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**Teachers' Retirement System  
State of Montana**

**Actuarial Valuation  
As of July 1, 2021**

































































































































The following is a summary of retired members and beneficiaries currently receiving benefits:

<u>Type of Annuitant</u>	<u>Number</u>	<u>Annual Benefits in Thousands</u>	<u>Average Annual Benefits</u>
Service Retirement	14,870	\$ 381,626	\$ 25,664
Survivors of Deceased Retired Members*	<u>1,445</u>	<u>26,036</u>	<u>18,018</u>
Total Service Retirement (including survivors)	16,315	\$ 407,662	\$ 24,987
Disability Retirement	182	2,403	13,205
Survivors of Deceased Active Members	478	5,456	11,412
Child Beneficiaries	<u>10</u>	<u>24</u>	<u>2,400</u>
Total Annuitants	16,985	\$ 415,545	\$ 24,465

<u>Terminated Members with Contributions Not Withdrawn</u>	<u>Number</u>
Vested Terminated Members	1,955
Non-Vested Terminated Members	<u>7,869</u>
Total Terminated Members	9,824

<u>Deceased Members Pending Account Settlement</u>	<u>Number</u>
Active/Terminated Deceased Pending	271
Retired Deceased Pending	<u>72</u>
Total Deceased Pending	343

\* Includes 152 Alternate Payees



**Teachers' Retirement System  
State of Montana**

**Table C-1**

**Active Members Distribution of  
Full-Time Employees and Salaries  
as of July 1, 2021**

**Number of Employees**

Age	Completed Years of Service												Totals	
	0	1	2	3 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40+		
<25	90	239	103	14	1									447
25 to 29	42	234	294	496	337									1,403
30 to 34	26	131	142	284	931	159								1,673
35 to 39	39	115	116	205	621	650	156							1,902
40 to 44	22	118	99	151	494	468	555	133						2,040
45 to 49	30	85	52	145	348	344	375	511	92					1,982
50 to 54	23	64	57	79	251	218	257	366	390	66				1,771
55 to 59	18	44	40	70	156	130	180	221	226	210	43			1,338
60 to 64	14	26	28	49	100	94	116	142	122	93	95	25		904
65 to 69	12	15	18	19	35	28	17	34	23	26	19	17		263
70 and up	5	8	6	8	7	6	7	5	3	9	4	12		80
Totals	321	1,079	955	1,520	3,281	2,097	1,663	1,412	856	404	161	54		13,803



**Teachers' Retirement System  
State of Montana**

**Table C-1**

**Active Members Distribution of  
Full-Time Employees and Salaries  
as of July 1, 2021**

**Annual Salaries in Thousands**

Age	<u>Completed Years of Service</u>												Totals	
	0	1	2	3 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40+		
<25	2,196	8,524	3,819	497	19									15,055
25 to 29	1,070	8,981	11,608	20,662	15,797									58,118
30 to 34	655	5,183	5,895	12,798	47,041	9,266								80,838
35 to 39	959	4,908	5,262	10,008	33,284	39,952	10,249							104,622
40 to 44	464	5,007	4,455	6,834	26,630	29,538	39,021	9,895						121,845
45 to 49	811	3,681	2,285	7,227	19,558	21,494	25,955	37,591	6,862					125,464
50 to 54	730	2,592	2,402	3,924	13,930	13,522	17,383	26,642	29,562	5,153				115,841
55 to 59	547	1,884	1,891	3,226	8,734	7,828	11,549	15,380	16,794	15,788	3,221			86,841
60 to 64	534	997	1,227	2,390	5,739	5,363	7,129	9,190	8,793	6,966	7,167	1,820		57,315
65 to 69	379	696	808	912	1,806	1,620	973	2,270	1,770	2,059	1,458	1,786		16,534
70 and up	71	234	367	308	321	246	398	315	237	664	420	1,103		4,684
Totals	8,416	42,690	40,018	68,783	172,859	128,828	112,656	101,282	64,017	30,631	12,266	4,708		787,155



