



PERS By The Numbers

Updated September 2018

Topic	Page(s)
System Demographics.....	3-4
System Benefits.....	5-19
System Funding Level and Status.....	20-21
System Revenue.....	22-29
Economic Impact of PERS Benefit Payments.....	30-32
Pension System Terms.....	33
Appendix A: PERS-Participating Employers.....	34-39
Appendix B: Study Assumptions.....	40

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Executive Message

The Oregon Public Employees Retirement System (PERS) serves the people of Oregon by administering public employee benefit trusts to pay the right person, the right benefit, at the right time. The 2018 edition of *PERS by the Numbers* shares the latest facts and figures about the administration of PERS. Where possible, figures are either as of the latest actuarial valuation (December 31, 2017) or the latest fiscal year end date (June 30, 2018).

The Oregon Legislature is the “plan sponsor” for PERS, the system. The legislature determines the benefit structure for participating public employees. Those benefits have been modified over time, starting from the plan inception in 1945 with Tier One; the creation of the Tier Two program for employees starting in 1996; the Oregon Public Service Retirement Program (OPSRP) for employees that started work after August 28, 2003; and the creation of the Individual Account Program (IAP), an account-based benefit for all PERS members, starting in 2004.

The legislature also established PERS, the agency, to administer the retirement system in partnership with more than 900 public employers, including school districts, special districts, cities, counties, community colleges, universities, and state agencies. PERS is required to administer the retirement system for participating public employers, and must follow all relevant state and federal laws when determining and administering benefits.

PERS engages with over 367,000 current and former public employees or their beneficiaries, and maintains important data about their public employment service, salaries, and other information. PERS also administers a health insurance program for retirees (PERS Health Insurance Program) and a 457(b) voluntary deferred compensation program (Oregon Savings Growth Plan).

Key facts and information in *PERS by the Numbers* include:

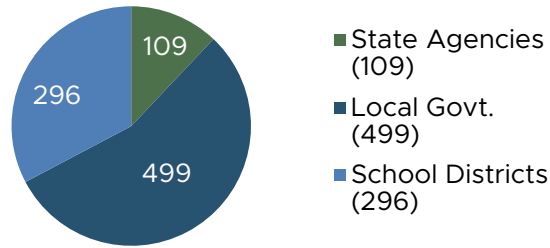
- PERS membership and demographic information, including the **number of members eligible to retire** (page 3).
- Retiree benefit information, including **monthly benefit payment amounts** (page 6).
- Updated research from PERS’ annual **Tier One/Tier Two Replacement Ratio Study**, including data on average salary replacement ratios, monthly benefits, and salaries (pages 10-12).
- New information added in 2018 highlighting data about the **Individual Account Program (IAP)**, an account-based benefit for all PERS members actively employed since 2004, separate from their defined benefit pension (page 13).
- PERS’ **system funded status** as of December 31, 2017 (pages 20-21).
- **System revenue** information, including member and employer contributions and investment income, as well as earnings credited to member accounts (pages 22-29).
- The **economic impact** of PERS monthly benefit payments (pages 30-32).
- A list of **PERS-participating employers** by county, according to their mailing address (pages 34-39).

All Oregonians are served in one way or another by public employees. PERS works to ensure that we pay the right benefit, to the right person, at the right time.

Kevin Olineck
PERS Director

1. System Demographics (as of June 30, 2018)

PERS-participating employers: Currently 904, including all state agencies, universities, and community colleges; all school districts; and almost all cities, counties, and other local government units. See a full list of PERS employers in Appendix A.



Membership by category

		State Govt.	Local Govt.	School Districts	Total
Tier One	Active	6,181	6,823	8,388	21,392
	Inactive	3,758	4,145	4,510	12,413
Tier Two	Active	9,221	11,592	14,323	35,136
	Inactive	3,539	5,486	6,236	15,261
OPSRP	Active	32,918	38,024	48,527	119,469
	Inactive	4,866	6,384	7,069	18,319
Sub-total	Active	48,320	56,439	71,238	175,997
	Inactive	12,163	16,015	17,815	45,993
Retirements*		42,847	41,184	61,832	145,863
TOTAL					367,853

*Retirements include beneficiaries, but not members who received total lump-sum retirement or account withdrawal payouts.

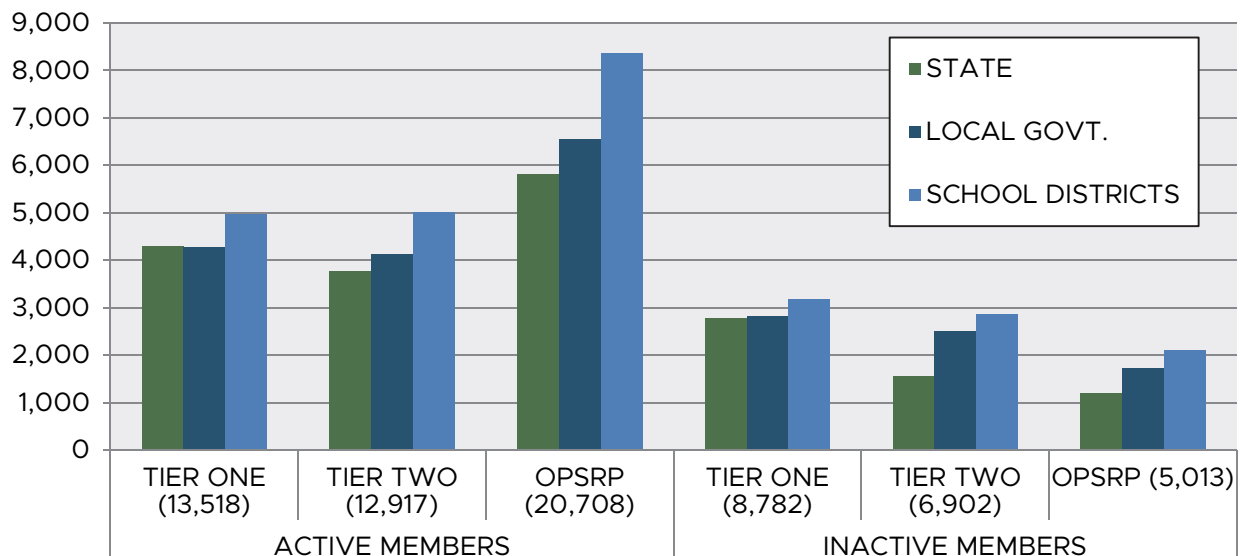
State Government: State agencies, universities, judges

Local Government: Cities, counties, special districts, community colleges

Active: Currently working for a PERS-participating employer

Inactive: Not retired; not currently working for a PERS-participating employer

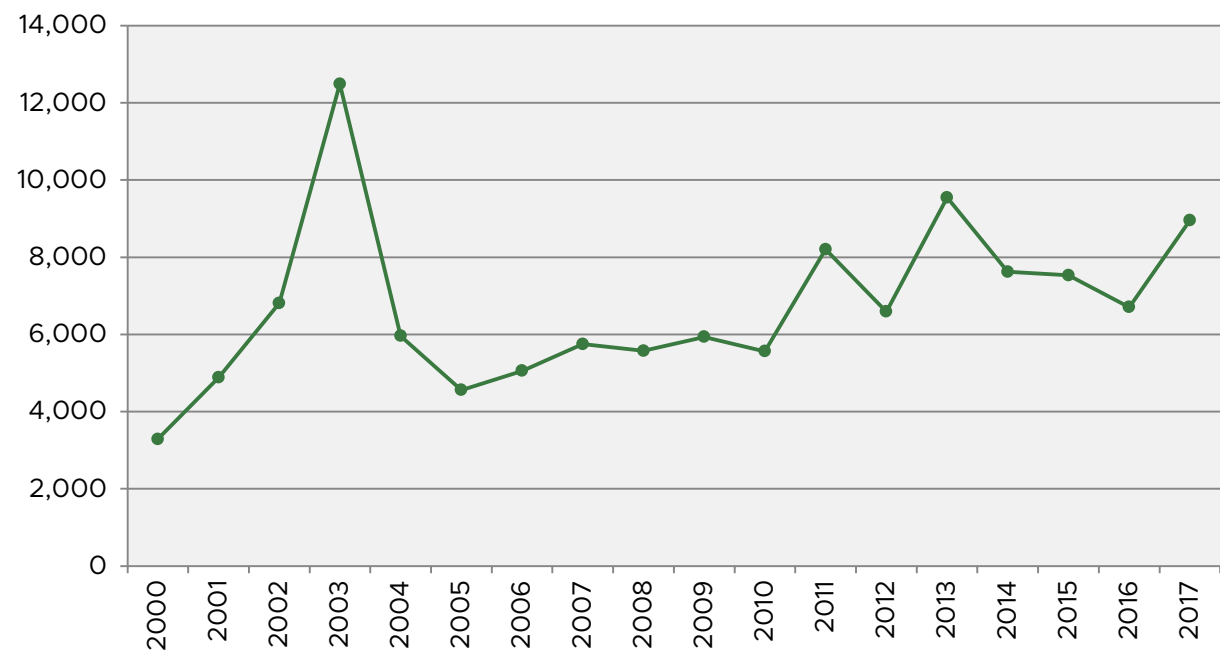
Members eligible to retire (as of June 30, 2018)



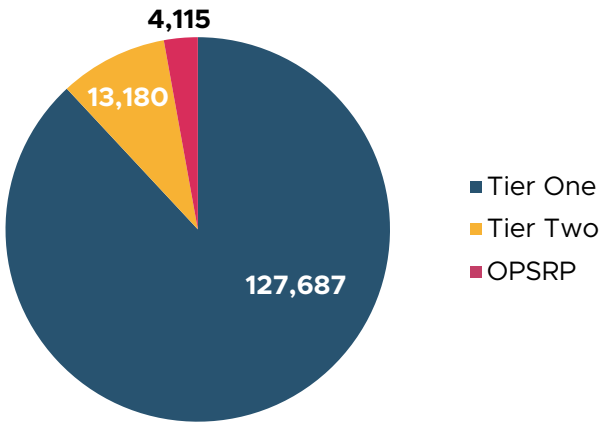
67,840 MEMBERS ELIGIBLE TO RETIRE BY AGE OR SERVICE
(30.5% of all active/inactive members)

1. System Demographics (continued)

Retirements by calendar year (Tier One, Tier Two, OPSRP)



Current retirees by membership group (as of December 31, 2017)



Includes retirees, beneficiaries, and alternate payees.

2. System Benefits

PERS benefit component comparisons

The primary components and differences among the PERS Tier One and Tier Two programs, the Oregon Public Service Retirement Plan (OPSRP) Pension Program, and the Individual Account Program (IAP) are shown below. Tier One covers members hired before January 1, 1996; Tier Two covers members hired between January 1, 1996, and August 28, 2003; and OPSRP covers members hired after August 28, 2003. The IAP is an account-based benefit that includes all member contributions (6% of covered salary) plus annual earnings and losses, made on and after January 1, 2004.

	Tier One Pension	Tier Two Pension	OPSRP Pension	IAP
Normal retirement age	58 (or 30 yrs) P&F: age 55 or 50 w/25 yrs	60 (or 30 yrs) P&F: age 55 or 50 w/25 yrs	65 (58 w/30 yrs) P&F: age 60 or 53 w/25 yrs	Members retire from IAP when they retire from Tier One, Tier Two, or OPSRP
Early retirement	55 (50 for P&F)	55 (50 for P&F)	55, if vested (50 w/ 5 years of continuous service in a P&F position immediately preceding effective retirement date)	Members retire from IAP when they retire from Tier One, Tier Two, or OPSRP
Regular account earnings	Guaranteed assumed rate annually (currently 7.2%)	No guarantee; market returns	N/A; no member account	No guarantee; Target-Date Fund returns
Variable account earnings	Market returns on 100% global equity portfolio	Market returns on 100% global equity portfolio	N/A; no member account	N/A
Retirement calculation methods	Money Match, Full Formula, or Formula + Annuity (if eligible)	Money Match or Full Formula	Formula	Various account pay-outs or rollover
Full Formula benefit factor	1.67% general; 2.00% P&F	1.67% general; 2.00% P&F	1.50% general; 1.80% P&F	N/A
Formula + Annuity benefit factor	1.00% general; 1.35% P&F	N/A	N/A	N/A
Oregon state income tax remedy	If eligible, higher of 9.89% on service time before Oct. 1, 1991, or 4% or less based on total service time. Payable to benefit recipients who pay Oregon state income tax because they reside in Oregon.	No tax remedy provided	No tax remedy provided	No tax remedy provided
Lump-sum vacation payout				
Included in covered salary (6%)	Yes	Yes	No	Yes for Tier One and Tier Two; no for OPSRP
Included in FAS	Yes	No	No	N/A
Unused sick leave included in FAS	Yes, if employer participates in the sick leave program	Yes, if employer participates in the sick leave program	No	N/A
6% contribution included in FAS	Yes	Yes	If reported as salary	N/A
Vesting	Active member in each of 5 calendar years	Active member in each of 5 calendar years	5 calendar years w/ at least 600 hours qualifying service or normal retirement age	Immediate
COLA (after retirement)	Up to 2% annually for service on or before October 1, 2013, and a blended COLA for subsequent service			N/A; no COLA provided

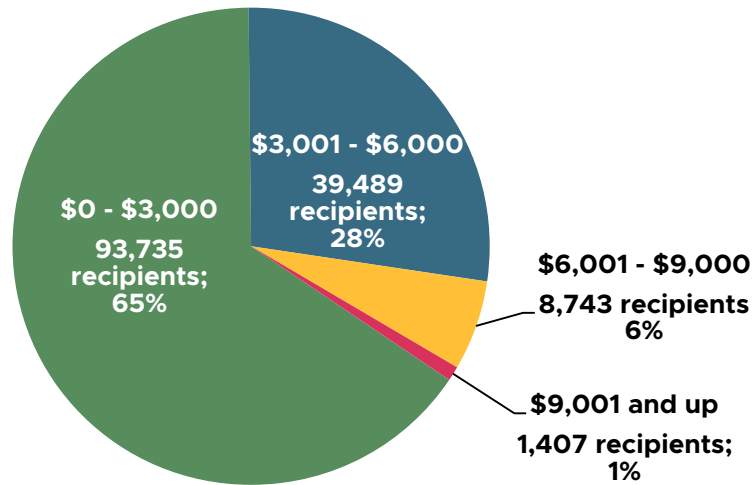
P&F = police and firefighters; FAS = final average salary; COLA = cost-of-living adjustment; N/A = not applicable

Note: PERS uses three methods to calculate Tier One retirement benefits: Full Formula, Formula + Annuity (for members who made contributions before August 21, 1981), and Money Match. PERS uses two methods to calculate Tier Two retirement benefits: Full Formula and Money Match. PERS uses the method (for which a member is eligible) that produces the highest benefit amount. OPSRP Pension Program benefits are based only on a formula method.

2. System Benefits (continued)

Monthly benefit payment amounts (as of January 1, 2018)

Based on 143,374 monthly benefit payments totaling \$371.5 million for the month (includes alternate payees and survivors; excludes lump-sum and unit payments). Benefit payment amounts include compounded annual cost-of-living adjustments (COLAs) and other post-retirement benefit adjustments.



