

TriMet Defined Benefit Retirement Plan for Management and Staff Employees

**Actuarial Valuation Report
as of July 1, 2018**

Produced by Cheiron

September 2018

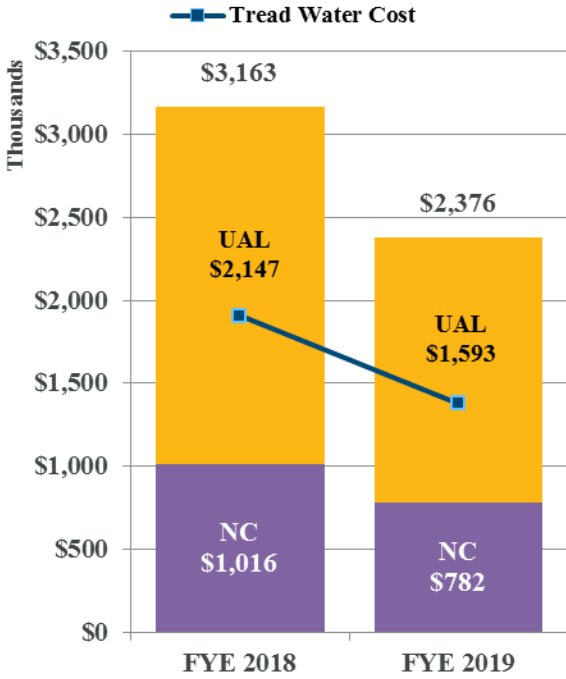
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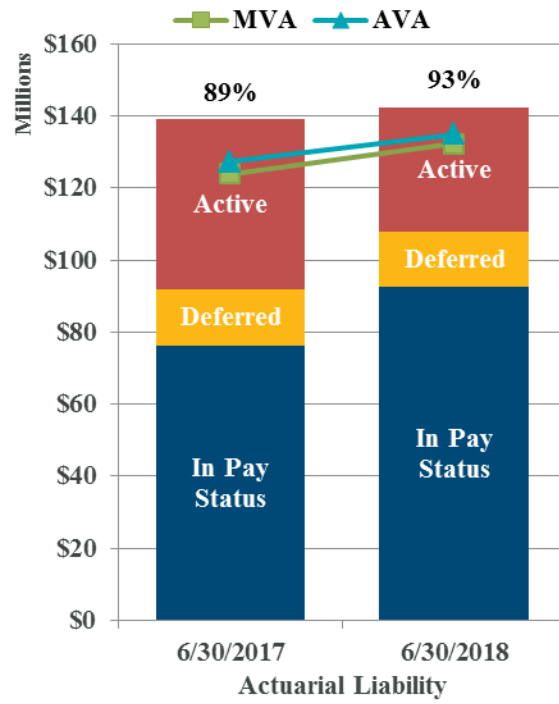
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SECTION I – BOARD SUMMARY

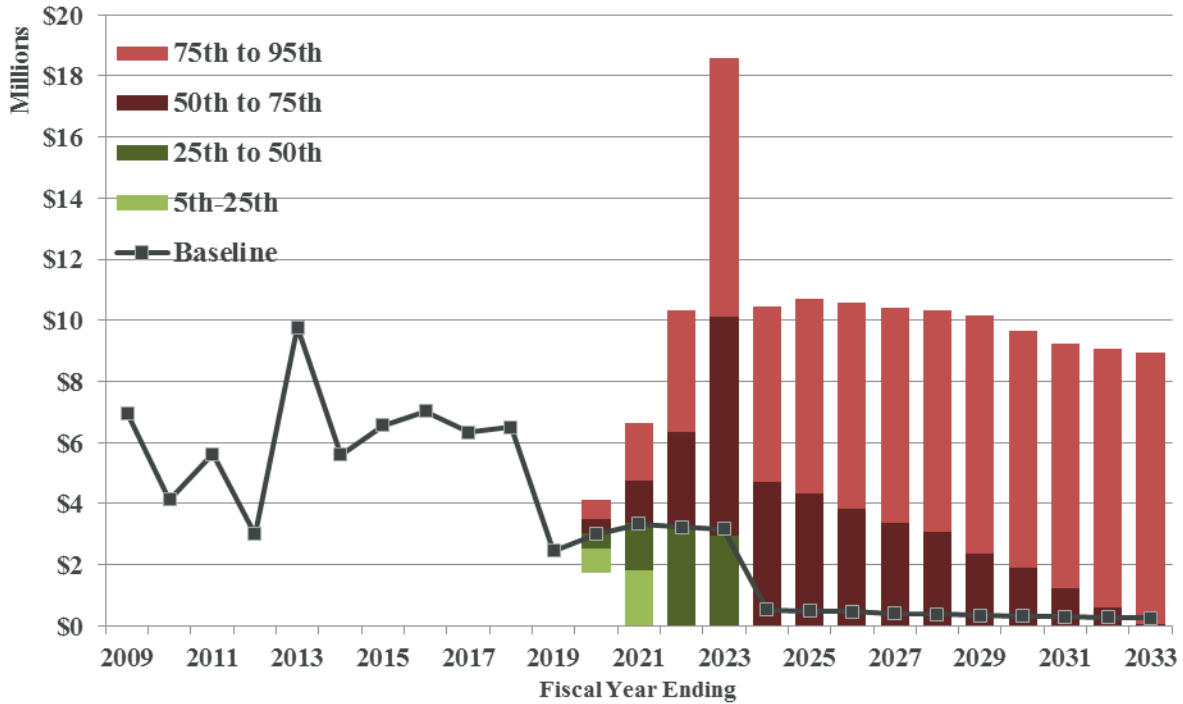
Contributions



Funded Status



Historical Contributions and Projected ADCs



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Contributions and Pension Expense

The chart in the upper left corner of the dashboard on the prior page shows the Actuarially Determined Contribution (ADC) as of the beginning of the year compared to the Tread Water Cost for the fiscal year ending June 30, 2018 and 2019, respectively. The ADC is composed of the normal cost plus an amortization payment on the Unfunded Actuarial Liability (UAL).

The Tread Water Cost is the normal cost plus interest on the UAL. The normal cost represents the expected cost of the benefits attributed to the next year of service, and the interest on the UAL represents the amount that would need to be contributed to keep the UAL at the same dollar amount if all assumptions are met. To the extent the ADC exceeds the Tread Water Cost, the UAL is expected to decline, and to the extent actual contributions exceed the ADC, the UAL is expected to decline further. For FYE 2018, actual contributions were approximately \$6.5 million, exceeding the ADC and paying off approximately \$4.6 million of the UAL. In addition to the reduction in the UAL, the normal cost also dropped significantly due to retirements and terminations. As a result, the ADC for FYE 2019 is approximately \$2.4 million as of the beginning of the year, significantly lower than the \$3.2 million for FYE 2018.

Under GASB 68, the annual pension expense equals the Tread Water Cost plus the cost of any benefit increases and the recognized portion of prior experience gains and losses and assumption changes. Details of this calculation are shown in Section VII of the report.

Table I-1 below compares the ADC to actual contributions amounts and pension expense for the fiscal years ending in 2017 and 2018. The pension expense remained relatively level between FYE 2017 and FYE 2018 while the ADC declined and actual contributions increased.

Table I-1

Annual Contributions and Pension Expense			
	FYE 2018	FYE 2017	% Change
Pension Expense (\$ Amount)	\$ 2,702,688	\$ 2,436,522	10.9%
Actuarially Determined Contribution	\$ 3,252,729	\$ 3,734,975	-12.9%
Actual Contribution	<u>6,496,842</u>	<u>6,330,108</u>	2.6%
Contribution Deficiency/(Excess)	\$ (3,244,113)	\$ (2,595,133)	25.0%

As shown by the chart at the bottom of the dashboard, actual contributions have exceeded \$6 million for five of the last six years, which is significantly more than the ADC. For FYE 2019 and in the future, the projections in the chart assume that the ADC is contributed. The baseline represents the projected ADC if all assumptions are met, and it shows the ADC increasing somewhat over the next few years until the UAL is paid off, at which point the ADC drops significantly. The range of the bars represents the potential range of the ADC based on the

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potential range of actual investment returns. There is a very wide range of projected ADC's that is the combined result of investment volatility and the short remaining amortization period in the funding policy. For these projections, we used an expected return of 6.3% and a standard deviation of 10.34%.

Section II of this report provides more detailed information on the risks to contribution amounts and Section VI of this report provides additional detail on the development of the ADC.

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Funded Status

The chart in the upper right corner of the dashboard shows the measures of assets, Actuarial Liability, and funded status for the current and prior valuations. These measures are for the purpose of assessing funding progress in a budgeting context, and are not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan’s benefit obligations. For many pension plans, the measures for financial reporting under GASB 67 and 68 are different, but for TriMet, they are the same.

The bars represent the Actuarial Liability (or Total Pension Liability), which is used as a funding target, and are separated between the liability for members currently receiving benefits (dark blue), inactive members entitled to future benefits (gold), and active members (red). The portion of the liability attributable to members currently receiving benefits increased from about 55% to about 65%. The green line shows the Market Value of Assets (or Fiduciary Net Position), and the blue line is the Actuarial Value of Assets that recognizes investment gains and losses over five years. The percentage on the top of the bar represents the funded status based on the Market Value of Assets, which increased from 89% to 93%.

Table I-2 below summarizes the Actuarial Liability, assets, and funded status as of July 1, 2017 and 2018.

Table I-2

Summary of Funded Status			
	July 1, 2018	July 1, 2017	% Change
Actuarial Liability			
Actives	\$ 34,281,060	\$ 47,074,977	-27.2%
Deferred Vested	15,432,555	15,568,340	-0.9%
In Pay Status	<u>92,575,030</u>	<u>76,344,555</u>	<u>21.3%</u>
Total	\$ 142,288,645	\$ 138,987,872	2.4%
Market Value of Assets (MVA)	\$ 132,252,588	\$ 123,955,858	6.7%
Unfunded Actuarial Liability - MVA Basis	\$ 10,036,057	\$ 15,032,014	-33.2%
Funding Ratio - MVA Basis	92.9%	89.2%	4.2%
Actuarial Value of Assets (AVA)	\$ 134,940,985	\$ 127,340,934	6.0%
Unfunded Actuarial Liability - AVA Basis	\$ 7,347,660	\$ 11,646,938	-36.9%
Funding Ratio - AVA Basis	94.8%	91.6%	3.5%

The Actuarial Liability represents the target amount of assets the plan should have in the trust as of the valuation date based on the actuarial cost method. In aggregate, the Actuarial Liability

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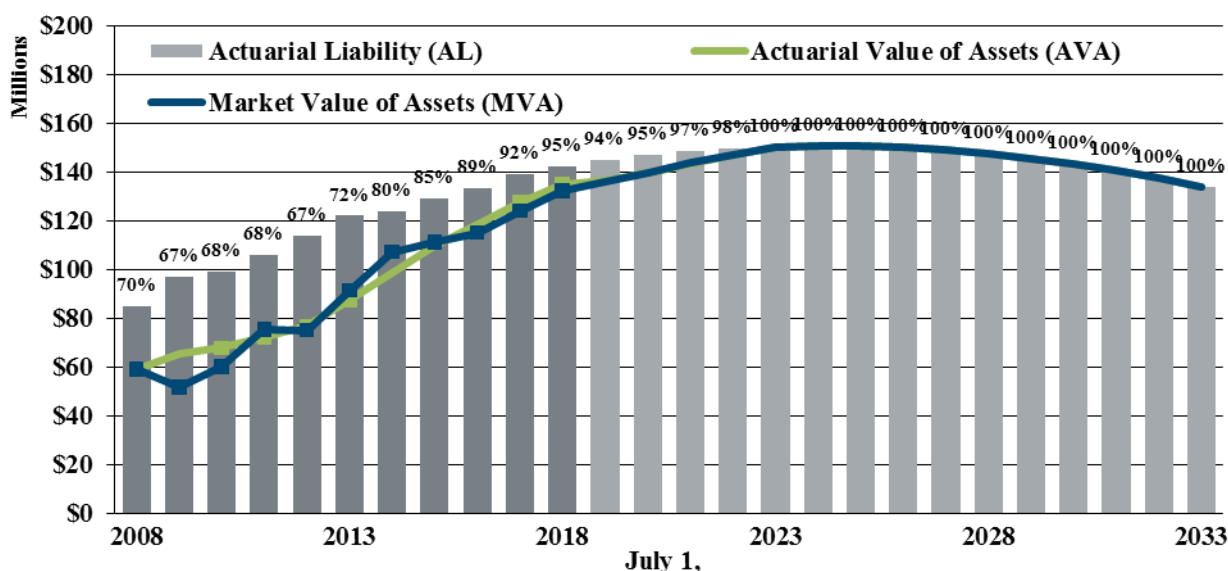
SECTION I – BOARD SUMMARY

only increased 2.4% reflecting the interest and the accrual of benefits by active members offset by benefit payments. The Market Value of Assets increased 6.7% due to contributions and the better than expected investment returns offset by benefit payments and expenses. As a result, the Unfunded Actuarial Liability (UAL) measured on the Market Value of Assets (MVA) decreased from approximately \$15.0 million to \$10.0 million, and the funding ratio on an MVA basis increased from 89% to 93%.