**Teachers' Retirement System  
State of Montana**

**Table C-1**

**Active Members Distribution of  
Full-Time Employees and Salaries  
as of July 1, 2021**

**Average Annual Salary**

Age	<u>Completed Years of Service</u>												Totals	
	0	1	2	3 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40+		
<25	24,398	35,667	37,076	35,477	18,872									33,679
25 to 29	25,472	38,381	39,483	41,656	46,876									41,424
30 to 34	25,203	39,562	41,512	45,063	50,528	58,275								48,319
35 to 39	24,592	42,681	45,361	48,817	53,597	61,465	65,699							55,006
40 to 44	21,091	42,435	45,001	45,258	53,908	63,116	70,308	74,402						59,728
45 to 49	27,044	43,311	43,941	49,838	56,201	62,481	69,214	73,563	74,588					63,301
50 to 54	31,751	40,505	42,148	49,667	55,497	62,028	67,639	72,791	75,800	78,083				65,410
55 to 59	30,388	42,828	47,268	46,082	55,986	60,212	64,160	69,591	74,309	75,183	74,916			64,904
60 to 64	38,144	38,357	43,806	48,770	57,391	57,050	61,455	64,721	72,072	74,905	75,443	72,802		63,401
65 to 69	31,576	46,432	44,872	47,982	51,595	57,856	57,221	66,758	76,936	79,173	76,712	105,033		62,868
70 and up	14,160	29,278	61,216	38,479	45,816	41,020	56,794	62,976	79,130	73,772	105,040	91,887		58,545
Totals	26,219	39,564	41,904	45,252	52,685	61,435	67,743	71,730	74,787	75,818	76,187	87,190		57,028



**Teachers' Retirement System  
State of Montana**

**Table C-1**

**Active Members Distribution of  
Part-Time Employees  
as of July 1, 2021**

**Number of Employees**

Age	<u>Completed Years of Service</u>												Totals	
	0	1	2	3 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40+		
<25	347	117	31	23										518
25 to 29	204	108	76	55	28									471
30 to 34	158	100	59	73	75	9								474
35 to 39	132	114	80	104	87	30	3							550
40 to 44	128	128	98	151	135	47	21	7						715
45 to 49	80	67	71	102	141	55	27	21	6					570
50 to 54	60	66	47	78	126	70	42	21	15	2				527
55 to 59	67	44	45	60	94	87	79	43	16	9	3			547
60 to 64	57	53	40	69	104	59	72	46	35	13	8			556
65 to 69	41	34	24	36	53	17	23	24	9	4	3			268
70 and up	21	23	11	20	39	15	16	8	5	2		2		162
Totals	1,295	854	582	771	882	389	283	170	86	30	14	2		5,358



**Teachers' Retirement System  
State of Montana**

**Table C-2**

**Distribution of Inactive Lives**

**Members Receiving Service Retirement Benefits as of July 1, 2021**

<u>Age</u>	<u>Number of Persons</u>	<u>Annual Benefits in Thousands</u>	<u>Average Annual Benefits</u>
<50	15	\$ 475	\$ 31,669
50 to 54	173	5,344	30,889
55 to 59	530	16,275	30,708
60 to 64	1,731	44,394	25,646
65 to 69	3,311	84,175	25,423
70 to 74	3,888	103,058	26,507
75 to 79	2,512	65,224	25,965
80 to 84	1,493	37,463	25,093
85 to 89	805	17,942	22,288
90 and up	412	7,276	17,659
Totals	14,870	\$ 381,626	\$ 25,664

**Members Receiving Disability Retirement Benefits as of July 1, 2021**

<u>Age</u>	<u>Number of Persons</u>	<u>Annual Benefits in Thousands</u>	<u>Average Annual Benefits</u>
<50	7	\$ 75	\$ 10,695
50 to 54	15	253	16,875
55 to 59	21	383	18,247
60 to 64	24	336	14,010
65 to 69	33	413	12,522
70 to 74	39	457	11,723
75 to 79	17	230	13,516
80 to 84	14	151	10,805
85 to 89	6	56	9,275
90 and up	6	49	8,119
Totals	182	\$ 2,403	\$ 13,205



