead end water mains and improves fire flow and reliability.</p>		Utility Fees	\$140			\$140
<p><b>Mt. View Crossing</b> Install approximately 800 linear feet of 12” DI pipe along Mountain View Road under SR 3. This project will create a new connection between Zones 4 and 5. It will provide the ability to wheel water to the PUD and to move water from the east side of the District to the west. A small booster pump station will be installed at this location and is described in the Silverdale CIP (2013-2032).</p>		Utility Fees	\$180			\$180
<p><b>Half Mile Road Extension</b> Install approximately 4,200 linear feet of 12” DI pipe along Half Mile Road from Old Frontier Road to Clear Creek Road and along Clear Creek Road to Melody Lane. This project improves fire flow and reliability by creating a new connection between Zones 3.2 and 5 and by increasing looping. A pressure reducing valve (PRV) will be installed along the Half Mile Road alignment. The large pressure reducing valve should be an 8-inch valve and the small valve should be a 3-inch valve. The station should also include a pressure relief valve, sized during the design, to relieve pressures in Zone 3 (H.E. 361 feet) in the event of a failure of one of the pressure reducing valves.</p>		Utility Fees	\$390			\$390
<p><b>Trigger Avenue Extension</b> Install approximately 3,700 linear feet of 8” DI pipe along Trigger Avenue from Old Frontier Road to Clear Creek Road and Clear Creek Road to Blissful Lane. This project creates a new connection between Zone 3 and Zone 5 and improves fire flow and reliability. A PRV will be installed at Old Frontier Road and Trigger Avenue as part of this project.</p>		Utility Fees	\$340			\$340
<p><b>Water Main Extension Projects Under \$100,000<sup>(1)</sup></b> Norbert Main Extension</p>		Utility Fees	\$80			\$80
<p><b>Water Main Extension Projects Between Years 2019 and 2032<sup>(2)</sup></b></p>		Utility Fees				\$6,140

Category / Project Description	Capacity Project (√)	Revenue Sources	Cost Years 1-3	Cost Years 4-6	Cost Years 7-20	Total Cost
(All Amounts in \$1,000s)						
<b>Silverdale Water District – Water Main Replacement</b>		Utility Fees				
<b>Silver Hills Place and Avante Drive</b> Install approximately 3,000 feet of 12” DI pipe to replace existing 12” asbestos cement water main from Spirit Ridge Well 3 along Silver Hills Place and Avante Drive. This project increases reliability of the main pipeline from the Spirit Ridge wells 3 and 4 to the Island Lake Zone 4 Reservoir.		Utility Fees	\$390			\$390
<b>Ridgetop Boulevard, Sid Uhnick Drive, and Chena Road</b> Install approximately 2,900 feet of 8” DI pipe to replace existing 8”. The route will follow from Ridgetop Well Site along Ridgetop Boulevard and Sid Uhnick Drive and Chena Road to the Chena Reservoir Site. This project increases reliability of the main pipeline from Ridgetop Well and the proposed 2.0 MG Chena (Zone 1) Reservoir.		Utility Fees	\$260			\$260
<b>Chena Road and Frederickson Road</b> Install approximately 2,000 feet of 12” DI pipe replace existing 12” asbestos cement water main. The route will follow from Chena Reservoir Site to Bucklin Hill along Chena Road and Frederickson Road. This project increases reliability of the main pipeline from the proposed 2.0 MG Chena Reservoir to the commercial core of Silverdale.		Utility Fees	\$260			\$260
<b>Water Main Replacement Projects Under \$100,000<sup>(1)</sup></b> Bayshore Drive, Washington Avenue, and Byron Street Willamette Meridian – Segerman to Contact Court		Utility Fees	\$84 \$84			\$168
<b>Water Main Replacement Projects Between Years 2019 and 2032<sup>(2)</sup></b>		Utility Fees				\$1,610
<b>Facilities Improvements</b>		Utility Fees				
<b>Chena Pump Station</b> By adding the Chena booster station the District is building in security and redundancy to the system in case of well or power failure on the east side of the District. The District will install a standby generator making this a viable sight for meeting. The pump station capacity will be approximately 1,500 gallons per minute.		Utility Fees	\$270			\$270
<b>Greaves Way Property Acquisition</b> Purchase the site for the future Zone 1 reservoir and pump station.		Utility Fees	\$510			\$510
<b>Newberry Well</b> Co-develop a 1,000 gpm well with the PUD. The existing reservoir has an overflow elevation of 634 feet and a minimum useful storage capacity of 0.20 MG. The capacity of the reservoir is 0.75 MG.		Utility Fees	\$230			\$230
<b>Apex Pump Station</b>		Utility Fees	\$220			\$220