The asset smoothing method deferred 80% of the current year’s investment gain while recognizing 20% of the prior four years’ gains and losses, resulting in a 5.9% increase in the total Actuarial Value of Assets. The UAL measured on the Actuarial Value of Assets decreased from approximately \$11.6 million to \$7.3 million and the funding ratio increased from 92% to 95%. The Market Value of Assets is smaller than the actuarial value, so if assumptions are met in the future, we expect an increase in the ADC as the deferred asset losses are recognized in the Actuarial Value of Assets.

The chart below shows the historical and projected trends for assets (both market and actuarial) versus the Actuarial Liability, and also shows the progress of the funding ratios (based on the Market Value of Assets) since 2007. The historical Actuarial Liability is shown in dark gray while the projected Actuarial Liability is shown in a lighter gray. If all assumptions are met in the future, the funded status is expected to reach 100% by 2023.

Historical and Projected Assets and Actuarial Liability



More detail on the assets can be found in section IV of this report, and more detail on the measures of liability can be found in section V of this report.

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Changes

During FYE 2018, the UAL decreased by about \$5.0 million. Table I-3 below shows the breakdown of the changes in the UAL in the last year by source.

Table I-3

Changes in UAL or NPL	
	Amount
UAL/NPL, July 1, 2018	\$ 10,036,057
UAL/NPL, July 1, 2017	<u>15,032,014</u>
Change in UAL/NPL	\$ (4,995,957)
<u>Sources of Changes</u>	
Plan Changes	\$ 0
Assumption Changes	0
Contributions vs. Tread Water Cost	(4,674,240)
Investment (gain) or loss	(292,943)
Liability (gain) or loss	
Salary experience	\$ 1,025,947
Termination experience	(969,736)
Change in actuary	(326,933)
Other experience	<u>(84,985)</u>
Total Liability (gain) or loss	\$ (28,774)
Total Changes	\$ (4,995,957)

The most significant source of the reduction in the UAL is that actual contributions exceeded the Tread Water Cost by approximately \$4.7 million. Investment returns on the Market Value of Assets exceeded assumed returns by about \$0.3 million, and the change in actuary resulted in a reduction in the Actuarial Liability of approximately \$0.3 million. Higher than expected salary increases were offset by higher than expected terminations and other experience resulting in a very small gain on the measurement of liabilities.

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Table I-4 below provides a summary of the results of this valuation compared to the prior valuation.

Table I-4

Summary of Valuation Results			
	July 1, 2018	July 1, 2017	% Change
Membership			
Actives	84	108	-22.2%
Deferred	100	108	-7.4%
In Pay Status	<u>306</u>	<u>277</u>	10.5%
Total	490	493	-0.6%
Active Member Payroll	\$ 6,944,533	\$ 10,241,717	-32.2%
Actuarial Liability/Total Pension Liability	\$ 142,288,645	\$ 138,987,872	2.4%
Market Value of Assets/Fiduciary Net Position	<u>132,252,588</u>	<u>123,955,858</u>	6.7%
Unfunded Actuarial Liability/Net Pension Liability	\$ 10,036,057	\$ 15,032,014	-33.2%
Deferred Outflows of Resources	(2,662,928)	(3,856,510)	-30.9%
Deferred Inflows of Resources	<u>8,221</u>	<u>0</u>	
Net Impact on Statement of Net Position	\$ 7,381,350	\$ 11,175,504	-34.0%
Funding Ratio - MVA Basis	92.9%	89.2%	3.8%
Actuarially Determined Contribution	\$ 2,442,684	\$ 3,252,729	-24.9%

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

Actuarial valuations are based on a set of assumptions about future economic and demographic experience. These assumptions represent a reasonable estimate of future experience, but actual future experience will undoubtedly be different and may be significantly different. This section of the report is intended to identify the primary risks to the plan, provide some background information about those risks, and provide an assessment of those risks.

Identification of Risks

The fundamental risk to a pension plan is that the contributions needed to pay the benefits become unaffordable. Given the size of the Plan compared to TriMet as a whole, we believe it is unlikely that the Plan by itself would become unaffordable. Nevertheless, the contributions needed to support the Plan may differ significantly from expectations. While there are a number of factors that could lead to contribution amounts deviating from expectations, we believe the primary sources are:

- Investment risk,
- Inflation risk, and
- Contribution risk.

Other risks that we have not identified may also turn out to be important.

Investment Risk is the potential for investment returns to be different than expected. Lower investment returns than anticipated will increase the Unfunded Actuarial Liability necessitating higher contributions in the future unless there are other gains that offset these investment losses. In contrast, higher investment returns than anticipated may create a potentially significant surplus that could be difficult to use until all benefits have been paid. Expected future investment returns and their potential volatility are determined by the Plan's asset allocation.

Inflation risk is the potential for actual inflation to be different than expected. Retirement benefits under the plan are increased each year by 90% of inflation (CPI-W). Higher inflation than expected will result in the payment of greater benefits, and lower inflation than expected will result in the payment of lower benefits.

Contribution risk is the potential for actual future actuarially determined contributions to deviate from expected future contributions to an extent that they become unaffordable. TriMet's policy is to treat the Actuarially Determined Contribution (ADC) as a minimum, and the ADC is based on a very short remaining amortization period. As a result, a significant loss or change in assumptions may cause a very large increase in the ADC. While TriMet can change its Funding Policy when such a situation occurs, it may want to consider alternatives in advance.

The table on the next page shows an 8-year history of changes in the UAL by source.

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FYE	UAL Change by Source						Total UAL Change
	Plan Changes	Assumption Changes	Contributions vs. Tread Water		Liability Experience		
			Investments				
2011	\$ 0	\$ 90,260	\$ (1,816,744)	\$ (8,117,030)	\$ 1,508,268	\$ (8,335,246)	
2012	0	263,570	269,110	5,428,829	2,405,025	8,366,534	
2013	1,711,031	1,015,215	(6,338,113)	(4,728,327)	151,873	(8,188,321)	
2014	0	(531,299)	(2,709,437)	(7,719,697)	(3,002,079)	(13,962,512)	
2015	0	(2,177,859)	(5,021,600)	5,018,193	3,591,955	1,410,689	
2016	0	474,280	(4,667,669)	5,819,436	(1,292,524)	333,523	
2017	0	0	(4,050,580)	(723,554)	1,441,063	(3,333,071)	
2018	0	0	(4,674,240)	(292,943)	(28,774)	(4,995,957)	
Total	\$1,711,031	\$ (865,833)	\$ (29,009,273)	\$ (5,315,093)	\$ 4,774,807	\$(28,704,361)	

Over the last eight years, the UAL has been reduced by approximately \$28.7 million. Contributions reduced the UAL by \$29.0 million and investment returns reduced the UAL by \$5.3 million while liability experience increased the UAL by \$4.8 million. For FYE 2018, the liability experience gain is a combination of a gain due to the change in actuary of approximately \$0.3 million offset by other liability experience losses.

Plan Maturity Measures

The future financial condition of a mature pension plan is more sensitive to each of the risks identified on the previous page than a less mature plan. Before assessing each of these risks, it is important to understand the maturity of the plan.

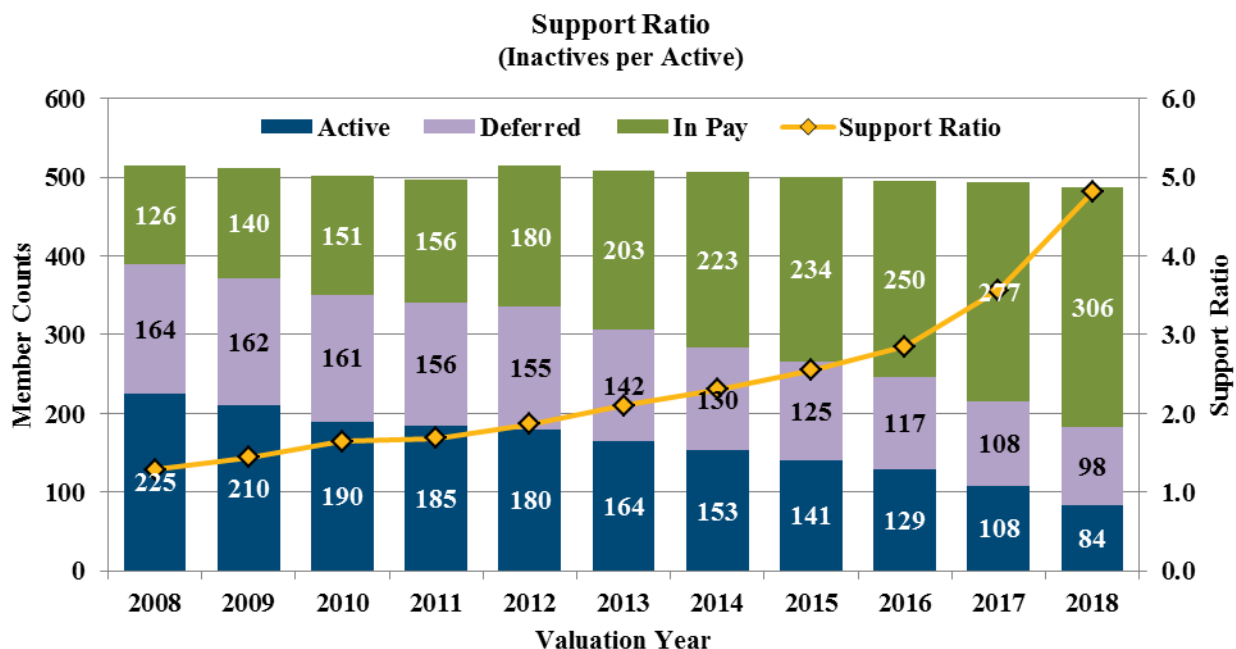
Plan maturity can be measured in a variety of ways, but they all get at one basic dynamic – the larger the plan is compared to the contribution or revenue base that supports it; the more sensitive the plan will be to risk. Given that the Plan has been closed to new entrants since 2003, maturity measures isolated on the Plan show significant increases in maturity while maturity measures setting the Plan in the context of TriMet as a whole show declining maturity.

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Support Ratio (Inactives per Active)

One simple measure of plan maturity is the ratio of the number of inactive members (those receiving benefits or entitled to a deferred benefit) to the number of active members. For a closed plan, the Support Ratio is expected to increase significantly unless active employees who are not covered by the Plan are included. The chart below shows the growth in the Support Ratio for the closed Plan for the current and prior ten years.

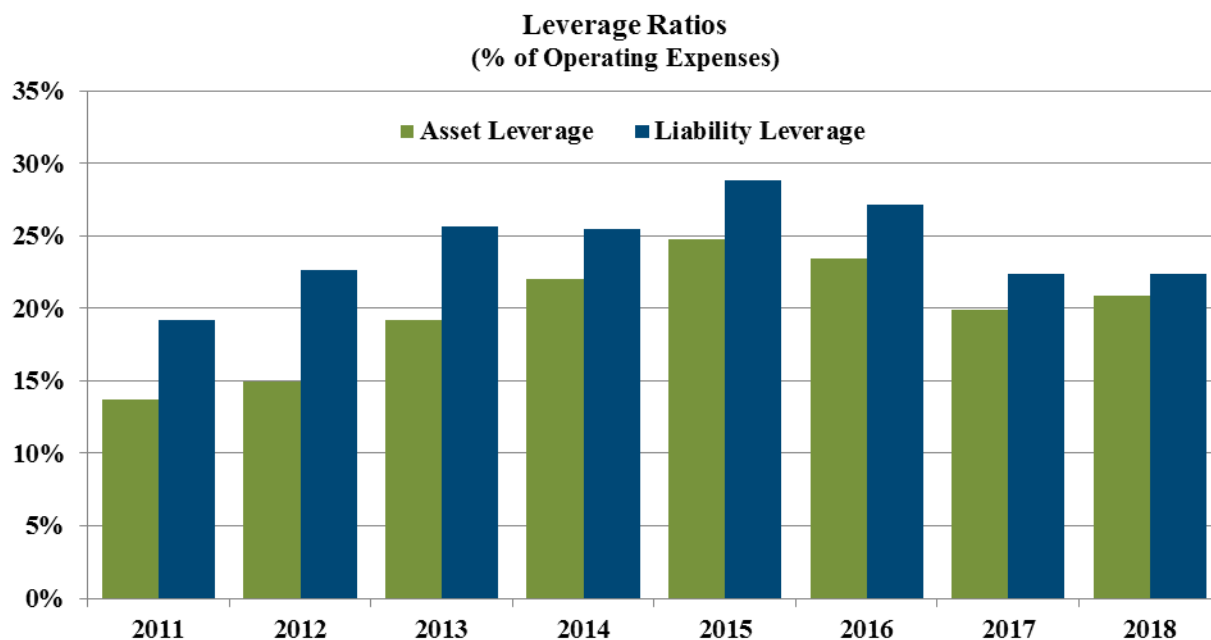


SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

Leverage Ratios

Leverage or volatility ratios measure the size of the plan compared to its revenue base more directly. For TriMet, we have calculated the historical leverage ratios as a multiple of TriMet’s operating expenditures. An asset leverage ratio of 2.0, for example, means that if the Plan experiences a 10% loss on assets compared to the expected return, the loss would be equivalent to 20% of TriMet’s operating expenses. When the Plan becomes 100% funded, the asset leverage ratio would equal the Actuarial Liability (AL) leverage ratio. The AL leverage ratio also indicates how sensitive the Plan is to experience gains and losses or assumption changes. For example, an assumption change that increases the AL by 5% would add a liability equivalent to about 10% of TriMet’s operating expenses if the AL leverage ratio is 2.0.

