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## Montana Teachers' Retirement System SAVA Committee August 17, 2010

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## Introduction

> Plan Design Study
> Tiered Benefit Structure

- New benefit structure for new hires only
- Benefit structure does not change for current members
> Five Plan Design Alternatives (New Hires Only)
- Money Purchase Plan
- PRO Plan, Five Year Vesting, Three Year Final Average Earnings
- PRO Plan, Five Year Vesting, Five Year Final Average Earnings
- PRO Plan, Fifteen Year Graded Vesting, Three Year Final Average Earnings
- PRO Plan, Fifteen Year Graded Vesting, Five Year Final Average Earnings


## Basic Retirement Funding Equation

$$
\begin{aligned}
& \quad \mathbf{C}+\mathbf{I}=\mathbf{B}+\mathbf{E} \\
& C=\text { Contributions } \\
& I=\text { Investment Income } \\
& B=\text { Benefits Paid } \\
& E=\text { Expenses (administration) }
\end{aligned}
$$

## Present Value

The present value of an amount of money payable in the future is the amount of money that, if we had it today, would accumulate to the amount that will be payable considering
> Investment Return
$>$ Probability that money will be paid

## Valuation Results

## Contribution For

Normal Cost

## Description

Value of this year's expected benefit accruals

UAL
Unfunded Accrued Liability
= Accrued Liability - Assets
"Unfunded Accrued Liabilities" are a natural part of retirement system funding, comparable to a mortgage on a home. A plan which is $100 \%$ funded is required to contribute the normal cost.

## Money Purchase Plan

> Minimum interest credit rate of $5.0 \%$ and a maximum of $9.0 \%$. The TRS board would set the rate each year within this range based on investment returns, with the goal of averaging 7.0\% over the member's career.
> 15-year graded vesting (i.e., a member would be only $25 \%$ vested in the employer match after 5 years, increasing 5\% per year for years 5-10, and increasing 10\% per year for years 10-15 at which time they would be 100\% vested in the employer match).
$>$ Employee contribution rate of $7.15 \%$.
$>$ Employer contribution rate would remain unchanged at 9.96\%. (If there are any savings from this plan the savings would be applied toward the amortization of the unfunded liabilities.)
$>$ Retirement eligibility age would be 55 and vested.

## Money Purchase Plan

$>$ At retirement, employer matches 100\% of member's accumulated account balance, which would include the employee's mandatory contributions plus interest, however any additional funds contributed by the member would not be matched.
> The assumed interest rate used to develop the annuity factor table will be the actuarial assumed rate, currently $7.75 \%$.
$>1.5 \%$ GABA (The committee discussed basing cost of living on the investment returns each year.)
> Withdrawal will include only a refund of the employee's contributions plus interest; vested member can choose a deferred retirement benefit.
$>$ Survivor benefits paid on the death of a vested active member will include an option for a withdrawal of the member's account balance, or a monthly benefit as defined above. If the member is not vested, the designated beneficiary(ies) would receive only a refund of the member's account balance.
$>$ Disability benefit, if vested, would be the benefit as defined above.

## Modified DB plan with a 2.0\% Professional Retirement Option (PRO)

$>$ New employees' contribution rate would increase by the rate required (normal cost) to fund the PRO
$>1.667 \%$ multiplier for retirement before 30 years of service
$>2.0 \%$ multiplier for all years of service if retired with 30 or more years of service
> 5-year vesting or 15-year graded vesting
> 3-year or 5-year final average compensation

## Modified DB plan with a 2.0\% Professional Retirement Option (PRO)

$>$ Service Retirement at any age with 30 or more years of service, or age 60 and vested
> Early Retirement at age 55 and vested
$>$ Use full actuarial reductions for early retirement
$>$ Withdrawal - same as current TRS
> Survivor Benefits - same as current TRS
> Disability - same as current TRS, accept members would not qualify for disability if they are normal retirement age
$>$ GABA at $1.5 \%$

## Normal Rate Change

> Money Purchase Plan
> PRO Plan

- Five Year Vesting, Three Year Final Average Earnings
- Five Year Vesting, Five Year Final Average Earnings
- Fifteen Year Graded Vesting, Three Year Final Average Earnings
- Fifteen Year Graded Vesting, Five Year Final Average Earnings


## Normal Rate Change

> Assumptions

- Participant data as of July 1, 2009
- Actuarial methods and assumptions adopted by the Board in May 2010 based upon the most recent experience study
- Assets of the System as of July 1, 2009
- Retirement assumptions modified


