

**Montana Highway Patrol Officers'
Retirement System
of the
State of Montana**

**GASB 67 Report
as of
June 30, 2014**

Produced by [Cheiron](#)

November 2014

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**MONTANA HIGHWAY PATROL OFFICERS' RETIREMENT SYSTEM
GASB 67 REPORTING FOR JUNE 30, 2014 MEASUREMENT DATE**

BOARD SUMMARY

The purpose of this report is to provide accounting and financial disclosure information under Government Accounting Standards Board Statement 67 for the Montana Highway Patrol Officers' Retirement System and the State of Montana. This information includes:

- Projection of the Total Pension Liability from the valuation date to the measurement date,
- Calculation of the Net Pension Liability at the discount rate as well as discount rates 1% higher and lower than the discount rate,
- Changes in the Net Pension Liability, and
- Schedule of Employer Contributions.

Highlights

This report is the first report under GASB 67. The reporting date for the State of Montana Highway Patrol Officers' Retirement System (HPORS) is June 30, 2014. Measurements as of the reporting date are based on the fair value of assets as of June 30, 2014 and the Total Pension Liability as the valuation date of June 30, 2013, updated to June 30, 2014. There were no significant events between the valuation date and the measurement date so the update procedures only included the addition of service cost and interest cost offset by actual benefit payments.

Beginning of year measurements are also based on the actuarial valuation as of June 30, 2013. Because the beginning and ending values are based on the same actuarial valuation and there were no significant events, no liability gains or losses due to experience are reported this year. In future years, liability gains and losses will be reported reflecting the liability gains and losses between actuarial valuation dates, as well as any significant events during the update period.

The table below provides a summary of the key results during this reporting period.

	Table 1	
	Summary of Results	
	Measurement Date	
	6/30/2014	6/30/2013
Total Pension Liability	\$ 183,133,145	\$ 175,593,829
Plan Fiduciary Net Position	<u>126,010,392</u>	<u>109,690,706</u>
Net Pension Liability	<u>\$ 57,122,753</u>	<u>\$ 65,903,123</u>
Discount Rate	7.75%	7.75%

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CERTIFICATION

The purpose of this report is to provide accounting and financial reporting information under GASB 67 for the State of Montana Highway Patrol Officers' Retirement System (HPORS). This report is for the use of HPORS, the State of Montana and their auditors in preparing financial reports in accordance with applicable law and accounting requirements. This report is not appropriate for other purposes, including the measurement of funding requirements for HPORS.

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

The membership data, actuarial assumptions and plan provisions are the same as were described in the June 30, 2013 Actuarial Valuation Report for HPORS, except that it has been assumed that the rate of investment return is net only of investment expenses, rather than net of both investment and administrative expenses. The administrative expense rate is assumed to be 0.23% of active member payroll.

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

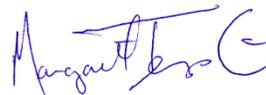
To the best of our knowledge, this report and its contents have been prepared in accordance with generally recognized and accepted actuarial principles and practices that are consistent with the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards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

This report was prepared for HPORS for the purposes described herein and for the use by the Plan auditor in completing an audit related to the matters herein. This report is not intended to benefit any third party, and Cheiron assumes no duty or liability to any such party.

Sincerely,
Cheiron



Stephen T. McElhaney, FSA, FCA
Principal Consulting Actuary



Margaret Tempkin, FSA
Principal Consulting Actuary

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DETERMINATION OF DISCOUNT RATE

The discount rate as June 30, 2014 is 7.75% which is the assumed long-term expected rate of return on System investments. Projections of the System's fiduciary net position have indicated that it is expected to be sufficient to make projected benefit payments for current Plan members following the procedures described in paragraphs 39 - 45 of GASB Statement 67. The results of these projections are included within this report at Appendix B.

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PROJECTION OF TOTAL PENSION LIABILITY

The Total Pension Liability (TPL) at the beginning of the measurement year is measured as of a valuation date of June 30, 2013. The TPL at June 30, 2013 is the same as was reported for actuarial valuation purposes as of June 30, 2013. The TPL at the end of the measurement year, June 30, 2014, is measured as a valuation date of June 30, 2013 and projected to June 30, 2014. In future years, both the beginning and end of year TPL will be measured as of a valuation date one year prior and projected to the appropriate date. There were no significant events during the projection period of which we are aware. The table below shows the projection of the TPL at discount rates equal to the rate used for disclosure and plus and minus one percent from the rate used for disclosure. TPL and Service Cost have been determined using the entry age actuarial cost method as described in paragraph 46 of GASB Statement 67.