**Teachers' Retirement System  
State of Montana**

**Table C-2**

**Distribution of Inactive Lives**

**Survivors of Deceased Retired Members as of July 1, 2021**

<u>Age</u>	<u>Number of Persons</u>	<u>Annual Benefits in Thousands</u>	<u>Average Annual Benefits</u>
<50	89	\$ 758	\$ 8,518
50 to 54	20	158	7,925
55 to 59	39	448	11,498
60 to 64	74	1,168	15,782
65 to 69	129	2,098	16,266
70 to 74	225	4,566	20,291
75 to 79	262	5,161	19,697
80 to 84	242	5,150	21,282
85 to 89	196	3,526	17,989
90 and up	169	3,003	17,771
Totals	1,445	\$ 26,036	\$ 18,018

**Survivors of Deceased Active Members as of July 1, 2021**

<u>Age</u>	<u>Number of Persons</u>	<u>Annual Benefits in Thousands</u>	<u>Average Annual Benefits</u>
<50	117	\$ 859	\$ 7,340
50 to 54	18	218	12,094
55 to 59	33	379	11,491
60 to 64	56	565	10,087
65 to 69	64	828	12,942
70 to 74	81	1,126	13,897
75 to 79	45	696	15,465
80 to 84	30	410	13,680
85 to 89	15	119	7,920
90 and up	19	256	13,451
Totals	478	\$ 5,456	\$ 11,412



**Teachers' Retirement System  
State of Montana**

**Table C-2**

**Distribution of Inactive Lives**

**Terminated Vested Members as of July 1, 2021**

<u>Age</u>	<u>Number of Persons</u>
<25	
25 to 29	11
30 to 34	116
35 to 39	215
40 to 44	267
45 to 49	265
50 to 54	347
55 to 59	425
60 to 64	205
65 to 69	79
70 and above	<u>25</u>
Total	1,955

**Child Beneficiaries as of July 1, 2021**

<u>Age</u>	<u>Number of Persons</u>
<5	
5 to 6	
7 to 8	1
9 to 10	2
11 to 12	1
13 to 14	2
15 to 16	4
17 to 18	<u>        </u>
Total	10





**Teachers' Retirement System  
State of Montana**

**Table C-3**

**Data Reconciliation**

	<u>Active Contributing Members*</u>	<u>Terminated Vested Members</u>	<u>Service Retired Members</u>	<u>Disabled Members</u>	<u>Survivors and Beneficiaries</u>
<b>July 1, 2020 Valuation</b>	19,046	1,828	14,566	190	1,849
Refunds and Non-Vested Terminations	(1,688)	(6)			
Change to Annual Pay Under \$1,000	(146)	23			
Vested Terminations	(137)	314			
Service Retirements	(543)	(92)	635		
Disability Retirements	(4)	(1)		5	
Deaths with Beneficiary	(18)	(7)	(123)	(7)	155
Deaths without Beneficiary			(200)	(6)	(81)
New Entrants	2,175				
Rehires	460	(101)	(13)		
Other	16	(3)	5		10
<b>July 1, 2021 Valuation</b>	19,161	1,955	14,870	182	1,933

\* Excludes active members with annual compensation less than \$1,000



**Teachers' Retirement System  
State of Montana**

**Appendix D**

**Comparative Schedules**

This section contains tables that summarize the experience of the System shown in present and past valuation reports.

Table D-1 shows a summary of the active members covered as of the various valuation dates.

Table D-2 shows a summary of the retired and inactive members as of the various valuation dates.

Table D-3 summarizes the contribution rates determined by each annual actuarial valuation.



