

ORDINANCE NO. 01-2020

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF COVINGTON, KING COUNTY, WASHINGTON, ADOPTING THE PUGET SOUND REGIONAL FIRE AUTHORITY SIX-YEAR CAPITAL IMPROVEMENT PLAN FOR 2020-2025, AND MITIGATION & LEVEL OF SERVICE POLICY; PROVIDING FOR SEVERABILITY; AND ESTABLISHING AN EFFECTIVE DATE

WHEREAS, the Puget Sound Regional Fire Authority (“RFA”) has prepared a capital facilities improvement update in compliance with the Growth Management Act; and

WHEREAS, Chapter 19.50 of the Covington Municipal Code (“CMC”) authorizes the City to adopt a district’s capital facilities plan by reference as part of the Capital Facilities and Utilities Element of the City’s Comprehensive Plan; and

WHEREAS, Chapter 82.02 RCW authorizes the City to adopt a district’s capital facilities plan by reference in the City’s Comprehensive Plan; and

WHEREAS, the Plan contains the elements required by Chapter 19.50 CMC; and

WHEREAS, RCW 36.70A.130 (2)(a)(iv) allows amendment of the capital facilities and utilities element of a comprehensive plan, if done concurrently with the adoption or amendment of a city’s budget;

WHEREAS, upon providing appropriate public notice, the Covington City Council conducted a public hearing on January 14, 2020, to receive testimony regarding the proposed amendment to the Capital Facilities and Utilities Element of the City’s Comprehensive Plan, and the proposed 2020 fire impact fees.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF COVINGTON, KING COUNTY, WASHINGTON, DOES ORDAIN AS FOLLOWS:

Section 1. Adoption. The City hereby adopts, by reference, the Puget Sound Regional Fire Authority Six-Year Capital Improvement Update for 2020-2025, Mitigation & Level of Service Policy and 2020 Fire Impact Fee as set forth in Exhibits A, B and C, attached and incorporated by reference.

Section 2. Savings. The enactment of this ordinance shall not affect any application, case, proceeding, appeal, or other matter currently pending administratively or judicially in any court or in any way modify any right or liability, civil or criminal, which may be in existence on the effective day of this ordinance.

Section 3. Severability. Should any section, paragraph, sentence, clause, or phrase of this ordinance, or its application to any person or circumstance, be declared unconstitutional or

otherwise invalid for any reason, or should any portion of this ordinance be pre-empted by state or federal law or regulation, such decision or preemption shall not affect the validity of the remaining portions of this ordinance or its application to other persons or circumstances.

Section 4. Corrections. Upon approval of the city attorney, the city clerk and/or code reviser are authorized to make necessary corrections to this ordinance, including the correction of clerical errors; references to other local, state, or federal laws, codes, rules, or regulations; or ordinance numbering and section/subsection numbering.

Section 6. Effective Date. This ordinance become effective five days following its passage and publication of this ordinance or a summary thereof.

PASSED by the City Council of the City of Covington on the 14th day of January 2020.



Mayor Jeff Wagner

ATTESTED:



Sharon Scott, City Clerk

PUBLISHED: January 17, 2020
EFFECTIVE: January 22, 2020

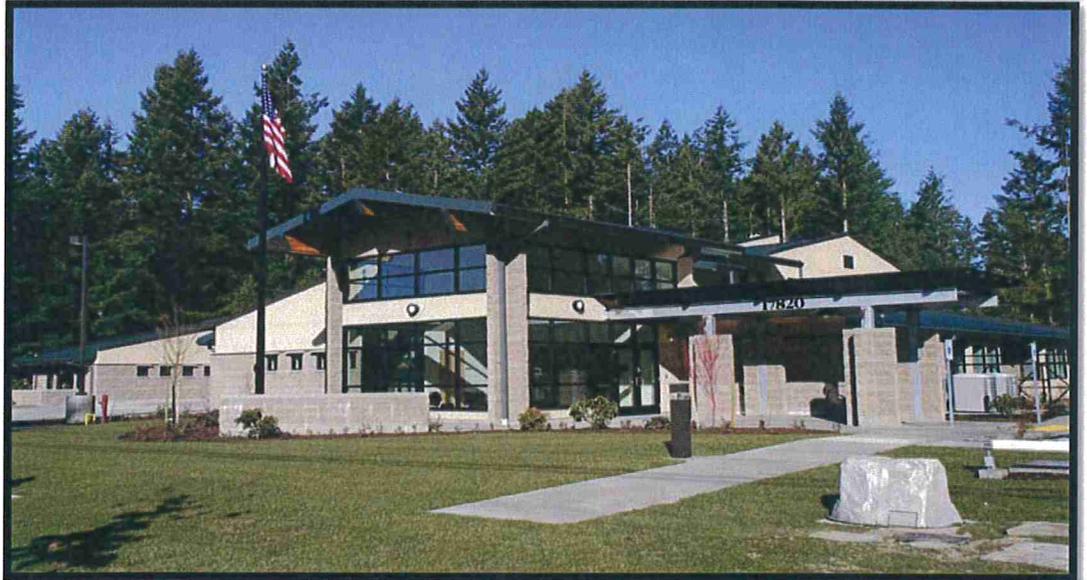
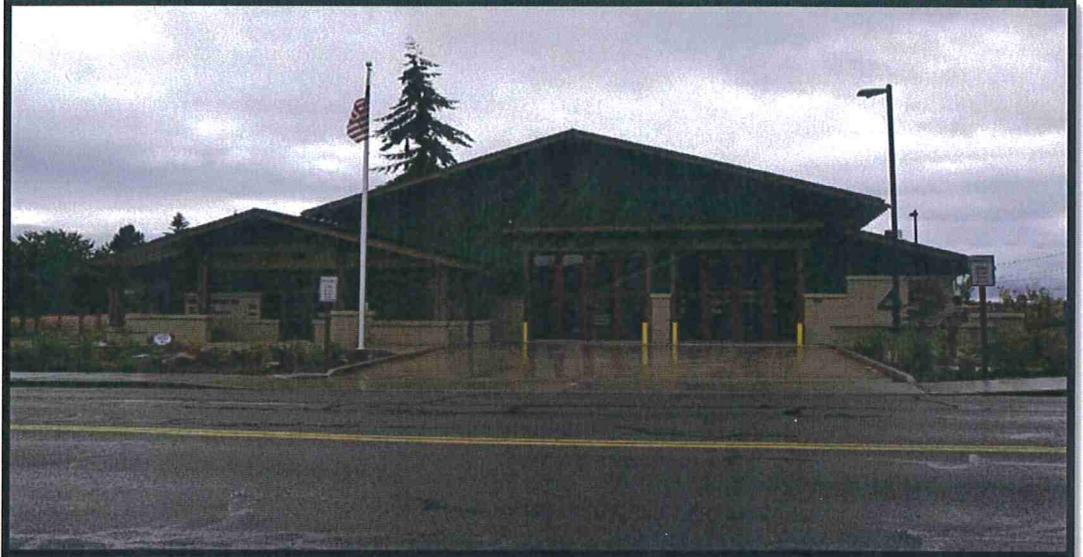
APPROVED AS TO FORM:



Kathy Hardy, City Attorney



Puget Sound Regional Fire Authority Capital Improvement Plan



2020 - 2025

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Six-Year Capital Facilities & Equipment Plan
2020-2025



Puget Sound Regional Fire Authority



This Plan was prepared and implemented through the collaboration and work of the following leadership personnel, key staff members and their associates:

Fire Chief

Matthew Morris

Chief Financial Officer

Joe Monteil

Assistant Chief

Eric Tomlinson

Deputy Chief

Mark Jones

Division Chiefs

Pat Pawlak-Facilities

Larry Rabel-Planning

District Chief

Dan Conroy, Jeff Richardson, Roger Kacmarcik, Kraig Peiguss

Business Analyst

Sameer Ahmed

Consultants

Deployment Dynamics Group LLC



With Appreciation and Thanks

Special thank you to the following members of the Citizens Advisory Planning Committee (CAPC) of Puget Sound Fire. Their citizen-based review and input to this document over the years and editions has been critical in assuring Puget Sound Fire's service delivery goals are driven by the citizens served by Puget Sound Fire.

The following CAPC members have participated in the review process of this document and its predecessors.

Citizens Advisory Planning Committee Members

Margaret Harto, CAPC Chair

Representing Fire Station 70 service area

Lew Sellers

Representing Fire Station 72 service area

Mary Kathryn Myers

Representing Fire Station 73 service area

Mike Denbo

Representing Fire Station 74 service area

Judy Huntington

Representing Fire Station 75 service area

Mike Davis

Representing Fire Station 76 service area

Scott Smith

Representing Fire Station 77 service area

Rudy Gustafson

Representing Fire Station 78 service area

Sam Sullivan



This plan has been implemented through the following Resolution and the Board Members Identified below.



**PUGET SOUND
REGIONAL FIRE AUTHORITY**
INTERNATIONALLY ACCREDITED FIRE AGENCY

Professionally and
compassionately helping people

**RESOLUTION NO. 156
ADOPTING THE PUGET SOUND REGIONAL FIRE AUTHORITY
CAPITAL FACILITIES AND EQUIPMENT PLAN**

Background:

1. The Puget Sound Regional Fire Authority "Puget Sound RFA" has determined, consistent with the State Growth Management Act, that uncoordinated and unplanned growth poses a threat to the health, safety, and high quality of life enjoyed by residents of the Puget Sound RFA; and
2. The Puget Sound RFA is committed to ensuring that the Puget Sound RFA facilities and equipment necessary to support development and growth within the Puget Sound RFA are adequate to serve development at the time development occurs without decreasing current service levels; and
3. The Puget Sound RFA is committed to a "concurrency" philosophy to service delivery; meaning fire and emergency service capacity must grow concurrently with development; and
4. The Puget Sound RFA recognizes that as the community continues to grow, additional resources will be required to adequately meet the growing demand for services; and
5. The Puget Sound RFA recognizes that in order to achieve its commitment to concurrency in a manner consistent with the State Environmental Policy Act, the State Growth Management Act, and the Puget Sound RFA Mitigation & Level of Service Policy, that the Puget Sound RFA requires a Capital Facilities and Equipment Plan.

Resolution: NOW THEREFORE, BE IT RESOLVED, that the Governance Board of the Puget Sound Regional Fire Authority hereby adopts and approves the updated 2014-2033 Puget Sound Regional Fire Authority Capital Facilities and Equipment Plan, attached hereto.

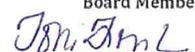
Adoption: ADOPTED by the Governance Board of the PUGET SOUND REGIONAL FIRE AUTHORITY at an open public meeting of such Board on the 6th day of November 2019, the following Board Members being present and voting:



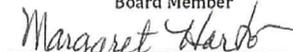
 Board Member



 Board Member



 Board Member



 Board Member



 Board Member



 Board Member



 District Secretary

Governance Board Members				
City of Covington	City of Kent	City of Seatac	Fire District 37	Fire District 43
	Bill Boyce		Allan Barrie	
Sean Smith	Toni Troutner	Joel Wachtel	Harry George	Chris Bodlovic
	Les Thomas		Margaret Harbo	



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1 Executive Summary

This Six-Year Capital Facilities Plan (the "Plan") is an update and extension of the Puget Sound Regional Fire Authority (PSF) 2014 – 2033 Master Capital Facilities and Equipment Plan (CFEP) in compliance with the requirements of Washington's Growth Management Act (GMA) Chapter 36.70A RCW, City of Kent Code 12.15.060, and Covington City Code Chapter 19.50 "Fire Impact Fees".

This Plan update uses data available through of 2018 to evaluate level of service performance and the progress toward implementation of the 2014 - 2033 CFEP. The goal of this Plan is to identify the next six years of community growth, determine the need for additional facilities, determine their cost and prioritize those resources into a 6-year funding plan (2020 – 2025) to ensure adequate service delivery prior to, or concurrently with the impacts of development within the service area.

The underlying premise of this document is that as the community continues to grow, additional resources will be required to adequately serve the growing demand for fire & life safety services. It is assumed that a direct relationship exists between populations within a community and demand for service, which directly links to a need to maintain and expand resources.

Since adoption and publication of the Master CFEP in 2014, the post-recession economy has continued its recovery with community growth and cost of construction returning to or exceeding pre-recession rates. The City of Kent published a 2015 updated Comprehensive Plan that continues similar land uses and community growth patterns. The City of Covington also completed a Comprehensive Plan update in 2015 and increased projected growth targets to more closely reflect historical growth rates. This approach is more reliable for fire service planning since it looks more toward actual growth, rather than the assigned growth targets of the Puget Sound Regional Council (PSRC) which often fail to accurately predict impacts in higher growth communities. The combined rate of growth for Covington, Kent, and unincorporated areas of PSF's response area remains consistent with the projections of the 2014 CFEP. As a result, baseline impact fees in Table 2 have increased in line with updated 2019 costs associated with funding the capital resources required to maintain fire service concurrency.

The need for resources is best outlined in the capacity analysis in Table 1 which shows daily resource exhaustion occurring several hours of each day in Kent, SeaTac and portions of Covington. The goal of reliability is to maintain hourly reliability of 90% so response units have a chance of achieving their response time goals 90% of the time.



Table 1 - Station Reliability by Hour

Hour	SeaTac					Kent					Covington					Maple Valley				
	2014	2015	2016	2017	2018	2014	2015	2016	2017	2018	2014	2015	2016	2017	2018	2014	2015	2016	2017	2018
00:00	94.04%	93.25%	93.24%	92.67%	93.13%	94.47%	93.61%	93.81%	93.27%	93.90%	96.85%	95.11%	95.93%	96.72%	96.37%	96.65%	95.58%	96.52%	96.12%	96.72%
01:00	95.14%	94.69%	93.65%	92.39%	93.05%	94.44%	94.01%	93.88%	93.47%	93.61%	96.44%	96.33%	96.18%	95.80%	94.75%	96.75%	95.15%	96.10%	96.57%	97.06%
02:00	94.94%	93.80%	93.19%	93.72%	93.62%	94.84%	94.72%	94.28%	94.09%	93.66%	96.79%	97.36%	95.68%	96.50%	95.88%	97.85%	95.28%	96.61%	96.82%	97.37%
03:00	95.09%	94.37%	93.83%	93.79%	94.07%	95.85%	94.59%	94.31%	95.05%	94.35%	96.53%	96.43%	97.05%	96.66%	96.41%	97.46%	95.80%	96.15%	96.05%	97.36%
04:00	96.24%	94.64%	93.88%	93.98%	94.55%	95.47%	95.23%	94.76%	94.60%	94.19%	97.14%	96.78%	96.75%	96.32%	96.16%	96.89%	95.87%	97.25%	97.19%	96.85%
05:00	95.42%	95.10%	94.12%	93.68%	94.05%	95.55%	95.42%	94.52%	94.54%	93.83%	97.13%	97.31%	96.17%	96.02%	96.68%	96.72%	95.69%	97.47%	96.31%	97.19%
06:00	95.29%	94.75%	93.88%	93.55%	93.48%	94.72%	94.67%	93.99%	93.52%	93.17%	96.39%	96.69%	96.34%	96.11%	95.94%	95.87%	95.47%	95.77%	95.94%	96.68%
07:00	94.69%	94.83%	93.24%	92.81%	92.77%	93.81%	93.50%	92.65%	92.26%	92.40%	95.19%	96.17%	95.94%	95.33%	95.49%	94.68%	93.07%	94.25%	94.22%	96.25%
08:00	93.67%	93.16%	92.51%	93.54%	91.69%	93.08%	92.44%	90.99%	91.01%	90.92%	95.76%	94.24%	92.80%	93.30%	93.84%	94.68%	91.47%	91.83%	94.04%	95.15%
09:00	93.72%	92.16%	91.44%	92.18%	91.08%	91.82%	91.69%	90.32%	90.31%	90.13%	94.68%	94.83%	92.48%	93.63%	92.95%	94.34%	90.86%	92.52%	92.96%	94.82%
10:00	93.01%	91.63%	91.91%	90.93%	90.02%	91.15%	90.75%	89.58%	89.40%	89.00%	93.32%	93.00%	92.51%	92.63%	90.04%	92.45%	90.25%	92.04%	91.58%	94.65%
11:00	92.94%	90.39%	91.54%	90.52%	89.48%	90.85%	90.74%	89.66%	89.53%	87.89%	93.23%	93.19%	92.17%	92.72%	90.83%	90.81%	90.05%	91.67%	91.03%	93.23%
12:00	91.94%	91.14%	90.92%	90.65%	89.76%	90.13%	89.66%	87.99%	88.30%	87.91%	91.49%	91.82%	90.34%	91.52%	90.58%	92.03%	89.03%	92.05%	91.38%	93.04%
13:00	90.84%	89.94%	90.44%	90.00%	89.23%	90.32%	89.35%	88.34%	88.80%	88.06%	93.19%	92.01%	90.30%	91.55%	90.79%	91.60%	90.09%	91.25%	92.59%	93.27%
14:00	90.56%	90.75%	90.02%	89.46%	89.68%	89.60%	88.21%	88.02%	88.57%	87.72%	93.14%	90.74%	91.15%	91.86%	91.40%	91.15%	89.68%	91.13%	91.40%	92.91%
15:00	90.40%	90.20%	89.68%	87.69%	88.96%	89.73%	88.55%	87.94%	87.51%	88.57%	93.07%	90.77%	90.89%	90.32%	91.30%	92.42%	89.85%	90.20%	91.94%	93.62%
16:00	91.31%	90.36%	88.60%	88.12%	88.63%	88.89%	87.92%	87.79%	87.17%	88.05%	91.09%	89.57%	90.81%	90.04%	90.87%	92.69%	89.45%	90.05%	91.32%	92.85%
17:00	90.07%	89.35%	88.63%	87.79%	88.18%	89.70%	88.59%	88.43%	87.61%	87.65%	92.18%	90.97%	91.15%	91.15%	90.14%	91.91%	90.14%	89.69%	91.30%	92.06%
18:00	90.74%	89.46%	88.40%	88.58%	88.77%	89.88%	88.73%	88.64%	88.39%	87.90%	91.48%	91.74%	91.05%	90.62%	91.45%	90.74%	89.80%	90.18%	91.33%	91.82%
19:00	90.87%	90.36%	89.94%	89.44%	89.22%	90.49%	89.11%	88.56%	88.54%	88.16%	92.41%	91.68%	92.18%	91.13%	91.30%	92.81%	89.29%	92.28%	92.84%	92.55%
20:00	91.54%	91.36%	90.07%	89.46%	90.35%	90.99%	89.69%	89.76%	89.20%	90.14%	92.37%	91.94%	92.45%	92.43%	92.51%	93.58%	91.74%	93.68%	92.69%	93.47%
21:00	92.08%	91.69%	89.33%	89.10%	89.65%	91.11%	90.94%	90.22%	90.41%	90.23%	93.43%	93.95%	93.28%	93.31%	93.71%	94.26%	91.79%	93.47%	94.00%	94.06%
22:00	92.94%	92.04%	90.31%	91.21%	90.81%	92.42%	91.68%	90.86%	91.11%	91.01%	94.81%	93.47%	93.35%	94.25%	93.42%	94.18%	94.10%	94.19%	94.52%	94.39%
23:00	93.00%	92.26%	91.54%	91.18%	91.17%	92.28%	91.61%	90.99%	90.91%	90.71%	94.37%	93.86%	93.47%	93.61%	93.33%	94.15%	92.33%	93.48%	93.81%	94.77%

Compliance with the Growth management Act (GMA) requires adoption of at least a six-year funding plan. The funding plan in Table 3 has been updated and balanced through 2025 to comply with this requirement.

