

Figure: 34 TAC §29.11(c)

**TEACHER RETIREMENT SYTEM  
OF TEXAS**

Service Retirement Option  
Factors Based on 7.00% Interest

Effective September 1, 2023  
TRS Rule 34 TAC 29.11

# TEACHER RETIREMENT SYSTEM OF TEXAS

## Retired Member Option Factors (Effective September 1, 2023)

### *Table of Contents*

- Section I      Joint and 100% Beneficiary Option 1 Factors with Pop-up Feature**
- Section II     Joint and 50% Beneficiary Option 2 Factors with Pop-up Feature**
- Section III    Five-year Certain and Continuous Thereafter Option 3 Factors and  
Ten-Year Certain and Continuous Thereafter Option 4 Factors**
- Section IV    Joint and 75% Beneficiary Option 5 Factors with Pop-up Feature**

## **SECTION I**

# TEACHER RETIREMENT SYSTEM OF TEXAS

## OPTION 1 FACTORS JOINT AND 100% BENEFICIARY WITH POP-UP FEATURE

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional benefit. Each percentage is based on age as of last birthday of member and beneficiary. Benefit reverts to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement														
	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
1	99.20	99.13	99.06	98.99	98.92	98.84	98.75	98.65	98.54	98.43	98.30	98.17	98.02	97.86	97.70
2	99.21	99.15	99.08	99.01	98.93	98.85	98.76	98.67	98.56	98.45	98.32	98.19	98.04	97.88	97.72
3	99.23	99.16	99.09	99.02	98.95	98.87	98.78	98.69	98.58	98.47	98.34	98.20	98.06	97.90	97.74
4	99.24	99.18	99.11	99.04	98.97	98.89	98.80	98.71	98.60	98.49	98.36	98.23	98.08	97.92	97.76
5	99.26	99.19	99.13	99.06	98.99	98.91	98.82	98.73	98.62	98.51	98.38	98.25	98.10	97.95	97.78
6	99.27	99.21	99.15	99.08	99.00	98.93	98.84	98.75	98.64	98.53	98.40	98.27	98.13	97.97	97.81
7	99.29	99.23	99.16	99.10	99.02	98.95	98.86	98.77	98.67	98.55	98.43	98.29	98.15	98.00	97.83
8	99.31	99.25	99.18	99.12	99.04	98.97	98.88	98.79	98.69	98.58	98.45	98.32	98.18	98.02	97.86
9	99.33	99.26	99.20	99.14	99.07	98.99	98.91	98.81	98.71	98.60	98.48	98.35	98.20	98.05	97.89
10	99.34	99.28	99.22	99.16	99.09	99.01	98.93	98.84	98.74	98.63	98.51	98.37	98.23	98.08	97.92
11	99.36	99.30	99.24	99.18	99.11	99.04	98.95	98.86	98.76	98.65	98.53	98.40	98.26	98.11	97.95
12	99.38	99.32	99.26	99.20	99.13	99.06	98.98	98.89	98.79	98.68	98.56	98.43	98.29	98.14	97.98
13	99.39	99.34	99.28	99.22	99.15	99.08	99.00	98.92	98.82	98.71	98.59	98.46	98.33	98.18	98.01
14	99.41	99.36	99.30	99.24	99.18	99.11	99.03	98.94	98.85	98.74	98.62	98.50	98.36	98.21	98.05
15	99.43	99.38	99.32	99.26	99.20	99.13	99.06	98.97	98.88	98.77	98.66	98.53	98.39	98.25	98.09
16	99.44	99.39	99.34	99.28	99.22	99.16	99.08	99.00	98.91	98.80	98.69	98.56	98.43	98.28	98.13
17	99.46	99.41	99.36	99.30	99.24	99.18	99.11	99.03	98.94	98.83	98.72	98.60	98.47	98.32	98.17
18	99.48	99.43	99.38	99.32	99.27	99.21	99.13	99.06	98.97	98.87	98.76	98.64	98.50	98.36	98.21
19	99.49	99.44	99.40	99.34	99.29	99.23	99.16	99.08	99.00	98.90	98.79	98.67	98.54	98.40	98.25
20	99.51	99.46	99.41	99.36	99.31	99.25	99.19	99.11	99.03	98.93	98.83	98.71	98.58	98.44	98.29
21	99.52	99.48	99.43	99.38	99.33	99.28	99.21	99.14	99.06	98.96	98.86	98.75	98.62	98.49	98.34
22	99.53	99.49	99.45	99.40	99.35	99.30	99.24	99.17	99.09	99.00	98.90	98.78	98.66	98.53	98.38
23	99.55	99.51	99.46	99.42	99.37	99.32	99.26	99.19	99.12	99.03	98.93	98.82	98.70	98.57	98.43
24	99.56	99.52	99.48	99.44	99.39	99.34	99.29	99.22	99.15	99.06	98.97	98.86	98.74	98.61	98.47
25	99.57	99.53	99.50	99.46	99.41	99.37	99.31	99.25	99.17	99.09	99.00	98.90	98.78	98.66	98.52
26	99.58	99.55	99.51	99.47	99.43	99.39	99.33	99.27	99.20	99.12	99.03	98.93	98.82	98.70	98.57
27	99.60	99.56	99.53	99.49	99.45	99.41	99.35	99.30	99.23	99.15	99.07	98.97	98.86	98.74	98.61
28	99.61	99.57	99.54	99.50	99.47	99.42	99.38	99.32	99.26	99.18	99.10	99.00	98.90	98.79	98.66
29	99.62	99.58	99.55	99.52	99.48	99.44	99.40	99.34	99.28	99.21	99.13	99.04	98.94	98.83	98.70
30	99.63	99.60	99.56	99.53	99.50	99.46	99.42	99.37	99.31	99.24	99.16	99.07	98.98	98.87	98.75
31	99.64	99.61	99.58	99.55	99.51	99.48	99.44	99.39	99.33	99.26	99.19	99.10	99.01	98.91	98.79
32	99.65	99.62	99.59	99.56	99.53	99.49	99.45	99.41	99.35	99.29	99.22	99.14	99.05	98.95	98.84
33	99.66	99.63	99.60	99.57	99.54	99.51	99.47	99.43	99.37	99.31	99.25	99.17	99.08	98.98	98.88
34	99.67	99.64	99.61	99.59	99.56	99.53	99.49	99.45	99.40	99.34	99.27	99.20	99.11	99.02	98.92
35	99.67	99.65	99.62	99.60	99.57	99.54	99.51	99.46	99.42	99.36	99.30	99.23	99.14	99.06	98.96