Category / Project Description	Capacity Project (√)	Revenue Sources	Cost Years 1-3	Cost Years 4-6	Cost Years 7-20	Total Cost
(All Amounts in \$1,000s)						
<b>Facilities Improvement Projects Under \$100,000<sup>(1)</sup></b> Well Decommissioning		Utility Fees	\$50			\$50
<b>Facilities Improvement Projects Between Years 2019 and 2032<sup>(2)</sup></b>		Utility Fees				\$8,020
<b>Water System Acquisitions</b>		Utility Fees				
<b>Brianwood (06651Y)</b> In discussion with the Kitsap PUD, this system can be operated by simply connecting the piping.		Utility Fees	\$290			\$290
<b>Eldorado (22750C)</b> In discussion with the Kitsap PUD, the system is at capacity, as new properties develop, it will make sense for the District to take over and consolidate the system into Silverdale Water District's main system. The piping in the water system also needs to be rehabilitated. Due to steep winding roads, rehabilitation will be expensive. Funding will be a major driver in this acquisition.		Utility Fees	\$3,580			\$3,580
<b>Water System Acquisition Projects Under \$100,000<sup>(1)</sup></b> Crystal Creek (47421) Avellana (268010)		Utility Fees	\$40 \$50			\$90
<b>Water System Acquisition Projects Between Years 2019 and 2032<sup>(2)</sup></b>		Utility Fees				\$730
<b>Reclaimed Water Improvements</b>		Utility Fees				
<b>Convert Chena Reservoir to Reclaimed Water Storage</b> Convert the existing Chena Reservoir for reclaimed water storage. This project will proceed after the installation of the new Chena reservoir described in project WF-3.		Utility Fees				
<b>Main Extension to Ridgetop Jr. High</b> Install approximately 6,400 linear feet of 18" reclaimed water main to extend an existing water main from the treatment plant to the Ridgetop Jr. High School.		Utility Fees				
<b>Reclaimed Water Improvement Projects Between Years 2019 and 2032<sup>(2)</sup></b>		Utility Fees				\$5,260
<b>Water Maintenance and Operations</b>		Utility Fees				
<b>Annual Water Main Replacement Program</b>		Utility Fees	\$300		\$1,400	\$1,700
<b>Recoating</b>		Utility Fees	\$1,300			\$1,300
<b>Water Right and Well Study</b>		Utility Fees	\$90		\$980	\$1,090
<b>Conservation Program and Leak Detection</b>		Utility Fees	\$42		\$884	\$926
<b>Cross-Connection Control Program</b>		Utility Fees	\$21		\$842	\$863
<b>Wellhead Protection Program</b>		Utility Fees	\$36		\$872	\$908

Category / Project Description	Capacity Project (√)	Revenue Sources	Cost Years 1-3	Cost Years 4-6	Cost Years 7-20	Total Cost
(All Amounts in \$1,000s)						
<b>Comprehensive Water System Plan Update</b>		Utility Fees	\$160		\$320	\$480
<b>TOTALS</b>			<b>\$9,787</b>		<b>\$5,298</b>	<b>\$36,865</b>

Source: Silverdale Water District No. 16, 2015

Notes:

This category condenses the projects that have a projected Capital Cost below \$100,000. See the Silverdale *Capital Improvement Program (2013-2032)* for description of these projects.

This category condenses the projects that are projected to occur after 2018. The Silverdale *Capital Improvement Program (2013-2032)* does not provide an exact year for these projects. See the Silverdale CIP for details on these projects.