Table 2			
Projection of Total Pension Liability			
Discount Rate	6.75%	7.75%	8.75%
Total Pension Liability, 6/30/2013			
Actives	\$ 66,629,072	\$ 55,580,057	\$ 46,822,193
Deferred Vested	2,522,102	2,099,679	1,771,859
Retirees	<u>130,724,367</u>	<u>117,914,093</u>	<u>107,214,490</u>
Total	\$ 199,875,541	\$ 175,593,829	\$ 155,808,542
Service Cost, Beginning of Year			
Service Cost Rate	32.29%	25.23%	19.97%
Expected Payroll During Year	13,731,268	13,731,268	13,731,268
Service Cost	\$ 4,433,826	\$ 3,464,399	\$ 2,742,134
Benefit Payments	\$ 9,443,007	\$ 9,443,007	\$ 9,443,007
Interest	\$ 13,477,385	\$ 13,517,924	\$ 13,468,715
Change in Benefits	0	0	0
Change in Assumptions	0	0	0
Other Significant Events	0	0	0
Total Pension Liability, 6/30/2014	\$ 208,343,745	\$ 183,133,145	\$ 162,576,384

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NOTE DISCLOSURES

The table below shows the changes in the Total Pension Liability, the Plan Fiduciary Net Position (i.e., fair value of System assets), and the Net Pension Liability during the Measurement Year.

Table 3			
Change in Net Pension Liability			
	Increase (Decrease)		
	Total Pension Liability	Plan Fiduciary Net Position	Net Pension Liability
	(a)	(b)	(a) - (b)
Balances at 6/30/2013	\$ 175,593,829	\$ 109,690,706	\$ 65,903,123
Changes for the year:			
Service cost	3,464,399		3,464,399
Interest	13,517,924		13,517,924
Changes of benefits	0		0
Changes of assumptions	0		0
Differences between expected and actual experience	0		0
Contributions - employer		5,473,577	(5,473,577)
Contributions - non-employer		261,930	(261,930)
Contributions - member		1,458,042	(1,458,042)
Net investment income		18,678,284	(18,678,284)
Benefit payments	(9,443,007)	(9,443,007)	0
Administrative expense		(109,140)	109,140
Net changes	<u>7,539,316</u>	<u>16,319,686</u>	<u>(8,780,370)</u>
Balances at 6/30/2014	<u>\$ 183,133,145</u>	<u>\$ 126,010,392</u>	<u>\$ 57,122,753</u>

There were no changes in benefits or changes in assumptions during the year. Because the beginning and end of year TPL are both based on the same actuarial valuation, there are no differences between expected and actual experience reported this year.

Total contributions and investment income exceeded the service cost, interest cost and administrative expenses, resulting in a decrease in the Net Pension Liability (NPL) of \$8,780,370. The NPL remaining as of June 30, 2014, is \$57,122,753.

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NOTE DISCLOSURES

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

Table 4			
Sensitivity of Net Pension Liability to Changes in Discount Rate			
	1% Decrease 6.75%	Discount Rate 7.75%	1% Increase 8.75%
Total Pension Liability	\$ 208,343,745	\$ 183,133,145	\$ 162,576,384
Plan Fiduciary Net Position	<u>126,010,392</u>	<u>126,010,392</u>	<u>126,010,392</u>
Net Pension Liability	<u>\$ 82,333,353</u>	<u>\$ 57,122,753</u>	<u>\$ 36,565,992</u>
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	60.5%	68.8%	77.5%

A one percent decrease in the discount rate increases the TPL by approximately 13.8% and increases the NPL by approximately 44.1%. A one percent increase in the discount rate decreases the TPL by approximately 11.2% and decreases the NPL by approximately 36.0%.

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REQUIRED SUPPLEMENTARY INFORMATION

The schedules of Required Supplementary Information generally start with one year of information as of the implementation of GASB 67, but eventually will need to build up to 10 years of information. The schedule below shows the changes in NPL and related ratios required by GASB.

Table 5	
Schedule of Changes in Net Pension Liability and Related Ratios	
	FYE 2014
<u>Total Pension Liability</u>	
Service cost (BOY)	\$ 3,464,399
Interest (includes interest on service cost)	13,517,924
Changes of benefit terms	0
Differences between expected and actual experience	0
Changes of assumptions	0
Benefit payments, including refunds of member contributions	<u>(9,443,007)</u>
Net change in total pension liability	7,539,316
Total pension liability - beginning	<u>175,593,829</u>
Total pension liability - ending	<u>\$ 183,133,145</u>
<u>Plan fiduciary net position</u>	
Contributions - employer	\$ 5,473,577
Contributions - non-employer	261,930
Contributions - member	1,458,042
Net investment income	18,678,284
Benefit payments, including refunds of member contributions	(9,443,007)
Administrative expense	<u>(109,140)</u>
Net change in plan fiduciary net position	\$ 16,319,686
Plan fiduciary net position - beginning	<u>109,690,706</u>
Plan fiduciary net position - ending	<u>\$ 126,010,392</u>
Net pension liability - ending	<u>\$ 57,122,753</u>
Plan fiduciary net position as a percentage of the total pension liability	68.81%
Covered employee payroll	\$ 14,149,269
Net pension liability as a percentage of covered employee payroll	403.72%

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REQUIRED SUPPLEMENTARY INFORMATION

If an Actuarially Determined Contribution is calculated, the following schedule is required. An Actuarially Determined Contribution is a contribution amount determined in accordance with Actuarial Standards of Practice.

