



The Initial Valuation For
City of Billings
as of August 31, 2020



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October 21, 2020

City of Billings
Billings, Missouri

Ladies and Gentlemen:

Submitted in this report are the results of the actuarial valuation prepared to determine the employer contribution rates required to support, for your employees, the benefits provided by the Missouri Local Government Employees Retirement System (LAGERS). This report contains the information needed to comply with Missouri State disclosure requirements regarding the adoption of LAGERS benefits by a political subdivision (Sections 105.660 - 106.685 RSMo). This report should not be relied on for any purpose other than the purposes described herein. Determinations of financial results, associated with the benefits described in this report, for purposes other than those identified above may be significantly different.

This report was prepared at the request of the political subdivision and is intended for use by the political subdivision and those designated or approved by the political subdivision. This report may be provided to parties other than the political subdivision only in its entirety and only with the permission of the political subdivision. GRS is not responsible for unauthorized use of this report.

The contribution requirement for benefits likely to accrue as a result of the future service of your employees is described on pages 4 thru 7 as the normal cost rate and the casualty rate. This contribution rate, expressed as a percent of active employee payroll, will depend on the benefit program adopted.

The contribution requirement to pay for benefits likely to result from service rendered by your employees before you join LAGERS is described on pages 4 thru 7 as the prior service cost rate. The value established for prior service is called the unfunded actuarial accrued liability (these amounts are further described in Appendix I). The prior service cost rate is the rate of contribution designed to pay for the unfunded actuarial accrued liability over a period of not more than 30 years.

Section 70.730 of the Revised Statutes of Missouri requires participating employers to contribute the normal cost rate, casualty rate, and prior service cost rate (the total employer contribution rate as shown on pages 4 thru 7). These contributions are mandatory after official action has been taken to join the System.

The total annual dollar costs shown on pages 8 and 9 represent the dollar cost of each benefit program for a one year period based on the payroll reported for this actuarial valuation. In budgeting amounts for LAGERS contributions you should consider any changes in payroll which have been made since data was submitted for the valuation and any changes anticipated to be made before the end of the period for which you are preparing the budget.

The actuarial assumptions and methods used to determine the stated costs are described in Appendix II of this report. In our opinion, they do produce results which, in the aggregate, are reasonable. Additional miscellaneous and technical assumptions as well as disclosures required by the actuarial standards of practice may be found in the LAGERS Compiled Annual Actuarial Valuation report as of February 29, 2020.

The computed contributions required for LAGERS participation will permit the System to continue to operate in accordance with the actuarial principles of level cost financing and the State law which governs LAGERS. This valuation assumed the ability of the plan sponsor to make the contributions necessary to fund this plan. A determination regarding whether or not the plan sponsor is actually able to do so is outside our expertise and not performed. Summary provisions of the law as well as benefit illustrations can be found in Appendices III and IV.

Projections needed to comply with Missouri State disclosure requirements (Section 105.665 of the RSMo) regarding the adoption of LAGERS benefits by a political subdivision are available upon request from LAGERS.

Please note that this entire report must be available as public information for at least 45 calendar days prior to the date final official action is taken by your governing body to join the System. You may wish to make notice of this report in the official minutes of the next meeting of your governing body. This action would not be binding on your subdivision, yet would establish the beginning date of the 45 day waiting period.

In accordance with LAGERS Board policy, the employer contribution rates established by this valuation report are valid for purposes of joining the System for a two year period from the date of this valuation which was August 31, 2020. The valuation was based on data furnished from your records concerning individual employees (see Appendix V).

This report includes risk commentary in Appendix VI, but does not include a more robust assessment of the risks of future experience not meeting the actuarial assumptions. Additional assessment of risks was outside the scope of this assignment.

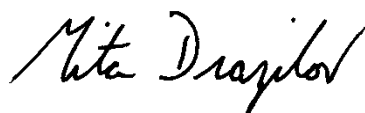
If you have any questions concerning this report or LAGERS in general, please contact the LAGERS office in Jefferson City.

This report has been prepared by actuaries who have substantial experience valuing public employee retirement systems. To the best of our knowledge the information contained in this report is accurate and fairly presents the actuarial position of the political subdivision as of the valuation date. All calculations have been made in conformity with generally accepted actuarial principles and practices, with the actuarial standards of practice issued by the Actuarial Standards Board, and with applicable statutes.

Mita D. Drazilov is a member of the American Academy of Actuaries and meets the Qualification Standards of the Academy of Actuaries to render the actuarial opinions contained herein.

The signing actuary is independent of the plan sponsor.

Respectfully submitted,



Mita D. Drazilov, ASA, FCA, MAAA



Alternate Plan Provisions Affecting Employer Contribution Rates

The law governing LAGERS provides for a member contribution rate of either 0%, 2%, 4% or 6%, with benefits based on either a 5 year or 3 year Final Average Salary (FAS).

Member Contribution Rate - 0% Plan. Under the 0% plan, there is no individual employee contribution to the plan, no individual account maintained for each employee, and no refund paid to employees who terminate before being eligible for a benefit.

Member Contribution Rate - 2%, 4% or 6% Plan. Under any plan other than 0%, each covered member contributes a percentage of compensation to LAGERS. If an employee terminates before being eligible for an immediate benefit, the member's contributions, plus any interest credited to the member's individual account, are refunded upon request.

The law further provides for nine different benefit programs (benefit formula factors) and allows an employer to elect "rule of 80" eligibility for benefits. Under the rule of 80, employees are eligible for unreduced benefits at the earlier of (i) attainment of their minimum service retirement age or (ii) such time as their years of age plus years of LAGERS credited service equals 80.

In total this allows for 144 different combinations of benefit plans, giving employers considerable latitude in designing the retirement program which they feel best suits their particular situation.

The applicable combinations of these items may be changed from time to time, however, there are limitations on the frequency of changes. A more detailed description of plan provisions may be found in Appendix III of this report.

City of Billings

Employer Contribution Rates 5 Year FAS - Regular Retirement Eligibility

Benefit Program	Employee Groups	Percents of Active Member Payroll						
		Normal Cost Rate	Casualty Rate	Prior Service Cost Rate *	Total Employer Contribution Rate Based Upon the Following Member Contribution Rates			
					0%	2%	4%	6%
L-1	General	7.10%	0.20%	4.10%	11.40%	9.50%	7.60%	5.70%
	Police	8.40	0.40	0.50	9.30	7.40	5.50	3.60
L-3	General	8.60	0.30	5.10	14.00	12.10	10.20	8.30
	Police	10.30	0.50	0.70	11.50	9.60	7.70	5.80
LT-4(65)	General	7.60	0.20	4.30	12.10	10.20	8.30	6.40
	Police	9.40	0.40	0.60	10.40	8.50	6.60	4.70
LT-5(65)	General	9.00	0.30	5.30	14.60	12.70	10.80	8.90
	Police	11.00	0.50	0.70	12.20	10.30	8.40	6.50
L-7	General	10.10	0.30	6.20	16.60	14.70	12.80	10.90
	Police	12.20	0.60	0.80	13.60	11.70	9.80	7.90
LT-8(65)	General	10.40	0.30	6.30	17.00	15.10	13.20	11.30
	Police	12.60	0.60	0.80	14.00	12.10	10.20	8.30
L-12	General	11.70	0.40	7.20	19.30	17.40	15.50	13.60
	Police	14.00	0.70	0.90	15.60	13.70	11.80	9.90
LT-14(65)	General	11.80	0.40	7.20	19.40	17.50	15.60	13.70
	Police	14.30	0.70	1.00	16.00	14.10	12.20	10.30
L-6	General	13.20	0.50	8.20	21.90	20.00	18.10	16.20
	Police	15.90	0.80	1.10	17.80	15.90	14.00	12.10

* Assumes that credit is granted for 100% of service rendered prior to the membership date for employees working in a covered position on the membership date and employed continuously in a covered position for one year with this employer. If the governing body wishes to elect one of the lesser percents allowed by law -- 75%, 50%, or 25% -- the prior service cost rate will be reduced. An additional actuarial valuation will need to be performed to determine the employer contribution rate.

The total employer contribution rate for each member contribution rate option shown above includes the prior service cost rate, casualty rate and corresponding normal cost rate. The prior service cost rate is the cost associated with paying off the unfunded actuarial accrued liability (past service). The normal cost rate plus the casualty rate is the cost of members' service being rendered each year (future service). For purposes of this initial valuation, the total employer contribution rate for the 0% member contribution rate plan is decreased by 1.9%, 3.8% and 5.7% for the 2%, 4% and 6% member contribution rate plans, respectively.

City of Billings

Employer Contribution Rates 3 Year FAS - Regular Retirement Eligibility

Benefit Program	Employee Groups	Percents of Active Member Payroll						
		Normal Cost Rate	Casualty Rate	Prior Service Cost Rate *	Total Employer Contribution Rate Based Upon the Following Member Contribution Rates			
					0%	2%	4%	6%
L-1	General	7.30%	0.20%	4.20%	11.70%	9.80%	7.90%	6.00%
	Police	8.70	0.40	0.60	9.70	7.80	5.90	4.00
L-3	General	8.90	0.30	5.30	14.50	12.60	10.70	8.80
	Police	10.60	0.50	0.70	11.80	9.90	8.00	6.10
LT-4(65)	General	7.80	0.20	4.40	12.40	10.50	8.60	6.70
	Police	9.60	0.40	0.60	10.60	8.70	6.80	4.90
LT-5(65)	General	9.30	0.30	5.40	15.00	13.10	11.20	9.30
	Police	11.30	0.50	0.80	12.60	10.70	8.80	6.90
L-7	General	10.40	0.30	6.40	17.10	15.20	13.30	11.40
	Police	12.50	0.60	0.80	13.90	12.00	10.10	8.20
LT-8(65)	General	10.70	0.30	6.50	17.50	15.60	13.70	11.80
	Police	13.00	0.60	0.90	14.50	12.60	10.70	8.80
L-12	General	12.00	0.40	7.40	19.80	17.90	16.00	14.10
	Police	14.50	0.70	1.00	16.20	14.30	12.40	10.50
LT-14(65)	General	12.20	0.40	7.50	20.10	18.20	16.30	14.40
	Police	14.70	0.70	1.00	16.40	14.50	12.60	10.70
L-6	General	13.60	0.50	8.50	22.60	20.70	18.80	16.90
	Police	16.40	0.80	1.10	18.30	16.40	14.50	12.60

* Assumes that credit is granted for 100% of service rendered prior to the membership date for employees working in a covered position on the membership date and employed continuously in a covered position for one year with this employer. If the governing body wishes to elect one of the lesser percents allowed by law -- 75%, 50%, or 25% -- the prior service cost rate will be reduced. An additional actuarial valuation will need to be performed to determine the employer contribution rate.

The total employer contribution rate for each member contribution rate option shown above includes the prior service cost rate, casualty rate and corresponding normal cost rate. The prior service cost rate is the cost associated with paying off the unfunded actuarial accrued liability (past service). The normal cost rate plus the casualty rate is the cost of members' service being rendered each year (future service). For purposes of this initial valuation, the total employer contribution rate for the 0% member contribution rate plan is decreased by 1.9%, 3.8% and 5.7% for the 2%, 4% and 6% member contribution rate plans, respectively.

City of Billings

Employer Contribution Rates 5 Year FAS - Rule of 80 Retirement Eligibility#

Benefit Program	Employee Groups	Percents of Active Member Payroll						
		Normal Cost Rate	Casualty Rate	Prior Service Cost Rate *	Total Employer Contribution Rate Based Upon the Following Member Contribution Rates			
					0%	2%	4%	6%
L-1	General	7.40%	0.20%	4.10%	11.70%	9.80%	7.90%	6.00%
	Police	8.40	0.40	0.50	9.30	7.40	5.50	3.60
L-3	General	9.00	0.30	5.10	14.40	12.50	10.60	8.70
	Police	10.30	0.50	0.70	11.50	9.60	7.70	5.80
LT-4(65)	General	8.40	0.20	4.30	12.90	11.00	9.10	7.20
	Police	9.40	0.40	0.60	10.40	8.50	6.60	4.70
LT-5(65)	General	9.80	0.30	5.30	15.40	13.50	11.60	9.70
	Police	11.00	0.50	0.70	12.20	10.30	8.40	6.50
L-7	General	10.70	0.30	6.20	17.20	15.30	13.40	11.50
	Police	12.20	0.60	0.80	13.60	11.70	9.80	7.90
LT-8(65)	General	11.20	0.30	6.30	17.80	15.90	14.00	12.10
	Police	12.60	0.60	0.80	14.00	12.10	10.20	8.30
L-12	General	12.30	0.40	7.20	19.90	18.00	16.10	14.20
	Police	14.00	0.70	0.90	15.60	13.70	11.80	9.90
LT-14(65)	General	12.50	0.40	7.20	20.10	18.20	16.30	14.40
	Police	14.30	0.70	1.00	16.00	14.10	12.20	10.30
L-6	General	13.90	0.50	8.20	22.60	20.70	18.80	16.90
	Police	15.90	0.80	1.10	17.80	15.90	14.00	12.10

The cost for the Rule of 80 provision is very dependent upon the age at hire of the employees. If hiring practices in the future differ from those of the past, the cost for this provision could increase or decrease. The cost shown is based on the age and service characteristics of the present group.

* Assumes that credit is granted for 100% of service rendered prior to the membership date for employees working in a covered position on the membership date and employed continuously in a covered position for one year with this employer. If the governing body wishes to elect one of the lesser percents allowed by law -- 75%, 50%, or 25% -- the prior service cost rate will be reduced. An additional actuarial valuation will need to be performed to determine the employer contribution rate.

The total employer contribution rate for each member contribution rate option shown above includes the prior service cost rate, casualty rate and corresponding normal cost rate. The prior service cost rate is the cost associated with paying off the unfunded actuarial accrued liability (past service). The normal cost rate plus the casualty rate is the cost of members' service being rendered each year (future service). For purposes of this initial valuation, the total employer contribution rate for the 0% member contribution rate plan is decreased by 1.9%, 3.8% and 5.7% for the 2%, 4% and 6% member contribution rate plans, respectively.

City of Billings

Employer Contribution Rates 3 Year FAS - Rule of 80 Retirement Eligibility#

Benefit Program	Employee Groups	Percents of Active Member Payroll						
		Normal Cost Rate	Casualty Rate	Prior Service Cost Rate *	Total Employer Contribution Rate Based Upon the Following Member Contribution Rates			
					0%	2%	4%	6%
L-1	General	7.60%	0.20%	4.20%	12.00%	10.10%	8.20%	6.30%
	Police	8.70	0.40	0.60	9.70	7.80	5.90	4.00
L-3	General	9.30	0.30	5.30	14.90	13.00	11.10	9.20
	Police	10.60	0.50	0.70	11.80	9.90	8.00	6.10
LT-4(65)	General	8.70	0.20	4.40	13.30	11.40	9.50	7.60
	Police	9.60	0.40	0.60	10.60	8.70	6.80	4.90
LT-5(65)	General	10.10	0.30	5.40	15.80	13.90	12.00	10.10
	Police	11.30	0.50	0.80	12.60	10.70	8.80	6.90
L-7	General	11.00	0.30	6.40	17.70	15.80	13.90	12.00
	Police	12.50	0.60	0.80	13.90	12.00	10.10	8.20
LT-8(65)	General	11.50	0.30	6.50	18.30	16.40	14.50	12.60
	Police	13.00	0.60	0.90	14.50	12.60	10.70	8.80
L-12	General	12.70	0.40	7.40	20.50	18.60	16.70	14.80
	Police	14.50	0.70	1.00	16.20	14.30	12.40	10.50
LT-14(65)	General	12.90	0.40	7.50	20.80	18.90	17.00	15.10
	Police	14.70	0.70	1.00	16.40	14.50	12.60	10.70
L-6	General	14.40	0.50	8.50	23.40	21.50	19.60	17.70
	Police	16.40	0.80	1.10	18.30	16.40	14.50	12.60

The cost for the Rule of 80 provision is very dependent upon the age at hire of the employees. If hiring practices in the future differ from those of the past, the cost for this provision could increase or decrease. The cost shown is based on the age and service characteristics of the present group.

* Assumes that credit is granted for 100% of service rendered prior to the membership date for employees working in a covered position on the membership date and employed continuously in a covered position for one year with this employer. If the governing body wishes to elect one of the lesser percents allowed by law -- 75%, 50%, or 25% -- the prior service cost rate will be reduced. An additional actuarial valuation will need to be performed to determine the employer contribution rate.

The total employer contribution rate for each member contribution rate option shown above includes the prior service cost rate, casualty rate and corresponding normal cost rate. The prior service cost rate is the cost associated with paying off the unfunded actuarial accrued liability (past service). The normal cost rate plus the casualty rate is the cost of members' service being rendered each year (future service). For purposes of this initial valuation, the total employer contribution rate for the 0% member contribution rate plan is decreased by 1.9%, 3.8% and 5.7% for the 2%, 4% and 6% member contribution rate plans, respectively.

City of Billings

Employer Contribution Dollars General

Employer contributions are payable monthly, and each month's actual dollar contribution will be the contribution percent multiplied by the payroll during the month. If payroll during your first year of LAGERS participation equals the annual payroll reported for this valuation, the approximate employer dollar contribution for the year would be as follows:

Regular Retirement Eligibility

5 Year FAS				
Benefit Program	Member Contribution Rate			
	0%	2%	4%	6%
L-1	\$ 16,278	\$ 13,565	\$ 10,852	\$ 8,139
L-3	19,991	17,278	14,565	11,852
LT-4(65)	17,278	14,565	11,852	9,139
LT-5(65)	20,847	18,134	15,421	12,708
L-7	23,703	20,990	18,277	15,564
LT-8(65)	24,274	21,561	18,848	16,135
L-12	27,558	24,845	22,132	19,419
LT-14(65)	27,701	24,988	22,275	19,562
L-6	31,271	28,558	25,845	23,132

3 Year FAS				
Benefit Program	Member Contribution Rate			
	0%	2%	4%	6%
L-1	\$ 16,706	\$ 13,993	\$ 11,280	\$ 8,567
L-3	20,705	17,992	15,279	12,566
LT-4(65)	17,706	14,993	12,280	9,567
LT-5(65)	21,419	18,705	15,992	13,279
L-7	24,417	21,704	18,991	16,278
LT-8(65)	24,988	22,275	19,562	16,849
L-12	28,272	25,559	22,846	20,133
LT-14(65)	28,701	25,988	23,275	20,562
L-6	32,271	29,558	26,845	24,132

Rule of 80 Retirement Eligibility

5 Year FAS				
Benefit Program	Member Contribution Rate			
	0%	2%	4%	6%
L-1	\$ 16,706	\$ 13,993	\$ 11,280	\$ 8,567
L-3	20,562	17,849	15,136	12,423
LT-4(65)	18,420	15,707	12,994	10,281
LT-5(65)	21,990	19,277	16,564	13,851
L-7	24,560	21,847	19,134	16,421
LT-8(65)	25,417	22,704	19,991	17,278
L-12	28,415	25,702	22,989	20,276
LT-14(65)	28,701	25,988	23,275	20,562
L-6	32,271	29,558	26,845	24,132

3 Year FAS				
Benefit Program	Member Contribution Rate			
	0%	2%	4%	6%
L-1	\$ 17,135	\$ 14,422	\$ 11,709	\$ 8,996
L-3	21,276	18,563	15,850	13,137
LT-4(65)	18,991	16,278	13,565	10,852
LT-5(65)	22,561	19,848	17,135	14,422
L-7	25,274	22,561	19,848	17,135
LT-8(65)	26,131	23,418	20,705	17,992
L-12	29,272	26,559	23,846	21,133
LT-14(65)	29,700	26,987	24,274	21,561
L-6	33,413	30,700	27,987	25,274

PLEASE NOTE THAT THE ABOVE INFORMATION IS BASED ON THE PERSONNEL AND PAYROLL DATA SUBMITTED FOR THE ACTUARIAL VALUATION. IN BUDGETING AMOUNTS FOR LAGERS CONTRIBUTIONS YOU SHOULD CONSIDER ANY CHANGES WHICH HAVE BEEN MADE SINCE DATA WAS SUBMITTED FOR THE VALUATION AND ANY CHANGES ANTICIPATED TO BE MADE BEFORE THE END OF THE PERIOD FOR WHICH YOU ARE PREPARING THE BUDGET.

City of Billings

Employer Contribution Dollars Police

Employer contributions are payable monthly, and each month's actual dollar contribution will be the contribution percent multiplied by the payroll during the month. If payroll during your first year of LAGERS participation equals the annual payroll reported for this valuation, the approximate employer dollar contribution for the year would be as follows:

Regular Retirement Eligibility

5 Year FAS				
Benefit Program	Member Contribution Rate			
	0%	2%	4%	6%
L-1	\$ 9,914	\$ 7,888	\$ 5,863	\$ 3,838
L-3	12,259	10,234	8,208	6,183
LT-4(65)	11,086	9,061	7,036	5,010
LT-5(65)	13,005	10,980	8,954	6,929
L-7	14,498	12,472	10,447	8,421
LT-8(65)	14,924	12,899	10,873	8,848
L-12	16,630	14,604	12,579	10,553
LT-14(65)	17,056	15,031	13,005	10,980
L-6	18,975	16,949	14,924	12,899

3 Year FAS				
Benefit Program	Member Contribution Rate			
	0%	2%	4%	6%
L-1	\$ 10,340	\$ 8,315	\$ 6,289	\$ 4,264
L-3	12,579	10,553	8,528	6,503
LT-4(65)	11,300	9,274	7,249	5,223
LT-5(65)	13,432	11,406	9,381	7,355
L-7	14,817	12,792	10,767	8,741
LT-8(65)	15,457	13,432	11,406	9,381
L-12	17,269	15,244	13,218	11,193
LT-14(65)	17,482	15,457	13,432	11,406
L-6	19,508	17,482	15,457	13,432

Rule of 80 Retirement Eligibility

5 Year FAS				
Benefit Program	Member Contribution Rate			
	0%	2%	4%	6%
L-1	\$ 9,914	\$ 7,888	\$ 5,863	\$ 3,838
L-3	12,259	10,234	8,208	6,183
LT-4(65)	11,086	9,061	7,036	5,010
LT-5(65)	13,005	10,980	8,954	6,929
L-7	14,498	12,472	10,447	8,421
LT-8(65)	14,924	12,899	10,873	8,848
L-12	16,630	14,604	12,579	10,553
LT-14(65)	17,056	15,031	13,005	10,980
L-6	18,975	16,949	14,924	12,899

3 Year FAS				
Benefit Program	Member Contribution Rate			
	0%	2%	4%	6%
L-1	\$ 10,340	\$ 8,315	\$ 6,289	\$ 4,264
L-3	12,579	10,553	8,528	6,503
LT-4(65)	11,300	9,274	7,249	5,223
LT-5(65)	13,432	11,406	9,381	7,355
L-7	14,817	12,792	10,767	8,741
LT-8(65)	15,457	13,432	11,406	9,381
L-12	17,269	15,244	13,218	11,193
LT-14(65)	17,482	15,457	13,432	11,406
L-6	19,508	17,482	15,457	13,432

PLEASE NOTE THAT THE ABOVE INFORMATION IS BASED ON THE PERSONNEL AND PAYROLL DATA SUBMITTED FOR THE ACTUARIAL VALUATION. IN BUDGETING AMOUNTS FOR LAGERS CONTRIBUTIONS YOU SHOULD CONSIDER ANY CHANGES WHICH HAVE BEEN MADE SINCE DATA WAS SUBMITTED FOR THE VALUATION AND ANY CHANGES ANTICIPATED TO BE MADE BEFORE THE END OF THE PERIOD FOR WHICH YOU ARE PREPARING THE BUDGET.

City of Billings

Employees and Payroll Included in the Valuation

	General	Police
Number of Employees	5	3
Annual Payroll	\$ 142,790	\$ 106,600

Information regarding the age and service characteristics of the employees is contained in Appendix V.

APPENDIX I

UNFUNDED ACTUARIAL ACCRUED LIABILITY

Unfunded Actuarial Accrued Liability (UAAL)

If the decision is made to join LAGERS the governing body also must decide how much credit to grant employees for their service before the membership date. The options are to cover 25%, 50%, 75% or 100% of prior service. The granting of prior service credit results in the establishment of an actuarial accrued liability. Because your political subdivision will not have established an asset balance with the System as of the membership date, the value established for prior service is an unfunded actuarial accrued liability.

The policy of the LAGERS Board of Trustees provides that unfunded liabilities are to be paid for by level percent of payroll contributions over a period of 30 years. The contribution rates shown on pages 4 through 7 as the "Prior Service Cost Rate" are designed to pay for the applicable unfunded actuarial accrued liability. This procedure will allow your political subdivision to retire the unfunded actuarial accrued liability in an orderly fashion over a period of years without the need for an immediate large payment upon joining the System.