The Sunnyslope Water District has identified in their *Comprehensive Water System Plan Update* (2013) 11 capital improvement projects to the water system to be done from 2016 to 2018 and beyond. Summary costs and revenues are included in Exhibit 4-148 and Exhibit 4-149. Detailed projects and estimated year of completion are listed in Exhibit 4-150.

**Exhibit 4-148. Sunnyslope Water District Cost and Revenue Comparison (All numbers are in 2015 \$1000s)**

Category Summary	Cost 2016-2021	Cost 2022-2036	Total Cost
<b>Capacity</b>	\$435	\$450	\$885
<b>Non-Capacity*</b>	\$115	\$0	\$115
<b>Sum</b>	\$550	\$450	\$1000

Source: Sunnyslope Water District, 2013; BHC 2015

\* Non-Capacity: Infrastructure upgrade, water quality benefit, energy efficiency

**Exhibit 4-149. Sunnyslope Water District Water Systems - Project Revenues, 2016-2036 (All numbers are in 2015 \$1000s)**

Revenue Source	Revenues 2016-2021	Revenue 2022-2036	Total Revenue
<b>Revenue Bonds</b>	\$100	\$250	\$350
<b>Potential State Grants &amp; Loans</b>	\$0	\$200	\$200
<b>Utility Fees</b>	\$450	\$0	\$450
<b>Sum</b>	\$550	\$450	\$1000

Source: Sunnyslope Water District, 2013; BHC 2015

**Exhibit 4-150. Water Systems - Sunnyslope Water District Capital Facilities Projects and Financing (All numbers are in 2015 \$1000s)**

Category / Project Description	Capacity Project (√)	Revenue Sources	Cost Years 1-3	Cost Years 4-6	Cost Years 7-20 <sup>1</sup>	Total Cost
(All Amounts in Year 2012 \$1,000s)						
<b>Sunnyslope Water District – Water System</b>						
<b>Clifton Road Water Main replacements</b> Replace 1,300 LF of 6-inch AC pipe with 8-inch PVC pipe.	√	Rates		\$130		\$130
<b>Well No. 2 Refurbishment</b> Refurbish Well No. 2 by removing pump, backflushing, or treating to improve performance		Rates	\$5			\$5
<b>Reservoir Cleaning and Inspection</b> Clean and inspect reservoir interiors.		Rates	\$10			\$10
<b>Seismic Upgrades to Reservoirs</b> Implement recommended changes to reservoirs per seismic study by structural engineer		Bonds		\$100		\$100
<b>Eastview Neighborhood Water Main Replacement</b> Replace 1,400 LF of 4-inch and 6-inch AC and steel pipe with 8-inch PVC pipe.	√	Rates		\$140		\$140
<b>Westview Neighborhood Water Main Replacement</b> Replace 1,200 LF of 4-inch AC and steel pipe with 8-inch PVC pipe.	√	Rates		\$120		\$120
<b>Victory Place Water Main Replacement</b> Replace 600 LF of 4-inch and 6-inch AC pipe with 8-inch PVC pipe.	√	Bonds			\$60	\$60
<b>Sunnyslope Road Water Main Replacement</b> Replace 900 LF of 6-inch AC pipe with 8-inch PVC pipe between Alameda Street and Victory Drive.	√	Bonds			\$90	\$90
<b>Rhododendron Drive Water Main Replacement</b> Replace 1,000 LF of 6-inch AC and steel pipe with 8-inch PVC pipe.	√	Bonds			\$100	\$100
<b>Well No. 2 Water Main Replacement</b> Replace 450 LF of 6-inch AC pipe with 8-inch PVC pipe.	√	Rates		\$45		\$45
<b>Victory Drive Loop</b> Complete 2,000 LF of 8-inch PVC pipe along Sunnyslope Road to provide better pressure service to South End.	√z	Grants/ Loan			\$200	\$200
<b>TOTALS</b>			<b>\$15</b>	<b>\$535</b>	<b>\$450</b>	<b>\$1000</b>

<sup>1</sup> Costs have not been estimated for projects in years 7-20.

Source: Sunnyslope Water District's *Comprehensive Sewer Plan Update* (2013).