# TEACHER RETIREMENT SYSTEM OF TEXAS

## OPTION 1 FACTORS JOINT AND 100% BENEFICIARY WITH POP-UP FEATURE

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional benefit. Each percentage is based on age as of last birthday of member and beneficiary. Benefit reverts to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement														
	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
36	99.68	99.66	99.63	99.61	99.58	99.55	99.52	99.48	99.44	99.38	99.32	99.25	99.18	99.09	98.99
37	99.69	99.67	99.64	99.62	99.60	99.57	99.54	99.50	99.46	99.40	99.35	99.28	99.21	99.12	99.03
38	99.70	99.68	99.65	99.63	99.61	99.58	99.55	99.52	99.47	99.43	99.37	99.30	99.23	99.15	99.07
39	99.71	99.69	99.66	99.64	99.62	99.60	99.57	99.53	99.49	99.45	99.39	99.33	99.26	99.19	99.10
40	99.72	99.69	99.67	99.65	99.63	99.61	99.58	99.55	99.51	99.46	99.41	99.35	99.29	99.22	99.13
41	99.72	99.70	99.68	99.66	99.64	99.62	99.59	99.56	99.53	99.48	99.43	99.38	99.31	99.24	99.17
42	99.73	99.71	99.69	99.67	99.65	99.63	99.61	99.58	99.54	99.50	99.45	99.40	99.34	99.27	99.20
43	99.74	99.72	99.70	99.68	99.67	99.65	99.62	99.59	99.56	99.52	99.47	99.42	99.36	99.30	99.23
44	99.75	99.73	99.71	99.69	99.68	99.66	99.63	99.61	99.58	99.54	99.49	99.44	99.39	99.32	99.26
45	99.75	99.74	99.72	99.70	99.69	99.67	99.65	99.62	99.59	99.55	99.51	99.46	99.41	99.35	99.28
46	99.76	99.74	99.73	99.71	99.70	99.68	99.66	99.64	99.61	99.57	99.53	99.48	99.43	99.37	99.31
47	99.77	99.75	99.73	99.72	99.71	99.69	99.67	99.65	99.62	99.59	99.55	99.50	99.45	99.40	99.34
48	99.77	99.76	99.74	99.73	99.72	99.70	99.68	99.66	99.63	99.60	99.56	99.52	99.47	99.42	99.36
49	99.78	99.76	99.75	99.74	99.73	99.71	99.69	99.67	99.65	99.62	99.58	99.54	99.49	99.44	99.39
50	99.79	99.77	99.76	99.75	99.73	99.72	99.71	99.69	99.66	99.63	99.60	99.56	99.51	99.47	99.41
51	99.79	99.78	99.77	99.75	99.74	99.73	99.72	99.70	99.68	99.65	99.61	99.58	99.53	99.49	99.44
52	99.80	99.78	99.77	99.76	99.75	99.74	99.73	99.71	99.69	99.66	99.63	99.59	99.55	99.51	99.46
53	99.80	99.79	99.78	99.77	99.76	99.75	99.74	99.72	99.70	99.67	99.64	99.61	99.57	99.53	99.48
54	99.81	99.80	99.79	99.78	99.77	99.76	99.75	99.73	99.71	99.69	99.66	99.63	99.59	99.55	99.50
55	99.81	99.80	99.79	99.78	99.78	99.77	99.76	99.74	99.72	99.70	99.67	99.64	99.61	99.57	99.52
56	99.82	99.81	99.80	99.79	99.78	99.78	99.77	99.75	99.74	99.71	99.69	99.66	99.62	99.59	99.55
57	99.82	99.81	99.80	99.80	99.79	99.78	99.77	99.76	99.75	99.73	99.70	99.67	99.64	99.61	99.57
58	99.83	99.82	99.81	99.80	99.80	99.79	99.78	99.77	99.76	99.74	99.71	99.69	99.66	99.62	99.59
59	99.83	99.82	99.81	99.81	99.80	99.80	99.79	99.78	99.77	99.75	99.73	99.70	99.67	99.64	99.60
60	99.84	99.83	99.82	99.81	99.81	99.81	99.80	99.79	99.78	99.76	99.74	99.71	99.69	99.66	99.62
61	99.84	99.83	99.83	99.82	99.82	99.81	99.81	99.80	99.79	99.77	99.75	99.73	99.70	99.67	99.64
62	99.85	99.84	99.83	99.83	99.82	99.82	99.81	99.81	99.79	99.78	99.76	99.74	99.72	99.69	99.66
63	99.85	99.84	99.84	99.83	99.83	99.83	99.82	99.81	99.80	99.79	99.77	99.75	99.73	99.70	99.67
64	99.86	99.85	99.84	99.84	99.83	99.83	99.83	99.82	99.81	99.80	99.78	99.76	99.74	99.72	99.69
65	99.86	99.85	99.85	99.84	99.84	99.84	99.83	99.83	99.82	99.81	99.79	99.77	99.75	99.73	99.71
66	99.86	99.86	99.85	99.85	99.85	99.84	99.84	99.84	99.83	99.82	99.80	99.78	99.77	99.74	99.72
67	99.87	99.86	99.85	99.85	99.85	99.85	99.85	99.84	99.84	99.82	99.81	99.79	99.78	99.76	99.73
68	99.87	99.86	99.86	99.86	99.86	99.86	99.85	99.85	99.84	99.83	99.82	99.80	99.79	99.77	99.75
69	99.88	99.87	99.86	99.86	99.86	99.86	99.86	99.86	99.85	99.84	99.83	99.81	99.80	99.78	99.76
70	99.88	99.87	99.87	99.87	99.87	99.87	99.86	99.86	99.86	99.85	99.84	99.82	99.81	99.79	99.77

# TEACHER RETIREMENT SYSTEM OF TEXAS

## OPTION 1 FACTORS JOINT AND 100% BENEFICIARY WITH POP-UP FEATURE

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional benefit. Each percentage is based on age as of last birthday of member and beneficiary.  
Benefit reverts to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement														
	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
71	99.88	99.88	99.87	99.87	99.87	99.87	99.87	99.87	99.86	99.85	99.84	99.83	99.82	99.80	99.78
72	99.89	99.88	99.88	99.88	99.88	99.88	99.88	99.87	99.87	99.86	99.85	99.84	99.83	99.81	99.80
73	99.89	99.89	99.88	99.88	99.88	99.88	99.88	99.88	99.88	99.87	99.86	99.85	99.84	99.82	99.81
74	99.90	99.89	99.89	99.89	99.89	99.89	99.89	99.89	99.88	99.88	99.87	99.86	99.84	99.83	99.82
75	99.90	99.89	99.89	99.89	99.89	99.89	99.89	99.89	99.89	99.88	99.87	99.86	99.85	99.84	99.83
76	99.90	99.90	99.89	99.89	99.89	99.90	99.90	99.90	99.89	99.89	99.88	99.87	99.86	99.85	99.84
77	99.91	99.90	99.90	99.90	99.90	99.90	99.90	99.90	99.90	99.89	99.89	99.88	99.87	99.86	99.85
78	99.91	99.91	99.90	99.90	99.90	99.91	99.91	99.91	99.90	99.90	99.89	99.88	99.88	99.87	99.85
79	99.92	99.91	99.91	99.91	99.91	99.91	99.91	99.91	99.91	99.91	99.90	99.89	99.88	99.87	99.86
80	99.92	99.91	99.91	99.91	99.91	99.91	99.92	99.92	99.91	99.91	99.90	99.90	99.89	99.88	99.87
81	99.92	99.92	99.91	99.91	99.92	99.92	99.92	99.92	99.92	99.92	99.91	99.90	99.90	99.89	99.88
82	99.93	99.92	99.92	99.92	99.92	99.92	99.92	99.92	99.92	99.92	99.92	99.91	99.90	99.89	99.89
83	99.93	99.93	99.92	99.92	99.92	99.93	99.93	99.93	99.93	99.93	99.92	99.91	99.91	99.90	99.89
84	99.93	99.93	99.93	99.93	99.93	99.93	99.93	99.93	99.93	99.93	99.93	99.92	99.91	99.91	99.90
85	99.94	99.93	99.93	99.93	99.93	99.93	99.94	99.94	99.94	99.93	99.93	99.93	99.92	99.91	99.91
86	99.94	99.94	99.93	99.93	99.93	99.94	99.94	99.94	99.94	99.94	99.94	99.93	99.92	99.92	99.91
87	99.95	99.94	99.94	99.94	99.94	99.94	99.94	99.94	99.94	99.94	99.94	99.93	99.93	99.92	99.92
88	99.95	99.94	99.94	99.94	99.94	99.94	99.95	99.95	99.95	99.95	99.94	99.94	99.93	99.93	99.92
89	99.95	99.95	99.94	99.94	99.94	99.95	99.95	99.95	99.95	99.95	99.95	99.94	99.94	99.93	99.93
90	99.95	99.95	99.95	99.95	99.95	99.95	99.95	99.95	99.95	99.95	99.95	99.95	99.94	99.94	99.93
91	99.96	99.95	99.95	99.95	99.95	99.95	99.95	99.96	99.96	99.96	99.95	99.95	99.95	99.94	99.94
92	99.96	99.96	99.95	99.95	99.95	99.95	99.96	99.96	99.96	99.96	99.96	99.95	99.95	99.95	99.94
93	99.96	99.96	99.95	99.95	99.95	99.96	99.96	99.96	99.96	99.96	99.96	99.96	99.95	99.95	99.95
94	99.97	99.96	99.96	99.96	99.96	99.96	99.96	99.96	99.96	99.96	99.96	99.96	99.96	99.95	99.95
95	99.97	99.96	99.96	99.96	99.96	99.96	99.96	99.97	99.97	99.97	99.97	99.96	99.96	99.96	99.95
96	99.97	99.97	99.96	99.96	99.96	99.96	99.97	99.97	99.97	99.97	99.97	99.97	99.96	99.96	99.96
97	99.97	99.97	99.97	99.96	99.96	99.97	99.97	99.97	99.97	99.97	99.97	99.97	99.97	99.96	99.96
98	99.98	99.97	99.97	99.97	99.97	99.97	99.97	99.97	99.97	99.97	99.97	99.97	99.97	99.97	99.96
99	99.98	99.97	99.97	99.97	99.97	99.97	99.97	99.97	99.98	99.98	99.98	99.97	99.97	99.97	99.97
100	99.98	99.98	99.97	99.97	99.97	99.97	99.97	99.98	99.98	99.98	99.98	99.98	99.97	99.97	99.97