Table 2 2018 Fire Impact Fees

LOS Formula Calculation							
Land Use Type	System wide C&E	Res/Com Split	Usage Factor	ERF Factor	New Dev Share	Projected New Units 2014 - 2035	Impact & LOS Contribution Fee
Residential							
Single Family	\$107,808,000	60%	54%	1.13	80%	16,884 living units	\$1,870.20
Multi Family	\$107,808,000	60%	46%	1.4	80%	16,884 living units	\$1,973.80
Commercial							
COMM/IND	\$107,808,000	40%	23%	2.75	85%	12,500,000 sq ft	\$1.85
HOSP/MED/CIV/SCH/CHUR	\$107,808,000	40%	26%	2	95%	12,500,000 sq ft	\$1.70
Sr/ASSISTED CARE	\$107,808,000	40%	21%	3	95%	12,500,000 sq ft	\$2.06
SERVICE-hotel/restaurant/etc	\$107,808,000	40%	20%	2	95%	12,500,000 sq ft	\$1.31

Table 3 Six-Year Funding Plan



6 - Year Cost/Funding Sources for Capital Needs

Costs in thousands based on 2019 dollars

Cost/Funding Source	2020	2021	2022	2023	2024	2025	Totals
Capital Expenses							
Station Construction & Land Purchase	\$659	\$533	\$723	\$1,404	\$4,115	\$2,424	\$9,856
Apparatus	\$2,928	\$4,088	\$1,069	\$75	\$1,615	\$0	\$9,776
Equipment	\$587	\$450	\$438	\$509	\$733	\$405	\$3,121
Asset Preservation	\$500	\$727	\$337	\$106	\$211	\$171	\$2,051
I.T. Capital	\$1,628	\$838	\$669	\$680	\$765	\$552	\$5,131
Revenue Sources							
Annual Tax Revenue to Capital	\$4,498	\$4,410	\$2,247	\$1,599	\$3,540	\$1,646	\$17,939
Sale of Surplus Property	\$0	\$250	\$0	\$0	\$0	\$0	\$250
Covington Impact Fees	\$58	\$300	\$49	\$21	\$54	\$24	\$506
Kent Impact Fees	\$619	\$711	\$693	\$979	\$3,680	\$1,748	\$8,430
Level of Service Fees	\$88	\$70	\$77	\$12	\$18	\$5	\$271
King County Radio Program	\$0	\$0	\$60	\$60	\$0	\$0	\$120
Apparatus Grant	\$525	\$0	\$0	\$0	\$0	\$0	\$525
Maple Valley ILA Capital	\$160	\$31	\$31	\$31	\$101	\$71	\$427
SeaTac ILA Capital	\$354	\$862	\$78	\$71	\$45	\$58	\$1,468
Summary of Revenues less Expenses							
Expense	\$6,302	\$6,635	\$3,236	\$2,773	\$7,438	\$3,552	\$29,936
Revenue	\$6,302	\$6,634	\$3,236	\$2,773	\$7,438	\$3,552	\$29,935
Balance	\$0	\$0	\$0	\$0	\$0	\$0	\$0



2 Background and Demographics

Puget Sound Fire (PSF) is an independent special purpose district legally formed under Chapter 52 of the Revised Code of Washington providing fire and rescue services to nearly 109 square miles of urban and rural area. Services provided are delivered 24 hours per day, 365 days per year through career firefighters and support staff. Services delivered by the PSF include: fire suppression, fire prevention and code enforcement, fire investigations, emergency medical services (EMS), non-emergent medical services, hazardous materials response, specialized rescue services, emergency management services, and public education in fire prevention and life safety.

The current service area includes all of the cities of Covington, Kent, Maple Valley and SeaTac, as well as unincorporated areas of King County within Fire Districts 37 and 43. Generally, PSF's service area borders Renton and Tukwila to the north, the Cascade foothills to the east, Auburn to the south and Burien, Des Moines and Federal Way to the west. Current 2019 population of the PSF service area is estimated at 225,630.¹

For purposes of this plan, capital improvements are defined as real estate, structures or collective equipment purchases anticipated to have a cost of \$5,000 or more and an expected useful life of at least 3 years.

This update utilizes the service standards adopted by PSF in its 2019 Standard of Cover (SOC). These standards are used to identify gaps in service compared to adopted standards and guide capital resource planning to help close this gap and sustain and/or improve current services while concurrently absorbing the service impacts of new development and community growth. The resources identified in this 6-year plan work toward implementing the deployment strategies identified in PSF's 2014 – 2035 Master Capital Plan and 2019 Standard of Cover.

Diminishing service capacity is the primary service risk identified in this plan². Fire service capacity is evaluated upon the ability of current deployed resources to meet established levels of service. For example, a fire station with three apparatus bays and the infrastructure required to support three or more emergency response units has reserve capacity when only one or two units are staffed and deployed from that station. Additionally, a specific response resource that meets its level of service objectives and is reliably available for service at least as often as it is expected to meet its level of service objective, has reserve capacity. The PSF's goal is to deliver service at adopted levels, nine times out of 10, or a service expectation that meets adopted standards 90% of the time.

Fire service capacity is also measured with consideration of future growth and the fire service capacity that future growth will erode when built. This Plan identifies:

- The current demographics of the PSF
- The inventory of existing capital resources

¹ Washington State Office of Financial Management April 2017 with estimates of fire district 37's unincorporated area based upon housing counts and 3 persons per dwelling

² See Table 13



- The recent historical performance to the adopted standards
- The need for additional resources over the next six years
- The funding plan to implement the needed resources through 2023.

2.1 SeaTac Service Area

PSF provides fire-based services to the City of SeaTac through a contract for service that began January 1, 2014. SeaTac’s area covers approximately 10 square miles surrounding the Port of Seattle Airport and has a 2019 population of 29,180.

Two fire stations owned by SeaTac are leased and operated by the PSF under the service contract. All other capital resources previously owned by SeaTac prior to 2014 have been transferred to the ownership of the PSF. As a condition of the service contract, SeaTac provides an annual capital payment to the PSF for funding the equipment that was transferred but has retained responsibility for the capital costs of fire stations. Consequently, this plan does not address capital fire station needs in the SeaTac service area.

2.2 King County Fire District #43 Service Area

PSF provides fire-based services to King County Fire District #43 (FD43) area through a contract for service that began October 1, 2018. The FD43 area covers approximately 51 square miles and includes the City of Maple Valley, the areas of Hobart and Ravensdale, as well as a large unincorporated area of rural land. The 2019 population of the FD43 area is 42,326³.

Six (6) fire stations are owned by FD43. Three stations are staffed by volunteers that remain part of FD43. The other three stations are operated by PSF under the service contract. Most other capital resources previously owned by Maple Valley prior to 2018 have been transferred to the ownership of the PSF. As a condition of the service contract, FD43 continues to fund fire stations and provides an annual capital payment to PSF to assist funding other resource needs.

³ Based upon the Office of Financial Management and 2010 census housing occupancy counts in unincorporated areas.



3 Community Growth and Impacts of Growth 2020 – 2025

In the post-Great Recession years from 2010 to 2016, PSF's population grew at its slowest 6-year rate in more than 30 years. Despite the recession, population growth within the legacy (Kent & Fire District 37) service area grew on average 1.4% per year from 2000 to 2019 with Covington experiencing a slightly higher growth rate than Kent. The unincorporated areas grew by less than a half percent per year (See Table 5)

Over the past five years (2014 – 2018) annual service demand grew in all urban areas as shown in Table 4 below.

Table 4: Incident Growth - 2014 - 2018

Five Year Service Growth - Annual Incident Count								
Incident Growth Rank	Location	2014	2015	2016	2017	2018	5-Yr Growth	Yrly Growth
1	Covington	1215	1385	1353	1462	1487	22%	4.48%
2	Kent	14019	15632	16480	16457	16450	17%	3.47%
3	Dist 37 Urban	163	164	170	176	191	17%	3.44%
4	SeaTac	3698	3979	4108	4296	4301	16%	3.26%
5	Dist 43	2451	2526	2348	2605	2376	-3%	-0.61%
6	Dist 37 Rural	283	283	239	266	263	-7%	-1.41%

Table 5 Population and Housing Growth Projections⁴

Service Area	2000 Actuals		2014 Actuals		2019 Actuals		2023 Estimates		2035 Estimates	
	Housing Units	Population	Housing Units	Population	Housing Units	Population	Housing Units	Population	Housing Units	Population
Covington	4,203	13,783	6,368	18,480	6,964	20,280	8,074	21,679	10,294	29,977
Kent	32,488	79,524	46,417	121,400	48,228	129,800	50,551	136,052	57,275	154,149
King Co Dist 37	9,950	27,362	2,015	5,542	2,203	6,423	2,406	6,414	2,711	7,226
Sub-Total	46,641	120,669	54,800	145,422	57,395	156,503	61,031	164,145	70,280	191,352
SeaTac	10,176	25,496	10,404	27,110	10,505	28,850	10,884	28,298	11,808	30,112
Maple Valley	7,997	22,684	8,473	24,230	9,280	26,180	9,520	26,762	10,522	29,579
King Co Dist. 43	5,027	15,584	5,405	16,755	5,540	17,174	5,596	17,348	5,764	17,868
Total	69,841	184,433	79,082	213,517	82,720	228,707	87,031	236,553	98,374	268,911

The Puget Sound Regional Council's regional plan "Vision 2040," identifies Kent as both a residential and commercial/industrial growth center, making it likely that growth rates in Kent will exceed the past 20-year rate of 1.35% per year.

⁴ Figures for 2000 to 2016 are actual counts from the Office of Financial Management, 2021 and 2035 are based upon OFM and Comprehensive Plan estimates of Covington and Kent



Table 6 below provides both a low and high range estimate of commercial growth. Continued growth at the 2013 to 2016 rate of 1.35% per year is the “Low” estimate for 2023 and 2035, and the “High” estimate uses a growth rate of 1.98% per year and more closely relates to market growth prior to the Great Recession and current growth rates. Both of these estimates are dependent upon buildable lands and future market rates.

Table 6 Commercial Growth Rates 2015 & 2018 with estimates for 2023 & 2035

Year	2015	2018	2023		2035	
	Actual	Actual	Low Estimate	High Estimate	Low Estimate	High Estimate
Commercial Growth in Square Feet	64,995,002	66,706,173	69,658,822	76,830,159	77,289,479	104,177,996

3.1 Impacts of Future Growth – Legacy Kent / District 37 Service area

Both low and high estimates of housing and population growth are evaluated to determine the impacts in terms of request for services or emergency “incident” growth through 2035. The average of these two methods has been used to predict the future service demand in terms of emergency incidents as a result of growth. The method in Table 7 below predicts future service demand for the legacy service area of Covington, Kent and Fire District 37. The projections are based on the 2018 total incident count (excluding the Maple Valley and SeaTac area) of 21,593. Using this methodology, PSF expects to see an incident volume growth of 7% by 2023 resulting in approximately 23,157 incidents in this geographic area. Estimates out to 2035 result in a 34% incident growth rate reflecting approximately 28,828 incidents for this same area.

Table 7 Incident Growth Projections (Less SeaTac & Maple Valley)

Type	2015	2018	2018 Total Incidents	2018 Incident Rate Per Unit	2023 Low Housing Commercial Unit Count	2023 High Housing Commercial Unit Count	Average Projected Incident Count 2023	2035 Low Housing Commercial Unit Count	2035 High Housing Commercial Unit Count	Average Projected Incident Count 2035
Housing Units	55,579	56,210	12,956	0.230	60,108	62,000		70,602	78,446	
Commercial Space	64,995,002	67,261,512	8,637	0.000128	68,462,395	73,028,272		77,289,479	104,177,996	
Total Low Incidents 2018 Rates			21,593		22,646	23,668	22,646	26,198	31,459	26,198
Total High Incidents 2018 Rates			21,593				23,668			31,459
Average of Both Methods			21,593				23,157			28,828



3.2 Impacts of Future Growth – All Service Areas

Table 8 more closely relates to the actual service impacts to be expected through 2035 and uses the entire area that Puget Sound Fire delivers service to including Maple Valley, SeaTac and the automatic aid requests from neighboring agencies. The total impact of the 10,000 more emergency requests for service estimated in Table 8 may require five additional response resources and associated staffing to maintain current levels of service. It is likely more than five response resources will be required to achieve the service levels adopted in the PSF 2019 Standard of Cover.

Table 8 Incident Growth Projections All Service Areas

Type	2018	2018 Total Actual Incidents	2018 Incident Rate Per Unit	2023 Low Housing Commercial Unit Count	2023 High Housing Commercial Unit Count	Average Projected Incident Count 2023	2035 Low Housing Commercial Unit Count	2035 High Housing Commercial Unit Count	Average Projected Incident Count 2035
Housing Units	82,720	17,133	0.207	87,031	91,240		103,900	115,442	
Commercial Space	75,561,300	11,422	0.000151	77,550,657	81,538,081		87,549,521	116,317,609	
Total Low Incidents 2018 Rates		28,555		29,749	31,223	29,749	34,754	41,493	34,754
Total High Incidents 2018 Rates		28,555				31,223			41,493
Average of Both Methods		28,555				30,486			38,124

3.2.1 Growth Remains Consistent with the 2014 – 2033 Master CFEP

The pattern of growth and estimates of future impacts on service demand remain consistent with the 2014 - 2033 Master Facilities & Equipment Capital Plan for the legacy Puget Sound Fire service area. As a result of this evaluation, the projected new dwelling units and commercial square footage estimates used in calculating impact fees shown in Table 2 remain as used in previous versions.



4 Current Capital Resources

Capital resources for PSF consist of fire stations, fire apparatus (vehicles used for fire and rescue work), staff vehicles and the related equipment, tools and personal protection equipment needed to safely and legally provide fire and rescue services.

4.1 Influence of Public Protection Class Rating (PPC)

Since 1909, the Municipal Inspection and Grading System and its successors have been an important part of the underwriting and rating process for insurers writing personal and commercial fire policies. Washington State's Survey and Rating Bureau (WSRB) service is a direct descendent of the earlier grading systems and is derived from the Insurance Services Office (ISO) rating system. The PPC program gives insurers credible data to help develop premiums that fairly reflect the risk of loss in a particular location.

In each Washington community, WSRB analyzes relevant data and then assigns a Public Protection Classification from 1 to 10. Class 1 represents exemplary public protection, and Class 10 indicates an area without fire protection. Insurance companies use PPC information to help establish fair premiums for fire insurance, generally offering lower premiums in communities with better protection. It is estimated that property owners in the PSF service area save more than \$30 million each year in reduced premiums compared to not meeting the ISO/WSRB's minimum criteria.

A community's PPC rating depends on:

- **Emergency Communications Systems:**
A review of the fire alarm/911 system accounts for 9% of the total classification. The review focuses on the community's facilities and support for handling and dispatching fire alarms.
- **Fire operations & deployment:**
A review of the fire department accounts for 40% of the total classification. The focus is on a fire agency's first-alarm response and initial attack to minimize potential loss. Here, WSRB reviews the adequacies of such items as engine companies, ladder or service companies, distribution of fire stations and fire companies, equipment carried on apparatus, pumping capacity, reserve apparatus, department personnel, and training.
- **Fire Safety Control:**
A review of the community having jurisdiction's (Covington, Kent, King County, SeaTac, Maple Valley) ability to adopt and enforce effective building codes makes up 16% of the total PPC scoring. This is based upon the jurisdiction's practices to adopt codes, train and staff personnel to enforce these codes, and public awareness programs to their adopted building codes. Further evaluation looks at the process in place to review plans of new buildings to ensure structures are code compliant and ongoing inspections of existing buildings for code compliance.
- **Jurisdictional water supply:**
The jurisdiction's water-supply system accounts for 35% of the total classification. WSRB reviews the water supply a community uses to determine the adequacy for fire-suppression purposes. They also consider hydrant size, type, and installation, as well as the inspection



frequency and condition of fire hydrants. In rural areas that lack hydrants, a “tender credit” can be applied when the Department maintains the ability to supply an adequate water supply using water tenders. This credit applies in the Fire District 43 rural areas due to their existing water tender infrastructure.

4.1.1 Limitations of Deployed Resources to Preserve PPC

Because the PPC rating criteria that most affects overall rating is the deployment of resources for fire protection, PSF must maintain the fire protection equipment, staffing and deployment that supports its current PPC rating. PSF recognizes the cost savings that could be realized by deploying lighter, cheaper, more maneuverable response vehicles to respond to EMS emergencies. However, such a move would negatively impact PSF’s current PPC rating which currently saves the citizens of PSF more than \$30 Million in insurance premiums. To deploy both types of vehicles, additional staffing would be required. Currently, PSF does not have the funding to accomplish this type of deployment and will continue to maintain its firefighting resources first to preserve or improve PPC ratings.

4.2 Fixed Facilities

4.2.1 Fire Stations – Legacy Kent/District 37 Service Area

Emergency services for capital planning purposes, originate from eight fire stations (Stations 71, 72, 73, 74, 75, 76, 77, and 78) located throughout the service area (not including Maple Valley or SeaTac) as identified in Table 9 and the map in Figure 1 shown below. The average PSF fire station is 29 years old with the capacity for three emergency response apparatus and is 14,675 square feet in size. Individual stations range in size from just under 8,000 to more than 26,000 square feet where training facilities are included. Currently, only stations 71 and 74 maintain more than one front line response apparatus with minimum staffing levels. Seven of eight stations have some reserve capacity in the form of apparatus bays and dorm rooms. However, to utilize this capacity, additional climate-controlled space is required to house the reserve apparatus, alternative response vehicles, and other associated equipment that is currently stored in existing apparatus bays.

4.2.2 Support Facilities

Support facilities include space and equipment for emergency management functions, fire-training, apparatus & vehicle maintenance, facilities maintenance, planning, information technology, CARES, logistics, and a roadway. An inventory of these facilities is found in Table 9 below.

4.2.2.1 Roadways - 72nd Ave South

An unfinished segment of 72nd Ave South, immediately north of Station 76, was completed on June 28, 2017 as part of a cost saving partnership between PSF and the City of Kent. PSF contributed a total of \$1.2 million to complete the project. As a result of the improved accessibility and resulting reduced drive times, PSF’s performance in the Station 76 response area improved, eliminating the need for a future fire station to address long response times. PSF’s total contribution to the project was equivalent to less than one year’s cost of wages and benefits to staff a new fire station and cost approximately 80% less than building a new station based on 2017 cost estimates.



Table 9: Puget Sound Fire, Station & Support Facility Inventory

Fire Station/Facility	Location	Size	Built	Yrs in Svc	Acquired	Capacity (Bays)	Cond	Acres	Dorm Beds
Kent Fire Stations-All owned and/or maintained by PSF									
Station 71	504 West Crow Street	10,858	1964	55	2010	3.5	Fair	1.05	10
Station 72	25620 140th Ave SE	7,772	1982	37	2010	3	Fair	0.91	6
Station 73	26512 Military Road South	13,000	1990	29	2010	3	Good	4.69	9
Station 74	24611 116th Ave SE	26,653	1990	29	Lease 2010	3	Good	8.66	17
Station 75	15635 SE 272nd Street	12,425	1990	29	Lease 2010	3	Good	4.18	14
Station 76	20676 72nd Ave S	13,104	1989	30	2010	3	Good	2.80	9
Station 77	20717 132nd Ave SE	15,900	2001	18	2010	3	Good	1.98	8
Station 78	17820 SE 256th Street	17,685	2009	10	2010	4	Good	3.10	10
Sub-Total	Totals	117,397		237		25.5		27.37	83
Accessory Structures Owned, Maintained or Funded by PSF									
EM	24425 116th Ave SE	2,860	1963	56	2010		Good	0.23	
Training Tower	24523 116th Ave SE	4,652	1990	29	Lease 2010		Good	N/A	
Training Annex	24524 116th Ave SE	1,152	2005	14	2005		Poor	N/A	
Apparatus Shop	20678 72nd Ave S	10,865	1989	30	2010	4	Good	N/A	
Logistics Center	8320 S 208th Street	20,000	1979	6	2013		Good	N/A	
Office Annex	20811 84th Ave S	78,320	1968	8	2012		Low	5.81	



4.3 Mobile Resources

Specific inventories of mobile resources are found in the Appendices of this Plan.

4.3.1 Apparatus Life Cycle Policy

Agencies with workload similar to the PSF utilize a life cycle for heavy apparatus of 10 years front line and 5 or 10 years in reserve status for a total in-service life of 15 or 20 years. Recent studies have shown that the maintenance cost and decreased residual value of 20-year-old fire engines is less cost effective than shorter life cycles of 15 years. Based on the results of this study, PSF's long-term policy will be to continue with a 10-year front line life cycle but shorten the reserve life cycle from 10 to 5 years. This shorter time in service allows for significantly higher surplus values when the apparatus are sold following their time in service. Studies show this also reduces overall maintenance costs and downtime while providing greater savings than longer life cycles.

4.3.2 Fire Engines

PSF fire engines are specialized apparatus equipped with pumps capable of up to 2,000 gallons per minute or more of fire flow when connected to a hydrant. They carry onboard water supplies of 500-700 gallons and a compliment of ground ladders, hoses, nozzles, firefighting and EMS equipment necessary to respond to a wide variety of alarm types. The current inventory of eleven front line fire engines has an average age of thirteen years with an average mileage of 73,572. According to the National Fire Protection Association's 2016 US fire needs assessment, only 43% of the nation's fire engines are 15 years of age or older.

4.3.3 Quints

A Quint is a multi-purpose apparatus that is essentially a cross between a fire engine and a ladder truck. They are capable of pumping fire flows like a fire engine yet are also equipped with a mechanical aerial ladder similar to, but shorter than a traditional ladder truck. PSF has two Quint units equipped with 800 gallons of water, 2,000 gallon per minute pumps and 65-foot mechanical aerial ladders. The quints also carry a compliment of ground ladders, hoses, nozzles, firefighting and EMS equipment similar to a fire engine. PSF's quints are located at Station 76 in the industrial north end of the Kent Valley, and at Station 75 near Covington. They are both 9 years old, have an average mileage of 74,430 miles and are currently experiencing higher occurrence of maintenance issues than the PSF fire engines or ladder trucks.

4.3.4 Ladder Trucks

Both front line ladder trucks are tillered, meaning they are built on a tractor-trailer platform. The trailer portion has steerable rear wheels that allow these units to maneuver into very tight locations with their more than 100-foot ladders. One ladder truck is located at Station 74 and the other at Station 46. Apparatus 713, (Ladder 74) is 13 years old with 79,236 miles. Apparatus 768 (Ladder 46) is three years old with 32,769 miles. The average age of the two front line ladders is eight years old with an average mileage of 56,000 miles. Reserve apparatus 715 is 23 years old with over 102,000 miles.



