Multiple Agency Fiscal Note Summary

Bill Number: 1560 S HB	**Title:** Retirement system defaults

Estimated Cash Receipts

NONE

Estimated Expenditures

Agency Name	2017-19			2019-21			2021-23		
	FTEs	GF-State	Total	FTEs	GF-State	Total	FTEs	GF-State	Total
Department of Retirement Systems	Fiscal note not available								
Actuarial Fiscal Note - State Actuary	.0	0	0	.0	0	0	.0	(3,900,000)	(5,300,000)
Total	**0.0**	**$0**	**$0**	**0.0**	**$0**	**$0**	**0.0**	**$(3,900,000)**	**$(5,300,000)**

Estimated Capital Budget Impact

NONE

Prepared by: Jane Sakson, OFM	**Phone:** 360-902-0549	**Date Published:** Preliminary 1/24/2018

* See Office of the Administrator for the Courts judicial fiscal note

** See local government fiscal note

FNPID: 50108

Individual State Agency Fiscal Note

Bill Number: 1560 S HB	Title: Retirement system defaults	Agency: AFN-Actuarial Fiscal Note - State Actuary

Part I: Estimates

☐ **No Fiscal Impact**

Estimated Cash Receipts to:

NONE

Estimated Expenditures from:

		FY 2018	FY 2019	2017-19	2019-21	2021-23
Account						
All Other Funds-State	000-1	0	0	0	0	(1,400,000)
General Fund-State	001-1	0	0	0	0	(3,900,000)
	Total $	0	0	0	0	(5,300,000)

Estimated Capital Budget Impact:

NONE

The cash receipts and expenditure estimates on this page represent the most likely fiscal impact. Factors impacting the precision of these estimates, and alternate ranges (if appropriate), are explained in Part II.

Check applicable boxes and follow corresponding instructions:

☒ If fiscal impact is greater than $50,000 per fiscal year in the current biennium or in subsequent biennia, complete entire fiscal note form Parts I-V.

☐ If fiscal impact is less than $50,000 per fiscal year in the current biennium or in subsequent biennia, complete this page only (Part I).

☐ Capital budget impact, complete Part IV.

☐ Requires new rule making, complete Part V.

Legislative Contact:		Phone:	Date: 01/23/2018
Agency Preparation:	Aaron Gutierrez	Phone: 360-786-6152	Date: 01/24/2018
Agency Approval:	Matt Smith	Phone: 360-786-6147	Date: 01/24/2018
OFM Review:	Jane Sakson	Phone: 360-902-0549	Date: 01/24/2018

Part II: Narrative Explanation

II. A - Brief Description Of What The Measure Does That Has Fiscal Impact

Briefly describe by section number, the significant provisions of the bill, and any related workload or policy assumptions, that have revenue or expenditure impact on the responding agency.

II. B - Cash receipts Impact

Briefly describe and quantify the cash receipts impact of the legislation on the responding agency, identifying the cash receipts provisions by section number and when appropriate the detail of the revenue sources. Briefly describe the factual basis of the assumptions and the method by which the cash receipts impact is derived. Explain how workload assumptions translate into estimates. Distinguish between one time and ongoing functions.

II. C - Expenditures

Briefly describe the agency expenditures necessary to implement this legislation (or savings resulting from this legislation), identifying by section number the provisions of the legislation that result in the expenditures (or savings). Briefly describe the factual basis of the assumptions and the method by which the expenditure impact is derived. Explain how workload assumptions translate into cost estimates. Distinguish between one time and ongoing functions.

Part III: Expenditure Detail

III. A - Expenditures by Object Or Purpose

	FY 2018	FY 2019	2017-19	2019-21	2021-23
FTE Staff Years					
A-Salaries and Wages					
B-Employee Benefits					(5,300,000)
C-Professional Service Contracts					
E-Goods and Other Services					
G-Travel					
J-Capital Outlays					
M-Inter Agency/Fund Transfers					
N-Grants, Benefits & Client Services					
P-Debt Service					
S-Interagency Reimbursements					
T-Intra-Agency Reimbursements					
9-					
Total:	$0	$0	$0	$0	$(5,300,000)

Part IV: Capital Budget Impact

Part V: New Rule Making Required

Identify provisions of the measure that require the agency to adopt new administrative rules or repeal/revise existing rules.