# TEACHER RETIREMENT SYSTEM OF TEXAS

## OPTION 1 FACTORS JOINT AND 100% BENEFICIARY WITH POP-UP FEATURE

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional benefit. Each percentage is based on age as of last birthday of member and beneficiary.  
Benefit reverts to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement														
	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
1	97.52	97.33	97.12	96.90	96.67	96.41	96.15	95.86	95.55	95.22	94.87	94.50	94.10	93.67	93.22
2	97.54	97.34	97.14	96.92	96.69	96.43	96.17	95.88	95.57	95.24	94.89	94.52	94.12	93.70	93.24
3	97.56	97.37	97.16	96.94	96.71	96.46	96.19	95.90	95.59	95.27	94.92	94.54	94.14	93.72	93.26
4	97.58	97.39	97.18	96.97	96.73	96.48	96.21	95.93	95.62	95.29	94.94	94.57	94.17	93.74	93.29
5	97.60	97.41	97.21	96.99	96.76	96.51	96.24	95.95	95.64	95.32	94.97	94.59	94.20	93.77	93.31
6	97.63	97.44	97.23	97.02	96.78	96.53	96.26	95.98	95.67	95.34	94.99	94.62	94.22	93.80	93.34
7	97.65	97.46	97.26	97.04	96.81	96.56	96.29	96.01	95.70	95.37	95.02	94.65	94.25	93.83	93.37
8	97.68	97.49	97.29	97.07	96.84	96.59	96.32	96.04	95.73	95.40	95.06	94.68	94.29	93.86	93.41
9	97.71	97.52	97.32	97.10	96.87	96.62	96.35	96.07	95.76	95.44	95.09	94.72	94.32	93.90	93.44
10	97.74	97.55	97.35	97.13	96.90	96.65	96.39	96.10	95.80	95.47	95.12	94.75	94.36	93.93	93.48
11	97.77	97.58	97.38	97.17	96.94	96.69	96.42	96.14	95.84	95.51	95.16	94.79	94.39	93.97	93.52
12	97.81	97.62	97.42	97.20	96.97	96.73	96.46	96.18	95.87	95.55	95.20	94.83	94.43	94.01	93.56
13	97.84	97.65	97.46	97.24	97.01	96.76	96.50	96.22	95.91	95.59	95.24	94.87	94.48	94.05	93.60
14	97.88	97.69	97.49	97.28	97.05	96.81	96.54	96.26	95.96	95.63	95.29	94.92	94.52	94.10	93.65
15	97.92	97.73	97.53	97.32	97.09	96.85	96.59	96.30	96.00	95.68	95.33	94.96	94.57	94.15	93.70
16	97.96	97.77	97.58	97.37	97.14	96.89	96.63	96.35	96.05	95.73	95.38	95.01	94.62	94.20	93.75
17	98.00	97.82	97.62	97.41	97.18	96.94	96.68	96.40	96.10	95.78	95.44	95.07	94.68	94.25	93.80
18	98.04	97.86	97.67	97.46	97.23	96.99	96.73	96.45	96.15	95.83	95.49	95.12	94.73	94.31	93.86
19	98.08	97.91	97.71	97.51	97.28	97.04	96.79	96.51	96.21	95.89	95.55	95.18	94.79	94.37	93.92
20	98.13	97.95	97.76	97.56	97.34	97.10	96.84	96.57	96.27	95.95	95.61	95.24	94.86	94.44	93.99
21	98.18	98.00	97.81	97.61	97.39	97.15	96.90	96.62	96.33	96.01	95.67	95.31	94.92	94.50	94.06
22	98.22	98.05	97.87	97.67	97.45	97.21	96.96	96.69	96.39	96.08	95.74	95.38	94.99	94.58	94.13
23	98.27	98.10	97.92	97.72	97.51	97.27	97.02	96.75	96.46	96.15	95.81	95.45	95.07	94.65	94.20
24	98.32	98.16	97.97	97.78	97.57	97.34	97.09	96.82	96.53	96.22	95.88	95.53	95.14	94.73	94.28
25	98.37	98.21	98.03	97.84	97.63	97.40	97.16	96.89	96.60	96.29	95.96	95.60	95.22	94.81	94.37
26	98.42	98.26	98.09	97.90	97.69	97.47	97.22	96.96	96.68	96.37	96.04	95.69	95.31	94.90	94.46
27	98.47	98.31	98.14	97.96	97.76	97.53	97.30	97.04	96.75	96.45	96.12	95.77	95.40	94.99	94.55
28	98.52	98.37	98.20	98.02	97.82	97.60	97.37	97.11	96.83	96.53	96.21	95.86	95.49	95.08	94.65
29	98.57	98.42	98.26	98.08	97.89	97.67	97.44	97.19	96.92	96.62	96.30	95.95	95.58	95.18	94.75
30	98.62	98.47	98.32	98.14	97.95	97.74	97.52	97.27	97.00	96.71	96.39	96.05	95.68	95.28	94.85
31	98.67	98.53	98.37	98.20	98.02	97.81	97.59	97.35	97.08	96.79	96.48	96.14	95.78	95.39	94.96
32	98.71	98.58	98.43	98.26	98.08	97.88	97.67	97.43	97.17	96.89	96.58	96.24	95.89	95.50	95.07
33	98.76	98.63	98.48	98.32	98.15	97.95	97.74	97.51	97.26	96.98	96.67	96.35	95.99	95.61	95.19
34	98.80	98.68	98.54	98.38	98.21	98.02	97.82	97.59	97.34	97.07	96.77	96.45	96.10	95.72	95.31
35	98.85	98.73	98.59	98.44	98.28	98.09	97.89	97.67	97.43	97.16	96.87	96.55	96.21	95.84	95.43

# TEACHER RETIREMENT SYSTEM OF TEXAS

## OPTION 1 FACTORS JOINT AND 100% BENEFICIARY WITH POP-UP FEATURE

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional benefit. Each percentage is based on age as of last birthday of member and beneficiary.  
Benefit reverts to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement														
	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
36	98.89	98.77	98.64	98.50	98.34	98.16	97.97	97.75	97.52	97.26	96.97	96.66	96.33	95.96	95.56
37	98.93	98.82	98.69	98.55	98.40	98.23	98.04	97.83	97.60	97.35	97.07	96.77	96.44	96.08	95.68
38	98.97	98.86	98.74	98.61	98.46	98.29	98.11	97.91	97.69	97.44	97.17	96.87	96.55	96.20	95.81
39	99.01	98.90	98.79	98.66	98.52	98.36	98.18	97.99	97.77	97.53	97.27	96.98	96.67	96.32	95.94
40	99.04	98.94	98.83	98.71	98.57	98.42	98.25	98.06	97.85	97.62	97.37	97.09	96.78	96.44	96.07
41	99.08	98.98	98.88	98.76	98.63	98.48	98.32	98.13	97.93	97.71	97.46	97.19	96.90	96.57	96.20
42	99.11	99.02	98.92	98.81	98.68	98.54	98.38	98.21	98.01	97.80	97.56	97.30	97.01	96.69	96.33
43	99.15	99.06	98.96	98.85	98.73	98.59	98.44	98.28	98.09	97.88	97.65	97.40	97.12	96.81	96.46
44	99.18	99.09	99.00	98.90	98.78	98.65	98.50	98.34	98.16	97.96	97.74	97.50	97.23	96.93	96.59
45	99.21	99.13	99.04	98.94	98.83	98.70	98.56	98.41	98.24	98.04	97.83	97.59	97.33	97.04	96.72
46	99.24	99.16	99.08	98.98	98.87	98.75	98.62	98.47	98.31	98.12	97.92	97.69	97.44	97.16	96.84
47	99.27	99.19	99.11	99.02	98.92	98.80	98.67	98.53	98.37	98.20	98.00	97.78	97.54	97.27	96.97
48	99.30	99.23	99.15	99.06	98.96	98.85	98.73	98.59	98.44	98.27	98.08	97.87	97.64	97.38	97.09
49	99.33	99.26	99.18	99.10	99.00	98.89	98.78	98.65	98.50	98.34	98.16	97.95	97.73	97.48	97.20
50	99.35	99.29	99.21	99.13	99.04	98.94	98.83	98.70	98.56	98.40	98.23	98.04	97.82	97.58	97.31
51	99.38	99.32	99.25	99.17	99.08	98.98	98.87	98.75	98.62	98.47	98.30	98.12	97.91	97.68	97.42
52	99.40	99.34	99.28	99.20	99.12	99.02	98.92	98.80	98.68	98.53	98.37	98.19	98.00	97.78	97.53
53	99.43	99.37	99.31	99.23	99.15	99.06	98.97	98.85	98.73	98.59	98.44	98.27	98.08	97.87	97.63
54	99.45	99.40	99.34	99.27	99.19	99.10	99.01	98.90	98.78	98.65	98.51	98.34	98.16	97.96	97.73
55	99.48	99.42	99.36	99.30	99.22	99.14	99.05	98.95	98.84	98.71	98.57	98.41	98.24	98.04	97.82
56	99.50	99.45	99.39	99.33	99.26	99.18	99.09	99.00	98.89	98.77	98.63	98.48	98.31	98.13	97.92
57	99.52	99.47	99.42	99.36	99.29	99.22	99.13	99.04	98.94	98.82	98.69	98.55	98.39	98.21	98.01
58	99.54	99.50	99.45	99.39	99.32	99.25	99.17	99.08	98.98	98.87	98.75	98.61	98.46	98.29	98.09
59	99.56	99.52	99.47	99.42	99.36	99.29	99.21	99.12	99.03	98.92	98.80	98.67	98.53	98.36	98.18
60	99.59	99.54	99.50	99.44	99.39	99.32	99.25	99.17	99.07	98.97	98.86	98.73	98.59	98.43	98.26
61	99.61	99.57	99.52	99.47	99.42	99.35	99.28	99.21	99.12	99.02	98.91	98.79	98.66	98.51	98.34
62	99.62	99.59	99.55	99.50	99.44	99.39	99.32	99.24	99.16	99.07	98.96	98.85	98.72	98.58	98.41
63	99.64	99.61	99.57	99.52	99.47	99.42	99.35	99.28	99.20	99.11	99.02	98.90	98.78	98.64	98.49
64	99.66	99.63	99.59	99.55	99.50	99.45	99.39	99.32	99.25	99.16	99.06	98.96	98.84	98.71	98.56
65	99.68	99.65	99.61	99.57	99.53	99.48	99.42	99.36	99.28	99.20	99.11	99.01	98.90	98.77	98.63
66	99.69	99.66	99.63	99.59	99.55	99.50	99.45	99.39	99.32	99.25	99.16	99.06	98.96	98.84	98.70
67	99.71	99.68	99.65	99.62	99.58	99.53	99.48	99.42	99.36	99.29	99.21	99.11	99.01	98.90	98.77
68	99.72	99.70	99.67	99.64	99.60	99.56	99.51	99.46	99.40	99.33	99.25	99.16	99.07	98.96	98.83
69	99.74	99.71	99.69	99.66	99.62	99.58	99.54	99.49	99.43	99.37	99.29	99.21	99.12	99.02	98.90
70	99.75	99.73	99.71	99.68	99.64	99.61	99.57	99.52	99.47	99.41	99.34	99.26	99.17	99.07	98.96