- Average annual benefit: \$31,097
- Median annual benefit: \$24,692

Monthly Benefit (\$)	Number of Retirees	Percent of Benefits Paid	Monthly Benefit (\$)	Number of Retirees	Percent of Benefits Paid
0 - 500	17,458	1.37%	3,001 - 3,500	9,218	8.05%
501 - 1,000	20,508	4.11%	3,501 - 4,000	7,980	8.04%
1,001 - 1,500	17,406	5.83%	4,001 - 4,500	7,086	8.09%
1,501 - 2,000	14,723	6.91%	4,501 - 5,000	6,208	7.93%
2,001 - 2,500	12,801	7.73%	5,001 - 5,500	5,110	7.21%
2,501 - 3,000	10,839	8.00%	5,501 - 6,000	3,887	6.00%
Subtotal	93,735		Subtotal	39,489	
% of total	65.38%	33.95%	% of total	27.54%	45.32%

Monthly Benefit (\$)	Number of Retirees	Percent of Benefits Paid	Monthly Benefit (\$)	Number of Retirees	Percent of Benefits Paid
6,001 - 6,500	2,949	4.95%	9,001 - 10,000	613	1.55%
6,501 - 7,000	2,112	3.83%	10,001 - 11,000	325	0.92%
7,001 - 7,500	1,397	2.72%	11,001 - 12,000	174	0.54%
7,501 - 8,000	1,044	2.17%	12,001 - 13,000	92	0.31%
8,001 - 8,500	723	1.60%	13,001 - 14,000	64	0.23%
8,501 - 9,000	518	1.22%	14,001 and up	139	0.69%
Subtotal	8,743		Subtotal	1,407	
% of total	6.10%	16.49%	% of total	0.98%	4.24%

2. System Benefits (*continued*)

Tier One/Tier Two members (hired before August 29, 2003)

At retirement, PERS uses three methods to calculate a Tier One monthly benefit amount and two methods to calculate a Tier Two monthly benefit amount. Members receive the highest monthly benefit that results from these calculations.

Full Formula Method

For general service members: $1.67 \text{ percent} \times \text{years of service credit} \times \text{final average salary}$

For police and firefighter members: $2 \text{ percent} \times \text{years of service credit} \times \text{final average salary}$

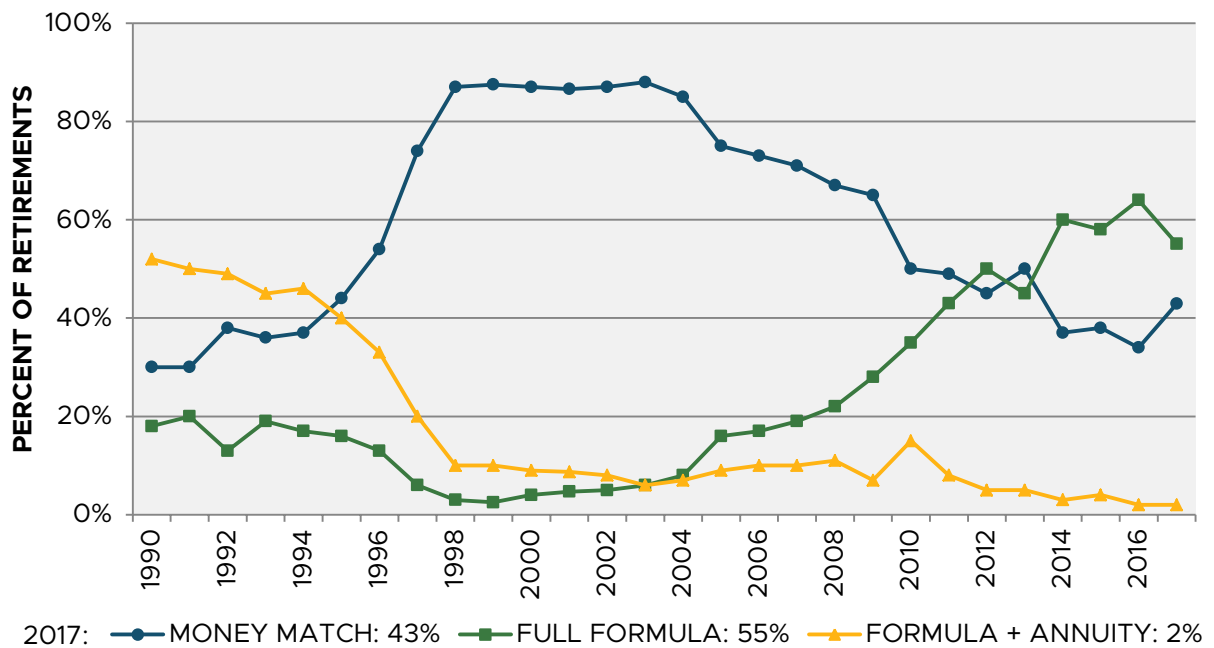
Formula Plus Annuity Method (Tier One only, available to those who made contributions before August 21, 1981.)

This benefit uses a formula similar to the Full Formula Method to compute the employer portion of the benefit. For general service members, multiply 1 percent of final average salary by years of service credit. Legislators, police, and firefighters should multiply 1.35 percent of final average salary by years of service credit. The total of the calculation will be added to an annuity payment based on member account balance and life expectancy.

Money Match

The employer matches the member account balance by an equal amount. From that total, a monthly payment amount is then calculated based on life expectancy.

Tier One/Tier Two retirement calculation method trends



2. System Benefits (*continued*)

Tier One/Tier Two pension benefit payment options selected in calendar year 2017

At retirement, Tier One and Tier Two members have **13 different options** for how to receive their pension benefit payments. All monthly retirement pension benefits are paid to the retiree for life. The option a member chooses will affect the amount of the monthly pension benefit payment. An option that includes a beneficiary payment will produce a lower monthly pension benefit payment. Benefit payments are based on an actuarial equivalent of the member's and/or the beneficiary's life expectancy.

Option (definitions below) Calendar Year 2017	Quantity	Percent
1	1,903	25.06
Refund Annuity	511	6.73
15-Year Certain	341	4.49
2	1700	22.39
2A	1669	21.98
3	230	3.03
3A	452	5.95
Lump-Sum 1	86	1.13
Lump-Sum 2	50	0.66
Lump-Sum 2A	67	0.88
Lump-Sum 3	6	0.08
Lump-Sum 3A	11	0.14
Total Lump Sum	468	6.16
AS refund	87	1.15
Total	7,581	100%

Option 1 (non-refund): This option is paid for the member's lifetime. No benefit of any kind is paid to anyone after the member dies.

Refund Annuity Option: This option is paid for the member's lifetime. When the member dies, the designated beneficiary receives a lump-sum refund of any amount remaining in the member's account, if any.

15-Year Certain Option: This option is paid for the member's lifetime. If the member dies before receiving 180 monthly payments (15 years), the beneficiary is entitled to receive the remainder of the 180 monthly payments. Once the member has received at least 180 payments, no benefit is payable to the beneficiary.

Survivorship Options (Option 2, Option 2A, Option 3, and Option 3A): Under any of the survivorship options, the member may name only one beneficiary who must be a living person. The monthly benefit payment is paid to the member until his/her death, and then paid to the beneficiary if then living (under Options 2 and 2A, at the same base amount as the member; under Option 3 and 3A, at $\frac{1}{2}$ the base amount of the member).

Lump-Sum Options (Lump-Sum Option 1, Lump-Sum Option 2, Lump-Sum Option 2A, Lump-Sum Option 3, and Lump-Sum Option 3A): These options provide a lump-sum payment of the member's account balance plus a lifetime monthly pension from the employer's contributions. The lifetime monthly pension options are the same as those for the non-refund and survivorship options described above.

Total Lump Sum: The balance of the member's account and a matching amount funded by employers' contributions are paid out in total; there is no ongoing monthly benefit.

AS refund: A one-time payment based on an actuarial calculation if the Option 1 benefit is less than \$200 per month.

2. System Benefits (*continued*)

Oregon Public Service Retirement Plan (OPSRP) Members (hired after August 28, 2003)

At retirement, all OPSRP members who are vested and eligible to retire can receive a monthly pension benefit for life. The pension benefit is calculated using the following formulas:

For general service members: $1.5 \text{ percent} \times \text{years of total retirement credit} \times \text{final average salary}$
For police and firefighter members: $1.8 \text{ percent} \times \text{years of total retirement credit} \times \text{final average salary}$

OPSRP pension benefit payment options selected in calendar year 2017

At retirement, OPSRP members have **five different options** for how to receive their pension benefit payments. All monthly pension retirement benefits are paid to the retiree for life. The option a member chooses will affect the amount of the monthly pension benefit payment. An option that includes a beneficiary payment will produce a lower monthly pension benefit payment. Benefit payments are based on an actuarial equivalent of the member's and/or the beneficiary's life expectancy.

Option (definitions below) Calendar Year 2017	Quantity	Percent
Single Life Option	525	38.72
Full-Survivorship Option	292	21.53
Full-Survivorship Increase Option	39	2.88
Half-Survivorship Option	149	10.99
Half-Survivorship Increase Option	28	2.06
Cash Out Lump Sum*	323	23.82
Total	1,356	100%

Single Life Option: This option is paid for the member's lifetime. No benefit of any kind is paid to anyone after the member dies.

Full-Survivorship Option: This benefit is paid monthly for the member's lifetime. After the member dies, their surviving beneficiary will receive, for life, the monthly benefit the member was receiving at the time of the member's death. Payments are actuarially reduced to provide the same monthly benefit amount to the member for life and to the member's beneficiary for his or her lifetime.

Full-Survivorship Increase Option: Same as the Full-Survivorship Option, but if the member's beneficiary dies before the member, or if the member's beneficiary is his or her spouse and they are divorced after retirement, the member will receive the higher paying Single Life Option benefit for the remainder of the member's lifetime.

Half-Survivorship Option: This benefit is paid monthly for the member's lifetime. After the member dies, their surviving beneficiary will receive, for life, one-half of the monthly benefit the member was receiving at the time of the member's death.

Half-Survivorship Increase Option: Same as the Half-Survivorship Option, but if the member's beneficiary dies before the member, or if the member's beneficiary is his or her spouse and they are divorced after retirement, the member will receive the higher paying Single Life Option benefit for the remainder of the member's lifetime.

Cash Out Lump Sum*: If an OPSRP member's monthly pension benefit is less than \$200, the member will receive a one-time lump-sum payment that represents the actuarial equivalent of the present value of the pension.

2. System Benefits (*continued*)

Summary of findings from PERS' Tier One/Tier Two Replacement Ratio Study (RRS) for 2017

The RRS population of 94,770 retirements was drawn from 189,647 retirements from January 1990 through December 2017, and covers retired members who selected comparable monthly benefit options. The techniques used in the 2017 PERS Replacement Ratio Study are consistent with the techniques used in previous studies. The calculations do not include any federal Social Security benefits that a retiree may be eligible for based on the retiree's work history. The calculations do include the effects of the *Strunk/Eugene* benefit adjustments, which will generally impact retirements occurring in 2000-2004 and reduce the reported replacement ratios for those periods by several percentage points.

Characteristics of the Retired Members in the RRS Population¹

Average age at retirement: 62 years old

Average years of service at retirement: 25 years of service

Average monthly retirement benefit

- For all retirees from 1990-2017, the average monthly retirement benefit at time of retirement was \$2,390 per month, or about \$28,686 annually
- For those retirees in the most recent year (2017), the average monthly retirement benefit was \$3,036 per month, or about \$36,428 annually

Average public employee salaries at retirement

- For all retirees from 1990-2017, the final average salary at retirement was \$53,078 annually
- For 2017 retirees, the final average salary at retirement was \$80,845 annually

Average salary replacement ratio (see chart on following page)

- For all retirees from 1990-2017, the average annual retirement benefit equaled 53% of final average salary at the time of retirement
- For 2017 retirees, the average annual retirement benefit equaled 44% of final average salary
- For all retirees from 1990-2017, there were 6.4% who received annual benefits more than 100% of final average salary. The average years of service for this group was 31 years
- For 2017 retirees, there were 1.9% who received annual benefits more than 100% of final average salary. The average years of service for this group was 35 years

For members who retire with 30 years of service (see chart on following page)

- From 1990-2017, the average retirement benefit for 30-year members equaled 78% of final average salary and the average monthly benefit was \$3,713 per month
- The average replacement ratio for 30-year members peaked at 100% of final average salary in 2000 and their average monthly benefit was \$4,200 per month
- For 2017 only, the average retirement benefit for 30-year members equaled 53% of final average salary and the average monthly benefit was \$3,628 per month
- 10.4% of retirees from 1990-2017 had 30 years of service
- 8% of retirees in 2017 had 30 years of service

¹The exclusions and other factors applied to this population are explained in Appendix B on page 40. Generally, these exclusions remove about 35% of members who retire in a given year.

2. System Benefits *(continued)*

Summary of findings from PERS' Tier One/Tier Two RRS for 2017 *(continued)*

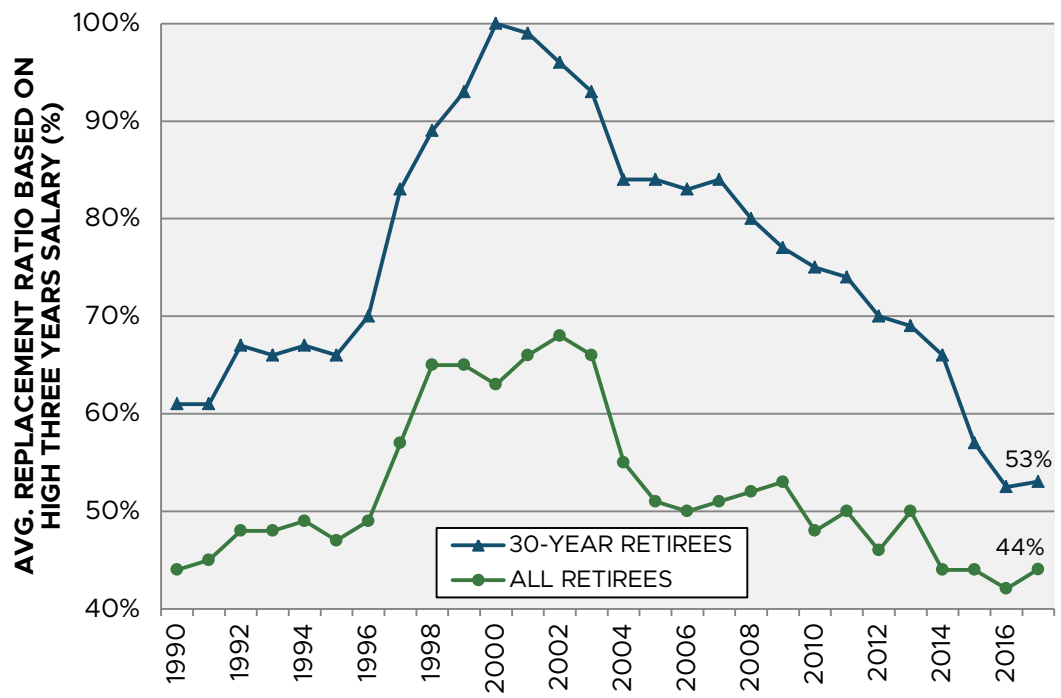
Average salary replacement ratio based on final average salary (FAS)

	Retirees with 30 Years of Service (does not include those w/ more than 30 years)		All Retirees in Study			# of Retirees w/ 31 or More Years of Service
Calendar Year	# of Retirees in Study*	Average Replacement Ratio Based on FAS	# of Retirees in Study*	Average Replacement Ratio Based on FAS	% of Retirees Receiving >100% of FAS	# of Retirees in Study*
1990	146	61%	1,866	44%	0.0%	236
1991	217	61%	2,377	45%	0.1%	261
1992	205	67%	2,432	48%	0.5%	289
1993	289	66%	2,744	48%	0.5%	319
1994	302	67%	3,298	49%	0.3%	452
1995	304	66%	2,827	47%	1.0%	307
1996	281	70%	2,477	49%	1.4%	223
1997	295	83%	3,107	57%	7.5%	284
1998	465	89%	4,567	65%	12.0%	472
1999	548	93%	4,644	65%	14.0%	452
2000	273	100%	2,112	63%	15.8%	148
2001	391	99%	3,146	66%	16.5%	304
2002	670	96%	4,605	68%	17.4%	583
2003	942	93%	7,631	66%	14.4%	937
2004	471	84%	3,259	55%	5.5%	155
2005	393	84%	2,548	51%	4.4%	155
2006	347	83%	2,952	50%	4.3%	254
2007	372	84%	3,226	51%	4.9%	337
2008	417	80%	3,480	52%	5.0%	445
2009	432	77%	3,881	53%	6.2%	586
2010	414	75%	3,516	48%	4.3%	440
2011	464	74%	4,484	50%	5.3%	937
2012	272	70%	4,098	46%	4.3%	585
2013	389	69%	5,800	50%	5.6%	1,108
2014	262	66%	4,000	44%	2.8%	441
2015	430	57%	4,830	44%	2.6%	772
2016	324	52%	3,955	42%	2.0%	606
2017	423	53%	5,319	44%	1.5%	1,089
Total/Avg	10,738	78%	103,181	53%	6.4%	13,177

*Includes monthly benefit payments for members retiring from active service within the preceding 12 months. Benefits related to inactive, lump sum, judge and legislator retirements are excluded.