SUMMARY OF RESULTS

BRIEF SUMMARY OF BILL: This bill changes the retirement plan default for new hires from Plan 3 to Plan 2.

COST SUMMARY

Impact on Contribution Rates (Effective 09/01/2018)			
Fiscal Year 2019 State Budget	**PERS**	**TRS**	**SERS**
Employee (Plan 2)	0.00%	0.00%	0.00%
Total Employer	0.00%	0.00%	0.00%

Budget Impacts			
(Dollars in Millions)	**2018-2019**	**2019-2021**	**25-Year**
General Fund-State	$0.0	$0.0	($35.1)
Local Government	$0.0	$0.0	($42.2)
Total Employer	$0.0	$0.0	($95.7)

Note: We use long-term assumptions to produce our short-term budget impacts. Therefore, our short-term budget impacts will likely vary from estimates produced from other short-term budget models.

HIGHLIGHTS OF ACTUARIAL ANALYSIS

- This bill does not change the benefits or liabilities of the current Plan 2/3 members from these systems, but would change future contribution levels due to an assumed increase in the number of future Plan 2 members.

- Increasing the number of future Plan 2 members reduces the portion of the Plan 2/3 costs paid by current Plan 2 members and Plan 2/3 employers, resulting in an expected long-term savings for current Plan 2 members and Plan 2/3 employers.

- For our best estimate, we assume an additional 8.33 percent of future annual new hires will join Plan 2 than under current law. This shift in future Plan 2 membership results in an expected 25-year total employer savings of $95.7 million.

- If we assume 3.33 percent of future annual new hires will join Plan 2, this total employer savings decreases to about $43 million. If we assume 13.33 percent, this total employer savings increases to about $143 million.

- In terms of risk to the affected retirement systems, Plan 2 provides larger guaranteed benefits than Plan 3. Increasing the population of future Plan 2 members transfers risk from affected members to the state/employers. Please see the **How The Risk Measures Change** section for further details.

See the remainder of this fiscal note for additional details on the summary and highlights presented here.

WHAT IS THE PROPOSED CHANGE?

Summary Of Change

This bill impacts the following systems:

- ❖ Public Employees' Retirement System (PERS) Plans 2/3.
- ❖ Teachers' Retirement System (TRS) Plans 2/3.
- ❖ School Employees' Retirement System (SERS) Plans 2/3.

This bill changes the plan default from Plan 3 to Plan 2 for members of PERS, TRS, and SERS Plans 2/3 hired on or after July 1, 2018.

The bill also contains a severability clause.

Effective Date: Immediately.

HOW THE SUBSTITUTE DIFFERS FROM THE ORIGINAL VERSION

The substitute rolls the bill forward by one year, so that references to 2017 are changed to 2018.

What Is The Current Situation?

When a new employee is hired, and that employee is eligible for PERS, TRS, or SERS, the employee is given 90 days to choose either Plan 2 or Plan 3 of their respective retirement system. This choice is irrevocable.

If a member does not choose a plan within that time, the member is defaulted into Plan 3 (and defaulted into a Plan 3 contribution rate and investment choice).

For administrative efficiency, the members are reported in their respective Plan 2 until the member chooses or is defaulted into Plan 3.

In Plan 2 of each system, the member earns a 2 percent defined benefit, with costs split equally between employer and member.

In Plan 3 of each system, the member earns a 1 percent defined benefit (paid by the employer), and a 401(k)-style defined contribution benefit (paid by the member).

Who Is Impacted And How?

We estimate this bill could change benefits for new hires of these systems who do not select a retirement plan by providing a Plan 2 style benefit instead of a Plan 3 style benefit as noted above.