Should the governing body elect to grant credit for 100% of the employees' prior service, the unfunded actuarial accrued liability as of the date of this valuation would be as follows:

City of Billings

Regular Retirement Eligibility

Benefit Group	Employee Group	Member Contribution Rate - 0%	
		UAAL (5 Year FAS)	UAAL (3 Year FAS)
L-1	General	\$ 103,358	\$ 106,774
	Police	10,118	10,422
L-3	General	129,197	133,446
	Police	12,636	13,035
LT-4(65)	General	107,691	111,254
	Police	11,551	11,897
LT-5(65)	General	132,457	136,810
	Police	13,723	14,153
L-7	General	155,058	160,131
	Police	15,174	15,649
LT-8(65)	General	157,230	162,373
	Police	15,896	16,391
L-12	General	180,899	186,830
	Police	17,700	18,270
LT-14(65)	General	181,986	187,939
	Police	18,065	18,644
L-6	General	206,744	213,506
	Police	20,223	20,872

City of Billings

Unfunded Actuarial Accrued Liability (UAAL)

Rule of 80 Retirement Eligibility

Benefit Group	Employee Group	Member Contribution Rate - 0%	
		UAAL (5 Year FAS)	UAAL (3 Year FAS)
L-1	General	\$ 103,369	\$ 106,752
	Police	10,118	10,422
L-3	General	129,206	133,440
	Police	12,636	13,035
LT-4(65)	General	107,693	111,246
	Police	11,551	11,897
LT-5(65)	General	132,452	136,806
	Police	13,723	14,153
L-7	General	155,060	160,144
	Police	15,174	15,649
LT-8(65)	General	157,218	162,381
	Police	15,896	16,391
L-12	General	180,897	186,816
	Police	17,700	18,270
LT-14(65)	General	181,983	187,936
	Police	18,065	18,644
L-6	General	206,742	213,525
	Police	20,223	20,872

APPENDIX II

SUMMARY OF FINANCIAL ASSUMPTIONS

Summary of Assumptions Used in Actuarial Valuations

Assumptions Adopted by Board of Trustees After Consulting With Actuary

1. The investment return rate used in making the valuations was 7.25% per year, net of investment expenses, compounded annually. This rate of return is not the assumed real rate of return. The real rate of return is the rate of investment return in excess of the inflation rate. The price inflation rate used in making the valuations was 2.50% and the wage inflation rate used in making the valuations was 3.25%. The 7.25% investment return rate translates to an assumed real rate of return over price inflation of 4.75% and over wage inflation of 4.00%. Adopted 2011 and 2016.
2. The healthy retiree mortality tables, for post-retirement mortality, used in evaluating allowances to be paid were the RP-2014 Healthy Annuitant mortality table for males and females, adjusted for mortality improvement back to the observation period base year of 2006. The disabled retiree mortality tables, for post-retirement mortality, used in evaluating allowances to be paid were the RP-2014 disabled mortality table for males and females, adjusted for mortality improvement back to the observation period base year of 2006. The pre-retirement mortality tables used were the RP-2014 employees mortality table for males and females, adjusted for mortality improvement back to the observation period base year of 2006. For both the post-retirement and pre-retirement tables, the base year for males was then established to be 2017. Mortality rates for a particular calendar year are determined by applying the MP-2015 mortality improvement scale to the above described tables. Adopted 2016.
3. The probabilities of withdrawal and disability from service, together with individual pay increase assumptions, are shown in Schedule 1. Adopted 2016.
4. The probabilities of retirement with an age and service allowance are shown in Schedule 2. Adopted 2016.
5. Post-retirement cost of living allowances are assumed to be 2.50% per year. Adopted 2016.
6. Total active member payroll is assumed to increase 3.25% a year, which is the portion of the individual pay increase assumptions attributable to wage inflation. In effect, this assumes no change in the number of active members per employer. Adopted 2016.
7. An individual entry-age actuarial cost method of valuation was used in determining age and service allowance actuarial liabilities and normal cost. Adopted 1986.
8. The data about persons now covered was furnished by the political subdivision. Although examined for general reasonableness, the data was not audited by us.

Schedule 1.

Separations From Active Employment (Not Including Death-In-Service) Before Age & Service Retirement and Individual Pay Increase Assumptions

		Percent of Active Members Separating Within Next Year							
Sample Ages	Years of Service	General Members				Police/Public Safety		Fire	
		Men		Women		Disability	Withdrawal	Disability	Withdrawal
		Disability	Withdrawal	Disability	Withdrawal				
All	0	19.00%		22.00%		18.00%		10.00%	
	1	17.00		20.00		17.00		8.00	
	2	15.00		17.00		16.00		7.00	
	3	13.00		14.00		13.00		6.00	
	4	11.00		13.00		12.00		6.00	
25	5 & Over	0.09%	7.30	0.02%	10.80	0.10%	9.80	0.06%	5.00
30		0.12	6.50	0.03	8.90	0.11	7.80	0.10	4.00
35		0.15	5.00	0.06	7.40	0.16	6.10	0.23	2.80
40		0.21	3.70	0.10	5.70	0.22	4.40	0.35	2.20
45		0.30	3.00	0.16	4.20	0.34	3.20	0.56	1.80
50		0.44	2.40	0.24	3.30	0.53	1.80	0.85	1.00
55		0.68	1.80	0.34	2.50	0.88	1.00	1.31	0.50
60		1.02	1.00	0.48	1.20		0.00		0.00
65			0.00		0.00		0.00		0.00

		Percent Increase in Individual's Pay During Next Year			
Sample Ages	General			Police/Public Safety	Fire
	General	Police/Public Safety	Fire		
25	6.55%	6.55%	7.15%		
30	5.75	5.75	6.05		
35	5.25	5.25	5.15		
40	4.75	4.75	4.45		
45	4.25	4.25	4.15		
50	3.85	3.85	3.85		
55	3.65	3.65	3.65		
60	3.55	3.55	3.25		
65	3.25	3.25	3.25		

Schedule 2.

Percent of Eligible Active Members Retiring Within Next Year Without Rule of 80 Eligibility

Early Retirement

Retirement Ages	General Members		Retirement Ages	Police/ Public Safety	Fire
	Men	Women			
55	3.00%	3.00%	50	2.50%	2.50%
56	3.00%	3.00%	51	2.50%	2.50%
57	3.00%	3.00%	52	2.50%	2.50%
58	3.00%	3.00%	53	2.50%	2.50%
59	3.00%	3.00%	54	2.50%	2.50%

Normal Retirement

Retirement Ages	General Members		Retirement Ages	Police/ Public Safety	Fire
	Men	Women			
60	10%	10%	55	10%	13%
61	10	10	56	10	13
62	25	15	57	10	13
63	20	15	58	10	13
64	20	15	59	10	13
65	25	25	60	10	15
66	25	25	61	10	15
67	20	25	62	25	20
68	20	25	63	20	20
69	20	20	64	20	20
70	100	100	65	100	100

Schedule 2. (Continued)

Percent of Eligible Active Members Retiring Within Next Year With Rule of 80 Eligibility

Retirement Ages	General Members		Police/ Public Safety	Fire
	Men	Women		
50	15%	15%	25%	25%
51	15	15	25	20
52	15	15	15	20
53	15	15	15	20
54	15	15	15	20
55	15	15	15	20
56	15	15	15	20
57	15	15	15	25
58	15	15	15	25
59	15	15	15	25
60	15	15	15	35
61	15	15	25	35
62	30	15	30	45
63	30	15	30	45
64	30	20	30	45
65	30	25	100	100
66	30	25		
67	30	25		
68	30	25		
69	30	25		
70	100	100		

APPENDIX III

SUMMARY OF LAGERS PROVISIONS

Missouri Local Government Employees Retirement System

Brief Summary of LAGERS

Benefits and Conditions Evaluated and/or Considered as of February 29, 2020

(Section references are to RSMo)

Voluntary Retirement. Sections 70.645 & 70.600. A member may retire with an age & service allowance after both (i) completing 5 years of credited service, and (ii) attaining the minimum service retirement age.

The minimum service retirement age is age 60 for a general employee and age 55 for a police, public safety or fire employee. Optionally, employers may also elect to provide for unreduced benefits for employees whose combination of years of age and years of service equals 80 or more.

Final Average Salary. Section 70.600. The average of a member's monthly compensation during the period of 60 consecutive months (or optionally, 36 consecutive months) of credited service producing the highest monthly average, which period is contained within the 120 consecutive months of credited service immediately preceding retirement.

Age & Service Allowance. Section 70.655. The allowance, payable monthly for life, equals a specified percent of a member's final average salary multiplied by the number of years of credited service. Each employer elects the percent applicable to its members, from the following programs:

L-1 Benefit Program:	1.00% for life
L-3 Benefit Program:	1.25% for life
L-7 Benefit Program:	1.50% for life
L-12 Benefit Program:	1.75% for life
L-6 Benefit Program:	2.00% for life
LT-4(65) Benefit Program:	1.00% for life, plus 1.00% to age 65
LT-5(65) Benefit Program:	1.25% for life, plus 0.75% to age 65
LT-8(65) Benefit Program:	1.50% for life, plus 0.50% to age 65
LT-14(65) Benefit Program:	1.75% for life, plus 0.25% to age 65

The only LT benefit programs available for adoption after August 1, 1994 are the LT(65) programs.

Benefit programs L-9 and LT-10(65) are unavailable for adoption after August 1, 2005.

Benefit program L-11, available only to groups not covered by social security, provides for 2.5% for life.

Subsequent to joining the System the governing body can elect to change benefit programs for the employees, but not more often than once every 2 years.

Early Allowance. Section 70.670. A member may retire with an early allowance after both (i) completing 5 years of credited service, and (ii) attaining age 55 if a general employee or age 50 if a police, public safety or fire employee.

The early allowance amount, payable monthly for life, is computed in the same manner as an age & service allowance, based upon the service and earnings record to time of early retirement, but reduced to reflect the fact that the age when payments begin is younger than the minimum service retirement age. The amount of the reduction is 1/2 of 1% (.005) for each month the age at retirement is younger than the minimum service retirement age.

Deferred Allowance. Section 70.675. If a member leaves LAGERS-covered employment (i) before attaining the early retirement age, and (ii) after completing 5 years of credited service, the member becomes eligible for a deferred allowance; provided the former member lives to the minimum service retirement age and does not withdraw the accumulated contributions.

The deferred allowance amount, payable monthly for life from the minimum service retirement age, is computed in the same manner as an age & service allowance, based upon the service and earnings record to time of leaving LAGERS coverage.

Deferred allowances are also payable any time after reaching the early retirement age, with the reduction for early retirement noted on the previous page.

Non-Duty Disability Allowance. Section 70.680. A member with 5 or more years of credited service who becomes totally and permanently disabled from other than duty-connected causes becomes eligible to receive a non-duty disability allowance computed in the same manner as an age & service allowance, based upon the service & earnings record to time of disability.

Duty Disability Allowance. Section 70.680. A member regardless of credited service who becomes totally and permanently disabled from duty-connected causes becomes eligible to receive a duty disability allowance computed in the same manner as an age & service allowance, based upon the earnings record to time of disability but based upon the years of credited service the member would have completed had the member continued in LAGERS-covered employment to age 60.

Death-in-Service. Section 70.661. Upon the death of a member who had completed 5 years of credited service, the eligible surviving dependents receive the following benefits:

- (a) The surviving spouse receives an allowance equal to the Option A allowance (joint and 75% survivor benefit) computed based upon the deceased members' service & earnings record to time of death.
- (b) When no spouse benefit is payable, the dependent children under age 18 (age 23 if they are full time students) each receive an equal share of 60% of an age & service allowance computed based upon the deceased member's service & earnings record to time of death.
- (c) If the death is determined to be duty related, the 5 year service requirement is waived and the benefit is based on years of credited service the member would have completed had the member continued in LAGERS-covered employment to age 60.

Benefit Changes After Retirement. Section 70.655. For retirements effective after September 28, 1975, there is an annual redetermination of monthly benefit amount, beginning the October first following 12 months of retirement. As of each October first the amount of each eligible benefit is redetermined as follows:

- (a) Subject to the maximum in (b), the redetermined amount is the amount other-wise payable multiplied by: 100% plus up to 4%, as determined by the LAGERS Board of Trustees, for each full year of retirement.
- (b) The redetermined amount may not exceed the amount otherwise payable multiplied by the ratio of the Consumer Price Index for the immediately preceding month of June to the Consumer Price Index for the month of June immediately preceding retirement.

Member Contributions. Sections 70.690 & 70.705. Each member contributes a percent of compensation beginning after completion of sufficient employment for 6 months of credited service. The law governing LAGERS has a provision for the adoption of a 2%, 4% or 6% member contribution rate.

If a member leaves LAGERS-covered employment before an allowance is payable, the accumulated contributions are refunded to the member. If the member dies, his accumulated contributions are refunded to a designated beneficiary.

The law governing LAGERS also has a provision for the adoption of a 0% plan in which the full cost of LAGERS participation is paid by the employer. Adoption of the 0% plan may be done at the time of membership or a later date; however, a change in the member contribution rate may not be made more frequently than every 2 years. Under the 0% plan there is no individual account maintained for each employee and no refund of contributions if an employee terminates before being eligible for a benefit.

Employer Contributions. Section 70.730. Each employer contributes the remainder amounts necessary to finance the employees' participation in LAGERS. Contributions to LAGERS are determined based upon level-percent-of-payroll principles, so that contribution rates do not have to increase over decades of time.

APPENDIX IV

BENEFIT ILLUSTRATIONS

Missouri LAGERS

Illustrations of Age and Service Allowance Amounts For Sample Combinations of Service & Salary (L-1 Benefit Program is Years of Credited Service times: 1.00% of FAS ¹)

Final Average Salary (FAS) ¹	LAGERS BENEFIT ³	Estimated Social Security ²	Estimated Monthly Total	
			\$	% of FAS
35 Years of Service:				
\$1,500	\$ 525	\$ 948	\$1,473	98%
2,000	700	1,095	1,795	90%
2,500	875	1,242	2,117	85%
3,000	1,050	1,388	2,438	81%
3,500	1,225	1,535	2,760	79%
4,000	1,400	1,682	3,082	77%
25 Years of Service:				
\$1,500	\$ 375	\$ 948	\$1,323	88%
2,000	500	1,095	1,595	80%
2,500	625	1,242	1,867	75%
3,000	750	1,388	2,138	71%
3,500	875	1,535	2,410	69%
4,000	1,000	1,682	2,682	67%
15 Years of Service:				
\$1,500	\$225	\$ 948	\$1,173	78%
2,000	300	1,095	1,395	70%
2,500	375	1,242	1,617	65%
3,000	450	1,388	1,838	61%
3,500	525	1,535	2,060	59%
4,000	600	1,682	2,282	57%

¹ "Final Average Salary" means the monthly average of an employee's compensation during the period of 60 consecutive months (or optionally, 36 consecutive months) when they were highest, contained within the last 120 months of Credited Service.

² "Estimated Social Security" means, for an employee covered by Social Security, an employee's estimated OASDI retirement benefit and is based upon an estimated "average indexed monthly earnings" for an employee retiring at age 65 in 2020 - it does not include any amounts which might be payable to an eligible spouse or children.

³ Amounts are shown to nearest \$1, for simplicity; actual amounts are to nearest 1¢.

Missouri LAGERS
Illustrations of Age and Service Allowance Amounts
For Sample Combinations of Service & Salary
(L-3 Benefit Program is Years of Credited Service
times: 1.25% of FAS ¹)

Final Average Salary (FAS) ¹	LAGERS BENEFIT ³	Estimated Social Security ²	Estimated Monthly Total	
			\$	% of FAS
35 Years of Service:				
\$1,500	\$ 656	\$ 948	\$1,604	107%
2,000	875	1,095	1,970	99%
2,500	1,094	1,242	2,336	93%
3,000	1,313	1,388	2,701	90%
3,500	1,531	1,535	3,066	88%
4,000	1,750	1,682	3,432	86%
25 Years of Service:				
\$1,500	\$ 469	\$ 948	\$1,417	94%
2,000	625	1,095	1,720	86%
2,500	781	1,242	2,023	81%
3,000	938	1,388	2,326	78%
3,500	1,094	1,535	2,629	75%
4,000	1,250	1,682	2,932	73%
15 Years of Service:				
\$1,500	\$281	\$ 948	\$1,229	82%
2,000	375	1,095	1,470	74%
2,500	469	1,242	1,711	68%
3,000	563	1,388	1,951	65%
3,500	656	1,535	2,191	63%
4,000	750	1,682	2,432	61%

¹ "Final Average Salary" means the monthly average of an employee's compensation during the period of 60 consecutive months (or optionally, 36 consecutive months) when they were highest, contained within the last 120 months of Credited Service.

² "Estimated Social Security" means, for an employee covered by Social Security, an employee's estimated OASDI retirement benefit and is based upon an estimated "average indexed monthly earnings" for an employee retiring at age 65 in 2020 - it does not include any amounts which might be payable to an eligible spouse or children.

³ Amounts are shown to nearest \$1, for simplicity; actual amounts are to nearest 1¢.

Missouri LAGERS

Illustrations of Age and Service Allowance Amounts For Sample Combinations of Service & Salary (L-7 Benefit Program is Years of Credited Service times: 1.50% of FAS ¹)

Final Average Salary (FAS) ¹	LAGERS BENEFIT ³	Estimated Social Security ²	Estimated Monthly Total	
			\$	% of FAS
35 Years of Service:				
\$1,500	\$ 788	\$ 948	\$1,736	116%
2,000	1,050	1,095	2,145	107%
2,500	1,313	1,242	2,555	102%
3,000	1,575	1,388	2,963	99%
3,500	1,838	1,535	3,373	96%
4,000	2,100	1,682	3,782	95%
25 Years of Service:				
\$1,500	\$ 563	\$ 948	\$1,511	101%
2,000	750	1,095	1,845	92%
2,500	938	1,242	2,180	87%
3,000	1,125	1,388	2,513	84%
3,500	1,313	1,535	2,848	81%
4,000	1,500	1,682	3,182	80%
15 Years of Service:				
\$1,500	\$338	\$ 948	\$1,286	86%
2,000	450	1,095	1,545	77%
2,500	563	1,242	1,805	72%
3,000	675	1,388	2,063	69%
3,500	788	1,535	2,323	66%
4,000	900	1,682	2,582	65%

¹ "Final Average Salary" means the monthly average of an employee's compensation during the period of 60 consecutive months (or optionally, 36 consecutive months) when they were highest, contained within the last 120 months of Credited Service.

² "Estimated Social Security" means, for an employee covered by Social Security, an employee's estimated OASDI retirement benefit and is based upon an estimated "average indexed monthly earnings" for an employee retiring at age 65 in 2020 - it does not include any amounts which might be payable to an eligible spouse or children.

³ Amounts are shown to nearest \$1, for simplicity; actual amounts are to nearest 1¢.

Missouri LAGERS
Illustrations of Age and Service Allowance Amounts
For Sample Combinations of Service & Salary
(L-12 Benefit Program is Years of Credited Service
times: 1.75% of FAS ¹)

Final Average Salary (FAS) ¹	LAGERS BENEFIT ³	Estimated Social Security ²	Estimated Monthly Total	
			\$	% of FAS
35 Years of Service:				
\$1,500	\$ 919	\$ 948	\$1,867	124%
2,000	1,225	1,095	2,320	116%
2,500	1,531	1,242	2,773	111%
3,000	1,838	1,388	3,226	108%
3,500	2,144	1,535	3,679	105%
4,000	2,450	1,682	4,132	103%
25 Years of Service:				
\$1,500	\$ 656	\$ 948	\$1,604	107%
2,000	875	1,095	1,970	99%
2,500	1,094	1,242	2,336	93%
3,000	1,313	1,388	2,701	90%
3,500	1,531	1,535	3,066	88%
4,000	1,750	1,682	3,432	86%
15 Years of Service:				
\$1,500	\$ 394	\$ 948	\$1,342	89%
2,000	525	1,095	1,620	81%
2,500	656	1,242	1,898	76%
3,000	788	1,388	2,176	73%
3,500	919	1,535	2,454	70%
4,000	1,050	1,682	2,732	68%

¹ "Final Average Salary" means the monthly average of an employee's compensation during the period of 60 consecutive months (or optionally, 36 consecutive months) when they were highest, contained within the last 120 months of Credited Service.

² "Estimated Social Security" means, for an employee covered by Social Security, an employee's estimated OASDI retirement benefit and is based upon an estimated "average indexed monthly earnings" for an employee retiring at age 65 in 2020 - it does not include any amounts which might be payable to an eligible spouse or children.

³ Amounts are shown to nearest \$1, for simplicity; actual amounts are to nearest 1¢.

Missouri LAGERS

Illustrations of Age and Service Allowance Amounts For Sample Combinations of Service & Salary (L-6 Benefit Program is Years of Credited Service times: 2.00% of FAS ¹)

Final Average Salary (FAS) ¹	LAGERS BENEFIT ³	Estimated Social Security ²	Estimated Monthly Total	
			\$	% of FAS
35 Years of Service:				
\$1,500	\$1,050	\$ 948	\$1,998	133%
2,000	1,400	1,095	2,495	125%
2,500	1,750	1,242	2,992	120%
3,000	2,100	1,388	3,488	116%
3,500	2,450	1,535	3,985	114%
4,000	2,800	1,682	4,482	112%
25 Years of Service:				
\$1,500	\$ 750	\$ 948	\$1,698	113%
2,000	1,000	1,095	2,095	105%
2,500	1,250	1,242	2,492	100%
3,000	1,500	1,388	2,888	96%
3,500	1,750	1,535	3,285	94%
4,000	2,000	1,682	3,682	92%
15 Years of Service:				
\$1,500	\$ 450	\$ 948	\$1,398	93%
2,000	600	1,095	1,695	85%
2,500	750	1,242	1,992	80%
3,000	900	1,388	2,288	76%
3,500	1,050	1,535	2,585	74%
4,000	1,200	1,682	2,882	72%

¹ "Final Average Salary" means the monthly average of an employee's compensation during the period of 60 consecutive months (or optionally, 36 consecutive months) when they were highest, contained within the last 120 months of Credited Service.

² "Estimated Social Security" means, for an employee covered by Social Security, an employee's estimated OASDI retirement benefit and is based upon an estimated "average indexed monthly earnings" for an employee retiring at age 65 in 2020 - it does not include any amounts which might be payable to an eligible spouse or children.

³ Amounts are shown to nearest \$1, for simplicity; actual amounts are to nearest 1¢.

Missouri LAGERS
Illustrations of Age and Service Allowance Amounts
For Sample Combinations of Service & Salary
(LT-4(65) Benefit Program is Years of Credited Service
times: 2.00% of FAS ¹ to age 65)
1.00% of FAS ¹ at age 65)

Final Average Salary (FAS) ¹	LAGERS BENEFIT ³		Estimated Social Security ²	Estimated Monthly Total		Percent of FAS	
	To 65	At 65		To 65	At 65	To 65	At 65
35 Years of Service:							
\$1,500	\$1,050	\$ 525	\$ 948	\$1,050	\$1,473	70%	98%
2,000	1,400	700	1,095	1,400	1,795	70%	90%
2,500	1,750	875	1,242	1,750	2,117	70%	85%
3,000	2,100	1,050	1,388	2,100	2,438	70%	81%
3,500	2,450	1,225	1,535	2,450	2,760	70%	79%
4,000	2,800	1,400	1,682	2,800	3,082	70%	77%
25 Years of Service:							
\$1,500	\$ 750	\$ 375	\$ 948	\$ 750	\$1,323	50%	88%
2,000	1,000	500	1,095	1,000	1,595	50%	80%
2,500	1,250	625	1,242	1,250	1,867	50%	75%
3,000	1,500	750	1,388	1,500	2,138	50%	71%
3,500	1,750	875	1,535	1,750	2,410	50%	69%
4,000	2,000	1,000	1,682	2,000	2,682	50%	67%
15 Years of Service:							
\$1,500	\$ 450	\$225	\$ 948	\$ 450	\$1,173	30%	78%
2,000	600	300	1,095	600	1,395	30%	70%
2,500	750	375	1,242	750	1,617	30%	65%
3,000	900	450	1,388	900	1,838	30%	61%
3,500	1,050	525	1,535	1,050	2,060	30%	59%
4,000	1,200	600	1,682	1,200	2,282	30%	57%

¹ "Final Average Salary" means the monthly average of an employee's compensation during the period of 60 consecutive months (or optionally, 36 consecutive months) when they were highest, contained within the last 120 months of Credited Service.

² "Estimated Social Security" means, for an employee covered by Social Security, an employee's estimated OASDI retirement benefit and is based upon an estimated "average indexed monthly earnings" for an employee retiring at age 65 in 2020 - it does not include any amounts which might be payable to an eligible spouse or children.

³ Amounts are shown to nearest \$1, for simplicity; actual amounts are to nearest 1¢.

Missouri LAGERS
Illustrations of Age and Service Allowance Amounts
For Sample Combinations of Service & Salary
(LT-5(65) Benefit Program is Years of Credited Service
times: 2.00% of FAS ¹ to age 65)
1.25% of FAS ¹ at age 65)

Final Average Salary (FAS) ¹	LAGERS BENEFIT ³		Estimated Social Security ²	Estimated Monthly Total		Percent of FAS	
	To 65	At 65		To 65	At 65	To 65	At 65
35 Years of Service:							
\$1,500	\$1,050	\$ 656	\$ 948	\$1,050	\$1,604	70%	107%
2,000	1,400	875	1,095	1,400	1,970	70%	99%
2,500	1,750	1,094	1,242	1,750	2,336	70%	93%
3,000	2,100	1,313	1,388	2,100	2,701	70%	90%
3,500	2,450	1,531	1,535	2,450	3,066	70%	88%
4,000	2,800	1,750	1,682	2,800	3,432	70%	86%
25 Years of Service:							
\$1,500	\$ 750	\$ 469	\$ 948	\$ 750	\$1,417	50%	94%
2,000	1,000	625	1,095	1,000	1,720	50%	86%
2,500	1,250	781	1,242	1,250	2,023	50%	81%
3,000	1,500	938	1,388	1,500	2,326	50%	78%
3,500	1,750	1,094	1,535	1,750	2,629	50%	75%
4,000	2,000	1,250	1,682	2,000	2,932	50%	73%
15 Years of Service:							
\$1,500	\$ 450	\$281	\$ 948	\$ 450	\$1,229	30%	82%
2,000	600	375	1,095	600	1,470	30%	74%
2,500	750	469	1,242	750	1,711	30%	68%
3,000	900	563	1,388	900	1,951	30%	65%
3,500	1,050	656	1,535	1,050	2,191	30%	63%
4,000	1,200	750	1,682	1,200	2,432	30%	61%

¹ "Final Average Salary" means the monthly average of an employee's compensation during the period of 60 consecutive months (or optionally, 36 consecutive months) when they were highest, contained within the last 120 months of Credited Service.