4.3.5 Aid Cars

Aid Cars are licensed ambulances that also carry basic firefighting tools and protective equipment to support their two-person staffing. These vehicles primarily respond to medical emergencies and augment fire staffing required to maintain the PSF's Public Protection Class ratings.

4.3.6 Command and Staff Vehicles

Command and staff vehicles are utilized to support both emergency and non-emergency operations of PSF. Command and staff vehicles are specially outfitted with specialized equipment and communications gear necessary to support the mission they are assigned to.

4.4 Equipment

A full complement of special equipment is necessary for the delivery of fire and rescue services. Special equipment includes all of the equipment within fire stations or carried on fire engines and other apparatus that allow firefighters to safely and effectively deliver services. Section 9 – Appendices, provides a listing of the equipment maintained by PSF.



5 Standards of Service

5.1 Time and Origin of Standards

Time to arrival at the scene of an emergency is critical in the survival of a non-breathing patient and the control of fire growth. The longer it takes trained fire personnel to arrive at the scene of an emergency, the greater the chance of poor outcomes regarding fire and life loss⁵. As a result, the standards identified and adopted herein are based upon industry best practices. Industry standards have been established by the National Fire Protection Association (NFPA) and the Center for Public Safety Excellence (CPSE). In some cases, PSF's level of service time standards are greater than NFPA's expectations by 1 minute and 40 seconds for first to arrive units, and six (6) minutes over NFPA expectations for arrival of the full first alarm assignment.

5.2 Emergency response

Achievement of drive time standards are influenced by the location of fire service resources. If a service area is located too far from a fire station (poor distribution), it is unlikely that travel time objectives will be met. If distributed resources are over-used because of high demand, their capacity becomes "unreliable" to meet additional demand at adopted levels of service. When units become unreliable, units from farther away must respond in place of the busy home area unit, causing increases in arrival times. If too few resources exist, and fire resources from other fire departments are needed to backfill for busy units, the consequence is extended drive times resulting in increased total response times and higher levels of risk for life and property loss.

5.3 Benchmark / Baseline Gap Performance and Relation to Staffing

PSF uses adopted Benchmark performance levels as those levels of service to be achieved as capital facilities and resources are funded, deployed, and staffed. Baseline levels of service represent the actual performance achieved over the previous 5-years. PSF's goal of capital planning is to close the gap between baseline and benchmark performance. The CPSE annually reviews PSF's baseline performance to assure progress toward achieving benchmark expectations. Failure to progressively improve toward benchmark expectations can lead to loss of accredited agency status.

The gap between the two performance standards (benchmark and baseline) should close as funding becomes available to implement the capital needs identified in the 2014 – 2033 PSF Master Capital Plan and this 2020 – 2025 six-year update of that Plan. Operational funding of additional staff is also required to close the resource gap. Where additional response stations and apparatus are required, PSF must also fund the annual operational cost of additional firefighters and support staff.

5.4 Components of Response Performance

There are three measured components of "Total Response Time" and one currently unmeasured component as described below:

⁵ See section 5 and of the Puget Sound Regional Fire Authority Mitigation and Level of Service Policy for additional detail and consequences of long response times.

5.4.1 Alarm Handling Time

Alarm handling is completed at Valley Communications Center, the public safety answering point (PSAP) agency available to PSF. Alarm handling is the total time elapsed from the pick-up of a 911 call until enough information is collected to dispatch appropriate resources.

5.4.2 Turnout Time

Turnout refers to the total time it takes firefighters to discontinue their current task, assess dispatch information, don appropriate personal protective gear, and become safely seat-belted in the response apparatus and ready to begin their response. Turnout time ends and drive time begins when the response vehicle begins to move.

5.4.3 Drive Time

Drive time begins when the response vehicle's wheels begin to roll and ends once the response vehicle arrives at the curbside address of the dispatched incident. When added together, alarm handling plus turnout plus drive time equals total response time.

5.4.4 At Patient Side or Water on Fire

Currently, the time it takes to move from curbside at the given address to the location of the patient requiring assistance, or the time it takes to setup for firefighting operations until first water is applied to a fire is not tracked. Technology to track this critical time is just now becoming available.

5.5 Deployment and Performance Measures of Response Resources

The performance measure directly in PSF's control is the "Dispatch to Arrival Interval" and consists of "Turnout time + Drive time". This measure assesses response time performance against two deployment practices, distribution and concentration.

5.5.1 Distribution

Distribution refers to how fire stations and resources are distributed around a service area to achieve defined levels of service goals for first units to arrive. Distribution can be referred to as the "speed of attack" or the first unit to arrive. Achievements of first unit arrival time objectives indicate that fire stations are properly distributed throughout the service area.

5.5.1.1 Distribution / First unit to arrive - Service Capabilities:

The first unit arriving at the scene of an emergency staffed with a minimum of 2 firefighters on an Aid Car, or 3 firefighters on an Engine, shall be capable of; establishing command, calling for additional resources, extending appropriate hose line(s), and/or beginning delivery of basic life support and/or rescue services. These operations are done in accordance with Department standard operating procedures while providing for the safety of the general public and responders.

5.5.2 Concentration

Concentration refers to the number of resources that can be assembled or "concentrated" at the scene of an emergency. Concentration can be referred to as the "force of attack" or full

first alarm assignment. Concentration resources need to provide the quantity of resources necessary to stop the escalation of an emergency. If an agency cannot distribute and concentrate adequate resources, fire and life loss will be higher when compared to the timely arrival of adequate resources.

5.5.2.1 Concentration / Minimum Effective Response Force

The minimum effective response force (MERF) consists of the arrival of at least 3 apparatus with a minimum of 8 firefighters. The MERF is capable of: establishing command, providing an uninterrupted water supply, advancing an attack line and a backup line for fire control, complying with the Occupational Safety and Health Administration (OSHA) requirements of two-in/two-out for firefighter rescue, completing forcible entry, and searching and rescuing at-risk victims. These operations shall be done in accordance with the Department's standard operating procedures while providing for the safety of responders and the general public.

5.5.2.2 Concentration / Full first alarm – Service Capabilities:

The full first alarm consists of all the dispatched resources arriving at the scene of an emergency. Depending on incident type, this number can range from 5 personnel for a routine alarm to 28 personnel for a commercial fire. The full first alarm resources shall be capable of: establishing command, providing an uninterrupted water supply, deploying hose lines for fire control and suppression, complying with the two-in/two-out law for firefighter rescue, completing forcible entry, ventilating smoke, controlling utilities, and/or rescuing and treating sick, injured, or at-risk victims. These operations are done in accordance with departmental standard operating procedures while providing for the safety of the general public and responders.

5.6 Benchmark and Baseline Level of Service Objectives:

Table 10 establishes the service level objectives for Alarm Handling, Firefighter Turnout, drive time expectations of distribution (first unit) to arrive. Objectives for additional unit arrival standards are found in PSF's Standard of Cover Section 6. Benchmark levels of service are targeted for achievement as additional resources identified in this Plan and the Master CFEP are funded, implemented and staffed. Baseline performance objectives are the minimum levels of service PSF is currently capable of achieving and must be maintained or improved to retain status as an "Accredited Agency" through the Center for Public Safety Excellence.

5.6.1 Community Risk Types

Performance expectations have been established for two community risk types: urban and rural.⁶ Both benchmark and baseline objectives are shown in Table 10 and Table 11. Urban and rural areas are defined by the Urban Growth Boundary established by King County as shown in Figure 1.

5.6.2 Performance Measured

Washington State's Chapter 52.33 RCW requires performance measures meaningful to flashover and brain death to be established, performed, and reported at the 90th percentile. If response times of

⁶ See section 4.2.1.7 of the 2014-2033 PSF Capital Facilities and Equipment Plan.

100 incidents were stacked from quickest to slowest, the time of the 90th incident is the time used to measure service delivery at 90%.

5.6.3 Performance Expectations

The following tables outline the standards adopted by PSF for fire and EMS incidents in the “Urban” and “Rural” service areas by level of risk. Urban standards are shown in Table 10 below, and Rural standards are shown in Table 11 below. Full performance standards for all incident types and risk categories are found in PSF’s 2019 Standard of Cover, Section 6 – “Standards, Goals, and Objectives.”

Table 10: Benchmark Level of Service Objectives – Urban Areas

• Urban Service Area:	
○ Low Risk	
○ Fire	Dispatch (1:10) + Turnout (1:55) + Drive Time (5:35) = 8:40
○ EMS	Dispatch (1:30) + Turnout (1:45) + Drive Time (10:15) = 13:30
○ Moderate Risk	
○ Fire	Dispatch (1:10) + Turnout (1:55) + Drive Time (4:35) = 7:40
○ EMS	Dispatch (1:10) + Turnout (1:45) + Drive Time (4:35) = 7:30
○ High Risk	
○ Fire	Dispatch (1:10) + Turnout (1:55) + Drive Time (4:35) = 7:40
○ EMS	Dispatch (1:10) + Turnout (1:45) + Drive Time (4:35) = 7:30

Table 11 Benchmark Level of Service Objectives –Rural Service Area

• Rural Service Area:	
○ Low Risk	
○ Fire	Dispatch (1:10) + Turnout (1:55) + Drive Time (7:35) = 10:00
○ EMS	Dispatch (1:30) + Turnout (1:45) + Drive Time (13:15) = 16:30
○ Moderate and High Risk	
○ Fire	Dispatch (1:10) + Turnout (1:55) + Drive Time (6:30) = 9:35
○ EMS	Dispatch (1:10) + Turnout (1:45) + Drive Time (6:30) = 9:25



5.6.4 Resource Capacity

Finally, resource capacity is evaluated. The fire service refers to this measure as “reliability” and is measured through “unit hour utilization” and the reserve availability of specific response units. If an emergency response unit was in its assigned location 24 hours a day and never called upon for service, it would have a unit hour utilization of 0.00% and reliability of 100%. But, if an emergency response unit is expected to provide a level of service performance at 90%, or 9 times out of every ten requests, that unit must be available or “reliable” for providing service when called upon at least 90% of the time or it will likely fail in its performance expectation. Unit reliability is the best predictor of service capacity of deployed units. As workload or unit hour utilization increases, reliability decreases.

Table 12: Response Unit Reliability Objectives

Minimum RELIABILITY Objectives			
Performance Type	Urban	Suburban	Rural
Minimum Peak Hour Unit Reliability	90%	90%	90%



6 PSF Service Level Performance

6.1 Response Performance Findings

Analysis of PSF's historical response data reveals sub-standard performance compared to benchmark expectations⁷. Several factors contribute to this current sub-standard performance. First, performance cannot be met during peak hours where workload and unit hour utilization is high and unit availability or reliability to its expected standard is low. Second, some areas of PSF simply cannot be reached within the adopted time standards because of excess distance from a fire station or increasing traffic congestion. Finally, latencies in current communications and alerting systems extend firefighter turnout times beyond benchmark standards.

6.1.1 Reliability Measure

Reliability is typically used as an indicator to monitor the need for additional resources. Reliability at or above 95% is considered to be reliable with reserve capacity. This is shown in Table 13 below as "Green." As reliability falls below 95% (displayed as yellow) it is time to begin planning for the deployment of additional resources to handle the increasing workload. Reliability below 90% (displayed as red) often prevents reliable achievement of response standards. Those units with reliability displayed in red have high unit hour utilization and are considered in resource exhaustion. Resource exhaustion begins to impact surrounding fire station response units when they are unavailable to cover the needs of their home area. As neighboring response units are drawn in to cover for areas in resource exhaustion, a ripple effect spreads outward with the consequence of longer response times as units must travel out of their home area to cover the deficient area. This ripple continues to spread during peak demand hours moving out to other fire stations and often to other jurisdictions.

6.1.2 Reliability & Mutual Aid

The measure to which reliability impacts other jurisdictions is seen in automatic mutual aid balances. Currently PSF maintains a deficit in mutual aid with all but one of its surrounding neighbors because of the need to use more outside resources than can be repaid through services given back to these mutual aid neighbors.

⁷ See PSF's 2019 Standard of Cover, Section 6 – Standards, Goals, and Objectives, Tables 35 – 40 for fire and EMS performance from 2014 - 2018



Table 13 Hourly Unit Reliability for the Year 2018

2018 Station Reliability															
	SeaTac			Kent-West	Kent-Central		Kent-East			Covington		Maple Valley			System Wide
Hour	Sta. 47	Sta. 46	Sta. 45	Sta. 73	Sta. 71	Sta. 76	Sta. 74	Sta. 77	Sta. 72	Sta. 75	Sta. 78	Sta. 80	Sta. 81	Sta. 83	Avg.
00:00	94.22%	93.66%	91.51%	92.65%	90.52%	95.54%	92.17%	92.61%	95.00%	95.42%	97.31%	97.69%	94.42%	98.05%	94.34%
01:00	93.94%	93.66%	91.54%	91.11%	91.80%	95.33%	92.75%	93.67%	94.72%	93.46%	96.05%	98.33%	94.65%	98.21%	94.23%
02:00	94.43%	94.75%	91.68%	91.49%	90.68%	94.29%	92.74%	93.16%	95.19%	95.68%	96.08%	98.13%	96.15%	97.82%	94.45%
03:00	94.69%	95.15%	92.39%	91.23%	91.46%	95.42%	93.09%	95.36%	95.42%	96.33%	96.49%	97.46%	97.03%	97.57%	94.93%
04:00	94.77%	94.78%	94.10%	92.37%	91.43%	93.57%	94.32%	93.71%	95.81%	95.26%	97.05%	97.89%	95.34%	97.32%	94.84%
05:00	93.41%	95.57%	93.16%	91.61%	90.71%	92.52%	94.16%	93.17%	95.12%	95.95%	97.40%	97.89%	96.41%	97.27%	94.60%
06:00	94.42%	94.25%	91.76%	91.31%	89.71%	93.62%	91.57%	93.37%	93.91%	94.97%	96.91%	97.74%	95.15%	97.15%	93.99%
07:00	92.87%	93.72%	91.73%	92.34%	87.78%	91.16%	90.74%	92.06%	94.10%	94.32%	96.66%	97.92%	94.34%	96.50%	93.30%
08:00	91.44%	94.61%	89.02%	91.01%	85.61%	89.51%	90.54%	89.99%	93.06%	93.40%	94.28%	97.43%	92.51%	95.50%	91.99%
09:00	91.29%	92.79%	89.16%	89.08%	85.04%	90.03%	88.61%	90.39%	92.01%	90.46%	95.44%	95.56%	93.33%	95.56%	91.34%
10:00	87.62%	92.70%	89.75%	90.58%	86.66%	90.73%	86.42%	88.74%	88.77%	88.54%	91.55%	95.37%	92.85%	95.72%	90.43%
11:00	89.59%	92.14%	86.71%	88.12%	81.98%	90.30%	85.53%	88.13%	87.40%	89.65%	92.01%	94.50%	90.36%	94.83%	89.37%
12:00	89.71%	91.79%	87.78%	87.52%	84.15%	89.34%	86.08%	85.84%	89.18%	88.49%	92.67%	94.07%	90.32%	94.73%	89.41%
13:00	88.88%	91.39%	87.42%	88.37%	83.69%	88.27%	85.57%	86.22%	90.74%	90.36%	91.23%	94.07%	91.43%	94.32%	89.42%
14:00	88.28%	92.45%	88.32%	86.07%	81.88%	88.03%	85.79%	88.58%	88.63%	89.60%	93.19%	92.12%	92.20%	94.40%	89.25%
15:00	88.10%	92.55%	86.23%	87.58%	84.12%	89.52%	86.53%	88.92%	89.29%	89.80%	92.80%	94.39%	92.77%	93.69%	89.73%
16:00	87.80%	91.26%	86.82%	87.94%	81.09%	88.98%	85.33%	87.91%	91.39%	89.22%	92.51%	93.06%	91.23%	94.26%	89.20%
17:00	88.71%	91.31%	84.53%	87.40%	81.52%	88.15%	87.30%	86.65%	89.88%	88.27%	92.02%	92.90%	90.49%	92.80%	88.71%
18:00	88.13%	91.03%	87.14%	87.13%	80.91%	89.73%	84.73%	88.49%	89.34%	90.69%	92.21%	92.77%	89.67%	93.01%	88.93%
19:00	89.75%	90.79%	87.13%	86.21%	81.13%	90.33%	86.26%	88.24%	90.54%	89.59%	93.02%	93.09%	89.82%	94.75%	89.33%
20:00	90.36%	91.10%	89.59%	90.10%	84.11%	92.16%	87.11%	90.39%	92.21%	90.74%	94.27%	94.47%	91.27%	94.68%	90.90%
21:00	90.48%	91.33%	87.14%	88.23%	84.94%	92.95%	88.10%	87.64%	92.58%	91.97%	95.44%	96.11%	91.78%	94.28%	90.93%
22:00	90.58%	93.20%	88.64%	89.49%	87.00%	92.70%	89.85%	90.21%	92.04%	92.10%	94.74%	94.16%	94.01%	95.00%	91.69%
23:00	93.72%	95.43%	92.29%	94.25%	91.39%	96.27%	91.98%	93.91%	94.83%	96.48%	97.84%	97.28%	96.70%	97.43%	94.99%
Daily Avg	91.13%	92.98%	89.40%	89.72%	86.22%	91.60%	89.05%	90.31%	92.13%	92.11%	94.55%	95.60%	93.09%	95.62%	91.68%



7 Conclusion of Need for Capital Resources 2020 – 2025

Table 13 identifies the need for additional resource capacity where unit reliability is below 90%. Resource exhaustion to PSF’s response standards occur on a daily basis in most areas of Kent and some areas of Covington and SeaTac. As growth occurs, future reliability is expected to continue its decline for the foreseeable future. This will lead to steadily increasing response times unless strategies for additional resources and the staffing they require can be funded and deployed.

7.1 Planned Capital Funding 2014 – 2033

The 2014 – 2033 PSF Capital Facilities and Equipment Master Plan identified the need for more than \$87 million in capital investments to maintain fire service concurrency through 2033. The 2016 6-year plan explored two options to reduce the near-term cost of capital. First, less expensive alternatives to some resources identified in the Master Plan have been chosen. Next, life cycles of apparatus have been modified providing additional re-sale value to apparatus when they are finished serving PSF. These funds can assist in funding new capital reducing the need for new funding. In total, these changes reduced the cost of some of the resources needed in the next 6 years. However, escalating construction costs and inflationary increases have outpaced those savings and increased the overall capital funding need.

The additional cost associated with PSF’s portion of funding construction of 72nd Ave South, and the cost of maintaining the apparatus and equipment transferred from SeaTac and Maple Valley has been added into the total capital costs established in the Master Plan. Combined with the cost saving measures associated with the new apparatus life cycle plan, the current cost of the total 2014 Master Plan has increased from \$87.14 million to \$107 million in 2019. The largest portion of this increase comes from hard construction costs of needed fire stations.

7.1.1 Planned Capital Purchases 2020 – 2025

Table 14 below identifies the capital expenses to be incurred between 2020 and 2025 based upon the current known priorities and levels of service. Each year this table will be updated to reflect current known priorities and level of service needs.

Table 14: Six Year (2020-2025) Capital Costing

6 - Year Cost/Funding Sources for Capital Needs							
Costs in thousands based on 2019 dollars							
Cost/Funding Source	2020	2021	2022	2023	2024	2025	Totals
Capital Expenses							
Station Construction & Land Purchase	\$659	\$533	\$723	\$1,404	\$4,115	\$2,424	\$9,856
Apparatus	\$2,928	\$4,088	\$1,069	\$75	\$1,615	\$0	\$9,776
Equipment	\$587	\$450	\$438	\$509	\$733	\$405	\$3,121
Asset Preservation	\$500	\$727	\$337	\$106	\$211	\$171	\$2,051
I.T. Capital	\$1,628	\$838	\$669	\$680	\$765	\$552	\$5,131
Revenue Sources							
Annual Tax Revenue to Capital	\$4,498	\$4,410	\$2,247	\$1,599	\$3,540	\$1,646	\$17,939
Sale of Surplus Property	\$0	\$250	\$0	\$0	\$0	\$0	\$250
Covington Impact Fees	\$58	\$300	\$49	\$21	\$54	\$24	\$506
Kent Impact Fees	\$619	\$711	\$693	\$979	\$3,680	\$1,748	\$8,430
Level of Service Fees	\$88	\$70	\$77	\$12	\$18	\$5	\$271
King County Radio Program	\$0	\$0	\$60	\$60	\$0	\$0	\$120
Apparatus Grant	\$525	\$0	\$0	\$0	\$0	\$0	\$525
Maple Valley ILA Capital	\$160	\$31	\$31	\$31	\$101	\$71	\$427
SeaTac ILA Capital	\$354	\$862	\$78	\$71	\$45	\$58	\$1,468
Summary of Revenues less Expenses							
Expense	\$6,302	\$6,635	\$3,236	\$2,773	\$7,438	\$3,552	\$29,936
Revenue	\$6,302	\$6,634	\$3,236	\$2,773	\$7,438	\$3,552	\$29,935
Balance	\$0	\$0	\$0	\$0	\$0	\$0	\$0

7.2 Progress toward Planned Capital Purchases⁸

As a result of the Great Recession and the uncertainty of the economy during that time, PSF delayed some planned equipment purchases between 2014 and 2016 and placed funding toward the new Valley and Benson stations on hold. In 2018, an additional property was purchased for the Benson Station and The Valley Station is now scheduled for completion in 2025. The Benson station is now on schedule for opening in 2028. All asset preservation projects, equipment needs, and apparatus are now scheduled for funding and replacement through 2025.

