

Puget Sound Pilots Retirement Study
Exhibit 1 - Estimated 50-Year Cost Projections (2023 Segment Rates)

These projections are intended as an illustration of high-level dynamics of potential transitions from a pay-as-you-go "farebox" program to a prefunded qualified defined benefit plan. Additional detailed analysis and sensitivity testing should be conducted prior to developing budget expectations and ranges for any specific proposed change.

Baseline		Alternative 1					Alternative 2				
Current Farebox		Current Retires Remain Farebox, DB Plan for All Active Benefits					Current Retires and Current Actives (Past Only) Remain Farebox, DB Plan for All Active Future Accruals				
Year	Contributions	Annual Contributions				Total	Year	Farebox	Annual Contributions		Total
		DB Plan: Current Actives	DB Plan: Future Hires	DB Plan: Current Actives	DB Plan: Future Hires						
2024	6,558,000	2024	6,364,000	5,576,000	0	11,940,000	2024	6,540,000	2,943,000	0	9,483,000
2025	6,811,000	2025	6,216,000	5,457,000	102,000	11,775,000	2025	6,742,000	2,824,000	102,000	9,668,000
2026	7,092,000	2026	6,060,000	5,308,000	215,000	11,583,000	2026	6,939,000	2,675,000	215,000	9,829,000
2027	7,388,000	2027	5,894,000	5,163,000	339,000	11,396,000	2027	7,127,000	2,530,000	339,000	9,996,000
2028	7,511,000	2028	5,720,000	5,092,000	465,000	11,277,000	2028	7,148,000	2,459,000	465,000	10,072,000
2029	7,681,000	2029	5,536,000	4,967,000	604,000	11,107,000	2029	7,180,000	2,334,000	604,000	10,118,000
2030	7,824,000	2030	5,344,000	4,856,000	753,000	10,953,000	2030	7,174,000	2,223,000	753,000	10,150,000
2031	7,878,000	2031	5,142,000	4,783,000	919,000	10,844,000	2031	7,091,000	2,150,000	919,000	10,160,000
2032	7,948,000	2032	4,932,000	4,678,000	1,087,000	10,697,000	2032	6,994,000	2,045,000	1,087,000	10,126,000
2033	7,936,000	2033	4,714,000	4,623,000	1,281,000	10,618,000	2033	6,841,000	1,990,000	1,281,000	10,112,000
2034	7,870,000	2034	4,487,000	4,610,000	1,472,000	10,569,000	2034	6,653,000	1,977,000	1,472,000	10,102,000
2035	7,804,000	2035	4,253,000	4,591,000	1,679,000	10,523,000	2035	6,452,000	1,958,000	1,679,000	10,089,000
2036	7,769,000	2036	4,012,000	4,545,000	1,902,000	10,459,000	2036	6,251,000	1,912,000	1,902,000	10,065,000
2037	7,653,000	2037	3,766,000	4,552,000	2,152,000	10,470,000	2037	6,009,000	1,919,000	2,152,000	10,080,000
2038	7,544,000	2038	3,515,000	4,548,000	2,409,000	10,472,000	2038	5,757,000	1,915,000	2,409,000	10,081,000
2039	7,412,000	2039	3,260,000	4,527,000	2,684,000	10,471,000	2039	5,485,000	1,927,000	2,684,000	10,096,000
2040	7,361,000	2040	3,004,000	4,500,000	2,957,000	10,461,000	2040	5,211,000	1,881,000	2,957,000	10,049,000
2041	7,298,000	2041	2,747,000	4,470,000	3,225,000	10,442,000	2041	4,918,000	1,870,000	3,225,000	10,013,000
2042	7,330,000	2042	2,491,000	4,438,000	3,448,000	10,387,000	2042	4,624,000	1,832,000	3,448,000	9,904,000
2043	7,444,000	2043	2,239,000	4,405,000	3,649,000	10,303,000	2043	4,329,000	1,773,000	3,649,000	9,751,000
2044	7,701,000	2044	1,994,000	4,372,000	3,824,000	10,190,000	2044	4,038,000	1,646,000	3,824,000	9,508,000
2045	8,029,000	2045	1,758,000	4,339,000	3,991,000	10,088,000	2045	3,747,000	1,496,000	3,991,000	9,234,000
2046	8,441,000	2046	1,533,000	4,306,000	4,135,000	9,974,000	2046	3,463,000	1,317,000	4,135,000	8,915,000
2047	8,924,000	2047	1,321,000	4,273,000	4,269,000	9,863,000	2047	3,187,000	1,113,000	4,269,000	8,569,000
2048	9,519,000	2048	1,126,000	4,240,000	4,393,000	9,759,000	2048	2,922,000	851,000	4,393,000	8,166,000
2049	10,043,000	2049	947,000	4,207,000	4,480,000	9,664,000	2049	2,665,000	685,000	4,480,000	7,830,000
2050	10,515,000	2050	786,000	4,174,000	4,586,000	9,586,000	2050	2,415,000	531,000	4,586,000	7,532,000
2051	10,916,000	2051	644,000	4,141,000	4,720,000	9,505,000	2051	2,177,000	401,000	4,720,000	7,298,000
2052	11,332,000	2052	520,000	4,108,000	4,891,000	9,419,000	2052	1,955,000	232,000	4,891,000	7,078,000
2053	11,628,000	2053	414,000	4,075,000	5,095,000	9,324,000	2053	1,748,000	118,000	5,095,000	6,961,000
2054	11,815,000	2054	324,000	4,042,000	5,324,000	9,220,000	2054	1,557,000	54,000	5,324,000	6,935,000
2055	11,898,000	2055	250,000	4,009,000	5,575,000	9,092,000	2055	1,377,000	41,000	5,575,000	6,993,000
2056	11,966,000	2056	190,000	3,976,000	5,854,000	8,920,000	2056	1,213,000	26,000	5,854,000	7,093,000
2057	12,059,000	2057	142,000	3,943,000	6,148,000	8,703,000	2057	1,066,000	0	6,148,000	7,214,000
2058	12,108,000	2058	104,000	3,910,000	6,464,000	8,478,000	2058	934,000	0	6,464,000	7,398,000
2059	12,190,000	2059	75,000	3,877,000	6,769,000	8,241,000	2059	816,000	0	6,769,000	7,585,000
2060	12,319,000	2060	53,000	3,844,000	7,059,000	7,912,000	2060	712,000	0	7,059,000	7,771,000
2061	12,512,000	2061	37,000	3,811,000	7,318,000	7,355,000	2061	620,000	0	7,318,000	7,938,000
2062	12,765,000	2062	25,000	3,778,000	7,545,000	7,570,000	2062	539,000	0	7,545,000	8,084,000
2063	13,100,000	2063	17,000	3,745,000	7,722,000	7,739,000	2063	468,000	0	7,722,000	8,190,000
2064	13,511,000	2064	11,000	3,712,000	7,851,000	7,862,000	2064	407,000	0	7,851,000	8,258,000
2065	14,001,000	2065	7,000	3,679,000	7,926,000	7,933,000	2065	354,000	0	7,926,000	8,280,000
2066	14,540,000	2066	4,000	3,646,000	7,969,000	7,973,000	2066	308,000	0	7,969,000	8,277,000

