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TriMet Defined Benefit Retirement Plan for Management and Staff Employees

Actuarial Valuation Report as of July 1, 2019

Produced by Cheiron

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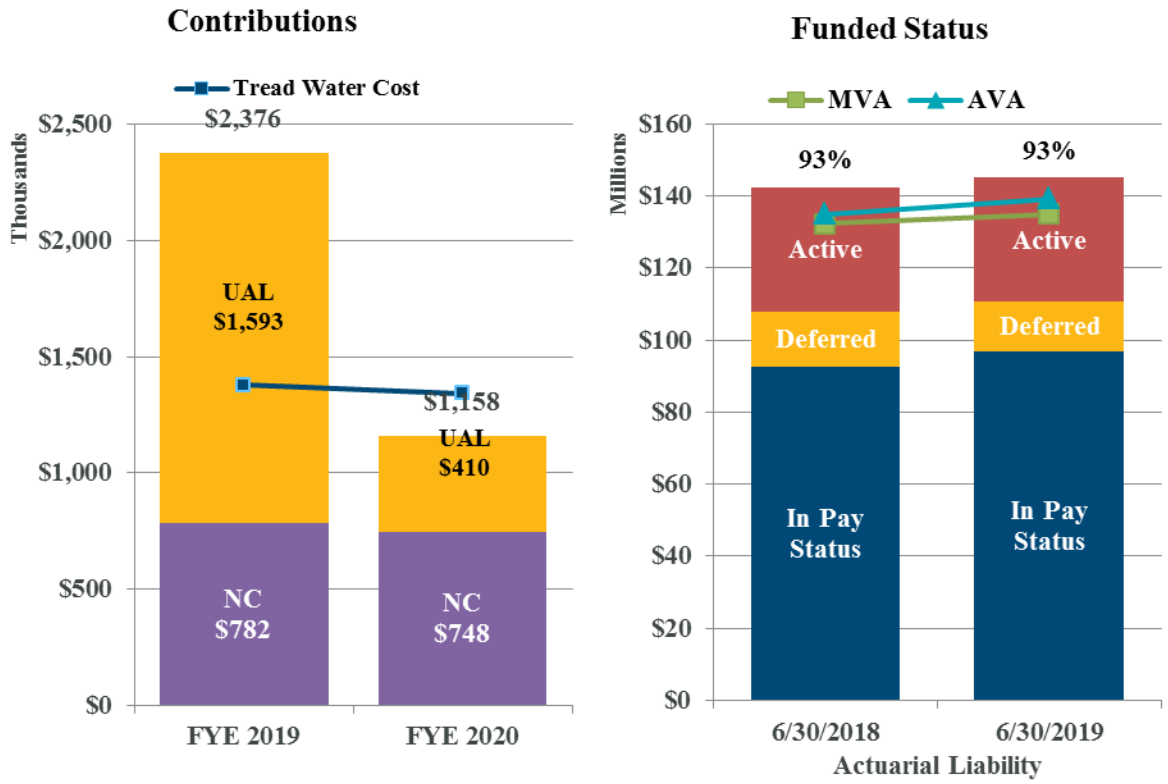

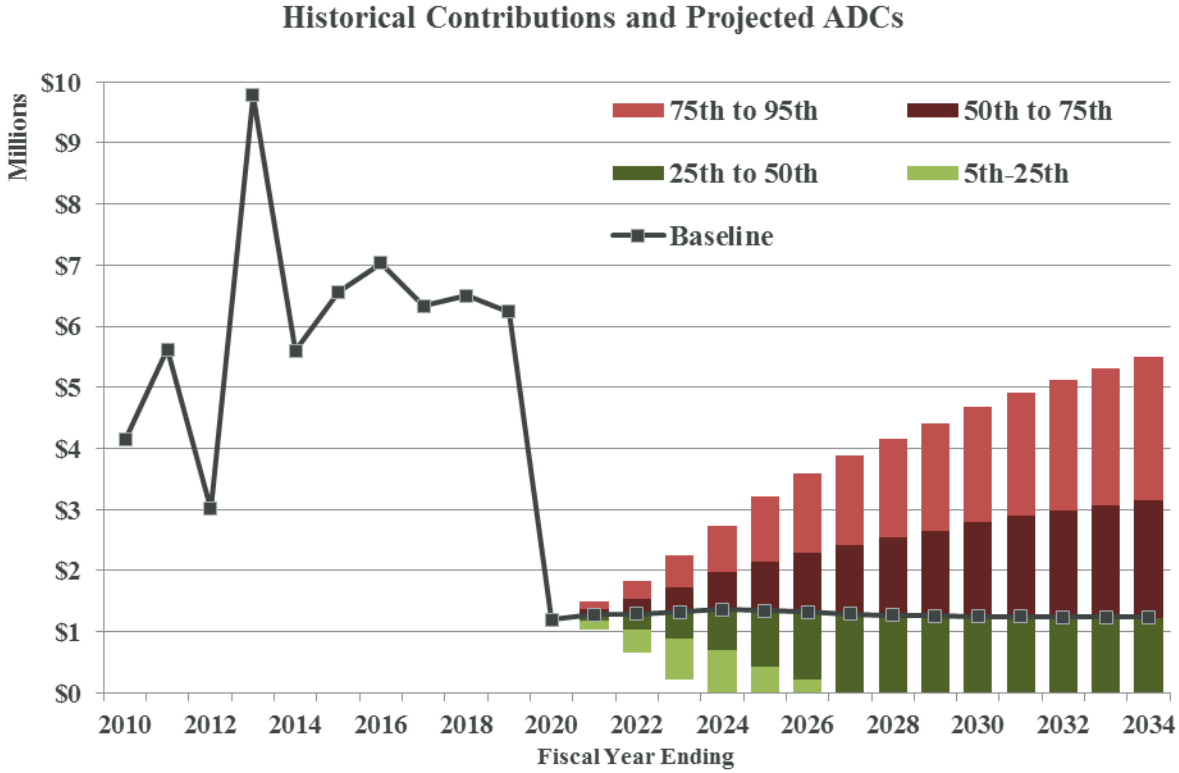

SECTION I – BOARD SUMMARY

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, 2019 and 2020, 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 based on the Market Value of Assets. 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 2019, actual contributions were approximately $6.2 million, exceeding the ADC and paying off approximately $4.9 million of the UAL. In addition to the reduction in the UAL, the normal cost dropped due to retirements and terminations and the amortization policy was extended to 20-year layers. As a result, the ADC for FYE 2020 is approximately $1.2 million as of the beginning of the year, significantly lower than the $2.4 million for FYE 2019.

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 2018 and 2019. The pension expense increased significantly between FYE 2018 and FYE 2019 primarily due to the recognition of investment losses over a five-year period. The ADC declined significantly and actual contributions declined about 4%.

Table I-1

Annual Contributions and Pension Expense

	FYE 2019	FYE 2018	% Change
Pension Expense ($ Amount)	$ 4,497,108	$ 2,702,688	66.4%
Actuarially Determined Contribution	$ 2,442,684	$ 3,252,729	-24.9%
Actual Contribution	6,240,470	6,496,842	-3.9%
Contribution Deficiency/(Excess)	$ (3,797,786)	$ (3,244,113)	17.1%

As shown by the chart at the bottom of the dashboard, actual contributions have exceeded $6 million for six of the last seven years, which is significantly more than the ADC. Given the plan's funded status, we understand there is no longer a plan to make contributions in excess of

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the ADC. For FYE 2020 and in the future, the projections in the chart reflect 20-year layered amortizations and assume that the ADC is contributed. The baseline represents the projected ADC if all assumptions are met, and it shows the ADC decreasing significantly for FYE 2020 and remaining relatively stable in later years. The range of the bars represents the potential range of the ADC based on the potential range of actual investment returns. For these projections, we used an expected return of 6.3% and a standard deviation of 7.4%.

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.

SECTION I – BOARD SUMMARY

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 65% to about 67%. 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 remained level at 93%.

Table I-2 below summarizes the Actuarial Liability, assets, and funded status as of July 1, 2018 and 2019.

