

Montana PERS Benefit Design Study

SAVA Meeting

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PERS Current Actuarial Status

Montana Public Employees' Retirement System Summary of Principal System Results

	6/30/2009 Prior Assumptions 8.00%	6/30/2009 Revised Assumptions 7.75%	6/30/2010 (est.) Revised Assumptions 7.75%
Discount Rate			
Assets and Liabilities			
Actuarial Accrued Liability (AAL)	\$ 4,792,819,291	\$ 4,943,389,382	\$ 5,241,000,000
Actuarial Value of Assets (AVA)	<u>4,002,212,253</u>	<u>4,002,212,253</u>	<u>3,884,000,000</u>
Unfunded AAL (AVA-AAL)	790,607,038	941,177,129	1,357,000,000
Less: PCR-UAL	<u>16,188,870</u>	<u>16,188,870</u>	<u>15,000,000</u>
Net Unfunded AAL	\$ 774,418,168	\$ 924,988,259	\$ 1,342,000,000
Funded Ratio (AVA/AAL)	83.50%	80.96%	74%
Market Value of Assets	<u>2,998,626,255</u>	<u>2,998,626,255</u>	<u>3,316,000,000</u>
Net Unfunded AAL (Market Value Basis)	\$ 1,778,004,166	\$ 1,928,574,257	\$ 1,910,000,000
Funded Ratio (AVA/AAL) (Market Value Basis)	62.56%	60.66%	63%
Contributions as a Percentage of Payroll			
Statutory Funding Rate	14.07%	14.07%	14.07%
Less: Transfer to DB Ed Fund	0.04%	0.04%	0.04%
Net Statutory Funding Rate	14.03%	14.03%	14.03%
Normal Cost Rate	12.16%	12.62%	12.62%
Available for Amortization of UAL	1.87%	1.41%	1.41%
Period to Amortize	Does not amortize	Does not amortize	Does not amortize
Projected 30-year Level Funding Rate	16.42%	17.72%	18.92%
Projected Shortfall (Surplus)	2.35%	3.65%	4.85%
Projected 30-year Level Funding Rate (Market Value Basis)	21.88%	23.20%	22.21%
Projected Shortfall (Surplus) (Market Value Basis)	7.81%	9.13%	8.14%



Benefit Studies Requested

- Modified Defined Benefit Plan
 - Averaging period
 - Retirement Age
 - Multiplier
- Money Purchase Plan
 - Defined benefit plan with conversion to annuities of individual member accounts



Modified Defined Benefit Plan

- Highest average compensation
 - Increase averaging period from 3 to 5 years
- Retirement age
 - Current: Earlier of (a) 30 years of service, (b) age 60 and 5 years of service, or (c) age 65
 - Proposed: Age 65 and 5 years of service



Modified Defined Benefit Plan

- Multiplier
 - Current:
 - 1.7857% if service less than 25 years,
 - and 2.0% if service greater than 25 years
 - Proposed:
 - 1.5% if service less than 10 years;
 - 1.7857% if service greater than 10 years but less than 30 years;
 - 2.0% if service greater than 30 years



Modified Defined Benefit Plan Illustration of Multiplier

Years of Service	Current	Proposed
5	8.93%	7.50%
10	17.86%	17.86%
15	26.79%	26.79%
20	35.71%	35.71%
25	50.00%	44.64%
30	60.00%	60.00%
35	70.00%	70.00%



Money Purchase Plan

- Basic structure
 - Defined benefit plan
 - Benefit accruals expressed as individual accounts based upon annual contributions and specified interest credits
 - Retirement benefits, disability benefits, survivor benefits, and deferred vested retirement benefits all paid as annuities, actuarially equivalent to account balance plus 100% employer match
 - Withdrawal amounts for terminated members available as lump sum equal to the account balance



Money Purchase Plan

- Contribution rates:
 - Employee: 6.9% of compensation
 - Employer: 100% match to employee account unless withdrawal occurs
- Interest credit
 - Set annually (in advance) by the Public Employee Retirement Board
 - Minimum rate of 5% and maximum rate of 9%
 - Expected to average 7% over career
- Vesting: 5 years