The 2014 – 2033 Master Capital Plan is funded through 2033 with the following assumptions:

- Annual tax revenue to capital between 2020 – 2033 averages \$3.9 million per year
- Impact fee revenue between 2020 – 2033 averages \$1.8 million per year

⁸ This plan will be supplemented with a capital summary including impact fee reports for both Covington and Kent, August 2020



8 2020 – 2025 Capital Plan Effects on Impact Fees

Impact fees are established in the PSF Mitigation and Level of Service Policy in Appendix A, using a formula based upon the cost of capital needs and service demand by property type. This policy as well as the annual capital plan cost estimates require annual updates. Total funding needs have increased in this update resulting in an increase in some impact fees displayed in Table 15 below.

Table 15: 2020 Impact Fees

LOS Formula Calculation							
Land Use Type	System wide C&E	Res/Com Split	Usage Factor	ERF Factor	New Dev Share	Projected New Units 2014 - 2035	Impact & LOS Contribution Fee
Residential							
Single Family	\$107,808,000	60%	54%	1.13	80%	16.884 living units	\$1,870.20
Multi Family	\$107,808,000	60%	46%	1.4	80%	16.884 living units	\$1,973.80
Commercial							
COMM/IND	\$107,808,000	40%	23%	2.75	85%	12,500,000 sq ft	\$1.85
HOSP/MED/CIV/SCH/CHUR	\$107,808,000	40%	26%	2	95%	12,500,000 sq ft	\$1.70
Sr/ASSISTED CARE	\$107,808,000	40%	21%	3	95%	12,500,000 sq ft	\$2.06
SERVICE-hotel/restaurant/etc	\$107,808,000	40%	20%	2	95%	12,500,000 sq ft	\$1.31

9 Appendices

9.1 Capital Equipment Inventories and Cost Summaries

Table 16 Equipment Inventory

6 - Year (2020 - 2025) Special Equipment Costs in Thousands of 2019 Dollars										
Equipment Type	Quantity	Avg Cost	LifeCycle	2020	2021	2022	2023	2024	2025	Total
Above Ground Fuel Tanks			25-Yrs	\$0	\$20	\$0	\$0	\$0	\$0	\$20
Ballistic Vests	234	\$606	5-Yrs	\$24	\$11	\$11	\$64	\$14	\$39	\$163
Ballistic Vests-SeaTac		\$606	5-Yrs	\$6	\$3	\$2	\$16	\$3	\$9	\$39
Ballistic Vests-MV		\$606	5-Yrs	\$0	\$0	\$0	\$0	\$25	\$25	\$50
Knox Key Security-RFA		\$1,200		\$60	\$0	\$0	\$0	\$0	\$0	\$60
Knox Key Security-SeaTac		\$1,200		\$15	\$0	\$0	\$0	\$0	\$0	\$15
Knox Key Security-MV		\$1,200		\$15	\$0	\$0	\$0	\$0	\$0	\$15
Power Divider				\$0	\$0	\$0	\$0	\$0	\$0	\$0
Emer. Mgt/ECC Coms & Computer Equip			5+Yrs	\$18	\$13	\$13	\$13	\$13	\$13	\$83
Fire Hose	1842	\$300	20-Yrs	\$11	\$11	\$11	\$11	\$11	\$11	\$66
Fire Hose-SeaTac		\$300	20-Yrs	\$4	\$4	\$4	\$4	\$4	\$4	\$24
Haz-Mat Equipment			3+Yrs	\$54	\$57	\$52	\$57	\$53	\$55	\$328
Haz-Mat Equipment-SeaTac				\$3	\$3	\$3	\$3	\$3	\$3	\$18
Hydrant Retrofit (storz connections)			40-yrs	\$67	\$67	\$24	\$0	\$0	\$0	\$158
Fire Hose Nozzles	231	\$3,300	15-Yrs	\$20	\$0	\$0	\$0	\$0	\$0	\$20
Personal Protective Gear - Fire-RFA	489	\$3,450	10-Yrs	\$209	\$113	\$142	\$201	\$145	\$173	\$983
Personal Protective Gear - Fire-MV		\$3,450		\$31	\$31	\$31	\$31	\$31	\$31	\$186
Personal Protective Gear - Fire-SeaTac		\$3,450		\$51	\$27	\$35	\$49	\$35	\$42	\$239
Personal Protective Gear - Haz-Mat			8-Yrs	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Ops Mobile Radios	108	\$4,000	10-Yrs	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Ops Portable Radios	201	\$3,389	10-Yrs	\$0	\$0	\$60	\$60	\$0	\$0	\$120
Defibrillators	23	\$13,489	10-Yrs	\$0	\$0	\$0	\$0	\$351	\$0	\$351
Fire Training Burn Props	1	\$150,000	10-Yrs	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Thermal Imaging Cameras	19	\$5,853	10-Yrs	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Thermal Imaging Cameras-SeaTac				\$0	\$0	\$0	\$0	\$0	\$0	\$0
Shop Equipment				\$0	\$90	\$50		\$45		\$185
6-Year Totals				\$587	\$450	\$438	\$509	\$733	\$406	\$3,123

Table 17 Information Technology Inventory and Costs

6 - Year (2020 - 2025) Special Equipment Costs in Thousands of 2019 Dollars										
Equipment Description	Qty	Avg Cost	LifeCycle	2020	2021	2022	2023	2024	2025	Totals
Fire Prevention Software		\$50,000		\$50	\$0	\$0	\$0	\$0	\$0	\$50
ERP Replacement		\$1,540,000		\$780	\$390	\$390	\$390	\$390	\$390	\$2,730
ESRI Environment				\$0	\$0	\$0	\$0	\$0	\$0	\$0
HazMat Computer Upgrade	3	\$2,500		\$8	\$0	\$0	\$0	\$0	\$0	\$8
Existing Phone Purchase	1	\$120,000		\$2	\$2	\$2	\$2	\$2	\$2	\$12
Phone System Admin Components	1	\$55,000		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Email Journaling/Archive				\$40	\$5	\$0	\$40	\$0	\$0	\$85
Data Center Outfitting	1	\$5,000		\$0	\$0	\$0	\$0	\$0	\$0	\$0
SAN and Virtual Environment				\$25	\$110	\$0	\$0	\$120	\$0	\$255
Document imaging and retrieval	1	\$100,000		\$100	\$0	\$0	\$0	\$0	\$0	\$100
Bomgar Remote Assistance	1	\$8,000		\$8	\$0	\$0	\$8	\$0	\$0	\$16
Anti-Virus	1	\$28,000		\$0	\$28	\$0	\$0	\$30	\$0	\$58
MOE Temp Parallel Network				\$0	\$0	\$0	\$0	\$0	\$0	\$0
INET ISP Construction				\$0	\$0	\$0	\$0	\$0	\$0	\$0
UPS Replacement	1	\$25,000		\$8	\$0	\$0	\$0	\$30	\$0	\$38
Firewall/Nextgen/Web Filter	1	\$10,000		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Edge Router	1	\$24,000		\$24	\$0	\$0	\$0	\$24	\$0	\$48
Core Switches	2	\$10,000		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Distribution Switches/Routers	29	\$2,800		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Cloudtrax/OpenMesh	1	\$45,000		\$0	\$0	\$45	\$0	\$0	\$0	\$45
File Backup/archiving/retrieval	1	\$25,000		\$0	\$0	\$25	\$0	\$0	\$0	\$25
Handheld Inventory Devices				\$15	\$0	\$0	\$0	\$0	\$0	\$15
New Hire Computers				\$28	\$0	\$0	\$0	\$0	\$0	\$28
Crystal Enterprise Replacement	1	\$5,000	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Shoretel phones	3	\$14,000		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Barracuda Licenses				\$0	\$0	\$0	\$0	\$0	\$0	\$0
Disaster Recovery Environment	1	\$235,000		\$125	\$110	\$0	\$0	\$0	\$0	\$235
Data Licenses	12	\$500		\$6	\$0	\$0	\$0	\$0	\$0	\$6
GP Upgrade	1	\$20,000		\$35	\$0	\$0	\$0	\$0	\$0	\$35
Mobile Data Computers	60	\$1,750	5-Yrs	\$50	\$50	\$50	\$50	\$50	\$50	\$300
Desktop PC's	311	\$1,000	5-Yrs	\$40	\$40	\$40	\$40	\$40	\$40	\$240
Laptops/Tablets	187	\$1,500	4-Yrs	\$25	\$28	\$30	\$30	\$30	\$30	\$173
Mechanic Laptops				\$0	\$0	\$0	\$0	\$0	\$0	\$0
Two Factor Authentication	1	\$30,000		\$0	\$30	\$0	\$0	\$0	\$0	\$30
ESO Field Tablets	60	\$1,300	4-Yrs	\$63	\$0	\$0	\$65	\$0	\$0	\$128
ESO Enhancements			4-Yrs	\$10	\$5	\$5	\$5	\$0	\$0	\$25
iPads for Tablet Command			3-Yrs	\$0	\$0	\$40	\$0	\$0	\$0	\$40
ValleyCom SQL for Tablet Command			7-Yrs	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Mobile Device Management	1	\$15,000	5-Yrs	\$15	\$0	\$0	\$0	\$0	\$0	\$15
Telestaff upgrade to SQL Server	1	\$5,000	5-Yrs	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Regionalization Support			5-Yrs	\$40	\$40	\$40	\$40	\$40	\$40	\$240
Academy Ipads	94	\$500		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Help Desk Ticketing System	1	\$25,000		\$25	\$0	\$0	\$0	\$0	\$0	\$25
Intrusion Protection	1	\$12,000		\$12	\$0	\$0	\$10	\$0	\$0	\$22
Intterra 4 module bundle				\$66	\$0	\$0	\$0	\$0	\$0	\$66
Video Production Workstations	3	\$2,333		\$7	\$0	\$0	\$0	\$7	\$0	\$14
Video Storage System	1	\$4,000		\$4	\$0	\$2	\$0	\$2	\$0	\$8
Blue Card Laptops	1	\$18,000		\$18	\$0	\$0	\$0	\$0	\$0	\$18
6 Year Total				\$1,629	\$838	\$669	\$680	\$765	\$552	\$5,133



Table 18 HazMat Equipment Inventory and Costs

Haz-Mat Capital Equipment Plan - 2020													
Haz-Mat Equipment Description	Inventory	LifeCycl e Yrs	2020		2021		2022		2023		2024		6 Year Total
			Qty	Cost									
HazMat PPE													
Trellchem VPS-Flash (Level A Chemical entry suits)	16	12	4	\$20,350.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	\$20,350.00
Lion - MT94	8	12	0	\$0.00	2	\$6,160.00	0	\$0.00	2	\$6,160.00	0	\$0.00	\$18,480.00
Dupont CPF3 - Level B	20	Exp	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	\$0.00
Lakeland ChemMax 3 - Level B	10	6	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	4	\$660.00	\$660.00
Dupont Tychem 5000 C3528T - Level B	10	6	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	4	\$660.00	\$660.00
Trellchem EVO Hazardous Protection Suits - Level A	0	12	0	\$0.00	0	\$0.00	4	\$30,580.00	0	\$0.00	4	\$30,580.00	\$61,160.00
			0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	\$0.00
Basic Air Metering													
MiniRae 3000 PID (PPB)	1	10	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	\$0.00
MiniRae 3000 PID (PPM)	1	10	0	\$0.00	1	\$4,950.00	0	\$0.00	0	\$0.00	0	\$0.00	\$9,900.00
MSA Altair 5X Multigas Meter W/CL2	2	6	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	\$0.00
MSA Altair 5X Multigas Meter W/HCN	2	6	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	\$0.00
MSA Altair 5X Multigas Meter (Investigations)	2	6	0	\$0.00	0	\$0.00	0	\$0.00	2	\$8,800.00	0	\$0.00	\$8,800.00
MSA Altair 5X Multigas Meter (Confined Space)	2	6	0	\$0.00	0	\$0.00	1	\$4,400.00	0	\$0.00	1	\$4,400.00	\$8,800.00
MSA Altair 4X Multigas Meter	0	6	2	\$6,600.00	0	\$0.00	0	\$0.00	2	\$6,600.00	0	\$0.00	\$13,200.00
ToxiRae Pro -Single Gas Meter - CL2,HCN,Ammonia	0	2	2	\$1,100.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	\$3,300.00
			0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	\$0.00
Advanced Air Metering													
Photovac Micro FID	1	10	1	\$18,150.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	\$18,150.00
Sensit Gold G2 Combustion Analyzer	2	4	0	\$0.00	2	\$4,840.00	0	\$0.00	0	\$0.00	0	\$0.00	\$4,840.00
RKI Eagle 4X Gas Meter (Confined Space)	0	10	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	\$15,400.00
WMD Chemical Detection AP2C	1	10	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	\$0.00
Honeywell EC-P2 Ammonia Detector	1	10	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	\$0.00
			0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	\$0.00
Chemical Identification Technology													
HazMat ID Command System / Sense IR	1	10	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	\$0.00
ChemPro 100i -ION Mobility Chemical Detector	0	10	0	\$0.00	0	\$0.00	0	\$0.00	1	\$13,200.00	0	\$0.00	\$26,400.00
TruNarc - Handheld Narcotics Analyzer (White Powder)	0	10	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	\$15,400.00
Thermo Scientific TruDefender FTXi-Chemical Detector	0	10	0	\$0.00	1	\$44,000.00	0	\$0.00	0	\$0.00	0	\$0.00	\$44,000.00
			0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	\$0.00
Mechanical Intervention- Tools and Equipment													
Vetter Bag Kit	1	10	0	\$0.00	0	\$0.00	0	\$0.00	1	\$4,290.00	0	\$0.00	\$4,290.00
Chlorine A, B, C Kit	1	20	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	\$0.00
Kelso Kit	0	20	1	\$10,450.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	\$10,450.00
Weather Station SAM	1	10	0	\$0.00	0	\$0.00	0	\$0.00	1	\$18,150.00	0	\$0.00	\$18,150.00
BlowHard Fan	0	6	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	\$0.00
			0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	\$0.00
Radiation Monitoring													
Ludlum 2241-2 W/Probes	3	20	0	\$0.00	0	\$0.00	0	\$0.00	1	\$2,750.00	0	\$0.00	\$2,750.00
Canberra Ultra Radiac Radiation Dosimeter	13	10	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	\$0.00
Canberra Ultra Radiac Calibration Check Unit	2	20	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	\$0.00
Identifinder Radiation Detector	1	10	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	1	\$19,360.00	\$19,360.00
			0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	\$0.00
HazMat Decon													
Mass Decon/TVI Ensemble	1	20	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	\$0.00
Technical Decon- Rapid Decon Equip. for Technicians	1	10	0	\$0.00	0	\$0.00	1	\$5,500.00	0	\$0.00	0	\$0.00	\$5,500.00
Zumro Air-Shelter Model 150	0	0	0	\$0.00	0	\$0.00	1	\$14,300.00	0	\$0.00	0	\$0.00	\$14,300.00
				\$56,650		\$59,950		\$54,780		\$59,950		\$55,650	\$344,300



9.2 Fixed Facility Construction Projects

Table 19 Station Construction Costs 2020-2025

6-Year Construction & Finance Cost Summary and Timeline in Thousands of Dollars							
Station Project	2020	2021	2022	2023	2024	2025	Totals
72nd Ave. Extension	\$120	\$120	\$120	\$120	\$120	\$120	\$720
75 Move	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Benson	\$38	\$39	\$341	\$42	\$43	\$1,547	\$2,050
Benson Loan Interest	\$14	\$12	\$11	\$10	\$8	\$7	\$62
Riverview	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Covington	\$0	\$0	\$0	\$0	\$0	\$0	\$0
407 Washington Station	\$487	\$361	\$251	\$1,232	\$3,943	\$750	\$7,024
Yearly Totals	\$659	\$532	\$723	\$1,404	\$4,114	\$2,424	\$9,856

Table 20 Facility Preservation Costs

Capital Improvements Necessary to Maintain Existing Assets						
Station	2020	2021	2022	2023	2024	2025
Admin	\$0	\$0	\$0	\$0	\$0	\$0
Emer Mgmt	\$11	\$10	\$0	\$0	\$0	\$0
IT	\$0	\$0	\$0	\$0	\$0	\$0
Logistics	\$55	\$0	\$0	\$0	\$0	\$0
Multi-Purpose Room	\$0	\$180	\$0	\$0	\$0	\$0
App Shop	\$25	\$0	\$0	\$0	\$0	\$0
45	\$5	\$0	\$0	\$0	\$0	\$0
71	\$42	\$42	\$42	\$16	\$26	\$0
72	\$26	\$0	\$16	\$0	\$10	\$2
73	\$0	\$78	\$42	\$16	\$16	\$71
74	\$23	\$36	\$0	\$0	\$0	\$0
75	\$105	\$42	\$143	\$16	\$28	\$36
76	\$70	\$86	\$42	\$42	\$16	\$31
77	\$0	\$123	\$52	\$16	\$70	\$16
78	\$35	\$120	\$0	\$0	\$45	\$0
80	\$37	\$0	\$0	\$0	\$0	\$0
81	\$57	\$0	\$0	\$0	\$0	\$0
83	\$0	\$0	\$0	\$0	\$0	\$0
84	\$0	\$0	\$0	\$0	\$0	\$15
Training	\$10	\$10	\$0	\$0	\$0	\$0
Total	\$501	\$727	\$337	\$106	\$211	\$171



Table 21 6-Year Apparatus Costs

6 Year (2020 - 2025) Apparatus Costs							
Unit Type	2020	2021	2022	2023	2024	2025	Totals
Aid Car/Ambulances	\$202	\$202	\$470	\$0	\$0	\$0	\$874
Fire Engines	\$472	\$2,750	\$0	\$0	\$800	\$0	\$4,022
Haz-Mat Vehicles	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Boats, Motors, etc.	\$0	\$0	\$25	\$0	\$0	\$0	\$25
Ladder Trucks	\$566	\$571	\$536	\$0	\$0	\$0	\$1,673
Light Trucks (Pickup)	\$155	\$460	\$0	\$75	\$0	\$0	\$690
Command Staff Cars	\$0	\$0	\$0	\$0	\$75	\$0	\$75
Staff Support Cars/SUV	\$265	\$55	\$35	\$0	\$55	\$0	\$410
Utility Trailers	\$3	\$0	\$3	\$0	\$0	\$0	\$6
Vans	\$175	\$0	\$0	\$0	\$35	\$0	\$210
Tender	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Skyboom - Quint	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Rescue	\$1,000	\$0	\$0	\$0	\$650	\$0	\$1,650
Service Truck	\$50	\$50	\$0	\$0	\$0	\$0	\$100
Other	\$40	\$0	\$0	\$0	\$0	\$0	\$40
	\$2,928	\$4,088	\$1,069	\$75	\$1,615	\$0	\$9,775