# TEACHER RETIREMENT SYSTEM OF TEXAS

## OPTION 1 FACTORS JOINT AND 100% BENEFICIARY WITH POP-UP FEATURE

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional benefit. Each percentage is based on age as of last birthday of member and beneficiary.  
Benefit reverts to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement														
	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
71	99.77	99.74	99.72	99.69	99.67	99.63	99.59	99.55	99.50	99.44	99.38	99.30	99.22	99.13	99.02
72	99.78	99.76	99.74	99.71	99.68	99.65	99.62	99.58	99.53	99.48	99.42	99.35	99.27	99.18	99.08
73	99.79	99.77	99.75	99.73	99.70	99.67	99.64	99.60	99.56	99.51	99.45	99.39	99.32	99.23	99.14
74	99.80	99.78	99.77	99.74	99.72	99.69	99.66	99.63	99.59	99.54	99.49	99.43	99.36	99.28	99.19
75	99.81	99.80	99.78	99.76	99.74	99.71	99.68	99.65	99.61	99.57	99.52	99.47	99.40	99.33	99.24
76	99.82	99.81	99.79	99.77	99.75	99.73	99.70	99.67	99.64	99.60	99.55	99.50	99.44	99.38	99.29
77	99.83	99.82	99.80	99.79	99.77	99.75	99.72	99.69	99.66	99.63	99.58	99.54	99.48	99.42	99.34
78	99.84	99.83	99.82	99.80	99.78	99.76	99.74	99.71	99.69	99.65	99.61	99.57	99.52	99.46	99.39
79	99.85	99.84	99.83	99.81	99.80	99.78	99.76	99.73	99.71	99.68	99.64	99.60	99.55	99.50	99.43
80	99.86	99.85	99.84	99.82	99.81	99.79	99.77	99.75	99.73	99.70	99.66	99.63	99.59	99.54	99.47
81	99.87	99.86	99.85	99.83	99.82	99.80	99.79	99.77	99.74	99.72	99.69	99.65	99.62	99.57	99.51
82	99.88	99.87	99.86	99.84	99.83	99.82	99.80	99.78	99.76	99.74	99.71	99.68	99.64	99.60	99.55
83	99.88	99.87	99.87	99.85	99.84	99.83	99.81	99.80	99.78	99.76	99.73	99.70	99.67	99.63	99.58
84	99.89	99.88	99.87	99.86	99.85	99.84	99.83	99.81	99.79	99.77	99.75	99.72	99.70	99.66	99.62
85	99.90	99.89	99.88	99.87	99.86	99.85	99.84	99.82	99.81	99.79	99.77	99.74	99.72	99.69	99.65
86	99.91	99.90	99.89	99.88	99.87	99.86	99.85	99.84	99.82	99.80	99.78	99.76	99.74	99.71	99.68
87	99.91	99.90	99.90	99.89	99.88	99.87	99.86	99.85	99.83	99.82	99.80	99.78	99.76	99.73	99.70
88	99.92	99.91	99.90	99.90	99.89	99.88	99.87	99.86	99.85	99.83	99.81	99.80	99.78	99.75	99.72
89	99.92	99.92	99.91	99.90	99.90	99.89	99.88	99.87	99.86	99.84	99.83	99.81	99.79	99.77	99.75
90	99.93	99.92	99.92	99.91	99.90	99.89	99.89	99.88	99.87	99.85	99.84	99.82	99.81	99.79	99.77
91	99.93	99.93	99.92	99.92	99.91	99.90	99.89	99.88	99.87	99.86	99.85	99.84	99.82	99.81	99.78
92	99.94	99.93	99.93	99.92	99.92	99.91	99.90	99.89	99.88	99.87	99.86	99.85	99.84	99.82	99.80
93	99.94	99.94	99.93	99.93	99.92	99.91	99.91	99.90	99.89	99.88	99.87	99.86	99.85	99.83	99.82
94	99.95	99.94	99.94	99.93	99.93	99.92	99.91	99.91	99.90	99.89	99.88	99.87	99.86	99.85	99.83
95	99.95	99.95	99.94	99.94	99.93	99.93	99.92	99.91	99.91	99.90	99.89	99.88	99.87	99.86	99.84
96	99.95	99.95	99.95	99.94	99.94	99.93	99.93	99.92	99.91	99.91	99.90	99.89	99.88	99.87	99.86
97	99.96	99.95	99.95	99.95	99.94	99.94	99.93	99.93	99.92	99.91	99.91	99.90	99.89	99.88	99.87
98	99.96	99.96	99.95	99.95	99.95	99.94	99.94	99.93	99.93	99.92	99.91	99.91	99.90	99.89	99.88
99	99.96	99.96	99.96	99.95	99.95	99.95	99.94	99.94	99.93	99.93	99.92	99.91	99.91	99.90	99.89
100	99.97	99.96	99.96	99.96	99.95	99.95	99.95	99.94	99.94	99.93	99.93	99.92	99.92	99.91	99.90