Table I-2

Summary of Funded Status	July 1, 2019	July 1, 2018	% Change
Actuarial Liability			
Actives	$ 34,422,296	$ 34,281,060	0.4%
Deferred Vested	13,759,554	15,432,555	-10.8%
In Pay Status	96,775,921	92,575,030	4.5%
Total	$ 144,957,771	$ 142,288,645	1.9%
Market Value of Assets (MVA)	$ 134,945,765	$ 132,252,588	2.0%
Unfunded Actuarial Liability - MVA Basis	$ 10,012,006	$ 10,036,057	-0.2%
Funding Ratio - MVA Basis	93.1%	92.9%	0.2%
Actuarial Value of Assets (AVA)	$ 139,253,630	$ 134,940,985	3.2%
Unfunded Actuarial Liability - AVA Basis	$ 5,704,141	$ 7,347,660	-22.4%
Funding Ratio - AVA Basis	96.1%	94.8%	1.3%

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

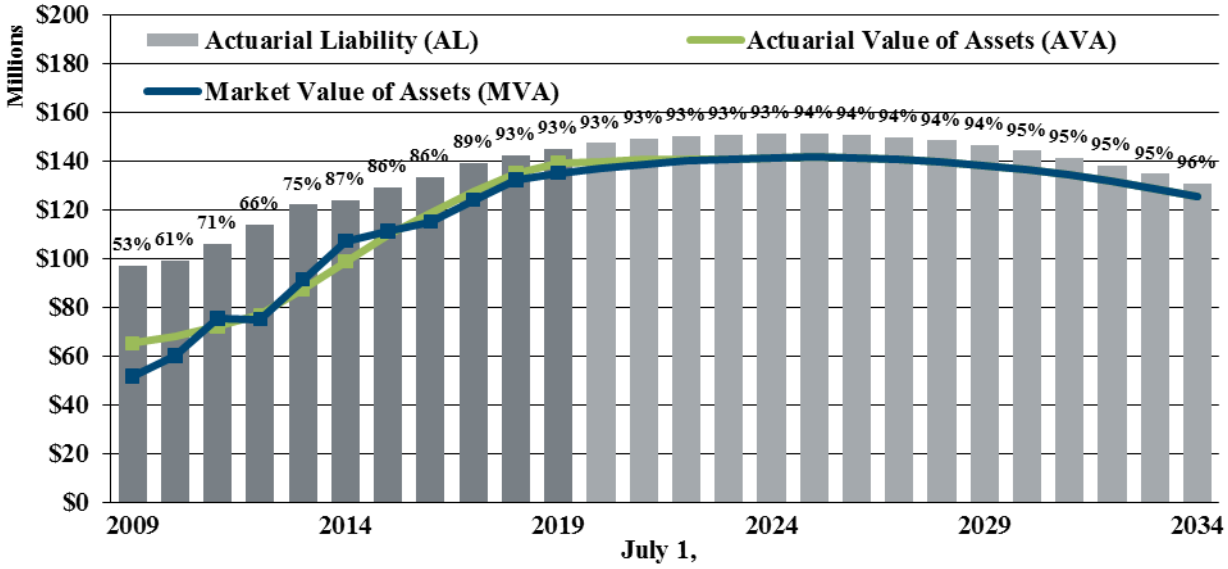
SECTION I – BOARD SUMMARY

only increased 1.9% reflecting the interest and the accrual of benefits by active members offset by benefit payments. The Market Value of Assets increased 2.0% due to contributions and investment returns offset by benefit payments and expenses. As a result, the Unfunded Actuarial Liability (UAL) measured on the Market Value of Assets (MVA) remained level at approximately $10.0 million, and the funding ratio on an MVA basis increased from 92.9% to 93.1%.

The asset smoothing method deferred 80% of the current year's investment loss while recognizing 20% of the prior four years' gains and losses, resulting in a 3.2% increase in the total Actuarial Value of Assets. The UAL measured on the Actuarial Value of Assets decreased from approximately $7.3 million to $5.7 million and the funding ratio increased from 94.8% to 96.1%. 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). 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 96% by 2034.

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.

SECTION I – BOARD SUMMARY

Changes

During FYE 2019, the UAL decreased by less than $0.1 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, 2019	$	10,012,006
UAL/NPL, July 1, 2018		10,036,057
Change in UAL/NPL	**$**	**(24,051)**
Sources of Changes		
Plan Changes	$	0
Assumption Changes		0
Contributions vs. Tread Water Cost		(4,932,408)
Investment (gain) or loss		4,511,458
Liability (gain) or loss		
Salary experience	$	957,060
Termination experience		(624,206)
COLA experience		(578,726)
Mortality		375,551
Other experience		267,220
Total Liability (gain) or loss	$	396,899
Total Changes	**$**	**(24,051)**

The most significant source of the reduction in the UAL is that actual contributions exceeded the Tread Water Cost by approximately $4.9 million. Investment returns on the Market Value of Assets fell short of assumed returns by about $4.5 million. Higher than expected salary increases were offset by higher than expected terminations and lower than expected retiree COLAs. There were mortality losses primarily due to the addition of another year of projected mortality improvement and other experience resulting in a small loss 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, 2019	July 1, 2018	% Change
Membership			
Actives	76	84	-9.5%
Deferred	92	100	-8.0%
In Pay Status	314	306	2.6%
Total	482	490	-1.6%
Active Member Payroll	$ 6,668,849	$ 6,944,533	-4.0%
Actuarial Liability/Total Pension Liability	$ 144,957,771	$ 142,288,645	1.9%
Market Value of Assets/Fiduciary Net Position	134,945,765	132,252,588	2.0%
Unfunded Actuarial Liability/Net Pension Liability	$ 10,012,006	$ 10,036,057	-0.2%
Deferred Outflows of Resources	(4,374,018)	(2,662,928)	64.3%
Deferred Inflows of Resources	0	8,221	-100.0%
Net Impact on Statement of Net Position	$ 5,637,988	$ 7,381,350	-23.6%
Funding Ratio - MVA Basis	93.1%	92.9%	0.1%
Actuarially Determined Contribution	$ 1,190,880	$ 2,442,684	-51.2%

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. Extending the amortization policy to reflect 20-year layers beginning with FYE 2020 will reduce potential contribution volatility near term because the prior policy was based on a very short remaining amortization period.

The table on the next page shows a 9-year history of changes in the UAL by source.

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

UAL Change by Source						
FYE	Plan Changes	Assumption Changes	Contributions vs. Tread Water	Investments	Liability Experience	Total UAL Change
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	(4,050,581)	(723,554)	1,441,063	(3,333,072)
2018	0	0	(4,674,240)	(292,943)	(28,774)	(4,995,957)
2019	0	0	(4,932,408)	4,511,458	396,899	(24,051)
Total	**$ 1,711,031**	**$ (865,833)**	**$ (33,941,682)**	**$ (803,635)**	**$ 5,171,706**	**$ (28,728,413)**

Over the last nine years, the UAL has been reduced by approximately $28.7 million. Contributions reduced the UAL by $33.9 million and investment returns reduced the UAL by $0.8 million while liability experience increased the UAL by $5.2 million.

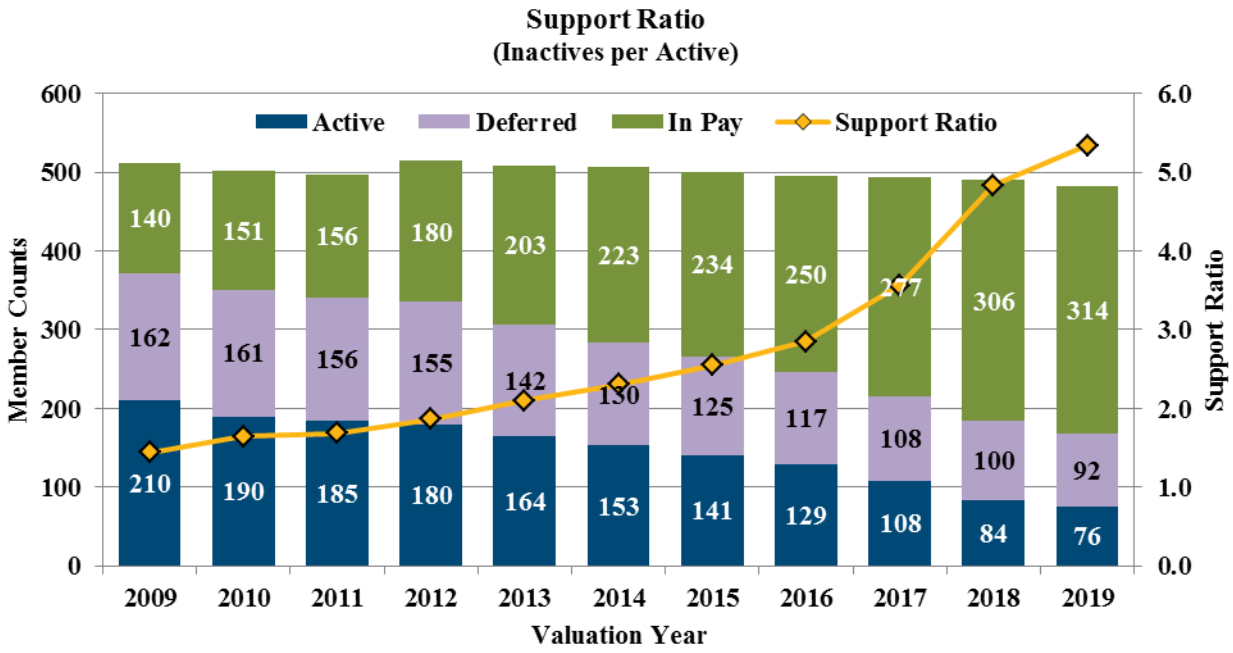
Plan Maturity Measures

Plan maturity can be measured in a variety of ways, but there is one very important 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, but the Plan has been becoming smaller compared to TriMet as a whole.

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

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 10 years.

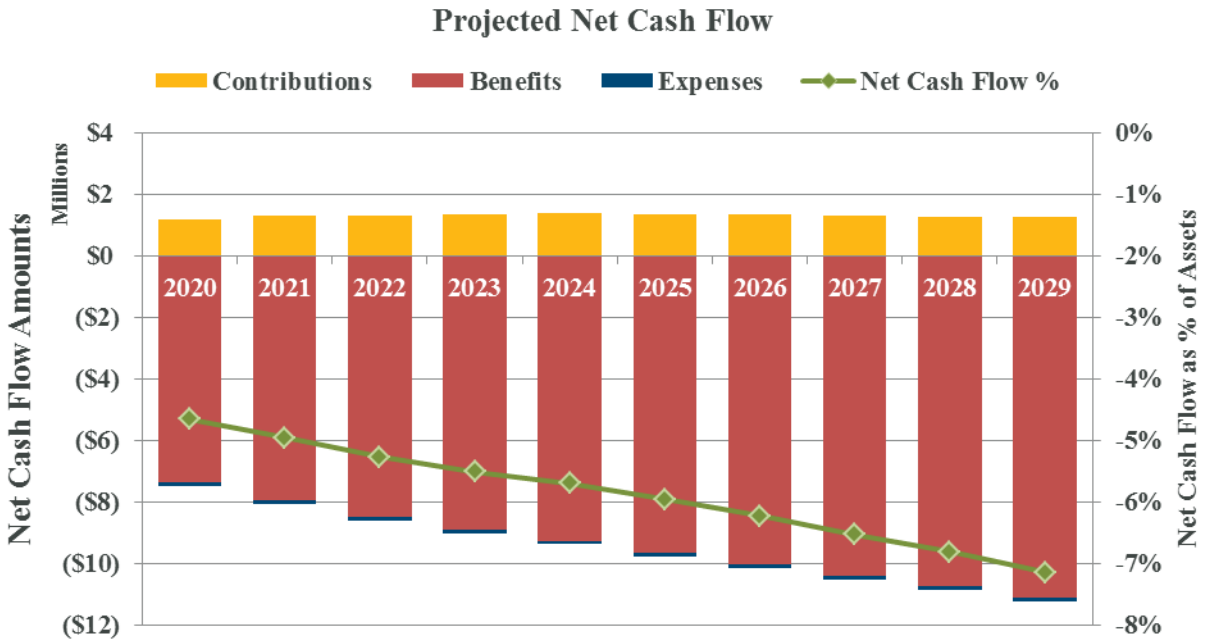


SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

Net Cash Flow

The net cash flow of the plan as a percentage of the beginning of year assets indicates the sensitivity of the plan to short-term investment returns. Net cash flow is equal to contributions less benefit payments and administrative expenses. Mature plans can have large amounts of benefit payments compared to contributions, particularly if they are well funded.

The chart below shows the projected net cash flow for the next 10 fiscal years. The bars represent the dollar amounts of the different components of the projected net cash flow, and the line represents the net cash flow as a percentage of the assets as of the beginning of the fiscal year.



While TriMet was contributing amounts significantly greater than the ADC to improve the funded status of the Plan, the net cash flow was positive. Now that the Plan is well funded and contributions have been reduced, the net cash flow is negative and expected to become increasingly negative as benefit payments grow. The negative cash flow can be exacerbated in any given year by lump sum payments.

The first issue this change presents to the Plan is a need for liquidity in the investments so that benefits can be paid. When the cash flow was positive, benefits could be paid out of contributions without liquidating investments. Now, the benefit payments will require liquidation of some investments (at least to the extent the bond portfolio doesn't generate sufficient cash income).

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

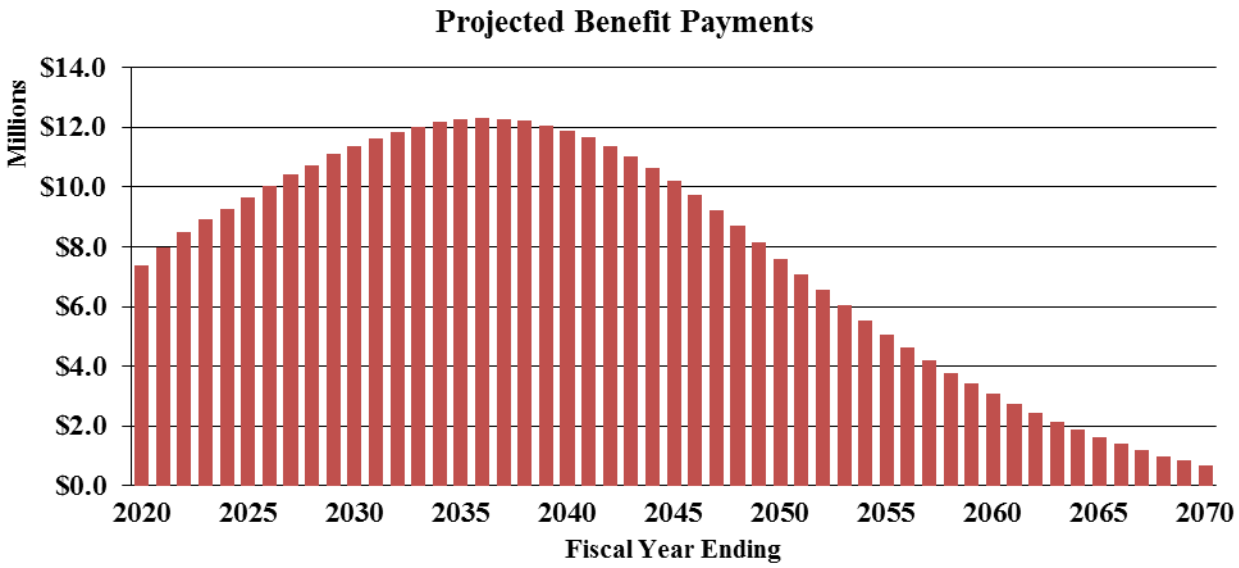
The other change of note is the sensitivity to short-term investment returns. Investment losses in the short term are compounded by the net withdrawal from the plan leaving a smaller asset base to try to recover from the investment losses. On the other hand, large investment gains in the short term also tend to have a longer beneficial effect as any future losses are relative to a smaller liability base due to the negative cash flow.