Table 22 Apparatus Replacement Detail

6 Year Replacement Schedule									
Unit #	Year	Unit Type	2020	2021	2022	2023	2024	2025	Totals
24	2006	SUV	\$0	\$0	\$35	\$0	\$0	\$0	\$35
25	2006	SUV	\$35	\$0	\$0	\$0	\$0	\$0	\$35
26	2008	PU	\$0	\$75	\$0	\$0	\$0	\$0	\$75
118	2004	Engine	\$236	\$0	\$0	\$0	\$0	\$0	\$236
121	2008	Engine	\$0	\$750	\$0	\$0	\$0	\$0	\$750
701	1999	Rescue	\$0	\$0	\$0	\$0	\$650	\$0	\$650
702	2003	Aid	\$0	\$0	\$268	\$0	\$0	\$0	\$268
704	2005	Aid	\$101	\$101	\$101	\$0	\$0	\$0	\$303
705	2007	Aid	\$101	\$101	\$101	\$0	\$0	\$0	\$303
712	2005	Engine	\$0	\$750	\$0	\$0	\$0	\$0	\$750
713	2006	Ladder	\$566	\$571	\$536	\$0	\$0	\$0	\$1,674
717	2009	Engine	\$0	\$750	\$0	\$0	\$0	\$0	\$750
718	2009	Engine	\$0	\$500	\$0	\$0	\$0	\$0	\$500
721	2010	Command	\$0	\$0	\$0	\$0	\$75	\$0	\$75
738	2011	PU	\$0	\$0	\$0	\$75	\$0	\$0	\$75
763	1994	Utility Tr	\$0	\$0	\$3	\$0	\$0	\$0	\$3
764	1995	PU	\$0	\$60	\$0	\$0	\$0	\$0	\$60
765	2000	Boat Tr	\$3	\$0	\$0	\$0	\$0	\$0	\$3
767	2001	Engine	\$236	\$0	\$0	\$0	\$0	\$0	\$236
775	2007	Serv. Truck	\$0	\$50	\$0	\$0	\$0	\$0	\$50
7100	2008	PU	\$0	\$75	\$0	\$0	\$0	\$0	\$75
7103	2012	SUV	\$0	\$0	\$0	\$0	\$55	\$0	\$55
7106	2007	SUV	\$35	\$0	\$0	\$0	\$0	\$0	\$35
7108	2012	Mini Van	\$0	\$0	\$0	\$0	\$35	\$0	\$35
7202	2008	SUV	\$35	\$0	\$0	\$0	\$0	\$0	\$35
7204	2008	PU	\$50	\$0	\$0	\$0	\$0	\$0	\$50
7205	2008	PU	\$0	\$75	\$0	\$0	\$0	\$0	\$75
7206	2008	SUV	\$0	\$55	\$0	\$0	\$0	\$0	\$55
7231	2006	PU	\$0	\$50	\$0	\$0	\$0	\$0	\$50
7516	2007	PU	\$0	\$50	\$0	\$0	\$0	\$0	\$50
7610	2000	Car	\$35	\$0	\$0	\$0	\$0	\$0	\$35
7611	1995	PU	\$0	\$75	\$0	\$0	\$0	\$0	\$75
7619	2001	Mini Van	\$35	\$0	\$0	\$0	\$0	\$0	\$35
7620	2001	Car	\$35	\$0	\$0	\$0	\$0	\$0	\$35
7625	2000	Mini Van	\$35	\$0	\$0	\$0	\$0	\$0	\$35
7628	1997	Mini Van	\$50	\$0	\$0	\$0	\$0	\$0	\$50
7630	1999	Jeep	\$35	\$0	\$0	\$0	\$0	\$0	\$35
7633	2000	PU	\$35	\$0	\$0	\$0	\$0	\$0	\$35
7634	2000	PU	\$35	\$0	\$0	\$0	\$0	\$0	\$35
7636	2000	Mini Van	\$55	\$0	\$0	\$0	\$0	\$0	\$55
9903	2008	Boat Motor	\$0	\$0	\$25	\$0	\$0	\$0	\$25
9913	1995	Forklift	\$40	\$0	\$0	\$0	\$0	\$0	\$40
TBD	NEW	SUV	\$55	\$0	\$0	\$0	\$0	\$0	\$55
TBD	NEW	PU	\$35	\$0	\$0	\$0	\$0	\$0	\$35
TBD	NEW	Engine	\$0	\$0	\$0	\$0	\$800	\$0	\$800
TBD	NEW	Serv. Truck	\$50	\$0	\$0	\$0	\$0	\$0	\$50
TBD	NEW	Rescue	\$1,000	\$0	\$0	\$0	\$0	\$0	\$1,000
			\$2,928	\$4,088	\$1,069	\$75	\$1,615	\$0	\$9,776



Table 23 Apparatus Inventory

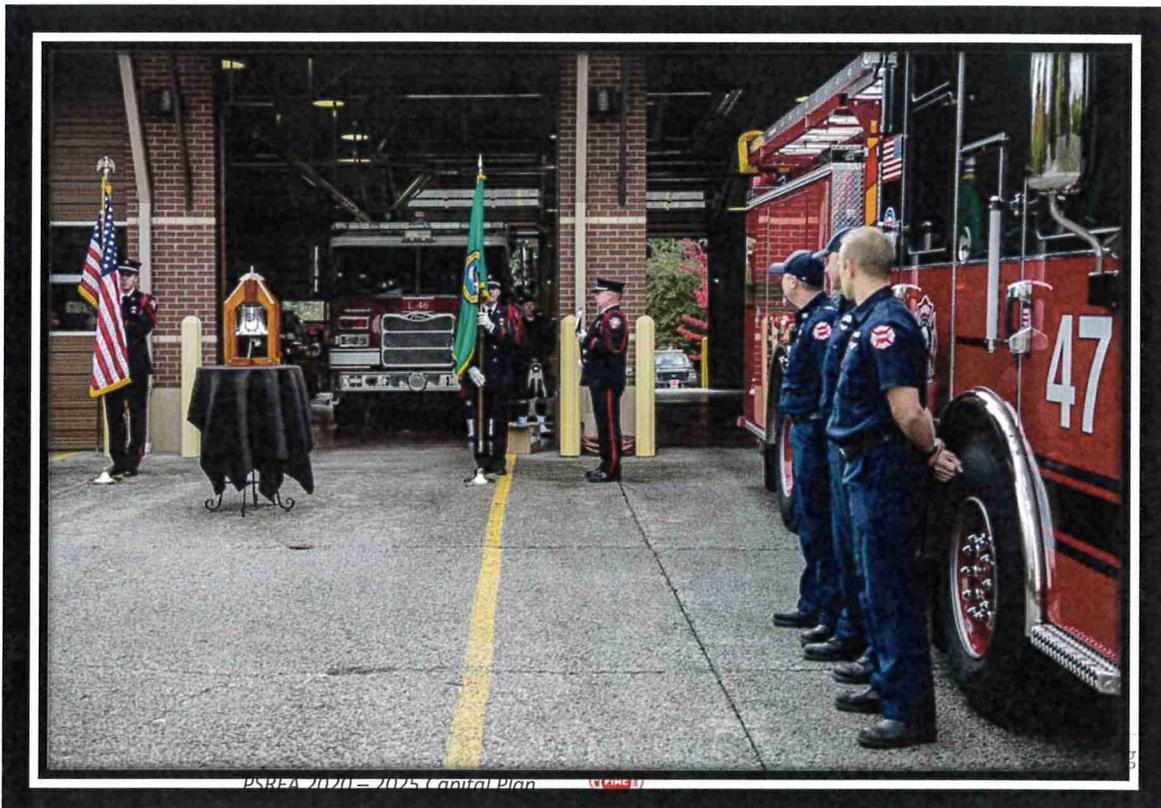
2019 Apparatus Inventory					
Unit #	Subcategory	Description	Year	Replacement Value	Assignment
19	SHIFT COMMANDER	Suburban Tow	1999	\$ 100,000	Shop Spare 2017
21	TRAINING	SUV TRN	2000	\$ 55,000	Training
22	SHIFT COMMANDER	Shift Command	2003	\$ 100,000	Reserve B46
24	CRR	Escape	2006	\$ 35,000	Inspector
25	CRR	Escape	2006	\$ 35,000	SeaTac OEM
26	RESCUE/BRUSH/MISC	PU 3/4 Ton EC 4X	2008	\$ 75,000	Fuel Truck 46
27	BOATS	Rescue Boat	2007	\$ 40,000	Boat 45
28	BOATS	Boat Tr	2009	\$ 15,000	Boat 45 Trailer
31	SHIFT COMMANDER	Shift Command	2013	\$ 100,000	Battalion 46
115	PUMPERS	Quantum Engine	1997	\$ 750,000	Reserve
116	AID CARS	Med Tec Aid	1998	\$ 300,000	Aid 46
117	PUMPERS	Quantum Engine	2000	\$ 750,000	Reserve
118	PUMPERS	Quantum Engine	2004	\$ 700,000	Engine 46
120	RESCUE/BRUSH/MISC	SVI Air	2008	\$ 650,000	Rescue 46
121	PUMPERS	Quantum Engine	2008	\$ 750,000	Engine 45
701	RESCUE/BRUSH/MISC	Freightliner Air	1999	\$ 650,000	Rescue 74
702	AID CARS	Road Resc. Aid	2003	\$ 300,000	Aid 70
704	AID CARS	Med Tec Aid	2005	\$ 300,000	Aid 71
705	AID CARS	Med Tec Aid	2007	\$ 300,000	Aid 74
706	PUMPERS	Quantum Engine	2001	\$ 750,000	Reserve
707	RESCUE/BRUSH/MISC	PU Brush	2003	\$ 50,000	Brush 78
708	PUMPERS	Quantum Engine	2001	\$ 750,000	Reserve
709	CARES	SUV CARE	2003	\$ 45,000	CARE 71
710	PUMPERS	Quantum Engine	2004	\$ 750,000	Reserve
711	SUPPORT	PU 1 Ton CC C	2006	\$ 50,000	Mechanic
712	PUMPERS	Quantum Engine	2005	\$ 750,000	Engine 72
713	TILLERS	Tiller Ladder	2006	\$ 1,500,000	Ladder 74
715	TILLERS	Smeal Ladder	1996	\$ -	Reserve
716	HAZ MAT	HM Trailer	2009	\$ 100,000	HM 76
717	PUMPERS	Skyboom	2009	\$ 750,000	Engine 76
718	PUMPERS	Skyboom	2009	\$ 750,000	Engine 75
721	SHIFT COMMANDER	Shift Command	2010	\$ 100,000	Reserve
722	HAZ MAT	HM Tractor	2009	\$ 50,000	HM 76
724	SHIFT COMMANDER	Shift Command	1998	\$ 100,000	Reserve
726	RESCUE/BRUSH/MISC	Trailer	2007	\$ 10,000	Decon 75
729	TRAINING	Mobile Generator	2006	\$ -	Training
736	BOATS	Boat Tr	2018	\$ 15,000	Boat 71 Trailer
738	CRR	PU 1 Ton CC C	2011	\$ 75,000	Investigators
745	BOATS	Boat Tr	2010	\$ 15,000	Trailer
746	BOATS	Jon Bt	2010	\$ 5,000	Boat
747	BOATS	Jon Bt	2010	\$ 5,000	Boat
749	BOATS	Jon Bt	2010	\$ 5,000	Boat
750	BOATS	Boat Tr	2010	\$ 15,000	Trailer
755	BOATS	Jon Bt	2010	\$ 5,000	Boat
756	SUPPORT	Utility Tr	2010	\$ 35,000	Facilities
762	SUPPORT	Medic Unit		\$ -	MCI Z3
763	CRR	Utility Tr	1994	\$ 35,000	Pub Ed
764	RESCUE/BRUSH/MISC	PU 1 Ton Flat Bed	1995	\$ 60,000	Station 77
765	CRR	Utility Tr	2000	\$ 3,000	Pub Ed
766	PUMPERS	Quantum Engine	2001	\$ 750,000	Reserve
767	PUMPERS	Quantum Engine	2001	\$ 700,000	Engine 77
768	TILLERS	Tiller Ladder	2014	\$ 1,500,000	Ladder 46
769	PUMPERS	Quantum Engine	2016	\$ 750,000	Engine 73
770	PUMPERS	Quantum Engine	2016	\$ 750,000	Engine 71
771	PUMPERS	Enforcer Engine	2016	\$ 750,000	Engine 74
772	PUMPERS	Enforcer Engine	2016	\$ 750,000	Engine 78





Blessing of the Fire Engines

New Engine 77 (above) and New Engine 47 (below) Blessed and placed into service October 13, 2019



Mitigation & Level of Service Policy



PUGET SOUND REGIONAL FIRE AUTHORITY

Mitigation & Level of Service Policy
for Fire Service Concurrency

Updated November 6, 2019



**PUGET SOUND
REGIONAL FIRE AUTHORITY**
INTERNATIONALLY ACCREDITED FIRE AGENCY

*Professionally and
compassionately helping people*

**RESOLUTION NO. 157
ADOPTING THE 2019 PUGET SOUND REGIONAL FIRE AUTHORITY
MITIGATION & LEVEL OF SERVICE POLICY**

Background:

1. Puget Sound Regional Fire Authority "Puget Sound Fire" has determined, consistent with the State Growth Management Act, that uncoordinated and unplanned growth poses a threat to the health, safety, and high quality of life enjoyed by residents of Puget Sound Fire; and
2. Puget Sound Fire is committed to ensuring that Puget Sound Fire facilities and equipment necessary to support development and growth within Puget Sound Fire are adequate to serve development at the time development occurs without decreasing current service levels; and
3. Puget Sound Fire is committed to a "concurrency" philosophy to service delivery, meaning Fire and emergency service capacity must grow concurrently with development; and
4. Puget Sound Fire has adopted level of service policies and response standards; and
5. Puget Sound Fire cannot meet the current level of service standard in Puget Sound Fire; and
6. New development is eliminating the capacity of Puget Sound Fire's response resources even further; and
7. Placement of additional Fire stations and/or additional staffed units is the most effective way to reduce response times and achieve concurrency; and
8. Puget Sound Fire cannot fund the needed facilities and equipment and also provide for the costs of the operation and maintenance of Puget Sound Fire; and
9. Puget Sound Fire has determined that it is not in the public interest of the residents and property owners of Puget Sound Fire that developments be permitted to occur unless adequate fire and life safety facilities, equipment, and personnel are provided; and
10. Puget Sound Fire is opposed to additional residential, commercial, or industrial development within Puget Sound Fire boundaries until Puget Sound Fire can satisfy the need for equipment, station facilities, and personnel to support the required level of service; and
11. Puget Sound Fire is not opposed to development and desires to work with developers to assure fire and life safety facilities, equipment, and personnel remain concurrent with development; and
12. Puget Sound Fire desires to provide developers with methods and options to satisfy the environmental impacts of proposed developments on public safety.
13. Puget Sound Fire initially adopted its Mitigation & Level of Service Contribution Policy to address the above concerns in 2014.

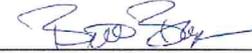
Resolution: NOW, THEREFORE BE IT RESOLVED by the Governance Board of Puget Sound Regional Fire Authority as follows:

1. The above recitals are found to be true and correct.
2. The updated 2019 Mitigation & Level of Service Contribution Policy, which is attached hereto, is adopted as a policy of Puget Sound Fire and replaces the previous 2018 version.
3. The 2019 Mitigation & Level of Service Contribution Policy shall serve as a State Environmental Policy Act "SEPA" policy and as a Growth Management Act "GMA" Policy.
4. Staff and administration shall use the Mitigation & Level of Service Policy for guidance in resolving SEPA and land use/GMA impacts to fire and life safety. However, should staff reviewing a project determine that there are specific attributes of a project that make this policy inadequate or unworkable, staff is also authorized to require additional studies and/or environmental review and to offer additional options to developers that may fall outside the scope of this policy.

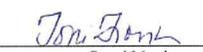
Adoption: ADOPTED by the Governance Board of PUGET SOUND REGIONAL FIRE AUTHORITY at an open public meeting of such Board on the 6th day of November 2019, the following Board Members being present and voting:



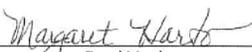
Board Member



Board Member



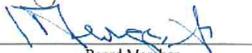
Board Member



Board Member



Board Member



Board Member



District Secretary



Puget Sound Regional Fire Authority

Mitigation and Level of Service Policy

This document was prepared and implemented through the collaboration and work of the following and their associates:

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Margaret Harto-Chair Mike Denbo-Vice Chair

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Sean Smith

City of SeaTac

Joel Wachtel

Fire District 43

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City of Kent

Bill Boyce
Toni Troutner
Les Thomas

November 6, 2019



This policy has been designed with two distinct purposes in mind, first to inform the lay reader regarding issues critical to maintaining fire service concurrency and second, to provide guidance to Puget Sound Regional Fire Authority's staff in implementing mitigations necessary for maintaining fire service concurrency within the Puget Sound Regional Fire Authority service area. The basis for impact and level of service contribution fees is derived from the revenues needed to maintain fire service concurrency and are identified in Puget Sound Regional Fire Authority's 2014-2033 Master Capital Improvement Plan.



NEW DEVELOPMENT IN COVINGTON, SEATAC, AND KENT



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Acronyms

ALS:	Advanced Life Support
BLS:	Basic Life Support
C&E:	Capital and Equipment
CFAI:	Commission on Fire Accreditation International
CPSE:	Center for Public Safety Excellence
EMS:	Emergency Medical Services
ERF:	Effective Response Force
GPM:	Gallons Per Minute (relates to fire flow)
IAFC:	International Association of Fire Chiefs
ICMA:	International City/County Management Association
ISO:	Insurance Services Office
PSF:	Puget Sound Fire Authority
LOS:	Level of Service
MERF:	Minimum Effective Response Force
NFPA:	National Fire Protection Association
PSAP:	Public Safety Answering Point
RCW:	Revised Code of Washington
SEPA:	State Environmental Protection Act
SOC:	Standard of Cover



1. Definitions

- 1.1. **Accreditation:** Refers to the process of obtaining certification of competency and credibility under the guidelines established by the Center for Public Safety Excellence (CPSE).
- 1.2. **Accredited Agency:** Refers to a fire agency that has undergone an independent, peer review and been recommended for Accredited Agency Status by a team of assessors certified by the Center for Public Safety Excellence. Then, as a result of that review, their case is presented to CPSE's Accreditation Commission, and if found credible by a vote of the Commission, are awarded Accredited Agency status.
- 1.3. **Adopted:** Refers to the formal action taken by a governing body to accept and put into effect an idea, method or course of action.
- 1.4. **Alarm:** A signal or message from a person or system indicating the existence of an emergency or other situation requiring an action by an emergency response agency.
- 1.5. **Alarm Processing Time:** See Section 6.2.
- 1.6. **Authority Having Jurisdiction:** Refers to the municipal entity having jurisdiction for the enforcement of land-use and related building codes.
- 1.7. **Apparatus:** Refers to various specialized vehicles such as fire engines, fire trucks, ambulances, etc. that firefighters utilize during emergency responses.
- 1.8. **Call Stacking/Cascading Failure:** Refers to the occurrence of simultaneous emergency calls. Call stacking occurs when more than one request for emergency assistance occurs within the same fire station service area. When this occurs, the primary response unit cannot answer the second emergency and a second fire unit from the same station must respond or, a fire unit from a fire station farther away responds. See 1.27 – Reliability
- 1.9. **Chief:** Refers to the Fire Chief of Puget Sound Regional Fire Authority.



- 1.10. **Concentration:** Refers to the deployment or spacing of multiple fire and rescue resources from within a fire service jurisdiction so that the proper number of resources needed for an effective response force for all types of emergency incidents can arrive at the scene of an emergency within the defined level of service time.
- 1.11. **Concurrency:** Concurrency refers to the twelfth goal of the Washington State Growth Management Act¹ which requires public facilities and services necessary for public safety to be adequate to serve new development without decreasing current service levels below locally established minimum standards. WAC 365-196-210(7) "Concurrency" means that adequate public facilities are available when the impacts of development occur, or within a specified time thereafter.
- 1.12. **Deployment:** The strategic assignment and placement of fire agency resources such as fire and EMS companies, fire stations and specific staffing levels for those companies to mitigate community emergency events.
- 1.13. **Dispatch Time:** See Section 6.2
- 1.14. **Distribution:** The deployment or “distribution” of fire stations and resources across a fire service jurisdiction so that the adopted first-in drive time standard for fire and rescue resources can be achieved.
- 1.15. **Drive Time:** The elapsed time needed for an emergency vehicle to travel to a dispatched address. Drive time begins when the wheels of a fire apparatus begin to roll in response to a dispatch and ends when the apparatus is parked at the scene of the dispatched address.
- 1.16. **Effective Response Force:** Refers to the number of resources and personnel needed to effectively provide fire or emergency medical services capable of mitigating the known risk(s) in the community. The number of resources making up an effective response force varies by type of emergency and level of risk.
- 1.17. **F-Box or Fire Box:** A geographic area usually a quarter section of land (1/4 - mile square) that is used to define the types, numbers and locations of fire and rescue resources to be dispatched to an emergency. See 1.30 – Response District.

¹ Found in RCW 36.70A.020 and defined in WAC 365-196-210(7)



- 1.18. **Fire Flow:** The quantity of water available for fire protection purposes in excess of that required for other purposes.
- 1.19. **Fire Impact Fee:** A fee authorized under Chapter 82.02 RCW that is assessed on new development to pay a proportionate share of the costs associated with maintaining fire service concurrency. Fire Impact fees must be adopted and authorized by the local land use authority.
- 1.20. **Fire Level of Service Fee:** A fee that is used to mitigate the direct impacts new development has upon fire services inside of a jurisdiction that has not adopted fire impact fees. Fire level of service fees are consistent with the Growth Management Act and applied through the SEPA process or in cooperation with the authority having permitting jurisdiction under RCW 54.18.110 and 82.02.020.
- 1.21. **Fire Service Concurrency:** See 1.9 – Concurrency.
- 1.22. **First Due:** See First-in (1.24)
- 1.23. **First Due Area:** The response area of a jurisdiction that has been assigned to a specific fire station and its emergency response units, generally because of its ability to arrive at the scene of an emergency first compared to other areas of the jurisdiction.
- 1.24. **First-in:** Refers to the first fire and rescue apparatus to arrive at the scene of an emergency. Distribution performance is a measure of first-in drive time.
- 1.25. **Fractile Performance:** Refers to the percentile of time a specified performance expectation is achieved. If an emergency response drive time of 5 minutes is the standard, and it is achieved on 82 of 100 responses, the fractile or percentile performance would be 82%.
- 1.26. **First Full Alarm:** Refers to the number of fire resources and personnel assigned to a specific alarm type that is capable of assembling a large enough response force to be effective in mitigating the specific alarm type.
- 1.27. **Impact:** Refers to the drain on the capacity of emergency response resources and their ability to maintain levels of service standards.