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Year	Contributions	Annual Contributions				Total	Year	Farebox	DB Plan:		Total
		Farebox	Current Actives	Future Hires	DB Plan: Future Hires						
2067	15,122,000	2067	3,000	0	7,979,000	7,982,000	2067	268,000	0	7,979,000	8,247,000
2068	15,715,000	2068	2,000	0	7,978,000	7,980,000	2068	233,000	0	7,978,000	8,211,000
2069	16,302,000	2069	1,000	0	7,974,000	7,975,000	2069	203,000	0	7,974,000	8,177,000
2070	16,846,000	2070	1,000	0	7,996,000	7,997,000	2070	177,000	0	7,996,000	8,173,000
2071	17,331,000	2071	0	0	8,054,000	8,054,000	2071	154,000	0	8,054,000	8,208,000
2072	17,743,000	2072	0	0	8,159,000	8,159,000	2072	134,000	0	8,159,000	8,293,000
2073	18,075,000	2073	0	0	8,317,000	8,317,000	2073	116,000	0	8,317,000	8,433,000
2074	18,323,000	2074	0	0	8,536,000	8,536,000	2074	100,000	0	8,536,000	8,636,000
Total Payments	547,402,000		101,983,000	91,143,000	230,244,000	423,370,000		165,536,000	51,647,000	230,244,000	447,427,000

Actuarial Methods and Assumptions are summarized below, and more fully described in Exhibit 4 of Millman's March 3, 2023 letter.

IRS segment rates	Based on 2023 segment rates: 4.75%/5.00%/5.74% apply for payments in first five years, following 15 years, and thereafter, respectively
Future IRS segment rates	Segment rates described above is assumed to apply at all future valuation dates
Mortality	2023 IRS prescribed table for qualified plans, projected forward in future years with MP-2021 improvement scale
Retirements rates	Varying probabilities from ages 60 to 70
Retirement base at 1/1/2024	\$410,075
Annual pilot income increases	2% per year
Number of active pilots	56
Percent married at death	70%
Spouse age	Pilot age minus 3 years
Future experience	No demographic or investment gains or losses are assumed during the projection period

Defined benefit plan funding has been determined on a simplified basis similar to current ERISA qualified plan funding rules, including 15 year amortization of funding shortfall, if applicable. Compensation and benefit limitations are not reflected. Defined benefit benefit costs do not include any loading or cost of plan administration.