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.

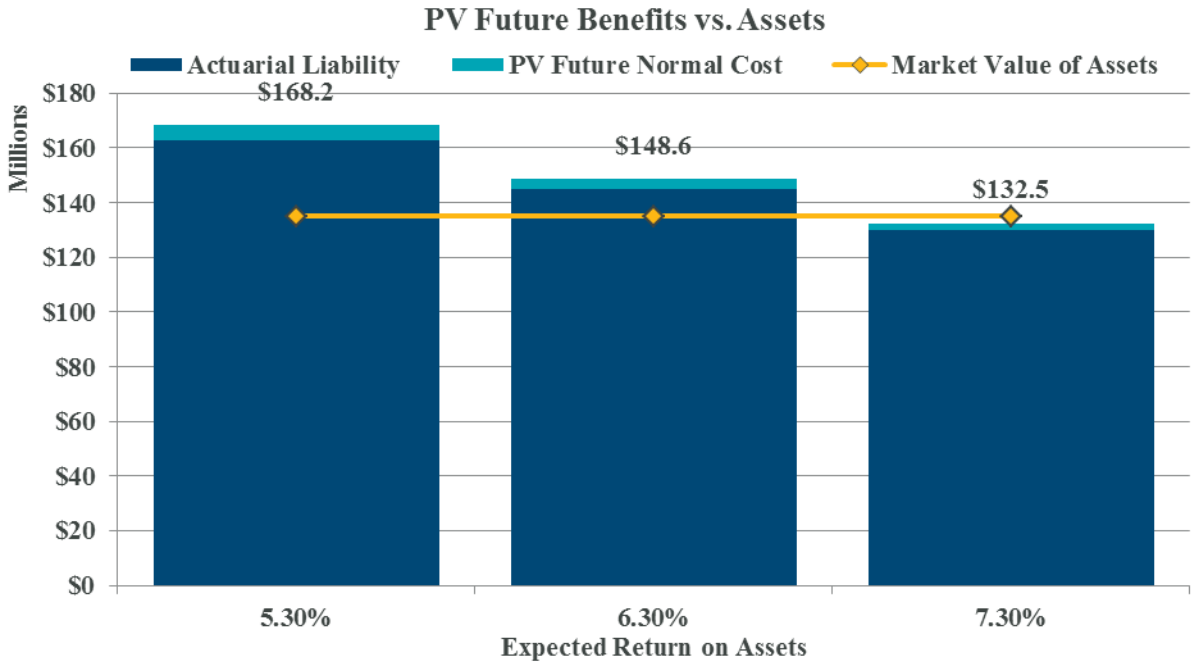
If the Plan, on the other hand, were to run out of assets, TriMet would be forced to pay benefits directly on a pay-as-you-go basis. As long as TriMet can afford the pay-as-you-go costs, benefits would remain secure. The chart below shows a projection of expected benefit payments for the closed plan.



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 $148.6 million in assets today to pay all projected benefits compared to current assets of $134.9 million. If investment returns are only 5.3%, the Plan would need approximately $168.2 million in assets today, and if investment returns are 7.3%, the Plan already has sufficient assets to pay all projected benefits.

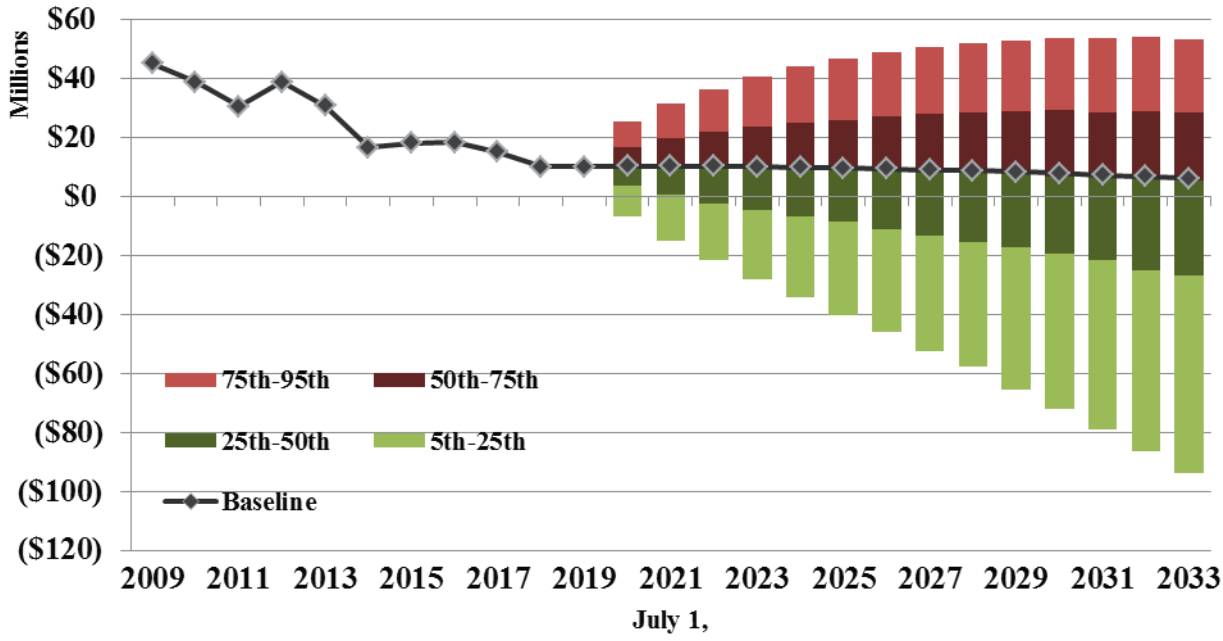
The present value of future benefits shown above, however, assumes annual inflation of 2.5%. If annual inflation is higher; more assets would be needed to pay the benefits, and if inflation is lower; fewer assets would be needed to pay benefits. In this case, it is better to think of the sensitivity 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 (page 1) shows a range in future ADC's. This range is driven by the volatility of investment returns. The chart below shows the projected range of the UAL or surplus on the same basis. Surplus amounts are shown as negative numbers.

Historical and Stochastic Projection of UAL/(Surplus)



While the UAL is projected in the baseline to gradually decline, there is a range of potential outcomes. Poor investment returns could increase the UAL to more than $50 million and increase the ADC to over $5 million. 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 and the recently completed asset-liability study, the advantages of a more detailed assessment may not justify its costs at this time.

SECTION III – CERTIFICATION

The purpose of this report is to present the July 1, 2019 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 along with the recent asset-liability study and believe the assumptions to be reasonable.

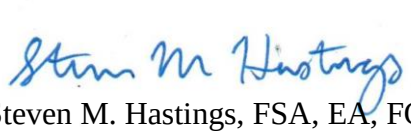
The liability measures and funding ratios in this report are for the purpose of establishing contribution rates. These measures are not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the Plan's benefit obligations.

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.

This report and its contents have been prepared in accordance with generally recognized and accepted actuarial principles and practices and our understanding of the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board as well as applicable laws and regulations. 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, FCA, MAAA
Consulting Actuary

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 2019	FYE 2018
Market Value, Beginning of Year	$ 132,252,588	$ 123,955,858
Contributions	6,240,470	6,496,842
Net Investment Earnings	3,786,540	8,108,016
Benefit Payments	(7,197,158)	(6,211,442)
Administrative Expenses	(136,675)	(96,686)
Market Value, End of Year	**$ 134,945,765**	**$ 132,252,588**

The Market Value of Assets increased from approximately $132.3 million as of June 30, 2018 to $134.9 million as of June 30, 2019. Actual contributions were less than benefit payments and administrative expenses by approximately $1.1 million, so almost 30% of investment earnings were used to cover the net negative cash flow before increasing the market value. We expect the rate of negative cash flow to increase significantly over the next several years which may impact the liquidity needs of the portfolio.

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 2.97% 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.

SECTION IV – ASSETS

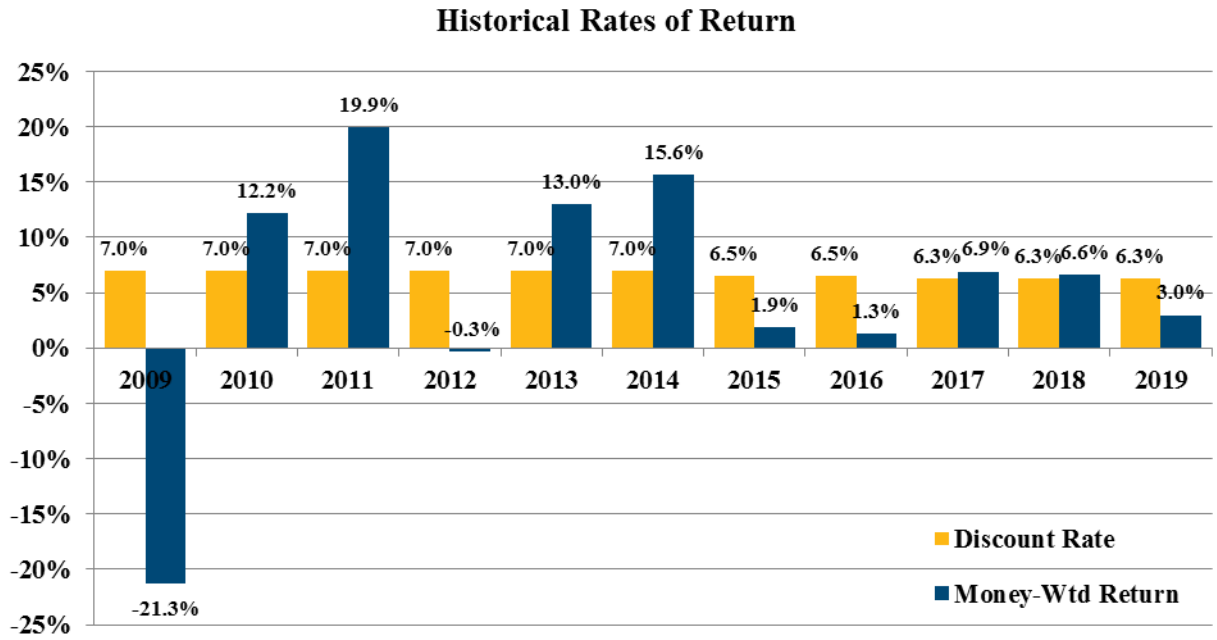
Table IV-2

Money-Weighted Rate of Return Fiscal Year Ending June 30, 2019	Net External Cash Flows	Months Invested	Net External Cash Flows With Interest
Beginning Value, July 1, 2018	$ 132,252,588	12	$ 136,187,040
Monthly Net External Cash Flows			
July	(11,019)	11	(11,319)
August	(20,634)	10	(21,144)
September	(42,499)	9	(43,443)
October	(131,902)	8	(134,505)
November	(56,558)	7	(57,534)
December	(86,699)	6	(87,979)
January	(566,980)	5	(573,948)
February	456,772	4	461,257
March	(76,919)	3	(77,485)
April	(71,674)	2	(72,025)
May	(500,099)	1	(501,322)
June	(121,827)	0	(121,827)
Ending Value, June 30, 2019			$ 134,945,765
Money-Weighted Rate of Return	2.97%		

The money-weighted rate of return for the year ended June 30, 2019 was 2.97% compared to an expected return of 6.30%. As shown in the chart on the following page, over the last 10 years the money-weighted rate of return[1] 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.

SECTION IV – ASSETS



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 2019, the 2.97% return compared to the expected return of 6.30% produced an investment loss of approximately $4.5 million.

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.

SECTION IV – ASSETS

Table IV-3

Development of Actuarial Value of Assets					
	FYE 2016	FYE 2017	FYE 2018	FYE 2019	Total
Market Value of Assets (MVA)					$ 134,945,765
Actual Earnings	$ 1,459,796	$ 7,990,589	$ 8,108,016	$ 3,786,540	
Expected Earnings	7,279,232	7,267,035	7,815,073	8,297,998	
Investment Gain or (Loss)	(5,819,436)	723,554	292,943	(4,511,458)	
Percentage Deferred	20%	40%	60%	80%	
Deferred Gain or (Loss)	$(1,163,887)	$ 289,422	$ 175,766	$(3,609,166)	$ (4,307,865)
Preliminary Actuarial Value of Assets (MVA less Deferred Gain or (Loss))					$ 139,253,630
Minimum Actuarial Value of Assets (80% of Market Value)					107,956,612
Maximum Actuarial Value of Assets (120% of Market Value)					161,934,918
Actuarial Value of Assets (AVA)					**$ 139,253,630**
Ratio of Actuarial to Market					103.2%
Estimated Rate of Return					4.0%

On an Actuarial Value of Assets basis, the aggregate return for the year ending June 30, 2019 was 4.0%, less than the assumed return of 6.30%. This return on the Actuarial Value of Assets produced an investment loss of about $3.1 million for the year ending June 30, 2019.

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, 2019 and July 1, 2018.

Table V-1

Present Value of Future Benefits			
	July 1, 2019	July 1, 2018	% Change
Actives	$ 38,065,790	$ 38,346,623	-0.7%
Deferred	13,759,554	15,432,555	-10.8%
In Pay Status	96,775,921	92,575,030	4.5%
Total	**$ 148,601,265**	**$ 146,354,208**	**1.5%**

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, 2019 and July 1, 2018.

Table V-2

Actuarial Liability	July 1, 2019	July 1, 2018	% Change
Actives			
Retirement	$ 34,477,894	$ 34,317,180	0.5%
Termination	(55,598)	(36,120)	53.9%
Death	0	0	
Disability	0	0	
Total Actives	$ 34,422,296	$ 34,281,060	0.4%
Deferred			
Vested Terminated	$ 12,010,251	$ 13,553,665	-11.4%
Transfers	1,147,394	1,157,543	-0.9%
Leaves and Disabled	601,909	721,347	-16.6%
Total Deferred	$ 13,759,554	$ 15,432,555	-10.8%
In Pay Status	$ 96,775,921	$ 92,575,030	4.5%
Total	**$ 144,957,771**	**$ 142,288,645**	**1.9%**

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, 2019 and July 1, 2018.

Table V-3

Normal Cost	July 1, 2019	July 1, 2018	% Change
Retirement	$ 590,603	$ 618,966	-4.6%
Termination	60,110	66,310	-9.4%
Death	0	0	
Disability	0	0	
Total Normal Cost	**$ 650,713**	**$ 685,276**	**-5.0%**

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 Plan's funded status and the potential to develop a surplus and in accordance with the TriMet Board's Funding Policy, the amortization policy has been extended to a 20-year layered amortization beginning with this valuation. Table VI-1 provides the payment schedule over the next 20 years to amortize the UAL based on the Actuarial Value of Assets assuming payments are made at the beginning of each year.

SECTION VI – CONTRIBUTIONS

Table VI-1

UAL Amortization			
Valuation Year	Outstanding Balance	Remaining Period	Payment Amount
2019	$ 5,704,141	20	$ 410,472
2020	5,627,170	19	418,681
2021	5,536,624	18	427,055
2022	5,431,472	17	435,596
2023	5,310,617	16	444,308
2024	5,172,886	15	453,194
2025	5,017,033	14	462,258
2026	4,841,726	13	471,503
2027	4,645,547	12	480,933
2028	4,426,985	11	490,552
2029	4,184,429	10	500,363
2030	3,916,162	9	510,370
2031	3,620,357	8	520,577
2032	3,295,066	7	530,989
2033	2,938,214	6	541,609
2034	2,547,592	5	552,441
2035	2,120,845	4	563,490
2036	1,655,469	3	574,759
2037	1,148,794	2	586,255
2038	597,980	1	597,980

SECTION VI – CONTRIBUTIONS

Actuarially Determined Contribution

Table VI-2 shows the components of the Actuarially Determined Contribution (ADC) for FYE 2020 and 2019. 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 2020	FYE 2019	% Change
Total Normal Cost	$ 650,713	$ 685,276	-5.0%
Administrative Expenses	96,991	96,991	0.0%
UAL Payment	410,472	1,593,327	-74.2%
Total ADC (Beginning of Year)	**$ 1,158,176**	**$ 2,375,594**	**-51.2%**
Equivalent Monthly Contribution	**$ 99,240**	**$ 203,557**	**-51.2%**
Annual Amount (Equivalent Monthly Contribution x 12)	**$ 1,190,880**	**$ 2,442,684**	**-51.2%**

SECTION VII – GASB 67 AND 68 DISCLOSURES

This section of the report provides accounting and financial reporting information under Governmental 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 a 20-year period.

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.

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 6/30/2018	$ 142,288,645	$ 132,252,588	$ 10,036,057
Changes for the year:			
Service cost	685,276		685,276
Interest	8,784,109		8,784,109
Changes of benefits	0		0
Differences between expected and actual experience	396,899		396,899
Changes of assumptions	0		0
Contributions - employer		6,240,470	(6,240,470)
Contributions - member		0	0
Net investment income		3,786,540	(3,786,540)
Benefit payments	(7,197,158)	(7,197,158)	0
Administrative expense		(136,675)	136,675
Net changes	2,669,126	2,693,177	(24,051)
Balances at 6/30/2019	$ 144,957,771	$ 134,945,765	$ 10,012,006

During the measurement year, the NPL decreased by approximately $24,000. 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 $9.9 million. In addition, there was an experience loss that increased the NPL by approximately $0.4 million.

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

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	$ 162,933,239	$ 144,957,771	$ 129,931,819
Plan Fiduciary Net Position	134,945,765	134,945,765	134,945,765
Net Pension Liability	$ 27,987,474	$ 10,012,006	$ (5,013,946)
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	82.8%	93.1%	103.9%

A one percent decrease in the discount rate increases the TPL by approximately 12.4% and increases the NPL by approximately 180%. A one percent increase in the discount rate decreases the TPL by approximately 10.4% and decreases the NPL by approximately 150%.

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 TriMet implemented GASB 67.

Table VII-3

Schedule of Changes in Net Pension Liability and Related Ratios

	FYE 2019	FYE 2018	FYE 2017	FYE 2016	FYE 2015	FYE 2014	FYE 2013	FYE 2012	FYE 2011
Total Pension Liability									
Service cost (BOY)	$ 685,276	$ 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)	8,784,109	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	0	1,711,031	0	0
Differences between expected and actual experience	396,899	(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	0	474,280	(2,177,859)	(531,299)	1,015,215	263,570	90,260
Benefit payments, including refunds of member contributions	(7,197,158)	(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	**$ 2,669,126**	**$ 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	**142,288,645**	**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	**$ 144,957,771**	**$ 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	$ 6,240,470	$ 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	0
Net investment income	3,786,540	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	(7,197,158)	(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	(136,675)	(96,686)	(76,230)	(96,799)	(123,346)	0	0	0	0
Net change in plan fiduciary net position	**$ 2,693,177**	**$ 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	**132,252,588**	**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	**$ 134,945,765**	**$ 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	**$ 10,012,006**	**$ 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	93.09%	92.95%	89.18%	86.23%	86.04%	86.57%	74.91%	65.91%	71.25%
Covered payroll	$ 8,279,708	$ 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	120.92%	106.25%	141.91%	144.36%	141.41%	126.47%	215.38%	260.76%	197.56%

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 2019	FYE 2018	FYE 2017	FYE 2016	FYE 2015	FYE 2014	FYE 2013	FYE 2012	FYE 2011
Actuarially Determined Contribution	$ 2,442,684	$ 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	6,240,470	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)	$ (3,797,786)	$ (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	$ 8,279,708	$ 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	75.37%	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 for FYE 2019

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 period commencing FYE 2014 with payments increasing 2.0% annually (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)

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 2019. 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 1.2 years.

During the year, there was an experience loss of approximately $397,000. Approximately $331,000 of that loss was recognized as an increase in pension expense in the current year and the remainder will be recognized next year, resulting in a deferred outflow of resources as of June 30, 2019 of approximately $66,000. Approximately $8,000 was recognized as a reduction in pension expense in the current year due to experience gains 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 loss of approximately $4,511,000. Approximately $902,000 of that loss 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 $2,663,000 of which $1,964,000 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, 2019 of approximately $4,308,000.

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.

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	$ 66,150	$ 0
Changes in assumptions	0	0
Net difference between projected and actual earnings on pension plan investments	4,307,868	0
Total	**$ 4,374,018**	**$ 0**

Amounts reported as deferred outflows and deferred inflows of resources will be recognized in pension expense as follows:

Measurement year ended June 30:	
2020	1,929,030
2021	698,993
2022	843,705
2023	902,290
2024	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.

SECTION VII – GASB 67 AND 68 DISCLOSURES

Table VII-6

Calculation of Pension Expense	Measurement Year Ending		
	2020	2019	2018
Change in Net Pension Liability	*$ 194,425*	$ (24,051)	$ (4,995,957)
Change in Deferred Outflows	*1,929,030*	(1,711,090)	1,193,582
Change in Deferred Inflows	*0*	(8,221)	8,221
Employer Contributions	*1,194,101*	6,240,470	6,496,842
Pension Expense	***$ 3,317,556***	**$ 4,497,108**	**$ 2,702,688**
Operating Expenses			
Service cost	*$ 650,713*	$ 685,276	$ 919,497
Employee contributions	*0*	0	0
Administrative expenses	*100,000*	136,675	96,686
Total	*$ 750,713*	$ 821,951	$ 1,016,183
Financing Expenses			
Interest cost	*$ 8,945,273*	$ 8,784,109	$ 8,621,492
Expected return on assets	*(8,307,460)*	(8,297,998)	(7,815,073)
Total	*$ 637,813*	$ 486,111	$ 806,419
Changes			
Benefit changes	*$ 0*	$ 0	$ 0
Recognition of assumption changes	0	0	0
Recognition of liability gains and losses	*66,150*	322,528	459,801
Recognition of investment gains and losses	*1,862,880*	2,866,518	420,285
Total	*$ 1,929,030*	$ 3,189,046	$ 880,086
Pension Expense	***$ 3,317,556***	**$ 4,497,108**	**$ 2,702,688**

Figures for the 2020 measurement year are projected

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

amounts due to assumption changes, gains or losses on the TPL, and investment gains or losses. The total pension expense increased by about $1,794,000. The recognition of changes increased by approximately $2,309,000, which is more than the total increase in pension expense.

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, 2019	July 1, 2018	% Change
Count			
Accruing Service	63	70	-10.0%
Frozen Service	13	14	-7.1%
Total	76	84	-9.5%
Average Current Age	56.1	55.4	1.3%
Average Eligibility Service	24.2	23.2	4.3%
Average Benefit Service	19.0	18.1	5.0%
Annual Expected Pensionable Earnings	$ 7,681,682	$ 8,032,607	-4.4%
Average Expected Pensionable Earnings	$ 101,075	$ 95,626	5.7%

APPENDIX A – MEMBERSHIP INFORMATION

Table A-2

In Pay Status Member Data	July 1, 2019	July 1, 2018	% Change
Retired & Disabled			
Count	292	284	2.8%
Average Age	70.5	70.0	0.7%
Total Annualized Benefits	$ 6,757,472	$ 6,363,359	6.2%
Average Annual Benefit	$ 23,142	$ 22,406	3.3%
Beneficiaries & Alternate Payees			
Count	22	22	0.0%
Average Age	71.0	71.1	- 0.1%
Total Annualized Benefits	$ 257,406	$ 251,718	2.3%
Average Annual Benefit	$ 11,700	$ 11,442	2.3%
Total			
Count	314	306	2.6%
Average Age	70.6	70.1	0.7%
Total Annualized Benefits	$ 7,014,878	$ 6,615,077	6.0%
Average Annual Benefit	$ 22,340	$ 21,618	3.3%

APPENDIX A – MEMBERSHIP INFORMATION

Table A-3

Deferred Member Data	July 1, 2019	July 1, 2018	%Change
Vested Terminated Members			
Count	72	77	-6.5%
Average Age	57.5	57.1	0.6%
Total Annualized Benefits	$ 974,154	$ 1,102,393	-11.6%
Average Annual Benefit	$ 13,530	$ 14,317	-5.5%
Transfers to Union			
Count	16	18	-11.1%
Average Age	54.0	54.6	-1.3%
Disability			
Count	2	3	-33.3%
Average Age	62.9	62.1	1.2%
Deferred Beneficiaries			
Count	2	2	0.0%
Average Age	26.6	26.1	1.9%

APPENDIX A – MEMBERSHIP INFORMATION

Table A-4

Change in Plan Membership											
	Active	Active Frozen	Terminated Vested	Transfer to Union	Terminated Vested - Disabled	Transfer to Union - Disabled	Deferred Beneficiary	Retiree	Beneficiary	Alternate Payee	Totals
July 1, 2018	**70**	**14**	**77**	**16**	**3**	**2**	**2**	**284**	**18**	**4**	**490**
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	(1)	(1)	2	0	0	0	0	0	0	0	0
Disabilities	0	0	0	0	0	0	0	0	0	0	0
Retirements	(4)	0	(7)	0	(1)	0	0	12	0	0	0
Deaths	0	0	0	0	0	0	0	(4)	(1)	0	(5)
New Beneficiaries	0	0	0	0	0	0	0	0	1	0	1
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	(2)	0	0	(2)	0	0	0	0	0	0	(4)
July 1, 2019	**63**	**13**	**72**	**14**	**2**	**2**	**2**	**292**	**18**	**4**	**482**

APPENDIX A – MEMBERSHIP INFORMATION

Table A-5

Distribution of Active Members as of July 1, 2019

	Years of Service										
Age	**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**	**Total**
Under 25	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
30 to 34	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
40 to 44	1	1	0	1	0	0	0	0	0	0	3
45 to 49	0	7	0	1	3	1	2	0	0	0	14
50 to 54	0	0	2	3	2	4	4	1	0	0	16
55 to 59	0	0	1	0	9	2	3	4	1	0	20
60 to 64	0	0	2	2	4	4	1	1	1	0	15
65 to 69	0	0	0	0	4	2	1	0	1	0	8
70 and up	0	0	0	0	0	0	0	0	0	0	0
Total Count	1	8	5	7	22	13	11	6	3	0	76

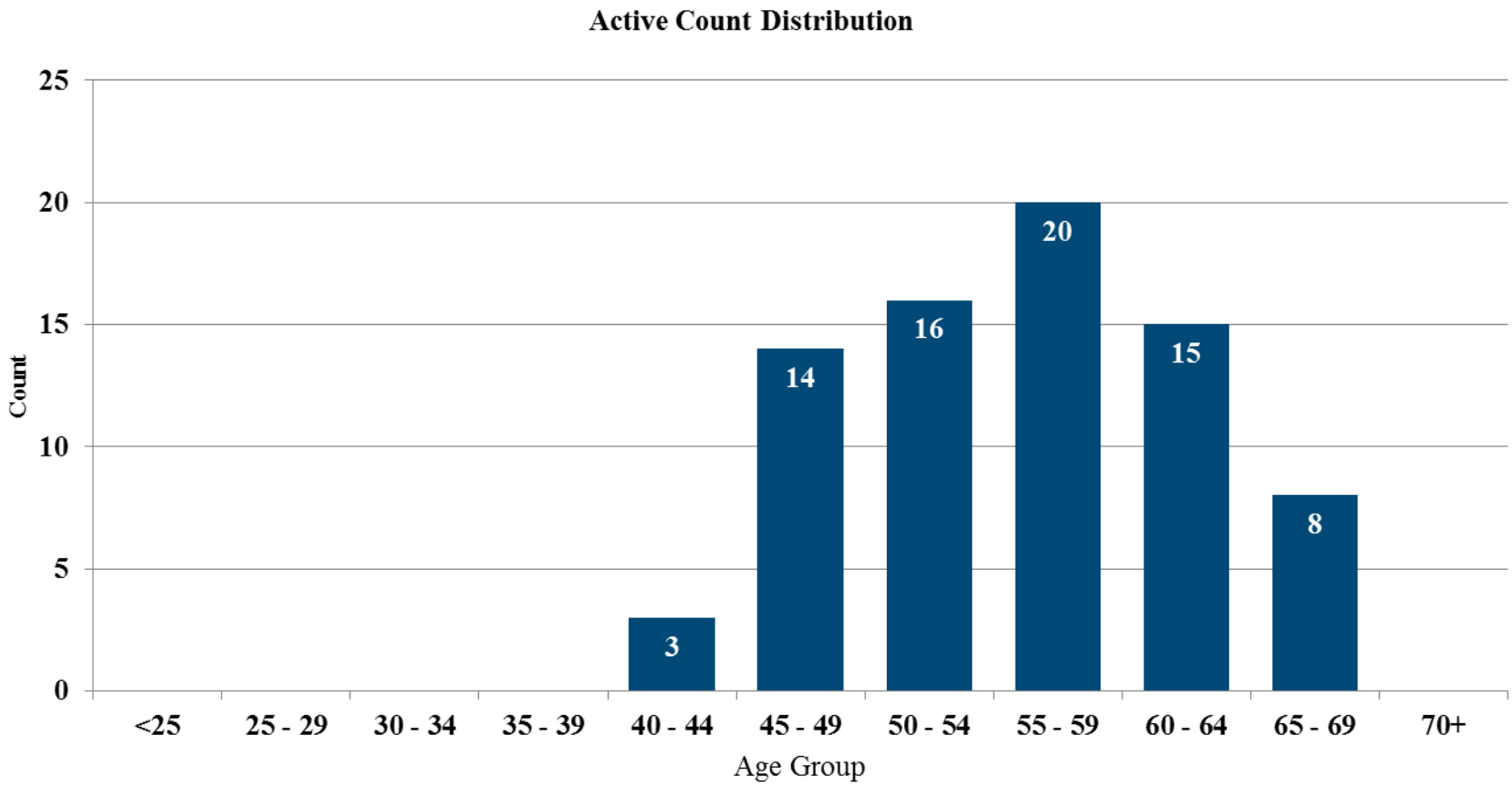
Table A-6

Distribution of Active Members Average Expected Salary as of July 1, 2019

	Years of Service										
Age	**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**	**Total**
Under 25	$ 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
30 to 34	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
40 to 44	92,853	135,000	0	90,282	0	0	0	0	0	0	106,045
45 to 49	0	105,442	0	84,439	119,445	86,894	108,632	0	0	0	106,074
50 to 54	0	0	105,160	84,818	63,600	112,866	93,210	164,717	0	0	98,812
55 to 59	0	0	118,195	0	91,340	104,204	104,914	118,274	121,093	0	102,880
60 to 64	0	0	92,945	93,798	91,980	115,954	120,494	83,843	74,439	0	98,933
65 to 69	0	0	0	0	101,642	91,193	48,090	0	118,890	0	94,492
70 and up	0	0	0	0	0	0	0	0	0	0	0
Avg. Salary	$ 92,853	$ 109,137	$ 102,881	$ 88,110	$ 94,640	$ 107,151	$ 97,585	$ 120,276	$ 104,807	$ 0	$ 101,075

APPENDIX A – MEMBERSHIP INFORMATION

Chart A-1



APPENDIX A – MEMBERSHIP INFORMATION

Table A-7

Retirees and Disabled by Attained Age and Benefit Effective Date
as of July 1, 2019