- 1.28. **Level of Service:** Level of service (LOS) refers to PSF's adopted response time and performance expectations. Level of service expectations are established in PSF's Standards of Cover document.
- 1.29. **NFPA Standards:** Codes, standards, recommended practices, and guides developed by the National Fire Protection Association through a consensus development process of the American National Standards Institute for fire protection agencies.
- 1.30. **Reliability:** Refers to the use of fire resource capacity. For a resource to be reliable, it must be available to answer emergency calls as least as often as the service expectation placed upon that resource. For instance, if a fire resource is expected to deliver service at the adopted standard 90% of the time, then that resource should be available to respond to an emergency incident from its assigned fire station at least 90% of the time. Reliability levels below the adopted performance expectation indicate resource exhaustion.
- 1.31. **Resource Exhaustion:** Resource exhaustion occurs when the demand for service placed upon a fire service resource is so great, that its fractile reliability begins to fall below the adopted level of service for that resource resulting in the need for resources from fire stations farther away to respond in place of the resource experiencing exhaustion. Resource exhaustion results in longer and longer response times unless additional resources are added to the fire station serving that area to create more capacity.
- 1.32. **Response:** Response refers to the movement of firefighters and fully equipped fire apparatus to the scene of an emergency request for fire or emergency medical services. The request for response is generally issued through Valley Communications Center, the 9-1-1 answering point for PSF.
- 1.33. **Response District:** Refers to the defined geographic area, generally a quarter mile square, used to determine the closest response resources to be assigned to an emergency within that response district. See 1.14 F-Box or Fire Box.



1.34. **Risk:** Refers to the exposure or probability of injury or loss.

1.34.1. **Low Risk:** A risk category where a low level and consequence of injury or loss is probable to occur.

1.34.2. **Moderate Risk:** A risk category where a moderate level and consequence of injury or loss is probable to occur.

1.34.3. **High Risk:** A risk category where a high level and consequence of injury or loss is probable

1.35. **Standard(s) of Cover:** Refers to the in-depth process developed by the Center for Public Safety Excellence for the strategic planning of fire resource deployment capable of meeting community risks. Standard of Cover is the “Standard” to which the fire department will deliver service based upon community descriptions and the risks within those community types. See Section 7.2.

1.36. **Total Response Time:** The time interval from the receipt of a 911 call at a public safety answering point to when response unit(s) arrive at the scene of an emergency. Total response time is made up of three components, alarm processing time plus turnout time plus drive time.

1.37. **Turnout Time:** See Section 6.2



2. Policy Statement

- 2.1. It is the policy of Puget Sound Regional Fire Authority (PSF) to participate in the orderly growth of the community and to maintain concurrency² of fire and life safety services as the community grows. Concurrency describes the goal of service capacity of PSF growing with or staying concurrent with the impacts of development occurring within the service area. PSF recognizes that regional economic vitality depends upon orderly growth and supports community growth through development and is not opposed to new development.
- 2.2. However, new development and the population increase that comes with new development has a direct impact on the ability of PSF to maintain adopted levels of service and adequate public safety concurrently with development. Consequently, *PSF opposes the negative impacts development imposes upon fire service capacity and level of service performance* and directs the Fire Chief to utilize the mitigation strategies found within this document to mitigate any and all negative impacts of development that threaten concurrency by reducing service capacity below the benchmark level of service standards adopted herein.
- 2.2.1. Levels of service standards and service capacity are adopted and defined in PSF's Standard of Cover document.
- 2.3. The Fire Chief or their designee, shall cause the evaluation of each development proposed to occur within the service area. The Chief's evaluation shall identify any adverse impacts that may affect PSF's ability to maintain adopted benchmark levels of service and the mitigation strategies necessary to maintain concurrency with development. It is the intent of PSF to recognize when adequate service capacity exists and to only impose mitigations that are rational and relational to the impacts of new development upon service capacity.

² See Section 1, Concurrency defined



3. Purpose Statement

3.1. The purpose of this policy is to establish guidelines for the implementation of monetary and non-monetary mitigations appropriate to maintaining fire service concurrency within PSF's emergency response area. It is the intent to utilize the guidelines herein to mitigate the direct impacts of new development upon PSF's ability to deliver fire and life safety services in accordance with its adopted level of service standards. Further, this policy as prepared shall constitute Growth Management, Impact Fee, SEPA, land subdivision, and building permit policy as adopted by the Governance Board of Puget Sound Regional Fire Authority.

4. Consistency with other Plans and Policies

4.1. To ensure that Puget Sound Regional Fire Authority (PSF) will be able to meet the increasing demand for fire protection services resulting from future development and population growth, this policy utilizes the findings and conclusions of a number of plans and policies including but not limited to; Covington, Kent, King County, Maple Valley and SeaTac Comprehensive Plans and, PSF's; Capital Facilities Plan, Station Location Analysis, Standard of Cover and annual reports required by Chapter 52.33 RCW.

5. Primary Responsibility of Puget Sound Fire

5.1. The primary responsibility of PSF is the delivery of emergency fire and rescue services. The delivery of these services ideally originates from fire stations located throughout the service area. To provide effective emergency service, firefighters must respond in a minimum amount of time after the incident has been reported and with sufficient resources to initiate meaningful fire, rescue, or emergency medical services.

6. The Importance of Time and Fire Service Performance Measures

6.1. Time and Fire Loss

6.1.1 Time is the critical issue when an emergency is reported. Fire can expand at a rate many times its volume per minute and as a result, quick response is critical for the rescue of occupants and the application of extinguishing agents to minimize loss prior to flashover. The time segment between fire ignition and the start of fire suppression activities has a direct relationship to fire loss.



6.1.2 Time and Patient Survival

The delivery of emergency medical services is also time critical. Survival rates for some types of medical emergencies are dependent upon rapid intervention by trained emergency medical personnel. In most cases, the sooner trained fire or emergency medical rescue personnel arrive, the greater the chance for survival and conservation of property. The importance of time and the critical factors affected by time are discussed in section 6.3.

6.2. Measured Components of Emergency Response

6.2.1. **Alarm processing time:** Amount of time that it takes to receive and process an emergency call. This includes (1) receiving the call, (2) determining what the emergency is, (3) verifying where the emergency is located, (4) determining what resources and fire department units are required to handle the call, and (5) notifying the fire department units that are to respond.

6.2.2. **Turnout time:** The time from when fire department units are first notified of an emergency to the beginning point of response time. This includes discontinuing and securing the activity firefighters were involved in at time of dispatch, traveling by foot to their apparatus, donning appropriate personal protective equipment and taking a seat-belted position on the apparatus to respond.

6.2.3. **Response/Drive time:** The time that begins when the wheels of a response apparatus/vehicle begin to roll in route to an emergency incident and ends when wheels of the response vehicle stop rolling upon arrival at the address of the emergency scene.

6.2.4. **Access time:** Amount of time required for the crew to move from where the apparatus stops at the address of an emergency incident, to where the actual emergency exists. This can include moving to the interior or upper stories of a large building and dealing with any barriers such as locked gates, stairways, elevators, doors or other restrictions that may slow access to the area of the emergency.



6.2.5. Setup time

6.2.5.1. Setup time Fire: The amount of time required for fire department units to set up, connect hose lines, position ladders, and prepare to extinguish the fire. Setup time includes disembarking the fire apparatus, pulling and placing hose lines, charging hose lines, donning self-contained breathing apparatus, making access or entry into the building, and applying water. The opportunity for saving time during setup is minimal, even for trained personnel.

6.2.5.2. Setup time EMS: Setup time also includes the time required for firefighters to deploy lifesaving equipment such as defibrillators, oxygen masks, and/or other rescue tools such as the jaws-of-life.

6.4. Flashover

6.4.1. **The term flashover:** Refers to the most dangerous time in fire growth. As a fire grows within a room, its radiant heat is absorbed by the contents of the room heating up the combustible gases and furnishings to their ignition point until finally the entire room bursts into flame, spreading outside of the room involved.



Figure 1: Photo of a Witnessed Flashover



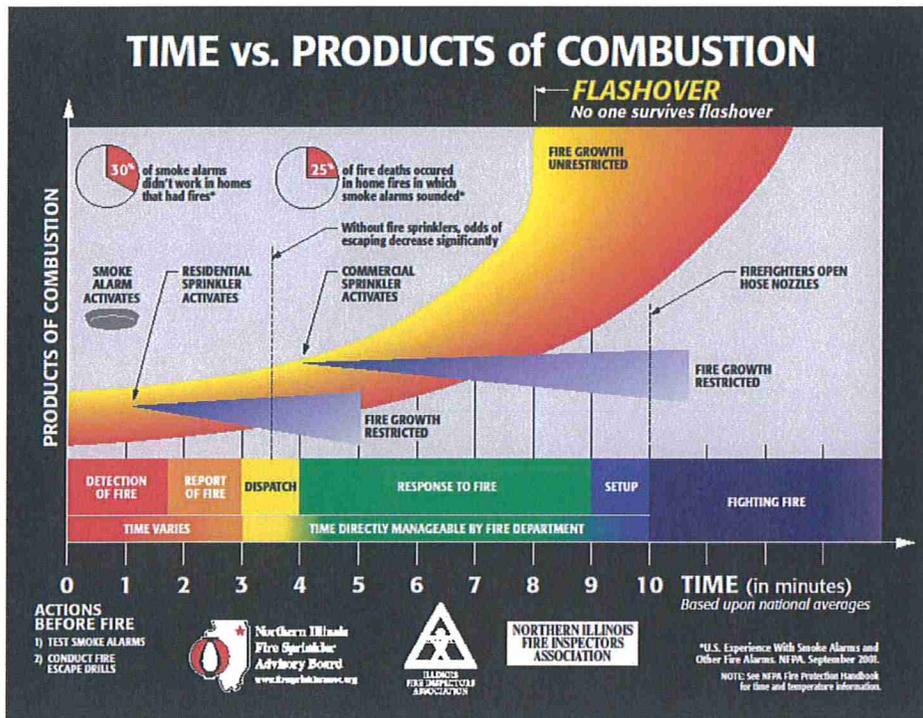
- 6.4.2. **Measuring the time to flashover:** A function of time and temperature. Fire growth occurs exponentially; that is, fire doubles in size every minute of free burn that is allowed.
- 6.4.3. **Factors that determine when flashover may occur:** These include the type of fuel, the arrangement of the fuels in the room, room size, and so on. Because these factors vary, the exact time to flashover cannot be predicted, making quick response and rapid-fire attack the best way to control fire, protect life and reduce fire loss.
- 6.4.4. **Flashover's modern living influence:** Over the past 50 years, fire engineers agree that the replacement of wood and other natural products with plastics and synthetic materials for interior furnishings has resulted in increased fuel loads, higher fire temperatures and decreasing time to flashover, making quick response more important than ever. Flashover can typically occur from less than four 4 to beyond 10 minutes after free burning starts depending upon the air or oxygen supply available to the fire.



6.4.5. **Flashover and fire spread can be mitigated.** Figure 2 shows the progression of fire and how some timeframes can be managed by the fire department and some cannot. The elapsed time from fire ignition to fire reporting varies but can be indirectly managed using remotely monitored fire alarm and suppression systems to help mitigate the growth of fire. These systems can automatically report the presence of a fire to a public safety answering point (PSAP) or 9-1-1 center. In a perfect world, all structures would be equipped with a monitored fire alarm and automatic fire sprinkler system to help reduce dispatch time and speed the arrival of fire department resources allowing firefighters to arrive at the scene when fires are smaller and more controllable.



Figure 2: Time vs. Products of Combustion



This diagram illustrates fire growth over time and the sequence of events that may occur from ignition to suppression. Depending on the size of room, contents of the room and available oxygen, flashover can occur in less than 2 or more than 10 minutes. Flashover occurs most frequently between 4 and 10 minutes.

6.4.6. **Significance of automatic fire sprinklers:** As the above exhibit illustrates, properly maintained and functioning fire sprinkler systems in both residential, and commercial occupancies will activate to help control a fire long before the arrival of firefighting resources. Automatic fire sprinklers can control fire and buy firefighters significant time toward saving lives and minimizing loss from fire. In PSF’s case, there are often too few resources available to supply a full first alarm and the effective response force resources required for a structure fire. As a result, it is typical for structure fire responses to be supplemented with mutual aid companies from other jurisdictions or volunteer resources that take much longer to arrive, limiting PSF’s overall ability to control larger fires.



6.5. Consequences of Flashover

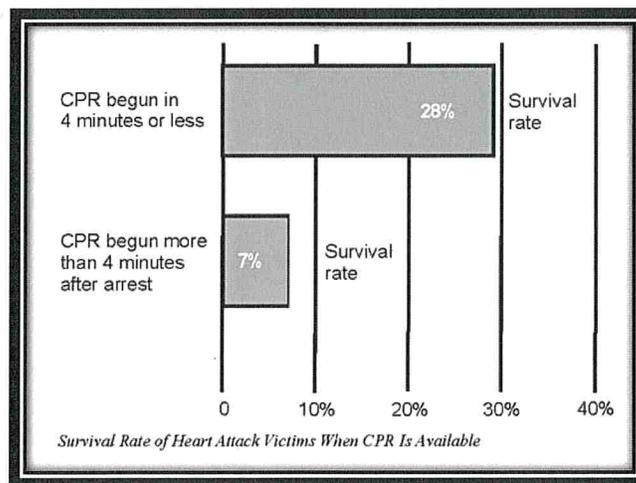
6.5.1. **Flashover is deadly:** Once flashover occurs, it is no longer possible for survival in the room of flashover. Not even firefighters in complete protective gear can survive the intense heat of flashover. A post-flashover fire burns hotter and moves faster, making search and rescue more difficult and riskier in the remainder of the structure. Once flashover occurs more firefighters are needed to deal with the much larger and growing fire problem.

6.5.2. **Firefighting resources should arrive prior to flashover:** Because of the dramatic change in fire conditions post flashover (see Figure 1) all fire based performance standards attempt to place fire resources on scene of a fire prior to flashover.

6.6. Brain Death in a Non-Breathing Patient

6.6.1. **Timely treatment and a non-breathing patient is critical for survival:** The delivery of emergency medical services (EMS) by first responders is also time critical for many types of injuries and events. If a person has a heart attack and cardiopulmonary resuscitation (CPR) is started within four minutes, that person's chances of leaving the hospital alive are almost four times greater than if they did not receive CPR until after four minutes. Exhibit 3 shows the survival rate for heart attack victims when CPR is available.

Figure 3: Cardiac Survival Rate³



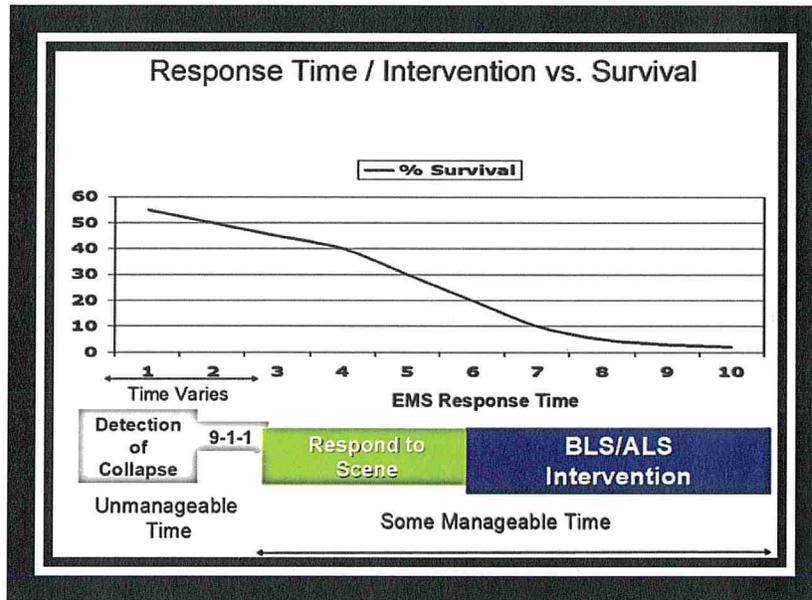
³ Source: National Fire Protection Association Handbook Volume 19



6.6.2. **Automatic defibrillation increases survival further:** Chances of survival are increased with the intervention of a cardiac defibrillator. All PSF units carry defibrillators. Exhibit 4 shows the survival rate of a heart attack victim with CPR and defibrillation.

6.6.3 **Puget Sound Fire’s “Deadline:”** Between 2000 and 2014, no patient has survived cardiac arrest where the total response time to arrival has exceeded 7 minutes and 34 seconds.

Figure 4: Cardiac Survival with CPR and Defibrillation⁴



⁴ Data Source: King County Emergency Medical Services



7. Recognized Standards for Fire Service Response Performance:

7.1 National Fire Protection Association (NFPA) Standard 1710

7.1.1 **NFPA 1710:** establishes Standards for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments and contains the following time objectives to be performed 90% of the time:

7.1.1.1 Dispatch time: "All communications facilities, equipment, staffing, and operating procedures shall comply with NFPA 1221." NFPA 1221 sets the performance standard for alarm processing to dispatch time at 1-minute (60 seconds) 90 percent of the time.

7.1.1.2 Turnout time:

Fire based response: 1 minute 20 seconds (80 seconds)

Medical based response: 1 minute 00 seconds (60 seconds)

7.1.1.3. Fire response/drive time: Four minutes (240 seconds) or less for the arrival of the first arriving engine company at a fire suppression incident and/or eight minutes (480 seconds) or less for the deployment of a full first alarm assignment at a fire suppression incident.

7.1.1.4. Basic life support (BLS) response/drive time: Four minutes (240 seconds) or less for the arrival of a unit with first responder or higher-medical certification capability at an emergency medical incident.

7.1.1.5. Advanced life support (ALS) response/drive time: Eight minutes (480 seconds) or less for the arrival of an advanced life support unit at an emergency medical incident, where the service is provided by the fire department.

7.1.1.6. Total response time: Adding the three separate time segments together, the NFPA expects the following temporal benchmarks to be performed at least 9 out of every 10 times from receipt of a 9-1-1 call to the arrival of fire and EMS resources;

Figure 5: NFPA's Total Response Time Standards (minutes & seconds)



Fire call

- First-in:= (Dispatch =1:00 + Turnout = 1:20 + Drive = 4:00) = 6:20
- Full alarm: (Dispatch = 1:00 + Turnout = 1:20 + Drive = 8:00) = 10:20

EMS – Basic & Advanced Life Support Services

- First-in:= (Dispatch =1:00 + Turnout = 1:00 + Drive = 4:00) = 6:00
- Full Alarm: = (Dispatch =1:00 + Turnout = 1:00 + Drive = 8:00) = 10:00



7.2 Center for Public Safety Excellence (CPSE) Standard of Cover

7.2.1. The Center of Public Safety Excellence is a consortium of the International Association of Fire Chiefs (IAFC), International Association of Fire Fighters (IAFF) the International City/County Management Association (ICMA), the International Code Council (ICC), the Insurance Services Office (ISO) the National Fire Protection Association (NFPA) and the U.S. Fire Administration (USFA). Together this group maintains the Commission on Fire Accreditation International (CFAI) and the criteria for fire departments to achieve Accredited Agency Status. Critical to achieving Accredited Agency Status is an assessment of the fire department's ability to effectively deliver service. To make this assessment, the CFAI has established a methodology for; determining the fire and non-fire risks of a community, assessing the fire department's capability compared to that risk, measuring fire department resource capacity and guidelines for performance standards to assess overall performance of a fire department. The CFAI publishes this methodology in its Standards of Cover manual.

7.2.2 The term standard of cover: Refers to the "standard(s)" to which a fire department runs daily operations in order to "cover" the service area of the fire department. The CFAI process for establishing a Standard of Cover has nine parts that are described below with relevant information to PSF:

7.2.2.1. Existing deployment assessment: Identifies current inventory of fire stations, apparatus and staffing. PSF's stations apparatus and staffing are found in PSF's Capital Improvement and Equipment Plan.

7.2.2.2. Review of community expectations: Ultimately, level of service standards are driven by the community. PSF's standards have been adopted herein and by the Cities of Kent and Covington in their Comprehensive Plans, both have undergone a public review and hearing process. Additionally, Fire District 43 and SeaTac have adopted minimum standards in their contracts for response services with PSF.



7.2.2.3. Community risk assessment: The CPSE requires adoption of benchmark response times for each component (alarm processing, turnout, drive) of response as well as separate benchmarks for both urban and rural deployment. Additionally, benchmarks must be established by type of incident, and category (low, moderate and high) of risk associated the event. PSF has conducted this risk assessment across the 109 square miles of urban and rural areas in its 2019 Standard of Cover document.

7.2.2.4. Critical task analysis and staffing comparison: The CFAI requires staffing standards that are capable of responding and providing adequate personnel to address the risks identified in the community risk assessment.

7.2.2.4.1 PSF's current staffing and resources alone, are incapable of providing adequate staffing necessary to mitigate the potential response needs of high-risk occupancies.

7.2.2.5. Distribution of Resources: Fire stations should be distributed so that resources deployed from them can provide coverage to the response area within the level of service (LOS) standard established for first-in fire and rescue units. PSF's Standard of Cover has revealed service areas where current fire station deployment cannot meet adopted service levels.