The chart below shows the historical leverage ratios of the Plan. The Plan has relatively low leverage ratios (0.20 to 0.25), indicating that changes to the Plan’s finances are not likely to create a significant impact on total operating expenses. Although, any increase in operating expenses may be painful. As the closed Plan pays out benefits, it is expected to become even smaller compared to TriMet’s annual operating expenses.

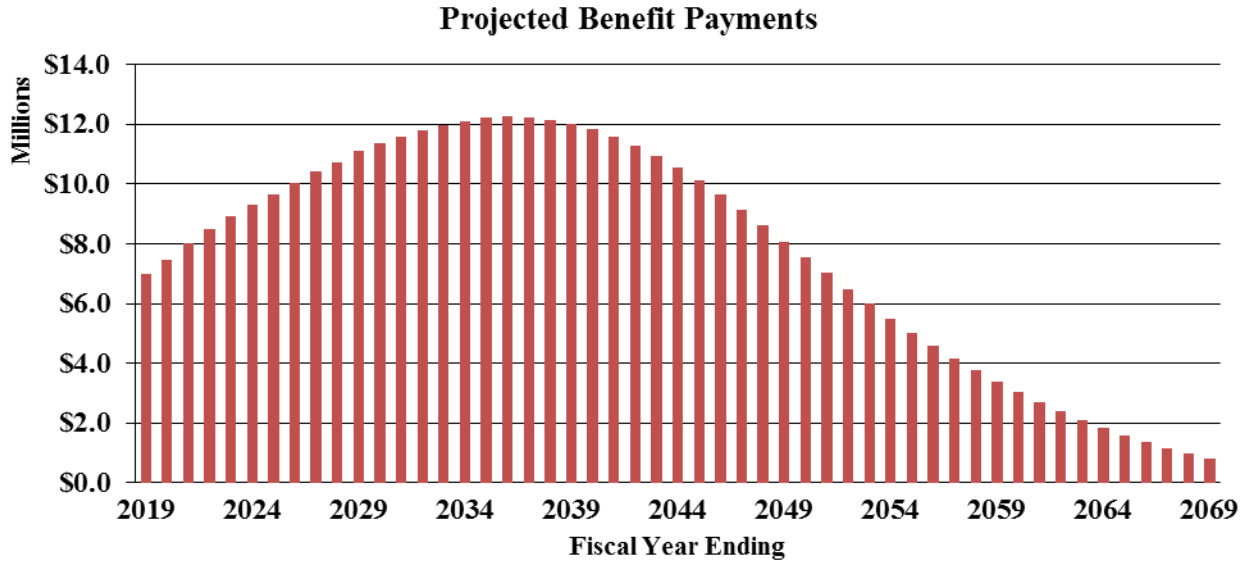


SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

Assessing Costs and Risks

A closed pension plan will ultimately either end up with excess assets after all benefits have been paid or run out of assets before all benefits have been paid. If the Plan develops surplus assets, it may be able to reduce the risk in its investment portfolio, immunize investments, or purchase annuities to settle the remaining obligation. However, such an approach may not be the objective for TriMet, and if the surplus assets exceed the additional amounts needed to purchase annuities or immunize the portfolio, it is not clear how they could be used until all benefits have been paid.

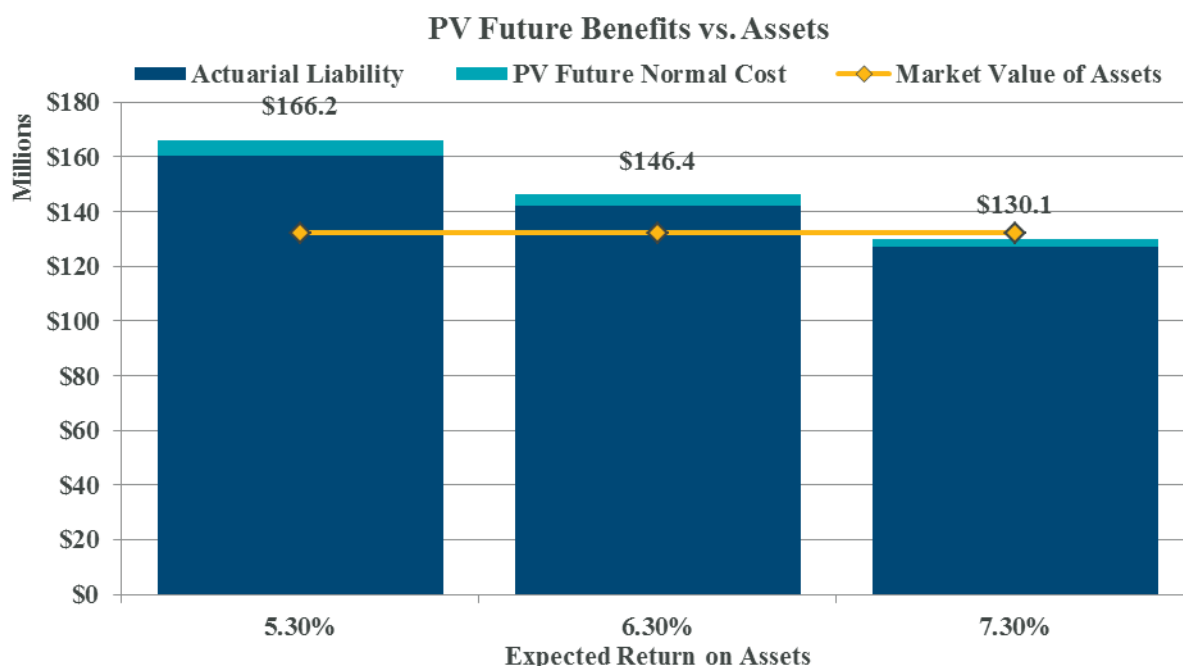
If the Plan, on the other hand, were to run out of assets, TriMet would be forced to pay benefits directly on a pay-as-you-go basis. As long as TriMet can afford the pay-as-you-go costs, benefits would remain secure. The chart below shows a projection of expected benefit payments for the closed plan.



SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

Sensitivity to Investment Returns

The chart below compares assets to the present value of all projected future benefits discounted at the current expected rate of return and at investment returns 100 basis points above and below the expected rate of return. The present value of future benefits is shown as a bar with the portion attributable to past service in dark blue (Actuarial Liability) and the portion attributable to future service in teal (Present Value of Future Normal Costs). The Market Value of Assets is shown by the gold line.



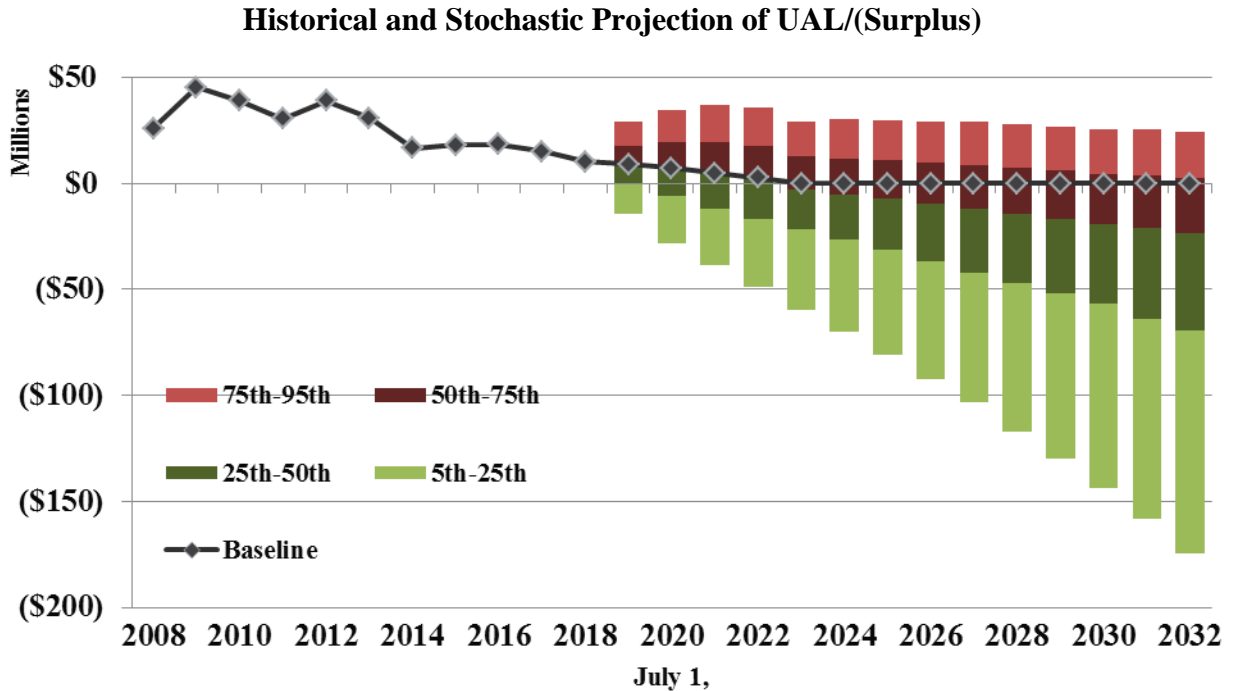
If investments return 6.3% annually, the Plan would need approximately \$146 million in assets today to pay all projected benefits compared to current assets of \$132 million. If investment returns are only 5.3%, the Plan would need approximately \$166 million in assets today, and if investment returns are 7.3%, the Plan already has sufficient assets to pay all projected benefits.

The present value of future benefits shown above, however, assumes annual inflation of 2.5%. If annual inflation is higher; more assets would be needed to pay the benefits, and if inflation is lower; fewer assets would be needed to pay benefits. In this case, it is better to think of the sensitivity based on the investment return in excess of inflation. The assumption of 6.3% nominal investment returns and 2.5% inflation equates to a real investment return assumption of 3.8%. If the real investment return is actually 4.8%, assets are likely to be sufficient, but if the real investment return is only 2.8%, more contributions will be required.

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

Stochastic Projections

The stochastic projections of contributions shown at the bottom of the dashboard on page 1 shows a very wide range in future ADC's. This range is driven both by the volatility of investment returns and by the short amortization period used to calculate the ADC. The chart below shows the projected range of the UAL or surplus on the same basis. Surplus amounts are shown as negative numbers.



While the UAL is projected in the baseline to be paid off in five years, there is a wide range of potential outcomes. Due to the short amortization period for the UAL, it is difficult for the UAL to grow to a very high level because the full amount of any investment loss is contributed as soon as it is recognized in the Actuarial Value of Assets. Good investment returns, however, can grow the surplus unrestrained because the minimum contribution is \$0. These projected surpluses may be restrained by changes in investment policy as the surplus develops.

More Detailed Assessment

While a more detailed assessment of risk is always valuable to enhance the understanding of the risks identified above, given the small size of the plan compared to TriMet as shown by the leverage ratios above, the advantages of a more detailed assessment may not justify its costs. We understand TriMet will be conducting an asset-liability study soon, and we recommend that potential changes in the Funding Policy be studied at the same time.

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SECTION III – CERTIFICATION

The purpose of this report is to present the July 1, 2018 Actuarial Valuation of the TriMet Defined Benefit Retirement Plan for Management and Staff Employees (“Plan”). This report is for the use of the Plan and TriMet.

In preparing our report, we relied on information, some oral and some written, supplied by TriMet. This information includes, but is not limited to, the plan provisions, employee data, and financial information. We performed an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice No. 23.