Benefit Effective Fiscal Year End	Age										
	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	Total
Prior to 1995	0	0	0	0	0	0	2	2	3	5	**12**
1996	0	0	0	0	1	0	0	0	1	0	**2**
1997	0	0	0	0	0	0	2	2	1	0	**5**
1998	0	0	0	0	0	0	1	0	1	0	**2**
1999	0	0	0	0	0	0	2	1	1	0	**4**
2000	0	0	0	0	0	0	0	2	0	0	**2**
2001	0	0	0	0	0	0	0	1	0	0	**1**
2002	0	0	0	0	0	1	2	0	0	0	**3**
2003	0	0	0	0	1	3	4	4	0	0	**12**
2004	0	0	0	0	0	3	11	2	0	0	**16**
2005	0	0	0	0	1	1	2	1	0	0	**5**
2006	0	0	0	0	2	2	6	0	0	0	**10**
2007	0	0	0	0	2	3	0	0	0	0	**5**
2008	0	0	0	0	4	11	1	0	0	0	**16**
2009	0	0	0	0	7	8	2	0	0	0	**17**
2010	0	0	0	0	5	7	0	0	0	0	**12**
2011	0	0	0	0	1	6	0	0	0	0	**7**
2012	0	0	0	0	20	4	0	0	0	0	**24**
2013	0	0	0	1	16	6	0	0	0	0	**23**
2014	0	0	0	3	18	3	0	0	0	0	**24**
2015	0	0	1	2	14	2	0	0	0	0	**19**
2016	0	0	0	1	13	2	1	0	0	0	**17**
2017	0	0	0	15	17	2	0	0	1	0	**35**
2018	0	0	4	17	8	1	0	0	0	0	**30**
2019	0	0	0	6	4	1	0	0	0	0	**11**
Total	**0**	**0**	**5**	**45**	**134**	**66**	**36**	**15**	**8**	**5**	**314**

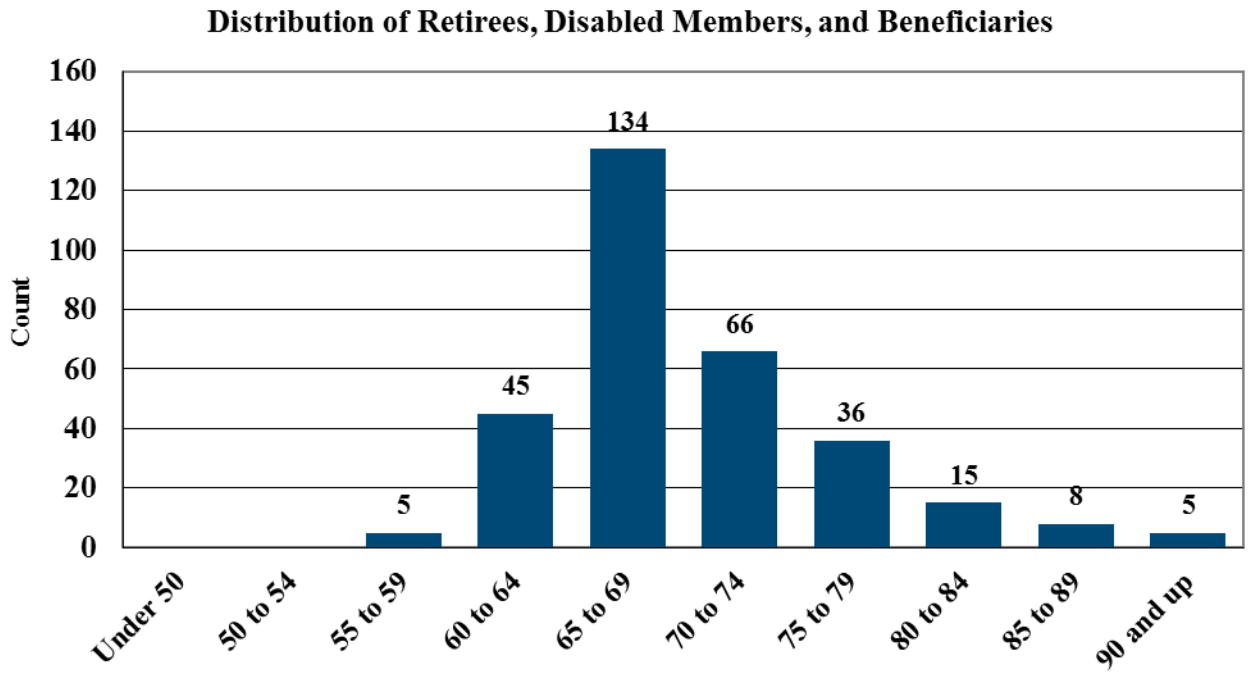
Average Age at Retirement/Disability	61.9
Average Current Age	70.5
Average Annual Pension	$ 23,142

APPENDIX A – MEMBERSHIP INFORMATION

Table A-8

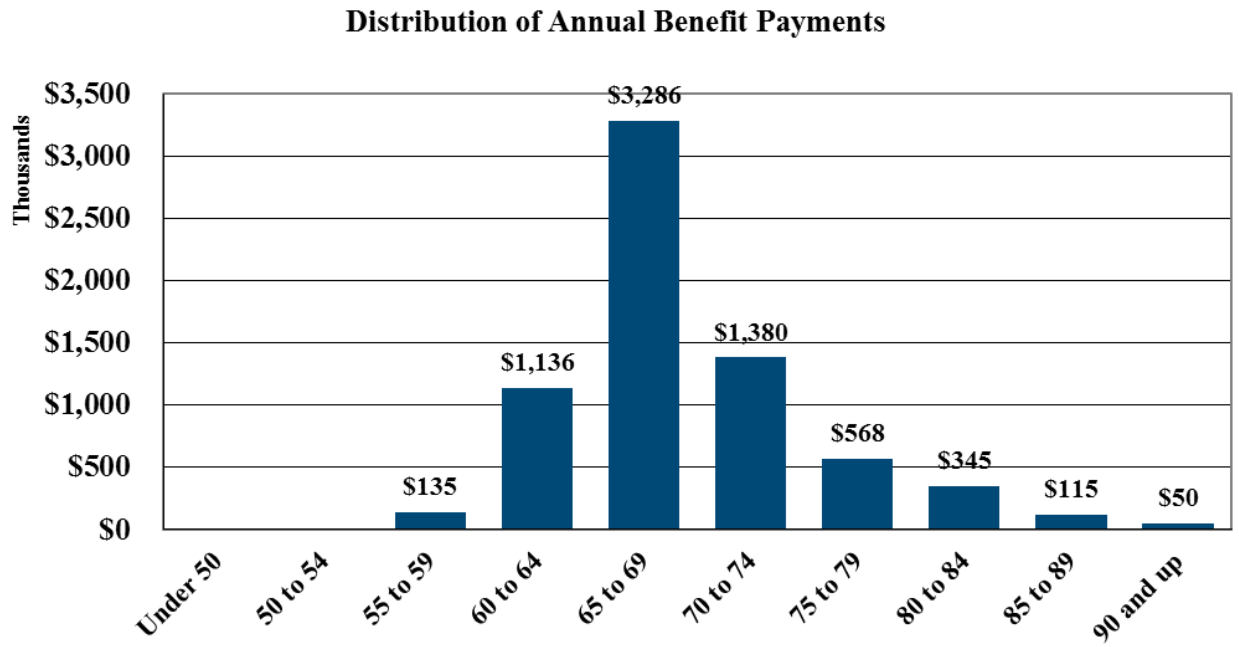
Distribution of Retirees, Disabled Members, and Beneficiaries as of July 1, 2019		
Age	**Count**	**Annual Benefit**
Under 50	0	$ 0
50 to 54	0	0
55 to 59	5	134,611
60 to 64	45	1,136,089
65 to 69	134	3,285,581
70 to 74	66	1,380,371
75 to 79	36	568,097
80 to 84	15	344,998
85 to 89	8	115,097
90 and up	5	50,035
Total	314	**$ 7,014,878**

Chart A-2



APPENDIX A – MEMBERSHIP INFORMATION

Chart A-3



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 along with the recent asset-liability study 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.

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

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 as of June 30, 2019 is amortized over a closed 20-year period with payments increasing 2.0% each year. Future gains and losses will be amortized over closed 20-year periods commencing in the year the gain or loss is first recognized with payments increasing 2.0% each year.

4. Changes Since the Last Valuation

The amortization method was changed from a closed period with four years remaining to the 20-year layered methodology described above.

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.

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.

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.

Classic Values, Innovative Advice