2. System Benefits (continued)

Tier One/Tier Two replacement ratio trends (data from PERS' Replacement Ratio Study)



2. System Benefits *(continued)*

Individual Account Program (IAP)

All PERS members actively employed since 2004 have an Individual Account Program (IAP) account-based benefit. Six percent of members' salary, whether paid by the member or their employer, is placed into the IAP. At retirement, the payment members receive from the IAP is based on their account balance—contributions plus investment earnings or losses over time. The IAP has no guaranteed investment return.

Average IAP account balances and distributions to retired members, withdrawals, and deceased members

Year (as of 12/31)	Total IAP Account Balance After Earnings Crediting (\$M)	# of Accounts	Average IAP Account Balance (\$)	# of Payees
2004	423.4	162,119	2,611	2
2005	928.9	181,055	5,130	4,131
2006	1,396.8	197,491	7,072	6,557
2007	2,120.5	210,133	10,091	6,705
2008	1,851.2	218,192	8,484	8,624
2009	2,742.8	231,256	11,847	7,727
2010	3,536.9	236,265	14,970	8,695
2011	3,939.7	238,062	16,549	11,479
2012	4,855.1	240,637	20,176	14,728
2013	5,127.3	242,516	21,142	14,994
2014	6,001.1	245,768	24,821	15,118
2015	6,906.1	255,896	26,988	15,644
2016	7,634.7	262,096	29,129	16,213
2017	8,960.4	269,812	33,210	16,866

IAP Target-Date Fund values (as of June 30, 2018)

Starting January 1, 2018, all PERS members became invested in age-based Target-Date Funds, an effort by the Oregon Investment Council to reduce investment risk and volatility as members age. All members receiving installment payments after retirement are invested in the Retirement Allocation Fund.

Target-Date Fund	Number of Accounts	Total Account Balance (\$)
Retirement Allocation Fund Born in 1952 or before	22,501	\$709,331,542
2020 Born between 1953 and 1957	23,063	\$994,406,907
2025 Born between 1958 and 1962	31,611	\$1,466,500,408
2030 Born between 1963 and 1967	32,751	\$1,536,066,906
2035 Born between 1968 and 1972	36,278	\$1,561,255,880
2040 Born between 1973 and 1977	35,758	\$1,260,511,246
2045 Born between 1978 and 1982	36,073	\$875,911,688
2050 Born between 1983 and 1987	30,156	\$408,972,830
2055 Born between 1988 and 1992	19,769	\$116,567,257
2060 Born in 1993 or after	6,855	\$14,010,344

2. System Benefits *(continued)*

Retired Tier One, Tier Two, and OPSRP members with hours reported working in a PERS-covered position in 2017 by employer group

After a Tier One or Tier Two member begins receiving a PERS retirement benefit, they may choose to return to work for a public employer. Generally, Tier One and Tier Two members may work less than 1,040 compensated hours (work, vacation, sick leave) in a calendar year without stopping their pension benefit payment. OPSRP members who choose to work after retirement for a public employer may work less than 600 compensated hours in a year before their benefit payment is stopped.

In all cases, PERS members are responsible for tracking the number of compensated hours they work for a public employer and not exceeding their limit. If a member exceeds their hour limit, their retirement benefit will stop, and they may be required to repay benefits they received while re-employed.

There are some exceptions to the Tier One and Tier Two hour limitation depending on the type of employer, geographic location, population of the employer's city or county, type of position, and other factors. More information can be found on the PERS website ([Tier One/Tier Two](#), [OPSRP](#)).

Hours	State	Local Govt.	K-12	Total
< 200	553	1,333	2,892	4,778
200 - 400	389	639	1,335	2,363
401 - 600	311	469	904	1,684
601 - 800	239	294	618	1,151
801 - 1039	319	411	700	1,430
> 1039	168	286	241	695
Total	1,979	3,432	6,690	12,101

2. System Benefits *(continued)*

Other PERS Programs



Oregon Savings Growth Plan (OSGP) 457(b) deferred compensation

The Oregon Savings Growth Plan (OSGP) is a 457(b) deferred compensation plan that provides public employees a convenient way to save for retirement. Enrollment is available to all state of Oregon employees upon hire, as well as local government and school district employees whose employers have adopted the plan.

OSGP lets participants save for retirement on a pre-tax or after-tax basis through payroll deductions. Participants can save as little as \$25 a month, up to \$18,500 in calendar year 2018 (\$24,500 if age 50 or older).

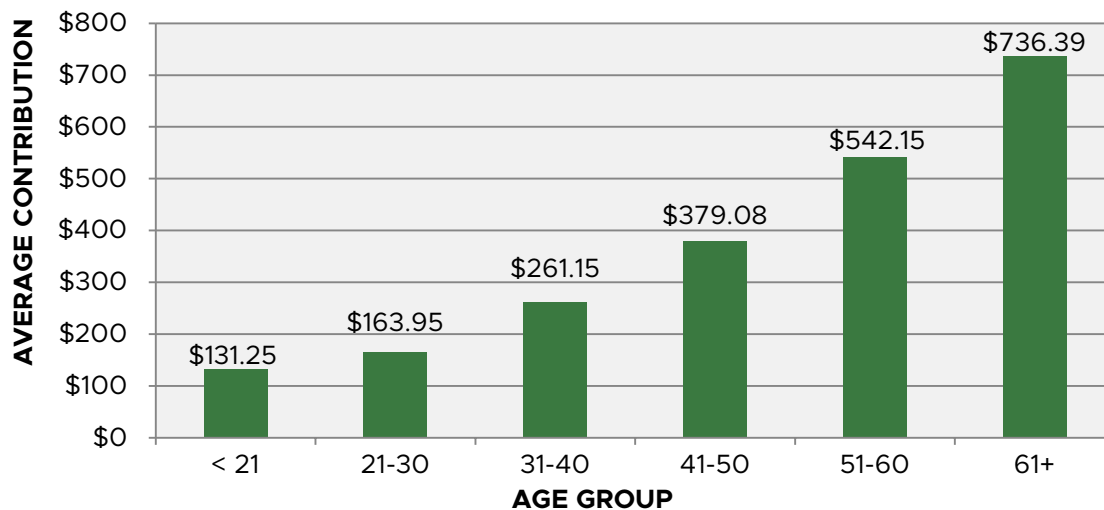
Oregon Revised Statutes 243.474 authorizes the state to offer its deferred compensation program to all Oregon public employers, including special districts, local governments, and school districts. As of June 30, 2018, 288 local governments offer OSGP. Some local government and school district employers cannot offer OSGP because they have other 457 or 403(b) plans.

Participation (as of June 30, 2018)

30,135 total participants

- 17,950 participants are actively contributing to OSGP
- 18,268 participants are state agency employees (includes universities, higher education, and miscellaneous state agencies)

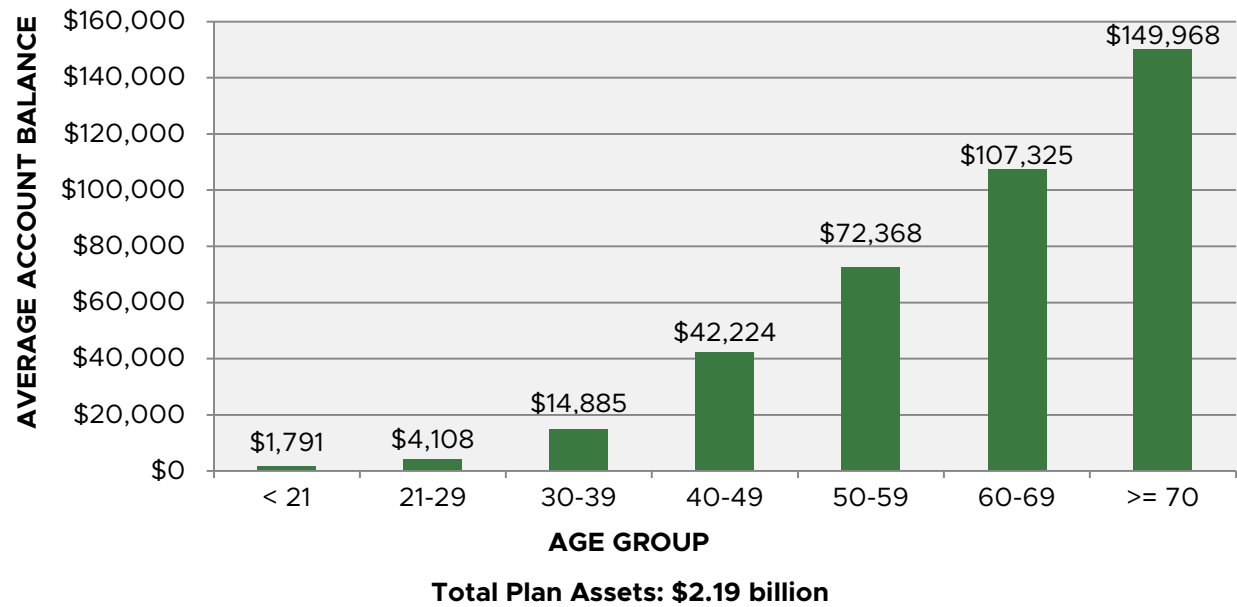
Average monthly contribution to OSGP by age



Average contribution amount: \$445.93/month

2. System Benefits (continued)

Average value of OSGP accounts by age



2. System Benefits (*continued*)



PERS Retiree Health Insurance Program information

The Oregon PERS Health Insurance Program offers optional medical, dental, and long-term care insurance plans to eligible Tier One/Tier Two and OPSRP retirees, their spouses, and dependents. Upon retirement, these insurance options become a choice available to all PERS retirees. While primarily serving our Medicare-eligible (age 65 and over) population, the PERS Health Insurance Program also offers insurance coverage options for those not yet Medicare eligible.

There are two statutory trust funds administered by PERS as part of the Health Insurance Program that provide premium subsidies for eligible Tier One and Tier Two retirees or surviving spouses. These trusts are known as the Retirement Health Insurance Account (RHIA), serving all qualifying PERS Medicare-eligible retirees, and the Retiree Health Insurance Premium Account (RHIPA), serving qualifying state government non-Medicare retirees. Both trusts are funded from employer contributions on an actuarial basis.

Program Enrollment (as of June 30, 2018)

Medical Plans (four plans offered)	Totals	Medicare	Non-Medicare
Covered lives	59,190	57,160	2,030
Retirees (or surviving spouses)	48,261	49,962	1,299
Spouses/dependents	10,929	10,198	731
Average age of enrolled retirees	75.4	76.1	57.5
Dental Plans (two plans offered)	38,045		
Long-Term Care Plan	1,992		

Statutory Health Insurance Premium Subsidies

Retirees receiving RHIA (trust fund held by PERS*)	44,890
Retirees receiving RHIPA (trust fund held by PERS**)	1,066
RHIA monthly payment total	\$2,693,400
RHIPA monthly payment total	\$380,111

*The RHIA subsidy is \$60 per month for Medicare-eligible retirees.

**The RHIPA subsidy is for state government non-Medicare retirees only and varies depending on the employee's years of state service, from \$192.68 (8 years) to \$385.35 (30+ years) per month for Plan Year 2018.

Employer rates (effective July 1, 2019): RHIA: 0.0%; RHIPA (state government only): 0.39%

Actuarial surplus or liability (as of December 31, 2017): -\$116 million (RHIA); \$40 million (RHIPA)

2. System Benefits *(continued)*

History of Key PERS Benefit Enhancements, Caps, and Reductions by Year

Year	Category	Action	Affected Members
1945	Administrative	The Public Employees Retirement System is signed into law and begins business July 1, 1946, as a money match retirement plan	All
1947	Retirement Age/Vesting	Requirement for employees to serve a six-month waiting period before becoming PERS members begins	All
1953	Administrative	By law, the PERS plan is terminated and immediately reopened the next day, allowing public employers to provide Social Security coverage	All
1967	Investment Risk Allocation	Legislature passes a bill that allows PERS to invest up to 10% of the retirement fund in common stock, creates the Oregon Investment Council, and establishes a defined benefit formula for employer-funded retirement benefits (formula plus annuity)	All
1969	Investment Risk Allocation	Participation in variable account program begins	All
1972	Cost-of-Living Adjustment	Implemented ad hoc COLA increase (12% to 25% benefit increase)	Existing retirees
1972	Cost-of-Living Adjustment	Initiated an annual COLA with a 1.5% cap	All retirees
1973	Benefit Calculation/Formula	Increased Formula Plus Annuity pension factors (General Service: .67 to 1.00; Police & Fire: 0.92 to 1.35)	Tier One
1973	Cost-of-Living Adjustment	Annual COLA cap raised from 1.5% to 2%	All retirees
1973	Cost-of-Living Adjustment	Capped COLA at actual inflation rate or 2%, whichever is less	All retirees
1973	Final Average Salary	Added accrued sick leave to retirement benefit calculation for participating employers	Tier One/Two
1974	Cost of Living Adjustment	Implemented ad hoc increase (0% to 25% benefit increase)	Existing retirees
1975	Investment Risk Allocation	Initiated member account assumed rate guarantee	Tier One
1975	Investment Risk Allocation	Increased assumed earnings rate from 5.5% to 7%	Tier One
1975	Investment Risk Allocation	Credited member regular accounts with more than the assumed earnings rate*	Tier One
1976	Investment Risk Allocation	Gain Loss Reserve established to "self-fund" assumed earnings rate crediting	Tier One
1979	Administrative	Employers allowed to "pick up" member 6% contribution	All
1979	Investment Risk Allocation	Increased assumed earnings rate from 7% to 7.5%	Tier One
1981	Benefit Calculation/Formula	Added Full Formula benefit calculation method	All
1981	Benefit Calculation/Formula	Consolidated member contributions from 1% to 7% salary based sliding scale to universal 6%	All
1981	Benefit Calculation/Formula	Eliminated Formula Plus Annuity benefit calculation method	Tier One
1981	Cost-of-Living Adjustment	Implemented ad hoc COLA increase (4% to 11.4% benefit increase)	Existing retirees
1985	Cost-of-Living Adjustment	Implemented ad hoc COLA increase (3% to 7.28% benefit increase)	Existing retirees
1985	Benefit Calculation/Formula	Added benefit option to allow lump-sum payment of member account	All
1987	Benefit Calculation/Formula	Members allowed to purchase six-month waiting period	All
1987	Benefit Calculation/Formula	New retirement benefit payout options added	All
1989	Cost-of-Living Adjustment	Implemented ad hoc COLA increase (0% to 25% benefit increase)	Existing retirees
1989	Investment Risk Allocation	Increased assumed earnings rate from 7.5% to 8%	Tier One
1989	Retiree Health Benefits	Established Medicare and state employee pre-Medicare insurance premium subsidies	Tier One/Two
1989	Retiree Health Benefits	Capped Medicare premium subsidy at \$60 per month	Tier One/Two
1989	Retirement Age/Vesting	Added "30 years of service" retirement regardless of age	Tier One/Two
CONTINUED ON FOLLOWING PAGE			

*Tier One regular accounts were credited with earnings in excess of the assumed rate in the following years: 1975, 1976, 1979, 1980, 1982, 1983, 1985, 1986, 1988, 1989, 1991, 1993, 1995, 1996, 1997, 1998, and 1999. In all other years subsequent to 1975, these accounts were credited at the effective assumed rate.