Money Purchase Plan

- Retirement benefits
 - At age 60 and 5 years of service
 - Annuity which is actuarially equivalent to employee account balance plus 100% employer match
- Survivor benefits
 - If vested, benefit is an annuity which is actuarially equivalent to employee account balance plus 100% employer match
 - Survivor of vested deceased member may withdraw employee account balance with no employer match
 - If not vested, payment of employee account balance only



Money Purchase Plan

- Disability benefits
 - If vested, benefit is an annuity which is actuarially equivalent to employee account balance plus 100% employer match
 - Vested disabled member may withdraw employee account balance with no employer match
 - If not vested, payment of employee account balance only



Money Purchase Plan

- Termination benefits
 - If vested, member may leave account within the plan and receive an annuity at retirement age from account including employer match
 - Vested members may withdraw employee account balance and forgo the employer match
 - If not vested, payment of employee account balance with no employer match



Money Purchase Plan

- Actuarial assumptions for annuities
 - Current actuarial assumed rate of 7.75% per annum
 - Mortality assumptions consistent with funding assumptions
 - 1.5% GABA
- Employer funding
 - Annual actuarial valuations will determine required funding just like for the current defined benefit plan
 - Current employer contribution rate of 7.17% of compensation would remain unchanged unless the statute is modified by legislation



Modifications to Actuarial Assumptions

- Retirement rates
 - Currently separate rates are applied for persons who have attained more than 30 years of service compared to those with less than 30 years of service
 - For the two proposed plans, the current rates for retirements of less than 30 years of service were used for all retirements



Modifications to Actuarial Assumptions

- Refund percentages
 - Currently assumptions are made regarding percentage of vested terminating members who withdraw contributions in lieu of a vested benefit
 - For the Money Purchase plan, these percentages were reduced since the value of the forgone employer funded benefit would be more evident

Age	Current	MP Plan
Under 35	60%	30%
35-39	50%	25%
40-44	45%	20%
45-49	35%	10%
50+	30%	0%



Modifications to Actuarial Assumptions

- Benefit commencement dates for Money Purchase Plan benefits
 - Retirements: Immediate
 - Disabilities: Immediate
 - Deaths: Deferred to age 50
 - Vested terminations: Deferred to age 65



Results and Projections

- Data
 - Membership data projected from June 30, 2009
 - Financial data based upon preliminary June 30, 2010 assets
- Contribution Rates
 - All projections assume no changes in current contribution rates
- Actuarial experience
 - All projections assume realization of actuarial assumptions including investment return assumption of 7.75%



Results and Projections

- New entrants
 - Future new entrants are assumed to have same demographic characteristics as those hired during the year ended June 30, 2009
 - No changes in the total number of active plan members
 - Total plan payroll is assumed to grow at the same rate as the assumed payroll growth rate for the actuarial valuation (4% per year)



New Entrant Normal Costs

<u>Benefit Design</u>	<u>Normal Cost</u>	<u>Ratio to Current</u>
Current Plan	11.87%	100.0%
Modified DB Plan	9.50%	80.1%
Money Purchase Plan	11.20%	94.4%