**Teachers' Retirement System  
State of Montana**

**Table D-1**

**Active Membership Data**

Valuation Date (July 1)	Full-Time Members	Part-Time Members**	Total Contributing Members**	Part-Time Members Annual Compensation less than \$1,000	Annual Full-Time Salaries in Thousands	Average Full-Time Annual Salary	Average Age**	Average Years of Service**	Average Hire Age**
2004	12,601	5,013	17,614	637	510,808	40,537	45.6	12.2	33.4
2005	12,523	5,019	17,542	697	523,909	41,836	45.8	12.4	33.4
2006	12,715	4,840	17,555	544	549,268	43,198	46.0	12.5	33.5
2007	12,634	4,994	17,628	548	568,351	44,986	46.2	12.5	33.7
2008	12,694	5,077	17,771	521	592,514	46,677	46.1	12.3	33.8
2009	12,673	5,270	17,943	513	613,077	48,377	46.2	12.4	33.8
2010	12,711	5,642	18,353	600	630,444	49,598	45.9	12.2	33.8
2011	12,506	5,400	17,906	578	633,005	50,616	46.2	12.4	33.8
2012	12,202	5,534	17,736	636	622,140	50,987	46.0	12.4	33.6
2013	12,229	5,387	17,616	633	628,832	51,421	45.8	12.2	33.6
2014	12,286	5,428	17,714	558	712,802	51,967	45.6	11.6	34.0
2015	12,468	5,337	17,805	511	729,653	52,551	45.4	11.3	34.1
2016	12,769	5,563	18,332	716	673,891	52,776	45.2	10.9	34.3
2017	12,808	5,576	18,384	533	689,638	53,844	45.0	10.8	34.2
2018	13,027	5,619	18,646	621	706,351	54,222	45.0	10.6	34.4
2019	13,196	5,798	18,994	692	728,831	54,231	44.9	10.4	34.5
2020	13,515	5,531	19,046	705	751,479	55,603	44.7	10.3	34.4
2021	13,803	5,358	19,161	497	787,155	57,028	44.2	10.1	34.1

\* Not available.

\*\* Excludes part-time active members with annual compensation less than \$1,000.



**Teachers' Retirement System  
State of Montana**

**Table D-2**

**Retired and Inactive Membership Data**

Valuation Date (July 1)	Number	All Annuitants					Terminated Members	
		Annual Benefits in Thousands	Average Annual Benefit	Average Current Age	Average Age at Retirement	Average Service at Retirement	Number Vested Terminated	Number Non-Vested Terminated
2004	10,375	159,776	15,400	69.1	56.7	*	1,620	7,861
2005	10,664	170,129	15,954	69.3	56.7	*	1,649	8,569
2006	11,019	181,114	16,436	69.3	56.5	*	1,684	8,542
2007	11,356	195,237	17,192	69.3	56.6	*	1,671	8,963
2008	11,788	208,985	17,729	69.4	56.7	*	1,649	9,574
2009	12,036	219,267	18,218	69.7	57.5	25.5	1,640	9,868
2010	12,440	234,048	18,814	69.9	57.6	25.5	1,553	10,304
2011	12,899	250,500	19,420	70.0	57.8	25.5	1,580	10,727
2012	13,363	267,851	20,044	70.2	57.9	25.5	1,566	11,172
2013	13,868	284,333	20,503	70.4	58.0	25.5	1,566	11,710
2014	14,349	302,272	21,066	70.6	58.2	25.5	1,654	12,308
2015	14,839	321,511	21,667	70.9	58.3	25.4	1,664	12,839
2016	15,164	336,465	22,188	71.1	58.5	25.4	1,704	12,888
2017	15,566	352,005	22,614	71.4	58.6	25.3	1,779	13,712
2018	15,933	367,990	23,096	71.6	58.7	25.3	1,772	13,967
2019	16,256	383,495	23,591	72.0	58.9	25.2	1,791	14,261
2020	16,605	400,111	24,096	72.3	59.0	25.2	1,828	14,941
2021	16,985	415,545	24,465	72.6	59.1	25.1	1,955	7,869