Key: Benefit enhancement Benefit cap or reduction

2. System Benefits *(continued)*

History of Key PERS Benefit Enhancements, Caps, and Reductions by Year (continued)

Year	Category	Action	Affected
1991	Benefit Calculation/Formula	Imposed state income tax on PERS benefits	All
1991	Benefit Calculation/Formula	Established service time based state income tax offset benefit of between 1% to 4% (SB 656)	Tier One
1993	Administrative	Divorced spouses entitled to separate account from member's	All
1995	Benefit Calculation/Formula	Established state income tax offset benefit for pre-1991 service time (HB 3349)	Tier One
1995	Benefit Calculation/Formula	Eliminated tax remedy for anyone hired after July 14, 1995	All new hires
1996	Final Average Salary	Excluded lump-sum vacation payouts from final average salary	Tier Two
1996	Investment Risk Allocation	Eliminated guaranteed return on regular accounts for new members	Tier Two
1996	Retirement Age/Vesting	Increased normal retirement age for new members from 58 to 60 (General Service)	Tier Two
1997	Administrative	Married members must provide proof of spousal consent for retirement option choice	All
1997	Administrative	Reemployed retirees can work up to 1,040 hours for a PERS-covered employer without loss of benefits (up from 600 hours)	All
1997	Benefit Calculation/Formula	Out-of-state teaching service and some military purchases allowed	All
1999	Benefit Calculation/Formula	Locked in existing actuarial equivalency factor tables	Tier One
2000	Investment Risk Allocation	Eliminated 'Last Known Rate' member account crediting guarantee	Tier One
2003	Benefit Calculation/Formula	Decreased Full Formula benefit pension factor (General Service: 1.67 to 1.50; Police & Fire 2.00 to 1.80)	OPSRP
2003	Benefit Calculation/Formula	Eliminated Money Match benefit calculation method	OPSRP
2003	Benefit Calculation/Formula	Redirected member contributions to freeze Money Match benefit levels	Prospective MM retirees
2003	Benefit Calculation/Formula	Required regularly updated mortality assumptions and actuarial factors	All
2003	Cost-of-Living Adjustment	Pro-rated first year COLA	OPSRP
2003	Cost-of-Living Adjustment	Eliminated COLA 'bank' carryover	OPSRP
2003	Final Average Salary	Eliminated lump-sum vacation payouts from subject salary	OPSRP
2003	Final Average Salary	Eliminated accumulated sick leave from final average salary	OPSRP
2003	Investment Risk Allocation	Required members to self-fund guaranteed return on member accounts	Tier One
2003	Investment Risk Allocation	Creates IAP to include all member contributions made on or after January 1, 2004, which receives actual returns with no guarantee	All
2003	Retiree Health Benefits	Eliminated post-retirement health insurance premium subsidies	OPSRP
2003	Retirement Age/Vesting	Increased normal retirement age from 60 to 65 (General Service) 55 to 60 (Police & Fire)	OPSRP
2003	Retirement Age/Vesting	Increased vesting from 5 years or age 50 to 5 years or age 65 (General Service) or age 60 (Police & Fire)	OPSRP
2005	Benefit Calculation/Formula	Adjusted member accounts and benefit payments to recapture 1999 earnings overcrediting	Tier One
2009	Retiree Health Benefits	Allowed OPSRP members to participate in PERS retiree health insurance pools without premium subsidy	OPSRP
2011	Benefit Calculation/Formula	Eliminated HB 3349 tax remedy for prospective retirees who move out of state on or after January 1, 2012	Tier One
2013	Cost-of-Living Adjustment	1.5% in 2013; COLA in 2014 and beyond is 1.25% on the first \$60,000 of an annual benefit; 0.15% on amounts above \$60,000	All
2013	Supplementary Payments	Annual supplementary payments of 0.25% to all benefit recipients (up to \$150) through 2019. Second annual supplementary payment of 0.25% through 2019 if benefit is \$20,000 or less annually	Retirees
2013	Benefit Calculation/Formula	Eliminated any tax remedy for retirees who do not pay income taxes in Oregon because they are not residents of Oregon	Tier One
2014	Investment Risk Allocation	Decreased assumed earnings rate from 8.0% to 7.75%	Tier One
2015	Supplementary Payments	Supplementary Payments invalidated by Oregon Supreme Court	Retirees
2015	Cost-of-Living Adjustment	Annual COLA of up to 2% restored for service time accrued before October 1, 2013. COLA for service time after that date uses a lower rate. Service time accrued in both periods is "blended."	All
2016	Investment Risk Allocation	Decreased assumed earnings rate from 7.75% to 7.50%	Tier One
2017	Investment Risk Allocation	Decreased assumed earnings rate from 7.50% to 7.20%	Tier One
2017	Investment Risk Allocation	Oregon Investment Council changes IAP investment strategy to Target-Date Funds, intended to reduce investment risk and volatility as members age	All

Key: Benefit enhancement Benefit cap or reduction

3. System Funding Level and Status

The PERS Funding Equation

At the end of each calendar year, the PERS actuaries calculate the system’s funded status using the following basic equation:

B	=	C	+	E
BENEFITS		CONTRIBUTIONS		EARNINGS
<i>Present value of earned benefits</i>		<i>Employer funds to pay for pension benefits</i>		<i>Future returns on investment funds</i>
Set by: Oregon Legislature		Set by: PERS Board		Managed by: Oregon Investment Council

Every two years, the PERS Board adjusts contribution rates so that, over time, contributions will be sufficient to fund the benefits earned, if earnings follow assumptions.

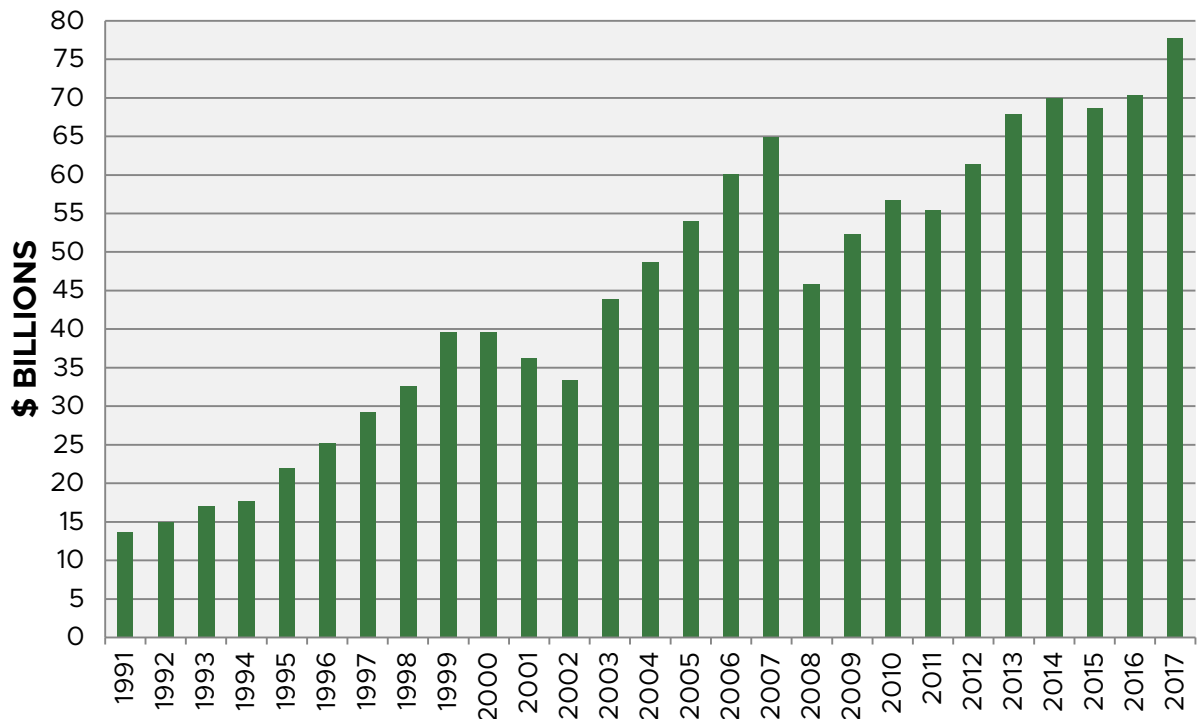
Funded status (as of December 31, 2017)

The Oregon Public Employees Retirement Fund (OPERF) is invested under the oversight and direction of the Oregon Investment Council with staff support from the Investment Division of Oregon State Treasury.

As of December 31, 2017, PERS was 73 percent funded (80 percent including employer side accounts). Side accounts hold deposits from PERS employers of pension obligation bond proceeds and other advance lump-sum payments that are amortized to offset that employer’s contribution.

As of December 31, 2017, the unfunded actuarial liability (UAL) was \$22.3 billion (\$16.7 billion including side accounts). The UAL fluctuates based on various factors including investment returns, Board reserving policies, statutory plan design changes, and litigation outcomes.

PERS fund value (calendar years ending December 31)



3. System Funding Level and Status *(continued)*

Unfunded actuarial liability history and funded ratio¹

Valuation ² Date	Without Side Accounts		With Side Accounts ³ (starting in 2002)	
	UAL (\$M)	Funded Ratio (%)	UAL (\$M)	Funded Ratio (%)
2000	1,545	96.4	1,545	96.4
2001	-2,031	105.4	-2,031	105.4
2002	3,983	89.9	3,204	92.0
2003	6,227	86.0	1,751	96.1
2004	7,678	84.0	2,122	95.6
2005	4,919	91.0	-1,751	104.0
2006	2,229	95.7	-5,019	109.7
2007	1,538	97.1	-6,120	111.5
2008	16,133	70.4	10,998	80.0
2009	13,598	76.0	8,108	86.0
2010 ⁴	13,300	78.0	7,700	87.0
2011	16,255	73.0	11,030	82.0
2012 ⁵	11,100	82.0	5,600	91.0
2013	8,500	86.0	2,600	96.0
2014 ⁶	18,000	76.0	12,100	84.0
2015	21,800	71.0	16,200	79.0
2016	25,300	69.0	19,900	75.0
2017 ⁷	22,300	73.0	16,700	80.0

1 Includes RHIA/RHIPA.

2 2000-2003 UALs were calculated using actuarial value of assets (AVA) based on year-to-year changes in asset values smoothed over four-year periods. All other UALs since 1997 were calculated using an AVA based on fair market value.

3 The official PERS valuation UAL and funded ratio are based on accepted actuarial standards and methodologies. These methodologies are subject to review and revision every two years. A negative UAL amount represents a surplus.

4 2010 and after includes the OPSRP Pension Program, 2000-2009 reflects only Tier One/Tier Two.

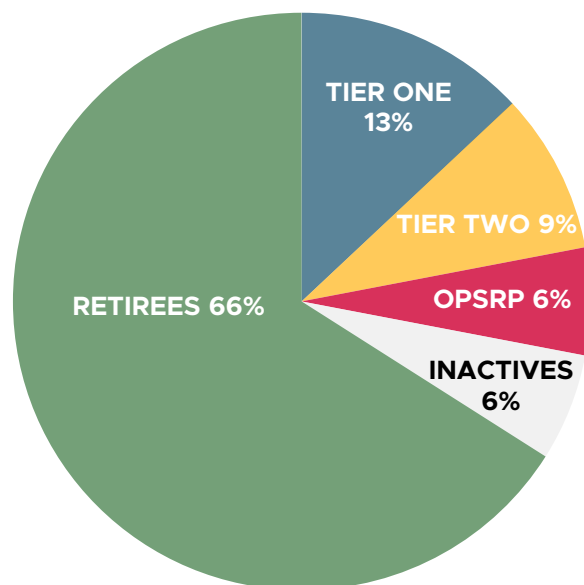
5 Includes liability reductions from Senate Bills 822 and 861 and Board-adopted actuarial assumptions/methods from the 2012 Experience Study.

6 Includes the Moro decision and Board-adopted actuarial assumptions/methods from the 2014 Experience Study.

7 Includes Board-adopted actuarial assumptions/methods from the 2017 Experience Study.

Actuarial accrued liabilities (as of December 31, 2017)

Approximately 72 percent of PERS' total accrued liability is for members who are no longer working in PERS-covered employment (retired and inactive members).



4. System Revenue

Member and employer contributions and investment income for calendar years

Year	Member Contributions (\$M)	Employer Contributions (\$M)	Amortization of Employer Side Accounts (\$M)*	Total Employer (\$M)	Net Investment & Other Income (\$M)
1995	287	427	N/A	427	4,110
1996	296	463	N/A	463	4,358
1997	291	473	N/A	473	4,582
1998	318	488	N/A	488	3,978
1999	347	577	N/A	577	7,463
2000	359	654	N/A	654	143
2001	385	689	N/A	689	-2,708
2002	398	725	8	733	-3,460
2003	405	582	97	679	8,866
2004	371**	408	278	686	5,933
2005	434	504	357	861	6,179
2006	456	637	474	1,111	8,163
2007	468	633	466	1,099	5,808
2008	484	669	541	1,210	-17,235
2009	515	561	540	1,101	8,053
2010	502	435	558	993	6,444
2011	510	627	509	1,136	1,935
2012	513	915	443	1,358	7,859
2013	561	942	448	1,390	9,458
2014	524	994	472	1,466	4,819
2015	611	1,185	542	1,727	1,380
2016	610	1,036	628	1,644	4,840
2017	628	1,241	653	1,894	10,633

*PERS' methodology to track amortization of side accounts began in 2002. Side accounts hold deposits by employers of pension obligation bond proceeds and other lump-sum payments that are amortized to offset that employer's PERS contributions.

**Since January 1, 2004, member contributions have been placed in the Individual Account Program (IAP), instead of the legacy Tier One/Tier Two member accounts.

4. System Revenue (continued)

2017 Earnings Crediting (\$ millions)

Reserve/Account	Balance Before 2017 Crediting	Final 2017 Crediting	Final Ending Reserve Balance	Crediting Rates
Contingency Reserve	\$50.0	-	\$50.0	N/A
Tier One Member Regular Accounts	3,907.5	293.0	4,200.5	7.50%
Tier One Rate Guarantee Reserve	180.8	329.7	510.5	N/A
Benefits-In-Force (BIF) Reserve	21,298.1	3,244.4	24,542.5	15.23%
Tier Two Member Regular Accounts	833.5	127.0	960.5	15.23%
Employer Reserves	24,202.3	3,686.6	27,888.9	15.23%
OPSRP Pension	3,562.5	548.6	4,111.1	15.37%
UAL Lump-Sum Payment Side Accounts*	4,765.1	792.5	5,557.6	Various
IAP Accounts**	7,794.8	1,117.8	8,912.6	14.72%
Total	\$66,594.6	\$10,139.6	\$76,734.2	

*Side account earnings rates for lump sums on deposit vary depending on when the deposit was made within the calendar year and are not affected by Board reserving or crediting decisions.