Puget Sound Pilots Retirement Plan

Study Exhibit 2 – Summary of Data

This analysis is based on data provided by Puget Sound Pilots, as summarized below.

Active Participants by Age and Service

The number of active participants, summarized by age and years of service as of January 1, 2024, is shown below.

Age	Years of Service							Total
	<5	5-10	10-15	15-20	20-25	25-30	30+	
<35	0	0	0	0	0	0	0	0
35-40	1	0	0	0	0	0	0	1
40-45	9	1	0	0	0	0	0	10
45-50	6	1	0	0	0	0	0	7
50-55	5	3	0	0	0	0	0	8
55-60	1	4	2	2	0	0	0	9
60-65	2	1	5	6	0	1	0	15
65-70	0	1	2	0	1	0	2	6
70+	0	0	0	0	0	0	0	0
Total	24	11	9	8	1	1	2	56

Inactive Participants by Age

The number of retirees and beneficiaries and total monthly benefit summarized by age as of January 1, 2024, is shown below.

Age	Retirees		Beneficiaries	
	Number	Monthly Benefit	Number	Monthly Benefit
<60	0	0	0	0
60-65	1	10,384	0	0
65-70	10	72,136	2	3,254
70-75	24	231,296	4	12,710
75-80	8	78,428	1	1,439
80-85	9	77,662	4	10,033
85-90	6	27,111	0	0
90+	2	7,400	2	3,456
Total	60	504,419	13	30,892

Puget Sound Pilots Retirement Plan Study

Exhibit 3 - Actuarial Methods and Assumptions

Actuarial Cost Method

The cost method used was the one prescribed under current regulations for the determination of qualified plan funding requirements, Unit Credit Actuarial Cost Method.

Discount Rate for Liability Present Values

For the Baseline results shown in Exhibit 1, discount rates used were those prescribed for the valuation of qualified plan liabilities for valuations performed in 2023. Payments during the first five years are discounted at 4.75%, payments made in the following fifteen years are discounted at 5.00%, and payments thereafter are discounted at 5.74%. Results in Exhibit 2 were based on discount rates 100 basis points lower (3.75%, 4.00%, and 4.74%) to illustrate sensitivity of results to discount rates.

Funding (Contribution) Policy

Annual contributions are assumed to be equal to the required minimum contribution for qualified plans under current regulations.

Gains and Losses

Projections assumed that plan experience will match the valuation assumptions, generating no actuarial gains or losses.

Investment Earnings

Plan assets are assumed to earn the same interest rates used in the determination of plan liabilities and contributions.

Pilot Income Annual Increases

Pilot Income is assumed to increase at 2.00% per year.

Spouse Age

Spouse age is assumed to be pilot age minus 3 years.

Percent Married

70% of pilots are assumed to be married at death.

Number of Active Pilots

56

Retirement Base at 1/1/2024

\$410,075

Mortality

IRS prescribed tables for 2023 qualified plan funding, projected generationally for future projections years using MP-2021

Disability

None assumed.

Retirement Age

Pilots are assumed to retire at ages from 60 through 70, with the following probabilities.

Age	Retirement Rates
Under 60	0%
60	5%
61	5%
62	15%
63	15%
64	17.5%
65	20%
66	25%
67	25%
68	33%
69	50%
70	100%

New Entrants

New entrant are assumed to enter the plan each year such that the total active pilot count remains level at 56.

Puget Sound Pilots Retirement Plan Study

Exhibit 4 - Summary of Retirement Plan Provisions Valued

Plan Name

The retirement plan valued for purposes of this study is the Amended Retirement Program of Puget Sound Pilots, as amended effective August 8, 2006.

Eligibility for Participation

Each Active Pilot who elects in writing to become a Participant in the Plan becomes a Participant immediately upon beginning service with Puget Sound Pilots.

Eligibility for Retirement

An Active Pilot shall be eligible to retire upon completing at least one (1) Year of Service and having given notice of the Active Pilot's intention to retire at least six (6) months prior to the intended retirement date.

Retirement Benefit Amount

A Retired Pilot is entitled to receive a retirement benefit equal to one and one-half percent (1.5%) of the Retired Pilot's Retirement Base multiplied times the number of that Retired Pilot's Years of Service. The retirement benefit will continue to the Retired Pilot for the Retired Pilot's life.

Retirement Base

Retirement Base means an amount equal to the average of the last three (3) years' Target Net Income, which shall include the current tariff year and the two immediately- preceding tariff years. Should a Pilot have less than three (3) full years of service, the average shall be determined from the actual number of full years of service.