7.2.2.6. Concentration of Resources: Fire resources should be concentrated near high demand areas and in large enough numbers of equipment and personnel to provide an effective response force with the full first alarm assignment. Because of a lack of resources, PSF often relies on resources from neighboring fire departments to assemble an effective response force.

Because of a lack of resources, PSF often relies on resources from neighboring fire departments to assemble an effective response force.



7.2.2.7. Capacity Analysis/Reliability: To achieve adopted performance standards, resources must be available or “reliable” at least as often as their adopted performance expectation. Historic reliability below the adopted performance standard places the service area in “Resource Exhaustion” and creates call stacking and simultaneous calls within a specific service area.

PSF is currently experiencing resource exhaustion at Stations 45, 71, 72, 73, 74 and 77 where reliability is below 90% during peak demand hours.

7.2.2.8. Historical response effectiveness studies: The percentage of compliance the existing response system delivers based on current LOS.

7.2.2.9. Overall Evaluation and Plan: Identifies performance issues, and strategies toward sustaining service levels and achieving benchmark performance.

7.2.3. **Prevention and mitigation:** The CPSE does recognize the cost of providing fire services needs to be balanced to individual communities and therefore they emphasize the need for mitigation. Fire prevention, risk reduction, education, and code enforcement along with mitigation policies are encouraged. Prevention and mitigation efforts directly impact the level of safety for responding firefighters and the public. Using analysis of risk and looking at what strategic mitigations can be implemented may not only prevent the incident from occurring but may also minimize the severity when and if the incident occurs.



7.2.4. CPSE Standard: The CPSE requires both temporal and staffing capability standards to assure timely arrival with adequate capability to address existing risk. Following is an example of the CPSE standard requirement:

"For 90 percent of all moderate and high-risk structure fires the departments total benchmark response time, from the receipt of the 911 call in the secondary public safety answering point (PSAP) to the arrival of the first-due unit, staffed with at least two firefighters arriving on an aid car or three firefighters arriving on an engine or ladder truck shall be: 7 minutes 40 seconds in urban areas and 9 minutes 35 seconds in rural areas. The first-due unit for all risk levels shall be capable of: providing incident size up, initiating command, and requesting additional resources. If arriving on a fire engine, the first-due unit shall be capable of providing 500 gallons of water and 1,500 gallons per minute (gpm) pumping capacity; establishing and advancing an attack hose-line flowing a minimum of 150 gpm; or rescuing at-risk victims. These operations are done in accordance with the Department's standard operating procedures while providing for the safety of responders and the public. (PSF is not currently capable of achieving this standard.)"



8. State and Local Standards

8.1 Washington State Law

8.1.1. Chapter 52.33 RCW requires fire departments with paid staff to establish Level of Service (LOS) policies and performance objectives based on the arrival of first responders with defibrillation equipment prior to brain death and the arrival of adequate fire suppression resources prior to flashover. This law recognizes the NFPA's Standard 1710 and the Commission on Fire Accreditation International's (CFAI) Standard of Cover as bases for this statute and requires a 90% performance expectation of the established LOS.

8.2. King County Standards

8.2.1. The King County Comprehensive Plan and Countywide Planning Policies are based on the concept of concurrency and require that adequate facilities and services be available or be made available to serve development as it occurs. The County Comprehensive Plan recognizes the validity of using a response time analysis in determining appropriate service levels and recognizes the central role of fire protection districts and regional fire authorities in providing those services. However, King County has not adopted any fire service response standards.

8.3. City of Covington and Kent Response Standards

8.3.1. The Covington and Kent Comprehensive Plans have adopted the fire service response standards of the Puget Sound Regional Fire Authority.

8.4. Fire District 43 (Maple Valley Fire & Life Safety) City of SeaTac

8.4.1. Fire District 43 and the City of SeaTac have established their own standards through a contract for services with PSF. District 43 and SeaTac response time standards exceed those adopted by PSF in its Standard of Cover.



8.5. PSF's Standard of Cover

8.5.1. PSF maintains a "Standard of Cover" document as part of their accreditation process through the Center for Public Safety. The Standard of Cover is the "Standard" or Level of Service (LOS) to which the fire department will deliver services to the community. Performance below benchmark standards can contribute to unnecessary property and life loss. The continuum of time of fire service performance to adopted level of service standard includes three main components measured at the 90th percentile (9 out of 10 times) of performance:

- 8.5.1.1. Dispatch time: The time interval from when a 9-1-1 call is answered and appropriate resources dispatched through alerts to firefighters.
- 8.5.1.2. Turnout time: The time interval that begins when audible or visual notification is received by firefighters from the 9-1-1 center and ends when firefighters have donned appropriate protective equipment and safely seat-belted themselves in their response vehicle ready to drive.
- 8.5.1.3. Travel time: The time interval that begins when a response unit begins to move in route to the emergency incident location and ends when the unit arrives at the addressed location or, at the entryway to the addressed complex.



8.5.1.3.1. First unit arrival objectives: 90% performance expectation.

Figure 6: PSFA First Unit Arrival Service Standard-Urban Areas

- **Urban Service Area:**

 - Low Risk
 - **Fire**
Dispatch (1:10) + Turnout (1:55) + Drive Time (5:35) = 8:40
 - **EMS**
Dispatch (1:30) + Turnout (1:45) + Drive Time (10:15) = 13:30

 - Moderate Risk
 - **Fire**
Dispatch (1:10) + Turnout (1:55) + Drive Time (4:35) = 7:40
 - **EMS**
Dispatch (1:10) + Turnout (1:45) + Drive Time (4:35) = 7:30

 - High Risk
 - **Fire**
Dispatch (1:10) + Turnout (1:55) + Drive Time (4:35) = 7:40
 - **EMS**
Dispatch (1:10) + Turnout (1:45) + Drive Time (4:35) = 7:30

Figure 7: PSFA First Unit Arrival Service Standard-Rural Areas

- **Rural Service Area:**

 - Low Risk
 - **Fire**
Dispatch (1:10) + Turnout (1:55) + Drive Time (7:35) = 10:00
 - **EMS**
Dispatch (1:30) + Turnout (1:45) + Drive Time (13:15) = 16:30

 - Moderate and High Risk
 - **Fire**
Dispatch (1:10) + Turnout (1:55) + Drive Time (6:30) = 9:35
 - **EMS**
Dispatch (1:10) + Turnout (1:45) + Drive Time (6:30) = 9:25



8.5.1.3.2. Fire minimum effective response force arrival objectives: (First three units) 90% performance expectation.

Figure 8: PSFA Minimum Effective Response Force Standard

• Urban Service Area:

- Moderate and High Risk
 - **Fire**
Dispatch (1:10) + Turnout (1:55) + Drive Time (6:45) = 9:50

• Rural Service Area:

- Moderate and High Risk
 - **Fire**
Dispatch (1:10) + Turnout (1:55) + Drive Time (8:40) = 11:45



8.5.1.3.3. Full first alarm arrival objectives: 90% performance

Figure 9: PSFA Full First Alarm Response Force Standard

• Urban Service Area:

- Low Risk
 - **Fire**
Dispatch (1:10) + Turnout (1:55) + Drive Time (7:55) = 10:00
 - **EMS**
Dispatch (1:30) + Turnout (1:45) + Drive Time (8:35) = 11:50

- Moderate Risk
 - **Fire**
Dispatch (1:10) + Turnout (1:55) + Drive Time (12:55) = 16:00
 - **EMS**
Dispatch (1:10) + Turnout (1:45) + Drive Time (6:20) = 9:15

- High Risk
 - **Fire**
Dispatch (1:10) + Turnout (1:55) + Drive Time (17:35) = 20:40
 - **EMS**
Dispatch (1:10) + Turnout (1:45) + Drive Time (6:20) = 9:15

• Rural Service Area:

- Low Risk
 - **Fire**
Dispatch (1:10) + Turnout (1:55) + Drive Time (9:55) = 12:00
 - **EMS**
Dispatch (1:30) + Turnout (1:45) + Drive Time (13:05) = 16:20

- Moderate Risk
 - **Fire - Hydrant Supply**
Dispatch (1:10) + Turnout (1:55) + Drive Time (14:55) = 18:00
 - **Fire - Tender Supply**
Dispatch (1:10) + Turnout (1:55) + Drive Time (15:55) = 19:00
 - **EMS**
Dispatch (1:10) + Turnout (1:45) + Drive Time (8:20) = 11:15

- High Risk
 - **EMS**
Dispatch (1:10) + Turnout (1:45) + Drive Time (8:20) = 11:15



8.5.2 Reliability is a measure of resource capacity. For a resource to be reliable, it must be available to answer emergency calls as least as often as the service expectation placed upon that resource. For instance, if a fire resource is expected to deliver service at the adopted standard 90% of the time, then that resource should be available to respond to an emergency incident from its assigned fire station at least 90% of the time. Reliability levels below the adopted performance expectation indicate resource exhaustion.

Figure 10: PSF Reliability Objectives

Minimum Reliability Objectives			
Performance Type	Urban	Suburban	Rural
Minimum Peak Hour Unit Reliability	90%	90%	90%

9. Local Restriction on Level of Service

9.1. PSF Standards Assessment: PSF has assessed its ability to deliver service in compliance with established national standards finding that current deployment will not allow the department to meet recognized standards. As a result of the level of service analysis, PSF has completed a fire station deployment study with a focus on determining the optimum station location and resource deployment necessary to achieve effective response times. This study has considered the National Fire Protection Association’s Standard 1710, the Center for Public Safety Excellence’s (CPSE) Standard of Coverage recommendations and Chapter 52.33 RCW in establishing standards for emergency response. Resources required to close the gap between current performance and adopted benchmark levels of service are identified in the 2014-2033 Master Capital Facility and Equipment Plan and its subsequent annual 6-year updates.

9.2. Because of resource limitations and budget restrictions, PSF has adopted level of service standards that exceed the benchmark standards established by NFPA 1710, the CPSE and the guidelines of Chapter 52.33 by as much as 6 minutes.



10. Need for Mitigation of Development Impacts

10.1 Substandard performance: PSF's current fire system performance falls short of national standards. Any additional impacts posed by new development will further erode PSF's ability to deliver service at adopted standards.

10.1.1. Auto Aid: PSF must rely on resources from neighboring fire departments to assemble an effective response force.

10.1.2. Resource exhaustion: PSF is currently experiencing resource exhaustion at Stations 45, 71, 72, 73, 74, and 77 where reliability is below 90% during peak demand hours.

10.1.3. Service Standards: PSF has had to adopt level of service standards that exceed benchmark standards established by NFPA 1710, and the guidelines of Chapter 52.33 by as much as 6 minutes.

10.2. Revenue restrictions: Washington's limit on annual tax collections (101% of the previous year) has eroded PSF's ability to keep up with growth and inflation. The annual levy rate which began at \$1.00 per thousand dollars of assessed value in 2011, was reduced to less than \$0.71 in 2019. This declining levy rate and, greater than one percent inflation has compounded recovery from the lingering effects of the great recession. This has resulted in reductions in purchasing power; staff reductions or delays in hiring, and delays in equipment replacements within PSF. Since 2011 funding of capital replacement programs was reduced in favor of meeting increasing operating expense due to new community growth and inflation. This has led to underfunding the 2014 to 2033 capital plan timeline for additional resources. In August of 2019 voters approved PSF's request to restore its tax levy to \$1.00 per thousand of assessed value beginning in the 2020 tax year. Restoration of the levy is hoped to assist in better funding the capital needs of PSF.

10.3. Conclusion: Unless new development can mitigate their impacts to the PSF fire service system in accordance with this policy, PSF must oppose each and every development occurring within PSF service area.



11. Determining Development Impacts

11.1. Concepts of Fire Service Capacity and Cascading Failure:

11.1.1 The deployment of fire and life safety resources such as fire engines and emergency medical vehicles is geographically based through planned selection of fire station locations. Fire station locations must be carefully chosen to allow the resource(s) deployed from these locations to reach all portions of the assigned service area within a time frame capable of providing successful outcomes for critically injured or non-breathing patients and, to prevent flashover and minimize life and property loss during a structure fire.

11.1.2. This type of geographic deployment depends on the availability of the resources assigned to that fire station location. System failure begins to occur when the demand for these resources is increased to a point where simultaneous requests for a resource begins to commonly occur as a result of exceeding the capacity of that resource. When service demand exceeds a single resource fire station's capacity, a resource from a fire station further away must respond in its place. The result of this situation is often referred to as cascading failure. The failure of one resource to be available to answer emergency calls cascades to the next closest fire station resource, leaving two service areas unprotected when the covering resource vacates its assigned area to make up for lack of capacity of the failing resource area. This effect continues to cascade out with a ripple effect to yet other fire stations and jurisdictions.

11.1.3. Cascading failure causes longer drive times to reach emergency scenes and as a result, it is less likely that those resources can positively affect the negative outcomes of flashover and brain death.

11.1.4. The solution to cascading failure is the addition of service capacity to the area experiencing substandard reliability. The deployment of additional fire resources results in considerable expense to a community; therefore, a delicate balance must be maintained to use but not exceed the service capacity of resources.

11.1.5. The Center for Public Safety Excellence refers to a fire resource's capacity in their Standards of Cover guidelines, in terms of level of "reliability" of a fire resource. If a resource is available at least as often as the expected performance expectation, it is considered reliable.

11.1.6. PSF's ability to meet its response time standards is directly affected by resource reliability.



Figure 11: Reliability Chart

2018 Station Reliability															
	SeaTac			Kent-West	Kent-Central		Kent-East			Covington		Maple Valley			System Wide
Hour	Sta. 47	Sta. 46	Sta. 45	Sta. 73	Sta. 71	Sta. 76	Sta. 74	Sta. 77	Sta. 72	Sta. 75	Sta. 78	Sta. 80	Sta. 81	Sta. 83	Avg.
00:00	94.22%	93.66%	91.51%	92.65%	90.52%	95.54%	92.17%	92.61%	95.00%	95.42%	97.31%	97.69%	94.42%	98.05%	94.34%
01:00	93.94%	93.66%	91.54%	91.11%	91.80%	95.33%	92.75%	93.67%	94.72%	93.46%	96.05%	98.33%	94.65%	98.21%	94.23%
02:00	94.43%	94.75%	91.68%	91.49%	90.68%	94.29%	92.74%	93.16%	95.19%	95.68%	96.08%	98.13%	96.15%	97.82%	94.45%
03:00	94.69%	95.15%	92.39%	91.23%	91.46%	95.42%	93.09%	95.36%	95.42%	96.33%	96.49%	97.46%	97.03%	97.57%	94.93%
04:00	94.77%	94.78%	94.10%	92.37%	91.43%	93.57%	94.32%	93.71%	95.81%	95.26%	97.05%	97.89%	95.34%	97.32%	94.84%
05:00	93.41%	95.57%	93.16%	91.61%	90.71%	92.52%	94.16%	93.17%	95.12%	95.95%	97.40%	97.89%	96.41%	97.27%	94.60%
06:00	94.42%	94.25%	91.76%	91.31%	89.71%	93.62%	91.57%	93.37%	93.91%	94.97%	96.91%	97.74%	95.15%	97.15%	93.99%
07:00	92.87%	93.72%	91.73%	92.34%	87.78%	91.16%	90.74%	92.06%	94.10%	94.32%	96.66%	97.92%	94.34%	96.50%	93.30%
08:00	91.44%	94.61%	89.02%	91.01%	85.61%	89.51%	90.54%	89.99%	93.06%	93.40%	94.28%	97.43%	92.51%	95.50%	91.99%
09:00	91.29%	92.79%	89.16%	89.08%	85.04%	90.03%	88.61%	90.39%	92.01%	90.46%	95.44%	95.56%	93.33%	95.56%	91.34%
10:00	87.62%	92.70%	89.75%	90.58%	86.66%	90.73%	86.42%	88.74%	88.77%	88.54%	91.55%	95.37%	92.85%	95.72%	90.43%
11:00	89.59%	92.14%	86.71%	88.12%	81.98%	90.30%	85.53%	88.13%	87.40%	89.65%	92.01%	94.50%	90.36%	94.83%	89.37%
12:00	89.71%	91.79%	87.78%	87.52%	84.15%	89.34%	86.08%	85.84%	89.18%	88.49%	92.67%	94.07%	90.32%	94.73%	89.41%
13:00	88.88%	91.39%	87.42%	88.37%	83.69%	88.27%	85.57%	86.22%	90.74%	90.36%	91.23%	94.07%	91.43%	94.32%	89.42%
14:00	88.28%	92.45%	88.32%	86.07%	81.88%	88.03%	85.79%	88.58%	88.63%	89.60%	93.19%	92.12%	92.20%	94.40%	89.25%
15:00	88.10%	92.55%	86.23%	87.58%	84.12%	89.52%	86.53%	88.92%	89.29%	89.80%	92.80%	94.39%	92.77%	93.69%	89.73%
16:00	87.80%	91.26%	86.82%	87.94%	81.09%	88.98%	85.33%	87.91%	91.39%	89.22%	92.51%	93.06%	91.23%	94.26%	89.20%
17:00	88.71%	91.31%	84.53%	87.40%	81.52%	88.15%	87.30%	86.65%	89.88%	88.27%	92.02%	92.90%	90.49%	92.80%	88.71%
18:00	88.13%	91.03%	87.14%	87.13%	80.91%	89.73%	84.73%	88.49%	89.34%	90.69%	92.21%	92.77%	89.67%	93.01%	88.93%
19:00	89.75%	90.79%	87.13%	86.21%	81.13%	90.33%	86.26%	88.24%	90.54%	89.59%	93.02%	93.09%	89.82%	94.75%	89.33%
20:00	90.36%	91.10%	89.59%	90.10%	84.11%	92.16%	87.11%	90.39%	92.21%	90.74%	94.27%	94.47%	91.27%	94.68%	90.90%
21:00	90.48%	91.33%	87.14%	88.23%	84.94%	92.95%	88.10%	87.64%	92.58%	91.97%	95.44%	96.11%	91.78%	94.28%	90.93%
22:00	90.58%	93.20%	88.64%	89.49%	87.00%	92.70%	89.85%	90.21%	92.04%	92.10%	94.74%	94.16%	94.01%	95.00%	91.69%
23:00	93.72%	95.43%	92.29%	94.25%	91.39%	96.27%	91.98%	93.91%	94.83%	96.48%	97.84%	97.28%	96.70%	97.43%	94.99%
Daily Avg	91.13%	92.98%	89.40%	89.72%	86.22%	91.60%	89.05%	90.31%	92.13%	92.11%	94.55%	95.60%	93.09%	95.62%	91.68%



11.2.Components of Response:

11.2.1. PSF measures the direct impact of an individual development on system performance by determining the development's impact on service capacity and fire department response times. PSF tracks three primary performance measures.

- 11.2.1.1. First is the arrival time of the initial arriving "first-in" or distribution resource.
- 11.2.1.2. Second is the arrival of all the first three units for fire incidents. These first three units are referred to as the "Minimum Effective Response Force" (MERF). Data shows these first three units can often hold fires in check but need additional assistance for final extinguishment.
- 11.2.1.3. Third is the arrival of the full first alarm assignment which provides the resources needed to effectively mitigate the emergency incident. This is referred to as the "Effective Response Force" (ERF) or concentration resources. An initial arriving resource can begin to render aid or perform other necessary tasks as a component of the ERF but cannot resolve the incident alone. An ERF for life threatening medical calls require two or more fire resources and a structure fire requires five or more fire resources. The additional resources of the MERF and ERF must respond from greater distances than the first-in resource therefore the first-in, MERF, and ERF have separate performance expectations.



11.3 Effect of Development on Fire System Performance:

11.3.1. Each new development uses service capacity affecting the reliability and the temporal performance of fire service resources. Where service capacity exists to accommodate the impacts of new development, mitigations should be reduced accordingly to allow new development credit for the existing capacity. However, service capacity or resource reliability must be carefully measured to assess the reliability and response performance of both first-in and full first alarm (ERF) resources.

11.3.2. It is important to understand whether a new development is placed nearer to, or farther from a fire station, its use of service capacity will have a negative effect on the fire service systems performance. Therefore, the mitigation necessary to maintain fire service concurrency is not dependent on geographical location within a fire stations service area, but on the fact that each development consumes service capacity negatively affecting reliability and response performance. Those developing property away from existing fire stations directly impact the system because they are using capacity that would otherwise serve development close to existing fire stations. As close-in properties develop, they in turn, directly impact the system by reducing resource reliability for those developments that are more distant.



11.4. Mitigation Actions Required:

11.4.1. PSF's limited funding and resources has caused the need to adopt standards that establish levels of service below nationally recognized benchmark standards. As a result, all new development has a direct impact on PSF's service capacity.