\* Not available



**Teachers' Retirement System  
State of Montana**

**Table D-3**

**Contribution Rates**

Valuation Date (July 1)	Contribution Rates			Normal Cost Rate <sup>1</sup>	UAAL Rate <sup>2</sup>
	Employee	Employer	Total		
2005	7.15	7.58	14.73	10.35	4.38
2006	7.15	7.58	14.73	10.37	4.36
2007	7.15	9.58	16.73	10.40	6.33
2008	7.15	9.58	16.73	10.87	5.86
2009	7.15	9.96	17.11	10.69	6.42
2010	7.15	9.96	17.11	9.74	7.37
2011	7.15	9.96	17.11	9.64	7.47
2012	7.15	9.96	17.11	9.64	7.47
2013	8.15	10.96	19.11	9.20	9.91
2014	8.15	11.06	19.21	9.44	9.77
2015	8.15	11.16	19.31	9.49	9.82
2016	8.15	11.26	19.41	10.18	9.23
2017	8.15	11.36	19.51	10.15	9.36
2018	8.15	11.46	19.61	10.32	9.29
2019	8.15	11.56	19.71	10.14	9.57
2020	8.15	11.66	19.81	10.20	9.61
2021	8.15	11.76	19.91	10.13	9.78

<sup>1</sup> Effective July 1, 2014, the Normal Cost Rate includes the administrative expense load.

<sup>2</sup> The UAAL rate is the amount available to amortize the UAAL. It is equal to the total contribution rate, minus the normal cost rate.

<sup>3</sup> The 1999 Legislation which passed the 1.5% GABA, also added a 0.11% state general fund contribution.



## **Teachers' Retirement System State of Montana**

### **Appendix E**

#### **Glossary**

The following definitions are largely excerpts from a list adopted in 1981 by the major actuarial organizations in the United States. In some cases the definitions have been modified for specific applicability to the Montana Teachers' Retirement System. Defined terms are capitalized throughout this Appendix.

#### **Accrued Benefit**

The amount of an individual's benefit (whether or not vested) as of a specific date, determined in accordance with the terms of a pension plan and based on compensation and service to that date.

#### **Actuarial Accrued Liability**

That portion, as determined by a particular Actuarial Cost Method, of the Actuarial Present Value of pension plan benefits and expenses which is not provided for by future Normal Costs.

#### **Actuarial Assumptions**

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disablement, and retirement; changes in compensation, rates of investment earnings, and asset appreciation or depreciation; procedures used to determine the Actuarial Value of Assets; and other relevant items.

#### **Actuarial Cost Method**

A procedure for determining the Actuarial Present Value of pension plan benefits and expenses and for developing an actuarially equivalent allocation of such value to time periods, usually in the form of a Normal Cost and an Actuarial Accrued Liability.

#### **Actuarial Gain (Loss)**

A measure of the difference between actual experience and that expected based upon a set of Actuarial Assumptions during the period between two Actuarial Valuation dates, as determined in accordance with a particular Actuarial Cost Method.

**Actuarial Present Value**

The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of Actuarial Assumptions.

**Actuarial Valuation**

The determination, as of a valuation date, of the Normal Cost, Actuarial Accrued Liability, Actuarial Value of Assets, and related Actuarial Present Values for a pension plan.

**Actuarial Value of Assets**

The value of cash, investments and other property belonging to a pension plan, as used by the actuary for the purpose of an Actuarial Valuation.

**Actuarially Equivalent**

Of equal Actuarial Present Value, determined as of a given date with each value based on the same set of Actuarial Assumptions.

**Amortization Payment**

That portion of the pension plan contribution which is designed to pay interest on and to amortize the Unfunded Actuarial Accrued Liability.

**Entry Age Actuarial Cost Method**

A method under which 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 Normal Cost. The portion of this Actuarial Present Value not provided for at a valuation date by the Actuarial Present Value of future Normal Costs is called the Actuarial Accrued Liability.

**Market Value of Assets**

The fair value of cash, investments and other property belonging to a pension plan that could be acquired by exchanging them on the open market.

**Normal Cost**

That portion of the Actuarial Present Value of pension plan benefits and expenses which is allocated to a valuation year by the Actuarial Cost Method.

**Projected Benefits**

Those pension plan benefit amounts which are expected to be paid at various future times under a particular set of Actuarial Assumptions, taking into account such items as the effect of advancement in age and past and anticipated future compensation and service credits.

**Unaccrued Benefit**

The excess of an individual's Projected Benefits over the Accrued Benefits as of a specified date.

**Unfunded Actuarial Accrued Liability**

The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets.