

**MONTANA STATE UNIVERSITY**  
**GASB 68 Notes to the Financial Statements**  
**Prepared as of June 30, 2017 (Measurement Date)**  
**For the Year Ended June 30, 2018 (Reporting Date)**

**Pension Amounts Total for Employer – Employer’s proportion of TRS and PERS pension amounts combined – 74**

	<b>The employer’s proportionate share associated with TRS</b>	<b>The employer’s proportionate share associated with PERS</b>	<b>The employer’s Total Pension Amounts</b>
Total Pension Liability	\$27,792,565	xxx	xxx
Fiduciary Net Position	\$19,479,311	xxx	xxx
Net Pension Liability	\$8,313,254	xxx	xxx
Deferred Outflows of Resources	\$12,555,496	xxx	xxx
Deferred Inflows of Resources	\$80,083	xxx	xxx
Pension Expense	\$4,727,697	xxx	xxx

**The following disclosures (76-80) should be disclosed for each pension plan – TRS and PERS – 75**

**Net Pension Liability - 80a, 80b, 80c, 80d, 80e, 80f**

In accordance with GASB Statement 68, Accounting and Financial Reporting for Pensions, employers are required to recognize and report certain amounts associated with their participation in the Montana Teachers’ Retirement System (TRS or the System). Statement 68 became effective June 30, 2015 and includes requirements to record and report their proportionate share of the collective Net Pension Liability. In accordance with Statement 68, the System has a special funding situation in which the State of Montana is legally responsible for making contributions directly to TRS that are used to provide pension benefits to the retired members of TRS. Due to the existence of a special funding situation, employers are also required to report the portion of the State of Montana’s proportionate share of the collective Net Pension Liability that is associated with the employer. The following table displays the amounts and the percentages of Net Pension Liability for the fiscal years ended June 30, 2018 and June 30, 2017 (reporting dates).

	<b>Net Pension Liability as of 6/30/2018</b>	<b>Net Pension Liability as of 6/30/2017</b>	<b>Percent of Collective NPL as of 6/30/2018</b>	<b>Percent of Collective NPL as of 6/30/2017</b>	<b>Change in Percent of Collective NPL</b>
MONTANA STATE UNIVERSITY Proportionate Share	\$8,313,254	\$10,097,161	0.4931%	0.5527%	(0.0596%)
State of Montana Proportionate Share associated with employer	<u>\$2,998,775</u>	<u>\$3,781,651</u>	<u>0.1779%</u>	<u>0.2070%</u>	<u>(0.0291%)</u>
Total	\$11,312,029	\$13,878,812	0.6710%	0.7597%	(0.0887%)

At June 30, 2018, the employer recorded a liability of \$8,313,254 for its proportionate share of the Net Pension Liability. The net pension liability was measured as of June 30, 2017, and the total pension liability used to calculate the net pension liability was determined by an actuarial valuation as of July 1, 2017. Therefore, no update procedures were used to roll forward the total pension liability to the measurement date. The employer's proportion of the net pension liability was based on the employer's contributions received by TRS during the measurement period July 1, 2016, through June 30, 2017, relative to the total employer contributions received from all of TRS' participating employers. At June 30, 2018, the employer's proportion was 0.4931 percent.

***Changes in actuarial assumptions and other inputs:*** There have been no changes in actuarial assumptions and other inputs since the previous measurement date.

***Changes in benefit terms:*** There have been no changes in benefit terms since the previous measurement date.

**Changes in proportionate share:** There were no changes between the measurement date of the collective net pension liability and the reporting date. However, each employer may have unique circumstances that will impact the employer’s proportionate share of the collective net pension liability. If there were changes that are expected to have an impact on the net pension liability, the employer should disclose the amount of the expected resultant change in the employer’s proportionate share of the collective net pension liability, if known.

**Pension Expense – 80g, 80j**

	<b>Pension Expense as of 6/30/2018</b>
MONTANA STATE UNIVERSITY Proportionate Share	\$5,075,359
State of Montana Proportionate Share associated with the Employer	<u>(\$347,662)</u>
Total	\$4,727,697

At June 30, 2018, the employer recognized a Pension Expense of \$4,727,697 for its proportionate share of the TRS’ pension expense. The employer also recognized grant revenue of (\$347,662) for the support provided by the State of Montana for its proportionate share of the pension expense that is associated with the employer.