11.4.2. When system inadequacies exist, the impact of each new development will have an unacceptable direct impact on PSF's ability to provide service. Each new development shall be reviewed to determine whether it will further impact the following identified service deficiencies. Mitigation shall be required if any one or more of the following performance deficiencies exist within the response district (typically a quarter section) of the proposed development:

- 11.4.2.1. Historical performance data shows arrival time for first-in unit response times exceed the adopted Level of Service standard.
- 11.4.2.2. Historical performance data shows arrival time of minimum effective response forces (MERF) or full first alarm (effective response force ERF) units exceed the adopted Level of Service standard.
- 11.4.2.3. Historical performance data shows reliability of first in units is equal to or less than the adopted standard (90%) during peak demand hours.
- 11.4.2.4. Historical performance data shows reliability of the assigned MERF or ERF resources is equal to or less than the adopted standard (90%) during peak demand hours.
- 11.4.2.5. Historical data shows evidence that one or more mutual-aid company has been consistently relied upon to provide an effective response force to the area of proposed development.
- 11.4.2.6. Less than 1,500 gallons of fire flow is available when any structure to structure spacing is less than 15 feet from any part of another structure.



11.5. Mitigation Options: Residential, Commercial and Regional Commercial

11.5.1. PSF staff may utilize the options listed below and/or any state or locally adopted building code set, and any NFPA or other recognized standard to mitigate the impacts of new development upon the ability of PSF to deliver adopted levels of service.

11.5.2. Acceptable mitigations shall appropriately address risk of the residential, commercial, or regional commercial development and may include, but not be limited to one or more of the following options to achieve concurrency:

11.5.2.1. Installation of automatic fire sprinkler systems to provide onsite fire control until PSF response units can arrive on scene. All automatic fire sprinkler systems shall comply with NFPA 13.

11.5.2.1.1. Exception: Partial flow through or multi-purpose or, water mist fire protection systems may be allowed in one and two-family structures upon approval of the Fire Marshal representing the authority having jurisdiction.

11.5.2.2. Installation of monitored alarm and alerting systems to provide early alerting to PSF.

11.5.2.3. Installation of fire walls or other building separations to reduce fire flow and/or firefighting resource requirements.

11.5.2.4. Use of alternate construction materials or design to reduce chance of fire spread between structures and aid in rescue operations.

11.5.2.5. Installation of systems or features that assist evacuation and sheltering in place.

11.5.2.5.1. Design and installation of areas of refuge in multi-story stairwells.

11.5.2.5.2. Installation of a central fire department lobby control with intercom systems in taller high-risk (multi-family housing) buildings to assist evacuation and sheltering in place.

11.5.2.6. Addition of access enhancements such as secondary access points, fire lanes, ambulance parking spaces etc.



11.5.2.7. Installation of incident reduction features such as grab bars in senior and disabled housing units.

11.5.2.8. Installation of monitored medical alarms.

11.5.2.9. Installation of alarm monitored defibrillators in public areas of multi-family housing, places of assembly, and public buildings.

11.5.2.10. Impact Fees.

11.5.2.11. Level of Service Fees.

11.5.3. Selected mitigation measures should be relational to the risk imposed by the development and its use. Time is the critical issue in the delivery of emergency fire and medical services. Mitigation measures should be appropriate and adequate to achieve a level of public safety that would be equivalent to PSF's achievement of response time standards within a reasonable, six-year period.



12. Developer Agreements

12.1. Developer agreements may be required for all developments occurring within PSF service area when impact or level of service fees alone, do not adequately mitigate the risk of the new development or ensure concurrency. When determined by the Chief or his designee, PSF and the development applicant shall enter into a mitigation agreement that clearly identifies all mitigation necessary to maintain fire service concurrency.

12.2. Basis for Calculating Impact and Level of Service Fees (Appendix A):

12.2.1. **Boundaries:** As a point of reference, PSF boundaries and resources deployed within those boundaries shall be used to determine the service capacity according to PSF's adopted response time standards. This policy shall be applied to all or administratively defined areas within the boundaries of PSF.

12.2.2. **Property Categories:** Properties are grouped by three basic categories, residential, commercial and regional commercial.

12.2.2.1. Residential properties shall include both single family and multifamily units.

12.2.2.2. Commercial property shall be those property uses that would otherwise be classified as industrial, business, retail sales and services, wholesale sales, storage, assisted care facilities, churches and medical facilities.

12.2.2.3. A "regional commercial" designation may be applied to commercial properties when by design, location, and business plan is intended to serve a regional largely non-resident population. Regional commercial designations are likely to occur near regional transportation, shopping and entertainment centers, places of assembly, and will produce fire service impacts that are much higher than like properties in other areas serving resident populations.

12.2.3. **Capital Improvements:** PSF's Capital Facilities and Equipment Plan identifies the resources and revenue needed to provide adequate service and maintain public health and safety over a 20-year planning cycle. Each year an updated Six Year Capital Plan shall be adopted to provide current levels of service and provide the basis for updating construction and equipment costs and impact and level of service fees.

12.2.4. **Fire Department Service Demand:** Past demand for fire department services to property categories identified above, shall be used to predict future service level demand to those proposed property types. The percentage of service use by new development and its impact on PSF Service Levels shall be used to determine appropriate and relational contributions for each property type (see Appendix A, Res/Com Split). Needed



expenditures for capital improvements identified in PSF's Capital Facilities and Equipment Plan will be the basis for determining the construction and equipment costs (C&E) which are used in calculating impact fees and level of service contributions.

12.2.5. Usage Factor: The specific use of fire services by land use category. Use factors are based on actual incident rates. (see appendix A)

12.2.6. ERF (Effective Response Force) Factor: The minimum amount of staffing and equipment that must reach a specific emergency location within the maximum adopted level of service time capable of fire suppression, EMS and/or another incident mitigation.

12.2.7. New Development Share: That portion of C&E to be paid for by new development. New Development share is used to assure that new development pays only for improvements related to growth and maintenance of fire service concurrency.

12.2.8. Projected Development: The 20-year growth projections found in PSF's Capital Facilities and Equipment Plan will be the basis for PSF calculations of future dwelling units and future square-footage of commercially developed properties.



13. Mitigation Methodology and Fee Application:

13.1. New Development Assessment: PSF shall pursue all appropriate mitigations necessary to maintain public safety and fire service concurrency through the provisions provided by the Growth Management Act (GMA), State Environmental Protection Act (SEPA), Washington State subdivision codes, and the adopted land use regulations in the authority having jurisdiction.

13.1.1. Impact Fees & Mitigations

13.1.1.1. In areas where fire service impact fees have been adopted in support of PSF by the authority having jurisdiction to permit building and land uses, each new proposed development will have a capacity analysis completed to determine the system wide impacts the proposed development will have on fire concurrency within PSF service area.

13.1.1.2. System impacts will be assessed utilizing PSF's Mitigation Assessment Worksheet or software. (See Appendix D).

13.1.1.3. Impact fees will be calculated and determined through a capacity analysis (Appendix B or C) and applying the appropriate formula found in Appendix A.

13.1.1.4. PSF staff will determine appropriate non-fee mitigations that may be necessary in addition to impact fees to provide for adequate built-in protection or mitigations necessary for fire service concurrency to the proposed development.

13.1.1.5. PSF staff shall consider developer submitted alternate mitigations and fee amounts presented in a study that provides acceptable alternatives to the mitigations found in this policy.



13.1.2. Level of Service Fees & Mitigations

13.1.2.1. In areas where fire service impact fees have not been adopted in support of PSF by the authority having jurisdiction to permit building and land uses, each new development when proposed, and upon notice of application, shall have their direct impacts assessed and their appropriate mitigation options determined.

13.1.2.3. Direct impacts shall be assessed and mitigations determined by utilizing PSFs Mitigation Assessment Worksheet. (See Appendix D)

13.1.2.4. Appropriate Level of Service Contribution fees will be calculated and determined by applying the formula found in Appendix A.

13.1.3. Impact and Level of Service Fee Reduction:

13.1.3.1. Where automatic fire sprinklers are *voluntarily* installed in single family residential occupancies in compliance with RCW 82.02.100 a reduced fee equal to 70% of the impact or level of service fee shall serve to mitigate the costs of needed EMS and rescue resources. Additional reductions shall be applied as identified on PSF Service Capacity Analysis worksheet in Appendix B.



13.1.4. Determination of fee – Adjustments – Exception - Appeals

The fee shall be determined through a capacity analysis to determine the service capacity credits to be applied to the base fees as outlined in Appendix – A.

The developer may be entitled to a credit for the value of any dedication of land for, improvements to, or new construction of any system improvement provided by the developer to fire protection facilities identified in the PSF Capital Plan.

The standard impact or level of service fee may be adjusted in one of the following circumstances:

The developer demonstrates that the impact fee was improperly calculated; or,

Where unusual circumstances are identified by the land use authority having jurisdiction, the developer or PSF staff, the fee may be adjusted in specific cases to ensure that impact fees are imposed fairly. Adjustments will be determined jointly by the director for the land use authority having jurisdiction and PSF's designee.

In cases where a developer requests an independent fee calculation, adjustment exception or a credit pursuant to RCW 82.02.060(6), PSF's designee will consult with the director for the land use authority having jurisdiction prior to making the final fee determination.

A developer may provide studies and data to demonstrate that any factor used by PSF may not be appropriately applied to the development proposal.

Any appeal about fee amounts shall follow the process for the appeal of the development application in the authority having jurisdiction for land use approval.

Impact fees may be paid under protest to obtain a building permit or a manufactured home permit.



13.1.5. Fee Collection Policy:

13.1.5.1. Payment of impact fees shall comply with the guidelines of chapter 82.02 RCW, applicable implementing city/county codes, and will be collected by the jurisdiction having authority at time of permitting, or as defined by a required development agreement. Impact or level of service fees shall be based on the most recently adopted formula and fees. Any fees paid later than required shall be subject to interest at a rate of one (1) percent per month.

13.1.5.2. All impact fees collected by the authority having jurisdiction shall be held in separate account, transferred to PSF with interest, where they shall be held in a reserve account used to fund PSF's Capital Improvement Plan. If impact fees are not utilized within ten years of receipt, a refund will be issued to the developer with interest.

13.1.5.3. All level of service fees collected, shall be held by PSF in a reserve account used to fund PSF's Capital Improvement Plan. If a level of service fees is not utilized within five years of receipt, a refund will be issued to the developer with interest.

13.1.6. Multi-Family common space credit:

13.1.6.1. Each MF dwelling unit shall be credited 50 square feet toward common spaces (not including commercial spaces) in other parts of residential portions of the structure. Total common spaces within the residential portion of the structure exceeding the sum of 50 square feet times the number of total dwelling units shall be assessed the per square foot fee identified in Appendix A for Commercial/Industrial properties for each square foot of common space exceeding the credited amount.

13.1.6.2. Common space credits per dwelling unit shall not apply to mixed use developments where separate commercial and parking spaces are not part of the common living areas of the multi-family space.



13.1.7. Fee Exempt Properties:

13.1.7.1. Shelters or dwelling units for temporary placement, which provide housing to persons on a temporary basis not exceeding two weeks.

13.1.7.2. Rebuilding or remodeling of a legally established structure destroyed or damaged by fire, flood, explosion, act of nature or other accident or catastrophe; provided, that a building permit for the rebuilding or remodeling is issued within one year after such damage or destruction occurs. The exemption shall not apply to any additional structure or expansion of the original square footage that is proposed to be built on the same tax parcel on which the structure that was damaged or destroyed is being rebuilt or remodeled.

13.1.7.3. Projects in which existing dwelling units are converted into condominium ownership and where no new dwelling units are created.

13.1.7.4. Any development activity that is exempt from the payment of an impact fee pursuant to RCW 82.02.100(1), as amended.

13.1.7.5. Any development activity for which fire impacts have been mitigated pursuant to a voluntary agreement entered into with PSF to pay fees, dedicate land or construct or improve fire facilities; provided, that the agreement predates the effective date of impact fee imposition.

13.1.7.6. Any development of 200 square feet or less that does not use or store hazardous materials that would create a life safety risk.

13.1.7.7. Alterations of an existing nonresidential structure that does not expand the useable space and that does not involve a change in use.

13.1.7.8. Demolition of or moving an existing structure within PSF from one site to another.

13.1.7.9. Miscellaneous improvements that do not create additional demands and need for fire protection facilities, including, but not limited to, fences, walls, swimming pools, and signs.

13.1.7.10. Alteration or expansion of or remodeling of an existing dwelling or structure where the use is not changed.



13.1.7.11. Construction of an accessory dwelling unit on a parcel with an existing single-family dwelling unit; provided however, that this shall only exempt the construction from two-thirds of the normal residential impact fee that would otherwise apply.

13.1.7.12. Pursuant to RCW 82.02.100(2), where automatic fire sprinklers are voluntarily installed in single family residential occupancies, a reduced fee equal to 70% of the impact or level of service fee shall serve to mitigate the costs of needed EMS and rescue resources.

Existing structures retained and incorporated into a new subdivision of land.

13.1.8. Agreements:

13.1.8.1. All mitigation agreements between PSF and developers shall be recorded as a lien against the property of the proposed development. Upon receipt of payment, PSF will promptly notify the appropriate authority having jurisdiction and remove any encumbrances recorded against the appropriate property.



14. PSF Funding Share

14.1. PSF Funding Participation: There is currently an identified need for additional fire facilities and equipment in PSF related to growth that occurred prior to this policy. Total funding of PSF's Capital Facilities and Equipment Plan is split between PSF and new development. New development through impact fees or level of service fees shall only be required to fund that share related to new growth. PSF will share in the expense of needed resources as outlined below:

14.1.1. PSF will be directly responsible for the percentage of construction and equipment costs beyond the growth share determined for new development.

14.1.2. PSF will contribute shortages as a result of loss of, or default on collections of impact and level of service fees.

14.1.3. Estimated revenues are never fully realized from development and PSF will need to supplement shortages.

14.1.4. PSF will contribute the actual construction and equipment costs exceeding original estimates.

14.1.5. Payment of unanticipated costs associated with implementing PSF Capital Improvement Plan.

14.1.6. Advancing funds for capital expenses before total collection of impact fee or level of service contributions.

14.1.7. Management of this policy, and the Capital Improvement Plan.



15. Adequate Provisions for Public Safety, Limitations, Intent of Concurrency:

15.1. The safety and welfare of current and future residents of PSF is of paramount concern to PSF. It is recognized that this policy may have limitations and may not provide definitive guidance for effective mitigation of direct development impacts on PSF's service capacity in all cases.

15.2. It is not the intent of this policy to limit PSF's staff in making decisions outside of this policy where those decisions and mitigation options serve the intent of maintaining concurrency with development and protecting PSF's service capacity; making rational and relational mitigation requests appropriate to the level of risk, and protecting the safety of the public and firefighters in a fair and consistent manner.

16. Policy Review and Adjustment:

16.1. At least annually, this Policy will be reviewed and amended as necessary. This review will include updates to reflect current level of service capacity. Amendments will be made consistent with the annual revision of the six (6) year Capital Improvement Plan and shall be approved through a resolution of PSF's Governance Board.

Appendix A

LEVEL OF SERVICE & IMPACT FEE FORMULAS

LOS Formula Calculation							
Land Use Type	System wide C&E	Res/Com Split	Usage Factor	ERF Factor	New Dev Share	Projected New Units 2014 - 2035	Impact & LOS Contribution Fee
Residential							
Single Family	\$107,808,000	60%	54%	1.13	80%	16,884 living units	\$1,870.20
Multi Family	\$107,808,000	60%	46%	1.4	80%	16,884 living units	\$1,973.80
Commercial							
COMM/IND	\$107,808,000	40%	23%	2.75	85%	12,500,000 sq ft	\$1.85
HOSP/MED/CIV/SCH/CHUR	\$107,808,000	40%	26%	2	95%	12,500,000 sq ft	\$1.70
Sr/ASSISTED CARE	\$107,808,000	40%	21%	3	95%	12,500,000 sq ft	\$2.06
SERVICE-hotel/restaurant/etc	\$107,808,000	40%	20%	2	95%	12,500,000 sq ft	\$1.31

LOS Formula Definitions

- **Land Use Type:** Defines the land uses types and structure uses that impact and level of service fees are assessed on.
- **System wide C&E:** The construction and equipment costs for the 20-year time span of PSF's Capital Improvement Plan
- **Res/Com Split:** Percentage of annual emergency responses by property type; Residential = 65%, Commercial = 35%
- **Usage Factor:** The portion of Res/Com Split that is used by a specific property type; Single Family = 56% of all emergency responses that are used by the residential properties and the remaining 44% is used by Multi-Family properties.
- **ERF Factor:** The ERF or effective response force factor represents the size of the first alarm emergency response in numbers of firefighters and equipment that is needed to effectively handle the risk posed by that property type.

- **New Dev Share:**
Represents the portion of C&E costs assigned to new development. The remaining portion is to be paid for by PSF through annual tax collections.
- **Projected New Units:**
Defines the number of new units projected to be constructed within PSF service area between 2014 and 2035
- **Impact and LOS Contribution Fee Amount:**
Represents the maximum fee to be paid by new development for each specific property type. This fee amount may be reduced if existing fire service capacity is adequate to serve the new development.

Service Capacity Credit Criteria	
Residential Fee Reduction Factors: *	
Historical data shows first in station response area meets LOS	= 15%
Historical data shows F-Box of development meets first in LOS	= 10%
First in station reliability data meets peak hour standard	= 10%
Historical data shows full first alarm reliability meets peak call volume standard	= 15%
Automatic sprinkler system installed voluntarily (single family only)	= 30%
Historical data shows full first alarm ERF meets LOS standard to F-Box	= 30%

**Accumulated discounts shall not exceed the LOS contribution amount and cumulative discounts cannot be used as credits to be transferred.*

Multi-Family and Commercial/Industrial Reduction Factors⁵:	
Historical data shows first in station response area meets LOS	= 15%
Historical data shows F-Box of development meets first in LOS	= 10%
First in station reliability data meets peak hour standard	= 10%
Historical data shows full first alarm reliability meets peak call volume standard	= 15%
Historical data shows full first alarm ERF meets LOS standard to F-Box	= 30%

⁵ Because of the risk and complexity associated with firefighting in multi-family structures, fire sprinklers are considered a required risk reduction factor and therefore shall not be allowed a discount of the mitigation fee.



**Appendix B
Puget Sound Regional Fire Authority
Service Capacity Analysis for New SFR Development**

Date of Analysis: _____ Project Permit # _____

Project Address: _____ Land Parcel # _____

Fire Box Location: _____ Fire Box Performance: 1st In ____% ERF ____%

1st in Station ____ Peak Hour Reliability ____% 1st in Area Performance ____%

Fire ERF Required ____ ERF Pick List _____, _____, _____, _____, _____, _____

ERF Reliability _____% _____% _____% _____% _____% _____%

Capacity Allowance Calculator:

1 st in response area meets LOS	_____ = 15%	_____%
F-Box development meets first in LOS	_____ = 10%	_____%
1 st in reliability meets peak hour standard	_____ = 10%	_____%
1st alarm reliability meets peak hour standard	_____ = 15%	_____%
Sprinklers installed voluntarily	_____ = 30%	_____%
1st alarm ERF meets LOS standard to F-Box	_____ = 30%	_____%

Total Capacity Allowance _____%

Total Fee Calculation:

Full SFR Impact Fee Rate	=	_____
SFR units in development	x	_____
Total impact fee amount		_____

Impact fee to be assessed:

Total impact fee _____ x capacity allowance _____ = \$ _____



Appendix C
**Puget Sound Regional Fire Authority
Service Capacity Analysis for New non-SFR Development**

Date of Analysis: _____ Project Permit # _____

Project Address: _____ Land Parcel # _____

Fire Box Location: _____ Fire Box Performance: 1st In ____ % ERF ____%

1st in Station ____ Peak Hour Reliability ____ % 1st in Area Performance ____%

Fire ERF Required _____ ERF Pick List _____, _____, _____, _____, _____, _____, _____

ERF Reliability _____% _____% _____% _____% _____% _____% _____%

Capacity allowance calculator:

1 st in response area meets LOS	_____ = 15%
F-Box development meets first in LOS	_____ = 10%
1 st in reliability meets peak hour standard	_____ = 10%
1st alarm reliability meets peak hour standard	_____ = 15%
1st alarm ERF meets LOS standard to F-Box	_____ = 30%
Total Capacity Allowance	_____

Impact fee category and rate:

Multi Family _____	Impact fee rate per square foot _____
Commercial/Industrial _____	Impact fee rate per square foot _____
Hospital/Medical/Civic _____	Impact fee rate per square foot _____
Assisted Care _____	Impact fee rate per square foot _____

Total fee calculation:

Full impact fee rate	= _____
Square footage of development	x _____
Total impact/LOS amount	\$ _____

Impact fee to be assessed:

Total impact/LOS amount _____ x capacity allowance _____ = \$ _____

ORDINANCE NO. 01-2020
EXHIBIT C

FIRE IMPACT FEE SCHEDULE

Single Family Residential:	\$1,870.20 / Unit (A single Family house is one living unit)
Multi Family:	\$1,973.80 / Unit (Per Unit in a multifamily development)
Comm/Ind Commercial:	\$1.85 / (Per Sq. Feet)
Hosp/Med/Civ/Sch/Chur Commercial:	\$1.70 / (Per Sq. Feet)
Sr/Assisted Care:	\$2.06 / (Per Sq. Feet)
Service – hotel/restaurant/etc:	\$1.31 / (Per Sq. Feet)