Table 6	
Schedule of Employer Contributions	
Last Fiscal Year	
Dollar Amounts in Thousands	
	2014
Actuarially Determined Contribution	\$ 6,121
Contributions in Relation to the Actuarially Determined Contribution	
Employer Contributions	\$ 5,474
Non-Employer Contributions	<u>262</u>
Total Contributions	<u>\$ 5,736</u>
Contribution Deficiency/(Excess)	<u>\$ 385</u>
Covered-Employee Payroll	\$ 14,149
Contributions as a Percentage of Covered-Employee Payroll	40.54%

**APPENDIX A
GLOSSARY OF TERMS**

1. Actuarially Determined Contribution

A target or recommended contribution for the reporting period, determined in conformity with Actuarial Standards of Practice based on the most recent measurement available when the contribution for the reporting period was adopted.

2. Actuarial Valuation Date

The date as of which an actuarial valuation is performed. This date may be up to 24 months prior to the measurement date and up to 30 months prior to the employer's reporting date.

3. Entry Age Actuarial Cost Method

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

4. Measurement Date

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

5. Net Pension Liability

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

6. Plan Fiduciary Net Position

The fair or market value of assets.

7. Reporting Date

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

APPENDIX A
GLOSSARY OF TERMS

8. Service Cost

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

9. Total Pension Liability

The portion of the actuarial present value of projected benefit payments that is attributed to past periods of employee service in conformity with the requirements of GASB 67 and 68. The Total Pension Liability is the actuarial liability calculated under the entry age actuarial cost method.

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**APPENDIX B
DEVELOPMENT OF DISCOUNT RATE**

Table 1 - Projection of Contributions

Amounts in Thousands, Projections Commence June 30, 2013, Actual Amounts Shown for Year 1 (except Payroll)

* Total covered-employee payroll increases 4.00% per year

Year	Projected Covered Employee Payroll			Projected Contributions			
	Payroll for Current Employees (a)	Payroll for Future Employees (b)	Total Employee Payroll * (c) = (a) + (b)	Contributions for Current Employees (d) = (a) x EE Rate	Employer Contributions for Current Employees (e) = (a) x ER Rate	Contributions Related to Payroll of Future Employees (f) = (b) x AL Rate	Total Contributions (g) = (d) + (e) + (f)
1	\$ 13,731	\$ 0	\$ 13,731	\$ 1,456	\$ 5,738	\$ 0	\$ 7,194
2	13,419	861	14,281	1,483	5,144	210	6,837
3	13,207	1,645	14,852	1,591	5,062	422	7,076
4	12,846	2,600	15,446	1,676	4,924	700	7,300
5	12,527	3,537	16,064	1,635	4,802	960	7,396
6	12,079	4,627	16,706	1,576	4,630	1,268	7,474
7	11,594	5,780	17,374	1,513	4,444	1,599	7,556
8	11,081	6,988	18,069	1,446	4,248	1,950	7,643
9	10,689	8,103	18,792	1,395	4,097	2,277	7,769
10	10,207	9,337	19,544	1,332	3,912	2,644	7,888
11	9,443	10,882	20,326	1,232	3,620	3,110	7,962
12	8,814	12,324	21,139	1,150	3,379	3,548	8,077
13	8,188	13,796	21,984	1,069	3,139	4,000	8,207
14	7,745	15,119	22,864	1,011	2,969	4,407	8,386
15	7,272	16,506	23,778	949	2,787	4,835	8,572
16	6,382	18,347	24,729	833	2,446	5,415	8,694
17	5,725	19,994	25,718	747	2,194	5,933	8,874
18	5,052	21,696	26,747	659	1,936	6,471	9,066
19	4,519	23,298	27,817	590	1,732	6,977	9,298
20	3,986	24,943	28,930	520	1,528	7,497	9,545
21	3,381	26,706	30,087	441	1,296	8,058	9,795
22	2,793	28,497	31,290	364	1,071	8,628	10,063
23	2,273	30,269	32,542	297	871	9,191	10,359
24	1,841	32,003	33,844	240	706	9,740	10,686
25	1,472	33,725	35,197	192	564	10,283	11,040
26	1,161	35,445	36,605	151	445	10,824	11,420
27	916	37,153	38,070	120	351	11,358	11,829
28	699	38,893	39,592	91	268	11,902	12,261
29	521	40,655	41,176	68	200	12,450	12,718
30	364	42,459	42,823	47	139	13,011	13,197
31	236	44,300	44,536	31	90	13,581	13,702
32	150	46,167	46,317	20	58	14,158	14,235
33	86	48,084	48,170	11	33	14,749	14,793
34	63	50,034	50,097	8	24	15,348	15,380
35	32	52,069	52,101	4	12	15,974	15,990
36	8	54,176	54,185	1	3	16,621	16,626
37	7	56,345	56,352	1	3	17,287	17,291
38	0	58,606	58,606	0	0	17,981	17,981
39	0	60,951	60,951	0	0	18,700	18,700
40	0	63,389	63,389	0	0	19,448	19,448
41	0	65,924	65,924	0	0	20,226	20,226
42	0	68,561	68,561	0	0	21,035	21,035
43	0	71,304	71,304	0	0	21,877	21,877
44	0	74,156	74,156	0	0	22,752	22,752
45	0	77,122	77,122	0	0	23,662	23,662
46	0	80,207	80,207	0	0	24,608	24,608
47	0	83,415	83,415	0	0	25,593	25,593
48	0	86,752	86,752	0	0	26,616	26,616
49	0	90,222	90,222	0	0	27,681	27,681
50	0	93,831	93,831	0	0	28,788	28,788
51	0	97,584	97,584	0	0	29,940	29,940
52	0	101,487	101,487	0	0	31,137	31,137
53	0	105,547	105,547	0	0	32,383	32,383
54	0	109,768	109,768	0	0	33,678	33,678
55	0	114,159	114,159	0	0	35,025	35,025
56	0	118,726	118,726	0	0	36,426	36,426
57	0	123,475	123,475	0	0	37,883	37,883
58	0	128,414	128,414	0	0	39,399	39,399
59	0	133,550	133,550	0	0	40,974	40,974