Death Benefits

Upon the death of an Active Pilot or Retired Pilot, the surviving spouse will be entitled to receive a death benefit for life or until such surviving spouse remarries. The death benefit shall be payable only if such surviving spouse and the Active Pilot or Retired Pilot shall have been married throughout the five (5) year period immediately preceding the earlier of the Active Pilot or Retired Pilot's date of death or retirement.

The death benefit payable to the surviving spouse of a Retired Pilot having five (5) or more years of service shall be equal to one-half (1/2) of the benefit such deceased Retired Pilot was receiving, but in any event the benefit shall not be less than 5% of the applicable Retirement Base of the deceased Pilot.

The death benefit payable to the surviving spouse of a Retired Pilot having fewer than five (5) years of service shall be same retirement benefit such deceased Retired Pilot was receiving, but in any event the benefit shall not more than 5% of the applicable Retirement Base of the deceased Pilot.

The death benefit payable to the surviving spouse of an Active Pilot having five (5) or more years of service shall be one half (1/2) the benefit such deceased Active Pilot would have been entitled to receive had the Active Pilot retired on the date of the Active Pilot's death, but in any event the benefit shall not be less than 5% of the applicable Retirement Base of the deceased Pilot.

The death benefit payable to the surviving spouse of an Active Pilot having fewer than five (5) years of service shall be the same benefit such deceased Active Pilot would have been entitled to receive had the Active Pilot retired on the date of the Active Pilot's death, but in any event the benefit shall not be more than 5% of the applicable Retirement Base of the deceased Pilot.

Puget Sound Pilots Retirement Plan Study

Exhibit 5 - Risk Discussion

The results of this analysis are based on a limited set of illustrative assumptions. However, it is almost certain that future experience will not exactly match the assumptions. As an example, investments may perform better or worse than assumed in any single year and over any longer time horizon. It is therefore important to consider the potential impacts of these likely differences when making decisions that may affect the future financial health of the Plan, or of the Plan's participants.

The information below is intended to identify and assess risks that are most likely to significantly affect the Plan's future financial condition, and is intended to satisfy the requirements of Actuarial Standard of Practice No. 51 (ASOP 51).

Investment Risk

Investment risk is the risk that investment returns will be different than expected.

To the extent that actual investment returns differ from the assumed investment return, the Plan's future assets, funding contributions, and funded status may differ significantly from those presented in this analysis. In particular, if the Plan's investment returns are generally lower than assumed over time, additional funding would be needed compared to that implied by this analysis.

Because the Plan's liabilities do not change as a result of the Plan's investment returns (this mismatch is sometimes referred to as asset / liability mismatch risk), investment returns less than expected can result in a significantly different funded status in the future than expected. This is best illustrated through funding projections, which can be developed as part of a more detailed analysis upon request.

Interest Rate Risk

Interest rate risk is the potential that interest rates will be different than expected.

The illustrative pension costs reported herein have been calculated by computing the present value of expected future benefit payments using the interest rates described in Exhibit 4. If interest rates in the future differ from the ones used in this analysis, future pension liabilities, funding contributions, and funded status may differ significantly from those presented in this analysis. As a general rule, using a higher interest rate to compute the present value of future benefit payments will result in a lower pension liability, and vice versa.

Longevity and Other Demographic Risks

Demographic risks represent the potential that mortality, retirement, or other demographic experience will be significantly different than anticipated by the assumptions used for this analysis.

The pension liabilities reported herein have been calculated by assuming that participants will follow patterns of demographic experience (e.g., mortality, retirement, form of payment election, etc.) as described in Exhibit 4. If actual demographic experience or future demographic

assumptions are different from what is assumed to occur in this analysis, future pension liabilities, funding contributions, and funded status may differ significantly from those presented in this analysis.

Primary demographic risks include:

- **Longevity risk:** the risk that participants live longer than expected, which would result in more payments than expected by this analysis.
- **Decrement risk:** the risk that participants retire, terminate, or become disabled at rates different than expected. For example, the Plan has valuable early retirement benefits. If participants retire at earlier ages than anticipated by the actuarial assumptions and benefit from subsidized early retirement benefits at a greater rate than contemplated in the analysis, this will increase the Plan's liability.

If demographic experience is unfavorable, additional funding would be needed compared to that implied by this analysis.

Liquidity Risk

Liquidity risk is the potential that assets must be liquidated at a loss earlier than planned in order to pay for the Plan's benefits and operating costs. This risk is heightened for plans with negative cash flow, in which contributions do not exceed annual benefit payments plus expenses.

The Impact of Plan Maturity

A pension plan's ability to recover from any underfunding and to respond to any poor experience resulting from the risks described above is significantly impacted by its "maturity" level. As a plan's assets and liabilities continue to grow, the impact of any gains or losses on the assets or liabilities also becomes larger. In addition, as liabilities become more heavily weighted to inactive participants, and/or the non-investment cash flow of a plan grows significantly negative, it can become harder to address underfunding that occurs due to plan experience.