Funded Ratio Projections

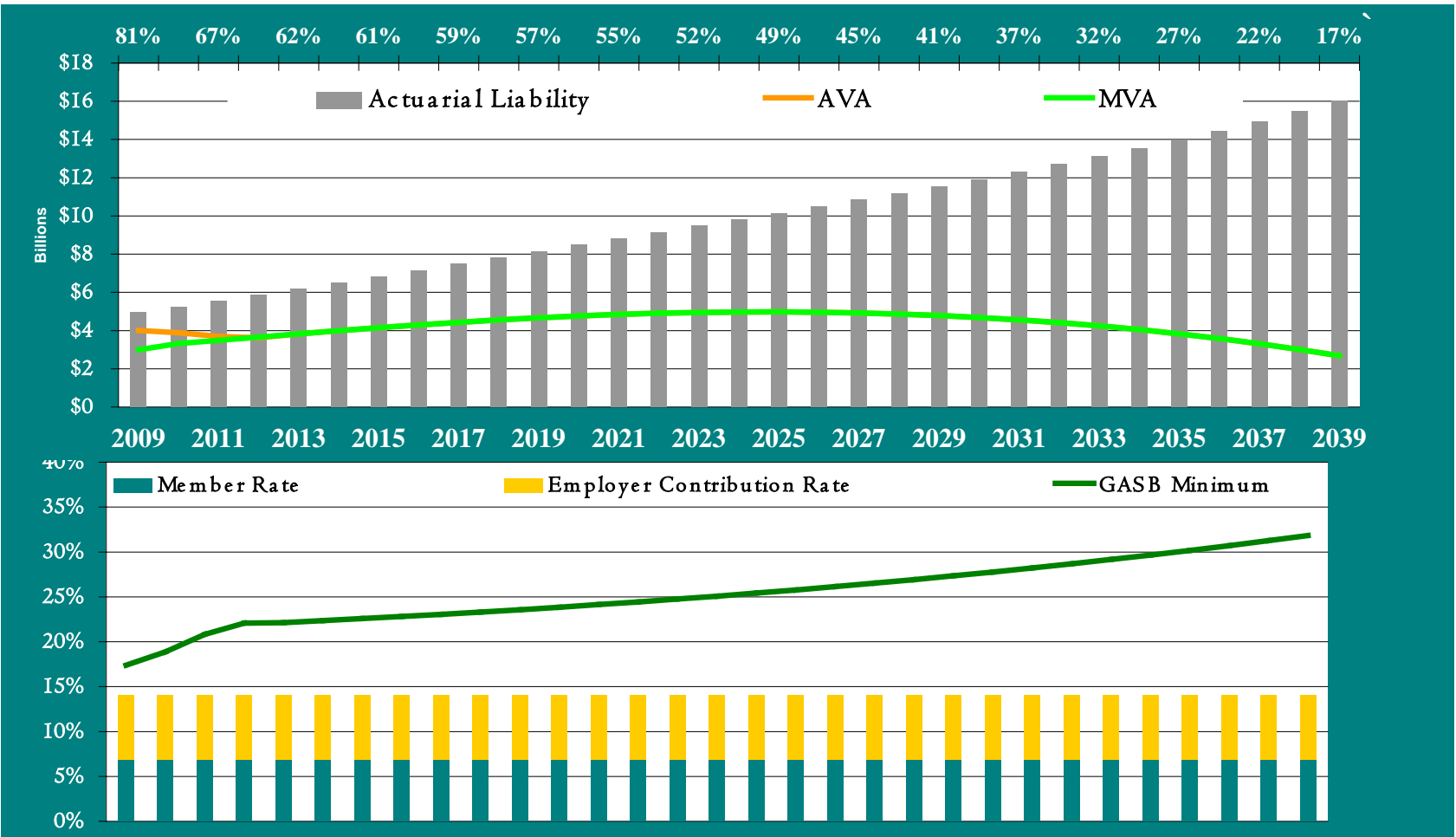
<u>Benefit Design</u>	<u>2014</u>	<u>2019</u>	<u>2024</u>	<u>2029</u>
Current Plan	61%	57%	51%	41%
Modified DB Plan	62%	58%	52%	44%
Money Purchase Plan	61%	58%	51%	43%

GASB Minimum Funding Rate Projections

<u>Benefit Design</u>	<u>2014</u>	<u>2019</u>	<u>2024</u>	<u>2029</u>
Current Plan	22.4%	23.6%	25.1%	26.9%
Modified DB Plan	21.7%	22.0%	22.5%	23.4%
Money Purchase Plan	22.1%	23.1%	24.3%	25.9%