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**APPENDIX B
DEVELOPMENT OF DISCOUNT RATE**

Table 1 - Projection of Contributions Continued

Amounts in Thousands, Projections Commence June 30, 2013, Actual Amounts Shown for Year 1 (except Payroll)

** Total covered-employee payroll increases 4.00% per year*

Year	Projected Covered Employee Payroll			Projected Contributions			
	Payroll for Current Employees (a)	Payroll for Future Employees (b)	Total Employee Payroll * (c) = (a) + (b)	Contributions for Current Employees (d) = (a) x EE Rate	Employer Contributions for Current Employees (e) = (a) x ER Rate	Contributions Related to Payroll of Future Employees (f) = (b) x AL Rate	Total Contributions (g) = (d) + (e) + (f)
60	0	138,892	138,892	0	0	42,613	42,613
61	0	144,448	144,448	0	0	44,318	44,318
62	0	150,226	150,226	0	0	46,091	46,091
63	0	156,235	156,235	0	0	47,934	47,934
64	0	162,484	162,484	0	0	49,852	49,852
65	0	168,984	168,984	0	0	51,846	51,846
66	0	175,743	175,743	0	0	53,920	53,920
67	0	182,773	182,773	0	0	56,076	56,076
68	0	190,083	190,083	0	0	58,319	58,319
69	0	197,687	197,687	0	0	60,652	60,652
70	0	205,594	205,594	0	0	63,078	63,078
71	0	213,818	213,818	0	0	65,601	65,601
72	0	222,371	222,371	0	0	68,225	68,225
73	0	231,266	231,266	0	0	70,954	70,954
74	0	240,516	240,516	0	0	73,793	73,793
75	0	250,137	250,137	0	0	76,744	76,744
76	0	260,142	260,142	0	0	79,814	79,814
77	0	270,548	270,548	0	0	83,007	83,007
78	0	281,370	281,370	0	0	86,327	86,327
79	0	292,625	292,625	0	0	89,780	89,780
80	0	304,330	304,330	0	0	93,371	93,371
81	0	316,503	316,503	0	0	97,106	97,106
82	0	329,163	329,163	0	0	100,990	100,990
83	0	342,330	342,330	0	0	105,030	105,030
84	0	356,023	356,023	0	0	109,231	109,231
85	0	370,264	370,264	0	0	113,600	113,600
86	0	385,074	385,074	0	0	118,144	118,144
87	0	400,477	400,477	0	0	122,870	122,870
88	0	416,496	416,496	0	0	127,785	127,785
89	0	433,156	433,156	0	0	132,896	132,896
90	0	450,482	450,482	0	0	138,212	138,212
91	0	468,502	468,502	0	0	143,741	143,741
92	0	487,242	487,242	0	0	149,490	149,490
93	0	506,731	506,731	0	0	155,470	155,470
94	0	527,001	527,001	0	0	161,689	161,689
95	0	548,081	548,081	0	0	168,156	168,156
96	0	570,004	570,004	0	0	174,883	174,883
97	0	592,804	592,804	0	0	181,878	181,878
98	0	616,516	616,516	0	0	189,153	189,153
99	0	641,177	641,177	0	0	196,719	196,719
100	0	666,824	666,824	0	0	204,588	204,588
101	0	693,497	693,497	0	0	212,771	212,771
102	0	721,237	721,237	0	0	221,282	221,282
103	0	750,086	750,086	0	0	230,134	230,134
104	0	780,090	780,090	0	0	239,339	239,339
105	0	811,293	811,293	0	0	248,912	248,912
106	0	843,745	843,745	0	0	258,869	258,869
107	0	877,495	877,495	0	0	269,224	269,224
108	0	912,595	912,595	0	0	279,993	279,993
109	0	949,098	949,098	0	0	291,192	291,192

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**APPENDIX B
DEVELOPMENT OF DISCOUNT RATE**

Table 2 - Projection of the Pension Plan's Fiduciary Net Position

Amounts in Thousands, Projections Commence June 30, 2013, Actual Amounts Shown for Year 1

* From Table 1 - Projection of Contributions, column (g)

Year	Projected Beginning Fiduciary Net Position (a)	Projected Total Contributions* (b)	Projected Benefit Payments (c)	Projected Administrative Expense (d)	Projected Investment Earnings (e)	Projected Ending Fiduciary Net Position (f) = (a) + (b) - (c) - (d) + (e)
1	\$ 109,691	\$ 7,194	\$ 9,443	\$ 109	\$ 18,678	\$ 126,010
2	126,010	6,837	9,545	33	9,662	132,931
3	132,931	7,076	10,025	34	10,189	140,136
4	140,136	7,300	10,530	36	10,736	147,607
5	147,607	7,396	11,051	37	11,299	155,215
6	155,215	7,474	11,657	38	11,869	162,862
7	162,862	7,556	12,276	40	12,441	170,543
8	170,543	7,643	12,844	42	13,018	178,319
9	178,319	7,769	13,465	43	13,601	186,181
10	186,181	7,888	14,238	45	14,186	193,972
11	193,972	7,962	14,972	47	14,764	201,680
12	201,680	8,077	15,715	49	15,338	209,331
13	209,331	8,207	16,316	50	15,913	217,085
14	217,085	8,386	16,903	52	16,498	225,014
15	225,014	8,572	17,716	54	17,089	232,904
16	232,904	8,694	18,410	57	17,678	240,809
17	240,809	8,874	19,132	59	18,270	248,762
18	248,762	9,066	19,753	61	18,870	256,886
19	256,886	9,298	20,362	63	19,486	265,245
20	265,245	9,545	20,941	64	20,121	273,906
21	273,906	9,795	21,543	66	20,778	282,871
22	282,871	10,063	22,083	68	21,463	292,246
23	292,246	10,359	22,567	69	22,182	302,151
24	302,151	10,686	22,992	71	22,946	312,720
25	312,720	11,040	23,366	72	23,764	324,087
26	324,087	11,420	23,674	73	24,648	336,408
27	336,408	11,829	23,951	74	25,608	349,821
28	349,821	12,261	24,179	74	26,655	364,484
29	364,484	12,718	24,390	75	27,801	380,537
30	380,537	13,197	24,555	75	29,057	398,161
31	398,161	13,702	24,667	76	30,438	417,558
32	417,558	14,235	24,746	76	31,958	438,928
33	438,928	14,793	24,750	76	33,635	462,531
34	462,531	15,380	24,738	76	35,487	488,585
35	488,585	15,990	24,692	76	37,532	517,339
36	517,339	16,626	24,579	75	39,788	549,098
37	549,098	17,291	24,438	75	42,280	584,157
38	584,157	17,981	24,241	74	45,031	622,853
39	622,853	18,700	23,995	74	48,067	665,552
40	665,552	19,448	23,695	73	51,416	712,649
41	712,649	20,226	23,339	72	55,109	764,574
42	764,574	21,035	22,924	70	59,180	821,794
43	821,794	21,877	22,449	69	63,665	884,818
44	884,818	22,752	21,913	67	68,603	954,192
45	954,192	23,662	21,318	65	74,037	1,030,507
46	1,030,507	24,608	20,664	63	80,012	1,114,400
47	1,114,400	25,593	19,954	61	86,578	1,206,555
48	1,206,555	26,616	19,193	59	93,788	1,307,707
49	1,307,707	27,681	18,384	56	101,699	1,418,647
50	1,418,647	28,788	17,532	54	110,371	1,540,220
51	1,540,220	29,940	16,645	51	119,871	1,673,334
52	1,673,334	31,137	15,728	48	130,268	1,818,963
53	1,818,963	32,383	14,789	45	141,637	1,978,149
54	1,978,149	33,678	13,835	42	154,059	2,152,009
55	2,152,009	35,025	12,873	40	167,622	2,341,743
56	2,341,743	36,426	11,908	37	182,416	2,548,641
57	2,548,641	37,883	10,949	34	198,543	2,774,084
58	2,774,084	39,399	10,001	31	216,108	3,019,559
59	3,019,559	40,974	9,072	28	235,228	3,286,662

**MONTANA HIGHWAY PATROL OFFICERS' RETIREMENT SYSTEM
GASB 67 REPORTING FOR JUNE 30, 2014 MEASUREMENT DATE**

**APPENDIX B
DEVELOPMENT OF DISCOUNT RATE**

Table 2 - Projection of the Pension Plan's Fiduciary Net Position Continued

Amounts in Thousands, Projections Commence June 30, 2013, Actual Amounts Shown for Year 1

** From Table 1 - Projection of Contributions, column (g)*

Year	Projected Beginning Fiduciary Net Position (a)	Projected Total Contributions* (b)	Projected Benefit Payments (c)	Projected Administrative Expense (d)	Projected Investment Earnings (e)	Projected Ending Fiduciary Net Position (f) = (a) + (b) - (c) - (d) + (e)
60	3,286,662	42,613	8,168	25	256,025	3,577,108
61	3,577,108	44,318	7,297	22	278,633	3,892,739
62	3,892,739	46,091	6,466	20	303,193	4,235,537
63	4,235,537	47,934	5,681	17	329,860	4,607,634
64	4,607,634	49,852	4,948	15	358,799	5,011,321
65	5,011,321	51,846	4,270	13	390,186	5,449,070
66	5,449,070	53,920	3,653	11	424,214	5,923,539
67	5,923,539	56,076	3,097	10	461,089	6,437,597
68	6,437,597	58,319	2,603	8	501,032	6,994,338
69	6,994,338	60,652	2,169	7	544,285	7,597,099
70	7,597,099	63,078	1,794	6	591,105	8,249,484
71	8,249,484	65,601	1,471	5	641,774	8,955,383
72	8,955,383	68,225	1,199	4	696,591	9,718,997
73	9,718,997	70,954	969	3	755,883	10,544,863
74	10,544,863	73,793	778	2	820,003	11,437,878
75	11,437,878	76,744	620	2	889,330	12,403,331
76	12,403,331	79,814	490	2	964,275	13,446,927
77	13,446,927	83,007	385	1	1,045,279	14,574,827
78	14,574,827	86,327	299	1	1,132,820	15,793,674
79	15,793,674	89,780	230	1	1,227,415	17,110,639
80	17,110,639	93,371	175	1	1,329,618	18,533,453
81	18,533,453	97,106	131	0	1,440,030	20,070,458
82	20,070,458	100,990	98	0	1,559,297	21,730,648
83	21,730,648	105,030	71	0	1,688,116	23,523,722
84	23,523,722	109,231	51	0	1,827,240	25,460,142
85	25,460,142	113,600	37	0	1,977,480	27,551,186
86	27,551,186	118,144	26	0	2,139,709	29,809,013
87	29,809,013	122,870	18	0	2,314,870	32,246,735
88	32,246,735	127,785	12	0	2,503,981	34,878,488
89	34,878,488	132,896	9	0	2,708,136	37,719,512
90	37,719,512	138,212	6	0	2,928,518	40,786,236
91	40,786,236	143,741	4	0	3,166,399	44,096,372
92	44,096,372	149,490	3	0	3,423,153	47,669,014
93	47,669,014	155,470	2	0	3,700,261	51,524,742
94	51,524,742	161,689	1	0	3,999,316	55,685,746
95	55,685,746	168,156	1	0	4,322,040	60,175,942
96	60,175,942	174,883	0	0	4,670,286	65,021,110
97	65,021,110	181,878	0	0	5,046,052	70,249,040
98	70,249,040	189,153	0	0	5,451,493	75,889,686
99	75,889,686	196,719	0	0	5,888,931	81,975,336
100	81,975,336	204,588	0	0	6,360,868	88,540,793
101	88,540,793	212,771	0	0	6,870,002	95,623,566
102	95,623,566	221,282	0	0	7,419,241	103,264,090
103	103,264,090	230,134	0	0	8,011,718	111,505,942
104	111,505,942	239,339	0	0	8,650,812	120,396,092
105	120,396,092	248,912	0	0	9,340,163	129,985,167
106	129,985,167	258,869	0	0	10,083,694	140,327,731
107	140,327,731	269,224	0	0	10,885,637	151,482,591
108	151,482,591	279,993	0	0	11,750,548	163,513,132
109	163,513,132	291,192	0	0	12,683,341	176,487,666

**MONTANA HIGHWAY PATROL OFFICERS' RETIREMENT SYSTEM
GASB 67 REPORTING FOR JUNE 30, 2014 MEASUREMENT DATE**

**APPENDIX B
DEVELOPMENT OF DISCOUNT RATE**

Table 3 - Actuarial Present Values of Projected Benefit Payments

Amounts in Thousands, Projections Commence June 30, 2013, Actual Amounts Shown for Year 1

* From Table 2 - Projection of the Pension Plan's Fiduciary Net Position, column (a)

** From Table 2 - Projection of the Pension Plan's Fiduciary Net Position, column (c)

Year (a)	Projected Beginning Fiduciary Net Position * (b)	Projected Benefit Payments for current plan participants ** (c)	"Funded" Portion of Benefit Payments (d) = (c) if (b) >= (c)	"Unfunded" Portion of Benefit Payments (e) = (c) - (d)	Present Value of "Funded" Benefit Payments (f) = (d) / (1+ 7.75%)^(a)	Present Value of "Unfunded" Benefit Payments (g) = (e)/(1+4.29%)^(a)	Present Value of Benefit Payments Using the Single Discount Rate (h) = (c)/(1+
1	\$ 109,691	\$ 9,443	\$ 9,443	\$ 0	\$ 8,764	\$ 0	\$ 8,764
2	126,010	9,545	9,545	0	8,221	0	8,221
3	132,931	10,025	10,025	0	8,014	0	8,014
4	140,136	10,530	10,530	0	7,812	0	7,812
5	147,607	11,051	11,051	0	7,609	0	7,609
6	155,215	11,657	11,657	0	7,448	0	7,448
7	162,862	12,276	12,276	0	7,280	0	7,280
8	170,543	12,844	12,844	0	7,069	0	7,069
9	178,319	13,465	13,465	0	6,878	0	6,878
10	186,181	14,238	14,238	0	6,750	0	6,750
11	193,972	14,972	14,972	0	6,587	0	6,587
12	201,680	15,715	15,715	0	6,417	0	6,417
13	209,331	16,316	16,316	0	6,183	0	6,183
14	217,085	16,903	16,903	0	5,945	0	5,945
15	225,014	17,716	17,716	0	5,783	0	5,783
16	232,904	18,410	18,410	0	5,577	0	5,577
17	240,809	19,132	19,132	0	5,379	0	5,379
18	248,762	19,753	19,753	0	5,154	0	5,154
19	256,886	20,362	20,362	0	4,931	0	4,931
20	265,245	20,941	20,941	0	4,706	0	4,706
21	273,906	21,543	21,543	0	4,493	0	4,493
22	282,871	22,083	22,083	0	4,274	0	4,274
23	292,246	22,567	22,567	0	4,054	0	4,054
24	302,151	22,992	22,992	0	3,833	0	3,833
25	312,720	23,366	23,366	0	3,615	0	3,615
26	324,087	23,674	23,674	0	3,400	0	3,400
27	336,408	23,951	23,951	0	3,192	0	3,192
28	349,821	24,179	24,179	0	2,991	0	2,991
29	364,484	24,390	24,390	0	2,800	0	2,800
30	380,537	24,555	24,555	0	2,616	0	2,616
31	398,161	24,667	24,667	0	2,439	0	2,439
32	417,558	24,746	24,746	0	2,271	0	2,271
33	438,928	24,750	24,750	0	2,108	0	2,108
34	462,531	24,738	24,738	0	1,955	0	1,955
35	488,585	24,692	24,692	0	1,811	0	1,811
36	517,339	24,579	24,579	0	1,673	0	1,673
37	549,098	24,438	24,438	0	1,544	0	1,544
38	584,157	24,241	24,241	0	1,421	0	1,421
39	622,853	23,995	23,995	0	1,306	0	1,306
40	665,552	23,695	23,695	0	1,197	0	1,197
41	712,649	23,339	23,339	0	1,094	0	1,094
42	764,574	22,924	22,924	0	997	0	997
43	821,794	22,449	22,449	0	906	0	906
44	884,818	21,913	21,913	0	821	0	821
45	954,192	21,318	21,318	0	741	0	741
46	1,030,507	20,664	20,664	0	667	0	667
47	1,114,400	19,954	19,954	0	598	0	598
48	1,206,555	19,193	19,193	0	533	0	533
49	1,307,707	18,384	18,384	0	474	0	474
50	1,418,647	17,532	17,532	0	420	0	420
51	1,540,220	16,645	16,645	0	370	0	370
52	1,673,334	15,728	15,728	0	324	0	324
53	1,818,963	14,789	14,789	0	283	0	283
54	1,978,149	13,835	13,835	0	246	0	246
55	2,152,009	12,873	12,873	0	212	0	212
56	2,341,743	11,908	11,908	0	182	0	182
57	2,548,641	10,949	10,949	0	155	0	155
58	2,774,084	10,001	10,001	0	132	0	132
59	3,019,559	9,072	9,072	0	111	0	111

**MONTANA HIGHWAY PATROL OFFICERS' RETIREMENT SYSTEM
GASB 67 REPORTING FOR JUNE 30, 2014 MEASUREMENT DATE**

**APPENDIX B
DEVELOPMENT OF DISCOUNT RATE**

Table 3 - Actuarial Present Values of Projected Benefit Payments Continued

Amounts in Thousands, Projections Commence June 30, 2013, Actual Amounts Shown for Year 1

* From Table 2 - Projection of the Pension Plan's Fiduciary Net Position, column (a)

** From Table 2 - Projection of the Pension Plan's Fiduciary Net Position, column (c)

Year (a)	Projected Beginning Fiduciary Net Position *	Projected Benefit Payments for current plan participants **	"Funded" Portion of Benefit Payments (d) = (c) if (b) >= (c)	"Unfunded" Portion of Benefit Payments (e) = (c) - (d)	Present Value of "Funded" Benefit Payments (f) = (d) / (1+ 7.75%)^(a)	Present Value of "Unfunded" Benefit Payments (g) = (e) /(1+4.29%)^(a)	Present Value of Benefit Payments Using the Single Discount Rate (h) = (c) / (1+
60	3,286,662	8,168	8,168	0	93	0	93
61	3,577,108	7,297	7,297	0	77	0	77
62	3,892,739	6,466	6,466	0	63	0	63
63	4,235,537	5,681	5,681	0	52	0	52
64	4,607,634	4,948	4,948	0	42	0	42
65	5,011,321	4,270	4,270	0	33	0	33
66	5,449,070	3,653	3,653	0	26	0	26
67	5,923,539	3,097	3,097	0	21	0	21
68	6,437,597	2,603	2,603	0	16	0	16
69	6,994,338	2,169	2,169	0	13	0	13
70	7,597,099	1,794	1,794	0	10	0	10
71	8,249,484	1,471	1,471	0	7	0	7
72	8,955,383	1,199	1,199	0	6	0	6
73	9,718,997	969	969	0	4	0	4
74	10,544,863	778	778	0	3	0	3
75	11,437,878	620	620	0	2	0	2
76	12,403,331	490	490	0	2	0	2
77	13,446,927	385	385	0	1	0	1
78	14,574,827	299	299	0	1	0	1
79	15,793,674	230	230	0	1	0	1
80	17,110,639	175	175	0	0	0	0
81	18,533,453	131	131	0	0	0	0
82	20,070,458	98	98	0	0	0	0
83	21,730,648	71	71	0	0	0	0
84	23,523,722	51	51	0	0	0	0
85	25,460,142	37	37	0	0	0	0
86	27,551,186	26	26	0	0	0	0
87	29,809,013	18	18	0	0	0	0
88	32,246,735	12	12	0	0	0	0
89	34,878,488	9	9	0	0	0	0
90	37,719,512	6	6	0	0	0	0
91	40,786,236	4	4	0	0	0	0
92	44,096,372	3	3	0	0	0	0
93	47,669,014	2	2	0	0	0	0
94	51,524,742	1	1	0	0	0	0
95	55,685,746	1	1	0	0	0	0
96	60,175,942	0	0	0	0	0	0
97	65,021,110	0	0	0	0	0	0
98	70,249,040	0	0	0	0	0	0
99	75,889,686	0	0	0	0	0	0
100	81,975,336	0	0	0	0	0	0
101	88,540,793	0	0	0	0	0	0
102	95,623,566	0	0	0	0	0	0
103	103,264,090	0	0	0	0	0	0
104	111,505,942	0	0	0	0	0	0
105	120,396,092	0	0	0	0	0	0
106	129,985,167	0	0	0	0	0	0
107	140,327,731	0	0	0	0	0	0
108	151,482,591	0	0	0	0	0	0
109	163,513,132	0	0	0	0	0	0
					\$ 195,235	+ \$ 0	= \$ 195,235