This bill could impact all Plan 2 members of these systems through a change in contribution rates. This bill will not affect member contribution rates in Plan 1 since they are fixed in statute. Additionally, this bill will not affect current member contribution rates in the Plans 3 since Plan 3 members do not contribute to their employer-provided defined benefit.

See the **Special Data Needed** section of this fiscal note for more details on historical default experience in the Plans 2/3.

WHY THIS BILL HAS A SAVINGS AND WHO RECEIVES IT

Why This Bill Has A Savings

This bill does not change the benefits or liabilities of the current Plans 2/3 members from these systems, but would change future contribution levels due to assumed increases in the number of future Plan 2 members.

The defined benefit costs of the Plans 2/3 are funded by Plan 2 members, Plan 2 employers, and Plan 3 employers. Increasing the number of future Plan 2 members reduces the portion of the Plan 2/3 costs paid by current Plan 2 members and Plan 2/3 employers. This results in an expected long-term savings for current Plan 2 members and Plan 2/3 employers.

Who Will Receive These Savings?

Any savings that emerge from this bill would be divided between members and employers according to standard funding methods that vary by plan:

- Plan 2: 50 percent member and 50 percent employer.
- Plan 3: 100 percent employer.

HOW WE VALUED THESE COSTS

Assumptions We Made

By changing the default plan from Plan 3 to Plan 2 for those who do not make an affirmative plan selection within 90 days of hire, we expect more members will join Plan 2 than under current law. We increased our Plan 2 Choice assumption by 8.33 percent. For more detail please see **Special Data Needed** section of this fiscal note.

For purposes of this pricing, we also assumed future new entrants would have the same demographic characteristics (or profile) as the combined Plans 2/3 new entrants for each retirement system, instead of different assumed demographics by plan. For more detail please see **Appendix A**.

All of the analysis we prepared for this fiscal note includes the impact of the changes to the economic assumptions as adopted by the Pension Funding Council. As a result, the "Current" results will not match the *June 30, 2016, Actuarial Valuation Report* (AVR). Please see our website for further details.

How We Applied These Assumptions

Because this bill impacts future new hires, we relied on our projection system to determine the impacts on future contribution rates and budgets. We recorded the difference between our “base” and “pricing” projection system runs to determine the contribution rate and budget impacts for each affected system.

For the base projection, we relied on our current law projection with two modifications: (1) we replaced the Plan 2 and Plan 3 specific new entrant profiles with a single, blended Plans 2/3 new entrant profile; and (2) we replaced the June 30, 2016, Actuarial Value of Assets (AVA) and the Market Value of Assets (MVA) with the AVA at June 30, 2015. We further adjusted item (2) with one year of assumed growth based upon expected investment earnings, benefits payments, employee and employer contributions consistent with the 2015 AVR. Beyond June 30, 2016, we applied assumed asset growth.

For the pricing projection, we modified the base projection to include a higher Plan 2 Choice assumption as noted above.

The difference between the two projection systems runs, including the changes to our current law projection in the base projection, allowed us to isolate the expected long-term impacts of the bill.

For more detail please see **Appendix B**.

Special Data Needed

We relied on data provided by the Department of Retirement System (DRS) to set our plan choice assumptions in this fiscal note. We reviewed this data for reasonableness, found it reasonable for purposes of this pricing, but did not audit the data. We assumed the data was accurate and complete.

For more detail please see **Appendix C**.

ACTUARIAL RESULTS

How The Liabilities Changed

This bill does not change the present value of future benefits payable for current members, so there is no impact on the actuarial funding of the affected plans due to liability changes.

How The Assets Changed

This bill does not change current asset values, so there is no impact on the actuarial funding of the affected plans due to asset changes.

How The Present Value Of Future Salaries (PVFS) Changed

This bill does not change the PVFS of the current active members, so there is no impact on the actuarial funding of the affected plans due to PVFS changes.

How Contribution Rates Changed

The first rate-setting actuarial valuation to include the effects of the new plan default would be the June 30, 2019, actuarial valuation. That actuarial valuation will be used as the basis for contribution rates collected in the 2021-23 Biennium. As a result, we expect no rate changes from this bill until Fiscal Year 2022. As more members join Plan 2 by default, we expect the cost-sharing shifts that emerge to result in the following projected contribution rate changes for Plan 2 employees and Plan 2/3 employers.

Impact on Plan 2 Employee and Plans 2/3 Employer Normal Cost Rates			
Fiscal Year	**PERS**	**TRS**	**SERS**
2019	0.00%	0.00%	0.00%
2020	0.00%	0.00%	0.00%
2021	0.00%	0.00%	0.00%
2022	(0.02%)	(0.02%)	(0.03%)
2023	(0.02%)	(0.02%)	(0.03%)
2024	(0.04%)	(0.02%)	(0.04%)
2025	(0.04%)	(0.02%)	(0.04%)
2026	(0.04%)	(0.02%)	(0.04%)
2027	(0.04%)	(0.02%)	(0.04%)
2028	(0.03%)	(0.02%)	(0.03%)
2029	(0.03%)	(0.02%)	(0.03%)
2030	(0.03%)	(0.01%)	(0.02%)
2031	(0.03%)	(0.01%)	(0.02%)
2032	(0.02%)	(0.01%)	(0.01%)
2033	(0.02%)	(0.01%)	(0.01%)
2034	(0.02%)	(0.01%)	(0.01%)
2035	(0.02%)	(0.01%)	(0.01%)
2036	(0.01%)	(0.01%)	(0.01%)
2037	(0.01%)	(0.01%)	(0.01%)
2038	(0.01%)	(0.01%)	0.00%
2039	(0.01%)	(0.01%)	0.00%
2040	0.00%	0.00%	0.00%
2041	0.00%	0.00%	0.00%
2042	0.00%	0.00%	0.00%
2043	0.00%	0.00%	0.00%

How This Impacts Budgets And Employees

Budget Impacts				
(Dollars in Millions)	**PERS**	**TRS**	**SERS**	**Total**
2018-2019				
General Fund	$0.0	$0.0	$0.0	$0.0
Non-General Fund	0.0	0.0	0.0	0.0
Total State	**$0.0**	**$0.0**	**$0.0**	**$0.0**
Local Government	0.0	0.0	0.0	0.0
Total Employer	**$0.0**	**$0.0**	**$0.0**	**$0.0**
2019-2021				
General Fund	$0.0	$0.0	$0.0	$0.0
Non-General Fund	0.0	0.0	0.0	0.0
Total State	**$0.0**	**$0.0**	**$0.0**	**$0.0**
Local Government	0.0	0.0	0.0	0.0
Total Employer	**$0.0**	**$0.0**	**$0.0**	**$0.0**
2018-2043				
General Fund	($12.3)	($16.8)	($6.0)	($35.1)
Non-General Fund	(18.4)	0.0	0.0	(18.4)
Total State	**($30.7)**	**($16.8)**	**($6.0)**	**($53.5)**
Local Government	(34.9)	(3.4)	(3.8)	(42.2)
Total Employer	**($65.6)**	**($20.2)**	**($9.9)**	**($95.7)**

Note: Totals may not agree due to rounding. We use long-term assumptions to produce our short-term budget impacts. Therefore, our short-term budget impacts will likely vary from estimates produced from other short-term budget models.

Note that we did not provide the budget impact on employees since most of the budget change for employees is due to the plan into which members default and not due to the cost/savings of this bill. More specifically, members who default will pay the Plan 2 calculated member rate in future biennia, compared to the fixed 5 percent of salary that these members would have contributed to their defined contribution account had they defaulted into Plan 3.

The analysis of this bill does not consider any other proposed changes to the systems. The combined effect of several changes to the systems could exceed the sum of each proposed change considered individually.

As with the costs developed in the actuarial valuation, the emerging costs of the systems will vary from those presented in the AVR or this fiscal note to the extent that actual experience differs from the actuarial assumptions.

Comments On Risk

Our office performs annual risk assessments to help us demonstrate and assess the effect of unexpected experience on pension plans. The risk assessment allows us to measure how affordability and funded status can change if investment experience, expected state revenue growth, and inflation do not match our long-term assumptions. Our annual risk assessment also considers past practices, for funding and benefit enhancements, and their impact on pension plan risk if those practices continue. For more information, please see our *Risk Assessment* webpage.

We have not analyzed this bill using the risk assessment model, but may submit a revised fiscal note in the future to include that analysis. In terms of risk, we would expect this bill would worsen the solvency risk measures because increasing the number of future Plan 2 members increases the amount of guaranteed benefits under the Plans 2/3. Should pay-go occur in the future, we would expect this bill to increase the amount of pay-go costs in the open plans. We would need to complete our risk analysis to quantify this impact and to identify any other impacts to the select measures of pension risk from this bill.

HOW THE RESULTS CHANGE WHEN THE ASSUMPTIONS CHANGE

To determine the sensitivity of the actuarial results to the best estimate assumptions selected for this pricing, we varied the following assumption:

- If 5 percent more or less members default into Plan 2 than we expect under this bill, the 25-year savings will increase or decrease as shown in the budget impact table below. These sensitivities are labeled as Higher Defaults and Lower Defaults, respectively.

25-Year Budget Impacts			
(Dollars in Millions)	**Lower Defaults**	**Best Estimate**	**Higher Defaults**
General Fund-State	($15)	($35.1)	($52)
Local Government	($19)	($42.2)	($63)
Total Employer	($43)	($95.7)	($143)

WHAT THE READER SHOULD KNOW

The Office of the State Actuary ("we") prepared this fiscal note based on our understanding of the bill as of the date shown in the footer. We intend this fiscal note to be used by the Legislature during the 2018 Legislative Session only.

We advise readers of this fiscal note to seek professional guidance as to its content and interpretation, and not to rely upon this communication without such guidance. Please read the analysis shown in this fiscal note as a whole. Distribution of, or reliance on, only parts of this fiscal note could result in its misuse, and may mislead others.

ACTUARY'S CERTIFICATION

The undersigned hereby certifies that:

1. The actuarial cost methods and asset valuation methods are appropriate for the purposes of this pricing exercise.
2. The actuarial assumptions used are appropriate for the purposes of this pricing exercise.
3. The data on which this fiscal note is based are sufficient and reliable for the purposes of this pricing exercise.
4. Use of another set of methods, assumptions, and data may also be reasonable, and might produce different results.
5. We prepared this fiscal note for the Legislature during the 2018 Legislative Session.
6. We prepared this fiscal note and provided opinions in accordance with Washington State law and accepted actuarial standards of practice as of the date shown in the footer of this fiscal note.

The undersigned, with actuarial credentials, meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

While this fiscal note is meant to be complete, the undersigned is available to provide extra advice and explanations as needed.

Matthew M. Smith, FCA, EA, MAAA
State Actuary

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APPENDIX A – ASSUMPTIONS WE MADE

Across all impacted systems, we observed that approximately 20 percent of new hires defaulted into Plan 3. While we expect some new hires to default regardless of whether that's into Plan 2 or Plan 3, we anticipate a portion of that group defaulted into Plan 3 because ultimately that's the plan they wanted. See **Appendix C** for further details.

Assuming that nearly half of these members would default into Plan 2 under this bill, we decided to increase our PERS Plan 2 Choice assumption from two-thirds to three-quarters for our best estimate pricing. Using a similar thought process for TRS and SERS, we expect the Plan 2 Choice assumption will increase by the same 8.33 percent to approximately 58 percent Plan 2 and 42 percent Plan 3.

We updated our existing projections to reflect a combined Plans 2/3 new entrant profile instead of plan specific profiles (as shown in the table below).

Blended New Entrant Profiles											
PERS				TRS				SERS			
Age	Salary	Sex	Weight*	Age	Salary	Sex	Weight*	Age	Salary	Sex	Weight*
22	$35,800	M	10.0%	23	$52,500	M	7.2%	22	$21,500	M	2.6%
22	$35,800	F	10.0%	23	$52,500	F	16.8%	22	$21,500	F	10.4%
27	$40,600	M	10.0%	27	$57,000	M	8.4%	27	$23,500	M	2.4%
27	$40,600	F	10.0%	27	$57,000	F	19.6%	27	$23,500	F	9.6%
32	$44,700	M	7.5%	32	$60,000	M	4.8%	32	$22,000	M	2.6%
32	$44,700	F	7.5%	32	$60,000	F	11.2%	32	$22,000	F	10.4%
37	$46,400	M	5.5%	37	$61,500	M	3.3%	37	$21,500	M	3.0%
37	$46,400	F	5.5%	37	$61,500	F	7.7%	37	$21,500	F	12.0%
42	$47,400	M	5.0%	42	$62,000	M	2.4%	42	$21,500	M	3.0%
42	$47,400	F	5.0%	42	$62,000	F	5.6%	42	$21,500	F	12.0%
47	$47,300	M	4.0%	47	$63,000	M	1.8%	47	$22,500	M	2.4%
47	$47,300	F	4.0%	47	$63,000	F	4.2%	47	$22,500	F	9.6%
56	$48,700	M	7.5%	55	$67,900	M	2.1%	56	$22,000	M	3.8%
56	$48,700	F	7.5%	55	$67,900	F	4.9%	56	$22,000	F	15.2%

**Weighted totals may not sum to 100% due to rounding.*

Otherwise, we developed these costs using the same assumptions as disclosed in the AVR and on the *Projection Disclosures* page of our website.

APPENDIX B – HOW WE APPLIED THESE ASSUMPTIONS

As noted in the body of this fiscal note, we made two modifications to our current law projection runs to estimate the long-term cost of this proposal: (1) we replaced the Plan 2 and Plan 3 specific new entrant profiles with a single, blended Plans 2/3 new entrant profile; and (2) we replaced the June 30, 2016, AVA and MVA with the AVA at June 30, 2015, projected forward one year. Beyond June 30, 2016, we applied assumed asset growth.

Blended New Entrant Profile

We expect a larger portion of future new entrants to join Plan 2 instead of Plan 3 as a result of this bill. However, we do not expect their demographic profile to change when they join Plan 2 instead of Plan 3.

Under our current law projections, we rely on Plan 2 and Plan 3 specific new entrant profiles to produce open-group projections. If we increase our Plan 2 Choice assumptions under our current law projections, we implicitly assume the demographic profile of the group that moved from Plan 3 to Plan 2 changes. The use of a single, blended new entrant profile was required to prevent that implicit assumption change from occurring in our pricing.

Asset Change

The cost of this bill will change depending on the relationship between the AVA and the MVA at the valuation date. However, over the long-term, we expect future asset gains and losses to roughly offset under best estimate assumptions. To prevent the current relationship between the AVA and MVA from swaying the long-term expected cost of this proposal in one direction, we set the AVA and MVA at June 30, 2016, equal to the AVA at June 30, 2015 (2015 AVA), with one year of assumed growth based upon expected investment earnings, benefits payments, employee and employer contributions (consistent with the 2015 AVR). The 2015 AVA was used as the basis for the contributions collected in the upcoming biennium (2017-19). We then grew the 2015 AVA, and future new cash flow, by the expected rate of investment return in our projections. As a result of this method, we introduced no change in long-term cost of the proposal due to short-term asset gains/losses.

To illustrate why we selected this method, the following table shows how the budgetary impact of this bill would change if the initial 2015 AVA we used for our best estimate pricing (AVA = MVA) were 10 percent lower (AVA > MVA) or 10 percent higher (AVA < MVA).

25-Year Budget Impacts			
(Dollars in Millions)	**AVA > MVA**	**Best Estimate**	**AVA < MVA**
General Fund-State	($121)	($35.1)	$58
Local Government	($125)	($42.2)	$44
Total Employer	($298)	($95.7)	$119

Otherwise, we developed these costs using the same methods as disclosed in the AVR. We used our projection system to calculate rounded contribution rate changes in the future due to this bill. These projected rate changes were applied to current member and assumed new entrant payroll for purposes of estimating budget impacts.

APPENDIX C – SPECIAL DATA NEEDED

The following by-year table shows the percentage of new entrants choosing Plan 2 or Plan 3, and the portion that have defaulted into Plan 3. We relied on this data from DRS for purposes of setting our Plan Choice assumption.

	PERS 2	PERS 3	PERS 3	SERS 2	SERS 3	SERS 3	TRS 2	TRS 3	TRS 3
Year	Choice	Choice	Default	Choice	Choice	Default	Choice	Choice	Default
2002	64%	18%	18%						
2003	63%	15%	22%						
2004	63%	17%	19%						
2005	64%	17%	19%						
2006	66%	17%	16%						
2007	65%	17%	18%	51%	33%	16%	39%	46%	16%
2008	62%	17%	20%	48%	27%	25%	42%	37%	21%
2009	64%	15%	21%	51%	21%	28%	45%	33%	21%
2010	63%	14%	23%	50%	22%	28%	48%	29%	23%
2011	63%	14%	23%	50%	21%	29%	48%	29%	22%
2012	63%	15%	22%	53%	21%	26%	49%	30%	21%
2013	63%	14%	22%	51%	22%	27%	48%	30%	23%
2014	65%	15%	19%	50%	21%	28%	47%	29%	24%
2015	67%	15%	18%	49%	22%	29%	50%	29%	22%
2016	67%	16%	17%	47%	24%	29%	47%	31%	23%
2017	65%	18%	17%	45%	29%	27%	45%	36%	19%
Total	**65%**	**16%**	**19%**	**49%**	**24%**	**27%**	**46%**	**32%**	**21%**

Note: Totals may not agree due to rounding.

Otherwise, we developed these costs using the same assets and data as disclosed in the AVR.

GLOSSARY OF ACTUARIAL TERMS

Actuarial Accrued Liability: Computed differently under different funding methods, the actuarial accrued liability generally represents the portion of the present value of fully projected benefits attributable to service credit that has been earned (or accrued) as of the valuation date.

Actuarial Present Value: The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of actuarial assumptions (i.e., interest rate, rate of salary increases, mortality, etc.).

Aggregate Funding Method: The Aggregate Funding Method is a standard actuarial funding method. The annual cost of benefits under the Aggregate Method is equal to the normal cost. Under this method, all plan costs (for past and future service credit) are included under the normal cost. Therefore, the method does not produce an unfunded actuarial accrued liability outside the normal cost. It's most common for the normal cost to be determined for the entire group rather than on an individual basis for this method.

Entry Age Normal Cost Method (EANC): The EANC method is a standard actuarial funding method. The annual cost of benefits under EANC is comprised of two components:

- Normal cost.
- Amortization of the unfunded actuarial accrued liability.

The normal cost is most commonly determined on an individual basis, from a member's age at plan entry, and is designed to be a level percentage of pay throughout a member's career.

Normal Cost: Computed differently under different funding methods, the normal cost generally represents the portion of the cost of projected benefits allocated to the current plan year.

Projected Benefits: Pension benefit amounts that are expected to be paid in the future taking into account such items as the effect of advancement in age as well as past and anticipated future compensation and service credits.

Unfunded Actuarial Accrued Liability (UAAL): The excess, if any, of the actuarial accrued liability over the actuarial value of assets. In other words, the present value of benefits earned to date that are not covered by plan assets.

Unfunded EAN Liability: The excess, if any, of the present value of benefits calculated under the EAN cost method over the valuation assets. This is the portion of all benefits earned to date that are not covered by plan assets.