## Normal Rate Change (PRO) Three Year Final Average Earnings, Five Year Vesting (\$ Millions)

A. Present Value of Future Benefits

| i. Actives | 2,418.5 | 2,733.3 | 314.8 |
| :---: | :---: | :---: | :---: |
| ii. Inactives and Annuitants | 2,488.4 | 2,488.4 | 0.0 |
| iii. Total | 4,906.9 | 5,221.7 | 314.8 |
| B. Present Value of Future Normal Cost | 578.3 | 627.5 | 49.2 |
| C. Actuarial Accrued Liability (AAL) [A. - B.] | 4,328.6 | 4,594.2 | 265.6 |
| D. Actuarial Value of Assets (AVA) | 2,762.2 | 2,762.2 | 0.0 |
| E. Unfunded Accrued Liabiltiy (UAAL) [C. - D.] | 1,566.4 | 1,832.0 | 265.6 |
| F. UAAL Funded by Future University Supp. Contributions | 158.3 | 158.7 | 0.4 |
| G. UAAL Funded by Future TRS Contributions [E. - F.] | 1,408.1 | 1,673.3 | 265.2 |
| H. Normal Cost Rate | 9.74\% | 10.28\% | 0.54\% |

## Normal Rate Change (PRO) Five Year Final Average Earnings, Five Year Vesting (\$ Millions)

| Current | Proposed |
| :---: | :---: |
| Plan | Plan |

A. Present Value of Future Benefits
i. Actives

| $2,418.5$ | $2,617.2$ | 198.7 |
| ---: | ---: | ---: |
| $2,488.4$ | $2,488.4$ | 0.0 |
| $4,906.9$ | $5,105.6$ | 198.7 |

B. Present Value of Future Normal Cost
$578.3 \quad 603.6$
25.3

C Actuarial Accrued Liability (AAL)
$4,328.6 \quad 4,502.0 \quad 173.4$ [A. - B.]
D Actuarial Value of Assets (AVA)
E. Unfunded Accrued Liabiltiy (UAAL) [C. - D.]
F.UAAL Funded by Future University Supp. Contributions
$158.3 \quad 158.7$
0.4

G UAAL Funded by Future TRS Contributions
$1,408.1 \quad 1,581.1 \quad 173.0$
[E. - F.]
$\begin{array}{llll}\text { H. Normal Cost Rate } & 9.74 \% & 9.89 \% & 0.15 \%\end{array}$

# Normal Rate Change <br> (PRO) Three Year Final Average Earnings, Fifteen Year Vesting (\$ Millions) 

|  | Current Plan | Proposed Plan | Increase |
| :---: | :---: | :---: | :---: |
| A. Present Value of Future Benefits |  |  |  |
| i. Actives | 2,418.5 | 2,717.4 | 298.9 |
| ii. Inactives and Annuitants | 2,488.4 | 2,488.4 | 0.0 |
| iii. Total | 4,906.9 | 5,205.8 | 298.9 |
| B. Present Value of Future Normal Cost | 578.3 | 627.5 | 49.2 |
| C Actuarial Accrued Liability (AAL) [A. - B.] | 4,328.6 | 4,578.3 | 249.7 |
| D Actuarial Value of Assets (AVA) | 2,762.2 | 2,762.2 | 0.0 |
| E. Unfunded Accrued Liabiltiy (UAAL) <br> [C. - D.] | 1,566.4 | 1,816.1 | 249.7 |
| F.UAAL Funded by Future University Supp. Contributions | 158.3 | 158.7 | 0.4 |
| G UAAL Funded by Future TRS Contributions [E. - F.] | 1,408.1 | 1,657.4 | 249.3 |
| H. Normal Cost Rate | 9.74\% | 10.16\% | 0.42\% |


|  | Current Plan | Proposed Plan | Increase |
| :---: | :---: | :---: | :---: |
| A. Present Value of Future Benefits |  |  |  |
| i. Actives | 2,418.5 | 2,603.3 | 184.8 |
| ii. Inactives and Annuitants | 2,488.4 | 2,488.4 | 0.0 |
| iii. Total | 4,906.9 | 5,091.7 | 184.8 |
| B. Present Value of Future Normal Cost | 578.3 | 605.3 | 27.0 |
| C Actuarial Accrued Liability (AAL) [A. - B.] | 4,328.6 | 4,486.4 | 157.8 |
| D Actuarial Value of Assets (AVA) | 2,762.2 | 2,762.2 | 0.0 |
| E. Unfunded Accrued Liabiltiy (UAAL) [C. - D.] | 1,566.4 | 1,724.2 | 157.8 |
| F.UAAL Funded by Future University Supp. Contributions | 158.3 | 158.7 | 0.4 |
| G UAAL Funded by Future TRS Contributions [E. - F.] | 1,408.1 | 1,565.5 | 157.4 |
| H. Normal Cost Rate | 9.74\% | 9.80\% | $0.06 \%$ |