The actuarial assumptions were recommended by the prior actuary based upon analyses they performed and communicated in letters dated May 14, 2015, February 18, 2016, and May 31, 2017. We have not performed an independent analysis, but we reviewed these letters and believe the assumptions to be reasonable.

The liability measures and funding ratios in this report are for the purpose of establishing contribution rates. These measures are not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the Plan’s benefit obligations.

Future actuarial measurements may differ significantly from the current measurements due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; and, changes in plan provisions or applicable law.

To the best of our knowledge, this report and its contents have been prepared in accordance with generally recognized and accepted actuarial principles and practices that are consistent with the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board. Furthermore, as credentialed actuaries, we meet the Qualification Standards of the American Academy of Actuaries to render the opinion contained in this report. This report does not address any contractual or legal issues. We are not attorneys, and our firm does not provide any legal services or advice.

This report was prepared for the Plan and TriMet for the purposes described herein. Other users of this report are not intended users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to any other user.



William R. Hallmark, ASA, EA, FCA, MAAA
Consulting Actuary



Steven M. Hastings, FSA, EA, MAAA
Consulting Actuary

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SECTION IV – ASSETS

The Plan uses two different asset measurements: the Market Value and Actuarial Value of Assets. The market value represents the value of the assets if they were liquidated on the valuation date. The actuarial value smooths annual investment returns over five years to reduce the impact of short-term investment volatility on contributions. The Market Value of Assets is used primarily for reporting and disclosure, and the Actuarial Value of Assets is used primarily to calculate Actuarially Determined Contributions.

This section shows the changes in the Market Value of Assets, calculates the money-weighted investment return for GASB 67 and 68, and develops the Actuarial Value of Assets.

Statement of Change in Market Value of Assets

Table IV-1 shows the changes in the Market Value of Assets for the current and prior fiscal years.

Table IV-1

Change in Market Value of Assets		
	FYE 2018	FYE 2017
Market Value, Beginning of Year	\$ 123,955,858	\$ 114,997,281
Contributions	6,496,842	6,330,108
Net Investment Earnings	8,108,016	7,990,589
Benefit Payments	(6,211,442)	(5,285,890)
Administrative Expenses	(96,686)	(76,230)
Market Value, End of Year	\$ 132,252,588	\$ 123,955,858

The Market Value of Assets increased from approximately \$124.0 million as of June 30, 2017 to \$132.3 million as of June 30, 2018. Actual contributions were slightly greater than benefit payments and administrative expenses, so all investment earnings increased the market value.

The rate of return during the year is calculated on a money-weighted basis, which reflects the effect of external cash flows (contributions less benefit payments and administrative expenses) on a monthly basis. Table IV-2 shows the external cash flows by month, the number of months each cash flow was considered invested, and the external cash flows with interest at the money-weighted rate of return of 6.62% to the end of the year. The sum of the external cash flows with interest equals the Market Value of Assets at the end of the year.

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Table IV-2

Money-Weighted Rate of Return Fiscal Year Ending June 30, 2018			
	Net External Cash Flows	Months Invested	Net External Cash Flows With Interest
Beginning Value, July 1, 2017	\$ 123,955,858	12	\$ 132,156,784
<u>Monthly Net External Cash Flows</u>			
July	(35,328)	11	(37,465)
August	61,172	10	64,527
September	(37,841)	9	(39,704)
October	939	8	980
November	31,883	7	33,097
December	36,964	6	38,167
January	46,824	5	48,091
February	36,942	4	37,739
March	(6,598)	3	(6,704)
April	5,970	2	6,034
May	(11,150)	1	(11,209)
June	(37,749)	0	(37,749)
Ending Value, June 30, 2018			\$ 132,252,588
Money-Weighted Rate of Return	6.62%		

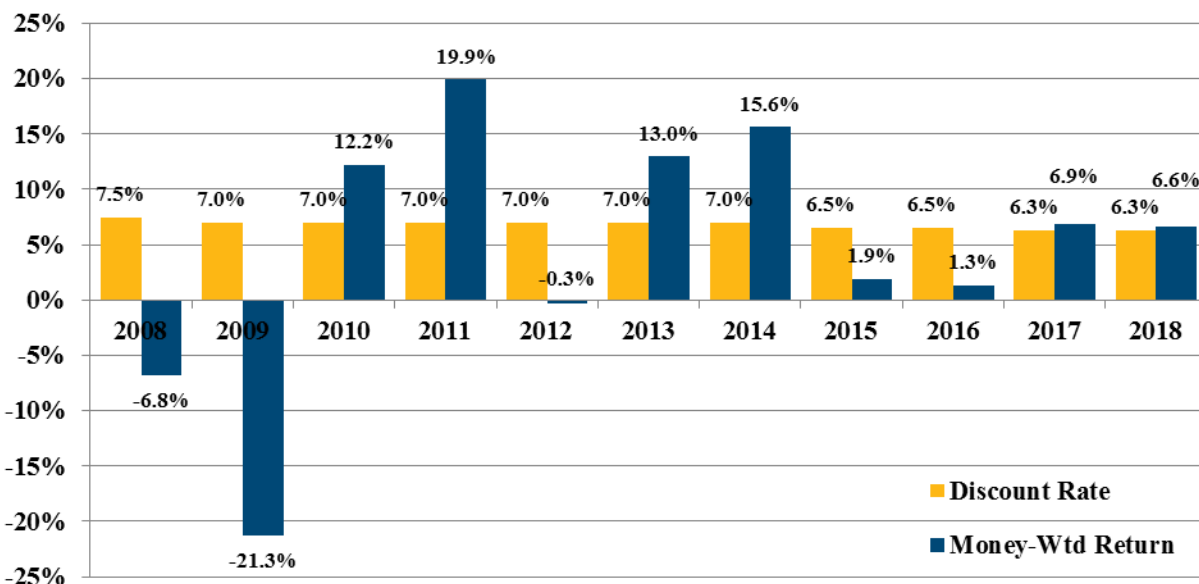
The money-weighted rate of return for the year ended June 30, 2018 was 6.62% compared to an expected return of 6.30%. As shown in the chart on the following page, over the last ten years the money-weighted rate of return¹ has varied significantly from negative 21.3% in 2009 to 19.9% in 2011.

¹ Money-weighted returns prior to FYE 2014 were not calculated based on actual monthly external cash flows, but estimated the timing of external cash flows throughout the year.

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SECTION IV – ASSETS

Historical Rates of Return



Actuarial Value of Assets

To determine on-going contributions, most pension plans utilize an Actuarial Value of Assets that smooths year-to-year market value returns in order to reduce the volatility of contributions.

The Actuarial Value of Assets is calculated by recognizing the deviation of actual investment returns compared to the expected return over a five-year period. The dollar amount of the expected return on the Market Value of Assets is determined using actual contributions, benefit payments, and administrative expenses during the year. Any difference between this amount and the actual net investment earnings is considered a gain or loss. For FYE 2018, the 6.62% return compared to the expected return of 6.30% produced an investment gain of approximately \$290,000.

Table IV-3 on the next page shows the calculation of the Actuarial Value of Assets. For each of the last four years, it shows the actual earnings, the expected earnings, the gain or loss, and the portion of the gain or loss that is not recognized in the current Actuarial Value of Assets. These deferred amounts will be recognized in future years.

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SECTION IV – ASSETS

Table IV-3

Development of Actuarial Value of Assets					
	FYE 2015	FYE 2016	FYE 2017	FYE 2018	Total
Market Value of Assets (MVA)					\$ 132,252,588
Actual Earnings	\$ 1,880,568	\$ 1,459,796	\$ 7,990,589	\$ 8,108,016	
Expected Earnings	<u>7,026,115</u>	<u>7,279,232</u>	<u>7,267,035</u>	<u>7,815,073</u>	
Investment Gain or (Loss)	(5,145,547)	(5,819,436)	723,554	292,943	
Percentage Deferred	20%	40%	60%	80%	
Deferred Gain or (Loss)	\$(1,029,109)	\$(2,327,774)	\$ 434,132	\$ 234,354	\$ (2,688,397)
Preliminary Actuarial Value of Assets (MVA less Deferred Gain or (Loss))					\$ 134,940,985
Minimum Actuarial Value of Assets (80% of Market Value)					105,802,070
Maximum Actuarial Value of Assets (120% of Market Value)					158,703,106
Actuarial Value of Assets (AVA)					\$ 134,940,985
Ratio of Actuarial to Market					102.0%
Estimated Rate of Return					5.8%

On an Actuarial Value of Assets basis, the aggregate return for the year ending June 30, 2018 was 5.8%, less than the assumed return of 6.30% and the return on the Market Value of Assets. This return on the Actuarial Value of Assets produced an investment loss of about \$0.6 million for the year ending June 30, 2018.

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SECTION V – MEASURES OF LIABILITY

This section presents detailed information on liability measures for the Plan for funding purposes, including:

- Present value of future benefits,
- Actuarial Liability, and
- Normal cost.

Present Value of Future Benefits: The present value of future benefits represents the expected amount of money needed today if all assumptions are met to pay for all benefits both earned as of the valuation date and expected to be earned in the future by current plan members under the current plan provisions. Table V-1 below shows the present value of future benefits as of July 1, 2018 and July 1, 2017.

Table V-1

Present Value of Future Benefits			
	July 1, 2018	July 1, 2017	% Change
Actives	\$ 38,346,623	\$ 52,438,471	-26.9%
Deferred	15,432,555	15,568,340	-0.9%
In Pay Status	<u>92,575,030</u>	<u>76,344,555</u>	<u>21.3%</u>
Total	\$ 146,354,208	\$ 144,351,366	1.4%

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SECTION V – MEASURES OF LIABILITY

Actuarial Liability

The Actuarial Liability represents the expected amount of money needed today if all assumptions are met to pay for benefits attributed to service prior to the valuation date under the Entry Age actuarial cost method. As such, it is the amount of assets targeted by the actuarial cost method for the Plan to hold as of the valuation date. It is not the amount necessary to settle the obligation. Under GASB 67 and 68, the Entry Age Actuarial Liability is referred to as the Total Pension Liability. Table V-2 below shows the Actuarial Liability as of July 1, 2018 and July 1, 2017.

Table V-2

Actuarial Liability			
	July 1, 2018	July 1, 2017	% Change
Actives			
Retirement	\$ 34,317,180	\$ 47,173,354	-27.3%
Termination	(36,120)	(98,377)	-63.3%
Death	0	0	
Disability	0	0	
Total Actives	<u>\$ 34,281,060</u>	<u>\$ 47,074,977</u>	-27.2%
Deferred			
Vested Terminated	\$ 13,553,665	\$ 13,399,923	1.1%
Transfers	1,157,543	1,237,671	-6.5%
Leaves and Disabled	<u>721,347</u>	<u>930,746</u>	-22.5%
Total Deferred	\$ 15,432,555	\$ 15,568,340	-0.9%
In Pay Status	\$ 92,575,030	\$ 76,344,555	21.3%
Total	\$ 142,288,645	\$ 138,987,872	2.4%

**TRIMET DEFINED BENEFIT RETIREMENT PLAN FOR MANAGEMENT AND STAFF EMPLOYEES
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SECTION V – MEASURES OF LIABILITY

Normal Cost

Under the Entry Age (EA) actuarial cost method, the present value of future benefits for each individual is spread over the individual’s expected working career under the Plan as a level percentage of the individual’s expected pay. The normal cost rate is determined by taking the value, as of entry age into the Plan, of each member’s projected future benefits divided by the present value, also at entry age, of the each member’s expected future salary. The normal cost rate is multiplied by current salary to determine each member’s normal cost. The normal cost of the Plan is the sum of the normal costs for each individual. The normal cost represents the expected amount of money needed to fund the benefits attributed to the next year of service under the Entry Age actuarial cost method. Under GASB 67 and 68, the EA normal cost is referred to as the service cost. Table V-3 below shows the total normal cost as of July 1, 2018 and July 1, 2017.

Table V-3

Normal Cost				
	July 1, 2018		July 1, 2017	% Change
Retirement	\$ 618,966	\$	837,158	-26.1%
Termination	66,310		82,339	-19.5%
Death	0		0	
Disability	0		0	
Total Normal Cost	\$ 685,276	\$	919,497	-25.5%

**TRIMET DEFINED BENEFIT RETIREMENT PLAN FOR MANAGEMENT AND STAFF EMPLOYEES
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SECTION VI – CONTRIBUTIONS

This section of the report develops the Actuarially Determined Contribution in accordance with the Plan’s Pension Funding Policy and Objectives (Funding Policy).

Amortization of the Unfunded Actuarial Liability

Under the Funding Policy, there are two components to the contribution: the normal cost (including administrative expenses) and an amortization payment on the Unfunded Actuarial Liability (UAL). The normal cost was developed in Section V. This section develops the UAL contribution.