## Deferred Inflows and Outflows - 80h, 80i

At June 30, 2018, the employer reported its proportionate share of TRS' deferred outflows of resources and deferred inflows of resources related to TRS from the following sources:

	<b>Deferred Outflows of Resources</b>	<b>Deferred Inflows of Resources</b>
Differences between expected and actual economic experience	\$30,573	\$12,429
Changes in actuarial assumptions	\$0	\$34,755
Difference between projected and actual investment earnings	\$0	\$32,899
Changes in proportion & Differences between actual and expected contributions	\$6,117,636	\$0
*Contributions paid to TRS subsequent to the measurement date - FY 2018 Contributions	\$6,407,287	
<b>Total</b>	<b>\$12,555,496</b>	<b>\$80,083</b>

\* Amounts reported as deferred outflows of resources related to pensions resulting from the employer's contributions subsequent to the measurement date will be recognized as a reduction of the net pension liability in the year ended June 30, 2019.

Other amounts reported as deferred outflows and inflows of resources related to pensions will be recognized in pension expense as follows:

<b>Year ended June 30:</b>	<b>Deferred Outflows of Resources (a)</b>	<b>Deferred Inflows of Resources (b)</b>	<b>Amount recognized in Pension Expense as an increase or (decrease) to Pension Expense (a) – (b)</b>
2019	\$3,147,635	\$148,647	\$2,998,988
2020	\$2,178,599	\$19,258	\$2,159,341
2021	\$1,056,527	\$0	\$1,056,527
2022	\$0	\$146,729	(\$146,729)
2023	\$0	\$0	\$0
Thereafter	\$0	\$0	\$0

## **Plan Description – 76a**

Teachers' Retirement System (TRS or the System) is a mandatory-participation multiple-employer cost-sharing defined-benefit public pension plan that provides retirement services to individuals employed as teachers, administrators, and in other professional and skilled positions employed in public education in Montana.

The TRS Board is the governing body of the System and the TRS staff administers the system in conformity with the laws set forth in Title 19, chapter 20 of the Montana Code Annotated, and administrative rules set forth in Title 2, chapter 44 of the Administrative Rules of Montana. Additional information pertaining to membership, benefit structure, and prior years' actuarial valuations, as well as links to applicable statutes and administrative rules, may be obtained by visiting the TRS web site at [trs.mt.gov](http://trs.mt.gov).

## **Summary of Benefits – 76b**

Through June 30, 2013, all members enrolled in TRS participated in a single-tiered plan ("Tier One"). Employees with a minimum of 25 years of service or who have reached age 60 with 5 years of service are eligible to receive an annual retirement benefit equal to creditable service years divided by 60 times the average final compensation. Final compensation is the average of the highest three consecutive years of earned compensation. Benefits fully vest after 5 years of creditable service. Vested employees may retire at or after age 50 and receive reduced retirement benefits. Beginning July 1, 2013, new members in TRS participate in a second benefit tier ("Tier Two"), which differs from Tier One as follows:

- Tier Two uses a 5-year average final compensation (as opposed to 3-year AFC in Tier One)
- Tier Two provides for unreduced service retirement benefits at age 60 with 5 years of creditable service or at age 55 with at least 30 years of creditable service (rather than at age 60 with 5 years of service or at any age with creditable service in 25 years in Tier One)
- Tier Two provides for early retirement benefits with 5 years of creditable service at age 55 (rather than age 50 in Tier One)
- Tier Two has a one percent higher normal employee contribution rate (though a temporary 1% supplemental employee contribution rate is also now currently in place for Tier One members), and
- Tier Two provides for an enhanced benefit calculation -  $1.85\% \times \text{AFC} \times \text{years of creditable service}$  - for members retiring with at least 30 years of creditable service and at least 60 years of age (rather than  $1.6667 \times \text{AFC} \times \text{years of creditable service}$ )

A guaranteed annual benefit adjustment (GABA) is payable on January 1st of each calendar year for each retiree who has received at least 36 monthly retirement benefit payments prior to that date. The GABA is applicable to both Tier One and Tier Two members. The GABA for Tier One members is 1.5% of the benefit payable as of January 1st. For Tier Two members the GABA each year may vary from 0.5% to 1.5% based on the retirement system's funding status and the period required to amortize any unfunded accrued actuarial liability as determined in the prior actuarial valuation.