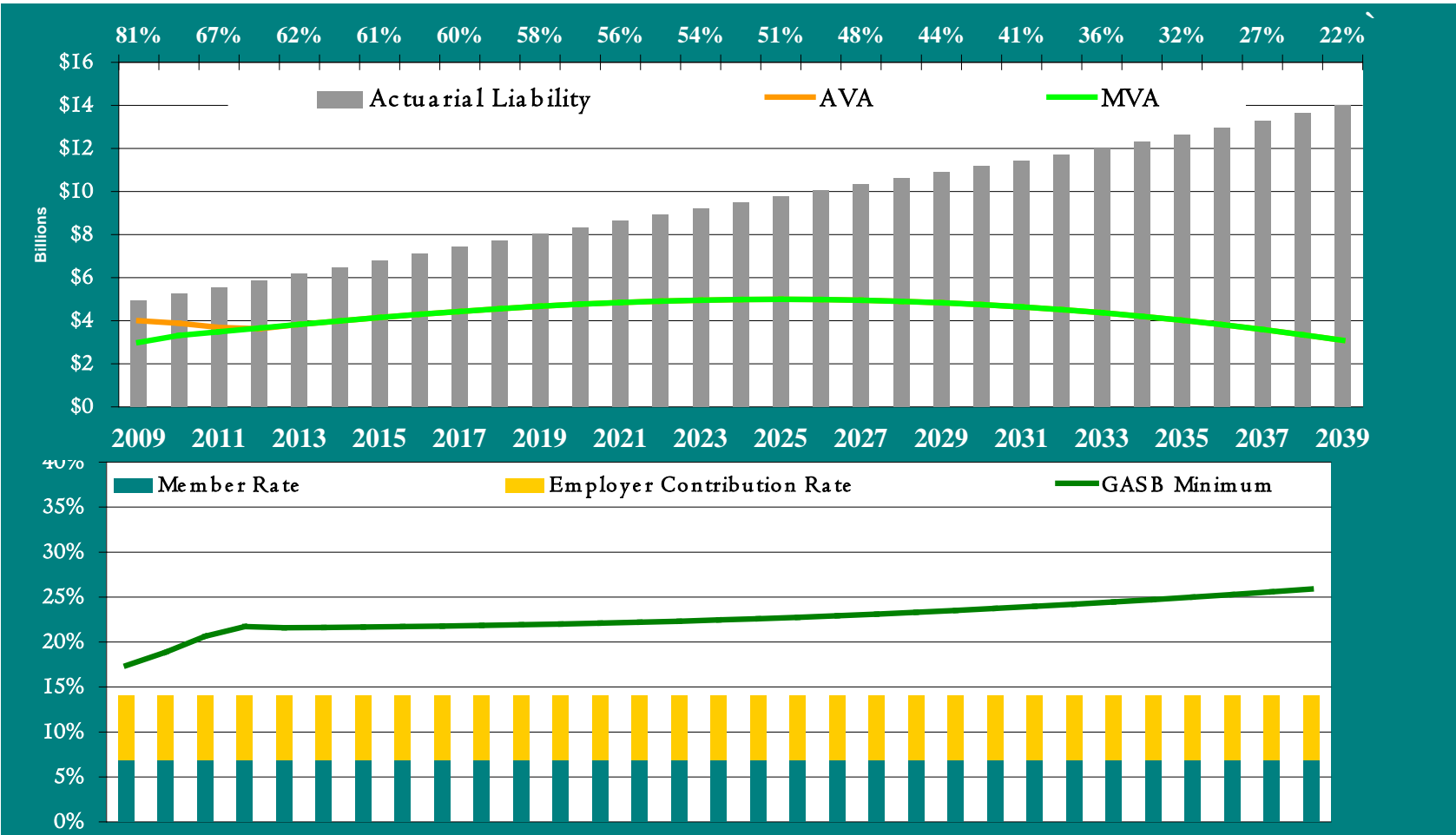


Current Plan Projections Funded Status and Contributions



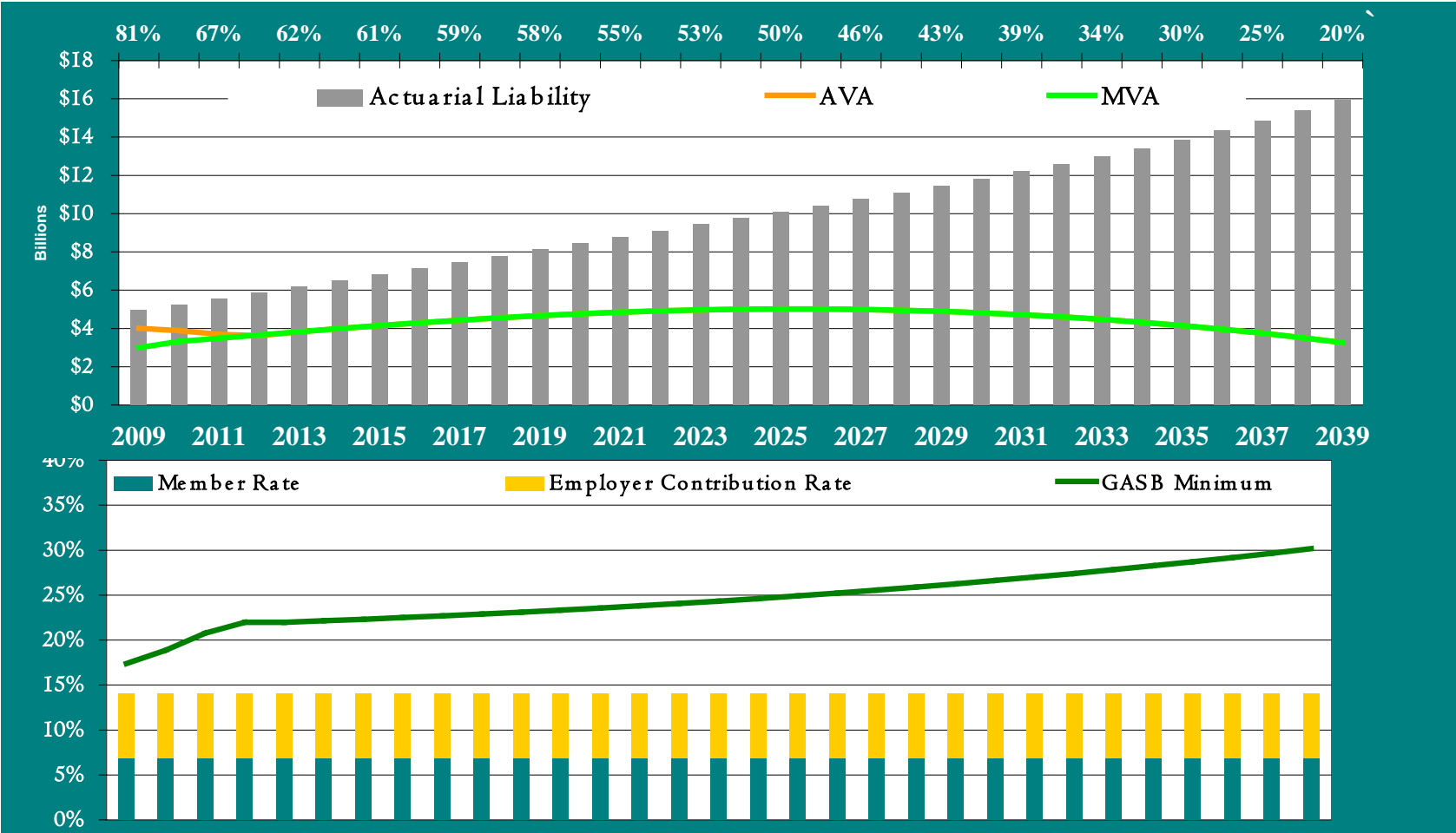


Modified DB Plan Projections Funded Status and Contributions





Money Purchase Plan Projections Funded Status and Contributions





Appendix A

Actuarial Assumptions

A. Long-Term Assumptions Used to Determine Plan Costs and Liabilities

1. Demographic Assumptions

a. **Healthy Retirees, Beneficiaries and Non-Retired Members**

RP-2000 Combined Healthy Male and Female Mortality Tables projected to 2015 with scale AA.

b. **Disabled Inactive Mortality**

RP-2000 Combined Healthy Male and Female Mortality tables with no projections.

c. **Rates of Active Disability**

Age	Rate
22	-
27	0.01%
32	0.01
37	0.04
42	0.10
47	0.13
52	0.25
57	0.36
62	0.00



Appendix A

Actuarial Assumptions, cont'd.

d. Termination of Employment (Prior to Normal Retirement Eligibility)

Service	Rate
0	25%
1	20
2	15
3	10
4	10
5-9	5
10-14	5
15+	2

No terminations are assumed after age 50 with 5 years of serve for either male or female.

e. Probability of Electing a Refund of Member Contributions Upon Termination

Age at Termination	Non-vested	Vested
Under 35	100%	60%
35-39	100	50
40-44	100	45
45-49	100	35
50+	100	30



Appendix A

Actuarial Assumptions, cont'd.

f. Retirement

Age	30+ years service and age 60 with 25 years	Other Retirements
<50	10%	0%
50-54	10	3
55	15	3
56	15	4
57	15	5
58	15	5
59	15	6
60	15	8
61	15	15
62	25	25
63	15	15
64	15	15
65	30	30
66	30	30
67	25	25
68	25	25
69	25	25
70+	100	100



Appendix A

Actuarial Assumptions, cont'd.

g. Merit/Seniority Salary Increase (in addition to across-the-board increase)

Service based table plus an annual inflation rate of 4.25% (rates shown below exclude amount for inflation).

Service	Annual Increase
1	6.0%
2	4.9
3	3.9
4	3.1
5	2.4
6	1.8
7	1.4
8	1.0
9	0.7
10	0.5
11-15	0.3
16-20	0.1
21 & over	0.0

h. Family Composition

Female spouses are assumed to be three years younger than males.

100% of non-retired members are assumed married for both male and female members.

Actual marital characteristics are used for pensioners.



Appendix A

Actuarial Assumptions, cont'd.

2. Economic Assumptions

a. Rate of Return:	7.75%
b. Rate of Wage Inflation:	4.00%
c. Interest on Member Contributions:	3.50%
d. Rate of Increase in Total Payroll (for Amortization):	4.00%



Appendix B

Current PERS Plan Provisions

1. **Membership**

The Plan is a multiple-employer cost sharing plan that covers employees of the State, local governments, and certain employees of the university system and school districts, who are not covered by a separate retirement system governed by Title 19 of Montana Code Annotated.

2. **Member Contribution**

Members contribute 6.9% of their compensation. Interest is credited at rates determined by the Board.

Member contributions are made through an “employer pick-up” arrangement which results in deferral of taxes on the contributions.

Employers contribute 6.9% of each member’s compensation, increased to 7.035% on July 1, 2007 and 7.17% on July 1, 2009. This is offset by a 0.1% of compensation from the State for local governments and school districts, increased to 0.235% on July 1, 2007 and 0.37% on July 1, 2009 for school districts. These increased contributions and offsets as of 2007 and 2009 will terminate if an actuarial valuation shows that the period required to amortize the system’s unfunded liabilities is less than 25 years, and that the termination of those increases would not cause the amortization to increase beyond 25 years.

3. **Service Credit**

Service used to determine the amount of retirement benefit. One month of service credit is earned for each month where the member is paid for 160 hours. This includes certain transferred and purchased service.

4. **Membership Service**

Service used to determine eligibility for vesting, retirement or other PERS benefits. One month of membership service is earned for any month member contributions are made to PERS, regardless of the number of hours worked.