The difference between the Actuarial Liability and the Actuarial Value of Assets is the UAL. Based on the Funding Policy, the UAL is amortized over a closed period of 10 years commencing with FYE 2014. Therefore, there are five years remaining as of FYE 2019. Each annual payment increases 2.0% in order to remain approximately level as a percentage of all payroll for management and staff employees whether or not they are covered by the Plan. Table VI-1 provides the payment schedule over the next five years to amortize the UAL based on the Actuarial Value of Assets.

Table VI-1

UAL Amortization				
Valuation Year	Outstanding Balance	Remaining Period	Payment Amount	
2018	\$ 7,347,660	5	\$ 1,593,327	
2019	6,116,856	4	1,625,194	
2020	4,774,636	3	1,657,698	
2021	3,313,306	2	1,690,852	
2022	1,724,669	1	1,724,669	

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SECTION VI – CONTRIBUTIONS

Actuarially Determined Contribution

Table VI-2 shows the components of the Actuarially Determined Contribution (ADC) for FYE 2019 and 2018. The ADC amounts are shown assuming contributions are made at the beginning of the fiscal year or at the beginning of each month.

Table VI-2

Actuarially Determined Contribution Amounts			
	FYE 2019	FYE 2018	% Change
Total Normal Cost	\$ 685,276	\$ 919,497	-25.5%
Administrative Expenses	96,991	96,991	0.0%
UAL Payment	<u>1,593,327</u>	<u>2,146,910</u>	-25.8%
Total ADC (Beginning of Year)	\$ 2,375,594	\$ 3,163,398	-24.9%
Equivalent Monthly Contribution	\$ 203,557	\$ 271,061	-24.9%
Annual Amount (Equivalent Monthly Contribution x 12)	\$ 2,442,684	\$ 3,252,729	-24.9%

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SECTION VII – GASB 67 AND 68 DISCLOSURES

This section of the report provides accounting and financial reporting information under Government Accounting Standards Board Statements 67 and 68 for the Plan and TriMet. This information includes:

- Determination of Discount Rate,
- Changes in the Net Pension Liability,
- Calculation of the Net Pension Liability at the discount rate as well as discount rates 1% higher and lower than the discount rate,
- Schedule of Employer Contributions,
- Disclosure of Deferred Inflows and Outflows, and
- Calculation of the Annual Pension Expense for TriMet.

Determination of Discount Rate

The discount rate used to measure the Total Pension Liability was 6.30%.

We have assumed that contributions to the Plan will follow the Plan's Funding Policy, which requires contributions equal to normal cost (including assumed administrative expenses) and an amortization payment on the remaining UAL over the period ending June 30, 2023.

We have not performed a formal cash flow projection as described under Paragraph 41 of GASB Statement 67. However, Paragraph 43 allows for alternative methods to confirm the sufficiency of the Net Position if the evaluations "can be made with sufficient reliability without a separate projection of cash flows into and out of the pension plan..." In our professional judgment, adherence to the contribution policy described above will result in the pension plan's projected fiduciary net position being greater than or equal to the benefit payments projected for each future period.

Therefore, the long-term expected rate of return on Plan investments was applied to all periods of projected benefit payments to determine the Total Pension Liability.

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SECTION VII – GASB 67 AND 68 DISCLOSURES

Note Disclosures

Table VII-1 below shows the changes in the Total Pension Liability, the Plan Fiduciary Net Position (i.e., fair value of Plan assets), and the Net Pension Liability during the Measurement Year.

Table VII-1

Change in Net Pension Liability			
	Increase (Decrease)		
	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a) - (b)
Balances at 6/30/2017	\$ 138,987,872	\$ 123,955,858	\$ 15,032,014
Changes for the year:			
Service cost	919,497		919,497
Interest	8,621,492		8,621,492
Changes of benefits	0		0
Differences between expected and actual experience	(28,774)		(28,774)
Changes of assumptions	0		0
Contributions - employer		6,496,842	(6,496,842)
Contributions - member		0	0
Net investment income		8,108,016	(8,108,016)
Benefit payments	(6,211,442)	(6,211,442)	0
Administrative expense		(96,686)	96,686
Net changes	<u>3,300,773</u>	<u>8,296,730</u>	<u>(4,995,957)</u>
Balances at 6/30/2018	<u>\$ 142,288,645</u>	<u>\$ 132,252,588</u>	<u>\$ 10,036,057</u>

During the measurement year, the NPL decreased by approximately \$5.0 million. The service cost and interest cost increased the NPL by approximately \$9.5 million while contributions and investment returns offset by administrative expenses decreased the NPL by approximately \$14.5 million.

There were no changes in benefits or assumptions during the year.

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SECTION VII – GASB 67 AND 68 DISCLOSURES

Changes in the discount rate affect the measurement of the TPL. Lower discount rates produce a higher TPL and higher discount rates produce a lower TPL. Because the discount rate does not affect the measurement of assets, the percentage change in the NPL can be very significant for a relatively small change in the discount rate. The table below shows the sensitivity of the NPL to the discount rate.

Table VII-2

Sensitivity of Net Pension Liability to Changes in Discount Rate			
	1% Decrease 5.30%	Discount Rate 6.30%	1% Increase 7.30%
Total Pension Liability	\$ 160,355,517	\$ 142,288,645	\$ 127,226,279
Plan Fiduciary Net Position	<u>132,252,588</u>	<u>132,252,588</u>	<u>132,252,588</u>
Net Pension Liability	<u>\$ 28,102,929</u>	<u>\$ 10,036,057</u>	<u>\$ (5,026,309)</u>
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	82.5%	92.9%	104.0%

A one percent decrease in the discount rate increases the TPL by approximately 12.7% and increases the NPL by approximately 180%. A one percent increase in the discount rate decreases the TPL by approximately 10.6% and decreases the NPL by approximately 150%.

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SECTION VII – GASB 67 AND 68 DISCLOSURES

Required Supplementary Information

The schedules of Required Supplementary Information eventually will build up to 10 years of information. The schedule below shows the changes in NPL and related ratios required by GASB for the years since implementation.

Table VII-3

Schedule of Changes in Net Pension Liability and Related Ratios									
	FYE 2018	FYE 2017	FYE 2016	FYE 2015	FYE 2014	FYE 2013	FYE 2012	FYE 2011	
Total Pension Liability									
Service cost (BOY)	\$ 919,497	\$ 1,161,815	\$ 1,224,152	\$ 505,463	\$ 793,111	\$ 906,565	\$ 1,095,477	\$ 1,146,132	
Interest (includes interest on service cost)	8,621,492	8,308,518	8,326,815	7,931,015	8,453,556	7,902,778	7,369,518	6,903,000	
Changes of benefit terms	0	0	0	0	0	1,711,031	0	0	
Differences between expected and actual experience	(28,774)	1,441,063	(1,292,524)	3,591,955	(3,002,079)	151,873	2,405,026	1,508,268	
Changes of assumptions	0	0	474,280	(2,177,859)	(531,299)	1,015,215	263,570	90,260	
Benefit payments, including refunds of member contributions	(6,211,442)	(5,285,890)	(4,502,096)	(4,457,981)	(3,892,235)	(3,519,261)	(3,134,099)	(2,730,827)	
Net change in total pension liability	\$ 3,300,773	\$ 5,625,506	\$ 4,230,627	\$ 5,392,593	\$ 1,821,054	\$ 8,168,201	\$ 7,999,492	\$ 6,916,833	
Total pension liability - beginning	138,987,872	133,362,366	129,131,739	123,739,146	121,918,092	113,749,891	105,750,399	98,833,566	
Total pension liability - ending	\$ 142,288,645	\$ 138,987,872	\$ 133,362,366	\$ 129,131,739	\$ 123,739,146	\$ 121,918,092	\$ 113,749,891	\$ 105,750,399	
Plan fiduciary net position									
Contributions - employer	\$ 6,496,842	\$ 6,330,108	\$ 7,036,203	\$ 6,559,317	\$ 5,601,963	\$ 9,775,840	\$ 3,007,677	\$ 5,615,481	
Contributions - member	0	0	0	0	0	0	0	0	
Net investment income	8,108,016	7,990,589	1,459,796	2,003,914	14,073,839	10,099,943	(240,623)	12,367,428	
Benefit payments, including refunds of member contributions	(6,211,442)	(5,285,890)	(4,502,096)	(4,457,981)	(3,892,235)	(3,519,261)	(3,134,099)	(2,730,827)	
Administrative expense	(96,686)	(76,230)	(96,799)	(123,346)	-	-	-	-	
Net change in plan fiduciary net position	\$ 8,296,730	\$ 8,958,577	\$ 3,897,104	\$ 3,981,904	\$ 15,783,567	\$ 16,356,522	\$ (367,045)	\$ 15,252,082	
Plan fiduciary net position - beginning	123,955,858	114,997,281	111,100,177	107,118,273	91,334,706	74,978,184	75,345,229	60,093,147	
Plan fiduciary net position - ending	\$ 132,252,588	\$ 123,955,858	\$ 114,997,281	\$ 111,100,177	\$ 107,118,273	\$ 91,334,706	\$ 74,978,184	\$ 75,345,229	
Net pension liability - ending	\$ 10,036,057	\$ 15,032,014	\$ 18,365,085	\$ 18,031,562	\$ 16,620,873	\$ 30,583,386	\$ 38,771,707	\$ 30,405,170	
Plan fiduciary net position as a percentage of the total pension liability	92.95%	89.18%	86.23%	86.04%	86.57%	74.91%	65.91%	71.25%	
Covered payroll	\$ 9,445,518	\$ 10,592,830	\$ 12,722,153	\$ 12,751,216	\$ 13,141,852	\$ 14,199,937	\$ 14,868,526	\$ 15,390,172	
Net pension liability as a percentage of covered payroll	106.25%	141.91%	144.36%	141.41%	126.47%	215.38%	260.76%	197.56%	

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SECTION VII – GASB 67 AND 68 DISCLOSURES

The schedule below shows a comparison of the Actuarially Determined Contribution (ADC) to actual contributions.

Table VII-4

Schedule of Employer Contributions								
	FYE 2018	FYE 2017	FYE 2016	FYE 2015	FYE 2014	FYE 2013	FYE 2012	FYE 2011
Actuarially Determined Contribution	\$ 3,252,729	\$ 3,734,975	\$ 4,242,000	\$ 4,219,000	\$ 4,957,000	\$ 5,135,000	\$ 4,834,000	\$ 4,576,000
Contributions in Relation to the Actuarially Determined Contribution	6,496,842	6,330,108	7,036,203	6,559,317	5,601,963	9,775,840	3,007,677	5,615,481
Contribution Deficiency/(Excess)	\$ (3,244,113)	\$ (2,595,133)	\$ (2,794,203)	\$ (2,340,317)	\$ (644,963)	\$ (4,640,840)	\$ 1,826,323	\$ (1,039,481)
Covered Payroll	\$ 9,445,518	\$ 10,592,830	\$ 12,722,153	\$ 12,751,216	\$ 13,141,852	\$ 14,199,937	\$ 14,868,526	\$ 15,390,172
Contributions as a Percentage of Covered Payroll	68.78%	59.76%	55.31%	51.44%	42.63%	68.84%	20.23%	36.49%

Key methods and assumptions used to determine the ADC

Actuarial Cost Method	Individual Entry Age as a level percent of pay
Asset Valuation Method	Investment gains and losses are smoothed over 5 years with the resulting actuarial value restricted to be between 80% and 120% of the market value
Amortization Method	Closed 10-year amortization, level percent of pay (July 1, 2013)
Discount Rate	6.30% (July 1, 2016)
Salary Increases	2.75% (July 1, 2015)
Inflation	2.50% (July 1, 2016)
Healthy Mortality	RP-2014 Annuitant Mortality Table with White Collar Adjustment for males and females, projected 10 years past the valuation date using Scale BB. No pre-retirement mortality. (July 1, 2015)

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SECTION VII – GASB 67 AND 68 DISCLOSURES

Employer Accounting

The schedules in this section are to be used by TriMet for its employer accounting for FYE 2018. These schedules develop the annual pension expense, including the amounts of deferred inflows and outflows.

The impact of experience gains or losses and assumption changes on the TPL are recognized in expense over the average expected remaining service life of all active and inactive members of the Plan. As of the measurement date, this recognition period was 1.4 years.

During the year, there was an experience gain of approximately \$29,000. Approximately \$21,000 of that gain was recognized as a reduction in pension expense in the current year and the remainder will be recognized next year, resulting in a deferred inflow of resources as of June 30, 2018 of approximately \$8,000. Approximately \$480,000 was recognized as an increase in pension expense in the current year due to experience losses from prior periods.

There were no assumption changes since the last measurement date and no amounts were recognized for prior assumption changes.