² "Estimated Social Security" means, for an employee covered by Social Security, an employee's estimated OASDI retirement benefit and is based upon an estimated "average indexed monthly earnings" for an employee retiring at age 65 in 2020 - it does not include any amounts which might be payable to an eligible spouse or children.

³ Amounts are shown to nearest \$1, for simplicity; actual amounts are to nearest 1¢.

Missouri LAGERS
Illustrations of Age and Service Allowance Amounts
For Sample Combinations of Service & Salary
(LT-8(65) Benefit Program is Years of Credited Service
times: 2.00% of FAS ¹ to age 65)
1.50% of FAS ¹ at age 65)

Final Average Salary (FAS) ¹	LAGERS BENEFIT ³		Estimated Social Security ²	Estimated Monthly Total		Percent of FAS	
	To 65	At 65		To 65	At 65	To 65	At 65
35 Years of Service:							
\$1,500	\$1,050	\$ 788	\$ 948	\$1,050	\$1,736	70%	116%
2,000	1,400	1,050	1,095	1,400	2,145	70%	107%
2,500	1,750	1,313	1,242	1,750	2,555	70%	102%
3,000	2,100	1,575	1,388	2,100	2,963	70%	99%
3,500	2,450	1,838	1,535	2,450	3,373	70%	96%
4,000	2,800	2,100	1,682	2,800	3,782	70%	95%
25 Years of Service:							
\$1,500	\$ 750	\$ 563	\$ 948	\$ 750	\$1,511	50%	101%
2,000	1,000	750	1,095	1,000	1,845	50%	92%
2,500	1,250	938	1,242	1,250	2,180	50%	87%
3,000	1,500	1,125	1,388	1,500	2,513	50%	84%
3,500	1,750	1,313	1,535	1,750	2,848	50%	81%
4,000	2,000	1,500	1,682	2,000	3,182	50%	80%
15 Years of Service:							
\$1,500	\$ 450	\$338	\$ 948	\$ 450	\$1,286	30%	86%
2,000	600	450	1,095	600	1,545	30%	77%
2,500	750	563	1,242	750	1,805	30%	72%
3,000	900	675	1,388	900	2,063	30%	69%
3,500	1,050	788	1,535	1,050	2,323	30%	66%
4,000	1,200	900	1,682	1,200	2,582	30%	65%

¹ "Final Average Salary" means the monthly average of an employee's compensation during the period of 60 consecutive months (or optionally, 36 consecutive months) when they were highest, contained within the last 120 months of Credited Service.

² "Estimated Social Security" means, for an employee covered by Social Security, an employee's estimated OASDI retirement benefit and is based upon an estimated "average indexed monthly earnings" for an employee retiring at age 65 in 2020 - it does not include any amounts which might be payable to an eligible spouse or children.

³ Amounts are shown to nearest \$1, for simplicity; actual amounts are to nearest 1¢.

Missouri LAGERS
Illustrations of Age and Service Allowance Amounts
For Sample Combinations of Service & Salary
(LT-14(65) Benefit Program is Years of Credited Service
times: 2.00% of FAS ¹ to age 65)
1.75% of FAS ¹ at age 65)

Final Average Salary (FAS) ¹	LAGERS BENEFIT ³		Estimated Social Security ²	Estimated Monthly Total		Percent of FAS	
	To 65	At 65		To 65	At 65	To 65	At 65
35 Years of Service:							
\$1,500	\$1,050	\$ 919	\$ 948	\$1,050	\$1,867	70%	124%
2,000	1,400	1,225	1,095	1,400	2,320	70%	116%
2,500	1,750	1,531	1,242	1,750	2,773	70%	111%
3,000	2,100	1,838	1,388	2,100	3,226	70%	108%
3,500	2,450	2,144	1,535	2,450	3,679	70%	105%
4,000	2,800	2,450	1,682	2,800	4,132	70%	103%
25 Years of Service:							
\$1,500	\$ 750	\$ 656	\$ 948	\$ 750	\$1,604	50%	107%
2,000	1,000	875	1,095	1,000	1,970	50%	99%
2,500	1,250	1,094	1,242	1,250	2,336	50%	93%
3,000	1,500	1,313	1,388	1,500	2,701	50%	90%
3,500	1,750	1,531	1,535	1,750	3,066	50%	88%
4,000	2,000	1,750	1,682	2,000	3,432	50%	86%
15 Years of Service:							
\$1,500	\$ 450	\$ 394	\$ 948	\$ 450	\$1,342	30%	89%
2,000	600	525	1,095	600	1,620	30%	81%
2,500	750	656	1,242	750	1,898	30%	76%
3,000	900	788	1,388	900	2,176	30%	73%
3,500	1,050	919	1,535	1,050	2,454	30%	70%
4,000	1,200	1,050	1,682	1,200	2,732	30%	68%

¹ "Final Average Salary" means the monthly average of an employee's compensation during the period of 60 consecutive months (or optionally, 36 consecutive months) when they were highest, contained within the last 120 months of Credited Service.

² "Estimated Social Security" means, for an employee covered by Social Security, an employee's estimated OASDI retirement benefit and is based upon an estimated "average indexed monthly earnings" for an employee retiring at age 65 in 2020 - it does not include any amounts which might be payable to an eligible spouse or children.

³ Amounts are shown to nearest \$1, for simplicity; actual amounts are to nearest 1¢.

APPENDIX V

AGE AND SERVICE CHARACTERISTICS OF EMPLOYEES

City of Billings - General

August 31, 2020

By Attained Age and Years of Service

Attained Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
Under 20	1							1	\$ 16,640
20-24	1							1	\$ 24,960
25-29									
30-34									
35-39									
40-44									
45-49									
50-54									
55-59		1						1	\$ 37,450
60-64	1							1	\$ 23,920
65-69									
70 & Over			1					1	\$ 39,820
Totals	3	1	1					5	\$ 142,790

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

Age: 46.2 years.

Benefit Service: 5.4 years.

Annual Pay: \$28,558.

City of Billings - Police

August 31, 2020

By Attained Age and Years of Service

Attained Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
Under 20									
20-24									
25-29	1							1	\$ 31,200
30-34									
35-39	1							1	\$ 33,800
40-44									
45-49									
50-54									
55-59									
60-64	1							1	\$ 41,600
65-69									
70 & Over									
Totals	3							3	\$ 106,600

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

Age: 42.8 years.

Benefit Service: 1.3 years.

Annual Pay: \$35,533.

APPENDIX VI

RISK COMMENTARY

Risk Commentary

The determination of the accrued liability and the actuarially determined contribution (i.e., total employer contribution rate) requires the use of assumptions regarding future economic and demographic experience. Risk measures, as illustrated in this report, are intended to aid in the understanding of the effects of future experience differing from the assumptions used in the course of the actuarial valuation. Risk measures may also help with illustrating the potential volatility in the accrued liability and the actuarially determined contribution that result from the differences between actual experience and the actuarial assumptions.

Future actuarial measurements may differ significantly from the current measurements presented in this report 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 due to changing conditions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period, or additional cost or contribution requirements based on the Plan's funded status); and changes in plan provisions or applicable law. The scope of an actuarial valuation does not include an analysis of the potential range of such future measurements.

Examples of risk that may reasonably be anticipated to significantly affect the plan's future financial condition include:

1. **Investment Risk** – actual investment returns may differ from the expected returns;
2. **Asset/Liability Mismatch Risk** – changes in asset values may not match changes in liabilities, thereby altering the gap between the accrued liability and assets and consequently altering the funded status and contribution requirements;
3. **Contribution Risk** – actual contributions may differ from expected future contributions. For example, actual contributions may not be made in accordance with the plan's funding policy or material changes may occur in the anticipated number of covered employees, covered payroll, or other relevant contribution base;
4. **Salary and Payroll Risk** – actual salaries and total payroll may differ from expected, resulting in actual future accrued liability, contributions and contribution rates differing from expected;
5. **Longevity Risk** – members may live longer or shorter than expected and receive pensions for a period of time other than assumed; and
6. **Other Demographic Risks** – members may terminate, retire or become disabled at times or with benefits other than assumed resulting in actual future accrued liability and contributions differing from expected.

The effects of certain trends in experience can generally be anticipated. For example if the investment return since the most recent actuarial valuation is less (or more) than the assumed rate, the cost of the plan can be expected to increase (or decrease). Likewise if longevity is improving (or worsening), increases (or decreases) in cost can be anticipated.

The computed contribution rates shown on pages 4 thru 7 may be considered as a minimum contribution rate for the selected benefit provisions that complies with the Board's funding policy. The timely receipt of the actuarially determined contributions is critical to support the financial health of the plan. Users of this report should be aware that contributions made at the actuarially determined rate do not necessarily guarantee benefit security.

Risk Commentary (Concluded)

PLAN MATURITY MEASURES

Risks facing a pension plan evolve over time. A young plan with virtually no investments and paying few benefits may experience little investment risk. An older plan with a large number of members in pay status and a significant trust may be much more exposed to investment risk. Generally accepted plan maturity measures are described below.

RATIO OF MARKET VALUE OF ASSETS TO PAYROLL

The relationship between assets and payroll is a useful indicator of the potential volatility of contributions. For example, if the market value of assets is 2.0 times the payroll, a return on assets 5% different than assumed would equal 10% of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in plan sponsor contributions as a percentage of payroll.

RATIO OF ACTUARIAL ACCRUED LIABILITY TO PAYROLL

The relationship between actuarial accrued liability and payroll is a useful indicator of the potential volatility of contributions for a fully funded plan. A funding policy that targets a funded ratio of 100% is expected to result in the ratio of assets to payroll and the ratio of liability to payroll converging over time.

The ratio of liability to payroll may also be used as a measure of sensitivity of the liability itself. For example, if the actuarial accrued liability is 2.5 times the payroll, a change in liability 2% other than assumed would equal 5% of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in liability (and also plan sponsor contributions) as a percentage of payroll.

RATIO OF NET CASH FLOW TO MARKET VALUE OF ASSETS

A positive net cash flow means contributions exceed benefits and expenses. A negative cash flow means existing funds are being used to make payments. A certain amount of negative net cash flow is generally expected to occur when benefits are prefunded through a qualified trust. Large negative net cash flows as a percent of assets may indicate a super-mature plan or a need for additional contributions.

DURATION OF ACTUARIAL ACCRUED LIABILITY

The duration of the actuarial accrued liability may be used to approximate the sensitivity to a 1% change in the assumed rate of return. For example, duration of 10 indicates that the liability would increase approximately 10% if the assumed rate of return were lowered 1%.

ADDITIONAL RISK ASSESSMENT

Additional risk assessment is outside the scope of the annual actuarial valuation. Additional assessment may include scenario tests, sensitivity tests, stochastic modeling, stress tests, and a comparison of the present value of accrued benefits at low-risk discount rates with the actuarial accrued liability.



October 21, 2020 E-mail

Mr. Robert Wilson, Executive Director
Missouri Local Government
Employees Retirement System
P.O. Box 1665
Jefferson City, Missouri 65102

Dear Bob:

Enclosed is the report of the August 31, 2020 Initial Actuarial Valuation of LAGERS benefits for the employees of

City of Billings

Sincerely,

A handwritten signature in black ink that reads "Mita Drazilov". The signature is written in a cursive, flowing style.

Mita D. Drazilov, ASA, FCA, MAAA

MDD:wp



October 21, 2020

City of Billings
Billings, Missouri

Ladies and Gentlemen:

This report contains projections needed to comply with Missouri state disclosure requirements (Section 105.660 of the RSMo) regarding the adoption of LAGERS benefits by a political subdivision. This report is intended to be a supplement to the August 31, 2020 Initial Valuation for the City of Billings dated October 21, 2020.

The actuarial assumptions and methods used to determine the stated costs are described in Appendix II of the Initial Valuation Report. In our opinion, they do produce results which, in the aggregate, are reasonable. Additional miscellaneous and technical assumptions as well as disclosures required by the actuarial standards of practice may be found in the LAGERS Compiled Annual Actuarial Valuation report as of February 29, 2020. The unfunded actuarial accrued liability shown for each member contribution rate option is based on the 0% member contribution rate plan.

Mita Drazilov is a member of the American Academy of Actuaries and meets the Qualification Standards of the Academy of Actuaries to render the actuarial opinions herein.

Respectfully submitted,

A handwritten signature in black ink that reads "Mita Drazilov". The signature is written in a cursive, flowing style.

Mita D. Drazilov, ASA, FCA, MAAA

City of Billings - General

Employer Contribution Rates (0% Member Contribution Rate, 5 Year FAS)

Regular Retirement Eligibility

Valuation Year	Estimated Projected Payroll	L-1 Benefit Program			L-3 Benefit Program			LT-4(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 142,790	11.4%	\$16,278	\$ 103,358	14.0%	\$19,991	\$ 129,197	12.1%	\$17,278	\$ 107,691
2021	147,431	11.4	16,807	104,774	14.0	20,640	130,967	12.1	17,839	109,166
2022	152,223	11.4	17,353	106,095	14.0	21,311	132,618	12.1	18,419	110,543
2023	157,170	11.4	17,917	107,308	14.0	22,004	134,134	12.1	19,018	111,807
2024	162,278	11.4	18,500	108,398	14.0	22,719	135,497	12.1	19,636	112,943
2025	167,552	11.4	19,101	109,350	14.0	23,457	136,687	12.1	20,274	113,935
2026	172,997	11.4	19,722	110,147	14.0	24,220	137,683	12.1	20,933	114,765
2027	178,619	11.4	20,363	110,770	14.0	25,007	138,461	12.1	21,613	115,414
2028	184,424	11.4	21,024	111,198	14.0	25,819	138,996	12.1	22,315	115,860
2029	190,418	11.4	21,708	111,410	14.0	26,659	139,261	12.1	23,041	116,081

Valuation Year	Estimated Projected Payroll	LT-5(65) Benefit Program			L-7 Benefit Program			LT-8(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 142,790	14.6%	\$20,847	\$ 132,457	16.6%	\$23,703	\$ 155,058	17.0%	\$24,274	\$ 157,230
2021	147,431	14.6	21,525	134,272	16.6	24,474	157,182	17.0	25,063	159,384
2022	152,223	14.6	22,225	135,965	16.6	25,269	159,164	17.0	25,878	161,394
2023	157,170	14.6	22,947	137,519	16.6	26,090	160,984	17.0	26,719	163,239
2024	162,278	14.6	23,693	138,916	16.6	26,938	162,620	17.0	27,587	164,898
2025	167,552	14.6	24,463	140,136	16.6	27,814	164,048	17.0	28,484	166,346
2026	172,997	14.6	25,258	141,157	16.6	28,718	165,243	17.0	29,409	167,558
2027	178,619	14.6	26,078	141,955	16.6	29,651	166,177	17.0	30,365	168,505
2028	184,424	14.6	26,926	142,504	16.6	30,614	166,820	17.0	31,352	169,157
2029	190,418	14.6	27,801	142,776	16.6	31,609	167,139	17.0	32,371	169,480

Valuation Year	Estimated Projected Payroll	L-12 Benefit Program			LT-14(65) Benefit Program			L-6 Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 142,790	19.3%	\$27,558	\$ 180,899	19.4%	\$27,701	\$ 181,986	21.9%	\$31,271	\$ 206,744
2021	147,431	19.3	28,454	183,377	19.4	28,602	184,479	21.9	32,287	209,576
2022	152,223	19.3	29,379	185,689	19.4	29,531	186,805	21.9	33,337	212,219
2023	157,170	19.3	30,334	187,812	19.4	30,491	188,941	21.9	34,420	214,645
2024	162,278	19.3	31,320	189,720	19.4	31,482	190,861	21.9	35,539	216,826
2025	167,552	19.3	32,338	191,386	19.4	32,505	192,537	21.9	36,694	218,730
2026	172,997	19.3	33,388	192,780	19.4	33,561	193,940	21.9	37,886	220,323
2027	178,619	19.3	34,473	193,870	19.4	34,652	195,036	21.9	39,118	221,568
2028	184,424	19.3	35,594	194,620	19.4	35,778	195,790	21.9	40,389	222,425
2029	190,418	19.3	36,751	194,992	19.4	36,941	196,164	21.9	41,702	222,850

Notes regarding the above projections:

- 1) The purpose of the above projections is to comply with the requirements of Section 105.660 of the Revised Statutes of Missouri (RSMo). The projection results may not be applicable for other purposes.
- 2) Estimated projected payroll is based upon the valuation payroll, increased each future year by 3.25%.
- 3) Due to the estimated nature of the above projections, certain but not all aspects of the Missouri LAGERS funding policy have been incorporated in the above projections.
- 4) Differences between the date of the initial valuation and the actuarial valuation date of February 28th have not been incorporated in the above results.
- 5) The actual employer contribution rates for future valuation dates will be based upon actual data as of the future valuation date.



City of Billings - General

Employer Contribution Rates (2% Member Contribution Rate, 5 Year FAS)

(Member contributions are additional)

Regular Retirement Eligibility

Valuation Year	Estimated Projected Payroll	L-1 Benefit Program			L-3 Benefit Program			LT-4(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 142,790	9.5%	\$13,565	\$ 103,358	12.1%	\$17,278	\$ 129,197	10.2%	\$14,565	\$ 107,691
2021	147,431	9.5	14,006	104,774	12.1	17,839	130,967	10.2	15,038	109,166
2022	152,223	9.5	14,461	106,095	12.1	18,419	132,618	10.2	15,527	110,543
2023	157,170	9.5	14,931	107,308	12.1	19,018	134,134	10.2	16,031	111,807
2024	162,278	9.5	15,416	108,398	12.1	19,636	135,497	10.2	16,552	112,943
2025	167,552	9.5	15,917	109,350	12.1	20,274	136,687	10.2	17,090	113,935
2026	172,997	9.5	16,435	110,147	12.1	20,933	137,683	10.2	17,646	114,765
2027	178,619	9.5	16,969	110,770	12.1	21,613	138,461	10.2	18,219	115,414
2028	184,424	9.5	17,520	111,198	12.1	22,315	138,996	10.2	18,811	115,860
2029	190,418	9.5	18,090	111,410	12.1	23,041	139,261	10.2	19,423	116,081

Valuation Year	Estimated Projected Payroll	LT-5(65) Benefit Program			L-7 Benefit Program			LT-8(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 142,790	12.7%	\$18,134	\$ 132,457	14.7%	\$20,990	\$ 155,058	15.1%	\$21,561	\$ 157,230
2021	147,431	12.7	18,724	134,272	14.7	21,672	157,182	15.1	22,262	159,384
2022	152,223	12.7	19,332	135,965	14.7	22,377	159,164	15.1	22,986	161,394
2023	157,170	12.7	19,961	137,519	14.7	23,104	160,984	15.1	23,733	163,239
2024	162,278	12.7	20,609	138,916	14.7	23,855	162,620	15.1	24,504	164,898
2025	167,552	12.7	21,279	140,136	14.7	24,630	164,048	15.1	25,300	166,346
2026	172,997	12.7	21,971	141,157	14.7	25,431	165,243	15.1	26,123	167,558
2027	178,619	12.7	22,685	141,955	14.7	26,257	166,177	15.1	26,971	168,505
2028	184,424	12.7	23,422	142,504	14.7	27,110	166,820	15.1	27,848	169,157
2029	190,418	12.7	24,183	142,776	14.7	27,991	167,139	15.1	28,753	169,480

Valuation Year	Estimated Projected Payroll	L-12 Benefit Program			LT-14(65) Benefit Program			L-6 Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 142,790	17.4%	\$24,845	\$ 180,899	17.5%	\$24,988	\$ 181,986	20.0%	\$28,558	\$ 206,744
2021	147,431	17.4	25,653	183,377	17.5	25,800	184,479	20.0	29,486	209,576
2022	152,223	17.4	26,487	185,689	17.5	26,639	186,805	20.0	30,445	212,219
2023	157,170	17.4	27,348	187,812	17.5	27,505	188,941	20.0	31,434	214,645
2024	162,278	17.4	28,236	189,720	17.5	28,399	190,861	20.0	32,456	216,826
2025	167,552	17.4	29,154	191,386	17.5	29,322	192,537	20.0	33,510	218,730
2026	172,997	17.4	30,101	192,780	17.5	30,274	193,940	20.0	34,599	220,323
2027	178,619	17.4	31,080	193,870	17.5	31,258	195,036	20.0	35,724	221,568
2028	184,424	17.4	32,090	194,620	17.5	32,274	195,790	20.0	36,885	222,425
2029	190,418	17.4	33,133	194,992	17.5	33,323	196,164	20.0	38,084	222,850

Notes regarding the above projections:

- 1) The purpose of the above projections is to comply with the requirements of Section 105.660 of the Revised Statutes of Missouri (RSMo). The projection results may not be applicable for other purposes.
- 2) Estimated projected payroll is based upon the valuation payroll, increased each future year by 3.25%.
- 3) Due to the estimated nature of the above projections, certain but not all aspects of the Missouri LAGERS funding policy have been incorporated in the above projections.
- 4) Differences between the date of the initial valuation and the actuarial valuation date of February 28th have not been incorporated in the above results.
- 5) The actual employer contribution rates for future valuation dates will be based upon actual data as of the future valuation date.



City of Billings - General

Employer Contribution Rates (4% Member Contribution Rate, 5 Year FAS)

(Member contributions are additional)

Regular Retirement Eligibility

Valuation Year	Estimated Projected Payroll	L-1 Benefit Program			L-3 Benefit Program			LT-4(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 142,790	7.6%	\$10,852	\$ 103,358	10.2%	\$14,565	\$ 129,197	8.3%	\$11,852	\$ 107,691
2021	147,431	7.6	11,205	104,774	10.2	15,038	130,967	8.3	12,237	109,166
2022	152,223	7.6	11,569	106,095	10.2	15,527	132,618	8.3	12,635	110,543
2023	157,170	7.6	11,945	107,308	10.2	16,031	134,134	8.3	13,045	111,807
2024	162,278	7.6	12,333	108,398	10.2	16,552	135,497	8.3	13,469	112,943
2025	167,552	7.6	12,734	109,350	10.2	17,090	136,687	8.3	13,907	113,935
2026	172,997	7.6	13,148	110,147	10.2	17,646	137,683	8.3	14,359	114,765
2027	178,619	7.6	13,575	110,770	10.2	18,219	138,461	8.3	14,825	115,414
2028	184,424	7.6	14,016	111,198	10.2	18,811	138,996	8.3	15,307	115,860
2029	190,418	7.6	14,472	111,410	10.2	19,423	139,261	8.3	15,805	116,081

Valuation Year	Estimated Projected Payroll	LT-5(65) Benefit Program			L-7 Benefit Program			LT-8(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 142,790	10.8%	\$15,421	\$ 132,457	12.8%	\$18,277	\$ 155,058	13.2%	\$18,848	\$ 157,230
2021	147,431	10.8	15,923	134,272	12.8	18,871	157,182	13.2	19,461	159,384
2022	152,223	10.8	16,440	135,965	12.8	19,485	159,164	13.2	20,093	161,394
2023	157,170	10.8	16,974	137,519	12.8	20,118	160,984	13.2	20,746	163,239
2024	162,278	10.8	17,526	138,916	12.8	20,772	162,620	13.2	21,421	164,898
2025	167,552	10.8	18,096	140,136	12.8	21,447	164,048	13.2	22,117	166,346
2026	172,997	10.8	18,684	141,157	12.8	22,144	165,243	13.2	22,836	167,558
2027	178,619	10.8	19,291	141,955	12.8	22,863	166,177	13.2	23,578	168,505
2028	184,424	10.8	19,918	142,504	12.8	23,606	166,820	13.2	24,344	169,157
2029	190,418	10.8	20,565	142,776	12.8	24,374	167,139	13.2	25,135	169,480

Valuation Year	Estimated Projected Payroll	L-12 Benefit Program			LT-14(65) Benefit Program			L-6 Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 142,790	15.5%	\$22,132	\$ 180,899	15.6%	\$22,275	\$ 181,986	18.1%	\$25,845	\$ 206,744
2021	147,431	15.5	22,852	183,377	15.6	22,999	184,479	18.1	26,685	209,576
2022	152,223	15.5	23,595	185,689	15.6	23,747	186,805	18.1	27,552	212,219
2023	157,170	15.5	24,361	187,812	15.6	24,519	188,941	18.1	28,448	214,645
2024	162,278	15.5	25,153	189,720	15.6	25,315	190,861	18.1	29,372	216,826
2025	167,552	15.5	25,971	191,386	15.6	26,138	192,537	18.1	30,327	218,730
2026	172,997	15.5	26,815	192,780	15.6	26,988	193,940	18.1	31,312	220,323
2027	178,619	15.5	27,686	193,870	15.6	27,865	195,036	18.1	32,330	221,568
2028	184,424	15.5	28,586	194,620	15.6	28,770	195,790	18.1	33,381	222,425
2029	190,418	15.5	29,515	194,992	15.6	29,705	196,164	18.1	34,466	222,850

Notes regarding the above projections:

- 1) The purpose of the above projections is to comply with the requirements of Section 105.660 of the Revised Statutes of Missouri (RSMo). The projection results may not be applicable for other purposes.
- 2) Estimated projected payroll is based upon the valuation payroll, increased each future year by 3.25%.
- 3) Due to the estimated nature of the above projections, certain but not all aspects of the Missouri LAGERS funding policy have been incorporated in the above projections.
- 4) Differences between the date of the initial valuation and the actuarial valuation date of February 28th have not been incorporated in the above results.
- 5) The actual employer contribution rates for future valuation dates will be based upon actual data as of the future valuation date.



City of Billings - General

Employer Contribution Rates (6% Member Contribution Rate, 5 Year FAS)

(Member contributions are additional)

Regular Retirement Eligibility

Valuation Year	Estimated Projected Payroll	L-1 Benefit Program			L-3 Benefit Program			LT-4(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 142,790	5.7%	\$8,139	\$ 103,358	8.3%	\$11,852	\$ 129,197	6.4%	\$9,139	\$ 107,691
2021	147,431	5.7	8,404	104,774	8.3	12,237	130,967	6.4	9,436	109,166
2022	152,223	5.7	8,677	106,095	8.3	12,635	132,618	6.4	9,742	110,543
2023	157,170	5.7	8,959	107,308	8.3	13,045	134,134	6.4	10,059	111,807
2024	162,278	5.7	9,250	108,398	8.3	13,469	135,497	6.4	10,386	112,943
2025	167,552	5.7	9,550	109,350	8.3	13,907	136,687	6.4	10,723	113,935
2026	172,997	5.7	9,861	110,147	8.3	14,359	137,683	6.4	11,072	114,765
2027	178,619	5.7	10,181	110,770	8.3	14,825	138,461	6.4	11,432	115,414
2028	184,424	5.7	10,512	111,198	8.3	15,307	138,996	6.4	11,803	115,860
2029	190,418	5.7	10,854	111,410	8.3	15,805	139,261	6.4	12,187	116,081

Valuation Year	Estimated Projected Payroll	LT-5(65) Benefit Program			L-7 Benefit Program			LT-8(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 142,790	8.9%	\$12,708	\$ 132,457	10.9%	\$15,564	\$ 155,058	11.3%	\$16,135	\$ 157,230
2021	147,431	8.9	13,121	134,272	10.9	16,070	157,182	11.3	16,660	159,384
2022	152,223	8.9	13,548	135,965	10.9	16,592	159,164	11.3	17,201	161,394
2023	157,170	8.9	13,988	137,519	10.9	17,132	160,984	11.3	17,760	163,239
2024	162,278	8.9	14,443	138,916	10.9	17,688	162,620	11.3	18,337	164,898
2025	167,552	8.9	14,912	140,136	10.9	18,263	164,048	11.3	18,933	166,346
2026	172,997	8.9	15,397	141,157	10.9	18,857	165,243	11.3	19,549	167,558
2027	178,619	8.9	15,897	141,955	10.9	19,469	166,177	11.3	20,184	168,505
2028	184,424	8.9	16,414	142,504	10.9	20,102	166,820	11.3	20,840	169,157
2029	190,418	8.9	16,947	142,776	10.9	20,756	167,139	11.3	21,517	169,480

Valuation Year	Estimated Projected Payroll	L-12 Benefit Program			LT-14(65) Benefit Program			L-6 Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 142,790	13.6%	\$19,419	\$ 180,899	13.7%	\$19,562	\$ 181,986	16.2%	\$23,132	\$ 206,744
2021	147,431	13.6	20,051	183,377	13.7	20,198	184,479	16.2	23,884	209,576
2022	152,223	13.6	20,702	185,689	13.7	20,855	186,805	16.2	24,660	212,219
2023	157,170	13.6	21,375	187,812	13.7	21,532	188,941	16.2	25,462	214,645
2024	162,278	13.6	22,070	189,720	13.7	22,232	190,861	16.2	26,289	216,826
2025	167,552	13.6	22,787	191,386	13.7	22,955	192,537	16.2	27,143	218,730
2026	172,997	13.6	23,528	192,780	13.7	23,701	193,940	16.2	28,026	220,323
2027	178,619	13.6	24,292	193,870	13.7	24,471	195,036	16.2	28,936	221,568
2028	184,424	13.6	25,082	194,620	13.7	25,266	195,790	16.2	29,877	222,425
2029	190,418	13.6	25,897	194,992	13.7	26,087	196,164	16.2	30,848	222,850

Notes regarding the above projections:

- 1) The purpose of the above projections is to comply with the requirements of Section 105.660 of the Revised Statutes of Missouri (RSMo). The projection results may not be applicable for other purposes.
- 2) Estimated projected payroll is based upon the valuation payroll, increased each future year by 3.25%.
- 3) Due to the estimated nature of the above projections, certain but not all aspects of the Missouri LAGERS funding policy have been incorporated in the above projections.
- 4) Differences between the date of the initial valuation and the actuarial valuation date of February 28th have not been incorporated in the above results.
- 5) The actual employer contribution rates for future valuation dates will be based upon actual data as of the future valuation date.



City of Billings - General

Employer Contribution Rates (0% Member Contribution Rate, 3 Year FAS)

Regular Retirement Eligibility

Valuation Year	Estimated Projected Payroll	L-1 Benefit Program			L-3 Benefit Program			LT-4(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 142,790	11.7%	\$16,706	\$ 106,774	14.5%	\$20,705	\$ 133,446	12.4%	\$17,706	\$ 111,254
2021	147,431	11.7	17,249	108,237	14.5	21,377	135,274	12.4	18,281	112,778
2022	152,223	11.7	17,810	109,602	14.5	22,072	136,980	12.4	18,876	114,200
2023	157,170	11.7	18,389	110,855	14.5	22,790	138,546	12.4	19,489	115,506
2024	162,278	11.7	18,987	111,981	14.5	23,530	139,954	12.4	20,122	116,680
2025	167,552	11.7	19,604	112,964	14.5	24,295	141,183	12.4	20,776	117,705
2026	172,997	11.7	20,241	113,787	14.5	25,085	142,211	12.4	21,452	118,562
2027	178,619	11.7	20,898	114,430	14.5	25,900	143,015	12.4	22,149	119,232
2028	184,424	11.7	21,578	114,873	14.5	26,741	143,568	12.4	22,869	119,693
2029	190,418	11.7	22,279	115,092	14.5	27,611	143,842	12.4	23,612	119,922

Valuation Year	Estimated Projected Payroll	LT-5(65) Benefit Program			L-7 Benefit Program			LT-8(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 142,790	15.0%	\$21,419	\$ 136,810	17.1%	\$24,417	\$ 160,131	17.5%	\$24,988	\$ 162,373
2021	147,431	15.0	22,115	138,684	17.1	25,211	162,325	17.5	25,800	164,597
2022	152,223	15.0	22,833	140,433	17.1	26,030	164,372	17.5	26,639	166,672
2023	157,170	15.0	23,576	142,039	17.1	26,876	166,251	17.5	27,505	168,578
2024	162,278	15.0	24,342	143,482	17.1	27,750	167,940	17.5	28,399	170,291
2025	167,552	15.0	25,133	144,742	17.1	28,651	169,415	17.5	29,322	171,787
2026	172,997	15.0	25,950	145,796	17.1	29,582	170,649	17.5	30,274	173,038
2027	178,619	15.0	26,793	146,620	17.1	30,544	171,613	17.5	31,258	174,016
2028	184,424	15.0	27,664	147,187	17.1	31,537	172,277	17.5	32,274	174,689
2029	190,418	15.0	28,563	147,468	17.1	32,561	172,606	17.5	33,323	175,023

Valuation Year	Estimated Projected Payroll	L-12 Benefit Program			LT-14(65) Benefit Program			L-6 Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 142,790	19.8%	\$28,272	\$ 186,830	20.1%	\$28,701	\$ 187,939	22.6%	\$32,271	\$ 213,506
2021	147,431	19.8	29,191	189,390	20.1	29,634	190,514	22.6	33,319	216,431
2022	152,223	19.8	30,140	191,778	20.1	30,597	192,916	22.6	34,402	219,160
2023	157,170	19.8	31,120	193,971	20.1	31,591	195,122	22.6	35,520	221,666
2024	162,278	19.8	32,131	195,942	20.1	32,618	197,105	22.6	36,675	223,918
2025	167,552	19.8	33,175	197,663	20.1	33,678	198,836	22.6	37,867	225,885
2026	172,997	19.8	34,253	199,103	20.1	34,772	200,284	22.6	39,097	227,530
2027	178,619	19.8	35,367	200,228	20.1	35,902	201,416	22.6	40,368	228,816
2028	184,424	19.8	36,516	201,002	20.1	37,069	202,195	22.6	41,680	229,701
2029	190,418	19.8	37,703	201,386	20.1	38,274	202,581	22.6	43,034	230,140

Notes regarding the above projections:

- 1) The purpose of the above projections is to comply with the requirements of Section 105.660 of the Revised Statutes of Missouri (RSMo). The projection results may not be applicable for other purposes.
- 2) Estimated projected payroll is based upon the valuation payroll, increased each future year by 3.25%.
- 3) Due to the estimated nature of the above projections, certain but not all aspects of the Missouri LAGERS funding policy have been incorporated in the above projections.
- 4) Differences between the date of the initial valuation and the actuarial valuation date of February 28th have not been incorporated in the above results.
- 5) The actual employer contribution rates for future valuation dates will be based upon actual data as of the future valuation date.



City of Billings - General

Employer Contribution Rates (2% Member Contribution Rate, 3 Year FAS)

(Member contributions are additional)

Regular Retirement Eligibility

Valuation Year	Estimated Projected Payroll	L-1 Benefit Program			L-3 Benefit Program			LT-4(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 142,790	9.8%	\$13,993	\$ 106,774	12.6%	\$17,992	\$ 133,446	10.5%	\$14,993	\$ 111,254
2021	147,431	9.8	14,448	108,237	12.6	18,576	135,274	10.5	15,480	112,778
2022	152,223	9.8	14,918	109,602	12.6	19,180	136,980	10.5	15,983	114,200
2023	157,170	9.8	15,403	110,855	12.6	19,803	138,546	10.5	16,503	115,506
2024	162,278	9.8	15,903	111,981	12.6	20,447	139,954	10.5	17,039	116,680
2025	167,552	9.8	16,420	112,964	12.6	21,112	141,183	10.5	17,593	117,705
2026	172,997	9.8	16,954	113,787	12.6	21,798	142,211	10.5	18,165	118,562
2027	178,619	9.8	17,505	114,430	12.6	22,506	143,015	10.5	18,755	119,232
2028	184,424	9.8	18,074	114,873	12.6	23,237	143,568	10.5	19,365	119,693
2029	190,418	9.8	18,661	115,092	12.6	23,993	143,842	10.5	19,994	119,922

Valuation Year	Estimated Projected Payroll	LT-5(65) Benefit Program			L-7 Benefit Program			LT-8(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 142,790	13.1%	\$18,705	\$ 136,810	15.2%	\$21,704	\$ 160,131	15.6%	\$22,275	\$ 162,373
2021	147,431	13.1	19,313	138,684	15.2	22,410	162,325	15.6	22,999	164,597
2022	152,223	13.1	19,941	140,433	15.2	23,138	164,372	15.6	23,747	166,672
2023	157,170	13.1	20,589	142,039	15.2	23,890	166,251	15.6	24,519	168,578
2024	162,278	13.1	21,258	143,482	15.2	24,666	167,940	15.6	25,315	170,291
2025	167,552	13.1	21,949	144,742	15.2	25,468	169,415	15.6	26,138	171,787
2026	172,997	13.1	22,663	145,796	15.2	26,296	170,649	15.6	26,988	173,038
2027	178,619	13.1	23,399	146,620	15.2	27,150	171,613	15.6	27,865	174,016
2028	184,424	13.1	24,160	147,187	15.2	28,032	172,277	15.6	28,770	174,689
2029	190,418	13.1	24,945	147,468	15.2	28,944	172,606	15.6	29,705	175,023

Valuation Year	Estimated Projected Payroll	L-12 Benefit Program			LT-14(65) Benefit Program			L-6 Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 142,790	17.9%	\$25,559	\$ 186,830	18.2%	\$25,988	\$ 187,939	20.7%	\$29,558	\$ 213,506
2021	147,431	17.9	26,390	189,390	18.2	26,832	190,514	20.7	30,518	216,431
2022	152,223	17.9	27,248	191,778	18.2	27,705	192,916	20.7	31,510	219,160
2023	157,170	17.9	28,133	193,971	18.2	28,605	195,122	20.7	32,534	221,666
2024	162,278	17.9	29,048	195,942	18.2	29,535	197,105	20.7	33,592	223,918
2025	167,552	17.9	29,992	197,663	18.2	30,494	198,836	20.7	34,683	225,885
2026	172,997	17.9	30,966	199,103	18.2	31,485	200,284	20.7	35,810	227,530
2027	178,619	17.9	31,973	200,228	18.2	32,509	201,416	20.7	36,974	228,816
2028	184,424	17.9	33,012	201,002	18.2	33,565	202,195	20.7	38,176	229,701
2029	190,418	17.9	34,085	201,386	18.2	34,656	202,581	20.7	39,417	230,140

Notes regarding the above projections:

- 1) The purpose of the above projections is to comply with the requirements of Section 105.660 of the Revised Statutes of Missouri (RSMo). The projection results may not be applicable for other purposes.
- 2) Estimated projected payroll is based upon the valuation payroll, increased each future year by 3.25%.
- 3) Due to the estimated nature of the above projections, certain but not all aspects of the Missouri LAGERS funding policy have been incorporated in the above projections.
- 4) Differences between the date of the initial valuation and the actuarial valuation date of February 28th have not been incorporated in the above results.
- 5) The actual employer contribution rates for future valuation dates will be based upon actual data as of the future valuation date.



City of Billings - General

Employer Contribution Rates (4% Member Contribution Rate, 3 Year FAS)

(Member contributions are additional)

Regular Retirement Eligibility

Valuation Year	Estimated Projected Payroll	L-1 Benefit Program			L-3 Benefit Program			LT-4(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 142,790	7.9%	\$11,280	\$ 106,774	10.7%	\$15,279	\$ 133,446	8.6%	\$12,280	\$ 111,254
2021	147,431	7.9	11,647	108,237	10.7	15,775	135,274	8.6	12,679	112,778
2022	152,223	7.9	12,026	109,602	10.7	16,288	136,980	8.6	13,091	114,200
2023	157,170	7.9	12,416	110,855	10.7	16,817	138,546	8.6	13,517	115,506
2024	162,278	7.9	12,820	111,981	10.7	17,364	139,954	8.6	13,956	116,680
2025	167,552	7.9	13,237	112,964	10.7	17,928	141,183	8.6	14,409	117,705
2026	172,997	7.9	13,667	113,787	10.7	18,511	142,211	8.6	14,878	118,562
2027	178,619	7.9	14,111	114,430	10.7	19,112	143,015	8.6	15,361	119,232
2028	184,424	7.9	14,569	114,873	10.7	19,733	143,568	8.6	15,860	119,693
2029	190,418	7.9	15,043	115,092	10.7	20,375	143,842	8.6	16,376	119,922

Valuation Year	Estimated Projected Payroll	LT-5(65) Benefit Program			L-7 Benefit Program			LT-8(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 142,790	11.2%	\$15,992	\$ 136,810	13.3%	\$18,991	\$ 160,131	13.7%	\$19,562	\$ 162,373
2021	147,431	11.2	16,512	138,684	13.3	19,608	162,325	13.7	20,198	164,597
2022	152,223	11.2	17,049	140,433	13.3	20,246	164,372	13.7	20,855	166,672
2023	157,170	11.2	17,603	142,039	13.3	20,904	166,251	13.7	21,532	168,578
2024	162,278	11.2	18,175	143,482	13.3	21,583	167,940	13.7	22,232	170,291
2025	167,552	11.2	18,766	144,742	13.3	22,284	169,415	13.7	22,955	171,787
2026	172,997	11.2	19,376	145,796	13.3	23,009	170,649	13.7	23,701	173,038
2027	178,619	11.2	20,005	146,620	13.3	23,756	171,613	13.7	24,471	174,016
2028	184,424	11.2	20,655	147,187	13.3	24,528	172,277	13.7	25,266	174,689
2029	190,418	11.2	21,327	147,468	13.3	25,326	172,606	13.7	26,087	175,023

Valuation Year	Estimated Projected Payroll	L-12 Benefit Program			LT-14(65) Benefit Program			L-6 Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 142,790	16.0%	\$22,846	\$ 186,830	16.3%	\$23,275	\$ 187,939	18.8%	\$26,845	\$ 213,506
2021	147,431	16.0	23,589	189,390	16.3	24,031	190,514	18.8	27,717	216,431
2022	152,223	16.0	24,356	191,778	16.3	24,812	192,916	18.8	28,618	219,160
2023	157,170	16.0	25,147	193,971	16.3	25,619	195,122	18.8	29,548	221,666
2024	162,278	16.0	25,964	195,942	16.3	26,451	197,105	18.8	30,508	223,918
2025	167,552	16.0	26,808	197,663	16.3	27,311	198,836	18.8	31,500	225,885
2026	172,997	16.0	27,680	199,103	16.3	28,199	200,284	18.8	32,523	227,530
2027	178,619	16.0	28,579	200,228	16.3	29,115	201,416	18.8	33,580	228,816
2028	184,424	16.0	29,508	201,002	16.3	30,061	202,195	18.8	34,672	229,701
2029	190,418	16.0	30,467	201,386	16.3	31,038	202,581	18.8	35,799	230,140

Notes regarding the above projections:

- 1) The purpose of the above projections is to comply with the requirements of Section 105.660 of the Revised Statutes of Missouri (RSMo). The projection results may not be applicable for other purposes.
- 2) Estimated projected payroll is based upon the valuation payroll, increased each future year by 3.25%.
- 3) Due to the estimated nature of the above projections, certain but not all aspects of the Missouri LAGERS funding policy have been incorporated in the above projections.
- 4) Differences between the date of the initial valuation and the actuarial valuation date of February 28th have not been incorporated in the above results.
- 5) The actual employer contribution rates for future valuation dates will be based upon actual data as of the future valuation date.



City of Billings - General

Employer Contribution Rates (6% Member Contribution Rate, 3 Year FAS)

(Member contributions are additional)

Regular Retirement Eligibility

Valuation Year	Estimated Projected Payroll	L-1 Benefit Program			L-3 Benefit Program			LT-4(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 142,790	6.0%	\$8,567	\$ 106,774	8.8%	\$12,566	\$ 133,446	6.7%	\$9,567	\$ 111,254
2021	147,431	6.0	8,846	108,237	8.8	12,974	135,274	6.7	9,878	112,778
2022	152,223	6.0	9,133	109,602	8.8	13,396	136,980	6.7	10,199	114,200
2023	157,170	6.0	9,430	110,855	8.8	13,831	138,546	6.7	10,530	115,506
2024	162,278	6.0	9,737	111,981	8.8	14,280	139,954	6.7	10,873	116,680
2025	167,552	6.0	10,053	112,964	8.8	14,745	141,183	6.7	11,226	117,705
2026	172,997	6.0	10,380	113,787	8.8	15,224	142,211	6.7	11,591	118,562
2027	178,619	6.0	10,717	114,430	8.8	15,718	143,015	6.7	11,967	119,232
2028	184,424	6.0	11,065	114,873	8.8	16,229	143,568	6.7	12,356	119,693
2029	190,418	6.0	11,425	115,092	8.8	16,757	143,842	6.7	12,758	119,922

Valuation Year	Estimated Projected Payroll	LT-5(65) Benefit Program			L-7 Benefit Program			LT-8(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 142,790	9.3%	\$13,279	\$ 136,810	11.4%	\$16,278	\$ 160,131	11.8%	\$16,849	\$ 162,373
2021	147,431	9.3	13,711	138,684	11.4	16,807	162,325	11.8	17,397	164,597
2022	152,223	9.3	14,157	140,433	11.4	17,353	164,372	11.8	17,962	166,672
2023	157,170	9.3	14,617	142,039	11.4	17,917	166,251	11.8	18,546	168,578
2024	162,278	9.3	15,092	143,482	11.4	18,500	167,940	11.8	19,149	170,291
2025	167,552	9.3	15,582	144,742	11.4	19,101	169,415	11.8	19,771	171,787
2026	172,997	9.3	16,089	145,796	11.4	19,722	170,649	11.8	20,414	173,038
2027	178,619	9.3	16,612	146,620	11.4	20,363	171,613	11.8	21,077	174,016
2028	184,424	9.3	17,151	147,187	11.4	21,024	172,277	11.8	21,762	174,689
2029	190,418	9.3	17,709	147,468	11.4	21,708	172,606	11.8	22,469	175,023

Valuation Year	Estimated Projected Payroll	L-12 Benefit Program			LT-14(65) Benefit Program			L-6 Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 142,790	14.1%	\$20,133	\$ 186,830	14.4%	\$20,562	\$ 187,939	16.9%	\$24,132	\$ 213,506
2021	147,431	14.1	20,788	189,390	14.4	21,230	190,514	16.9	24,916	216,431
2022	152,223	14.1	21,463	191,778	14.4	21,920	192,916	16.9	25,726	219,160
2023	157,170	14.1	22,161	193,971	14.4	22,632	195,122	16.9	26,562	221,666
2024	162,278	14.1	22,881	195,942	14.4	23,368	197,105	16.9	27,425	223,918
2025	167,552	14.1	23,625	197,663	14.4	24,127	198,836	16.9	28,316	225,885
2026	172,997	14.1	24,393	199,103	14.4	24,912	200,284	16.9	29,236	227,530
2027	178,619	14.1	25,185	200,228	14.4	25,721	201,416	16.9	30,187	228,816
2028	184,424	14.1	26,004	201,002	14.4	26,557	202,195	16.9	31,168	229,701
2029	190,418	14.1	26,849	201,386	14.4	27,420	202,581	16.9	32,181	230,140

Notes regarding the above projections:

- 1) The purpose of the above projections is to comply with the requirements of Section 105.660 of the Revised Statutes of Missouri (RSMo). The projection results may not be applicable for other purposes.
- 2) Estimated projected payroll is based upon the valuation payroll, increased each future year by 3.25%.
- 3) Due to the estimated nature of the above projections, certain but not all aspects of the Missouri LAGERS funding policy have been incorporated in the above projections.
- 4) Differences between the date of the initial valuation and the actuarial valuation date of February 28th have not been incorporated in the above results.
- 5) The actual employer contribution rates for future valuation dates will be based upon actual data as of the future valuation date.



City of Billings - General

Employer Contribution Rates (0% Member Contribution Rate, 5 Year FAS)

Rule of 80 Retirement Eligibility

Valuation Year	Estimated Projected Payroll	L-1 Benefit Program			L-3 Benefit Program			LT-4(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 142,790	11.7%	\$16,706	\$ 103,369	14.4%	\$20,562	\$ 129,206	12.9%	\$18,420	\$ 107,693
2021	147,431	11.7	17,249	104,785	14.4	21,230	130,976	12.9	19,019	109,168
2022	152,223	11.7	17,810	106,106	14.4	21,920	132,628	12.9	19,637	110,545
2023	157,170	11.7	18,389	107,319	14.4	22,632	134,144	12.9	20,275	111,809
2024	162,278	11.7	18,987	108,409	14.4	23,368	135,507	12.9	20,934	112,945
2025	167,552	11.7	19,604	109,361	14.4	24,127	136,697	12.9	21,614	113,937
2026	172,997	11.7	20,241	110,158	14.4	24,912	137,693	12.9	22,317	114,767
2027	178,619	11.7	20,898	110,781	14.4	25,721	138,471	12.9	23,042	115,416
2028	184,424	11.7	21,578	111,209	14.4	26,557	139,006	12.9	23,791	115,862
2029	190,418	11.7	22,279	111,421	14.4	27,420	139,271	12.9	24,564	116,083

Valuation Year	Estimated Projected Payroll	LT-5(65) Benefit Program			L-7 Benefit Program			LT-8(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 142,790	15.4%	\$21,990	\$ 132,452	17.2%	\$24,560	\$ 155,060	17.8%	\$25,417	\$ 157,218
2021	147,431	15.4	22,704	134,267	17.2	25,358	157,184	17.8	26,243	159,372
2022	152,223	15.4	23,442	135,960	17.2	26,182	159,166	17.8	27,096	161,382
2023	157,170	15.4	24,204	137,514	17.2	27,033	160,986	17.8	27,976	163,227
2024	162,278	15.4	24,991	138,911	17.2	27,912	162,622	17.8	28,885	164,886
2025	167,552	15.4	25,803	140,131	17.2	28,819	164,050	17.8	29,824	166,334
2026	172,997	15.4	26,642	141,152	17.2	29,755	165,245	17.8	30,793	167,546
2027	178,619	15.4	27,507	141,950	17.2	30,722	166,179	17.8	31,794	168,493
2028	184,424	15.4	28,401	142,499	17.2	31,721	166,822	17.8	32,827	169,145
2029	190,418	15.4	29,324	142,771	17.2	32,752	167,141	17.8	33,894	169,468

Valuation Year	Estimated Projected Payroll	L-12 Benefit Program			LT-14(65) Benefit Program			L-6 Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 142,790	19.9%	\$28,415	\$ 180,897	20.1%	\$28,701	\$ 181,983	22.6%	\$32,271	\$ 206,742
2021	147,431	19.9	29,339	183,375	20.1	29,634	184,476	22.6	33,319	209,574
2022	152,223	19.9	30,292	185,687	20.1	30,597	186,802	22.6	34,402	212,217
2023	157,170	19.9	31,277	187,810	20.1	31,591	188,938	22.6	35,520	214,643
2024	162,278	19.9	32,293	189,718	20.1	32,618	190,858	22.6	36,675	216,824
2025	167,552	19.9	33,343	191,384	20.1	33,678	192,534	22.6	37,867	218,728
2026	172,997	19.9	34,426	192,778	20.1	34,772	193,936	22.6	39,097	220,321
2027	178,619	19.9	35,545	193,868	20.1	35,902	195,032	22.6	40,368	221,566
2028	184,424	19.9	36,700	194,618	20.1	37,069	195,786	22.6	41,680	222,423
2029	190,418	19.9	37,893	194,990	20.1	38,274	196,160	22.6	43,034	222,848

Notes regarding the above projections:

- 1) The purpose of the above projections is to comply with the requirements of Section 105.660 of the Revised Statutes of Missouri (RSMo). The projection results may not be applicable for other purposes.
- 2) Estimated projected payroll is based upon the valuation payroll, increased each future year by 3.25%.
- 3) Due to the estimated nature of the above projections, certain but not all aspects of the Missouri LAGERS funding policy have been incorporated in the above projections.
- 4) Differences between the date of the initial valuation and the actuarial valuation date of February 28th have not been incorporated in the above results.
- 5) The actual employer contribution rates for future valuation dates will be based upon actual data as of the future valuation date.



City of Billings - General

Employer Contribution Rates (2% Member Contribution Rate, 5 Year FAS)

(Member contributions are additional)

Rule of 80 Retirement Eligibility

Valuation Year	Estimated Projected Payroll	L-1 Benefit Program			L-3 Benefit Program			LT-4(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 142,790	9.8%	\$13,993	\$ 103,369	12.5%	\$17,849	\$ 129,206	11.0%	\$15,707	\$ 107,693
2021	147,431	9.8	14,448	104,785	12.5	18,429	130,976	11.0	16,217	109,168
2022	152,223	9.8	14,918	106,106	12.5	19,028	132,628	11.0	16,745	110,545
2023	157,170	9.8	15,403	107,319	12.5	19,646	134,144	11.0	17,289	111,809
2024	162,278	9.8	15,903	108,409	12.5	20,285	135,507	11.0	17,851	112,945
2025	167,552	9.8	16,420	109,361	12.5	20,944	136,697	11.0	18,431	113,937
2026	172,997	9.8	16,954	110,158	12.5	21,625	137,693	11.0	19,030	114,767
2027	178,619	9.8	17,505	110,781	12.5	22,327	138,471	11.0	19,648	115,416
2028	184,424	9.8	18,074	111,209	12.5	23,053	139,006	11.0	20,287	115,862
2029	190,418	9.8	18,661	111,421	12.5	23,802	139,271	11.0	20,946	116,083

Valuation Year	Estimated Projected Payroll	LT-5(65) Benefit Program			L-7 Benefit Program			LT-8(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 142,790	13.5%	\$19,277	\$ 132,452	15.3%	\$21,847	\$ 155,060	15.9%	\$22,704	\$ 157,218
2021	147,431	13.5	19,903	134,267	15.3	22,557	157,184	15.9	23,442	159,372
2022	152,223	13.5	20,550	135,960	15.3	23,290	159,166	15.9	24,203	161,382
2023	157,170	13.5	21,218	137,514	15.3	24,047	160,986	15.9	24,990	163,227
2024	162,278	13.5	21,908	138,911	15.3	24,829	162,622	15.9	25,802	164,886
2025	167,552	13.5	22,620	140,131	15.3	25,635	164,050	15.9	26,641	166,334
2026	172,997	13.5	23,355	141,152	15.3	26,469	165,245	15.9	27,507	167,546
2027	178,619	13.5	24,114	141,950	15.3	27,329	166,179	15.9	28,400	168,493
2028	184,424	13.5	24,897	142,499	15.3	28,217	166,822	15.9	29,323	169,145
2029	190,418	13.5	25,706	142,771	15.3	29,134	167,141	15.9	30,276	169,468

Valuation Year	Estimated Projected Payroll	L-12 Benefit Program			LT-14(65) Benefit Program			L-6 Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 142,790	18.0%	\$25,702	\$ 180,897	18.2%	\$25,988	\$ 181,983	20.7%	\$29,558	\$ 206,742
2021	147,431	18.0	26,538	183,375	18.2	26,832	184,476	20.7	30,518	209,574
2022	152,223	18.0	27,400	185,687	18.2	27,705	186,802	20.7	31,510	212,217
2023	157,170	18.0	28,291	187,810	18.2	28,605	188,938	20.7	32,534	214,643
2024	162,278	18.0	29,210	189,718	18.2	29,535	190,858	20.7	33,592	216,824
2025	167,552	18.0	30,159	191,384	18.2	30,494	192,534	20.7	34,683	218,728
2026	172,997	18.0	31,139	192,778	18.2	31,485	193,936	20.7	35,810	220,321
2027	178,619	18.0	32,151	193,868	18.2	32,509	195,032	20.7	36,974	221,566
2028	184,424	18.0	33,196	194,618	18.2	33,565	195,786	20.7	38,176	222,423
2029	190,418	18.0	34,275	194,990	18.2	34,656	196,160	20.7	39,417	222,848

Notes regarding the above projections:

- 1) The purpose of the above projections is to comply with the requirements of Section 105.660 of the Revised Statutes of Missouri (RSMo). The projection results may not be applicable for other purposes.
- 2) Estimated projected payroll is based upon the valuation payroll, increased each future year by 3.25%.
- 3) Due to the estimated nature of the above projections, certain but not all aspects of the Missouri LAGERS funding policy have been incorporated in the above projections.
- 4) Differences between the date of the initial valuation and the actuarial valuation date of February 28th have not been incorporated in the above results.
- 5) The actual employer contribution rates for future valuation dates will be based upon actual data as of the future valuation date.



City of Billings - General

Employer Contribution Rates (4% Member Contribution Rate, 5 Year FAS)

(Member contributions are additional)

Rule of 80 Retirement Eligibility

Valuation Year	Estimated Projected Payroll	L-1 Benefit Program			L-3 Benefit Program			LT-4(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 142,790	7.9%	\$11,280	\$ 103,369	10.6%	\$15,136	\$ 129,206	9.1%	\$12,994	\$ 107,693
2021	147,431	7.9	11,647	104,785	10.6	15,628	130,976	9.1	13,416	109,168
2022	152,223	7.9	12,026	106,106	10.6	16,136	132,628	9.1	13,852	110,545
2023	157,170	7.9	12,416	107,319	10.6	16,660	134,144	9.1	14,302	111,809
2024	162,278	7.9	12,820	108,409	10.6	17,201	135,507	9.1	14,767	112,945
2025	167,552	7.9	13,237	109,361	10.6	17,761	136,697	9.1	15,247	113,937
2026	172,997	7.9	13,667	110,158	10.6	18,338	137,693	9.1	15,743	114,767
2027	178,619	7.9	14,111	110,781	10.6	18,934	138,471	9.1	16,254	115,416
2028	184,424	7.9	14,569	111,209	10.6	19,549	139,006	9.1	16,783	115,862
2029	190,418	7.9	15,043	111,421	10.6	20,184	139,271	9.1	17,328	116,083

Valuation Year	Estimated Projected Payroll	LT-5(65) Benefit Program			L-7 Benefit Program			LT-8(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 142,790	11.6%	\$16,564	\$ 132,452	13.4%	\$19,134	\$ 155,060	14.0%	\$19,991	\$ 157,218
2021	147,431	11.6	17,102	134,267	13.4	19,756	157,184	14.0	20,640	159,372
2022	152,223	11.6	17,658	135,960	13.4	20,398	159,166	14.0	21,311	161,382
2023	157,170	11.6	18,232	137,514	13.4	21,061	160,986	14.0	22,004	163,227
2024	162,278	11.6	18,824	138,911	13.4	21,745	162,622	14.0	22,719	164,886
2025	167,552	11.6	19,436	140,131	13.4	22,452	164,050	14.0	23,457	166,334
2026	172,997	11.6	20,068	141,152	13.4	23,182	165,245	14.0	24,220	167,546
2027	178,619	11.6	20,720	141,950	13.4	23,935	166,179	14.0	25,007	168,493
2028	184,424	11.6	21,393	142,499	13.4	24,713	166,822	14.0	25,819	169,145
2029	190,418	11.6	22,088	142,771	13.4	25,516	167,141	14.0	26,659	169,468

Valuation Year	Estimated Projected Payroll	L-12 Benefit Program			LT-14(65) Benefit Program			L-6 Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 142,790	16.1%	\$22,989	\$ 180,897	16.3%	\$23,275	\$ 181,983	18.8%	\$26,845	\$ 206,742
2021	147,431	16.1	23,736	183,375	16.3	24,031	184,476	18.8	27,717	209,574
2022	152,223	16.1	24,508	185,687	16.3	24,812	186,802	18.8	28,618	212,217
2023	157,170	16.1	25,304	187,810	16.3	25,619	188,938	18.8	29,548	214,643
2024	162,278	16.1	26,127	189,718	16.3	26,451	190,858	18.8	30,508	216,824
2025	167,552	16.1	26,976	191,384	16.3	27,311	192,534	18.8	31,500	218,728
2026	172,997	16.1	27,853	192,778	16.3	28,199	193,936	18.8	32,523	220,321
2027	178,619	16.1	28,758	193,868	16.3	29,115	195,032	18.8	33,580	221,566
2028	184,424	16.1	29,692	194,618	16.3	30,061	195,786	18.8	34,672	222,423
2029	190,418	16.1	30,657	194,990	16.3	31,038	196,160	18.8	35,799	222,848

Notes regarding the above projections:

- 1) The purpose of the above projections is to comply with the requirements of Section 105.660 of the Revised Statutes of Missouri (RSMo). The projection results may not be applicable for other purposes.
- 2) Estimated projected payroll is based upon the valuation payroll, increased each future year by 3.25%.
- 3) Due to the estimated nature of the above projections, certain but not all aspects of the Missouri LAGERS funding policy have been incorporated in the above projections.
- 4) Differences between the date of the initial valuation and the actuarial valuation date of February 28th have not been incorporated in the above results.
- 5) The actual employer contribution rates for future valuation dates will be based upon actual data as of the future valuation date.



City of Billings - General

Employer Contribution Rates (6% Member Contribution Rate, 5 Year FAS)

(Member contributions are additional)

Rule of 80 Retirement Eligibility

Valuation Year	Estimated Projected Payroll	L-1 Benefit Program			L-3 Benefit Program			LT-4(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 142,790	6.0%	\$8,567	\$ 103,369	8.7%	\$12,423	\$ 129,206	7.2%	\$10,281	\$ 107,693
2021	147,431	6.0	8,846	104,785	8.7	12,826	130,976	7.2	10,615	109,168
2022	152,223	6.0	9,133	106,106	8.7	13,243	132,628	7.2	10,960	110,545
2023	157,170	6.0	9,430	107,319	8.7	13,674	134,144	7.2	11,316	111,809
2024	162,278	6.0	9,737	108,409	8.7	14,118	135,507	7.2	11,684	112,945
2025	167,552	6.0	10,053	109,361	8.7	14,577	136,697	7.2	12,064	113,937
2026	172,997	6.0	10,380	110,158	8.7	15,051	137,693	7.2	12,456	114,767
2027	178,619	6.0	10,717	110,781	8.7	15,540	138,471	7.2	12,861	115,416
2028	184,424	6.0	11,065	111,209	8.7	16,045	139,006	7.2	13,279	115,862
2029	190,418	6.0	11,425	111,421	8.7	16,566	139,271	7.2	13,710	116,083

Valuation Year	Estimated Projected Payroll	LT-5(65) Benefit Program			L-7 Benefit Program			LT-8(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 142,790	9.7%	\$13,851	\$ 132,452	11.5%	\$16,421	\$ 155,060	12.1%	\$17,278	\$ 157,218
2021	147,431	9.7	14,301	134,267	11.5	16,955	157,184	12.1	17,839	159,372
2022	152,223	9.7	14,766	135,960	11.5	17,506	159,166	12.1	18,419	161,382
2023	157,170	9.7	15,245	137,514	11.5	18,075	160,986	12.1	19,018	163,227
2024	162,278	9.7	15,741	138,911	11.5	18,662	162,622	12.1	19,636	164,886
2025	167,552	9.7	16,253	140,131	11.5	19,268	164,050	12.1	20,274	166,334
2026	172,997	9.7	16,781	141,152	11.5	19,895	165,245	12.1	20,933	167,546
2027	178,619	9.7	17,326	141,950	11.5	20,541	166,179	12.1	21,613	168,493
2028	184,424	9.7	17,889	142,499	11.5	21,209	166,822	12.1	22,315	169,145
2029	190,418	9.7	18,471	142,771	11.5	21,898	167,141	12.1	23,041	169,468

Valuation Year	Estimated Projected Payroll	L-12 Benefit Program			LT-14(65) Benefit Program			L-6 Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 142,790	14.2%	\$20,276	\$ 180,897	14.4%	\$20,562	\$ 181,983	16.9%	\$24,132	\$ 206,742
2021	147,431	14.2	20,935	183,375	14.4	21,230	184,476	16.9	24,916	209,574
2022	152,223	14.2	21,616	185,687	14.4	21,920	186,802	16.9	25,726	212,217
2023	157,170	14.2	22,318	187,810	14.4	22,632	188,938	16.9	26,562	214,643
2024	162,278	14.2	23,043	189,718	14.4	23,368	190,858	16.9	27,425	216,824
2025	167,552	14.2	23,792	191,384	14.4	24,127	192,534	16.9	28,316	218,728
2026	172,997	14.2	24,566	192,778	14.4	24,912	193,936	16.9	29,236	220,321
2027	178,619	14.2	25,364	193,868	14.4	25,721	195,032	16.9	30,187	221,566
2028	184,424	14.2	26,188	194,618	14.4	26,557	195,786	16.9	31,168	222,423
2029	190,418	14.2	27,039	194,990	14.4	27,420	196,160	16.9	32,181	222,848

Notes regarding the above projections:

- 1) The purpose of the above projections is to comply with the requirements of Section 105.660 of the Revised Statutes of Missouri (RSMo). The projection results may not be applicable for other purposes.
- 2) Estimated projected payroll is based upon the valuation payroll, increased each future year by 3.25%.
- 3) Due to the estimated nature of the above projections, certain but not all aspects of the Missouri LAGERS funding policy have been incorporated in the above projections.
- 4) Differences between the date of the initial valuation and the actuarial valuation date of February 28th have not been incorporated in the above results.
- 5) The actual employer contribution rates for future valuation dates will be based upon actual data as of the future valuation date.



City of Billings - General

Employer Contribution Rates (0% Member Contribution Rate, 3 Year FAS)

Rule of 80 Retirement Eligibility

Valuation Year	Estimated Projected Payroll	L-1 Benefit Program			L-3 Benefit Program			LT-4(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 142,790	12.0%	\$17,135	\$ 106,752	14.9%	\$21,276	\$ 133,440	13.3%	\$18,991	\$ 111,246
2021	147,431	12.0	17,692	108,214	14.9	21,967	135,268	13.3	19,608	112,770
2022	152,223	12.0	18,267	109,579	14.9	22,681	136,974	13.3	20,246	114,192
2023	157,170	12.0	18,860	110,832	14.9	23,418	138,540	13.3	20,904	115,498
2024	162,278	12.0	19,473	111,958	14.9	24,179	139,948	13.3	21,583	116,672
2025	167,552	12.0	20,106	112,941	14.9	24,965	141,177	13.3	22,284	117,697
2026	172,997	12.0	20,760	113,764	14.9	25,777	142,205	13.3	23,009	118,554
2027	178,619	12.0	21,434	114,407	14.9	26,614	143,009	13.3	23,756	119,224
2028	184,424	12.0	22,131	114,849	14.9	27,479	143,562	13.3	24,528	119,685
2029	190,418	12.0	22,850	115,068	14.9	28,372	143,836	13.3	25,326	119,914

Valuation Year	Estimated Projected Payroll	LT-5(65) Benefit Program			L-7 Benefit Program			LT-8(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 142,790	15.8%	\$22,561	\$ 136,806	17.7%	\$25,274	\$ 160,144	18.3%	\$26,131	\$ 162,381
2021	147,431	15.8	23,294	138,680	17.7	26,095	162,338	18.3	26,980	164,606
2022	152,223	15.8	24,051	140,429	17.7	26,943	164,385	18.3	27,857	166,682
2023	157,170	15.8	24,833	142,035	17.7	27,819	166,264	18.3	28,762	168,588
2024	162,278	15.8	25,640	143,478	17.7	28,723	167,953	18.3	29,697	170,301
2025	167,552	15.8	26,473	144,738	17.7	29,657	169,428	18.3	30,662	171,797
2026	172,997	15.8	27,334	145,792	17.7	30,620	170,662	18.3	31,658	173,048
2027	178,619	15.8	28,222	146,616	17.7	31,616	171,627	18.3	32,687	174,026
2028	184,424	15.8	29,139	147,183	17.7	32,643	172,291	18.3	33,750	174,699
2029	190,418	15.8	30,086	147,464	17.7	33,704	172,620	18.3	34,846	175,033

Valuation Year	Estimated Projected Payroll	L-12 Benefit Program			LT-14(65) Benefit Program			L-6 Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 142,790	20.5%	\$29,272	\$ 186,816	20.8%	\$29,700	\$ 187,936	23.4%	\$33,413	\$ 213,525
2021	147,431	20.5	30,223	189,375	20.8	30,666	190,511	23.4	34,499	216,450
2022	152,223	20.5	31,206	191,763	20.8	31,662	192,913	23.4	35,620	219,179
2023	157,170	20.5	32,220	193,955	20.8	32,691	195,119	23.4	36,778	221,685
2024	162,278	20.5	33,267	195,926	20.8	33,754	197,102	23.4	37,973	223,938
2025	167,552	20.5	34,348	197,647	20.8	34,851	198,833	23.4	39,207	225,905
2026	172,997	20.5	35,464	199,087	20.8	35,983	200,281	23.4	40,481	227,551
2027	178,619	20.5	36,617	200,212	20.8	37,153	201,413	23.4	41,797	228,837
2028	184,424	20.5	37,807	200,986	20.8	38,360	202,192	23.4	43,155	229,722
2029	190,418	20.5	39,036	201,370	20.8	39,607	202,578	23.4	44,558	230,161

Notes regarding the above projections:

- 1) The purpose of the above projections is to comply with the requirements of Section 105.660 of the Revised Statutes of Missouri (RSMo). The projection results may not be applicable for other purposes.
- 2) Estimated projected payroll is based upon the valuation payroll, increased each future year by 3.25%.
- 3) Due to the estimated nature of the above projections, certain but not all aspects of the Missouri LAGERS funding policy have been incorporated in the above projections.
- 4) Differences between the date of the initial valuation and the actuarial valuation date of February 28th have not been incorporated in the above results.
- 5) The actual employer contribution rates for future valuation dates will be based upon actual data as of the future valuation date.



City of Billings - General

Employer Contribution Rates (2% Member Contribution Rate, 3 Year FAS)

(Member contributions are additional)

Rule of 80 Retirement Eligibility

Valuation Year	Estimated Projected Payroll	L-1 Benefit Program			L-3 Benefit Program			LT-4(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 142,790	10.1%	\$14,422	\$ 106,752	13.0%	\$18,563	\$ 133,440	11.4%	\$16,278	\$ 111,246
2021	147,431	10.1	14,891	108,214	13.0	19,166	135,268	11.4	16,807	112,770
2022	152,223	10.1	15,375	109,579	13.0	19,789	136,974	11.4	17,353	114,192
2023	157,170	10.1	15,874	110,832	13.0	20,432	138,540	11.4	17,917	115,498
2024	162,278	10.1	16,390	111,958	13.0	21,096	139,948	11.4	18,500	116,672
2025	167,552	10.1	16,923	112,941	13.0	21,782	141,177	11.4	19,101	117,697
2026	172,997	10.1	17,473	113,764	13.0	22,490	142,205	11.4	19,722	118,554
2027	178,619	10.1	18,041	114,407	13.0	23,220	143,009	11.4	20,363	119,224
2028	184,424	10.1	18,627	114,849	13.0	23,975	143,562	11.4	21,024	119,685
2029	190,418	10.1	19,232	115,068	13.0	24,754	143,836	11.4	21,708	119,914

Valuation Year	Estimated Projected Payroll	LT-5(65) Benefit Program			L-7 Benefit Program			LT-8(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 142,790	13.9%	\$19,848	\$ 136,806	15.8%	\$22,561	\$ 160,144	16.4%	\$23,418	\$ 162,381
2021	147,431	13.9	20,493	138,680	15.8	23,294	162,338	16.4	24,179	164,606
2022	152,223	13.9	21,159	140,429	15.8	24,051	164,385	16.4	24,965	166,682
2023	157,170	13.9	21,847	142,035	15.8	24,833	166,264	16.4	25,776	168,588
2024	162,278	13.9	22,557	143,478	15.8	25,640	167,953	16.4	26,614	170,301
2025	167,552	13.9	23,290	144,738	15.8	26,473	169,428	16.4	27,479	171,797
2026	172,997	13.9	24,047	145,792	15.8	27,334	170,662	16.4	28,372	173,048
2027	178,619	13.9	24,828	146,616	15.8	28,222	171,627	16.4	29,294	174,026
2028	184,424	13.9	25,635	147,183	15.8	29,139	172,291	16.4	30,246	174,699
2029	190,418	13.9	26,468	147,464	15.8	30,086	172,620	16.4	31,229	175,033

Valuation Year	Estimated Projected Payroll	L-12 Benefit Program			LT-14(65) Benefit Program			L-6 Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 142,790	18.6%	\$26,559	\$ 186,816	18.9%	\$26,987	\$ 187,936	21.5%	\$30,700	\$ 213,525
2021	147,431	18.6	27,422	189,375	18.9	27,864	190,511	21.5	31,698	216,450
2022	152,223	18.6	28,313	191,763	18.9	28,770	192,913	21.5	32,728	219,179
2023	157,170	18.6	29,234	193,955	18.9	29,705	195,119	21.5	33,792	221,685
2024	162,278	18.6	30,184	195,926	18.9	30,671	197,102	21.5	34,890	223,938
2025	167,552	18.6	31,165	197,647	18.9	31,667	198,833	21.5	36,024	225,905
2026	172,997	18.6	32,177	199,087	18.9	32,696	200,281	21.5	37,194	227,551
2027	178,619	18.6	33,223	200,212	18.9	33,759	201,413	21.5	38,403	228,837
2028	184,424	18.6	34,303	200,986	18.9	34,856	202,192	21.5	39,651	229,722
2029	190,418	18.6	35,418	201,370	18.9	35,989	202,578	21.5	40,940	230,161

Notes regarding the above projections:

- 1) The purpose of the above projections is to comply with the requirements of Section 105.660 of the Revised Statutes of Missouri (RSMo). The projection results may not be applicable for other purposes.
- 2) Estimated projected payroll is based upon the valuation payroll, increased each future year by 3.25%.
- 3) Due to the estimated nature of the above projections, certain but not all aspects of the Missouri LAGERS funding policy have been incorporated in the above projections.
- 4) Differences between the date of the initial valuation and the actuarial valuation date of February 28th have not been incorporated in the above results.
- 5) The actual employer contribution rates for future valuation dates will be based upon actual data as of the future valuation date.



City of Billings - General

Employer Contribution Rates (4% Member Contribution Rate, 3 Year FAS)

(Member contributions are additional)

Rule of 80 Retirement Eligibility

Valuation Year	Estimated Projected Payroll	L-1 Benefit Program			L-3 Benefit Program			LT-4(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 142,790	8.2%	\$11,709	\$ 106,752	11.1%	\$15,850	\$ 133,440	9.5%	\$13,565	\$ 111,246
2021	147,431	8.2	12,089	108,214	11.1	16,365	135,268	9.5	14,006	112,770
2022	152,223	8.2	12,482	109,579	11.1	16,897	136,974	9.5	14,461	114,192
2023	157,170	8.2	12,888	110,832	11.1	17,446	138,540	9.5	14,931	115,498
2024	162,278	8.2	13,307	111,958	11.1	18,013	139,948	9.5	15,416	116,672
2025	167,552	8.2	13,739	112,941	11.1	18,598	141,177	9.5	15,917	117,697
2026	172,997	8.2	14,186	113,764	11.1	19,203	142,205	9.5	16,435	118,554
2027	178,619	8.2	14,647	114,407	11.1	19,827	143,009	9.5	16,969	119,224
2028	184,424	8.2	15,123	114,849	11.1	20,471	143,562	9.5	17,520	119,685
2029	190,418	8.2	15,614	115,068	11.1	21,136	143,836	9.5	18,090	119,914

Valuation Year	Estimated Projected Payroll	LT-5(65) Benefit Program			L-7 Benefit Program			LT-8(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 142,790	12.0%	\$17,135	\$ 136,806	13.9%	\$19,848	\$ 160,144	14.5%	\$20,705	\$ 162,381
2021	147,431	12.0	17,692	138,680	13.9	20,493	162,338	14.5	21,377	164,606
2022	152,223	12.0	18,267	140,429	13.9	21,159	164,385	14.5	22,072	166,682
2023	157,170	12.0	18,860	142,035	13.9	21,847	166,264	14.5	22,790	168,588
2024	162,278	12.0	19,473	143,478	13.9	22,557	167,953	14.5	23,530	170,301
2025	167,552	12.0	20,106	144,738	13.9	23,290	169,428	14.5	24,295	171,797
2026	172,997	12.0	20,760	145,792	13.9	24,047	170,662	14.5	25,085	173,048
2027	178,619	12.0	21,434	146,616	13.9	24,828	171,627	14.5	25,900	174,026
2028	184,424	12.0	22,131	147,183	13.9	25,635	172,291	14.5	26,741	174,699
2029	190,418	12.0	22,850	147,464	13.9	26,468	172,620	14.5	27,611	175,033

Valuation Year	Estimated Projected Payroll	L-12 Benefit Program			LT-14(65) Benefit Program			L-6 Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 142,790	16.7%	\$23,846	\$ 186,816	17.0%	\$24,274	\$ 187,936	19.6%	\$27,987	\$ 213,525
2021	147,431	16.7	24,621	189,375	17.0	25,063	190,511	19.6	28,896	216,450
2022	152,223	16.7	25,421	191,763	17.0	25,878	192,913	19.6	29,836	219,179
2023	157,170	16.7	26,247	193,955	17.0	26,719	195,119	19.6	30,805	221,685
2024	162,278	16.7	27,100	195,926	17.0	27,587	197,102	19.6	31,806	223,938
2025	167,552	16.7	27,981	197,647	17.0	28,484	198,833	19.6	32,840	225,905
2026	172,997	16.7	28,890	199,087	17.0	29,409	200,281	19.6	33,907	227,551
2027	178,619	16.7	29,829	200,212	17.0	30,365	201,413	19.6	35,009	228,837
2028	184,424	16.7	30,799	200,986	17.0	31,352	202,192	19.6	36,147	229,722
2029	190,418	16.7	31,800	201,370	17.0	32,371	202,578	19.6	37,322	230,161

Notes regarding the above projections:

- 1) The purpose of the above projections is to comply with the requirements of Section 105.660 of the Revised Statutes of Missouri (RSMo). The projection results may not be applicable for other purposes.
- 2) Estimated projected payroll is based upon the valuation payroll, increased each future year by 3.25%.
- 3) Due to the estimated nature of the above projections, certain but not all aspects of the Missouri LAGERS funding policy have been incorporated in the above projections.
- 4) Differences between the date of the initial valuation and the actuarial valuation date of February 28th have not been incorporated in the above results.
- 5) The actual employer contribution rates for future valuation dates will be based upon actual data as of the future valuation date.



City of Billings - General

Employer Contribution Rates (6% Member Contribution Rate, 3 Year FAS)

(Member contributions are additional)

Rule of 80 Retirement Eligibility

Valuation Year	Estimated Projected Payroll	L-1 Benefit Program			L-3 Benefit Program			LT-4(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 142,790	6.3%	\$8,996	\$ 106,752	9.2%	\$13,137	\$ 133,440	7.6%	\$10,852	\$ 111,246
2021	147,431	6.3	9,288	108,214	9.2	13,564	135,268	7.6	11,205	112,770
2022	152,223	6.3	9,590	109,579	9.2	14,005	136,974	7.6	11,569	114,192
2023	157,170	6.3	9,902	110,832	9.2	14,460	138,540	7.6	11,945	115,498
2024	162,278	6.3	10,224	111,958	9.2	14,930	139,948	7.6	12,333	116,672
2025	167,552	6.3	10,556	112,941	9.2	15,415	141,177	7.6	12,734	117,697
2026	172,997	6.3	10,899	113,764	9.2	15,916	142,205	7.6	13,148	118,554
2027	178,619	6.3	11,253	114,407	9.2	16,433	143,009	7.6	13,575	119,224
2028	184,424	6.3	11,619	114,849	9.2	16,967	143,562	7.6	14,016	119,685
2029	190,418	6.3	11,996	115,068	9.2	17,518	143,836	7.6	14,472	119,914

Valuation Year	Estimated Projected Payroll	LT-5(65) Benefit Program			L-7 Benefit Program			LT-8(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 142,790	10.1%	\$14,422	\$ 136,806	12.0%	\$17,135	\$ 160,144	12.6%	\$17,992	\$ 162,381
2021	147,431	10.1	14,891	138,680	12.0	17,692	162,338	12.6	18,576	164,606
2022	152,223	10.1	15,375	140,429	12.0	18,267	164,385	12.6	19,180	166,682
2023	157,170	10.1	15,874	142,035	12.0	18,860	166,264	12.6	19,803	168,588
2024	162,278	10.1	16,390	143,478	12.0	19,473	167,953	12.6	20,447	170,301
2025	167,552	10.1	16,923	144,738	12.0	20,106	169,428	12.6	21,112	171,797
2026	172,997	10.1	17,473	145,792	12.0	20,760	170,662	12.6	21,798	173,048
2027	178,619	10.1	18,041	146,616	12.0	21,434	171,627	12.6	22,506	174,026
2028	184,424	10.1	18,627	147,183	12.0	22,131	172,291	12.6	23,237	174,699
2029	190,418	10.1	19,232	147,464	12.0	22,850	172,620	12.6	23,993	175,033

Valuation Year	Estimated Projected Payroll	L-12 Benefit Program			LT-14(65) Benefit Program			L-6 Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 142,790	14.8%	\$21,133	\$ 186,816	15.1%	\$21,561	\$ 187,936	17.7%	\$25,274	\$ 213,525
2021	147,431	14.8	21,820	189,375	15.1	22,262	190,511	17.7	26,095	216,450
2022	152,223	14.8	22,529	191,763	15.1	22,986	192,913	17.7	26,943	219,179
2023	157,170	14.8	23,261	193,955	15.1	23,733	195,119	17.7	27,819	221,685
2024	162,278	14.8	24,017	195,926	15.1	24,504	197,102	17.7	28,723	223,938
2025	167,552	14.8	24,798	197,647	15.1	25,300	198,833	17.7	29,657	225,905
2026	172,997	14.8	25,604	199,087	15.1	26,123	200,281	17.7	30,620	227,551
2027	178,619	14.8	26,436	200,212	15.1	26,971	201,413	17.7	31,616	228,837
2028	184,424	14.8	27,295	200,986	15.1	27,848	202,192	17.7	32,643	229,722
2029	190,418	14.8	28,182	201,370	15.1	28,753	202,578	17.7	33,704	230,161

Notes regarding the above projections:

- 1) The purpose of the above projections is to comply with the requirements of Section 105.660 of the Revised Statutes of Missouri (RSMo). The projection results may not be applicable for other purposes.
- 2) Estimated projected payroll is based upon the valuation payroll, increased each future year by 3.25%.
- 3) Due to the estimated nature of the above projections, certain but not all aspects of the Missouri LAGERS funding policy have been incorporated in the above projections.
- 4) Differences between the date of the initial valuation and the actuarial valuation date of February 28th have not been incorporated in the above results.
- 5) The actual employer contribution rates for future valuation dates will be based upon actual data as of the future valuation date.



City of Billings - Police

Employer Contribution Rates (0% Member Contribution Rate, 5 Year FAS)

Regular Retirement Eligibility

Valuation Year	Estimated Projected Payroll	L-1 Benefit Program			L-3 Benefit Program			LT-4(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 106,600	9.3%	\$9,914	\$ 10,118	11.5%	\$12,259	\$ 12,636	10.4%	\$11,086	\$ 11,551
2021	110,065	9.3	10,236	10,257	11.5	12,657	12,809	10.4	11,447	11,709
2022	113,642	9.3	10,569	10,386	11.5	13,069	12,971	10.4	11,819	11,857
2023	117,335	9.3	10,912	10,505	11.5	13,494	13,119	10.4	12,203	11,993
2024	121,148	9.3	11,267	10,612	11.5	13,932	13,252	10.4	12,599	12,115
2025	125,085	9.3	11,633	10,705	11.5	14,385	13,368	10.4	13,009	12,221
2026	129,150	9.3	12,011	10,783	11.5	14,852	13,465	10.4	13,432	12,310
2027	133,347	9.3	12,401	10,844	11.5	15,335	13,541	10.4	13,868	12,380
2028	137,681	9.3	12,804	10,886	11.5	15,833	13,593	10.4	14,319	12,428
2029	142,156	9.3	13,221	10,907	11.5	16,348	13,619	10.4	14,784	12,452

Valuation Year	Estimated Projected Payroll	LT-5(65) Benefit Program			L-7 Benefit Program			LT-8(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 106,600	12.2%	\$13,005	\$ 13,723	13.6%	\$14,498	\$ 15,174	14.0%	\$14,924	\$ 15,896
2021	110,065	12.2	13,428	13,911	13.6	14,969	15,382	14.0	15,409	16,114
2022	113,642	12.2	13,864	14,086	13.6	15,455	15,576	14.0	15,910	16,317
2023	117,335	12.2	14,315	14,247	13.6	15,958	15,754	14.0	16,427	16,504
2024	121,148	12.2	14,780	14,392	13.6	16,476	15,914	14.0	16,961	16,672
2025	125,085	12.2	15,260	14,518	13.6	17,012	16,054	14.0	17,512	16,818
2026	129,150	12.2	15,756	14,624	13.6	17,564	16,171	14.0	18,081	16,941
2027	133,347	12.2	16,268	14,707	13.6	18,135	16,262	14.0	18,669	17,037
2028	137,681	12.2	16,797	14,764	13.6	18,725	16,325	14.0	19,275	17,103
2029	142,156	12.2	17,343	14,792	13.6	19,333	16,356	14.0	19,902	17,136

Valuation Year	Estimated Projected Payroll	L-12 Benefit Program			LT-14(65) Benefit Program			L-6 Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 106,600	15.6%	\$16,630	\$ 17,700	16.0%	\$17,056	\$ 18,065	17.8%	\$18,975	\$ 20,223
2021	110,065	15.6	17,170	17,942	16.0	17,610	18,312	17.8	19,592	20,500
2022	113,642	15.6	17,728	18,168	16.0	18,183	18,543	17.8	20,228	20,758
2023	117,335	15.6	18,304	18,376	16.0	18,774	18,755	17.8	20,886	20,995
2024	121,148	15.6	18,899	18,563	16.0	19,384	18,946	17.8	21,564	21,208
2025	125,085	15.6	19,513	18,726	16.0	20,014	19,112	17.8	22,265	21,394
2026	129,150	15.6	20,147	18,862	16.0	20,664	19,251	17.8	22,989	21,550
2027	133,347	15.6	20,802	18,969	16.0	21,336	19,360	17.8	23,736	21,672
2028	137,681	15.6	21,478	19,042	16.0	22,029	19,435	17.8	24,507	21,756
2029	142,156	15.6	22,176	19,078	16.0	22,745	19,472	17.8	25,304	21,798

Notes regarding the above projections:

- 1) The purpose of the above projections is to comply with the requirements of Section 105.660 of the Revised Statutes of Missouri (RSMo). The projection results may not be applicable for other purposes.
- 2) Estimated projected payroll is based upon the valuation payroll, increased each future year by 3.25%.
- 3) Due to the estimated nature of the above projections, certain but not all aspects of the Missouri LAGERS funding policy have been incorporated in the above projections.
- 4) Differences between the date of the initial valuation and the actuarial valuation date of February 28th have not been incorporated in the above results.
- 5) The actual employer contribution rates for future valuation dates will be based upon actual data as of the future valuation date.



City of Billings - Police

Employer Contribution Rates (2% Member Contribution Rate, 5 Year FAS)

(Member contributions are additional)

Regular Retirement Eligibility

Valuation Year	Estimated Projected Payroll	L-1 Benefit Program			L-3 Benefit Program			LT-4(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 106,600	7.4%	\$7,888	\$ 10,118	9.6%	\$10,234	\$ 12,636	8.5%	\$9,061	\$ 11,551
2021	110,065	7.4	8,145	10,257	9.6	10,566	12,809	8.5	9,356	11,709
2022	113,642	7.4	8,410	10,386	9.6	10,910	12,971	8.5	9,660	11,857
2023	117,335	7.4	8,683	10,505	9.6	11,264	13,119	8.5	9,973	11,993
2024	121,148	7.4	8,965	10,612	9.6	11,630	13,252	8.5	10,298	12,115
2025	125,085	7.4	9,256	10,705	9.6	12,008	13,368	8.5	10,632	12,221
2026	129,150	7.4	9,557	10,783	9.6	12,398	13,465	8.5	10,978	12,310
2027	133,347	7.4	9,868	10,844	9.6	12,801	13,541	8.5	11,334	12,380
2028	137,681	7.4	10,188	10,886	9.6	13,217	13,593	8.5	11,703	12,428
2029	142,156	7.4	10,520	10,907	9.6	13,647	13,619	8.5	12,083	12,452

Valuation Year	Estimated Projected Payroll	LT-5(65) Benefit Program			L-7 Benefit Program			LT-8(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 106,600	10.3%	\$10,980	\$ 13,723	11.7%	\$12,472	\$ 15,174	12.1%	\$12,899	\$ 15,896
2021	110,065	10.3	11,337	13,911	11.7	12,878	15,382	12.1	13,318	16,114
2022	113,642	10.3	11,705	14,086	11.7	13,296	15,576	12.1	13,751	16,317
2023	117,335	10.3	12,086	14,247	11.7	13,728	15,754	12.1	14,198	16,504
2024	121,148	10.3	12,478	14,392	11.7	14,174	15,914	12.1	14,659	16,672
2025	125,085	10.3	12,884	14,518	11.7	14,635	16,054	12.1	15,135	16,818
2026	129,150	10.3	13,302	14,624	11.7	15,111	16,171	12.1	15,627	16,941
2027	133,347	10.3	13,735	14,707	11.7	15,602	16,262	12.1	16,135	17,037
2028	137,681	10.3	14,181	14,764	11.7	16,109	16,325	12.1	16,659	17,103
2029	142,156	10.3	14,642	14,792	11.7	16,632	16,356	12.1	17,201	17,136

Valuation Year	Estimated Projected Payroll	L-12 Benefit Program			LT-14(65) Benefit Program			L-6 Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 106,600	13.7%	\$14,604	\$ 17,700	14.1%	\$15,031	\$ 18,065	15.9%	\$16,949	\$ 20,223
2021	110,065	13.7	15,079	17,942	14.1	15,519	18,312	15.9	17,500	20,500
2022	113,642	13.7	15,569	18,168	14.1	16,024	18,543	15.9	18,069	20,758
2023	117,335	13.7	16,075	18,376	14.1	16,544	18,755	15.9	18,656	20,995
2024	121,148	13.7	16,597	18,563	14.1	17,082	18,946	15.9	19,263	21,208
2025	125,085	13.7	17,137	18,726	14.1	17,637	19,112	15.9	19,889	21,394
2026	129,150	13.7	17,694	18,862	14.1	18,210	19,251	15.9	20,535	21,550
2027	133,347	13.7	18,269	18,969	14.1	18,802	19,360	15.9	21,202	21,672
2028	137,681	13.7	18,862	19,042	14.1	19,413	19,435	15.9	21,891	21,756
2029	142,156	13.7	19,475	19,078	14.1	20,044	19,472	15.9	22,603	21,798

Notes regarding the above projections:

- 1) The purpose of the above projections is to comply with the requirements of Section 105.660 of the Revised Statutes of Missouri (RSMo). The projection results may not be applicable for other purposes.
- 2) Estimated projected payroll is based upon the valuation payroll, increased each future year by 3.25%.
- 3) Due to the estimated nature of the above projections, certain but not all aspects of the Missouri LAGERS funding policy have been incorporated in the above projections.
- 4) Differences between the date of the initial valuation and the actuarial valuation date of February 28th have not been incorporated in the above results.
- 5) The actual employer contribution rates for future valuation dates will be based upon actual data as of the future valuation date.



City of Billings - Police

Employer Contribution Rates (4% Member Contribution Rate, 5 Year FAS)

(Member contributions are additional)

Regular Retirement Eligibility

Valuation Year	Estimated Projected Payroll	L-1 Benefit Program			L-3 Benefit Program			LT-4(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 106,600	5.5%	\$5,863	\$ 10,118	7.7%	\$8,208	\$ 12,636	6.6%	\$7,036	\$ 11,551
2021	110,065	5.5	6,054	10,257	7.7	8,475	12,809	6.6	7,264	11,709
2022	113,642	5.5	6,250	10,386	7.7	8,750	12,971	6.6	7,500	11,857
2023	117,335	5.5	6,453	10,505	7.7	9,035	13,119	6.6	7,744	11,993
2024	121,148	5.5	6,663	10,612	7.7	9,328	13,252	6.6	7,996	12,115
2025	125,085	5.5	6,880	10,705	7.7	9,632	13,368	6.6	8,256	12,221
2026	129,150	5.5	7,103	10,783	7.7	9,945	13,465	6.6	8,524	12,310
2027	133,347	5.5	7,334	10,844	7.7	10,268	13,541	6.6	8,801	12,380
2028	137,681	5.5	7,572	10,886	7.7	10,601	13,593	6.6	9,087	12,428
2029	142,156	5.5	7,819	10,907	7.7	10,946	13,619	6.6	9,382	12,452

Valuation Year	Estimated Projected Payroll	LT-5(65) Benefit Program			L-7 Benefit Program			LT-8(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 106,600	8.4%	\$8,954	\$ 13,723	9.8%	\$10,447	\$ 15,174	10.2%	\$10,873	\$ 15,896
2021	110,065	8.4	9,245	13,911	9.8	10,786	15,382	10.2	11,227	16,114
2022	113,642	8.4	9,546	14,086	9.8	11,137	15,576	10.2	11,591	16,317
2023	117,335	8.4	9,856	14,247	9.8	11,499	15,754	10.2	11,968	16,504
2024	121,148	8.4	10,176	14,392	9.8	11,873	15,914	10.2	12,357	16,672
2025	125,085	8.4	10,507	14,518	9.8	12,258	16,054	10.2	12,759	16,818
2026	129,150	8.4	10,849	14,624	9.8	12,657	16,171	10.2	13,173	16,941
2027	133,347	8.4	11,201	14,707	9.8	13,068	16,262	10.2	13,601	17,037
2028	137,681	8.4	11,565	14,764	9.8	13,493	16,325	10.2	14,043	17,103
2029	142,156	8.4	11,941	14,792	9.8	13,931	16,356	10.2	14,500	17,136

Valuation Year	Estimated Projected Payroll	L-12 Benefit Program			LT-14(65) Benefit Program			L-6 Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 106,600	11.8%	\$12,579	\$ 17,700	12.2%	\$13,005	\$ 18,065	14.0%	\$14,924	\$ 20,223
2021	110,065	11.8	12,988	17,942	12.2	13,428	18,312	14.0	15,409	20,500
2022	113,642	11.8	13,410	18,168	12.2	13,864	18,543	14.0	15,910	20,758
2023	117,335	11.8	13,846	18,376	12.2	14,315	18,755	14.0	16,427	20,995
2024	121,148	11.8	14,295	18,563	12.2	14,780	18,946	14.0	16,961	21,208
2025	125,085	11.8	14,760	18,726	12.2	15,260	19,112	14.0	17,512	21,394
2026	129,150	11.8	15,240	18,862	12.2	15,756	19,251	14.0	18,081	21,550
2027	133,347	11.8	15,735	18,969	12.2	16,268	19,360	14.0	18,669	21,672
2028	137,681	11.8	16,246	19,042	12.2	16,797	19,435	14.0	19,275	21,756
2029	142,156	11.8	16,774	19,078	12.2	17,343	19,472	14.0	19,902	21,798

Notes regarding the above projections:

- 1) The purpose of the above projections is to comply with the requirements of Section 105.660 of the Revised Statutes of Missouri (RSMo). The projection results may not be applicable for other purposes.
- 2) Estimated projected payroll is based upon the valuation payroll, increased each future year by 3.25%.
- 3) Due to the estimated nature of the above projections, certain but not all aspects of the Missouri LAGERS funding policy have been incorporated in the above projections.
- 4) Differences between the date of the initial valuation and the actuarial valuation date of February 28th have not been incorporated in the above results.
- 5) The actual employer contribution rates for future valuation dates will be based upon actual data as of the future valuation date.



City of Billings - Police

Employer Contribution Rates (6% Member Contribution Rate, 5 Year FAS)

(Member contributions are additional)

Regular Retirement Eligibility

Valuation Year	Estimated Projected Payroll	L-1 Benefit Program			L-3 Benefit Program			LT-4(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 106,600	3.6%	\$3,838	\$ 10,118	5.8%	\$6,183	\$ 12,636	4.7%	\$5,010	\$ 11,551
2021	110,065	3.6	3,962	10,257	5.8	6,384	12,809	4.7	5,173	11,709
2022	113,642	3.6	4,091	10,386	5.8	6,591	12,971	4.7	5,341	11,857
2023	117,335	3.6	4,224	10,505	5.8	6,805	13,119	4.7	5,515	11,993
2024	121,148	3.6	4,361	10,612	5.8	7,027	13,252	4.7	5,694	12,115
2025	125,085	3.6	4,503	10,705	5.8	7,255	13,368	4.7	5,879	12,221
2026	129,150	3.6	4,649	10,783	5.8	7,491	13,465	4.7	6,070	12,310
2027	133,347	3.6	4,800	10,844	5.8	7,734	13,541	4.7	6,267	12,380
2028	137,681	3.6	4,957	10,886	5.8	7,985	13,593	4.7	6,471	12,428
2029	142,156	3.6	5,118	10,907	5.8	8,245	13,619	4.7	6,681	12,452

Valuation Year	Estimated Projected Payroll	LT-5(65) Benefit Program			L-7 Benefit Program			LT-8(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 106,600	6.5%	\$6,929	\$ 13,723	7.9%	\$8,421	\$ 15,174	8.3%	\$8,848	\$ 15,896
2021	110,065	6.5	7,154	13,911	7.9	8,695	15,382	8.3	9,135	16,114
2022	113,642	6.5	7,387	14,086	7.9	8,978	15,576	8.3	9,432	16,317
2023	117,335	6.5	7,627	14,247	7.9	9,269	15,754	8.3	9,739	16,504
2024	121,148	6.5	7,875	14,392	7.9	9,571	15,914	8.3	10,055	16,672
2025	125,085	6.5	8,131	14,518	7.9	9,882	16,054	8.3	10,382	16,818
2026	129,150	6.5	8,395	14,624	7.9	10,203	16,171	8.3	10,719	16,941
2027	133,347	6.5	8,668	14,707	7.9	10,534	16,262	8.3	11,068	17,037
2028	137,681	6.5	8,949	14,764	7.9	10,877	16,325	8.3	11,428	17,103
2029	142,156	6.5	9,240	14,792	7.9	11,230	16,356	8.3	11,799	17,136

Valuation Year	Estimated Projected Payroll	L-12 Benefit Program			LT-14(65) Benefit Program			L-6 Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 106,600	9.9%	\$10,553	\$ 17,700	10.3%	\$10,980	\$ 18,065	12.1%	\$12,899	\$ 20,223
2021	110,065	9.9	10,896	17,942	10.3	11,337	18,312	12.1	13,318	20,500
2022	113,642	9.9	11,251	18,168	10.3	11,705	18,543	12.1	13,751	20,758
2023	117,335	9.9	11,616	18,376	10.3	12,086	18,755	12.1	14,198	20,995
2024	121,148	9.9	11,994	18,563	10.3	12,478	18,946	12.1	14,659	21,208
2025	125,085	9.9	12,383	18,726	10.3	12,884	19,112	12.1	15,135	21,394
2026	129,150	9.9	12,786	18,862	10.3	13,302	19,251	12.1	15,627	21,550
2027	133,347	9.9	13,201	18,969	10.3	13,735	19,360	12.1	16,135	21,672
2028	137,681	9.9	13,630	19,042	10.3	14,181	19,435	12.1	16,659	21,756
2029	142,156	9.9	14,073	19,078	10.3	14,642	19,472	12.1	17,201	21,798

Notes regarding the above projections:

- 1) The purpose of the above projections is to comply with the requirements of Section 105.660 of the Revised Statutes of Missouri (RSMo). The projection results may not be applicable for other purposes.
- 2) Estimated projected payroll is based upon the valuation payroll, increased each future year by 3.25%.
- 3) Due to the estimated nature of the above projections, certain but not all aspects of the Missouri LAGERS funding policy have been incorporated in the above projections.
- 4) Differences between the date of the initial valuation and the actuarial valuation date of February 28th have not been incorporated in the above results.
- 5) The actual employer contribution rates for future valuation dates will be based upon actual data as of the future valuation date.



City of Billings - Police

Employer Contribution Rates (0% Member Contribution Rate, 3 Year FAS)

Regular Retirement Eligibility

Valuation Year	Estimated Projected Payroll	L-1 Benefit Program			L-3 Benefit Program			LT-4(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 106,600	9.7%	\$10,340	\$ 10,422	11.8%	\$12,579	\$ 13,035	10.6%	\$11,300	\$ 11,897
2021	110,065	9.7	10,676	10,565	11.8	12,988	13,214	10.6	11,667	12,060
2022	113,642	9.7	11,023	10,698	11.8	13,410	13,381	10.6	12,046	12,212
2023	117,335	9.7	11,381	10,820	11.8	13,846	13,534	10.6	12,438	12,352
2024	121,148	9.7	11,751	10,930	11.8	14,295	13,672	10.6	12,842	12,478
2025	125,085	9.7	12,133	11,026	11.8	14,760	13,792	10.6	13,259	12,588
2026	129,150	9.7	12,528	11,106	11.8	15,240	13,892	10.6	13,690	12,680
2027	133,347	9.7	12,935	11,169	11.8	15,735	13,971	10.6	14,135	12,752
2028	137,681	9.7	13,355	11,212	11.8	16,246	14,025	10.6	14,594	12,801
2029	142,156	9.7	13,789	11,233	11.8	16,774	14,052	10.6	15,069	12,825

Valuation Year	Estimated Projected Payroll	LT-5(65) Benefit Program			L-7 Benefit Program			LT-8(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 106,600	12.6%	\$13,432	\$ 14,153	13.9%	\$14,817	\$ 15,649	14.5%	\$15,457	\$ 16,391
2021	110,065	12.6	13,868	14,347	13.9	15,299	15,863	14.5	15,959	16,616
2022	113,642	12.6	14,319	14,528	13.9	15,796	16,063	14.5	16,478	16,826
2023	117,335	12.6	14,784	14,694	13.9	16,310	16,247	14.5	17,014	17,018
2024	121,148	12.6	15,265	14,843	13.9	16,840	16,412	14.5	17,566	17,191
2025	125,085	12.6	15,761	14,973	13.9	17,387	16,556	14.5	18,137	17,342
2026	129,150	12.6	16,273	15,082	13.9	17,952	16,677	14.5	18,727	17,468
2027	133,347	12.6	16,802	15,167	13.9	18,535	16,771	14.5	19,335	17,567
2028	137,681	12.6	17,348	15,226	13.9	19,138	16,836	14.5	19,964	17,635
2029	142,156	12.6	17,912	15,255	13.9	19,760	16,868	14.5	20,613	17,669

Valuation Year	Estimated Projected Payroll	L-12 Benefit Program			LT-14(65) Benefit Program			L-6 Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 106,600	16.2%	\$17,269	\$ 18,270	16.4%	\$17,482	\$ 18,644	18.3%	\$19,508	\$ 20,872
2021	110,065	16.2	17,831	18,520	16.4	18,051	18,899	18.3	20,142	21,158
2022	113,642	16.2	18,410	18,754	16.4	18,637	19,137	18.3	20,796	21,425
2023	117,335	16.2	19,008	18,968	16.4	19,243	19,356	18.3	21,472	21,670
2024	121,148	16.2	19,626	19,161	16.4	19,868	19,553	18.3	22,170	21,890
2025	125,085	16.2	20,264	19,329	16.4	20,514	19,725	18.3	22,891	22,082
2026	129,150	16.2	20,922	19,470	16.4	21,181	19,869	18.3	23,634	22,243
2027	133,347	16.2	21,602	19,580	16.4	21,869	19,981	18.3	24,403	22,369
2028	137,681	16.2	22,304	19,656	16.4	22,580	20,058	18.3	25,196	22,456
2029	142,156	16.2	23,029	19,694	16.4	23,314	20,096	18.3	26,015	22,499

Notes regarding the above projections:

- 1) The purpose of the above projections is to comply with the requirements of Section 105.660 of the Revised Statutes of Missouri (RSMo). The projection results may not be applicable for other purposes.
- 2) Estimated projected payroll is based upon the valuation payroll, increased each future year by 3.25%.
- 3) Due to the estimated nature of the above projections, certain but not all aspects of the Missouri LAGERS funding policy have been incorporated in the above projections.
- 4) Differences between the date of the initial valuation and the actuarial valuation date of February 28th have not been incorporated in the above results.
- 5) The actual employer contribution rates for future valuation dates will be based upon actual data as of the future valuation date.



City of Billings - Police

Employer Contribution Rates (2% Member Contribution Rate, 3 Year FAS)

(Member contributions are additional)

Regular Retirement Eligibility

Valuation Year	Estimated Projected Payroll	L-1 Benefit Program			L-3 Benefit Program			LT-4(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 106,600	7.8%	\$8,315	\$ 10,422	9.9%	\$10,553	\$ 13,035	8.7%	\$9,274	\$ 11,897
2021	110,065	7.8	8,585	10,565	9.9	10,896	13,214	8.7	9,576	12,060
2022	113,642	7.8	8,864	10,698	9.9	11,251	13,381	8.7	9,887	12,212
2023	117,335	7.8	9,152	10,820	9.9	11,616	13,534	8.7	10,208	12,352
2024	121,148	7.8	9,450	10,930	9.9	11,994	13,672	8.7	10,540	12,478
2025	125,085	7.8	9,757	11,026	9.9	12,383	13,792	8.7	10,882	12,588
2026	129,150	7.8	10,074	11,106	9.9	12,786	13,892	8.7	11,236	12,680
2027	133,347	7.8	10,401	11,169	9.9	13,201	13,971	8.7	11,601	12,752
2028	137,681	7.8	10,739	11,212	9.9	13,630	14,025	8.7	11,978	12,801
2029	142,156	7.8	11,088	11,233	9.9	14,073	14,052	8.7	12,368	12,825

Valuation Year	Estimated Projected Payroll	LT-5(65) Benefit Program			L-7 Benefit Program			LT-8(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 106,600	10.7%	\$11,406	\$ 14,153	12.0%	\$12,792	\$ 15,649	12.6%	\$13,432	\$ 16,391
2021	110,065	10.7	11,777	14,347	12.0	13,208	15,863	12.6	13,868	16,616
2022	113,642	10.7	12,160	14,528	12.0	13,637	16,063	12.6	14,319	16,826
2023	117,335	10.7	12,555	14,694	12.0	14,080	16,247	12.6	14,784	17,018
2024	121,148	10.7	12,963	14,843	12.0	14,538	16,412	12.6	15,265	17,191
2025	125,085	10.7	13,384	14,973	12.0	15,010	16,556	12.6	15,761	17,342
2026	129,150	10.7	13,819	15,082	12.0	15,498	16,677	12.6	16,273	17,468
2027	133,347	10.7	14,268	15,167	12.0	16,002	16,771	12.6	16,802	17,567
2028	137,681	10.7	14,732	15,226	12.0	16,522	16,836	12.6	17,348	17,635
2029	142,156	10.7	15,211	15,255	12.0	17,059	16,868	12.6	17,912	17,669

Valuation Year	Estimated Projected Payroll	L-12 Benefit Program			LT-14(65) Benefit Program			L-6 Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 106,600	14.3%	\$15,244	\$ 18,270	14.5%	\$15,457	\$ 18,644	16.4%	\$17,482	\$ 20,872
2021	110,065	14.3	15,739	18,520	14.5	15,959	18,899	16.4	18,051	21,158
2022	113,642	14.3	16,251	18,754	14.5	16,478	19,137	16.4	18,637	21,425
2023	117,335	14.3	16,779	18,968	14.5	17,014	19,356	16.4	19,243	21,670
2024	121,148	14.3	17,324	19,161	14.5	17,566	19,553	16.4	19,868	21,890
2025	125,085	14.3	17,887	19,329	14.5	18,137	19,725	16.4	20,514	22,082
2026	129,150	14.3	18,468	19,470	14.5	18,727	19,869	16.4	21,181	22,243
2027	133,347	14.3	19,069	19,580	14.5	19,335	19,981	16.4	21,869	22,369
2028	137,681	14.3	19,688	19,656	14.5	19,964	20,058	16.4	22,580	22,456
2029	142,156	14.3	20,328	19,694	14.5	20,613	20,096	16.4	23,314	22,499

Notes regarding the above projections:

- 1) The purpose of the above projections is to comply with the requirements of Section 105.660 of the Revised Statutes of Missouri (RSMo). The projection results may not be applicable for other purposes.
- 2) Estimated projected payroll is based upon the valuation payroll, increased each future year by 3.25%.
- 3) Due to the estimated nature of the above projections, certain but not all aspects of the Missouri LAGERS funding policy have been incorporated in the above projections.
- 4) Differences between the date of the initial valuation and the actuarial valuation date of February 28th have not been incorporated in the above results.
- 5) The actual employer contribution rates for future valuation dates will be based upon actual data as of the future valuation date.



City of Billings - Police

Employer Contribution Rates (4% Member Contribution Rate, 3 Year FAS)

(Member contributions are additional)

Regular Retirement Eligibility

Valuation Year	Estimated Projected Payroll	L-1 Benefit Program			L-3 Benefit Program			LT-4(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 106,600	5.9%	\$6,289	\$ 10,422	8.0%	\$8,528	\$ 13,035	6.8%	\$7,249	\$ 11,897
2021	110,065	5.9	6,494	10,565	8.0	8,805	13,214	6.8	7,484	12,060
2022	113,642	5.9	6,705	10,698	8.0	9,091	13,381	6.8	7,728	12,212
2023	117,335	5.9	6,923	10,820	8.0	9,387	13,534	6.8	7,979	12,352
2024	121,148	5.9	7,148	10,930	8.0	9,692	13,672	6.8	8,238	12,478
2025	125,085	5.9	7,380	11,026	8.0	10,007	13,792	6.8	8,506	12,588
2026	129,150	5.9	7,620	11,106	8.0	10,332	13,892	6.8	8,782	12,680
2027	133,347	5.9	7,867	11,169	8.0	10,668	13,971	6.8	9,068	12,752
2028	137,681	5.9	8,123	11,212	8.0	11,014	14,025	6.8	9,362	12,801
2029	142,156	5.9	8,387	11,233	8.0	11,372	14,052	6.8	9,667	12,825

Valuation Year	Estimated Projected Payroll	LT-5(65) Benefit Program			L-7 Benefit Program			LT-8(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 106,600	8.8%	\$9,381	\$ 14,153	10.1%	\$10,767	\$ 15,649	10.7%	\$11,406	\$ 16,391
2021	110,065	8.8	9,686	14,347	10.1	11,117	15,863	10.7	11,777	16,616
2022	113,642	8.8	10,000	14,528	10.1	11,478	16,063	10.7	12,160	16,826
2023	117,335	8.8	10,325	14,694	10.1	11,851	16,247	10.7	12,555	17,018
2024	121,148	8.8	10,661	14,843	10.1	12,236	16,412	10.7	12,963	17,191
2025	125,085	8.8	11,007	14,973	10.1	12,634	16,556	10.7	13,384	17,342
2026	129,150	8.8	11,365	15,082	10.1	13,044	16,677	10.7	13,819	17,468
2027	133,347	8.8	11,735	15,167	10.1	13,468	16,771	10.7	14,268	17,567
2028	137,681	8.8	12,116	15,226	10.1	13,906	16,836	10.7	14,732	17,635
2029	142,156	8.8	12,510	15,255	10.1	14,358	16,868	10.7	15,211	17,669

Valuation Year	Estimated Projected Payroll	L-12 Benefit Program			LT-14(65) Benefit Program			L-6 Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 106,600	12.4%	\$13,218	\$ 18,270	12.6%	\$13,432	\$ 18,644	14.5%	\$15,457	\$ 20,872
2021	110,065	12.4	13,648	18,520	12.6	13,868	18,899	14.5	15,959	21,158
2022	113,642	12.4	14,092	18,754	12.6	14,319	19,137	14.5	16,478	21,425
2023	117,335	12.4	14,550	18,968	12.6	14,784	19,356	14.5	17,014	21,670
2024	121,148	12.4	15,022	19,161	12.6	15,265	19,553	14.5	17,566	21,890
2025	125,085	12.4	15,511	19,329	12.6	15,761	19,725	14.5	18,137	22,082
2026	129,150	12.4	16,015	19,470	12.6	16,273	19,869	14.5	18,727	22,243
2027	133,347	12.4	16,535	19,580	12.6	16,802	19,981	14.5	19,335	22,369
2028	137,681	12.4	17,072	19,656	12.6	17,348	20,058	14.5	19,964	22,456
2029	142,156	12.4	17,627	19,694	12.6	17,912	20,096	14.5	20,613	22,499

Notes regarding the above projections:

- 1) The purpose of the above projections is to comply with the requirements of Section 105.660 of the Revised Statutes of Missouri (RSMo). The projection results may not be applicable for other purposes.
- 2) Estimated projected payroll is based upon the valuation payroll, increased each future year by 3.25%.
- 3) Due to the estimated nature of the above projections, certain but not all aspects of the Missouri LAGERS funding policy have been incorporated in the above projections.
- 4) Differences between the date of the initial valuation and the actuarial valuation date of February 28th have not been incorporated in the above results.
- 5) The actual employer contribution rates for future valuation dates will be based upon actual data as of the future valuation date.



City of Billings - Police

Employer Contribution Rates (6% Member Contribution Rate, 3 Year FAS)

(Member contributions are additional)

Regular Retirement Eligibility

Valuation Year	Estimated Projected Payroll	L-1 Benefit Program			L-3 Benefit Program			LT-4(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 106,600	4.0%	\$4,264	\$ 10,422	6.1%	\$6,503	\$ 13,035	4.9%	\$5,223	\$ 11,897
2021	110,065	4.0	4,403	10,565	6.1	6,714	13,214	4.9	5,393	12,060
2022	113,642	4.0	4,546	10,698	6.1	6,932	13,381	4.9	5,568	12,212
2023	117,335	4.0	4,693	10,820	6.1	7,157	13,534	4.9	5,749	12,352
2024	121,148	4.0	4,846	10,930	6.1	7,390	13,672	4.9	5,936	12,478
2025	125,085	4.0	5,003	11,026	6.1	7,630	13,792	4.9	6,129	12,588
2026	129,150	4.0	5,166	11,106	6.1	7,878	13,892	4.9	6,328	12,680
2027	133,347	4.0	5,334	11,169	6.1	8,134	13,971	4.9	6,534	12,752
2028	137,681	4.0	5,507	11,212	6.1	8,399	14,025	4.9	6,746	12,801
2029	142,156	4.0	5,686	11,233	6.1	8,672	14,052	4.9	6,966	12,825

Valuation Year	Estimated Projected Payroll	LT-5(65) Benefit Program			L-7 Benefit Program			LT-8(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 106,600	6.9%	\$7,355	\$ 14,153	8.2%	\$8,741	\$ 15,649	8.8%	\$9,381	\$ 16,391
2021	110,065	6.9	7,594	14,347	8.2	9,025	15,863	8.8	9,686	16,616
2022	113,642	6.9	7,841	14,528	8.2	9,319	16,063	8.8	10,000	16,826
2023	117,335	6.9	8,096	14,694	8.2	9,621	16,247	8.8	10,325	17,018
2024	121,148	6.9	8,359	14,843	8.2	9,934	16,412	8.8	10,661	17,191
2025	125,085	6.9	8,631	14,973	8.2	10,257	16,556	8.8	11,007	17,342
2026	129,150	6.9	8,911	15,082	8.2	10,590	16,677	8.8	11,365	17,468
2027	133,347	6.9	9,201	15,167	8.2	10,934	16,771	8.8	11,735	17,567
2028	137,681	6.9	9,500	15,226	8.2	11,290	16,836	8.8	12,116	17,635
2029	142,156	6.9	9,809	15,255	8.2	11,657	16,868	8.8	12,510	17,669

Valuation Year	Estimated Projected Payroll	L-12 Benefit Program			LT-14(65) Benefit Program			L-6 Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 106,600	10.5%	\$11,193	\$ 18,270	10.7%	\$11,406	\$ 18,644	12.6%	\$13,432	\$ 20,872
2021	110,065	10.5	11,557	18,520	10.7	11,777	18,899	12.6	13,868	21,158
2022	113,642	10.5	11,932	18,754	10.7	12,160	19,137	12.6	14,319	21,425
2023	117,335	10.5	12,320	18,968	10.7	12,555	19,356	12.6	14,784	21,670
2024	121,148	10.5	12,721	19,161	10.7	12,963	19,553	12.6	15,265	21,890
2025	125,085	10.5	13,134	19,329	10.7	13,384	19,725	12.6	15,761	22,082
2026	129,150	10.5	13,561	19,470	10.7	13,819	19,869	12.6	16,273	22,243
2027	133,347	10.5	14,001	19,580	10.7	14,268	19,981	12.6	16,802	22,369
2028	137,681	10.5	14,457	19,656	10.7	14,732	20,058	12.6	17,348	22,456
2029	142,156	10.5	14,926	19,694	10.7	15,211	20,096	12.6	17,912	22,499

Notes regarding the above projections:

- 1) The purpose of the above projections is to comply with the requirements of Section 105.660 of the Revised Statutes of Missouri (RSMo). The projection results may not be applicable for other purposes.
- 2) Estimated projected payroll is based upon the valuation payroll, increased each future year by 3.25%.
- 3) Due to the estimated nature of the above projections, certain but not all aspects of the Missouri LAGERS funding policy have been incorporated in the above projections.
- 4) Differences between the date of the initial valuation and the actuarial valuation date of February 28th have not been incorporated in the above results.
- 5) The actual employer contribution rates for future valuation dates will be based upon actual data as of the future valuation date.



City of Billings - Police

Employer Contribution Rates (0% Member Contribution Rate, 5 Year FAS)

Rule of 80 Retirement Eligibility

Valuation Year	Estimated Projected Payroll	L-1 Benefit Program			L-3 Benefit Program			LT-4(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 106,600	9.3%	\$9,914	\$ 10,118	11.5%	\$12,259	\$ 12,636	10.4%	\$11,086	\$ 11,551
2021	110,065	9.3	10,236	10,257	11.5	12,657	12,809	10.4	11,447	11,709
2022	113,642	9.3	10,569	10,386	11.5	13,069	12,971	10.4	11,819	11,857
2023	117,335	9.3	10,912	10,505	11.5	13,494	13,119	10.4	12,203	11,993
2024	121,148	9.3	11,267	10,612	11.5	13,932	13,252	10.4	12,599	12,115
2025	125,085	9.3	11,633	10,705	11.5	14,385	13,368	10.4	13,009	12,221
2026	129,150	9.3	12,011	10,783	11.5	14,852	13,465	10.4	13,432	12,310
2027	133,347	9.3	12,401	10,844	11.5	15,335	13,541	10.4	13,868	12,380
2028	137,681	9.3	12,804	10,886	11.5	15,833	13,593	10.4	14,319	12,428
2029	142,156	9.3	13,221	10,907	11.5	16,348	13,619	10.4	14,784	12,452

Valuation Year	Estimated Projected Payroll	LT-5(65) Benefit Program			L-7 Benefit Program			LT-8(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 106,600	12.2%	\$13,005	\$ 13,723	13.6%	\$14,498	\$ 15,174	14.0%	\$14,924	\$ 15,896
2021	110,065	12.2	13,428	13,911	13.6	14,969	15,382	14.0	15,409	16,114
2022	113,642	12.2	13,864	14,086	13.6	15,455	15,576	14.0	15,910	16,317
2023	117,335	12.2	14,315	14,247	13.6	15,958	15,754	14.0	16,427	16,504
2024	121,148	12.2	14,780	14,392	13.6	16,476	15,914	14.0	16,961	16,672
2025	125,085	12.2	15,260	14,518	13.6	17,012	16,054	14.0	17,512	16,818
2026	129,150	12.2	15,756	14,624	13.6	17,564	16,171	14.0	18,081	16,941
2027	133,347	12.2	16,268	14,707	13.6	18,135	16,262	14.0	18,669	17,037
2028	137,681	12.2	16,797	14,764	13.6	18,725	16,325	14.0	19,275	17,103
2029	142,156	12.2	17,343	14,792	13.6	19,333	16,356	14.0	19,902	17,136

Valuation Year	Estimated Projected Payroll	L-12 Benefit Program			LT-14(65) Benefit Program			L-6 Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 106,600	15.6%	\$16,630	\$ 17,700	16.0%	\$17,056	\$ 18,065	17.8%	\$18,975	\$ 20,223
2021	110,065	15.6	17,170	17,942	16.0	17,610	18,312	17.8	19,592	20,500
2022	113,642	15.6	17,728	18,168	16.0	18,183	18,543	17.8	20,228	20,758
2023	117,335	15.6	18,304	18,376	16.0	18,774	18,755	17.8	20,886	20,995
2024	121,148	15.6	18,899	18,563	16.0	19,384	18,946	17.8	21,564	21,208
2025	125,085	15.6	19,513	18,726	16.0	20,014	19,112	17.8	22,265	21,394
2026	129,150	15.6	20,147	18,862	16.0	20,664	19,251	17.8	22,989	21,550
2027	133,347	15.6	20,802	18,969	16.0	21,336	19,360	17.8	23,736	21,672
2028	137,681	15.6	21,478	19,042	16.0	22,029	19,435	17.8	24,507	21,756
2029	142,156	15.6	22,176	19,078	16.0	22,745	19,472	17.8	25,304	21,798

Notes regarding the above projections:

- 1) The purpose of the above projections is to comply with the requirements of Section 105.660 of the Revised Statutes of Missouri (RSMo). The projection results may not be applicable for other purposes.
- 2) Estimated projected payroll is based upon the valuation payroll, increased each future year by 3.25%.
- 3) Due to the estimated nature of the above projections, certain but not all aspects of the Missouri LAGERS funding policy have been incorporated in the above projections.
- 4) Differences between the date of the initial valuation and the actuarial valuation date of February 28th have not been incorporated in the above results.
- 5) The actual employer contribution rates for future valuation dates will be based upon actual data as of the future valuation date.



City of Billings - Police

Employer Contribution Rates (2% Member Contribution Rate, 5 Year FAS)

(Member contributions are additional)

Rule of 80 Retirement Eligibility

Valuation Year	Estimated Projected Payroll	L-1 Benefit Program			L-3 Benefit Program			LT-4(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 106,600	7.4%	\$7,888	\$ 10,118	9.6%	\$10,234	\$ 12,636	8.5%	\$9,061	\$ 11,551
2021	110,065	7.4	8,145	10,257	9.6	10,566	12,809	8.5	9,356	11,709
2022	113,642	7.4	8,410	10,386	9.6	10,910	12,971	8.5	9,660	11,857
2023	117,335	7.4	8,683	10,505	9.6	11,264	13,119	8.5	9,973	11,993
2024	121,148	7.4	8,965	10,612	9.6	11,630	13,252	8.5	10,298	12,115
2025	125,085	7.4	9,256	10,705	9.6	12,008	13,368	8.5	10,632	12,221
2026	129,150	7.4	9,557	10,783	9.6	12,398	13,465	8.5	10,978	12,310
2027	133,347	7.4	9,868	10,844	9.6	12,801	13,541	8.5	11,334	12,380
2028	137,681	7.4	10,188	10,886	9.6	13,217	13,593	8.5	11,703	12,428
2029	142,156	7.4	10,520	10,907	9.6	13,647	13,619	8.5	12,083	12,452

Valuation Year	Estimated Projected Payroll	LT-5(65) Benefit Program			L-7 Benefit Program			LT-8(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 106,600	10.3%	\$10,980	\$ 13,723	11.7%	\$12,472	\$ 15,174	12.1%	\$12,899	\$ 15,896
2021	110,065	10.3	11,337	13,911	11.7	12,878	15,382	12.1	13,318	16,114
2022	113,642	10.3	11,705	14,086	11.7	13,296	15,576	12.1	13,751	16,317
2023	117,335	10.3	12,086	14,247	11.7	13,728	15,754	12.1	14,198	16,504
2024	121,148	10.3	12,478	14,392	11.7	14,174	15,914	12.1	14,659	16,672
2025	125,085	10.3	12,884	14,518	11.7	14,635	16,054	12.1	15,135	16,818
2026	129,150	10.3	13,302	14,624	11.7	15,111	16,171	12.1	15,627	16,941
2027	133,347	10.3	13,735	14,707	11.7	15,602	16,262	12.1	16,135	17,037
2028	137,681	10.3	14,181	14,764	11.7	16,109	16,325	12.1	16,659	17,103
2029	142,156	10.3	14,642	14,792	11.7	16,632	16,356	12.1	17,201	17,136

Valuation Year	Estimated Projected Payroll	L-12 Benefit Program			LT-14(65) Benefit Program			L-6 Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 106,600	13.7%	\$14,604	\$ 17,700	14.1%	\$15,031	\$ 18,065	15.9%	\$16,949	\$ 20,223
2021	110,065	13.7	15,079	17,942	14.1	15,519	18,312	15.9	17,500	20,500
2022	113,642	13.7	15,569	18,168	14.1	16,024	18,543	15.9	18,069	20,758
2023	117,335	13.7	16,075	18,376	14.1	16,544	18,755	15.9	18,656	20,995
2024	121,148	13.7	16,597	18,563	14.1	17,082	18,946	15.9	19,263	21,208
2025	125,085	13.7	17,137	18,726	14.1	17,637	19,112	15.9	19,889	21,394
2026	129,150	13.7	17,694	18,862	14.1	18,210	19,251	15.9	20,535	21,550
2027	133,347	13.7	18,269	18,969	14.1	18,802	19,360	15.9	21,202	21,672
2028	137,681	13.7	18,862	19,042	14.1	19,413	19,435	15.9	21,891	21,756
2029	142,156	13.7	19,475	19,078	14.1	20,044	19,472	15.9	22,603	21,798

Notes regarding the above projections:

- 1) The purpose of the above projections is to comply with the requirements of Section 105.660 of the Revised Statutes of Missouri (RSMo). The projection results may not be applicable for other purposes.
- 2) Estimated projected payroll is based upon the valuation payroll, increased each future year by 3.25%.
- 3) Due to the estimated nature of the above projections, certain but not all aspects of the Missouri LAGERS funding policy have been incorporated in the above projections.
- 4) Differences between the date of the initial valuation and the actuarial valuation date of February 28th have not been incorporated in the above results.
- 5) The actual employer contribution rates for future valuation dates will be based upon actual data as of the future valuation date.



City of Billings - Police

Employer Contribution Rates (4% Member Contribution Rate, 5 Year FAS)

(Member contributions are additional)

Rule of 80 Retirement Eligibility

Valuation Year	Estimated Projected Payroll	L-1 Benefit Program			L-3 Benefit Program			LT-4(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 106,600	5.5%	\$5,863	\$ 10,118	7.7%	\$8,208	\$ 12,636	6.6%	\$7,036	\$ 11,551
2021	110,065	5.5	6,054	10,257	7.7	8,475	12,809	6.6	7,264	11,709
2022	113,642	5.5	6,250	10,386	7.7	8,750	12,971	6.6	7,500	11,857
2023	117,335	5.5	6,453	10,505	7.7	9,035	13,119	6.6	7,744	11,993
2024	121,148	5.5	6,663	10,612	7.7	9,328	13,252	6.6	7,996	12,115
2025	125,085	5.5	6,880	10,705	7.7	9,632	13,368	6.6	8,256	12,221
2026	129,150	5.5	7,103	10,783	7.7	9,945	13,465	6.6	8,524	12,310
2027	133,347	5.5	7,334	10,844	7.7	10,268	13,541	6.6	8,801	12,380
2028	137,681	5.5	7,572	10,886	7.7	10,601	13,593	6.6	9,087	12,428
2029	142,156	5.5	7,819	10,907	7.7	10,946	13,619	6.6	9,382	12,452

Valuation Year	Estimated Projected Payroll	LT-5(65) Benefit Program			L-7 Benefit Program			LT-8(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 106,600	8.4%	\$8,954	\$ 13,723	9.8%	\$10,447	\$ 15,174	10.2%	\$10,873	\$ 15,896
2021	110,065	8.4	9,245	13,911	9.8	10,786	15,382	10.2	11,227	16,114
2022	113,642	8.4	9,546	14,086	9.8	11,137	15,576	10.2	11,591	16,317
2023	117,335	8.4	9,856	14,247	9.8	11,499	15,754	10.2	11,968	16,504
2024	121,148	8.4	10,176	14,392	9.8	11,873	15,914	10.2	12,357	16,672
2025	125,085	8.4	10,507	14,518	9.8	12,258	16,054	10.2	12,759	16,818
2026	129,150	8.4	10,849	14,624	9.8	12,657	16,171	10.2	13,173	16,941
2027	133,347	8.4	11,201	14,707	9.8	13,068	16,262	10.2	13,601	17,037
2028	137,681	8.4	11,565	14,764	9.8	13,493	16,325	10.2	14,043	17,103
2029	142,156	8.4	11,941	14,792	9.8	13,931	16,356	10.2	14,500	17,136

Valuation Year	Estimated Projected Payroll	L-12 Benefit Program			LT-14(65) Benefit Program			L-6 Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 106,600	11.8%	\$12,579	\$ 17,700	12.2%	\$13,005	\$ 18,065	14.0%	\$14,924	\$ 20,223
2021	110,065	11.8	12,988	17,942	12.2	13,428	18,312	14.0	15,409	20,500
2022	113,642	11.8	13,410	18,168	12.2	13,864	18,543	14.0	15,910	20,758
2023	117,335	11.8	13,846	18,376	12.2	14,315	18,755	14.0	16,427	20,995
2024	121,148	11.8	14,295	18,563	12.2	14,780	18,946	14.0	16,961	21,208
2025	125,085	11.8	14,760	18,726	12.2	15,260	19,112	14.0	17,512	21,394
2026	129,150	11.8	15,240	18,862	12.2	15,756	19,251	14.0	18,081	21,550
2027	133,347	11.8	15,735	18,969	12.2	16,268	19,360	14.0	18,669	21,672
2028	137,681	11.8	16,246	19,042	12.2	16,797	19,435	14.0	19,275	21,756
2029	142,156	11.8	16,774	19,078	12.2	17,343	19,472	14.0	19,902	21,798

Notes regarding the above projections:

- 1) The purpose of the above projections is to comply with the requirements of Section 105.660 of the Revised Statutes of Missouri (RSMo). The projection results may not be applicable for other purposes.
- 2) Estimated projected payroll is based upon the valuation payroll, increased each future year by 3.25%.
- 3) Due to the estimated nature of the above projections, certain but not all aspects of the Missouri LAGERS funding policy have been incorporated in the above projections.
- 4) Differences between the date of the initial valuation and the actuarial valuation date of February 28th have not been incorporated in the above results.
- 5) The actual employer contribution rates for future valuation dates will be based upon actual data as of the future valuation date.



City of Billings - Police

Employer Contribution Rates (6% Member Contribution Rate, 5 Year FAS)

(Member contributions are additional)

Rule of 80 Retirement Eligibility

Valuation Year	Estimated Projected Payroll	L-1 Benefit Program			L-3 Benefit Program			LT-4(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 106,600	3.6%	\$3,838	\$ 10,118	5.8%	\$6,183	\$ 12,636	4.7%	\$5,010	\$ 11,551
2021	110,065	3.6	3,962	10,257	5.8	6,384	12,809	4.7	5,173	11,709
2022	113,642	3.6	4,091	10,386	5.8	6,591	12,971	4.7	5,341	11,857
2023	117,335	3.6	4,224	10,505	5.8	6,805	13,119	4.7	5,515	11,993
2024	121,148	3.6	4,361	10,612	5.8	7,027	13,252	4.7	5,694	12,115
2025	125,085	3.6	4,503	10,705	5.8	7,255	13,368	4.7	5,879	12,221
2026	129,150	3.6	4,649	10,783	5.8	7,491	13,465	4.7	6,070	12,310
2027	133,347	3.6	4,800	10,844	5.8	7,734	13,541	4.7	6,267	12,380
2028	137,681	3.6	4,957	10,886	5.8	7,985	13,593	4.7	6,471	12,428
2029	142,156	3.6	5,118	10,907	5.8	8,245	13,619	4.7	6,681	12,452

Valuation Year	Estimated Projected Payroll	LT-5(65) Benefit Program			L-7 Benefit Program			LT-8(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 106,600	6.5%	\$6,929	\$ 13,723	7.9%	\$8,421	\$ 15,174	8.3%	\$8,848	\$ 15,896
2021	110,065	6.5	7,154	13,911	7.9	8,695	15,382	8.3	9,135	16,114
2022	113,642	6.5	7,387	14,086	7.9	8,978	15,576	8.3	9,432	16,317
2023	117,335	6.5	7,627	14,247	7.9	9,269	15,754	8.3	9,739	16,504
2024	121,148	6.5	7,875	14,392	7.9	9,571	15,914	8.3	10,055	16,672
2025	125,085	6.5	8,131	14,518	7.9	9,882	16,054	8.3	10,382	16,818
2026	129,150	6.5	8,395	14,624	7.9	10,203	16,171	8.3	10,719	16,941
2027	133,347	6.5	8,668	14,707	7.9	10,534	16,262	8.3	11,068	17,037
2028	137,681	6.5	8,949	14,764	7.9	10,877	16,325	8.3	11,428	17,103
2029	142,156	6.5	9,240	14,792	7.9	11,230	16,356	8.3	11,799	17,136

Valuation Year	Estimated Projected Payroll	L-12 Benefit Program			LT-14(65) Benefit Program			L-6 Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 106,600	9.9%	\$10,553	\$ 17,700	10.3%	\$10,980	\$ 18,065	12.1%	\$12,899	\$ 20,223
2021	110,065	9.9	10,896	17,942	10.3	11,337	18,312	12.1	13,318	20,500
2022	113,642	9.9	11,251	18,168	10.3	11,705	18,543	12.1	13,751	20,758
2023	117,335	9.9	11,616	18,376	10.3	12,086	18,755	12.1	14,198	20,995
2024	121,148	9.9	11,994	18,563	10.3	12,478	18,946	12.1	14,659	21,208
2025	125,085	9.9	12,383	18,726	10.3	12,884	19,112	12.1	15,135	21,394
2026	129,150	9.9	12,786	18,862	10.3	13,302	19,251	12.1	15,627	21,550
2027	133,347	9.9	13,201	18,969	10.3	13,735	19,360	12.1	16,135	21,672
2028	137,681	9.9	13,630	19,042	10.3	14,181	19,435	12.1	16,659	21,756
2029	142,156	9.9	14,073	19,078	10.3	14,642	19,472	12.1	17,201	21,798

Notes regarding the above projections:

- 1) The purpose of the above projections is to comply with the requirements of Section 105.660 of the Revised Statutes of Missouri (RSMo). The projection results may not be applicable for other purposes.
- 2) Estimated projected payroll is based upon the valuation payroll, increased each future year by 3.25%.
- 3) Due to the estimated nature of the above projections, certain but not all aspects of the Missouri LAGERS funding policy have been incorporated in the above projections.
- 4) Differences between the date of the initial valuation and the actuarial valuation date of February 28th have not been incorporated in the above results.
- 5) The actual employer contribution rates for future valuation dates will be based upon actual data as of the future valuation date.



City of Billings - Police

Employer Contribution Rates (0% Member Contribution Rate, 3 Year FAS)

Rule of 80 Retirement Eligibility

Valuation Year	Estimated Projected Payroll	L-1 Benefit Program			L-3 Benefit Program			LT-4(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 106,600	9.7%	\$10,340	\$ 10,422	11.8%	\$12,579	\$ 13,035	10.6%	\$11,300	\$ 11,897
2021	110,065	9.7	10,676	10,565	11.8	12,988	13,214	10.6	11,667	12,060
2022	113,642	9.7	11,023	10,698	11.8	13,410	13,381	10.6	12,046	12,212
2023	117,335	9.7	11,381	10,820	11.8	13,846	13,534	10.6	12,438	12,352
2024	121,148	9.7	11,751	10,930	11.8	14,295	13,672	10.6	12,842	12,478
2025	125,085	9.7	12,133	11,026	11.8	14,760	13,792	10.6	13,259	12,588
2026	129,150	9.7	12,528	11,106	11.8	15,240	13,892	10.6	13,690	12,680
2027	133,347	9.7	12,935	11,169	11.8	15,735	13,971	10.6	14,135	12,752
2028	137,681	9.7	13,355	11,212	11.8	16,246	14,025	10.6	14,594	12,801
2029	142,156	9.7	13,789	11,233	11.8	16,774	14,052	10.6	15,069	12,825

Valuation Year	Estimated Projected Payroll	LT-5(65) Benefit Program			L-7 Benefit Program			LT-8(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 106,600	12.6%	\$13,432	\$ 14,153	13.9%	\$14,817	\$ 15,649	14.5%	\$15,457	\$ 16,391
2021	110,065	12.6	13,868	14,347	13.9	15,299	15,863	14.5	15,959	16,616
2022	113,642	12.6	14,319	14,528	13.9	15,796	16,063	14.5	16,478	16,826
2023	117,335	12.6	14,784	14,694	13.9	16,310	16,247	14.5	17,014	17,018
2024	121,148	12.6	15,265	14,843	13.9	16,840	16,412	14.5	17,566	17,191
2025	125,085	12.6	15,761	14,973	13.9	17,387	16,556	14.5	18,137	17,342
2026	129,150	12.6	16,273	15,082	13.9	17,952	16,677	14.5	18,727	17,468
2027	133,347	12.6	16,802	15,167	13.9	18,535	16,771	14.5	19,335	17,567
2028	137,681	12.6	17,348	15,226	13.9	19,138	16,836	14.5	19,964	17,635
2029	142,156	12.6	17,912	15,255	13.9	19,760	16,868	14.5	20,613	17,669

Valuation Year	Estimated Projected Payroll	L-12 Benefit Program			LT-14(65) Benefit Program			L-6 Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 106,600	16.2%	\$17,269	\$ 18,270	16.4%	\$17,482	\$ 18,644	18.3%	\$19,508	\$ 20,872
2021	110,065	16.2	17,831	18,520	16.4	18,051	18,899	18.3	20,142	21,158
2022	113,642	16.2	18,410	18,754	16.4	18,637	19,137	18.3	20,796	21,425
2023	117,335	16.2	19,008	18,968	16.4	19,243	19,356	18.3	21,472	21,670
2024	121,148	16.2	19,626	19,161	16.4	19,868	19,553	18.3	22,170	21,890
2025	125,085	16.2	20,264	19,329	16.4	20,514	19,725	18.3	22,891	22,082
2026	129,150	16.2	20,922	19,470	16.4	21,181	19,869	18.3	23,634	22,243
2027	133,347	16.2	21,602	19,580	16.4	21,869	19,981	18.3	24,403	22,369
2028	137,681	16.2	22,304	19,656	16.4	22,580	20,058	18.3	25,196	22,456
2029	142,156	16.2	23,029	19,694	16.4	23,314	20,096	18.3	26,015	22,499

Notes regarding the above projections:

- 1) The purpose of the above projections is to comply with the requirements of Section 105.660 of the Revised Statutes of Missouri (RSMo). The projection results may not be applicable for other purposes.
- 2) Estimated projected payroll is based upon the valuation payroll, increased each future year by 3.25%.
- 3) Due to the estimated nature of the above projections, certain but not all aspects of the Missouri LAGERS funding policy have been incorporated in the above projections.
- 4) Differences between the date of the initial valuation and the actuarial valuation date of February 28th have not been incorporated in the above results.
- 5) The actual employer contribution rates for future valuation dates will be based upon actual data as of the future valuation date.



City of Billings - Police

Employer Contribution Rates (2% Member Contribution Rate, 3 Year FAS)

(Member contributions are additional)

Rule of 80 Retirement Eligibility

Valuation Year	Estimated Projected Payroll	L-1 Benefit Program			L-3 Benefit Program			LT-4(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 106,600	7.8%	\$8,315	\$ 10,422	9.9%	\$10,553	\$ 13,035	8.7%	\$9,274	\$ 11,897
2021	110,065	7.8	8,585	10,565	9.9	10,896	13,214	8.7	9,576	12,060
2022	113,642	7.8	8,864	10,698	9.9	11,251	13,381	8.7	9,887	12,212
2023	117,335	7.8	9,152	10,820	9.9	11,616	13,534	8.7	10,208	12,352
2024	121,148	7.8	9,450	10,930	9.9	11,994	13,672	8.7	10,540	12,478
2025	125,085	7.8	9,757	11,026	9.9	12,383	13,792	8.7	10,882	12,588
2026	129,150	7.8	10,074	11,106	9.9	12,786	13,892	8.7	11,236	12,680
2027	133,347	7.8	10,401	11,169	9.9	13,201	13,971	8.7	11,601	12,752
2028	137,681	7.8	10,739	11,212	9.9	13,630	14,025	8.7	11,978	12,801
2029	142,156	7.8	11,088	11,233	9.9	14,073	14,052	8.7	12,368	12,825

Valuation Year	Estimated Projected Payroll	LT-5(65) Benefit Program			L-7 Benefit Program			LT-8(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 106,600	10.7%	\$11,406	\$ 14,153	12.0%	\$12,792	\$ 15,649	12.6%	\$13,432	\$ 16,391
2021	110,065	10.7	11,777	14,347	12.0	13,208	15,863	12.6	13,868	16,616
2022	113,642	10.7	12,160	14,528	12.0	13,637	16,063	12.6	14,319	16,826
2023	117,335	10.7	12,555	14,694	12.0	14,080	16,247	12.6	14,784	17,018
2024	121,148	10.7	12,963	14,843	12.0	14,538	16,412	12.6	15,265	17,191
2025	125,085	10.7	13,384	14,973	12.0	15,010	16,556	12.6	15,761	17,342
2026	129,150	10.7	13,819	15,082	12.0	15,498	16,677	12.6	16,273	17,468
2027	133,347	10.7	14,268	15,167	12.0	16,002	16,771	12.6	16,802	17,567
2028	137,681	10.7	14,732	15,226	12.0	16,522	16,836	12.6	17,348	17,635
2029	142,156	10.7	15,211	15,255	12.0	17,059	16,868	12.6	17,912	17,669

Valuation Year	Estimated Projected Payroll	L-12 Benefit Program			LT-14(65) Benefit Program			L-6 Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 106,600	14.3%	\$15,244	\$ 18,270	14.5%	\$15,457	\$ 18,644	16.4%	\$17,482	\$ 20,872
2021	110,065	14.3	15,739	18,520	14.5	15,959	18,899	16.4	18,051	21,158
2022	113,642	14.3	16,251	18,754	14.5	16,478	19,137	16.4	18,637	21,425
2023	117,335	14.3	16,779	18,968	14.5	17,014	19,356	16.4	19,243	21,670
2024	121,148	14.3	17,324	19,161	14.5	17,566	19,553	16.4	19,868	21,890
2025	125,085	14.3	17,887	19,329	14.5	18,137	19,725	16.4	20,514	22,082
2026	129,150	14.3	18,468	19,470	14.5	18,727	19,869	16.4	21,181	22,243
2027	133,347	14.3	19,069	19,580	14.5	19,335	19,981	16.4	21,869	22,369
2028	137,681	14.3	19,688	19,656	14.5	19,964	20,058	16.4	22,580	22,456
2029	142,156	14.3	20,328	19,694	14.5	20,613	20,096	16.4	23,314	22,499

Notes regarding the above projections:

- 1) The purpose of the above projections is to comply with the requirements of Section 105.660 of the Revised Statutes of Missouri (RSMo). The projection results may not be applicable for other purposes.
- 2) Estimated projected payroll is based upon the valuation payroll, increased each future year by 3.25%.
- 3) Due to the estimated nature of the above projections, certain but not all aspects of the Missouri LAGERS funding policy have been incorporated in the above projections.
- 4) Differences between the date of the initial valuation and the actuarial valuation date of February 28th have not been incorporated in the above results.
- 5) The actual employer contribution rates for future valuation dates will be based upon actual data as of the future valuation date.



City of Billings - Police

Employer Contribution Rates (4% Member Contribution Rate, 3 Year FAS)

(Member contributions are additional)

Rule of 80 Retirement Eligibility

Valuation Year	Estimated Projected Payroll	L-1 Benefit Program			L-3 Benefit Program			LT-4(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 106,600	5.9%	\$6,289	\$ 10,422	8.0%	\$8,528	\$ 13,035	6.8%	\$7,249	\$ 11,897
2021	110,065	5.9	6,494	10,565	8.0	8,805	13,214	6.8	7,484	12,060
2022	113,642	5.9	6,705	10,698	8.0	9,091	13,381	6.8	7,728	12,212
2023	117,335	5.9	6,923	10,820	8.0	9,387	13,534	6.8	7,979	12,352
2024	121,148	5.9	7,148	10,930	8.0	9,692	13,672	6.8	8,238	12,478
2025	125,085	5.9	7,380	11,026	8.0	10,007	13,792	6.8	8,506	12,588
2026	129,150	5.9	7,620	11,106	8.0	10,332	13,892	6.8	8,782	12,680
2027	133,347	5.9	7,867	11,169	8.0	10,668	13,971	6.8	9,068	12,752
2028	137,681	5.9	8,123	11,212	8.0	11,014	14,025	6.8	9,362	12,801
2029	142,156	5.9	8,387	11,233	8.0	11,372	14,052	6.8	9,667	12,825

Valuation Year	Estimated Projected Payroll	LT-5(65) Benefit Program			L-7 Benefit Program			LT-8(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 106,600	8.8%	\$9,381	\$ 14,153	10.1%	\$10,767	\$ 15,649	10.7%	\$11,406	\$ 16,391
2021	110,065	8.8	9,686	14,347	10.1	11,117	15,863	10.7	11,777	16,616
2022	113,642	8.8	10,000	14,528	10.1	11,478	16,063	10.7	12,160	16,826
2023	117,335	8.8	10,325	14,694	10.1	11,851	16,247	10.7	12,555	17,018
2024	121,148	8.8	10,661	14,843	10.1	12,236	16,412	10.7	12,963	17,191
2025	125,085	8.8	11,007	14,973	10.1	12,634	16,556	10.7	13,384	17,342
2026	129,150	8.8	11,365	15,082	10.1	13,044	16,677	10.7	13,819	17,468
2027	133,347	8.8	11,735	15,167	10.1	13,468	16,771	10.7	14,268	17,567
2028	137,681	8.8	12,116	15,226	10.1	13,906	16,836	10.7	14,732	17,635
2029	142,156	8.8	12,510	15,255	10.1	14,358	16,868	10.7	15,211	17,669

Valuation Year	Estimated Projected Payroll	L-12 Benefit Program			LT-14(65) Benefit Program			L-6 Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 106,600	12.4%	\$13,218	\$ 18,270	12.6%	\$13,432	\$ 18,644	14.5%	\$15,457	\$ 20,872
2021	110,065	12.4	13,648	18,520	12.6	13,868	18,899	14.5	15,959	21,158
2022	113,642	12.4	14,092	18,754	12.6	14,319	19,137	14.5	16,478	21,425
2023	117,335	12.4	14,550	18,968	12.6	14,784	19,356	14.5	17,014	21,670
2024	121,148	12.4	15,022	19,161	12.6	15,265	19,553	14.5	17,566	21,890
2025	125,085	12.4	15,511	19,329	12.6	15,761	19,725	14.5	18,137	22,082
2026	129,150	12.4	16,015	19,470	12.6	16,273	19,869	14.5	18,727	22,243
2027	133,347	12.4	16,535	19,580	12.6	16,802	19,981	14.5	19,335	22,369
2028	137,681	12.4	17,072	19,656	12.6	17,348	20,058	14.5	19,964	22,456
2029	142,156	12.4	17,627	19,694	12.6	17,912	20,096	14.5	20,613	22,499

Notes regarding the above projections:

- 1) The purpose of the above projections is to comply with the requirements of Section 105.660 of the Revised Statutes of Missouri (RSMo). The projection results may not be applicable for other purposes.
- 2) Estimated projected payroll is based upon the valuation payroll, increased each future year by 3.25%.
- 3) Due to the estimated nature of the above projections, certain but not all aspects of the Missouri LAGERS funding policy have been incorporated in the above projections.
- 4) Differences between the date of the initial valuation and the actuarial valuation date of February 28th have not been incorporated in the above results.
- 5) The actual employer contribution rates for future valuation dates will be based upon actual data as of the future valuation date.



City of Billings - Police

Employer Contribution Rates (6% Member Contribution Rate, 3 Year FAS)

(Member contributions are additional)

Rule of 80 Retirement Eligibility

Valuation Year	Estimated Projected Payroll	L-1 Benefit Program			L-3 Benefit Program			LT-4(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 106,600	4.0%	\$4,264	\$ 10,422	6.1%	\$6,503	\$ 13,035	4.9%	\$5,223	\$ 11,897
2021	110,065	4.0	4,403	10,565	6.1	6,714	13,214	4.9	5,393	12,060
2022	113,642	4.0	4,546	10,698	6.1	6,932	13,381	4.9	5,568	12,212
2023	117,335	4.0	4,693	10,820	6.1	7,157	13,534	4.9	5,749	12,352
2024	121,148	4.0	4,846	10,930	6.1	7,390	13,672	4.9	5,936	12,478
2025	125,085	4.0	5,003	11,026	6.1	7,630	13,792	4.9	6,129	12,588
2026	129,150	4.0	5,166	11,106	6.1	7,878	13,892	4.9	6,328	12,680
2027	133,347	4.0	5,334	11,169	6.1	8,134	13,971	4.9	6,534	12,752
2028	137,681	4.0	5,507	11,212	6.1	8,399	14,025	4.9	6,746	12,801
2029	142,156	4.0	5,686	11,233	6.1	8,672	14,052	4.9	6,966	12,825

Valuation Year	Estimated Projected Payroll	LT-5(65) Benefit Program			L-7 Benefit Program			LT-8(65) Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 106,600	6.9%	\$7,355	\$ 14,153	8.2%	\$8,741	\$ 15,649	8.8%	\$9,381	\$ 16,391
2021	110,065	6.9	7,594	14,347	8.2	9,025	15,863	8.8	9,686	16,616
2022	113,642	6.9	7,841	14,528	8.2	9,319	16,063	8.8	10,000	16,826
2023	117,335	6.9	8,096	14,694	8.2	9,621	16,247	8.8	10,325	17,018
2024	121,148	6.9	8,359	14,843	8.2	9,934	16,412	8.8	10,661	17,191
2025	125,085	6.9	8,631	14,973	8.2	10,257	16,556	8.8	11,007	17,342
2026	129,150	6.9	8,911	15,082	8.2	10,590	16,677	8.8	11,365	17,468
2027	133,347	6.9	9,201	15,167	8.2	10,934	16,771	8.8	11,735	17,567
2028	137,681	6.9	9,500	15,226	8.2	11,290	16,836	8.8	12,116	17,635
2029	142,156	6.9	9,809	15,255	8.2	11,657	16,868	8.8	12,510	17,669

Valuation Year	Estimated Projected Payroll	L-12 Benefit Program			LT-14(65) Benefit Program			L-6 Benefit Program		
		Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial	Estimated Employer Contribution		Unfunded Actuarial
		As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability	As a % of Payroll	Annual Dollars	Accrued Liability
2020	\$ 106,600	10.5%	\$11,193	\$ 18,270	10.7%	\$11,406	\$ 18,644	12.6%	\$13,432	\$ 20,872
2021	110,065	10.5	11,557	18,520	10.7	11,777	18,899	12.6	13,868	21,158
2022	113,642	10.5	11,932	18,754	10.7	12,160	19,137	12.6	14,319	21,425
2023	117,335	10.5	12,320	18,968	10.7	12,555	19,356	12.6	14,784	21,670
2024	121,148	10.5	12,721	19,161	10.7	12,963	19,553	12.6	15,265	21,890
2025	125,085	10.5	13,134	19,329	10.7	13,384	19,725	12.6	15,761	22,082
2026	129,150	10.5	13,561	19,470	10.7	13,819	19,869	12.6	16,273	22,243
2027	133,347	10.5	14,001	19,580	10.7	14,268	19,981	12.6	16,802	22,369
2028	137,681	10.5	14,457	19,656	10.7	14,732	20,058	12.6	17,348	22,456
2029	142,156	10.5	14,926	19,694	10.7	15,211	20,096	12.6	17,912	22,499

Notes regarding the above projections:

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