# Normal Rate Change Money Purchase Plan <br> (\$ Millions) 

|  | Current Plan | Proposed Plan | Increase |
| :---: | :---: | :---: | :---: |
| A. Present Value of Future Benefits |  |  |  |
| i. Actives | 2,418.5 | 2,411.9 | -6.6 |
| ii. Inactives and Annuitants | 2,488.4 | 2,488.4 | 0.0 |
| iii. Total | 4,906.9 | 4,900.3 | -6.6 |
| B. Present Value of Future Normal Cost | 578.3 | 566.8 | -11.5 |
| C Actuarial Accrued Liability (AAL) [A. - B.] | 4,328.6 | 4,333.5 | 4.9 |
| D Actuarial Value of Assets (AVA) | 2,762.2 | 2,762.2 | 0.0 |
| E. Unfunded Accrued Liabiltiy (UAAL) [C. - D.] | 1,566.4 | 1,571.3 | 4.9 |
| F.UAAL Funded by Future University Supp. Contributions | 158.3 | 157.8 | -0.5 |
| G UAAL Funded by Future TRS Contributions [E. - F.] | 1,408.1 | 1,413.5 | 5.4 |
| H. Normal Cost Rate | 9.74\% | 9.09\% | $-0.65 \%$ |

## Plan Projections

$>$ Current Plan Provisions (Existing Members)
> Money Purchase Plan (New Members Only)
> PRO Plan 1 (New Members Only)

- Five year vesting, three year final average earnings
- New members require increased employee contributions (0.54\%)
> PRO Plan 2 (New Members Only)
- Fifteen year graded vesting, five year final average earnings
- New members require increased employee contributions ( $0.06 \%$ )


## Plan Projections

> Participant data as of July 1, 2009
> Assumptions and methods adopted by the Board in May 2010 based upon the most recent experience study
> Assets of the System as of July 1, 2009 and July 1, 2010
$>$ Retirement assumptions modified for new entrants
$>$ New entrants replace Non-MUS members that decrement out of System (stable population)

## Current Plan (\$ Millions)

| July 1, | Present Va | alue of Futur | Benefits | Present Value of Future Normal Cost (PVFNC) | Actuarial Accrued Liability (AAL) | Actuarial <br> Value of Assets <br> (AVA) | Unfunded <br> Actuarial <br> Accrued <br> Liability <br> (UAAL) | Value of Future <br> University Supplemental Contributions | Normal <br> Cost <br> Rate | Required <br> Employer <br> Conrtibution <br> Fiscal Year <br> Beginning | Funded <br> Ratio <br> 63.8 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Actives | Inactive Members | Total |  |  |  |  |  |  |  |  |
| 2009 | 2,418.5 | 2,488.4 | 4,906.9 | 578.3 | 4,328.6 | 2,762.2 | 1,566.4 | 158.3 | 9.74\% | N/A | 63.8\% |
| 2010 | 2,406.4 | 2,654.4 | 5,060.8 | 581.3 | 4,479.5 | 2,956.6 | 1,522.9 | 158.1 | 9.82\% | N/A | 66.0\% |
| 2011 | 2,405.5 | 2,823.2 | 5,228.7 | 585.7 | 4,643.0 | 2,763.8 | 1,879.2 | 157.8 | 9.82\% | 12.18\% | 59.5\% |
| 2012 | 2,406.1 | 2,989.8 | 5,396.0 | 594.1 | 4,801.9 | 2,680.3 | 2,121.6 | 157.5 | 9.80\% | 14.49\% | 55.8\% |
| 2013 | 2,406.5 | 3,154.6 | 5,561.1 | 606.1 | 4,955.1 | 2,810.5 | 2,144.5 | 156.9 | 9.80\% | 15.92\% | 56.7\% |
| 2014 | 2,411.5 | 3,312.1 | 5,723.6 | 621.2 | 5,102.4 | 2,903.7 | 2,198.8 | 156.1 | 9.80\% | 15.85\% | 56.9\% |
| 2015 | 2,420.0 | 3,462.3 | 5,882.3 | 638.9 | 5,243.4 | 2,989.7 | 2,253.8 | 155.1 | 9.79\% | 15.96\% | 57.0\% |
| 2016 | 2,434.0 | 3,603.3 | 6,037.2 | 658.9 | 5,378.3 | 3,068.7 | 2,309.6 | 153.9 | 9.78\% | 16.03\% | 57.1\% |
| 2017 | 2,450.9 | 3,737.5 | 6,188.5 | 681.5 | 5,507.0 | 3,140.8 | 2,366.3 | 152.2 | 9.77\% | 16.07\% | 57.0\% |
| 2018 | 2,473.6 | 3,862.4 | 6,336.1 | 706.4 | 5,629.7 | 3,206.0 | 2,423.7 | 150.1 | 9.78\% | 16.09\% | 56.9\% |
| 2019 | 2,505.3 | 3,975.2 | 6,480.5 | 733.4 | 5,747.0 | 3,265.2 | 2,481.9 | 147.6 | 9.78\% | 16.11\% | 56.8\% |
| 2020 | 2,544.5 | 4,077.6 | 6,622.1 | 762.5 | 5,859.6 | 3,318.9 | 2,540.7 | 144.5 | 9.78\% | 16.09\% | 56.6\% |
| 2021 | 2,593.5 | 4,168.3 | 6,761.8 | 793.5 | 5,968.3 | 3,367.9 | 2,600.4 | 141.0 | 9.78\% | 16.04\% | 56.4\% |
| 2022 | 2,648.9 | 4,250.9 | 6,899.8 | 826.3 | 6,073.5 | 3,412.7 | 2,660.7 | 136.6 | 9.78\% | 15.97\% | 56.2\% |
| 2023 | 2,713.2 | 4,323.8 | 7,036.9 | 861.0 | 6,175.9 | 3,454.2 | 2,721.8 | 131.3 | 9.79\% | 15.88\% | 55.9\% |
| 2024 | 2,787.3 | 4,386.7 | 7,173.9 | 897.4 | 6,276.5 | 3,493.3 | 2,783.3 | 125.0 | 9.79\% | 15.79\% | 55.7\% |

## Current Plan (\$ Millions)

| July 1, | Present Va | alue of Futur | Benefits | Present Valueof FutureNormal Cost(PVFNC) | Actuarial Accrued Liability (AAL) | Actuarial Value of Assets (AVA) | Unfunded <br> Actuarial <br> Accrued <br> Liability <br> (UAAL) | Value of Future University Supplemental Contributions | Normal <br> Cost <br> Rate | Required <br> Employer <br> Conrtibution <br> Fiscal Year <br> Beginning | Funded <br> Ratio |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Actives | Inactive Members | Total |  |  |  |  |  |  |  |  |
| 2025 | 2,867.4 | 4,444.4 | 7,311.8 | 935.8 | 6,376.0 | 3,530.7 | 2,845.3 | 117.7 | 9.79\% | 15.67\% | 55.4\% |
| 2026 | 2,955.3 | 4,496.0 | 7,451.3 | 976.1 | 6,475.3 | 3,567.3 | 2,908.0 | 109.0 | 9.80\% | 15.54\% | 55.1\% |
| 2027 | 3,052.9 | 4,540.3 | 7,593.2 | 1,018.0 | 6,575.2 | 3,604.2 | 2,970.9 | 99.0 | 9.80\% | 15.41\% | 54.8\% |
| 2028 | 3,159.7 | 4,578.8 | 7,738.5 | 1,061.6 | 6,676.8 | 3,642.6 | 3,034.3 | 87.4 | 9.81\% | 15.26\% | 54.6\% |
| 2029 | 3,275.8 | 4,612.9 | 7,888.7 | 1,107.0 | 6,781.7 | 3,683.8 | 3,097.9 | 74.1 | 9.81\% | 15.11\% | 54.3\% |
| 2030 | 3,398.0 | 4,646.8 | 8,044.9 | 1,154.3 | 6,890.6 | 3,729.0 | 3,161.5 | 58.9 | 9.82\% | 14.95\% | 54.1\% |
| 2031 | 3,528.6 | 4,679.5 | 8,208.1 | 1,203.6 | 7,004.4 | 3,779.2 | 3,225.2 | 41.6 | 9.82\% | 14.79\% | 54.0\% |
| 2032 | 3,668.0 | 4,711.5 | 8,379.4 | 1,255.0 | 7,124.5 | 3,835.6 | 3,288.8 | 22.0 | 9.82\% | 14.62\% | 53.8\% |
| 2033 | 3,817.4 | 4,743.0 | 8,560.4 | 1,308.3 | 7,252.1 | 3,899.9 | 3,352.2 | 0.0 | 9.83\% | 14.45\% | 53.8\% |
| 2034 | 3,975.2 | 4,777.2 | 8,752.4 | 1,363.9 | 7,388.5 | 3,949.2 | 3,439.3 | 0.0 | 9.83\% | 14.29\% | 53.5\% |
| 2035 | 4,147.3 | 4,809.3 | 8,956.7 | 1,421.5 | 7,535.1 | 4,006.3 | 3,528.8 | 0.0 | 9.83\% | 14.11\% | 53.2\% |
| 2036 | 4,328.9 | 4,846.2 | 9,175.1 | 1,481.4 | 7,693.7 | 4,072.9 | 3,620.8 | 0.0 | 9.83\% | 13.93\% | 52.9\% |
| 2037 | 4,522.2 | 4,887.4 | 9,409.6 | 1,543.6 | 7,866.0 | 4,150.5 | 3,715.4 | 0.0 | 9.83\% | 13.75\% | 52.8\% |
| 2038 | 4,725.4 | 4,936.2 | 9,661.6 | 1,608.5 | 8,053.2 | 4,240.5 | 3,812.7 | 0.0 | 9.83\% | 13.57\% | 52.7\% |
| 2039 | 4,937.0 | 4,996.0 | 9,933.0 | 1,676.3 | 8,256.7 | 4,344.0 | 3,912.7 | 0.0 | 9.83\% | 13.39\% | 52.6\% |

# Money Purchase (\$ Millions) 

| July 1, | Present Va | alue of Futur | Benefits | Present Value of Future Normal Cost (PVFNC) | Actuarial Accrued Liability (AAL) | Actuarial Value of Assets (AVA) | Unfunded Actuarial Accrued Liability (UAAL) | Value of Future University Supplemental Contributions | Normal Cost Rate | Required <br> Employer <br> Conrtibution <br> Fiscal Year <br> Beginning | Funded Ratio |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Actives | Inactive Members | Total |  |  |  |  |  |  |  |  |
| 2009 | 2,418.5 | 2,488.4 | 4,906.9 | 578.3 | 4,328.6 | 2,762.2 | 1,566.4 | 158.3 | 9.74\% | N/A | 63.8\% |
| 2010 | 2,403.9 | 2,654.4 | 5,058.3 | 579.0 | 4,479.3 | 2,956.6 | 1,522.7 | 158.1 | 9.76\% | N/A | 66.0\% |
| 2011 | 2,400.1 | 2,823.2 | 5,223.2 | 580.9 | 4,642.3 | 2,763.4 | 1,878.9 | 157.8 | 9.70\% | 12.12\% | 59.5\% |
| 2012 | 2,397.3 | 2,989.7 | 5,386.9 | 586.7 | 4,800.2 | 2,678.9 | 2,121.3 | 157.5 | 9.64\% | 14.37\% | 55.8\% |
| 2013 | 2,393.5 | 3,154.5 | 5,548.0 | 596.1 | 4,951.9 | 2,807.8 | 2,144.1 | 156.9 | 9.58\% | 15.77\% | 56.7\% |
| 2014 | 2,393.9 | 3,311.9 | 5,705.8 | 608.5 | 5,097.3 | 2,899.0 | 2,198.3 | 156.1 | 9.53\% | 15.63\% | 56.9\% |
| 2015 | 2,397.0 | 3,462.1 | 5,859.2 | 623.6 | 5,235.6 | 2,982.3 | 2,253.2 | 155.1 | 9.48\% | 15.69\% | 57.0\% |
| 2016 | 2,405.2 | 3,602.7 | 6,007.9 | 641.2 | 5,366.8 | 3,057.8 | 2,308.9 | 153.9 | 9.42\% | 15.72\% | 57.0\% |
| 2017 | 2,416.1 | 3,736.1 | 6,152.1 | 661.3 | 5,490.8 | 3,125.4 | 2,365.5 | 152.2 | 9.37\% | 15.71\% | 56.9\% |
| 2018 | 2,432.4 | 3,859.4 | 6,291.8 | 683.9 | 5,607.9 | 3,185.2 | 2,422.7 | 150.1 | 9.34\% | 15.69\% | 56.8\% |
| 2019 | 2,457.3 | 3,970.2 | 6,427.5 | 708.8 | 5,718.7 | 3,238.2 | 2,480.6 | 147.6 | 9.30\% | 15.67\% | 56.6\% |
| 2020 | 2,489.3 | 4,070.5 | 6,559.8 | 736.0 | 5,823.8 | 3,284.6 | 2,539.2 | 144.5 | 9.27\% | 15.61\% | 56.4\% |
| 2021 | 2,530.5 | 4,158.8 | 6,689.3 | 765.3 | 5,924.0 | 3,325.4 | 2,598.6 | 141.0 | 9.24\% | 15.53\% | 56.1\% |
| 2022 | 2,577.7 | 4,238.8 | 6,816.5 | 796.9 | 6,019.6 | 3,361.0 | 2,658.6 | 136.6 | 9.22\% | 15.43\% | 55.8\% |
| 2023 | 2,633.8 | 4,308.1 | 6,941.9 | 830.4 | 6,111.5 | 3,392.3 | 2,719.2 | 131.3 | 9.20\% | 15.33\% | 55.5\% |
| 2024 | 2,699.4 | 4,367.0 | 7,066.4 | 865.8 | 6,200.6 | 3,420.2 | 2,780.4 | 125.0 | 9.19\% | 15.20\% | 55.2\% |

# Money Purchase (\$ Millions) 

| July 1, | Present Va | alue of Futu | Benefits | Present Value of Future Normal Cost (PVFNC) | Actuarial Accrued Liability (AAL) | Actuarial Value of Assets (AVA) | Unfunded Actuarial Accrued Liability (UAAL) | Value of Future <br> University Supplemental Contributions | Normal Cost Rate | Required <br> Employer Conrtibution Fiscal Year Beginning | $\begin{gathered} \text { Funded } \\ \text { Ratio } \\ \hline \end{gathered}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Actives | Inactive Members | Total |  |  |  |  |  |  |  |  |
| 2025 | 2,770.9 | 4,420.0 | 7,190.9 | 903.3 | 6,287.6 | 3,445.4 | 2,842.1 | 117.7 | 9.17\% | 15.07\% | 54.8\% |
| 2026 | 2,849.7 | 4,466.5 | 7,316.2 | 943.0 | 6,373.3 | 3,468.9 | 2,904.4 | 109.0 | 9.17\% | 14.92\% | 54.4\% |
| 2027 | 2,937.9 | 4,505.1 | 7,443.1 | 984.5 | 6,458.6 | 3,491.7 | 2,966.9 | 99.0 | 9.16\% | 14.78\% | 54.1\% |
| 2028 | 3,034.7 | 4,537.9 | 7,572.5 | 1,027.9 | 6,544.6 | 3,514.9 | 3,029.7 | 87.4 | 9.15\% | 14.61\% | 53.7\% |
| 2029 | 3,140.3 | 4,565.7 | 7,706.0 | 1,073.4 | 6,632.7 | 3,539.8 | 3,092.9 | 74.1 | 9.15\% | 14.45\% | 53.4\% |
| 2030 | 3,252.1 | 4,592.5 | 7,844.6 | 1,121.0 | 6,723.6 | 3,567.6 | 3,156.0 | 58.9 | 9.14\% | 14.28\% | 53.1\% |
| 2031 | 3,371.9 | 4,617.4 | 7,989.3 | 1,170.8 | 6,818.5 | 3,599.2 | 3,219.2 | 41.6 | 9.14\% | 14.10\% | 52.8\% |
| 2032 | 3,500.5 | 4,640.7 | 8,141.2 | 1,222.8 | 6,918.3 | 3,636.0 | 3,282.3 | 22.0 | 9.14\% | 13.93\% | 52.6\% |
| 2033 | 3,639.3 | 4,662.5 | 8,301.8 | 1,277.0 | 7,024.8 | 3,679.7 | 3,345.1 | 0.0 | 9.14\% | 13.76\% | 52.4\% |
| 2034 | 3,787.5 | 4,685.0 | 8,472.5 | 1,333.5 | 7,138.9 | 3,707.2 | 3,431.7 | 0.0 | 9.14\% | 13.58\% | 51.9\% |
| 2035 | 3,951.6 | 4,702.9 | 8,654.5 | 1,392.1 | 7,262.4 | 3,741.7 | 3,520.7 | 0.0 | 9.14\% | 13.41\% | 51.5\% |
| 2036 | 4,130.4 | 4,719.3 | 8,849.8 | 1,452.7 | 7,397.1 | 3,785.1 | 3,612.0 | 0.0 | 9.14\% | 13.23\% | 51.2\% |
| 2037 | 4,327.1 | 4,733.3 | 9,060.4 | 1,515.0 | 7,545.4 | 3,839.5 | 3,705.8 | 0.0 | 9.14\% | 13.04\% | 50.9\% |
| 2038 | 4,541.2 | 4,747.1 | 9,288.4 | 1,579.2 | 7,709.2 | 3,907.0 | 3,802.2 | 0.0 | 9.14\% | 12.86\% | 50.7\% |
| 2039 | 4,767.0 | 4,768.9 | 9,535.9 | 1,645.7 | 7,890.3 | 3,989.1 | 3,901.2 | 0.0 | 9.14\% | 12.68\% | 50.6\% |

## PRO Plan 1 (\$ Millions)

| July 1, | Present Va | alue of Futur | Benefits | Present Value of Future Normal Cost (PVFNC) | Actuarial <br> Accrued <br> Liability $(\mathrm{AAL})$ | Actuarial <br> Value of <br> Assets <br> (AVA) | Unfunded <br> Actuarial <br> Accrued <br> Liability <br> (UAAL) | Value of Future <br> University <br> Supplemental <br> Contributions | Normal <br> Cost <br> Rate | Required <br> Employer <br> Conrtibution <br> Fiscal Year <br> Beginning | Funded Ratio |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Actives | Inactive Members | Total |  |  |  |  |  |  |  |  |
| 2009 | 2,418.5 | 2,488.4 | 4,906.9 | 578.3 | 4,328.6 | 2,762.2 | 1,566.4 | 158.3 | 9.74\% | N/A | 63.8\% |
| 2010 | 2,408.1 | 2,622.8 | 5,030.9 | 583.2 | 4,447.7 | 2,956.6 | 1,491.1 | 158.1 | 9.84\% | N/A | 66.5\% |
| 2011 | 2,409.7 | 2,768.8 | 5,178.6 | 589.9 | 4,588.6 | 2,764.5 | 1,824.1 | 157.8 | 9.86\% | 11.95\% | 60.2\% |
| 2012 | 2,413.5 | 2,914.6 | 5,328.1 | 600.9 | 4,727.2 | 2,680.6 | 2,046.7 | 157.5 | 9.88\% | 14.10\% | 56.7\% |
| 2013 | 2,417.3 | 3,059.5 | 5,476.8 | 615.8 | 4,861.1 | 2,809.6 | 2,051.5 | 156.9 | 9.89\% | 15.41\% | 57.8\% |
| 2014 | 2,426.3 | 3,199.0 | 5,625.3 | 634.0 | 4,991.3 | 2,900.4 | 2,090.9 | 156.1 | 9.91\% | 15.22\% | 58.1\% |
| 2015 | 2,439.3 | 3,333.1 | 5,772.4 | 655.1 | 5,117.3 | 2,983.2 | 2,134.0 | 155.1 | 9.93\% | 15.23\% | 58.3\% |
| 2016 | 2,458.2 | 3,460.7 | 5,918.9 | 679.0 | 5,239.9 | 3,058.2 | 2,181.7 | 153.9 | 9.94\% | 15.24\% | 58.4\% |
| 2017 | 2,480.7 | 3,582.8 | 6,063.5 | 705.6 | 5,357.9 | 3,125.6 | 2,232.3 | 152.2 | 9.95\% | 15.25\% | 58.3\% |
| 2018 | 2,509.7 | 3,697.4 | 6,207.1 | 735.0 | 5,472.0 | 3,185.5 | 2,286.6 | 150.1 | 9.97\% | 15.25\% | 58.2\% |
| 2019 | 2,548.3 | 3,802.4 | 6,350.7 | 766.8 | 5,583.9 | 3,238.7 | 2,345.2 | 147.6 | 9.99\% | 15.26\% | 58.0\% |
| 2020 | 2,595.3 | 3,899.5 | 6,494.8 | 801.0 | 5,693.7 | 3,286.0 | 2,407.7 | 144.5 | 10.02\% | 15.26\% | 57.7\% |
| 2021 | 2,653.0 | 3,987.6 | 6,640.6 | 837.3 | 5,803.3 | 3,328.4 | 2,474.9 | 141.0 | 10.03\% | 15.26\% | 57.4\% |
| 2022 | 2,718.2 | 4,068.6 | 6,786.8 | 875.8 | 5,910.9 | 3,366.6 | 2,544.3 | 136.6 | 10.05\% | 15.24\% | 57.0\% |
| 2023 | 2,793.3 | 4,140.7 | 6,934.0 | 916.4 | 6,017.6 | 3,401.7 | 2,615.9 | 131.3 | 10.07\% | 15.22\% | 56.5\% |
| 2024 | 2,879.3 | 4,204.8 | 7,084.1 | 959.1 | 6,125.0 | 3,434.6 | 2,690.5 | 125.0 | 10.09\% | 15.20\% | 56.1\% |

## PRO Plan 1 (\$ Millions)

| July 1, | Present Va | alue of Futur | e Benefits |  | Actuarial Accrued Liability (AAL) | Actuarial Value of Assets (AVA) | Unfunded Actuarial Accrued Liability (UAAL) | Value of Future <br> University Supplemental Contributions | Normal Cost Rate | Required <br> Employer <br> Conrtibution <br> Fiscal Year <br> Beginning | Funded <br> Ratio |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Actives | Inactive Members | Total |  |  |  |  |  |  |  |  |
| 2025 | 2,972.8 | 4,264.5 | 7,237.3 | 1,004.0 | 6,233.3 | 3,466.3 | 2,767.1 | 117.7 | 10.11\% | 15.16\% | 55.6\% |
| 2026 | 3,075.5 | 4,318.8 | 7,394.3 | 1,051.0 | 6,343.4 | 3,497.9 | 2,845.5 | 109.0 | 10.13\% | 15.12\% | 55.1\% |
| 2027 | 3,189.6 | 4,366.5 | 7,556.1 | 1,099.9 | 6,456.2 | 3,530.6 | 2,925.7 | 99.0 | 10.15\% | 15.07\% | 54.7\% |
| 2028 | 3,314.7 | 4,408.5 | 7,723.2 | 1,150.6 | 6,572.6 | 3,565.8 | 3,006.8 | 87.4 | 10.17\% | 15.00\% | 54.3\% |
| 2029 | 3,450.8 | 4,447.0 | 7,897.8 | 1,203.3 | 6,694.5 | 3,605.1 | 3,089.3 | 74.1 | 10.19\% | 14.93\% | 53.9\% |
| 2030 | 3,595.4 | 4,484.9 | 8,080.4 | 1,258.2 | 6,822.2 | 3,649.9 | 3,172.3 | 58.9 | 10.21\% | 14.86\% | 53.5\% |
| 2031 | 3,750.9 | 4,521.2 | 8,272.1 | 1,315.1 | 6,957.0 | 3,701.3 | 3,255.6 | 41.6 | 10.23\% | 14.77\% | 53.2\% |
| 2032 | 3,918.1 | 4,556.4 | 8,474.6 | 1,374.2 | 7,100.4 | 3,761.1 | 3,339.3 | 22.0 | 10.24\% | 14.67\% | 53.0\% |
| 2033 | 4,098.6 | 4,590.5 | 8,689.1 | 1,435.2 | 7,253.8 | 3,830.9 | 3,423.0 | 0.0 | 10.25\% | 14.57\% | 52.8\% |
| 2034 | 4,291.3 | 4,625.7 | 8,917.0 | 1,498.6 | 7,418.4 | 3,912.3 | 3,506.1 | 0.0 | 10.27\% | 14.45\% | 52.7\% |
| 2035 | 4,503.7 | 4,656.4 | 9,160.2 | 1,563.7 | 7,596.4 | 3,980.8 | 3,615.6 | 0.0 | 10.28\% | 14.26\% | 52.4\% |
| 2036 | 4,735.8 | 4,684.2 | 9,420.0 | 1,630.4 | 7,789.6 | 4,062.4 | 3,727.2 | 0.0 | 10.29\% | 14.14\% | 52.2\% |
| 2037 | 4,991.1 | 4,708.2 | 9,699.2 | 1,698.3 | 8,000.9 | 4,159.6 | 3,841.4 | 0.0 | 10.30\% | 14.00\% | 52.0\% |
| 2038 | 5,270.0 | 4,729.9 | 10,000.0 | 1,767.2 | 8,232.7 | 4,274.9 | 3,957.9 | 0.0 | 10.31\% | 13.86\% | 51.9\% |
| 2039 | 5,571.8 | 4,752.6 | 10,324.5 | 1,837.2 | 8,487.3 | 4,410.9 | 4,076.5 | 0.0 | 10.31\% | 13.73\% | 52.0\% |

## PRO Plan 2 (\$ Millions)



## PRO Plan 2 (\$ Millions)

| July 1, | Present Va | alue of Futur | e Benefits | Present Value of Future Normal Cost (PVFNC) | Actuarial Accrued Liability (AAL) | Actuarial Value of Assets (AVA) | Unfunded Actuarial Accrued Liability (UAAL) | Value of Future University Supplemental Contributions |  | Required Employer Conrtibution Fiscal Year Beginning | $\begin{gathered} \text { Funded } \\ \text { Ratio } \\ \hline \end{gathered}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Actives | Inactive Members | Total |  |  |  |  |  |  |  |  |
| 2025 | 2,890.9 | 4,247.2 | 7,138.1 | 969.6 | 6,168.5 | 3,378.5 | 2,790.0 | 117.7 | 9.56\% | 15.05\% | 54.8\% |
| 2026 | 2,985.9 | 4,298.7 | 7,284.6 | 1,014.7 | 6,269.9 | 3,401.1 | 2,868.8 | 109.0 | 9.58\% | 15.01\% | 54.2\% |
| 2027 | 3,091.8 | 4,343.6 | 7,435.4 | 1,061.7 | 6,373.7 | 3,424.5 | 2,949.2 | 99.0 | 9.59\% | 14.98\% | 53.7\% |
| 2028 | 3,208.1 | 4,382.9 | 7,591.1 | 1,110.5 | 6,480.5 | 3,450.1 | 3,030.4 | 87.4 | 9.60\% | 14.90\% | 53.2\% |
| 2029 | 3,334.9 | 4,418.8 | 7,753.7 | 1,161.3 | 6,592.4 | 3,479.3 | 3,113.1 | 74.1 | 9.62\% | 14.83\% | 52.8\% |
| 2030 | 3,469.7 | 4,454.1 | 7,923.8 | 1,214.2 | 6,709.6 | 3,513.7 | 3,195.9 | 58.9 | 9.63\% | 14.76\% | 52.4\% |
| 2031 | 3,614.6 | 4,488.1 | 8,102.6 | 1,269.1 | 6,833.5 | 3,554.3 | 3,279.2 | 41.6 | 9.65\% | 14.68\% | 52.0\% |
| 2032 | 3,770.6 | 4,521.1 | 8,291.6 | 1,326.2 | 6,965.5 | 3,602.9 | 3,362.6 | 22.0 | 9.66\% | 14.59\% | 51.7\% |
| 2033 | 3,939.0 | 4,553.2 | 8,492.2 | 1,385.2 | 7,107.0 | 3,661.2 | 3,445.8 | 0.0 | 9.67\% | 14.49\% | 51.5\% |
| 2034 | 4,119.0 | 4,586.7 | 8,705.6 | 1,446.4 | 7,259.3 | 3,706.3 | 3,552.9 | 0.0 | 9.69\% | 14.38\% | 51.1\% |
| 2035 | 4,318.0 | 4,615.8 | 8,933.7 | 1,509.3 | 7,424.4 | 3,762.0 | 3,662.4 | 0.0 | 9.70\% | 14.27\% | 50.7\% |
| 2036 | 4,535.9 | 4,642.2 | 9,178.1 | 1,573.8 | 7,604.3 | 3,830.3 | 3,773.9 | 0.0 | 9.71\% | 14.15\% | 50.4\% |
| 2037 | 4,776.1 | 4,665.2 | 9,441.3 | 1,639.5 | 7,801.8 | 3,913.8 | 3,887.9 | 0.0 | 9.72\% | 14.01\% | 50.2\% |
| 2038 | 5,039.1 | 4,686.4 | 9,725.5 | 1,706.2 | 8,019.2 | 4,015.0 | 4,004.2 | 0.0 | 9.73\% | 13.87\% | 50.1\% |
| 2039 | 5,324.1 | 4,708.8 | 10,032.9 | 1,773.9 | 8,259.0 | 4,136.4 | 4,122.7 | 0.0 | 9.74\% | 13.73\% | 50.1\% |

## Required Employer Contributions