**Informational only; not affected by Board reserving or crediting decisions.

Contingency Reserve: This reserve can be used for any purpose the Board determines is appropriate so long as the use of the funds furthers the trust's purpose. It is funded in years that investment income exceeds the assumed rate (currently 7.2 percent). The reserve is capped at \$50 million.

Tier One Rate Guarantee Reserve: This reserve is used to credit the assumed rate on Tier One member regular accounts in years when the fund earns below the assumed rate, and to hold excess earnings from the years when the fund earns more than the assumed rate (currently 7.2 percent).

Benefits-In-Force Reserve: This reserve is used to pay retired members' benefits and annuities. It is funded by earnings and fund transfers from member accounts and employer reserves associated with retirements processed during a calendar year.

Employer Reserves: Funds from these reserves are moved to the Benefits-In-Force Reserve when a benefit is due to a member.

4. System Revenue *(continued)*

System-wide average employer contribution rates excluding retiree health insurance (RHIA/RHIPA)

Valuation Year	Rate Effective Dates	Average Rate w/ Side Accounts (%)	Average Rate w/o Side Accounts (%)	Annualized Salary (\$M)
1975	Various	11.21	11.21	1,014.5
1977	Various	11.87	11.87	1,226.8
1979	Various	10.97	10.97	1,488.0
1982	Various	10.13	10.13	2,062.1
1985	Various	10.87	10.87	2,428.3
1987	Various	11.30	11.30	2,764.7
1989	Various	9.74	9.74	3,199.4
1991	Various	9.19	9.19	3,887.5
1993	Various	9.15	9.15	4,466.8
1995	Various	9.42	9.42	4,848.1
1997	Various	11.40	11.40	5,161.6
1999	7/1/01 – 6/30/03	10.74	10.74	5,676.6
2001	7/1/03 – 6/30/05	10.64	10.64	6,256.5
2003*	7/1/05 – 6/30/07	14.47*	18.89*	6,248.5
2005**	7/1/07 – 6/30/09	8.22	15.01	6,792.0
2007	7/1/09 – 6/30/11	4.73	12.42	7,721.8
2009	7/1/11 – 6/30/13	10.8	16.3	8,512.0
2011***	7/1/13 – 6/30/15	10.8	16.5	8,600.0
2013	7/1/15 – 6/30/17	10.6	17.5	8,699.0
2015	7/1/17 – 6/30/19	14.23	20.85	10,100.0
2017	7/1/19 – 6/30/21	18.32	25.23	10,825.0

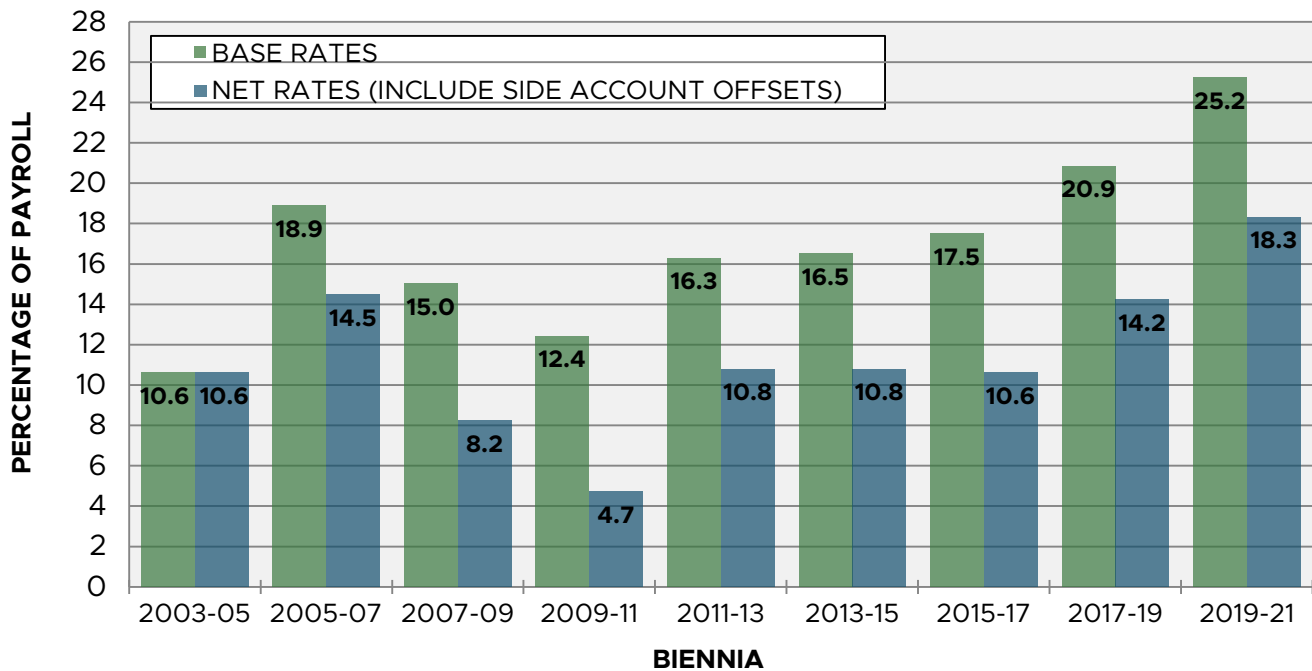
*December 31, 2003 rates were phased-in. Actual rate paid averaged 10.58% with employer side accounts and 15.10% without employer side accounts.

**Includes weighted average rate for Tier One/Tier Two and OPSRP beginning in 2005.

***Includes liability reduction and rate deferral from Senate Bill 822 (2013).

4. System Revenue (continued)

System-wide average employer contribution rates as a percent of covered salary (net rates include side account offsets)



- Excludes 6% member contributions and pension obligation bond debt service payments.
- Includes Tier One, Tier Two, and OPSRP.
- 2005-07 rates (from December 31, 2003 valuation) were phased-in. Actual rate paid averaged 10.58% with employer side accounts and 15.10% without employer side accounts.
- 2017-19 rates reflect, among other things, the *Moro* decision, assumed rate decrease from 7.75% to 7.5%, and all other assumption changes and actuarial experience.
- 2019-21 rates reflect investment returns for 2016 and 2017, assumed rate decrease from 7.5% to 7.2%, updated mortality assumptions, expected increase in UAL in 2016 and 2017, and all other assumption changes and actuarial experience.
- Does not include RHIA/RHIPA (health insurance).

2019-21 employer contribution rate increase projections (2017 Valuation Data)

(\$ millions)	Projected 2017-19 Payroll*	(A) Projected 2017-19 Contribution	Projected 2019-21 Payroll*	(B) Projected 2019-21 Contribution**	(B) - (A) Projected Contribution Increase
State Agencies	\$5,920	\$820	\$6,350	\$1,125	\$305
School Districts	\$6,630	\$925	\$7,100	\$1,300	\$375
All Others	\$7,650	\$1,130	\$8,200	\$1,540	\$410
Total	\$20,200	\$2,875	\$21,650	\$3,965	\$1,090

*Assumes payroll growth at 3.5% annually based on 12/31/2017 active member census, reflecting proportional payroll composition (Tier One/Tier Two vs. OPSRP) as of 12/31/2017.

**Collared net rates are used to project 2019-21 employer contributions.

4. System Revenue *(continued)*

Employer side accounts

When an employer makes a lump-sum payment to prepay part or all of its unfunded actuarial liability (UAL), the money is placed in a special account called a “side account.” This account is attributed solely to the employer making the payment and is held separate from other employer reserves.

Most employers with side accounts issued pension obligation bonds (POBs) and provided the bond proceeds to PERS as a UAL lump-sum deposit to fund their side account. A few employers funded their side accounts with lump-sum payments from other sources, such as savings from internal operations. PERS does not track individual employer costs associated with POBs.

Administrative costs for side accounts are limited by statute. PERS assesses \$1,500 per side account in the first year and \$500 annually thereafter, regardless of the size of the side account.

As of December 31, 2017, 145 employers have side accounts. Of these, 38 employers have multiple side accounts: one city, two special districts, two community colleges, and 33 school districts.

Employer Type	# w/ Side Accounts
Independent Locals (not a member of a pool)	6
State Agencies (all, including universities)	1
Pooled Counties	9
Pooled Cities	9
Pooled Special Districts	8
Community Colleges	17
School Districts	95

As of December 31, 2017, side account assets totaled \$5.6 billion.

Side Accounts by Employer Type (as of December 31, 2016)*	
Employer Type	Balance (Millions)
Independent	\$86.6
State Agencies	\$1,801.0
Pooled Counties	\$59.6
Pooled Cities	\$47.2
Pooled Special Districts	\$86.0
Community Colleges	\$391.3
School Districts	\$2,917.2

*Side account balances by employer type for 2017 will be available in October 2018.

Side accounts are generally amortized over the same time period as the employer’s associated UAL, providing the employer with an offset of its employer rate. The goal is for the side account to provide rate relief to the employer until the associated UAL is paid off. However, with the adoption of SB 1566 by the 2017 Legislative Assembly, employers that meet certain criteria now have the option of selecting a shorter amortization schedule for new side accounts. Using this option does not affect the amortization period of the employer’s UAL.

Side account rate offsets are recalculated every two years, taking into consideration how much of the side account has been used, what earnings have been credited, and changes to the individual employer’s payroll.

4. System Revenue *(continued)*

Employer side accounts *(continued)*

Average Side Account Rate Offset 2005 -2019	
Rate Period	Average Rate Offset (% of Payroll)
2005 - 2007	-4.54%
2007 - 2009	-6.71%
2009 - 2011	-7.20%
2011 - 2013	-5.11%
2013 - 2015	-5.26%
2015 - 2017	-6.38%
2017 - 2019	-6.14%

Side account earnings

Side accounts are invested in the PERS Fund and receive the Fund's actual earnings or losses. These earnings or losses are posted to side accounts at the end of each year.

Average Side Account Earnings 2006 to 2017	
Calendar Year	Average Earnings/Loss
2006	14.98%
2007	9.46%
2008	-26.75%
2009	18.47%
2010	12.13%
2011	2.15%
2012	14.09%
2013	15.59%
2014	7.39%
2015	1.82%
2016	7.15%
2017	15.23%

4. System Revenue (continued)

PERS Fund investment earnings available for crediting and actual distributions to Tier One and Tier Two member regular, variable, and Individual Account Program (IAP) accounts

Year	Earnings (%)	Distributions (%)			
		Tier One	Tier Two	Variable Account	IAP
1970	5.09	5.09		7.47	
1971	6.27	6.27		9.47	
1972	7.46	7.46		13.87	
1973	0.00	0.00		-16.39	
1974	0.00	5.50		-18.16	
1975	9.19	7.50		18.94	
1976	10.38	7.75		18.58	
1977	4.79	7.00		-2.62	
1978	7.37	7.00		7.03	
1979	12.32	11.09		20.40	
1980	16.92	13.00		29.94	
1981	4.37	7.50		-2.25	
1982	15.31	11.50		22.39	
1983	18.37	13.00		23.12	
1984	7.33	7.50		4.00	
1985	21.38	15.00		27.99	
1986	22.70	18.37		18.98	
1987	9.00	7.50		4.54	
1988	16.86	13.50		18.62	
1989	19.74	14.50		26.84	
1990	-1.53	8.00		-7.84	
1991	22.45	15.00		35.05	
1992	6.94	8.00		10.54	
1993	15.04	12.00		12.65	
1994	2.16	8.00		-1.76	
1995	20.78	12.50		29.92	
1996	24.42	21.00	24.42	21.06	
1997	20.42	18.70	20.42	28.87	
1998	15.43	14.10	13.63	21.45	
1999	24.89	11.33*	21.97	28.83	
2000	0.63	8.00	0.54	-3.24	
2001	-7.17	8.00	-6.66	-11.19	
2002	-8.93	8.00	-8.93	-21.51	
2003	23.79	8.00	22.00	34.68	
2004	13.80	8.00	13.27	13.00	12.77
2005	13.04	8.00	18.31**	8.29	12.80
2006	15.57	8.00	15.45	15.61	14.98
2007	10.22	7.97***	9.47	1.75	9.46
2008	-27.18	8.00	-27.18	-43.71	-26.75
2009	19.12	8.00	19.12	35.57	18.47
2010	12.44	8.00	12.44	15.17	12.13
2011	2.21	8.00	2.21	-7.80	2.15
2012	14.29	8.00	14.68	18.43	14.09
2013	15.76	8.00	15.62	25.74	15.59
2014	7.29	7.75	7.24	4.29	7.05
2015	2.21	7.75	1.87	-1.61	1.85
2016	6.9	7.50	7.15	8.76	7.13
2017	15.3	7.50	15.23	26.48	14.72

In determining plan funding, the actuary must project future earnings of the PERS Fund. This is called the "assumed earnings rate."

Historical assumed earnings rates are:

- 5.0% for 1971 - 1974
- 7.0% for 1975 - 1978
- 7.5% for 1979 - 1988
- 8.0% for 1989 - 2013
- 7.75% for 2014 - 2015
- 7.5% for 2016 - 2017
- 7.2% beginning January 1, 2018

*The PERS Board originally credited these accounts at 20%. That allocation was later reduced to 11.33% to comply with subsequent court decisions and legislative findings.

**Tier Two regular account crediting, based solely on earnings, was 13.74%. However, the PERS Board deployed \$9 million from the Capital Preservation Reserve and \$17 million from the Contingency Reserve that was added to Tier Two earnings. As a result, Tier Two was credited with a total of 18.31%. The dollars allocated from the reserves were originally withheld from Tier Two regular account earnings.

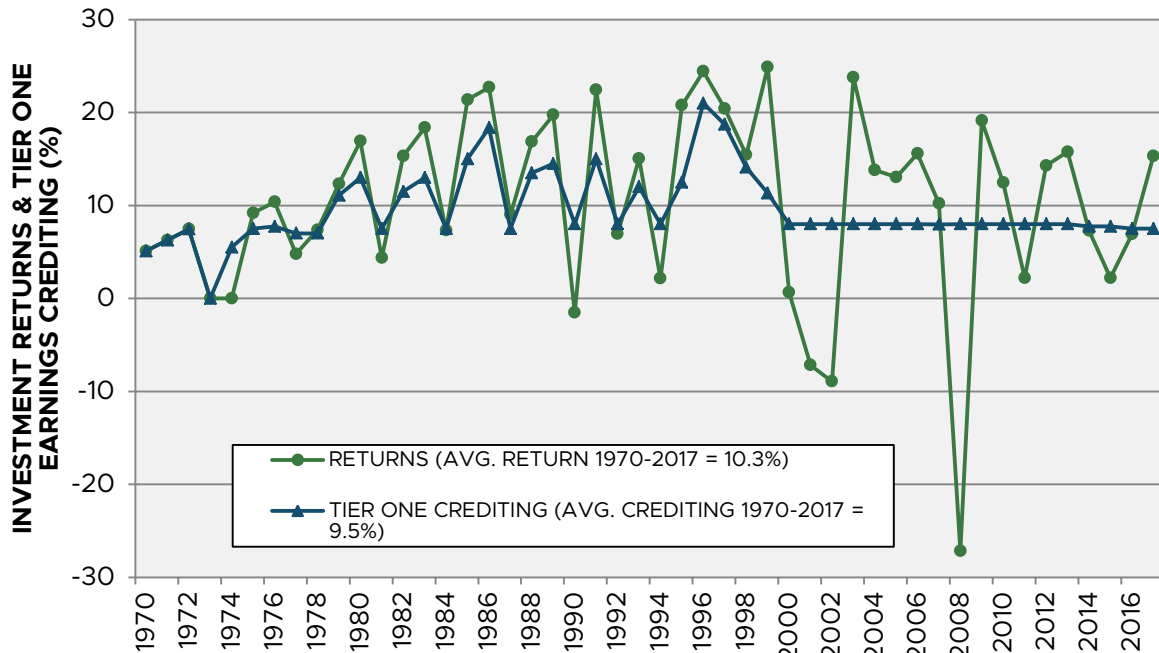
***After crediting Tier One accounts with the assumed rate of 8%, member attorney fees in the *Strunk* case were deducted by order of the Oregon Supreme Court resulting in an effective crediting rate of 7.97%.

4. System Revenue (continued)

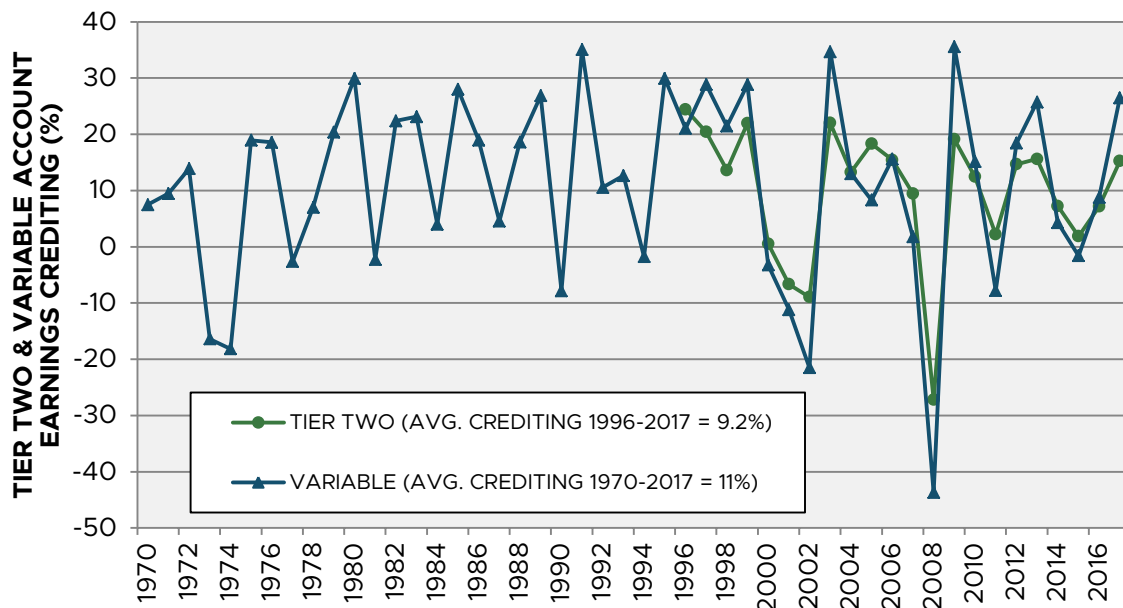
Tier One/Tier Two earnings crediting

Before January 1, 2004, Tier One/Tier Two member contributions were made to member accounts used to pay for part of their pension. These accounts continue to accrue annual earnings and losses until the member retires. Tier One member accounts receive the assumed earnings rate on an annual basis.

Regular account earnings available for crediting and actual distributions to Tier One member regular accounts based on 2017 earnings



Actual distributions to Tier Two member regular accounts and to Tier One/Tier Two member variable accounts (invested in an equity-only portfolio) based on 2017 earnings



5. Economic Impact of PERS Monthly Benefit Payments in 2017

Oregon PERS monthly benefits contribute to Oregon's economy

Oregon PERS paid approximately \$3.92 billion in benefits (not including benefit payments from the Individual Account Program (IAP)) to PERS retirees living in Oregon in 2017. Funding for these benefits came mostly from investment earnings on contributions previously paid by members and public employers. These retirees spent a significant portion of this money on goods and services in Oregon, which helped support local businesses. These businesses then purchased goods, in part, from other local vendors adding to the Oregon workforce and economy.

Annual PERS monthly benefits generate \$4.22 billion in total economic value to Oregon

The \$3.92 billion in annual benefit payments multiply to \$4.22 billion in total economic value to Oregon when the full financial impact of these dollars spent in local communities is considered (based upon economic multipliers provided by the U.S. Department of Commerce's Bureau of Economic Analysis).

The economic activity generated by PERS monthly benefit payments sustain an estimated 35,449 Oregon jobs, and add approximately \$1.27 billion in wages to Oregon's economy.

Additionally, the state of Oregon collected an estimated \$215.7 million in income taxes on PERS retiree monthly benefits during 2017.

Investment income provided 74.9 percent of total PERS' revenues since 1970. Member contributions accounted for 4.8 percent, with employer contributions providing 20.3 percent.

Money for PERS benefit payments comes from three sources (1970-2017)



5. Economic Impact of PERS Benefit Payments in 2017 (continued)

Oregon PERS benefit payments by county (2017 calendar year)

PERS Monthly Benefit Payments in Oregon by County

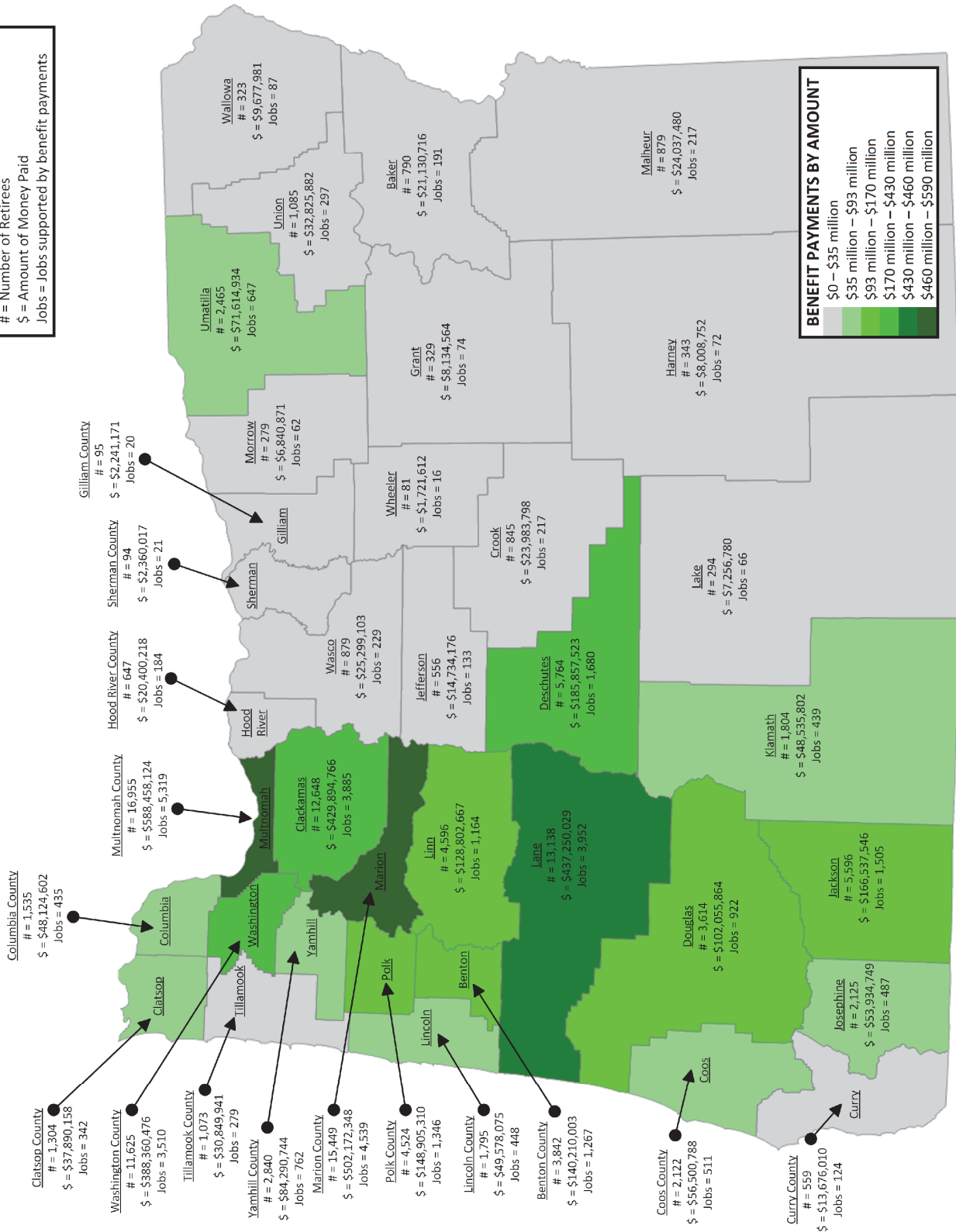
Data Source: Data Extract for the 2017 Calendar Year

LEGEND

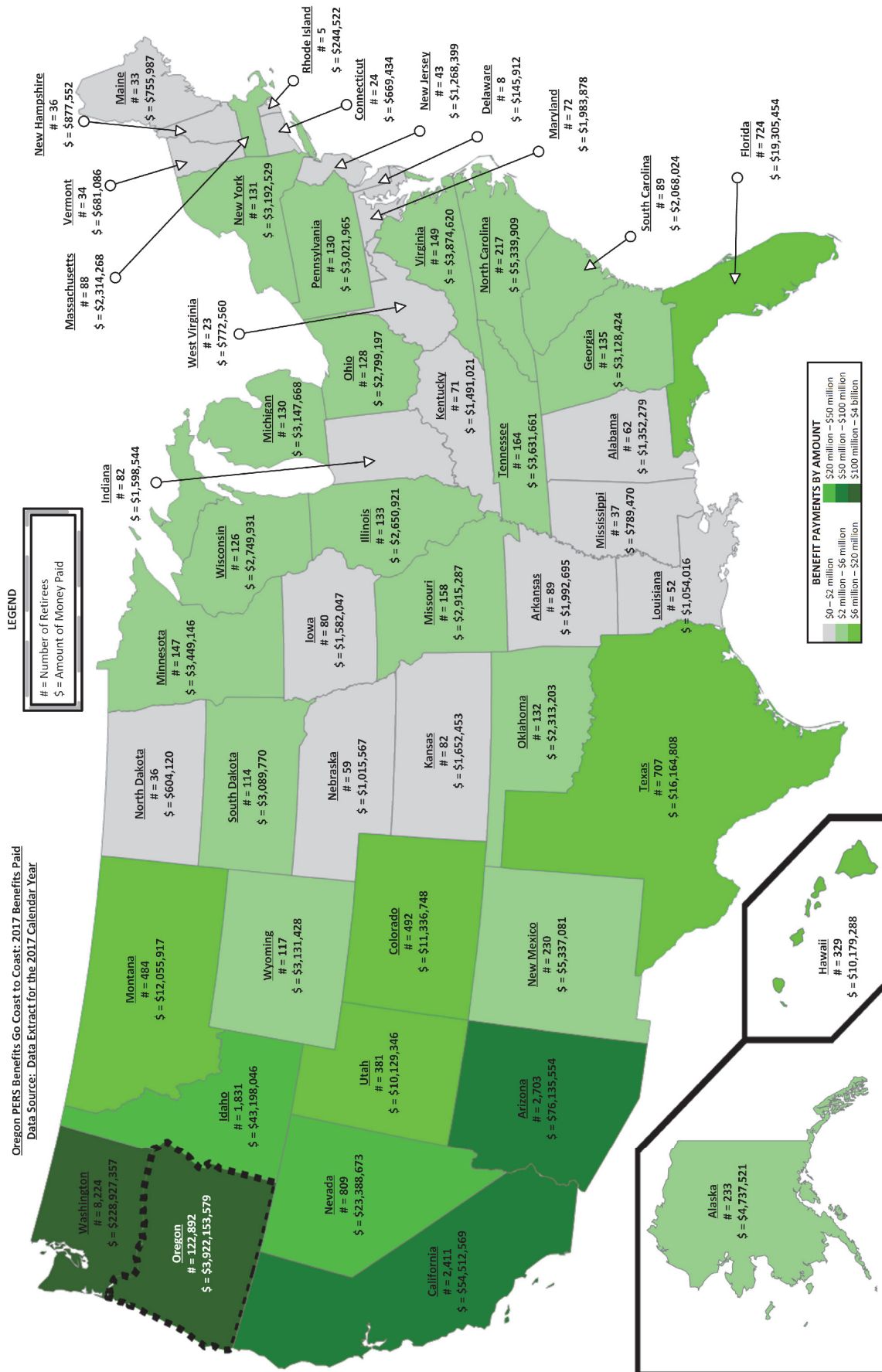
= Number of Retirees
\$ = Amount of Money Paid
Jobs = Jobs supported by benefit payments

BENEFIT PAYMENTS BY AMOUNT

\$0 - \$35 million
\$35 million - \$93 million
\$93 million - \$170 million
\$170 million - \$430 million
\$430 million - \$460 million
\$460 million - \$590 million



Oregon PERS benefit payments by state (2017 calendar year)



Pension System Terms

Accrued liability: The net present value of projected future benefits allocated to service already completed in accordance with the actuarial cost method.

Actuarial asset value: The value of assets used in calculating the required contributions. The actuarial asset value may be equal to the fair market value of assets, or it may spread the recognition of certain investment gains or losses over a period of years in accordance with a smoothing method.

Actuarial assumptions: Assumptions as to the occurrence of future events affecting pension costs, such as mortality, withdrawal, disablement, and retirement; and rates of investment earnings and other relevant items. Actual experience will vary from assumption, and at times the variance will be substantial.

Actuarial cost method: A technique used by actuaries to allocate the amount and incidence of the annual actuarial cost of pension plan benefits, or normal cost, and the related unfunded actuarial liability (UAL). Ordinarily, the annual contribution to the plan comprises the normal cost and an amount for amortization of the unfunded actuarial accrued liability.

Base employer contribution rates: Consists of the normal cost rate plus the UAL rate. This is paid by a combination of employer contributions and side account transfers. Base rates do not reflect the effects of side account rate offsets.

Combined valuation payroll: Projected payroll for the calendar year following the valuation date for Tier One, Tier Two, and OPSRP active members. This payroll is used to calculate UAL rates.

Funded ratio or funded status: The actuarial value of assets expressed as a percentage of the accrued liability.

Individual Account Program (IAP): An account-based benefit program that contains all member contributions (6% of covered payroll) made on or after January 1, 2004.

Net employer contribution rates: The rate funded by employer contributions, consisting of the base employer contribution rate minus the effect of side account rate offsets.

Normal cost: The annual cost assigned to the current year under the actuarial cost method in use. The normal cost divided by the applicable payroll is the normal cost rate.

Oregon Public Service Retirement Plan (OPSRP) Pension Program: The pension program covering members hired after August 28, 2003.

Rate collar: A methodology that limits the maximum allowable period-to-period change in employer contribution rates. The width of the rate collar is determined by the current contribution rate and funded status.

Side accounts: Side accounts are established for employers who make supplemental payments (a lump-sum payment in excess of the required employer contribution). For State and Local Government Rate Pool (SLGRP) employers, this supplemental payment is first applied toward the employer's transition liability, if any, with the remainder going into a side account. Side accounts are treated as pre-paid contributions. Employer contribution rates are first determined excluding side accounts (base employer contribution rate). Then, an amortized portion of the side account is used to offset the contribution otherwise required for each individual employer that has a side account (net employer contribution rate). While side accounts are excluded from valuation assets in determining contribution rates for pools and non-pooled employers, side accounts are included in valuation assets for financial reporting purposes such as the reporting of funded status.