# TEACHER RETIREMENT SYSTEM OF TEXAS

## OPTION 1 FACTORS JOINT AND 100% BENEFICIARY WITH POP-UP FEATURE

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional benefit. Each percentage is based on age as of last birthday of member and beneficiary.  
Benefit reverts to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement														
	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59
1	92.73	92.21	91.66	91.07	90.45	89.80	89.10	88.38	87.62	86.83	86.02	85.19	84.34	83.45	82.51
2	92.75	92.23	91.68	91.10	90.48	89.82	89.12	88.40	87.64	86.85	86.05	85.22	84.36	83.47	82.53
3	92.77	92.26	91.70	91.12	90.50	89.84	89.15	88.42	87.66	86.88	86.07	85.24	84.38	83.49	82.56
4	92.80	92.28	91.73	91.14	90.52	89.87	89.17	88.45	87.69	86.90	86.09	85.26	84.41	83.51	82.58
5	92.83	92.31	91.76	91.17	90.55	89.89	89.20	88.47	87.71	86.93	86.12	85.29	84.43	83.54	82.61
6	92.86	92.34	91.79	91.20	90.58	89.92	89.23	88.50	87.74	86.96	86.15	85.32	84.46	83.57	82.63
7	92.89	92.37	91.82	91.23	90.61	89.95	89.26	88.53	87.77	86.99	86.18	85.35	84.49	83.60	82.66
8	92.92	92.40	91.85	91.26	90.64	89.99	89.29	88.57	87.81	87.02	86.21	85.38	84.52	83.63	82.70
9	92.95	92.44	91.88	91.30	90.68	90.02	89.33	88.60	87.84	87.06	86.25	85.42	84.56	83.67	82.73
10	92.99	92.47	91.92	91.34	90.72	90.06	89.37	88.64	87.88	87.09	86.29	85.45	84.60	83.70	82.77
11	93.03	92.51	91.96	91.38	90.76	90.10	89.41	88.68	87.92	87.13	86.33	85.49	84.63	83.74	82.81
12	93.07	92.55	92.00	91.42	90.80	90.14	89.45	88.72	87.96	87.18	86.37	85.54	84.68	83.78	82.85
13	93.11	92.60	92.05	91.46	90.84	90.19	89.49	88.77	88.01	87.22	86.41	85.58	84.72	83.83	82.89
14	93.16	92.64	92.09	91.51	90.89	90.24	89.54	88.82	88.06	87.27	86.46	85.63	84.77	83.88	82.94
15	93.21	92.69	92.15	91.56	90.94	90.29	89.59	88.87	88.11	87.32	86.51	85.68	84.82	83.93	82.99
16	93.26	92.75	92.20	91.62	91.00	90.34	89.65	88.92	88.16	87.38	86.57	85.74	84.88	83.98	83.05
17	93.32	92.80	92.26	91.67	91.05	90.40	89.71	88.98	88.22	87.44	86.63	85.79	84.93	84.04	83.10
18	93.38	92.86	92.32	91.73	91.12	90.46	89.77	89.04	88.28	87.50	86.69	85.86	85.00	84.10	83.17
19	93.44	92.93	92.38	91.80	91.18	90.53	89.83	89.11	88.35	87.56	86.76	85.92	85.06	84.17	83.23
20	93.51	92.99	92.45	91.87	91.25	90.59	89.90	89.18	88.42	87.63	86.83	85.99	85.13	84.24	83.30
21	93.58	93.06	92.52	91.94	91.32	90.67	89.98	89.25	88.49	87.71	86.90	86.07	85.21	84.32	83.38
22	93.65	93.14	92.59	92.01	91.40	90.75	90.06	89.33	88.57	87.79	86.98	86.15	85.29	84.40	83.46
23	93.73	93.22	92.67	92.09	91.48	90.83	90.14	89.41	88.66	87.87	87.07	86.24	85.38	84.48	83.55
24	93.81	93.30	92.76	92.18	91.57	90.92	90.23	89.50	88.75	87.96	87.16	86.33	85.47	84.57	83.64
25	93.89	93.39	92.85	92.27	91.66	91.01	90.32	89.60	88.84	88.06	87.25	86.42	85.56	84.67	83.73
26	93.98	93.48	92.94	92.36	91.75	91.10	90.42	89.70	88.94	88.16	87.35	86.52	85.67	84.77	83.84
27	94.08	93.57	93.04	92.46	91.85	91.21	90.52	89.80	89.05	88.27	87.46	86.63	85.78	84.88	83.95
28	94.18	93.68	93.14	92.57	91.96	91.32	90.63	89.91	89.16	88.38	87.58	86.75	85.89	85.00	84.06
29	94.28	93.78	93.25	92.68	92.07	91.43	90.75	90.03	89.28	88.50	87.70	86.87	86.01	85.12	84.19
30	94.39	93.89	93.36	92.79	92.19	91.55	90.87	90.15	89.40	88.62	87.82	87.00	86.14	85.25	84.32
31	94.50	94.01	93.48	92.91	92.31	91.67	91.00	90.28	89.53	88.76	87.96	87.13	86.28	85.39	84.45
32	94.62	94.13	93.60	93.04	92.44	91.81	91.13	90.42	89.67	88.90	88.10	87.27	86.42	85.53	84.60
33	94.74	94.25	93.73	93.17	92.58	91.94	91.27	90.56	89.82	89.04	88.25	87.42	86.57	85.69	84.76
34	94.86	94.38	93.86	93.31	92.72	92.09	91.42	90.71	89.97	89.20	88.40	87.58	86.73	85.85	84.92
35	94.99	94.51	94.00	93.45	92.86	92.24	91.57	90.87	90.13	89.36	88.57	87.75	86.90	86.02	85.09

# TEACHER RETIREMENT SYSTEM OF TEXAS

## OPTION 1 FACTORS JOINT AND 100% BENEFICIARY WITH POP-UP FEATURE

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional benefit. Each percentage is based on age as of last birthday of member and beneficiary.  
Benefit reverts to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement														
	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59
36	95.12	94.65	94.14	93.60	93.01	92.39	91.73	91.03	90.29	89.53	88.74	87.93	87.08	86.20	85.27
37	95.25	94.79	94.29	93.75	93.17	92.55	91.90	91.20	90.47	89.71	88.92	88.11	87.27	86.39	85.46
38	95.39	94.93	94.44	93.90	93.33	92.72	92.07	91.38	90.65	89.89	89.11	88.30	87.46	86.59	85.66
39	95.53	95.08	94.59	94.06	93.50	92.89	92.25	91.56	90.84	90.09	89.31	88.50	87.67	86.80	85.88
40	95.67	95.22	94.74	94.23	93.67	93.07	92.43	91.75	91.04	90.29	89.52	88.72	87.88	87.01	86.10
41	95.81	95.37	94.90	94.39	93.84	93.25	92.62	91.95	91.24	90.50	89.73	88.94	88.11	87.24	86.33
42	95.95	95.52	95.06	94.56	94.02	93.44	92.81	92.15	91.45	90.71	89.95	89.16	88.34	87.48	86.57
43	96.09	95.67	95.22	94.73	94.20	93.63	93.01	92.36	91.66	90.94	90.18	89.40	88.59	87.73	86.83
44	96.23	95.82	95.38	94.90	94.38	93.82	93.21	92.57	91.88	91.17	90.42	89.65	88.84	87.99	87.09
45	96.36	95.97	95.54	95.07	94.57	94.01	93.42	92.78	92.11	91.40	90.67	89.90	89.10	88.26	87.37
46	96.50	96.12	95.70	95.25	94.75	94.21	93.63	93.00	92.34	91.64	90.92	90.16	89.37	88.54	87.65
47	96.63	96.26	95.86	95.42	94.93	94.40	93.83	93.22	92.57	91.89	91.17	90.43	89.65	88.82	87.95
48	96.76	96.41	96.01	95.58	95.11	94.60	94.04	93.45	92.81	92.14	91.43	90.70	89.93	89.12	88.26
49	96.89	96.55	96.17	95.75	95.29	94.79	94.25	93.67	93.04	92.39	91.70	90.98	90.22	89.42	88.57
50	97.01	96.68	96.32	95.91	95.47	94.99	94.46	93.89	93.28	92.64	91.97	91.26	90.52	89.73	88.89
51	97.13	96.81	96.46	96.07	95.64	95.17	94.66	94.11	93.52	92.89	92.24	91.55	90.82	90.05	89.22
52	97.25	96.94	96.60	96.23	95.81	95.36	94.86	94.33	93.75	93.15	92.51	91.83	91.12	90.37	89.56
53	97.36	97.07	96.74	96.38	95.98	95.54	95.06	94.54	93.99	93.40	92.77	92.12	91.43	90.69	89.90
54	97.47	97.19	96.87	96.53	96.14	95.72	95.26	94.76	94.22	93.65	93.04	92.41	91.74	91.02	90.24
55	97.58	97.31	97.00	96.67	96.30	95.89	95.45	94.96	94.44	93.89	93.31	92.69	92.04	91.35	90.59
56	97.68	97.42	97.13	96.81	96.45	96.06	95.63	95.17	94.67	94.13	93.57	92.98	92.35	91.67	90.94
57	97.78	97.53	97.25	96.94	96.60	96.23	95.81	95.36	94.88	94.37	93.83	93.26	92.65	92.00	91.29
58	97.87	97.63	97.37	97.07	96.74	96.38	95.99	95.56	95.09	94.60	94.08	93.53	92.95	92.32	91.64
59	97.97	97.74	97.48	97.20	96.88	96.54	96.16	95.74	95.30	94.83	94.33	93.80	93.24	92.64	91.98
60	98.06	97.84	97.59	97.32	97.02	96.68	96.32	95.92	95.50	95.05	94.57	94.07	93.53	92.96	92.32
61	98.14	97.93	97.70	97.43	97.15	96.83	96.48	96.10	95.69	95.26	94.80	94.32	93.81	93.26	92.66
62	98.23	98.02	97.80	97.55	97.27	96.97	96.63	96.27	95.88	95.46	95.03	94.57	94.09	93.57	92.99
63	98.31	98.11	97.90	97.66	97.39	97.10	96.78	96.43	96.06	95.66	95.25	94.82	94.36	93.86	93.31
64	98.39	98.20	97.99	97.76	97.51	97.23	96.92	96.59	96.23	95.86	95.46	95.05	94.62	94.15	93.63
65	98.47	98.29	98.09	97.87	97.62	97.36	97.06	96.74	96.40	96.04	95.67	95.28	94.87	94.42	93.93
66	98.54	98.37	98.18	97.97	97.73	97.48	97.19	96.89	96.56	96.22	95.87	95.50	95.11	94.69	94.23
67	98.62	98.45	98.27	98.07	97.84	97.59	97.32	97.03	96.72	96.40	96.06	95.71	95.34	94.95	94.52
68	98.69	98.53	98.36	98.16	97.95	97.71	97.45	97.17	96.87	96.56	96.24	95.91	95.57	95.20	94.79
69	98.76	98.61	98.44	98.25	98.05	97.82	97.57	97.30	97.02	96.72	96.42	96.11	95.79	95.44	95.06
70	98.83	98.68	98.52	98.34	98.15	97.93	97.69	97.43	97.16	96.88	96.59	96.30	96.00	95.67	95.31

# TEACHER RETIREMENT SYSTEM OF TEXAS

## OPTION 1 FACTORS JOINT AND 100% BENEFICIARY WITH POP-UP FEATURE

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional benefit. Each percentage is based on age as of last birthday of member and beneficiary.  
Benefit reverts to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement														
	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59
71	98.90	98.76	98.60	98.43	98.24	98.03	97.80	97.56	97.30	97.03	96.76	96.48	96.20	95.89	95.56
72	98.96	98.83	98.68	98.52	98.34	98.14	97.92	97.68	97.43	97.18	96.92	96.66	96.39	96.10	95.80
73	99.02	98.90	98.76	98.60	98.43	98.23	98.02	97.80	97.56	97.32	97.07	96.82	96.57	96.31	96.02
74	99.08	98.97	98.83	98.68	98.52	98.33	98.13	97.91	97.68	97.45	97.22	96.98	96.75	96.50	96.24
75	99.14	99.03	98.90	98.76	98.60	98.42	98.23	98.02	97.80	97.58	97.36	97.14	96.92	96.69	96.44
76	99.20	99.09	98.97	98.84	98.68	98.52	98.33	98.13	97.92	97.71	97.50	97.29	97.08	96.87	96.64
77	99.25	99.15	99.04	98.91	98.76	98.60	98.43	98.23	98.03	97.83	97.63	97.43	97.24	97.04	96.83
78	99.31	99.21	99.10	98.98	98.84	98.69	98.52	98.34	98.14	97.95	97.76	97.57	97.39	97.21	97.01
79	99.36	99.27	99.16	99.05	98.92	98.77	98.61	98.43	98.25	98.06	97.88	97.70	97.53	97.36	97.18
80	99.40	99.32	99.22	99.11	98.99	98.85	98.69	98.53	98.35	98.17	98.00	97.83	97.67	97.51	97.34
81	99.45	99.37	99.28	99.18	99.06	98.93	98.78	98.62	98.45	98.28	98.11	97.96	97.81	97.66	97.50
82	99.49	99.42	99.33	99.24	99.13	99.00	98.86	98.70	98.54	98.38	98.22	98.07	97.93	97.79	97.65
83	99.53	99.46	99.38	99.29	99.19	99.07	98.94	98.79	98.63	98.48	98.33	98.19	98.05	97.93	97.79
84	99.56	99.50	99.43	99.35	99.25	99.14	99.01	98.87	98.72	98.57	98.43	98.30	98.17	98.05	97.93
85	99.60	99.54	99.47	99.40	99.31	99.20	99.08	98.95	98.81	98.66	98.53	98.40	98.28	98.17	98.06
86	99.63	99.58	99.52	99.44	99.36	99.26	99.15	99.02	98.89	98.75	98.62	98.50	98.39	98.28	98.18
87	99.66	99.61	99.55	99.49	99.41	99.32	99.21	99.09	98.96	98.83	98.71	98.59	98.49	98.39	98.29
88	99.69	99.64	99.59	99.53	99.46	99.37	99.27	99.15	99.03	98.91	98.79	98.68	98.59	98.49	98.40
89	99.71	99.67	99.62	99.57	99.50	99.42	99.32	99.22	99.10	98.98	98.87	98.77	98.67	98.59	98.50
90	99.73	99.70	99.65	99.60	99.54	99.46	99.37	99.27	99.16	99.05	98.94	98.85	98.76	98.68	98.60
91	99.76	99.72	99.68	99.63	99.57	99.50	99.42	99.32	99.22	99.11	99.01	98.92	98.84	98.76	98.69
92	99.77	99.74	99.71	99.66	99.61	99.54	99.46	99.37	99.28	99.17	99.08	98.99	98.91	98.84	98.77
93	99.79	99.76	99.73	99.69	99.64	99.58	99.51	99.42	99.33	99.23	99.14	99.06	98.98	98.92	98.85
94	99.81	99.78	99.75	99.72	99.67	99.61	99.55	99.47	99.38	99.29	99.20	99.12	99.05	98.99	98.93
95	99.82	99.80	99.77	99.74	99.70	99.65	99.59	99.51	99.43	99.34	99.26	99.18	99.12	99.06	99.01
96	99.84	99.82	99.79	99.76	99.73	99.68	99.62	99.55	99.48	99.39	99.32	99.24	99.18	99.13	99.08
97	99.85	99.83	99.81	99.78	99.75	99.71	99.66	99.59	99.52	99.44	99.37	99.30	99.25	99.20	99.15
98	99.87	99.85	99.83	99.80	99.77	99.73	99.69	99.63	99.56	99.49	99.42	99.36	99.30	99.26	99.22
99	99.88	99.86	99.84	99.82	99.79	99.76	99.72	99.66	99.60	99.53	99.47	99.41	99.36	99.32	99.28
100	99.89	99.87	99.86	99.84	99.81	99.78	99.74	99.69	99.63	99.57	99.51	99.46	99.41	99.37	99.33

# TEACHER RETIREMENT SYSTEM OF TEXAS

## OPTION 1 FACTORS JOINT AND 100% BENEFICIARY WITH POP-UP FEATURE

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional benefit. Each percentage is based on age as of last birthday of member and beneficiary. Benefit reverts to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement														
	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74
1	81.53	80.48	79.38	78.21	76.97	75.66	74.27	72.82	71.28	69.67	67.99	66.24	64.42	62.53	60.57
2	81.55	80.51	79.40	78.23	76.99	75.68	74.29	72.83	71.30	69.69	68.01	66.26	64.44	62.55	60.58
3	81.57	80.53	79.42	78.25	77.01	75.70	74.31	72.86	71.32	69.71	68.03	66.28	64.46	62.56	60.60
4	81.59	80.55	79.45	78.27	77.03	75.72	74.34	72.88	71.34	69.74	68.05	66.30	64.48	62.58	60.62
5	81.62	80.58	79.47	78.30	77.06	75.75	74.36	72.90	71.37	69.76	68.08	66.32	64.50	62.61	60.64
6	81.65	80.61	79.50	78.33	77.09	75.77	74.39	72.93	71.39	69.78	68.10	66.35	64.52	62.63	60.66
7	81.68	80.63	79.53	78.36	77.11	75.80	74.42	72.96	71.42	69.81	68.13	66.37	64.55	62.65	60.69
8	81.71	80.67	79.56	78.39	77.14	75.83	74.45	72.98	71.45	69.84	68.16	66.40	64.57	62.68	60.71
9	81.74	80.70	79.59	78.42	77.18	75.86	74.48	73.02	71.48	69.87	68.18	66.43	64.60	62.71	60.74
10	81.78	80.74	79.63	78.46	77.21	75.90	74.51	73.05	71.51	69.90	68.22	66.46	64.63	62.74	60.77
11	81.82	80.77	79.67	78.49	77.25	75.94	74.55	73.09	71.55	69.94	68.25	66.49	64.66	62.77	60.80
12	81.86	80.82	79.71	78.53	77.29	75.98	74.59	73.12	71.59	69.97	68.29	66.53	64.70	62.80	60.83
13	81.91	80.86	79.75	78.58	77.33	76.02	74.63	73.16	71.63	70.01	68.33	66.57	64.74	62.84	60.87
14	81.95	80.91	79.80	78.62	77.38	76.06	74.67	73.21	71.67	70.05	68.37	66.61	64.78	62.87	60.90
15	82.00	80.96	79.85	78.67	77.43	76.11	74.72	73.26	71.71	70.10	68.41	66.65	64.82	62.92	60.94
16	82.06	81.01	79.90	78.73	77.48	76.16	74.77	73.31	71.76	70.15	68.46	66.70	64.86	62.96	60.98
17	82.12	81.07	79.96	78.78	77.53	76.22	74.83	73.36	71.82	70.20	68.51	66.75	64.91	63.01	61.03
18	82.18	81.13	80.02	78.84	77.59	76.28	74.88	73.42	71.87	70.25	68.56	66.80	64.96	63.06	61.08
19	82.24	81.20	80.08	78.91	77.66	76.34	74.95	73.48	71.93	70.31	68.62	66.86	65.02	63.11	61.13
20	82.31	81.27	80.15	78.98	77.73	76.41	75.01	73.54	72.00	70.38	68.68	66.92	65.08	63.17	61.19
21	82.39	81.34	80.23	79.05	77.80	76.48	75.09	73.62	72.07	70.45	68.75	66.98	65.14	63.23	61.25
22	82.47	81.42	80.31	79.13	77.88	76.56	75.16	73.69	72.14	70.52	68.82	67.05	65.21	63.30	61.31
23	82.56	81.51	80.39	79.21	77.96	76.64	75.25	73.77	72.22	70.60	68.90	67.13	65.29	63.37	61.39
24	82.65	81.60	80.49	79.31	78.05	76.73	75.33	73.86	72.31	70.68	68.98	67.21	65.37	63.45	61.46
25	82.74	81.70	80.58	79.40	78.15	76.83	75.43	73.95	72.40	70.77	69.07	67.30	65.45	63.53	61.54
26	82.85	81.80	80.69	79.50	78.25	76.93	75.53	74.05	72.50	70.87	69.17	67.39	65.54	63.62	61.63
27	82.96	81.91	80.80	79.61	78.36	77.04	75.64	74.16	72.61	70.97	69.27	67.49	65.64	63.72	61.72
28	83.07	82.03	80.91	79.73	78.48	77.15	75.75	74.27	72.72	71.08	69.38	67.60	65.74	63.82	61.82
29	83.20	82.15	81.04	79.85	78.60	77.27	75.87	74.39	72.84	71.20	69.49	67.71	65.86	63.93	61.93
30	83.33	82.28	81.17	79.98	78.73	77.40	76.00	74.52	72.96	71.33	69.62	67.83	65.98	64.04	62.04
31	83.47	82.42	81.31	80.12	78.87	77.54	76.14	74.66	73.10	71.46	69.75	67.96	66.10	64.17	62.16
32	83.61	82.57	81.45	80.27	79.02	77.69	76.29	74.80	73.24	71.60	69.89	68.10	66.24	64.30	62.29
33	83.77	82.72	81.61	80.43	79.17	77.85	76.44	74.96	73.40	71.76	70.04	68.25	66.38	64.44	62.43
34	83.93	82.89	81.78	80.59	79.34	78.01	76.61	75.12	73.56	71.92	70.20	68.41	66.54	64.60	62.58
35	84.11	83.06	81.95	80.77	79.52	78.19	76.78	75.30	73.73	72.09	70.37	68.57	66.70	64.76	62.74

# TEACHER RETIREMENT SYSTEM OF TEXAS

## OPTION 1 FACTORS JOINT AND 100% BENEFICIARY WITH POP-UP FEATURE

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional benefit. Each percentage is based on age as of last birthday of member and beneficiary. Benefit reverts to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement														
	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74
36	84.29	83.25	82.14	80.96	79.70	78.37	76.97	75.48	73.92	72.27	70.55	68.75	66.88	64.93	62.91
37	84.48	83.44	82.33	81.15	79.90	78.57	77.16	75.68	74.11	72.46	70.74	68.94	67.06	65.11	63.09
38	84.69	83.65	82.54	81.36	80.11	78.78	77.37	75.88	74.32	72.67	70.94	69.14	67.26	65.31	63.28
39	84.90	83.86	82.76	81.58	80.33	79.00	77.59	76.10	74.53	72.88	71.16	69.35	67.47	65.51	63.48
40	85.12	84.09	82.98	81.81	80.56	79.23	77.82	76.33	74.77	73.11	71.39	69.58	67.69	65.73	63.69
41	85.36	84.33	83.23	82.05	80.80	79.47	78.07	76.58	75.01	73.36	71.63	69.82	67.93	65.96	63.92
42	85.61	84.58	83.48	82.31	81.06	79.73	78.33	76.84	75.27	73.61	71.88	70.07	68.18	66.21	64.16
43	85.87	84.84	83.74	82.57	81.33	80.00	78.60	77.11	75.54	73.89	72.15	70.34	68.44	66.47	64.42
44	86.14	85.12	84.02	82.86	81.61	80.29	78.89	77.40	75.83	74.17	72.44	70.62	68.72	66.75	64.69
45	86.42	85.40	84.31	83.15	81.91	80.59	79.19	77.70	76.13	74.48	72.74	70.92	69.02	67.04	64.98
46	86.71	85.70	84.62	83.46	82.22	80.91	79.51	78.02	76.45	74.79	73.06	71.23	69.33	67.35	65.29
47	87.02	86.01	84.94	83.78	82.55	81.24	79.84	78.36	76.79	75.13	73.39	71.57	69.66	67.68	65.61
48	87.33	86.34	85.27	84.12	82.89	81.59	80.19	78.71	77.14	75.48	73.74	71.92	70.01	68.02	65.95
49	87.66	86.67	85.61	84.47	83.25	81.95	80.56	79.08	77.51	75.85	74.11	72.29	70.38	68.38	66.31
50	87.99	87.02	85.97	84.84	83.62	82.33	80.94	79.46	77.90	76.25	74.50	72.68	70.76	68.77	66.69
51	88.33	87.37	86.33	85.21	84.01	82.72	81.34	79.87	78.31	76.66	74.91	73.09	71.17	69.17	67.09
52	88.68	87.74	86.71	85.60	84.41	83.13	81.76	80.29	78.73	77.08	75.35	73.52	71.60	69.60	67.51
53	89.04	88.11	87.10	86.00	84.82	83.55	82.19	80.73	79.18	77.53	75.80	73.97	72.05	70.05	67.95
54	89.40	88.49	87.50	86.42	85.25	83.99	82.64	81.19	79.64	78.00	76.27	74.44	72.53	70.52	68.42
55	89.77	88.88	87.90	86.84	85.69	84.44	83.10	81.66	80.13	78.49	76.77	74.94	73.03	71.02	68.91
56	90.14	89.27	88.31	87.27	86.14	84.91	83.58	82.16	80.63	79.01	77.28	75.46	73.55	71.54	69.43
57	90.52	89.67	88.73	87.71	86.60	85.39	84.08	82.67	81.15	79.54	77.82	76.01	74.10	72.09	69.98
58	90.89	90.06	89.15	88.15	87.06	85.87	84.58	83.19	81.69	80.09	78.39	76.58	74.67	72.67	70.56
59	91.26	90.46	89.58	88.60	87.54	86.37	85.10	83.73	82.25	80.66	78.97	77.17	75.27	73.27	71.16
60	91.63	90.86	90.00	89.06	88.02	86.88	85.63	84.28	82.82	81.25	79.58	77.79	75.90	73.90	71.80
61	91.99	91.25	90.43	89.51	88.50	87.39	86.17	84.85	83.41	81.86	80.20	78.43	76.55	74.57	72.47
62	92.35	91.64	90.85	89.96	88.98	87.90	86.72	85.42	84.01	82.48	80.85	79.09	77.23	75.25	73.16
63	92.71	92.03	91.26	90.41	89.47	88.42	87.26	86.00	84.62	83.12	81.51	79.78	77.93	75.97	73.89
64	93.05	92.40	91.67	90.86	89.95	88.93	87.81	86.58	85.23	83.77	82.18	80.48	78.66	76.71	74.65
65	93.39	92.77	92.08	91.30	90.42	89.45	88.37	87.17	85.86	84.42	82.87	81.20	79.40	77.48	75.43
66	93.71	93.13	92.47	91.73	90.89	89.96	88.91	87.76	86.48	85.09	83.57	81.93	80.16	78.27	76.24
67	94.03	93.48	92.86	92.15	91.35	90.46	89.45	88.34	87.11	85.75	84.28	82.67	80.94	79.07	77.07
68	94.34	93.82	93.23	92.56	91.80	90.95	89.99	88.92	87.73	86.42	84.98	83.42	81.72	79.89	77.93
69	94.63	94.14	93.59	92.96	92.24	91.43	90.51	89.49	88.35	87.08	85.69	84.17	82.52	80.73	78.80
70	94.91	94.46	93.94	93.34	92.67	91.90	91.03	90.05	88.95	87.74	86.40	84.93	83.32	81.57	79.68