Appendix B

Current PERS Plan Provisions, cont'd.

5. Highest Average Compensation

Highest Average Compensation is the average of any 36 consecutive months (or shorter period of total service) of compensation paid to the member. Compensation generally means all remuneration paid, excluding certain allowances, benefits and lump sum payments.

6. Normal Retirement

Eligibility: (i) age 60 with five years of membership service; or (ii) age 65 regardless of service; or (iii) any age with 30 years of membership service.

Benefit: (i) If less than 25 years of membership service, the greater of (a) 1/56 of highest average compensation multiplied by years of service credit, or (b) the actuarial equivalent of double the member's regular contributions plus interest plus the actuarial equivalent of any additional contributions plus interest.

(ii) If 25 years of membership service or more, 1/50 of highest average compensation multiplied by years of service credit, or (b).

7. Early Retirement

Eligibility: (i) age 50 with 5 years of membership service; or (ii) any age with 25 years of membership service.

Benefit: Normal retirement benefit calculated using highest average compensation and service at early retirement, and reduced for each month which retirement age precedes the earlier of age 60 or the attainment of 30 years of service by 0.5% for the first 60 months and 0.3% for the next 60 months.

8. Membership Service

Eligibility: Five years of membership service

Benefit: (i) If hired on or before February 24, 1991, the greater of (a) or (b):

(a) Less than 25 years of membership service: 90% of 1/56 of highest average compensation multiplied by service credit.

At least 25 years of membership service: 90% of 1/50 of highest average compensation multiplied by service credit, or

(b) 25% of highest average compensation.

(ii) If hired after February 24, 1991:

90% is replaced by 100% in the above formulas, but there is no 25% minimum benefit.



Appendix B

Current PERS Plan Provisions, cont'd.

9. Survivor's Benefit

Eligibility: (i) active, (ii) within 6 months after severance, (iii) receiving disability benefit for less than 6 months, (iv) continuously disabled without receiving a disability benefit, or (v) inactive.

Benefit: The sum of (i) accumulated contributions plus (ii) monthly compensation multiplied by the lesser of service credit or six, plus (iii) interest. However, an inactive member will receive only accumulated contributions.

For an active member who had completed five years of membership service, the benefit will be the actuarial equivalent of the accrued retirement benefit at the time of death subject to the minimum in the above paragraph.

A beneficiary may elect to receive the payment as an annuity that is the actuarial equivalent of the amount of benefit.

For retired members receiving the normal form of annuity, a payment will be made equal to the accumulated contributions reduced by any retirement benefits already paid.

10. Vesting

Eligibility: Five years of membership service.

Benefit: Accrued normal retirement benefit, payable at age 60. In lieu of a pension, a member may receive a refund of accumulated contributions. Upon receipt of a refund of contributions, a member's vested right to a monthly benefit is forfeited.

11. Withdrawal of Employee Contributions

Eligibility: Terminates service and is not eligible for other benefits.

Benefit: Accumulated employee contributions.



Appendix B

Current PERS Plan Provisions, cont'd.

12. Form of Payment

The normal form of payment is a life annuity with a refund of any remaining account balance to a designated beneficiary. (Option 1)

Optional benefits: (1) Option 2, a joint and 100% survivor benefit, (ii) Option 3, a joint and 50% survivor benefit, and (iii) Option 4, a life annuity with a period certain. If a retiring member selects Option 2 or 3 and the designated beneficiary predeceases the member, the benefit reverts to the higher Option 1 benefit available at retirement if the retiree provides notification within 18 months.

13. Post Retirement Benefit Increase

For retired members who have been retired at least 12 months, a Guaranteed Annual Benefit Adjustment (GABA) will be made each year equal to (i) 3% for members hired before July 1, 2007 and (ii) 1.5% for members hired on or after July 1, 2007. Ad hoc adjustments may be made to assure that the current benefit is no less than 75% of the purchasing power of the original benefit.

14. Changes Since Last Valuation

None.