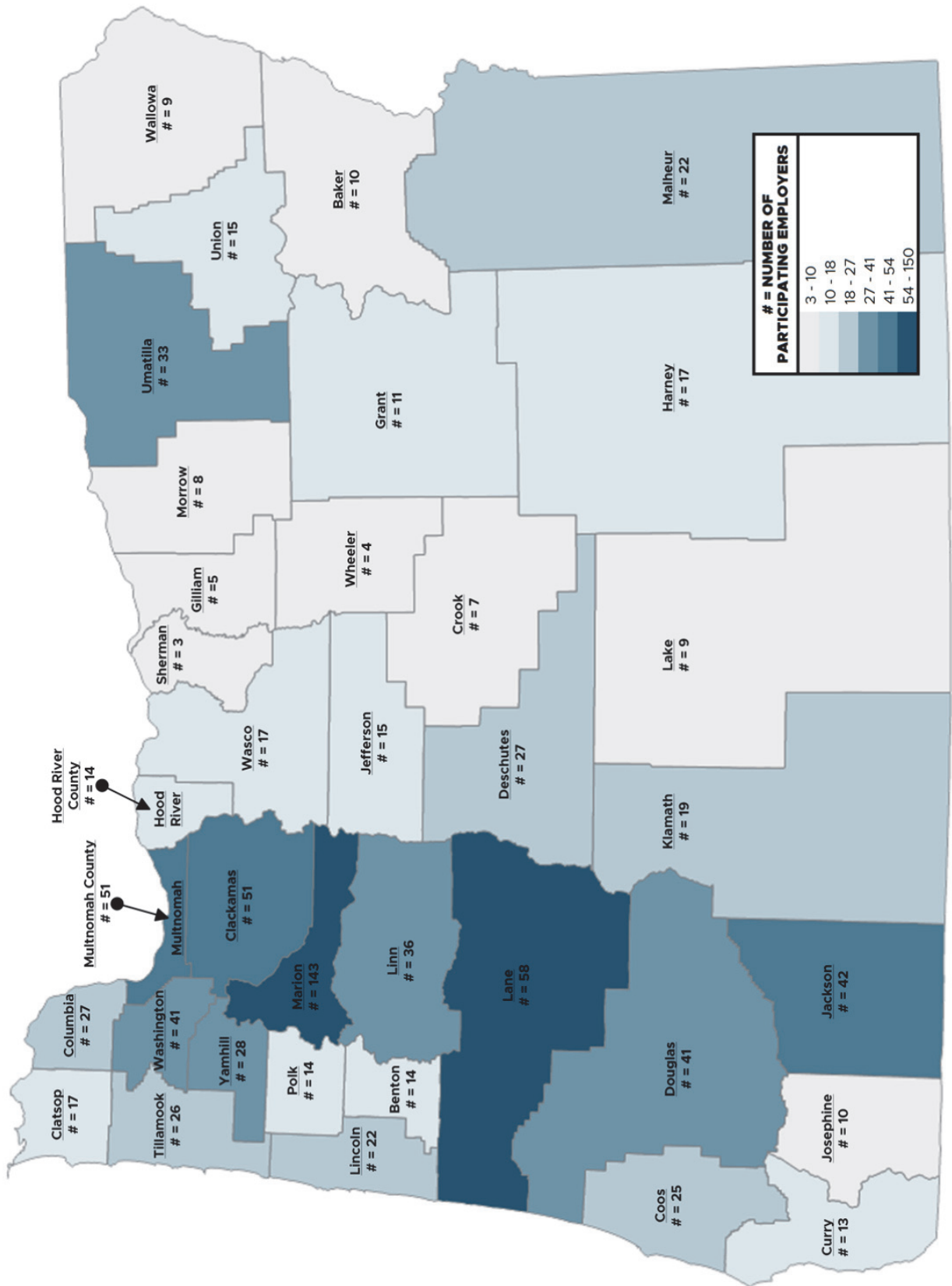
Total liability: The net present value of all projected future benefits attributable to all anticipated service (past and future) for current active and inactive members.

Tier One: The pension program covering members hired before January 1, 1996.

Tier Two: The pension program covering members hired from January 1, 1996, through August 28, 2003.

Unfunded actuarial liability (UAL): The excess of the actuarial accrued liability over the actuarial value of assets. The UAL is amortized over a fixed period of time to determine the UAL rate component of employer contribution rates.

PERS-PARTICIPATING EMPLOYERS IN OREGON BY COUNTY
AS OF FISCAL YEAR ENDING JUNE 30, 2018, BY MAILING ADDRESS



34

PERS-participating employers by county, according to mailing address (904)

BAKER (10)

Baker City, City of
Baker County
Baker County Library District
Baker School District #5J
Baker Valley Irrigation District
Baker Web Academy
Burnt River High School
Huntington School District #16J
Huntington, City of
Pine-Eagle School District #61

BENTON (14)

Adair Village, City of
Alsea School
Benton County
Corvallis School District #509J
Corvallis, City of
Kings Valley Charter School
Monroe Fire Department
Monroe School District #1J
Monroe, City of
Muddy Creek Charter School
Oregon State University
Philomath Fire Department
Philomath School District #17J
Philomath, City of

CLACKAMAS (51)

Alliance Charter Academy
Canby Fire District
Canby School District
Canby Utility Board
Canby, City of
Cascade Heights Public Charter School
Clackamas Community College
Clackamas County
Clackamas County ESD
Clackamas County Fair
Clackamas County Fire District 1
Clackamas County Vector Control District
Clackamas Middle College
Clackamas River Water
Clackamas River Water Providers
Clackamas Web Academy
Colton Fire Department
Colton School District #53
Estacada Cemetery
Estacada Maintenance District
Estacada Fire Department
Estacada School District #108
Estacada, City of
Gladstone School District #115
Gladstone, City of
Happy Valley, City of
Hoodland Fire District #74
Housing Authority of Clackamas County
Lake Oswego School District
Lake Oswego, City of
Milwaukie, City of
Molalla RFPD #73
Molalla River Academy
Molalla River School District
Molalla, City of
Mulino Water District #23
North Clackamas County Water Commission
North Clackamas School District #12
Oak Lodge Water District
Oregon City School District #62
Oregon City, City of
Oregon Trail School District #46
Renaissance Public Academy
Sandy Fire Department
Sandy, City of

South Fork Water Board
Springwater Environmental Sciences School
Summit Learning Charter
Sunrise Water Authority
Three Rivers Charter School
West Linn, City of
Wilsonville, City of

CLATSOP (17)

Arch Cape Service District
Astoria, City of
Cannon Beach Academy
Cannon Beach RFPD
Cannon Beach, City of
Clatsop Community College
Clatsop County
Clatsop County School District #1C
Gearhart, City of
Jewell School District #8
Knappa School District #4
Knappa Svensen Burnside RFPD
Port of Astoria
Seaside Schools
Warrenton, City of
Warrenton-Hammond School District
Wickiup Water District

COLUMBIA (27)

Clatskanie Library District
Clatskanie People's Utility District
Clatskanie RFPD
Clatskanie School District #6J
Clatskanie, City of
Columbia City, City of
Columbia County
Columbia County 911 Communications District
Columbia Drainage Vector Control District
Columbia River Fire and Rescue
Columbia River Public Utility District
Greater St. Helens Parks and Recreation District
Mist-Birkenfeld RFPD
Port of St. Helens
Rainier Cemetery District
Rainier School District #13
Rainier, City of
Scappoose Public Library
Scappoose RFPD
Scappoose School District
Scappoose, City of
South Columbia Family School
St. Helens School District #502
St. Helens, City of
Vernonia Fire
Vernonia School District
Vernonia, City of

COOS (25)

Bandon School District
Bandon, City of
Charleston RFPD
Coos Bay School District #9
Coos Bay, City of
Coos County
Coos County Airport District
Coquille School District #8
Coquille, City of
Lakeside Water District
Lakeside, City of
Millington RFPD
Myrtle Point School District #41
Myrtle Point, City of

North Bend City Housing Authority
North Bend Public Schools
North Bend, City of
Oregon Dungeness Crab Commission
Oregon Virtual Academy
Port of Coos Bay
Powers School District
Powers, City of
South Coast ESD Region #7
Southwestern Oregon Community College
The Lighthouse School

CROOK (7)

Crook County
Crook County RFPD 1
Crook County School District
Insight School of Oregon
Painted Hills
Ochoco Irrigation District
Powell Butte Community Charter School
Prineville, City of

CURRY (13)

Brookings, City of
Brookings-Harbor School District #17C
Central Curry School District #1
Chetco Community Public Library Board
Curry County
Curry Public Library
Gold Beach, City of
Harbor Water People's Utility District
Nesika Beach-Ophir Water District
Oregon Trawl Commission
Port Orford Public Library District
Port Orford, City of
Port Orford-Langlois School District #2CJ

DESCHUTES (27)

Bend International School
Bend Parks and Recreation
Bend, City of
Bend-La Pine Schools
Black Butte Ranch Police
Black Butte Ranch RFPD
Central Oregon Community College
Central Oregon
Intergovernmental Council
Central Oregon Irrigation District
Central Oregon Regional Housing Authority
Cloverdale RFPD
Deschutes County
Deschutes County RFPD #2
Deschutes Public Library District
Desert Sky Montessori
High Desert Education Service District
Jefferson County Soil and Water Conservation District
La Pine RFPD
Redmond Area Parks and Recreation District
Redmond Fire and Rescue
Redmond Proficiency Academy
Redmond School District #2J
Redmond, City of
Sisters and Camp Sherman RFPD
Sisters School District

Sisters, City of
Sunriver Service District

DOUGLAS (41)

Camas Valley School District #21
Canyonville, City of
Days Creek School District #15
Douglas County
Douglas County ESD
Douglas County Fire District #2
Douglas County Soil and Water
Conservation District
Drain, City of
Elkton School District #34
Elkton, City of
Glendale School District #77
Glide Fire Department
Glide School District #12
Green Sanitary District
Myrtle Creek, City of
North Douglas County Fire and
EMS
North Douglas School District
#22
Oakland School District
Oakland, City of
Reedsport School District
Reedsport, City of
Riddle School District
Riddle, City of
Roseburg Public Schools
Roseburg Urban Sanitary
Authority
Roseburg, City of
Salmon Harbor and Douglas
County
South Umpqua School District
Sutherlin School District #130
Sutherlin Water Control District
Sutherlin, City of
The Phoenix School
Tri-City Water and Sanitary
Authority
Umpqua Community College
Winchester Bay Sanitary District
Winston, City of
Winston-Dillard Fire District
Winston-Dillard Schools
Winston-Dillard Water District
Yoncalla School District #32
Yoncalla, City of

GILLIAM (5)

Arlington Public Schools
Condon Admin. School District
#25J
Condon, City of
Gilliam County
North Central ESD

GRANT (11)

Canyon City, Town of
Dayville School District #16J
Grant County
Grant County ESD
John Day School District
John Day, City of
Long Creek Schools
Monument School District #8
Mt. Vernon, City of
Prairie City School District #4
Prairie City, City of

HARNEY (17)

Burns, City of
Crane Elementary School
Crane Union High School
Diamond School District #7
Double O School District
Drewsey School

Frenchglen School District
Harney County
Harney County School District
#3
Harney ESD Region #17
Harney Hospital
High Desert Parks and
Recreation District
Hines, City of
Pine Creek School
Silvies River Web Academy
South Harney School District
#33
Suntex School District

HOOD RIVER (14)

Cascade Locks, City of
Crystal Springs Water District
East Fork Irrigation District
Farmers Irrigation District
Hood River County
Hood River County School
District
Hood River, City of
Ice Fountain Water District
Odell Sanitary District
Parkdale Fire District
Port of Cascade Locks
Port of Hood River
West Side Fire District
Wy'East Fire District

JACKSON (42)

Applegate Valley RFPD #9
Armadillo Technical Institute
Ashland Parks Commission
Ashland Public Schools
Ashland, City of
Butte Falls School District
Butte Falls, Town of
Central Point School District #6
Central Point, City of
Crater Lake Charter Academy
Eagle Point School District #9
Eagle Point, City of
Evans Valley Fire District #6
Gold Hill, City of
Housing Authority of Jackson
County
Jackson County
Jackson County Fire District #3
Jackson County Fire District #4
Jackson County Fire District #5
Jackson County Vector Control
Jacksonville, City of
Logos Public Charter School
Madrone Trail Public Charter
School
Medford Irrigation District
Medford School District #549C
Medford Water Commission
Medford, City of
Phoenix, City of
Phoenix-Talent School District
#4
Pinehurst School
Prospect School District
River's Edge Academy Charter
School
Rogue River Fire District
Rogue River Valley Irrigation
District
Rogue River, City of
Rouge River School District
Shady Cove, City of
Southern Oregon ESD
Southern Oregon University
Talent Irrigation District
Talent, City of

The Valley School of Southern
Oregon

JEFFERSON (15)

Ashwood School
Black Butte School District
Crooked River Ranch RFPD
Culver School District #4
Culver, City of
Deschutes Valley Water District
Jefferson County
Jefferson County EMS District
Jefferson County ESD
Jefferson County Library District
Jefferson County RFPD #1
Lake Chinook Fire and Rescue
District
Madras School District
Madras, City of
Metolius, City of

JOSEPHINE (10)

Cave Junction, City of
Grants Pass Irrigation District
Grants Pass School District
Grants Pass, City of
Illinois Valley Fire District
Josephine County
Rogue Community College
Sunny Wolf Charter School
Three Rivers School District
Woodland Charter School

KLAMATH (19)

Chiloquin, City of
Chiloquin-Agency Lake RFPD
Crescent RFPD
EagleRidge High School
Horsefly Irrigation District
Klamath Community College
Klamath County
Klamath County Emergency
Communications District
Klamath County Fire District #1
Klamath County School District
Klamath Falls City Schools
Klamath Falls, City of
Klamath Housing Authority
Klamath Vector Control District
Malin, City of
Merrill, City of
Oregon Institute of Technology
Sage Community School
South Suburban Sanitary District

LAKE (9)

Adel School District #21
Lake County
Lake County ESD
Lake County Library District
Lake County School District #7
Lakeview, Town of
North Lake School District #14
Paisley School District
Plush School District

LANE (58)

Bethel School District
Bridge Charter Academy
Coburg Community Charter
School
Coburg RFPD
Coburg, City of
Cottage Grove, City of
Creswell School District #40
Creswell, City of
Crow-Applegate-Lorane School
District #66
Dexter RFPD
Dunes City, City of

Eugene School District #4J
 Eugene Water and Electric Board
 Eugene, City of
 Fern Ridge Community Library
 Fern Ridge School District
 Florence, City of
 Goshen Fire District
 Junction City Fire Department
 Junction City School District #69
 Junction City, City of
 Lane Community College
 Lane Council of Governments
 Lane County
 Lane County ESD
 Lane Fire Authority
 Lowell RFPD
 Lowell School District
 Lowell, City of
 Mapleton School District
 Mapleton Water District
 Marcola School District #79
 McKenzie Fire and Rescue
 McKenzie School District
 Mohawk Valley Fire
 Mountain View Academy
 Oakridge School District
 Oakridge, City of
 Pleasant Hill Fire Department
 Pleasant Hill School District
 Rainbow Water District
 Ridgeline Montessori
 Santa Clara RFPD
 Siuslaw Public Library
 Siuslaw RFPD #1
 Siuslaw School District #97J
 South Lane County Fire and Rescue
 South Lane School District
 Springfield Academy of Arts & Academics
 Springfield School District #19
 Springfield, City of
 The Village School
 Triangle Lake Schools
 University of Oregon
 Veneta, City of
 West Lane Technical Learning Center
 Western Lane Ambulance District
 Westfir, City of

LINCOLN (22)

Central Oregon Coast Fire and Rescue District
 Depoe Bay RFPD
 Depoe Bay, City of
 Eddyville Charter School
 Lincoln City, City of
 Lincoln County
 Lincoln County School District
 Newport, City of
 North Lincoln Fire and Rescue District #1
 Oregon Coast Community College
 Oregon Salmon Commission
 Port of Newport
 Seal Rock RFPD
 Seal Rock Water District
 Siletz Rural Fire Protection District
 Siletz Valley Early College Academy
 Siletz Valley School
 Southwest Lincoln County Water District
 Toledo, City of
 Waldport, City of

Yachats RFPD
 Yachats, City of

LINN (36)

Albany, City of
 Brownsville RFPD
 Central Linn School District #552C
 Community Services Consortium
 Greater Albany Public Schools #8J
 Halsey, City of
 Halsey-Shedd RFPD
 Harrisburg Fire and Rescue
 Harrisburg School District #7
 Harrisburg, City of
 Lebanon Aquatic District
 Lebanon Community School District
 Lebanon Fire District
 Lebanon, City of
 Linn County
 Linn-Benton Community College
 Linn-Benton Housing Authority
 Linn-Benton-Lincoln ESD
 Lourdes Charter School
 Lyons Fire District
 Lyons, City of
 Mill City RFPD
 Mill City, City of
 Millersburg, City of
 Oregon Cascades West Council of Governments
 Oregon Connections Academy
 Sand Ridge Charter School
 Santiam Canyon School District
 Scio Fire District
 Scio School District #95C
 Sweet Home Cemetery Maintenance District
 Sweet Home Charter School
 Sweet Home Fire and Ambulance District
 Sweet Home School District #55
 Sweet Home, City of
 Tangent RFPD

MALHEUR (22)

Adrian School District #61
 Annex Elementary School
 Four Rivers Community School
 Harper School District #66
 Jordan Valley School District #3
 Jordan Valley, City of
 Juntura Grade School
 Juntura Road District #4
 Malheur County
 Malheur ESD Region #14
 Nyssa Road Assessment District #2
 Nyssa School District #26
 Nyssa, City of
 Ontario School District #8C
 Ontario, City of
 Owyhee Irrigation District
 Rural Road Assessment District #3
 Treasure Valley Community College
 Vale School District #84
 Vale, City of
 Valley View Cemetery Maintenance District
 W W Jones School

MARION (143)

Appraiser Certification and Licensure Board
 Aumsville RFPD
 Aumsville, City of

Aurora RFPD
 Aurora, City of
 Board of Accountancy
 Board of Architect Examiners
 Board of Chiropractic Examiners
 Board of Examiners for Engineering and Land Surveying
 Board of Geologist Examiners
 Board of Optometry
 Board of Parole and Post-Prison Supervision
 Board of Pharmacy
 Bureau of Labor and Industries
 Cascade School District #5
 Chemeketa Community College
 City County Insurance Services
 Commission on Indian Services
 Commission on Judicial Fitness and Disability
 Construction Contractors Board
 Department of Administrative Services
 Department of Agriculture
 Department of Aviation
 Department of Consumer and Business Services
 Department of Corrections
 Department of Education
 Department of Energy
 Department of Environmental Quality
 Department of Human Services
 Department of Justice
 Department of Land
 Conservation and Development
 Department of Revenue
 Department of State Lands
 Department of Transportation
 Department of Veterans' Affairs
 District Attorneys Department
 Eagle Charter School
 Employment Department
 Employment Relations Board
 Forestry Department
 Frontier Charter Academy
 Geology and Mineral Industries
 Gervais School District #1
 Gervais, City of
 Health Related Licensing Boards
 Higher Education Coordinating Commission
 Howard Street Charter School, Inc.
 Hubbard RFPD
 Hubbard, City of
 Idanha-Detroit RFPD
 Jefferson RFPD
 Jefferson School District #14CJ
 Jefferson, City of
 Judges PERS
 Judicial Department
 Keizer Fire Department
 Keizer, City of
 Land Use Board of Appeals
 Landscape Contractors Board
 League of Oregon Cities
 Legislative Administration Committee
 Legislative Assembly
 Legislative Committees
 Legislative Fiscal Office
 Legislative Policy and Research Committee
 Local Government Personnel Institute
 Long Term Care Ombudsman
 Marion Area Multi-Agency Emergency Telecom Center
 Marion County

Marion County Fire District #1
 Marion County Housing
 Authority
 Mental Health Regulatory
 Agency
 Mid-Valley Behavioral Care
 Network
 Military Department
 Military Department (Federal
 Employees)
 Mount Angel, City of
 Mt. Angel Fire District
 Mt. Angel School District #91
 North Marion School District #15
 North Santiam School District
 #29J
 NorthWest Senior & Disability
 Services
 Office of Legislative Counsel
 Office of the Governor
 Oregon Advocacy Commission
 Office
 Oregon Board of Dentistry
 Oregon Board of Massage
 Therapists
 Oregon Board of Medical
 Examiners
 Oregon Business Development
 Department
 Oregon Commission for the
 Blind
 Oregon Community College
 Association
 Oregon Corrections Enterprises
 Oregon Criminal Justice
 Commission
 Oregon Department of Fish and
 Wildlife
 Oregon Education Investment
 Board
 Oregon Forest Resources
 Institute
 Oregon Government Ethics
 Commission
 Oregon Health Authority
 Oregon Hop Commission
 Oregon Housing and Community
 Services
 Oregon Liquor Control
 Commission
 Oregon Municipal Electric
 Utilities Association
 Oregon Parks and Recreation
 Department
 Oregon Racing Commission
 Oregon School Boards
 Association
 Oregon State Board of Nursing
 Oregon State Library
 Oregon State Police
 Oregon State Treasury
 Oregon Watershed
 Enhancement Board
 Oregon Youth Authority
 Psychiatric Security Review
 Board
 Public Defense Services
 Commission
 Public Employees Retirement
 System
 Public Safety Standards and
 Training
 Public Utility Commission
 Real Estate Agency
 Salem Housing Authority
 Salem, City of
 Salem-Keizer Public Schools
 Secretary of State
 Silver Falls Library District
 Silver Falls School District

Silverton Fire District
 Silverton, City of
 St. Paul School District
 State Accident Insurance Fund
 State Board of Clinical Social
 Workers
 State Board of Tax Practitioners
 State Lottery Commission
 State Marine Board
 Stayton Fire District
 Stayton, City of
 Sublimity Fire District
 Suburban East Salem Water
 District
 Teacher Standards and
 Practices Commission
 Travel Information Council
 Turner Fire District
 Turner, City of
 Water Resources Department
 Willamette ESD
 Woodburn Fire District
 Woodburn School District
 Woodburn, City of

MORROW (8)

Boardman RFPD
 Boardman, City of
 Heppner, City of
 Irrigon, City of
 Morrow County Schools
 North Morrow Vector Control
 District
 Oregon Trail Library District
 West Extension Irrigation District

MULTNOMAH (51)

Arthur Academy Charter School
 Centennial School District #28
 Center for Advanced Learning
 Corbett School District #39
 Corbett Water District
 David Douglas School District
 Fairview, City of
 Gresham, City of
 Gresham-Barlow School District
 #10
 Home Forward
 Kairos PDX
 Knova Learning Oregon
 Le Monde French Immersion
 Public Charter School
 Lewis and Clark Montessori
 Charter School
 Metro
 Metro East Web Academy
 Mt. Hood Community College
 Multnomah County
 Multnomah County Drainage
 Multnomah County ESD
 Multnomah County RFPD #14
 Multnomah Learning Academy
 Opal School
 Oregon Beef Council
 Oregon Dairy Products
 Commission
 Oregon Film and Video
 Oregon Health & Science
 University
 Oregon Patient Safety
 Commission
 Oregon Potato Commission
 Oregon Tourism Commission
 Oregon Wheat Commission
 Parkrose School District
 Physical Therapist Licensing
 Board
 Port of Portland
 Portland Community College

Portland Development
 Commission
 Portland Public Schools
 Portland State University
 Portland Village School
 Portland, City of
 Reynolds School District
 Riverdale School
 Rockwood Water People's
 Utility District
 Sauvie Island School
 The Cottonwood School of
 Civics and Science
 The Emerson School
 The Ivy School
 Trillium Charter School
 Troutdale, City of
 West Multnomah Soil and Water
 Conservation District
 Wood Village, City of

POLK (14)

Central School District #13J
 Dallas Community School
 Dallas School District
 Dallas, City of
 Falls City School District
 Falls City, City of
 Independence, City of
 Luckiamute Valley Charter
 School
 Monmouth, City of
 Polk County
 Polk County Fire District #1
 Polk Soil and Water
 Conservation District
 West Valley Housing Authority
 Western Oregon University

SHERMAN (3)

Moro, City of
 Sherman County
 Sherman County School District

TILLAMOOK (26)

Bay City, City of
 Fairview Water District
 Garibaldi, City of
 Manzanita, City of
 Neah-Kah-Nie School District
 Nehalem Bay Fire and Rescue
 Nehalem Bay Health District
 Nehalem Bay Wastewater
 Agency
 Neskowin Regional Sanitary
 Authority
 Neskowin Regional Water
 District
 Nestucca RFPD
 Nestucca School District #101
 Netarts Water District
 Netarts-Oceanside RFPD
 Netarts-Oceanside Sanitary
 District
 Port of Garibaldi
 Port of Tillamook Bay
 Rockaway Beach, City of
 Tillamook Bay Community
 College
 Tillamook County Emergency
 Communications District
 Tillamook County Soil and Water
 Conservation District
 Tillamook Fire District
 Tillamook People's Utility District
 Tillamook Public Schools
 Tillamook, City of
 Wheeler, City of

UMATILLA (33)

Athena, City of
 Athena-Weston School District #29RJ
 Blue Mountain Community College
 East Umatilla County RFPD
 Echo School District
 Echo, City of
 Helix School District
 Helix, City of
 Hermiston School District #8R
 Hermiston, City of
 InterMountain ESD
 lone School District
 Milton-Freewater Unified School District
 Milton-Freewater, City of
 Nixyaawii Community School
 Pendleton School District #16R
 Pendleton, City of
 Pilot Rock School District #2R
 Pilot Rock, City of
 Port of Umatilla
 Stanfield School District
 Stanfield, City of
 Ukiah School
 Umatilla County
 Umatilla County Fire District #1
 Umatilla County Soil and Water District
 Umatilla County Special Library District
 Umatilla Fire Department
 Umatilla School District #6R
 Umatilla, City of
 Umatilla-Morrow Radio and Data District
 Weston Cemetery
 Weston, City of

UNION (15)

Cove School District
 Eastern Oregon University
 Elgin School District #23
 Elgin, City of
 Imbler RFPD
 Imbler School District
 Imbler, City of
 La Grande Public Schools
 La Grande RFPD
 La Grande, City of
 North Powder School District
 North Powder, City of
 Northeast Oregon Housing Authority
 Tri-County Cooperative Weed Management
 Union County School District

WALLOWA (9)

Enterprise School District #21
 Enterprise, City of
 Joseph School District #6
 Joseph, City of
 Troy School District #54
 Wallowa County
 Wallowa County Region #18 ESD
 Wallowa School
 Wallowa, City of

WASCO (17)

Columbia Gorge Community College
 Dufur Schools
 Dufur, City of
 Maupin, City of
 Mid-Columbia Center for Living
 Mid-Columbia Fire and Rescue
 Mosier Community School

Mosier Fire District
 North Central Public Health District
 North Wasco County Parks and Recreation
 North Wasco County School District #21
 Northern Oregon Corrections Port of The Dalles
 South Wasco County School District #1
 Wasco County
 Wasco County ESD
 Wasco County Soil and Water Conservation District

WASHINGTON (41)

Arco Iris Spanish Immersion Charter School
 Banks Fire District #13
 Banks School District
 Banks, City of
 Beaverton School District
 Beaverton, City of
 City View Charter School
 Clean Water Services
 Cornelius, City of
 Durham, City of
 Forest Grove Community School
 Forest Grove School District
 Forest Grove, City of
 Gaston Public Schools
 Gaston RFPD
 Gaston, City of
 Hillsboro School District #1J
 Hillsboro, City of
 Hope Chinese Charter School
 King City, City of
 Metropolitan Area Communication Commission
 MITCH Charter School
 North Plains, City of
 Northwest Regional ESD
 Oregon State Bar
 Oregon State Bar Professional Liability Fund
 Oregon Virtual Education East
 Oregon Virtual Education West
 Sherwood Charter School
 Sherwood, City of
 Tigard, City of
 Tigard-Tualatin School District #23J
 Tigard-Tualatin School District #88J
 Tualatin Valley Fire and Rescue
 Tualatin Valley Irrigation District
 Tualatin Valley Water District
 Tualatin, City of
 Washington County
 Washington County Consolidated Comms. Agency
 West Linn School District
 West Slope Water District

WHEELER (4)

Fossil School District #21J
 Fossil, City of
 Mitchell School
 Spray School District #1

YAMHILL (28)

Amity Fire District
 Amity School District
 Amity, City of
 Carlton, City of
 Dayton Public Schools
 Dayton, City of
 Dundee, City of
 Eola Hills Charter School

Lafayette, City of
 McMinnville Schools
 McMinnville Water and Light Department
 McMinnville, City of
 Newberg School District #29JT
 Newberg, City of
 Perrydale School District #21
 Sheridan AllPrep Academy
 Sheridan Fire District
 Sheridan Japanese School Foundation
 Sheridan School District #48J
 Sheridan, City of
 West Valley Fire District
 Willamina School District #30J
 Willamina, City of
 Yamhill Communications Agency
 Yamhill County
 Yamhill Fire Protection District
 Yamhill, City of
 Yamhill-Carlton School District #1

Key Acronyms

RFPD = Rural Fire Protection District

ESD = Education Service District

Appendix B: Replacement Ratio Study (RRS) Exclusions and Assumptions (see pages 10-12)

EXCLUSIONS

Job Class Exclusions

The study is limited to PERS plan retirees in the General Service and Police & Fire job classes from January 1990 through December 2017. Beneficiaries and alternate payees were also excluded, as the inclusion of these populations would skew the results due to the wide range of payout scenarios related to death and divorce benefits.

Retirement Option Exclusions

All lump-sum benefit types were excluded due to the distorting effect of significant payouts at one time on replacement ratio results.

Other Exclusions

- Any record that fell outside the January 1990 - December 2017 range.
- Any record that had a greater than one-year gap between termination date and retirement date.

ASSUMPTIONS

The following assumptions were used in this study:

- Any account with a variable balance at the date of retirement was considered a variable account member.
- For final average salary (FAS), the monthly FAS from the member's actual benefit calculation was used where available. When monthly FAS could not be obtained, we used the average salary of the three high calendar years of a member's career. This definition of FAS may not match the definition on which the member's actual benefit was calculated.
- Monthly gross benefit includes HB3349 benefits for qualifying retirees.

SPECIAL NOTES

The averages and percentages displayed on the Replacement Ratio sheets are based upon the respective actual source data. The calculations on each Replacement Ratio sheet are not directly derived from one another. For instance, if the Average Monthly Gross benefit column is divided by the Average Monthly Salary column, it will not equal the Average Replacement Ratio column because the Average Replacement Ratio is derived from the average of replacement ratios in the source data. This method avoids distortions resulting from averaging averages. This is also the case with all of the median calculations. This method of analyzing the data provides a more accurate picture of the actual dataset being used.

Records of members who retired in previous years and then returned to work only to retire again later will be counted in the year of original retirement and again in the year of the second retirement. Adjusting the historical record in these scenarios would otherwise distort year-over-year results.

Records for members who have retired with both Class 1 (General Service) and Class 2 (Police and Fire) job segments had the General Service job segment removed. Removing these records avoids double counting salaries and members.