## Overview of Contributions – 76c

The System receives a portion of the total required statutory contributions directly from the State for all employers. The employers are considered to be in a special funding situation as defined by GASB 68 and the State is treated as a non-employer contributing entity in TRS. The System receives 2.49% of reportable compensation from the State’s general fund for School Districts and Other Employers. The System also receives 0.11% of reportable compensation from the State’s general fund for all TRS Employers including State Agency and University System Employers. Finally, the State is also required to contribute \$25 million in perpetuity payable July 1st of each year.

The tables below show the legislated contribution rates for TRS members, employers and the State.

### School District and Other Employers

	<u>Members</u>	<u>Employers</u>	<u>General fund</u>	<u>Total employee &amp; employer</u>
Prior to July 1, 2007	7.15%	7.47%	0.11%	14.73%
July 1, 2007 to June 30, 2009	7.15%	7.47%	2.11%	16.73%
July 1, 2009 to June 30, 2013	7.15%	7.47%	2.49%	17.11%
July 1, 2013 to June 30, 2014	8.15%	8.47%	2.49%	19.11%
July 1, 2014 to June 30, 2015	8.15%	8.57%	2.49%	19.21%
July 1, 2015 to June 30, 2016	8.15%	8.67%	2.49%	19.31%
July 1, 2016 to June 30, 2017	8.15%	8.77%	2.49%	19.41%
July 1, 2017 to June 30, 2018	8.15%	8.87%	2.49%	19.51%
July 1, 2018 to June 30, 2019	8.15%	8.97%	2.49%	19.61%
July 1, 2019 to June 30, 2020	8.15%	9.07%	2.49%	19.71%
July 1, 2020 to June 30, 2021	8.15%	9.17%	2.49%	19.81%
July 1, 2021 to June 30, 2022	8.15%	9.27%	2.49%	19.91%
July 1, 2022 to June 30, 2023	8.15%	9.37%	2.49%	20.01%
July 1, 2023 to June 30, 2024	8.15%	9.47%	2.49%	20.11%

### State and University Employers

	<u>Members</u>	<u>Employers</u>	<u>General fund</u>	<u>Total employee &amp; employer</u>
Prior to July 1, 2007	7.15%	7.47%	0.11%	14.73%
July 1, 2007 to June 30, 2009	7.15%	9.47%	0.11%	16.73%
July 1, 2009 to June 30, 2013	7.15%	9.85%	0.11%	17.11%
July 1, 2013 to June 30, 2014	8.15%	10.85%	0.11%	19.11%
July 1, 2014 to June 30, 2015	8.15%	10.95%	0.11%	19.21%
July 1, 2015 to June 30, 2016	8.15%	11.05%	0.11%	19.31%
July 1, 2016 to June 30, 2017	8.15%	11.15%	0.11%	19.41%
July 1, 2017 to June 30, 2018	8.15%	11.25%	0.11%	19.51%
July 1, 2018 to June 30, 2019	8.15%	11.35%	0.11%	19.61%
July 1, 2019 to June 30, 2020	8.15%	11.45%	0.11%	19.71%
July 1, 2020 to June 30, 2021	8.15%	11.55%	0.11%	19.81%
July 1, 2021 to June 30, 2022	8.15%	11.65%	0.11%	19.91%
July 1, 2022 to June 30, 2023	8.15%	11.75%	0.11%	20.01%
July 1, 2023 to June 30, 2024	8.15%	11.85%	0.11%	20.11%

## TRS Stand-Alone Statements – 76d

TRS' stand-alone financial statements, actuarial valuations and experience studies can be found online at <https://trs.mt.gov/TrsInfo/NewsAnnualReports>