The impact of investment gains or losses is recognized over a period of five years. During the measurement year, there was an investment gain of approximately \$293,000. Approximately \$58,500 of that gain was recognized in the current year and an identical amount will be recognized in each of the next four years. Unrecognized investment losses from prior periods were approximately \$3,376,000 of which \$479,000 was recognized as an increase in pension expense in the current year. The combination of unrecognized investment gains and losses from this year and prior periods results in a deferred outflow of resources as of June 30, 2018 of approximately \$2,663,000.

The table on the next page summarizes the current balances of deferred outflows and deferred inflows of resources along with the net recognition over the next five years.

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SECTION VII – GASB 67 AND 68 DISCLOSURES

Table VII-5

Schedule of Deferred Inflows and Outflows of Resources		
	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	\$ 0	\$ 8,221
Changes in assumptions	0	0
Net difference between projected and actual earnings on pension plan investments	<u>2,662,928</u>	<u>0</u>
Total	<u>\$ 2,662,928</u>	<u>\$ 8,221</u>
Amounts reported as deferred outflows and deferred inflows of resources will be recognized in pension expense as follows:		
Measurement year ended June 30:		
2019	1,956,005	
2020	960,588	
2021	(203,299)	
2022	(58,587)	
2023	0	
Thereafter	\$ 0	

The annual pension expense recognized by TriMet can be calculated two different ways. First, it is the change in the amounts reported on TriMet’s Statement of Net Position that relate to the Plan and are not attributable to employer contributions. That is, it is the change in NPL plus the changes in deferred outflows and inflows plus employer contributions.

Alternatively, annual pension expense can be calculated by its individual components. While GASB does not require or suggest the organization of the individual components shown in the table on the next page, we believe it helps to understand the level and volatility of pension expense.

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SECTION VII – GASB 67 AND 68 DISCLOSURES

Table VII-6

Calculation of Pension Expense		
	Measurement Year Ending	
	2018	2017
Change in Net Pension Liability	\$ (4,995,957)	\$ (3,333,071)
Change in Deferred Outflows	1,193,582	(28,299)
Change in Deferred Inflows	8,221	(532,216)
Employer Contributions	<u>6,496,842</u>	<u>6,330,108</u>
Pension Expense	\$ 2,702,688	\$ 2,436,522
Operating Expenses		
Service cost	\$ 919,497	\$ 1,161,815
Employee contributions	0	0
Administrative expenses	<u>96,686</u>	<u>76,230</u>
Total	\$ 1,016,183	\$ 1,238,045
Financing Expenses		
Interest cost	\$ 8,621,492	\$ 8,308,518
Expected return on assets	<u>(7,815,073)</u>	<u>(7,267,035)</u>
Total	\$ 806,419	\$ 1,041,483
Changes		
Benefit changes	\$ 0	\$ 0
Recognition of assumption changes	0	195,292
Recognition of liability gains and losses	459,801	428,493
Recognition of investment gains and losses	<u>420,285</u>	<u>(466,791)</u>
Total	\$ 880,086	\$ 156,994
Pension Expense	\$ 2,702,688	\$ 2,436,522

First, there are components referred to as operating expenses. These are items directly attributable to the operation of the plan during the measurement year. Service cost less employee contributions represents the increase in employer-provided benefits attributable to the year, and administrative expenses are the cost of operating the Plan for the year.

Second, there are the financing expenses: the interest on the Total Pension Liability less the expected return on assets. Since the discount rate is equal to the long-term expected return on assets, the financing expense is just the interest on the Net Pension Liability.

The final category is changes. This category will drive most of the volatility in pension expense from year to year. It includes any changes in benefits made during the year and the recognized

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amounts due to assumption changes, gains or losses on the TPL, and investment gains or losses. The total pension expense increased by about \$266,000. The recognition of changes increased by approximately \$723,000, which is more than the total increase in pension expense.

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APPENDIX A – MEMBERSHIP INFORMATION

Data Assumptions and Methods

In preparing our data, we relied on information supplied by TriMet. This information includes, but is not limited to, plan provisions, employee data, and financial information. Our methodology for obtaining the data used for the valuation is based upon the following assumptions and practices:

- All active employees are assumed to accrue a full year of service in all future years.
- The most recent annual salary for actives is calculated to be “Hourly Rate” multiplied by 2,080.
- The annual benefit for inactives is set to be the accrued benefit provided. If an accrued benefit is not provided, then the annual benefit is calculated to be 1.75% of final compensation per year of credited service, plus one half of the hours in their Sick Leave Bank, divided by 101.9, multiplied by their “Hourly Rate.” The final compensation is adjusted for a three-year average.

Table A-1

Active Member Data			
	July 1, 2018	July 1, 2017	% Change
Count			
Accruing Service	70	93	-24.7%
Frozen Service	14	15	-6.7%
Total	84	108	-22.2%
Average Current Age	55.4	55.6	-0.4%
Average Eligibility Service	23.2	23.4	-0.9%
Average Benefit Service	18.1	18.4	-1.6%
Annual Expected Pensionable Earnings	\$ 8,032,607	\$ 10,241,717	-21.6%
Average Expected Pensionable Earnings	\$ 95,626	\$ 94,831	0.8%

**TRIMET DEFINED BENEFIT RETIREMENT PLAN FOR MANAGEMENT AND STAFF EMPLOYEES
ACTUARIAL VALUATION REPORT AS OF JULY 1, 2018**

APPENDIX A – MEMBERSHIP INFORMATION

Table A-2

In Pay Status Member Data			
	July 1, 2018	July 1, 2017	% Change
Retired & Disabled			
Count	284	257	10.5%
Average Age	70.0	70.0	0.0%
Total Annual Benefit*	\$ 6,363,359	\$ 5,280,487	20.5%
Average Annual Benefit	\$ 22,406	\$ 20,547	9.1%
Beneficiaries & Alternate Payees			
Count	22	20	10.0%
Average Age	71.1	70.3	1.1%
Total Annual Benefit*	\$ 251,718	\$ 212,886	18.2%
Average Annual Benefit	\$ 11,442	\$ 10,644	7.5%
Total			
Count	306	277	10.5%
Average Age	70.1	70.0	0.1%
Total Annual Benefit*	\$ 6,615,077	\$ 5,493,373	20.4%
Average Annual Benefit	\$ 21,618	\$ 19,832	9.0%

**Benefit amounts provided in July 1 valuation data*

**TRIMET DEFINED BENEFIT RETIREMENT PLAN FOR MANAGEMENT AND STAFF EMPLOYEES
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APPENDIX A – MEMBERSHIP INFORMATION

Table A-3

Deferred Member Data			
	July 1, 2018	July 1, 2017	%Change
Vested Terminated Members			
Count	77	83	-7.2%
Average Age	57.1	56.9	0.5%
Total Annual Benefit	\$ 91,866	\$ 90,555	1.4%
Average Annual Benefit	\$ 1,193	\$ 1,091	9.4%
Transfers to Union			
Count	18	19	-5.3%
Average Age	54.6	54.4	0.5%
Disability			
Count	3	4	-25.0%
Average Age	62.1	61.1	1.7%

**TRIMET DEFINED BENEFIT RETIREMENT PLAN FOR MANAGEMENT AND STAFF EMPLOYEES
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APPENDIX A – MEMBERSHIP INFORMATION

Table A-4

	Change in Plan Membership										Totals
	Active	Active Frozen	Terminated Vested	Transfer to Union	Terminated Vested - Disabled	Transfer to Union - Disabled	Deferred Beneficiary	Retiree	Beneficiary	Alternate Payee	
July 1, 2017	93	15	83	17	4	2	2	257	16	4	493
New Entrants	0	0	0	0	0	0	0	0	0	0	0
Rehires	0	0	0	0	0	0	0	0	0	0	0
Vested Terminations	(6)	0	6	0	0	0	0	0	0	0	0
Disabilities	0	0	0	0	0	0	0	0	0	0	0
Retirements	(16)	(1)	(11)	(1)	(1)	0	0	30	0	0	0
Deaths	0	0	(1)	0	0	0	0	(3)	0	0	(4)
New Beneficiaries	0	0	0	0	0	0	0	0	2	0	2
Benefit Ceased	0	0	0	0	0	0	0	0	0	0	0
Transfers to Union	0	0	0	0	0	0	0	0	0	0	0
Miscellaneous Adjustments	(1)	0	0	0	0	0	0	0	0	0	(1)
July 1, 2018	70	14	77	16	3	2	2	284	18	4	490

**TRIMET DEFINED BENEFIT RETIREMENT PLAN FOR MANAGEMENT AND STAFF EMPLOYEES
ACTUARIAL VALUATION REPORT AS OF JULY 1, 2018**

APPENDIX A – MEMBERSHIP INFORMATION

Table A-5

Distribution of Active Members as of July 1, 2018												
Age	Years of Service										Total	
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 and up		
Under 25	0	0	0	0	0	0	0	0	0	0	0	0
25 to 29	0	0	0	0	0	0	0	0	0	0	0	0
30 to 34	0	0	0	0	0	0	0	0	0	0	0	0
35 to 39	0	0	0	0	0	0	0	0	0	0	0	0
40 to 44	1	3	0	1	0	0	0	0	0	0	0	5
45 to 49	0	5	0	1	3	3	2	0	0	0	0	14
50 to 54	0	1	2	3	4	6	4	3	0	0	0	23
55 to 59	0	0	2	1	11	2	2	1	0	0	0	19
60 to 64	0	0	2	1	9	2	2	0	2	0	0	18
65 to 69	0	0	0	0	2	2	1	0	0	0	0	5
70 and up	0	0	0	0	0	0	0	0	0	0	0	0
Total Count	1	9	6	7	29	15	11	4	2	0	0	84

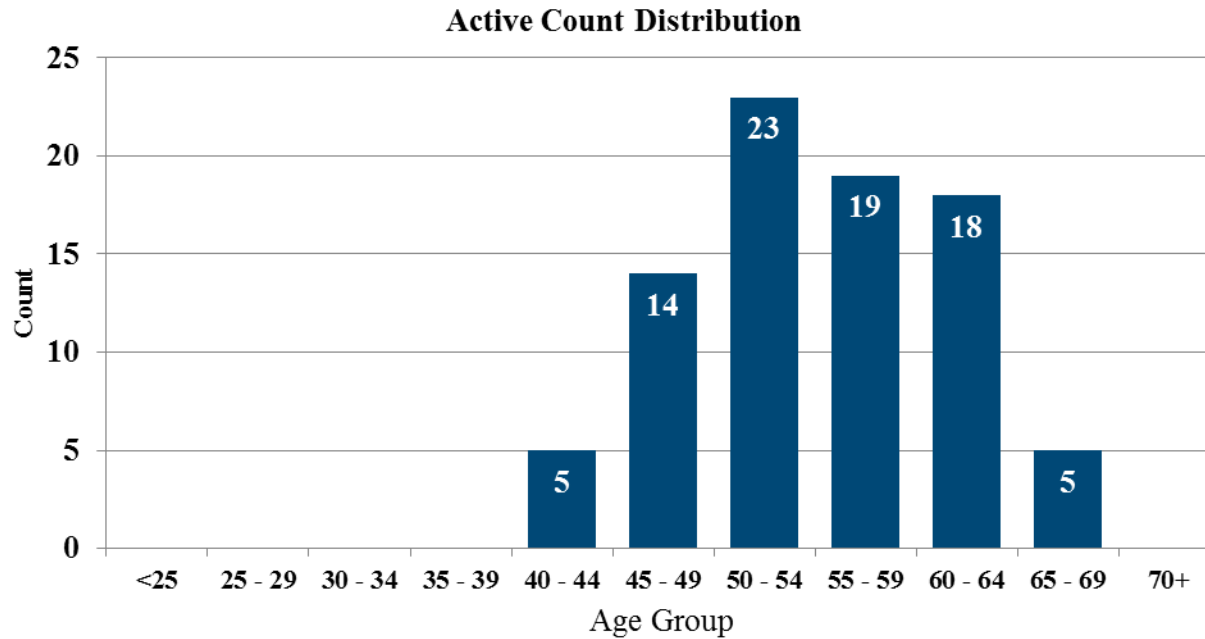
Table A-6

Distribution of Active Members Average Expected Salary as of July 1, 2018												
Age	Years of Service										Total	
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 and up		
Under 25	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
25 to 29	0	0	0	0	0	0	0	0	0	0	0	0
30 to 34	0	0	0	0	0	0	0	0	0	0	0	0
35 to 39	0	0	0	0	0	0	0	0	0	0	0	0
40 to 44	87,989	104,931	0	88,269	0	0	0	0	0	0	0	98,210
45 to 49	0	101,845	0	81,392	105,666	105,129	71,173	0	0	0	0	97,525
50 to 54	0	84,412	97,920	81,689	81,173	100,278	91,805	143,069	0	0	0	97,744
55 to 59	0	0	99,865	83,258	86,218	107,763	97,106	116,341	0	0	0	92,498
60 to 64	0	0	90,803	85,429	98,582	99,360	64,441	0	93,257	0	0	92,688
65 to 69	0	0	0	0	87,030	87,815	152,565	0	0	0	0	100,451
70 and up	0	0	0	0	0	0	0	0	0	0	0	0
Avg. Salary	\$ 87,989	\$ 100,936	\$ 96,196	\$ 83,345	\$ 91,427	\$ 100,462	\$ 89,566	\$ 136,387	\$ 93,257	\$ 0	\$ 0	\$ 95,626

**TRIMET DEFINED BENEFIT RETIREMENT PLAN FOR MANAGEMENT AND STAFF EMPLOYEES
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APPENDIX A – MEMBERSHIP INFORMATION

Chart A-1



**TRIMET DEFINED BENEFIT RETIREMENT PLAN FOR MANAGEMENT AND STAFF EMPLOYEES
ACTUARIAL VALUATION REPORT AS OF JULY 1, 2018**

APPENDIX A – MEMBERSHIP INFORMATION

Table A-7

Retirees and Disabled by Attained Age and Benefit Effective Date as of July 1, 2018												
Benefit Effective Fiscal Year End	Age										Total	
	Under 50	50 to 54	55 to 59	60 to 64	65 to 69	70 to 74	75 to 79	80 to 84	85 to 89	90 and up		
Prior to 1995	0	0	0	0	0	0	0	2	2	7	4	15
1996	0	0	0	0	0	0	0	0	1	0	0	1
1997	0	0	0	0	0	0	0	3	1	1	0	5
1998	0	0	0	0	0	0	0	1	2	0	0	3
1999	0	0	0	0	0	0	0	2	1	0	0	3
2000	0	0	0	0	0	0	0	0	2	0	0	2
2001	0	0	0	0	0	0	0	1	0	0	0	1
2002	0	0	0	0	0	1	2	0	0	0	0	3
2003	0	0	0	0	1	4	5	3	0	0	0	13
2004	0	0	0	0	0	7	7	2	0	0	0	16
2005	0	0	0	0	1	1	3	0	0	0	0	5
2006	0	0	0	0	2	9	0	0	0	0	0	11
2007	0	0	0	0	4	2	0	0	0	0	0	6
2008	0	0	0	0	4	11	1	0	0	0	0	16
2009	0	0	0	2	8	6	3	0	0	0	0	19
2010	0	0	0	0	4	6	0	0	0	0	0	10
2011	0	0	0	0	2	5	0	0	0	0	0	7
2012	0	0	0	1	21	3	0	0	0	0	0	25
2013	0	0	0	1	16	6	0	0	0	0	0	23
2014	0	0	0	3	18	3	0	0	0	0	0	24
2015	0	0	1	4	15	0	0	0	0	0	0	20
2016	0	0	0	11	4	2	1	0	0	0	0	18
2017	0	0	0	15	15	0	0	0	0	0	0	30
2018	0	0	4	16	7	1	0	0	0	0	0	28
Missing	0	0	0	1	1	0	0	0	0	0	0	2
Total	0	0	5	54	123	67	31	14	8	4	306	
Average Age at Retirement/Disability	61.9											
Average Current Age	70.0											
Average Annual Pension	\$ 22,406											

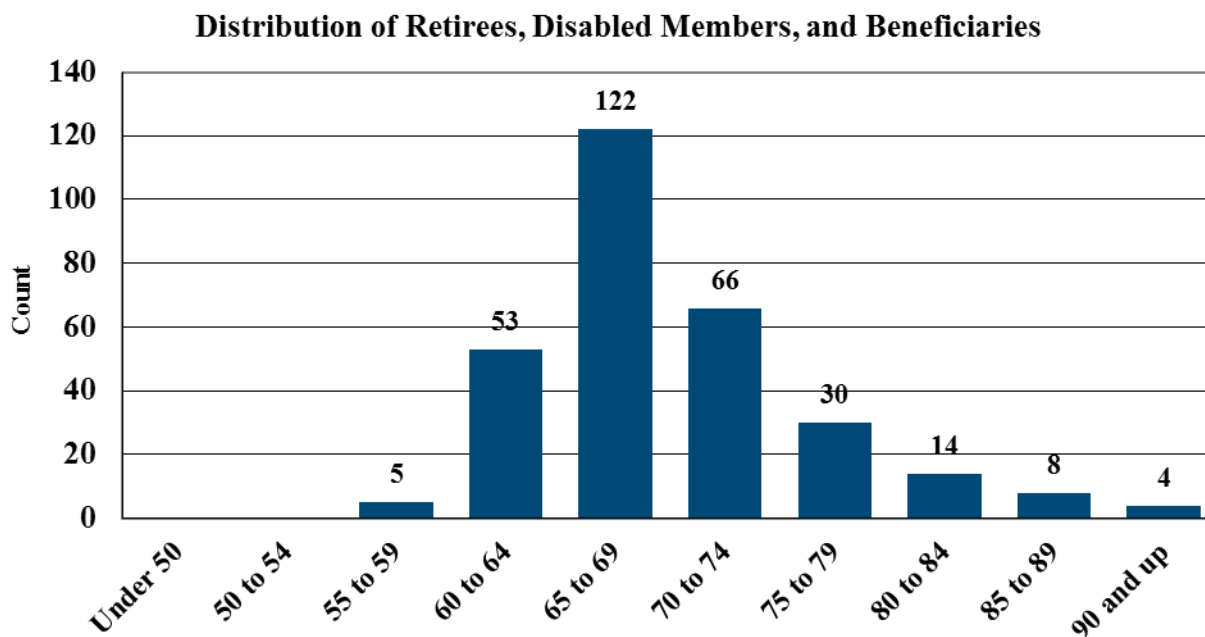
TRIMET DEFINED BENEFIT RETIREMENT PLAN FOR MANAGEMENT AND STAFF EMPLOYEES
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APPENDIX A – MEMBERSHIP INFORMATION

Table A-8

Distribution of Retirees, Disabled Members, and Beneficiaries as of July 1, 2018		
Age	Count	Annual Benefit
Under 50	0	\$ 0
50 to 54	0	0
55 to 59	5	12,123
60 to 64	53	102,740
65 to 69	122	243,272
70 to 74	66	110,925
75 to 79	30	41,917
80 to 84	14	25,416
85 to 89	8	8,631
90 and up	4	4,140
Total	302	\$ 549,165

Chart A-2

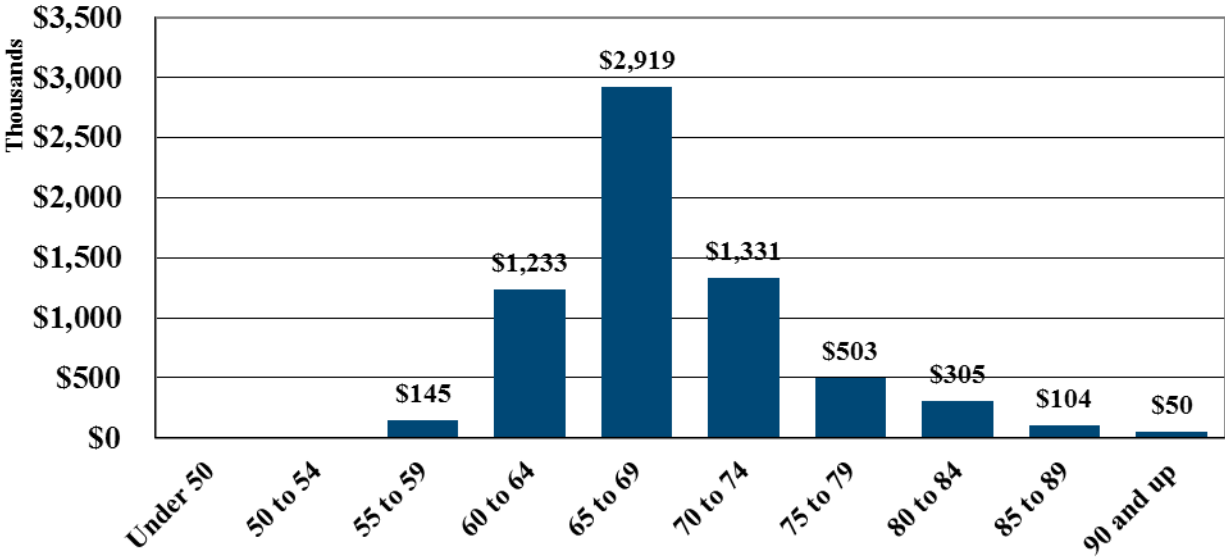


TRIMET DEFINED BENEFIT RETIREMENT PLAN FOR MANAGEMENT AND STAFF EMPLOYEES
ACTUARIAL VALUATION REPORT AS OF JULY 1, 2018

APPENDIX A – MEMBERSHIP INFORMATION

Chart A-3

Distribution of Annual Benefit Payments



APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

Actuarial Assumptions

The actuarial assumptions were recommended by the prior actuary based upon analyses they performed and communicated in letters dated May 14, 2015, February 18, 2016, and May 31, 2017. We have not performed an independent analysis, but we reviewed these letters and believe the assumptions to be reasonable.

1. Long-Term Expected Return on Assets (effective July 1, 2016)

6.30% compounded annually net of investment management and custodial fees.

2. Salary Increases (effective July 1, 2016)

2.75%, compounded annually.

3. Amortization Payment Growth

2.00%, compounded annually.

4. Price Inflation (effective July 1, 2016)

2.50%, compounded annually.

5. Post-Retirement Benefit Increases (effective July 1, 2016)

2.25%, compounded annually and effective each April 1.

6. Administrative Expenses (effective July 1, 2016)

\$100,000 per year payable midyear.

7. Mortality (effective July 1, 2015)

Pre-Retirement and Pre-Disability: None.

Post-Retirement (Healthy): RP-2014 Annuitant Mortality Table with White Collar Adjustment for males and females, projected 10 years past the valuation date using Scale BB. This assumption includes a margin for future mortality improvement.

Disability Mortality: RP-2014 Disability Mortality Table for males and females, projected 10 years past the valuation date using Scale BB.

**TRIMET DEFINED BENEFIT RETIREMENT PLAN FOR MANAGEMENT AND STAFF EMPLOYEES
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APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

8. Rates of Retirement (effective July 1, 2015)

All active and disabled participants are assumed to retire by age 67. The assumed annual rates of retirement from active status are as follows:

Active Rates of Retirement			
Age	Rate	Age	Rate
55 – 57	2.0%	62	35.0%
58 – 60	7.0	63 – 66	30.0
61	15.0	67	100.0

Terminated vested members are assumed to retire at age 62, or present age if greater.

9. Form of Benefit (effective July 1, 2015)

Upon retirement, participants are assumed to elect the following form of payment:

Form of Payment	Election Rate
Single Life Annuity	50.0%
66 2/3% Joint & Survivor Annuity	50.0

10. Rates of Disability (effective July 1, 2015)

None.

11. Rates of Termination (effective July 1, 2015)

Participants are assumed to leave active employment for reasons other than retirement and death. Assumed termination rates are shown below:

Rates of Termination	
Years of Vesting Service	Rate
2 or less	12.0%
3 – 4	9.0
5 – 6	5.0
7 – 10	3.5
11 – 15	2.5
16 or more	1.0

**TRIMET DEFINED BENEFIT RETIREMENT PLAN FOR MANAGEMENT AND STAFF EMPLOYEES
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APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

12. Unused Sick Leave Benefits (effective July 1, 2015)

Active participants are assumed to accumulate a percentage of the maximum accumulated sick leave hours in effect at retirement, based on the following schedule:

Years of Vesting Service	Sick Bank Hours
Less than 10	0
10 – 14	600
15 – 19	850
20 – 24	1,100
25 – 29	1,200
30 or more	1,400

The schedule of maximum accumulated sick leave hours is shown in Appendix C. At retirement, we assume active participants will elect to convert the sick leave supplement benefit into a monthly annuity.

13. Probability of Marriage/Domestic Partner (effective July 1, 2015)

85% of non-retired participants are assumed to be married or have a domestic partner.

14. Age of Spouse/Domestic Partner (effective July 1, 2015)

Males are assumed to be three years older than their spouses or domestic partners. Females are assumed to be two years younger than their spouses or domestic partners.

15. Changes Since the Last Valuation

None.

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

Contribution Allocation Procedure

The contribution allocation procedure primarily consists of an actuarial cost method, an asset smoothing method, and an amortization method as described below. All components of the contribution allocation procedure were adopted as part of the Plan's Pension Funding Policy and Objectives on February 26, 2014.

1. Actuarial Cost Method

The Entry Age actuarial cost method was used for active employees, whereby the normal cost is computed as the level annual percentage of pay required to fund all benefits between each member's date of hire and last assumed date of employment. The Actuarial Liability is the difference between the present value of future benefits and the present value of future normal costs. Or, equivalently, it is the accumulation of normal costs for all periods prior to the valuation date. The normal cost and Actuarial Liability are calculated on an individual basis. The sum of the individual amounts is the normal cost and Actuarial Liability for the Plan. The Actuarial Liability for the Plan represents the target amount of assets the Plan should have as of the valuation date according to the actuarial cost method.

2. Asset Valuation Method

For the purpose of determining contribution amounts, an Actuarial Value of Assets is used that dampens the volatility in the Market Value of Assets, resulting in a smoother pattern of contributions.

The Actuarial Value of Assets is calculated by recognizing 20% of the difference in each of the prior four years of actual investment returns compared to the expected return on the Market Value of Assets. The Actuarial Value of Assets is further limited to be not less than 80% nor greater than 120% of the Market Value of Assets.

3. Amortization Method

The Unfunded Actuarial Liability is the difference between the Actuarial Liability and the Actuarial Value of Assets. The Unfunded Actuarial Liability is amortized as a level percentage of pay over a closed 10-year period commencing June 30, 2013.

4. Changes Since the Last Valuation

None.

**TRIMET DEFINED BENEFIT RETIREMENT PLAN FOR MANAGEMENT AND STAFF EMPLOYEES
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APPENDIX C – SUMMARY OF PLAN PROVISIONS

1. Eligibility

Prior to April 27, 2003: an employee became a participant upon being employed as an eligible employee and was regularly scheduled to work at least 20 hours per week.

On and after April 27, 2003: Employees hired on or after April 27, 2003 are not eligible to participate in this Plan. Active participants on April 27, 2003 with credited service prior to that date made an irrevocable election to either (1) continue earning benefits under this Plan after April 26, 2003 and not earn benefits under the Defined Contribution Plan, or (2) cease earning benefits under this Plan as of April 27, 2003 and earn future benefits under the Defined Contribution Plan.

Inactive participants who are rehired after April 26, 2003 may resume participation in the Plan if certain requirements are met. Employees hired prior to April 27, 2003 who are participants in the Pension Plan for Bargaining Unit Employees of TriMet (“Union Plan”) may become participants in this Plan if they transfer to a management position.

An eligible employee is any management or staff (non-bargaining) common-law employee except those covered by a collective bargaining agreement that does not provide for participation in this Plan, leased employees, employees classified to work less than half time, employees hired on or after April 27, 2003, and employees who transferred their accrued benefit to the Defined Contribution Plan.

2. Credited Service

Credited service includes all periods of service while a participant in the Plan, including military service, authorized vacation, periods of disability (if entitled to benefits under the TriMet Long-Term Disability Policy), periods of service in the Oregon State Legislative Assembly, authorized leave of absence (subject to return to work rules), part time work (i.e., at least 20 but less than 40 hours per week), and work for predecessor employers.

Credited service does not include periods in which TriMet is required to make contributions to Oregon PERS or to any other state mandated retirement program, periods in which the employee is covered by another TriMet retirement plan (including the Defined Contribution Plan and the Union Plan), and service prior to a break in service.

Periods of service are measured in years and whole months. Each twelve month period of credited service equals one year of credited service and partial years are based on the number of complete months worked divided by 12. Part-time employees earn partial credited service based on the percentage of full-time employment.

APPENDIX C – SUMMARY OF PLAN PROVISIONS

3. Vesting Service

All credited service plus any period of service (not already counted as credited service) when an employee is entitled to payment for services rendered to TriMet, excluding service preceding a permanent break in service.

Periods of service are measured in years and whole months. Each twelve month period of vesting service equals one year of vesting service and partial years are based on the number of complete months worked divided by 12.

4. Contributions

Member

There are no member contributions.

Employer

TriMet makes contributions in accordance with its funding policy which is to be determined in accordance with accepted actuarial principles.

5. Normal Retirement

Eligibility

Age 62

Basic Benefit

The basic benefit is a monthly benefit payable for life equal to 1/12 of 1.75% of final average salary multiplied by credited service. Certain executives who became participants on or before July 1, 2008 receive a different percentage of final average earnings.

Final average salary means 1/3 of the 36 highest consecutive months of base earnings. If the employee is totally disabled, final average salary includes only base earnings paid prior to the onset of disability. Final average salary during a period when an employee is part-time is the employee's salary during the period divided by the percentage of time the part-time employee worked relative to a full time employee.

Sick Leave Supplement

For participants who retire on or after July 1, 2000, hours of unused sick leave are converted to either a monthly annuity supplement or a lump sum distribution.

**TRIMET DEFINED BENEFIT RETIREMENT PLAN FOR MANAGEMENT AND STAFF EMPLOYEES
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APPENDIX C – SUMMARY OF PLAN PROVISIONS

- The monthly annuity supplement is equal to 50% of hours of sick leave multiplied by the final average hourly rate, divided by 101.9.
- The lump sum distribution is equal to 50% of hours of sick leave multiplied by the final average hourly rate, multiplied by 1.107.

The final average hourly rate is the participant's final average salary divided by 2,080.

Hours of sick leave are the lesser of the participant's hours of unused sick leave or the maximum hours of sick leave from the table below.

Effective	Maximum Hours of Sick Leave
July 1, 2000	1,400 hours
March 22, 2005	1,500 hours
December 1, 2005	1,550 hours
December 1, 2006	1,600 hours
December 1, 2007	1,650 hours
December 1, 2008	1,700 hours

6. Early Retirement

Eligibility

Age 55 and 5 years of vesting service.

Benefit

The normal retirement benefit is actuarially reduced based on the UP 1984 mortality table, adjusted to reflect a population that is 50% male and 50% female, and 7.5% interest.

7. Disability Retirement

The Plan does not provide for a disability benefit. However, participants who become entitled to receive disability benefits under the TriMet Long-Term Disability Policy continue to earn credited service toward their normal retirement benefit while disabled.

8. Termination Benefit

Eligibility

5 Years of vesting service.

APPENDIX C – SUMMARY OF PLAN PROVISIONS

Benefit

Normal retirement benefit commencing at age 62 or early retirement benefit commencing as early as age 55.

9. Forms of Payment

The following forms of payment are available:

- Single Life Annuity
- 66-2/3% Joint and Survivor Annuity
- Lump Sum

10. Pre-Retirement Death Benefit

The monthly payment payable to the surviving spouse or domestic partner of a vested participant is equal to the survivor portion of the 66 2/3% joint and survivor annuity which the spouse or domestic partner would have received had the participant retired at the time of his or her death (if eligible for retirement), otherwise as if the participant terminated employment on his or her date of death (if not already terminated), survived to the earliest age at which he or she could have elected to retire, retired with a 66 2/3% joint and survivor annuity, and died the following day.

The payment to the surviving spouse commences on the later of the participant's normal retirement date, or the participant's date of death. However, the spouse may commence actuarially reduced benefits following the earliest date the participant could have elected early retirement.

The payment to the domestic partner must commence no later than the December 31 of the calendar year following the participant's death. If the commencement date is earlier than the participant's age 55, the survivor benefit will be actuarial reduced to the commencement date.

11. Post-retirement Cost-of-Living Benefit

Post-retirement benefits for participants who retire after May 31, 1984 are increased each April 1 by 90% of the percentage increase in the U.S. Urban Wage Earners and Clerical Workers Consumer Price Index (CPI-W) (annual average) for the previous calendar year. Annual increases will not be more than 7% per year and benefits will not be decreased if the annual CPI decreases.

12. Changes Since the Last Valuation

None.

**TRIMET DEFINED BENEFIT RETIREMENT PLAN FOR MANAGEMENT AND STAFF EMPLOYEES
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APPENDIX C – SUMMARY OF PLAN PROVISIONS

Note: The summary of major plan provisions is designed to outline principal plan benefits. If TriMet should find the plan summary not in accordance with the actual provisions, the actuary should immediately be alerted so the proper provisions are valued.

APPENDIX D – GLOSSARY OF TERMS

1. Actuarial Liability

The Actuarial Liability is the difference between the present value of future benefits and the present value of total future normal costs. This is also referred to as the “accrued liability” or “actuarial accrued liability.” The Actuarial Liability represents the targeted amount of assets a plan should have as of a valuation date according to the actuarial cost method.

2. Actuarial Assumptions

Estimates of future experience with respect to rates of mortality, disability, turnover, retirement rate or rates of investment income, and salary increases. Demographic actuarial assumptions (rates of mortality, disability, turnover, and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (price inflation, wage inflation, and investment income) are generally based on expectations for the future that may differ from the Plan’s past experience.

3. Actuarial Cost Method

A mathematical budgeting procedure for allocating the dollar amount of the present value of future benefits between future normal cost and Actuarial Liability.

4. Actuarial Gain (Loss)

The difference between actual experience and the anticipated experience based on the actuarial assumptions during the period between two actuarial valuation dates.

5. Actuarial Present Value

The amount of funds currently required to provide a payment or series of payments in the future. It is determined by discounting future payments at the discount rate and by probabilities of payment.

6. Actuarial Valuation Date

The date as of which an actuarial valuation is performed. For GASB purposes, this date may be up to 24 months prior to the GASB 67/68 measurement date and up to 30 months prior to the employer’s financial reporting date.

7. Actuarially Determined Contribution

The payment to the Plan as determined by the actuary using a contribution allocation procedure. It may or may not be the actual amount contributed to the Plan.

APPENDIX D – GLOSSARY OF TERMS

8. Amortization Method

A method for determining the amount, timing, and pattern of payments on the Unfunded Actuarial Liability.

9. Asset Valuation Method

The method used to develop the Actuarial Value of Assets from the Market Value of Assets typically by smoothing investment returns above or below the assumed rate of return over a period of time.

10. Contribution Allocation Procedure

A procedure typically using an actuarial cost method, an asset valuation method, and an amortization method to develop the Actuarially Determined Contribution.

11. Deferred Inflow of Resources

An acquisition of net assets by a government employer that is applicable to a future reporting period. In the context of GASB 68, these are experience gains on the Total Pension Liability, assumption changes reducing the Total Pension Liability, or investment gains that are recognized in future reporting periods.

12. Discount Rate

The rate of interest used to discount future benefit payments to determine the actuarial present value. For purposes of determining an Actuarially Determined Contribution, the discount rate is typically based on the long-term expected return on assets.

13. Entry Age Actuarial Cost Method

The actuarial cost method required for GASB 67 and 68 calculations. Under this method, the actuarial present value of the projected benefits of each individual included in an actuarial valuation is allocated on a level basis over the earnings of the individual between entry age and assumed exit ages. The portion of this actuarial present value allocated to a valuation year is called the Service Cost. The portion of this actuarial present value not provided for at a valuation date by the actuarial present value of future service costs is called the Total Pension Liability.

14. Funded Status or Funding Ratio

The Market or Actuarial Value of Assets divided by the Actuarial Liability. For purposes of this report, the Funded Status represents the proportion of the actual assets compared to the target established by the actuarial cost method as of the valuation date. These measures are

APPENDIX D – GLOSSARY OF TERMS

for contribution budgeting purposes and are not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations.

15. Measurement Date

The date as of which the Total Pension Liability and Plan Fiduciary Net Position are measured. The Total Pension Liability may be projected from the Actuarial Valuation Date to the Measurement Date. The Measurement Date must be the same as the Reporting Date for the plan.

16. Net Pension Liability

The liability of employers and nonemployer contributing entities to employees for benefits provided through a defined benefit pension plan. It is calculated as the Total Pension Liability less the Plan Fiduciary Net Position.

17. Normal Cost

The portion of the present value of future benefits allocated to the current year by the actuarial cost method.

18. Plan Fiduciary Net Position

The fair or Market Value of Assets.

19. Present Value of Future Benefits

The actuarial present value of all benefits both earned as of the valuation date and expected to be earned in the future by current plan members based on current plan provisions and actuarial assumptions.

20. Reporting Date

The last day of the plan or employer's fiscal year.

21. Service Cost

The portion of the actuarial present value of projected benefit payments that is attributed to the current period of employee service in conformity with the requirements of GASB 67 and 68. The Service Cost is the normal cost calculated under the entry age actuarial cost method.

22. Total Pension Liability

The portion of the actuarial present value of projected benefit payments that is attributed to past periods of employee service in conformity with the requirements of GASB 67 and 68.

APPENDIX D – GLOSSARY OF TERMS

The Total Pension Liability is the Actuarial Liability calculated under the entry age actuarial cost method.

23. Unfunded Actuarial Liability (UAL)

The Unfunded Actuarial Liability is the difference between Actuarial Liability and either the Market or the Actuarial Value of Assets. This value is sometimes referred to as “unfunded actuarial accrued liability.” It represents the difference between the actual assets and the amount of assets expected by the actuarial cost method as of the valuation date.



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