### Actuarial Assumptions - 77

The Total Pension Liability as of June 30, 2017, is based on the results of an actuarial valuation date of July 1, 2017. There were several significant assumptions and other inputs used to measure the total pension liability. The actuarial assumptions used in the July 1, 2017 valuation were based on the results of the last actuarial experience study, dated May 1, 2014. Among those assumptions were the following:

- Total Wage Increases\* 4%-8.51% for Non-University Members  
and 5.00% for University Members
- Investment Return 7.75%
- Price Inflation 3.25%
- Postretirement Benefit Increases
  - Tier One Members: If the retiree has received benefits for at least 3 years, the retirement allowance will be increased by 1.5% on January 1st.
  - Tier Two Members, the retirement allowance will be increased by an amount equal to or greater than 0.5% but no more than 1.5% if the most recent actuarial valuation shows the System to be at least 90% funded and the provisions of the increase is not projected to cause the funded ratio to be less than 85%.
- Mortality among contributing members, service retired members, and beneficiaries
  - For Males: 1992 Base Rates from the RP 2000 Healthy Annuitant Mortality Table for ages 50 and above and 1992 Base Rates from the RP 2000 Combined Healthy Annuitant Mortality Table for ages below 50, set back four years, with mortality improvements projected by Scale BB to 2018.
  - For Females: 1992 Base Rates from the RP 2000 Healthy Annuitant Mortality Table for ages 50 and above and 1992 Base Rates from the RP 2000 Combined Healthy Annuitant Mortality Table for ages below 50, set back two years, with mortality improvements projected by Scale BB to 2018
- Mortality among disabled members
  - For Males: RP 2000 Disabled Mortality Table for Males, set forward one year, with mortality improvements projected by Scale BB to 2018.
  - For Females: RP 2000 Disabled Mortality Table for Females, set forward five years, with mortality improvements projected by Scale BB to 2018.

\*Total Wage Increases include 4.00% general wage increase assumption

### Discount Rate - 78a, 78b, 78d

The discount rate used to measure the total pension liability was 7.75%. The projection of cash flows used to determine the discount rate assumed that contributions from participating plan members, employers, and non-employer contributing entities will be made based on the Board's funding policy, which establishes the contractually required rates under Montana Code Annotated. In addition to the contributions the State general fund will contribute \$25 million annually to the System payable July 1st of each year. Based on those assumptions, the System's fiduciary net position was projected to be adequate to make all the projected future benefit payments of current plan members through the year 2122. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability. No municipal bond rate was incorporated in the discount rate.

### Target Allocations - 78c, 78e, 78f

Asset Class	Target Asset Allocation (a)	Real Rate of Return Arithmetic Basis (b)	Long-Term Expected Portfolio Real Rate of Return* (a) x (b)
Broad US Equity	36.00%	4.80%	1.73%
Broad International Equity	18.00%	6.05%	1.09%
Private Equity	12.00%	8.50%	1.02%
Intermediate Bonds	23.40%	1.50%	0.35%
Core Real Estate	4.00%	4.50%	0.18%
High Yield Bonds	2.60%	3.25%	0.08%
Non-Core Real Estate	<u>4.00%</u>	7.50%	<u>0.30%</u>
	100.00%		4.75%
		Inflation	<u>3.25%</u>
		Expected arithmetic nominal return	8.00%

\* The long-term expected nominal rate of return above of 8.00% differs from the total TRS long-term rate of return assumption of 7.75%. The assumed rate is comprised of a 3.25% inflation rate and a real long-term expected rate of return of 4.50%.

The assumed long-term expected return on pension plan assets is reviewed as part of the regular experience studies prepared for the System. The most recent analysis, performed for the period covering fiscal years 2009 through 2013, is outlined in a report dated May 1, 2014. Several factors are considered in evaluating the long-term rate of return assumption including long term historical data, estimates inherent in current market data, and a log-normal distribution analysis in which best-estimate ranges of expected future real rates of return (expected return, net of investment expense and inflation) were developed by the investment consultant for each major asset class. These ranges were combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and then adding expected inflation. The capital market assumptions developed by the investment consultant are intended for use over a 10-year horizon and may not be useful in setting the long-term rate of return for funding pension plans which covers a longer timeframe. The assumption is intended to be a long term assumption and is not expected to change absent a significant change in the asset allocation, a change in the inflation assumption, or a fundamental change in the market that alters expected returns in future years. Best estimates of arithmetic real rates of return for each major asset class included in the System’s target asset allocation as of June 30, 2017, is summarized in the above table.

**Sensitivity Analysis – 78g**

	<b>1.0% Decrease (6.75%)</b>	<b>Current Discount Rate</b>	<b>1.0% Increase (8.75%)</b>
The Employer’s proportion of Net Pension Liability	\$11,455,924	\$8,313,254	\$5,666,467

In accordance with GASB 68 regarding the disclosure of the sensitivity of the net pension liability to changes in the discount rate, the above table presents the net pension liability calculated using the discount rate of 7.75%, as well as what the net pension liability would be if it were calculated using a discount rate that is 1.00% lower (6.75%) or 1.00% higher (8.75%) than the current rate.

## **Summary of Significant Accounting Policies – 79**

The Teachers' Retirement System prepares its financial statements using the accrual basis of accounting. For the purposes of measuring the Net Pension Liability, deferred inflows of resources and deferred outflows of resources related to pensions, pension expense, information about the fiduciary net position of the Teachers' Retirement System (TRS) and additions to/deductions from TRS's fiduciary net position have been determined on the same accrual basis as they are reported by TRS. For this purpose, plan contributions are recognized as of employer payroll paid dates and benefit payments and refunds are recognized when due and payable in accordance with the benefit terms. Investments are reported at fair value. TRS adheres to all applicable Governmental Accounting Standards Board (GASB) statements.

TRS' stand-alone financial statements, actuarial valuations and experience studies can be found online at <https://trs.mt.gov/TrsInfo/NewsAnnualReports>

**MONTANA STATE UNIVERSITY**  
**Required Supplementary Information**  
**Schedule of Proportionate Share of the Net Pension Liability**  
**Teachers Retirement System of Montana**  
**For the Year Ended June 30**  
**Determined as of the Measurement Date**

	<u><b>2018</b></u>	<u><b>2017</b></u>	<u><b>2016</b></u>	<u><b>2015</b></u>
Employer's proportion of the net pension liability	0.4931%	0.5527%	0.6652%	0.7316%
Employer's proportionate share of the net pension liability associated with the Employer	\$8,313,254	\$10,097,161	\$10,928,829	\$11,258,914
State of Montana's proportionate share of the net pension liability associated with the Employer	\$2,998,775	\$3,781,651	\$4,257,395	\$4,517,681
Total	\$11,312,029	\$13,878,812	\$15,186,224	\$15,776,595
Employer's covered-employee payroll	\$5,115,079	\$5,628,450	\$6,644,598	\$7,202,727
Employer's proportionate share of the net pension liability as a percentage of its covered-employee payroll	162.52%	179.40%	164.48%	156.31%
Plan fiduciary net position as a percentage of the total pension liability	70.09%	66.69%	69.30%	70.36%

*Schedule is intended to show information for 10 years. Additional years will be displayed as they become available*

**MONTANA STATE UNIVERSITY**  
**Required Supplementary Information**  
**Schedule of Contributions**  
**Teachers' Retirement System of Montana**  
**For the Year Ended June 30**  
**Determined as of the Reporting Date**

	<u><b>2018</b></u>	<u><b>2017</b></u>	<u><b>2016</b></u>	<u><b>2015</b></u>
Contractually required contributions	\$6,407,287	\$6,434,430	\$6,014,679	\$6,379,436
Contributions in relation to the contractually required contributions	\$6,407,287	\$6,434,430	\$6,014,679	\$6,379,436
Contribution deficiency (excess)	\$0	\$0	\$0	\$0
District's covered-employee payroll	\$4,844,117	\$5,115,079	\$5,628,450	\$6,644,598
Contributions as a percentage of covered-employee payroll	132.27%	125.79%	106.86%	96.01%

*Schedule is intended to show information for 10 years. Additional years will be displayed as they become available*

**MONTANA STATE UNIVERSITY**  
**Notes to Required Supplementary Information**  
**For the Year ended June 30, 2018**

***Changes of Benefit Terms:***

The following changes to the plan provisions were made as identified:

The 2013 Montana Legislature passed HB 377 which provides additional revenue and created a two tier benefit structure. A Tier One Member is a person who first became a member before July 1, 2013 and has not withdrawn their member's account balance. A Tier Two Member is a person who first becomes a member on or after July 1, 2013 or after withdrawing their member's account balance, becomes a member again on or after July 1, 2013.

The second tier benefit structure for members hired on or after July 1, 2013 is summarized below.

- (1) **Final Average Compensation:** average of earned compensation paid in five consecutive years of full-time service that yields the highest average
- (2) **Service Retirement:** Eligible to receive a service retirement benefit if the member has been credited with at least five full years of creditable service and has attained the age of 60; or has been credited with 30 or more years of full-time or part-time creditable service and has attained age 55
- (3) **Early Retirement:** Eligible to receive an early retirement allowance if a member is not eligible for service retirement but has at least five years of creditable service and attained age 55
- (4) **Professional Retirement Option:** if the member has been credited with 30 or more years of service and has attained the age of 60 they are eligible for an enhanced allowance equal to 1.85% of average final compensation times all service at retirement. Otherwise, the multiplier used to calculate the retirement allowance will be equal to 1.67%
- (5) **Annual Contribution:** 8.15% of member's earned compensation
- (6) **Supplemental Contribution Rate:** On or after July 1, 2023, the TRS Board may require a supplemental contribution up to 0.5% if the following three conditions are met:
  - a. The average funded ratio of the System based on the last three annual actuarial valuations is equal to or less than 80%; and
  - b. The period necessary to amortize all liabilities of the System based on the latest annual actuarial valuation is greater than 20 years; and
  - c. A State or employer contribution rate increase or a flat dollar contribution to the Retirement System Trust fund has been enacted that is equivalent to or greater than the supplemental contribution rate imposed by the TRS Board.
- (7) **Disability Retirement:** A member will not be eligible for a disability retirement if the member is or will be eligible for a service retirement on the date of termination
- (8) **Guaranteed Annual Benefit Adjustment (GABA):**
  - a. If the most recent actuarial valuation shows that Retirement System liabilities are at least 90% funded and the provision of the increase is not projected to cause the System's liabilities to be less than 85% funded, the GABA may increase from the 0.5% floor up to 1.5%, as set by the Board.

HB 377 increased revenue from the members, employers and the State as follows:

- Annual State contribution equal to \$25 million paid to the System in monthly installments.
- One-time contribution payable to the Retirement System by the trustees of a school district maintaining a retirement fund. The one-time contribution to the Retirement System shall be the amount earmarked as an operating reserve in excess of 20% of the adopted retirement fund budget for the fiscal year 2013. The amount received was \$22 million in FY 2014.
- 1% supplemental employer contribution. This will increase the current employer rates:
  - School Districts contributions will increase from 7.47% to 8.47%
  - The Montana University System and State Agencies will increase from 9.85% to 10.85%.
  - The supplemental employer contribution will increase by 0.1% each fiscal year for fiscal year 2014 thru fiscal year 2024. Fiscal years beginning after June 30, 2024 the total supplemental employer contribution will be equal to 2%.
- Members hired prior to July 1, 2013 (Tier 1) under HB 377 are required to contribute a supplemental contribution equal to an additional 1% of the member's earned compensation.
- Each employer is required to contribute 9.85% of total compensation paid to all re-employed TRS retirees employed in a TRS reportable position to the System.

*Changes in actuarial assumptions and other inputs:*

The following changes to the actuarial assumptions were adopted in 2016:

- The normal cost method has been updated to align the calculation of the projected compensation and the total present value of plan benefits so that the normal cost rate reflects the most appropriate allocation of plan costs over future compensation.

The following changes to the actuarial assumptions were adopted in 2015:

- Correctly reflect the proportion of members that are assumed to take a refund of contributions upon termination and appropriately reflect the three year COLA deferral period for Tier 2 Members.
- The 0.63% load applied to the projected retirement benefits of the university members “to account for larger than average annual compensation increases observed in the years immediately preceding retirement” is not applied to benefits expected to be paid to university members on account of death, disability and termination (prior to retirement eligibility).
- The actuarial valuation was updated to reflect the assumed rate of retirement for university members at age 60 is 8.50% as stated in the actuarial valuation report.
- The actuarial valuation was updated to reflect the fact that vested terminations are only covered by the \$500 death benefit for the one year following their termination and, once again when the terminated member commences their deferred retirement annuity (they are not covered during the deferral period). Additionally, only the portion of the terminated members that are assumed to “retain membership in the System” are covered by the \$500 death benefit after termination.

The following changes to the actuarial assumptions were adopted in 2014:

- Assumed rate of inflation was reduced from 3.50% to 3.25%
- Payroll Growth Assumption was reduced from 4.50% to 4.00%
- Assumed real wage growth was reduced from 1.00% to 0.75%
- Investment return assumption was changed from net of investment and administrative expenses to net of investment expenses only.
- Mortality among contributing members, service retired members, and beneficiaries was updated to the following:

For Males: RP 2000 Healthy Annuitant Mortality Table for ages 50 and above and the RP 2000 Combined Healthy Annuitant Mortality Table for ages below 50, set back four years, with mortality improvements projected by Scale BB to 2018.

For Females: RP 2000 Healthy Annuitant Mortality Table for ages 50 and above and the RP 2000 Combined Healthy Annuitant Mortality Table for ages below 50, set back two years, with mortality improvements projected by Scale BB to 2018.

- Mortality among disabled members was updated to the following:

For Males: RP 2000 Disabled Mortality Table for Males, set forward one year, with mortality improvements projected by Scale BB to 2018.

For Females: RP 2000 Disabled Mortality Table for Females, set forward five years, with mortality improvements projected by Scale BB to 2018.

***Method and assumptions used in calculations of actuarially determined contributions:***

Actuarial cost method	Entry age
Amortization method	Level percentage of pay, open
Remaining amortization period	22 years
Asset valuation method	4-year smoothed market
Inflation	3.25 percent
Salary increase	4.00 to 8.51 percent, including inflation for Non-University Members and 5.00% for University Members;
Investment rate of return	7.75 percent, net of pension plan investment expense, and including inflation

**MONTANA STATE UNIVERSITY**  
**Sample Journal Entries**

**For Employer's Fiscal Year Ended June 30, 2018 (June 30, 2017 Measurement Date)**

	<u>Debit</u>	<u>Credit</u>
Proportionate share of beginning collective net pension liability	\$10,097,161	
Proportionate share of ending collective net pension liability		\$8,313,254
Pension expense – Employer	5,075,359	0
Deferred outflows of resources – Difference b/w Expected and Actual Experience BEG	21,464	53,987
Deferred outflows/inflows of resources – Difference b/w Expected and Actual Experience END	30,573	12,429
Deferred outflows/inflows – Change of Assumptions BEG	63,464	64,256
Deferred outflows/inflows – Change of Assumptions END	0	34,755
Deferred outflows/inflows of resources –Difference b/w Actual and Expected Contributions & Change in Proportionate Share BEG	0	5,809,437
Deferred outflows/inflows of resources –Difference b/w Actual and Expected Contributions & Change in Proportionate Share END	6,117,636	0
Deferred outflows/inflows – Difference b/w Projected and Actual Investment Earnings BEG	0	650,210
Deferred outflows/inflows – Difference b/w Projected and Actual Investment Earnings END	0	32,899
Deferred outflows of resources – Employer contributions 7/1/2016 – 6/30/2017		6,434,430
<b>To record current year activity</b>	\$21,405,657	\$21,405,657
Pension expense – Non-Employer Contributing Entity	\$	\$ 347,662
Revenue – State aid	\$ 347,662	\$
<b>To record pension expense and revenue for State support</b>		
Deferred outflows of resources – District contributions 7/1/2017 – 6/30/2018	6,407,287	
Pension expense		6,407,287
<b>To record deferred outflows of resources for contributions subsequent to measurement date</b>		