# TEACHER RETIREMENT SYSTEM OF TEXAS

## OPTION 1 FACTORS JOINT AND 100% BENEFICIARY WITH POP-UP FEATURE

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional benefit. Each percentage is based on age as of last birthday of member and beneficiary.  
Benefit reverts to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement														
	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74
71	95.19	94.76	94.27	93.72	93.08	92.35	91.53	90.60	89.55	88.39	87.10	85.68	84.12	82.42	80.57
72	95.45	95.05	94.60	94.07	93.47	92.79	92.01	91.13	90.13	89.02	87.78	86.42	84.91	83.27	81.47
73	95.70	95.33	94.90	94.42	93.85	93.21	92.48	91.64	90.70	89.64	88.46	87.15	85.70	84.11	82.37
74	95.94	95.59	95.20	94.74	94.22	93.62	92.93	92.14	91.25	90.24	89.12	87.87	86.48	84.95	83.26
75	96.17	95.85	95.48	95.06	94.57	94.01	93.36	92.62	91.78	90.83	89.76	88.57	87.24	85.77	84.14
76	96.38	96.09	95.75	95.36	94.90	94.38	93.77	93.08	92.29	91.39	90.38	89.25	87.98	86.58	85.02
77	96.59	96.32	96.00	95.64	95.22	94.73	94.17	93.52	92.78	91.93	90.98	89.91	88.71	87.37	85.87
78	96.79	96.54	96.25	95.91	95.52	95.07	94.54	93.94	93.24	92.45	91.56	90.55	89.41	88.13	86.71
79	96.98	96.75	96.48	96.17	95.80	95.38	94.90	94.34	93.69	92.95	92.11	91.16	90.08	88.88	87.52
80	97.16	96.94	96.70	96.41	96.07	95.69	95.24	94.71	94.11	93.42	92.63	91.74	90.73	89.59	88.31
81	97.33	97.13	96.90	96.64	96.33	95.97	95.55	95.07	94.51	93.87	93.13	92.30	91.35	90.28	89.06
82	97.49	97.31	97.10	96.86	96.57	96.24	95.86	95.41	94.89	94.29	93.61	92.83	91.94	90.93	89.79
83	97.65	97.48	97.29	97.06	96.80	96.50	96.14	95.73	95.25	94.69	94.06	93.33	92.50	91.56	90.49
84	97.79	97.64	97.47	97.26	97.02	96.74	96.41	96.03	95.58	95.07	94.48	93.80	93.03	92.15	91.15
85	97.93	97.79	97.63	97.44	97.22	96.96	96.66	96.31	95.90	95.42	94.88	94.25	93.54	92.72	91.78
86	98.07	97.94	97.79	97.62	97.41	97.18	96.90	96.57	96.19	95.75	95.25	94.67	94.01	93.24	92.37
87	98.19	98.07	97.94	97.78	97.59	97.37	97.12	96.82	96.47	96.06	95.60	95.06	94.45	93.74	92.92
88	98.31	98.20	98.07	97.93	97.76	97.56	97.32	97.05	96.72	96.35	95.92	95.42	94.85	94.20	93.44
89	98.42	98.32	98.20	98.07	97.91	97.73	97.51	97.26	96.96	96.61	96.22	95.76	95.23	94.62	93.92
90	98.52	98.43	98.32	98.20	98.05	97.88	97.68	97.45	97.18	96.86	96.49	96.07	95.58	95.01	94.36
91	98.61	98.53	98.43	98.32	98.19	98.03	97.85	97.63	97.38	97.08	96.74	96.35	95.90	95.38	94.77
92	98.70	98.63	98.54	98.43	98.31	98.17	98.00	97.80	97.57	97.29	96.98	96.62	96.20	95.72	95.16
93	98.79	98.72	98.64	98.54	98.43	98.30	98.14	97.96	97.74	97.49	97.20	96.87	96.48	96.04	95.52
94	98.87	98.81	98.73	98.64	98.54	98.42	98.28	98.11	97.91	97.68	97.41	97.11	96.75	96.34	95.86
95	98.95	98.89	98.82	98.74	98.65	98.54	98.41	98.25	98.07	97.86	97.62	97.33	97.01	96.63	96.19
96	99.03	98.97	98.91	98.84	98.75	98.65	98.53	98.39	98.23	98.03	97.81	97.55	97.25	96.91	96.51
97	99.10	99.05	99.00	98.93	98.85	98.76	98.65	98.52	98.37	98.19	97.99	97.75	97.48	97.17	96.80
98	99.17	99.13	99.08	99.02	98.95	98.86	98.76	98.65	98.51	98.35	98.16	97.94	97.70	97.41	97.07
99	99.24	99.20	99.15	99.10	99.03	98.96	98.87	98.76	98.63	98.48	98.31	98.12	97.89	97.63	97.32
100	99.30	99.26	99.22	99.17	99.11	99.04	98.96	98.86	98.74	98.61	98.45	98.27	98.07	97.83	97.55

# TEACHER RETIREMENT SYSTEM OF TEXAS

## JOINT AND 100% BENEFICIARY WITH POP-UP FEATURE

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional benefit. Each percentage is based on age as of last birthday of member and beneficiary. Benefit reverts to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement														
	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89
1	58.54	56.45	54.30	52.12	49.92	47.70	45.48	43.27	41.09	38.92	36.78	34.67	32.62	30.63	28.74
2	58.55	56.46	54.32	52.14	49.93	47.71	45.49	43.29	41.10	38.93	36.79	34.68	32.63	30.64	28.75
3	58.57	56.48	54.34	52.15	49.95	47.73	45.51	43.30	41.11	38.94	36.80	34.70	32.64	30.65	28.76
4	58.59	56.50	54.35	52.17	49.96	47.74	45.52	43.31	41.12	38.96	36.81	34.71	32.65	30.66	28.77
5	58.61	56.52	54.37	52.19	49.98	47.76	45.54	43.33	41.14	38.97	36.83	34.72	32.66	30.67	28.78
6	58.63	56.54	54.39	52.21	50.00	47.78	45.56	43.35	41.16	38.99	36.84	34.73	32.67	30.69	28.79
7	58.65	56.56	54.42	52.23	50.02	47.80	45.57	43.36	41.17	39.00	36.86	34.75	32.69	30.70	28.80
8	58.68	56.58	54.44	52.25	50.04	47.82	45.59	43.38	41.19	39.02	36.87	34.76	32.70	30.71	28.82
9	58.71	56.61	54.46	52.28	50.06	47.84	45.62	43.40	41.21	39.04	36.89	34.78	32.72	30.73	28.83
10	58.73	56.64	54.49	52.30	50.09	47.86	45.64	43.42	41.23	39.06	36.91	34.80	32.74	30.74	28.85
11	58.76	56.67	54.52	52.33	50.11	47.89	45.66	43.45	41.25	39.08	36.93	34.82	32.75	30.76	28.86
12	58.79	56.70	54.55	52.36	50.14	47.91	45.69	43.47	41.27	39.10	36.95	34.84	32.77	30.78	28.88
13	58.83	56.73	54.58	52.39	50.17	47.94	45.71	43.50	41.30	39.12	36.97	34.86	32.79	30.80	28.90
14	58.86	56.76	54.61	52.42	50.20	47.97	45.74	43.52	41.32	39.15	37.00	34.88	32.81	30.82	28.91
15	58.90	56.80	54.65	52.45	50.23	48.00	45.77	43.55	41.35	39.17	37.02	34.90	32.83	30.84	28.93
16	58.94	56.84	54.69	52.49	50.27	48.04	45.80	43.58	41.38	39.20	37.05	34.93	32.86	30.86	28.95
17	58.99	56.88	54.73	52.53	50.31	48.07	45.84	43.62	41.41	39.23	37.07	34.95	32.88	30.88	28.98
18	59.03	56.93	54.77	52.57	50.35	48.11	45.88	43.65	41.45	39.26	37.10	34.98	32.91	30.91	29.00
19	59.09	56.98	54.82	52.62	50.39	48.15	45.91	43.69	41.48	39.30	37.14	35.01	32.94	30.93	29.02
20	59.14	57.03	54.87	52.67	50.44	48.20	45.96	43.73	41.52	39.33	37.17	35.04	32.97	30.96	29.05
21	59.20	57.09	54.92	52.72	50.49	48.25	46.00	43.77	41.56	39.37	37.21	35.08	33.00	30.99	29.08
22	59.26	57.15	54.98	52.78	50.54	48.30	46.06	43.82	41.61	39.42	37.25	35.12	33.04	31.03	29.11
23	59.33	57.22	55.05	52.84	50.60	48.36	46.11	43.87	41.66	39.46	37.29	35.16	33.08	31.06	29.15
24	59.41	57.29	55.12	52.91	50.67	48.42	46.17	43.93	41.71	39.51	37.34	35.21	33.12	31.11	29.18
25	59.48	57.36	55.19	52.98	50.74	48.48	46.23	43.99	41.77	39.57	37.39	35.25	33.17	31.15	29.23
26	59.57	57.45	55.27	53.05	50.81	48.55	46.30	44.05	41.83	39.63	37.45	35.31	33.21	31.19	29.27
27	59.66	57.53	55.35	53.13	50.89	48.63	46.37	44.12	41.89	39.69	37.51	35.36	33.27	31.24	29.32
28	59.76	57.63	55.44	53.22	50.97	48.71	46.45	44.20	41.96	39.75	37.57	35.42	33.32	31.30	29.37
29	59.86	57.73	55.54	53.32	51.06	48.80	46.53	44.28	42.04	39.83	37.64	35.49	33.38	31.35	29.42
30	59.97	57.83	55.65	53.42	51.16	48.89	46.62	44.36	42.12	39.90	37.71	35.55	33.45	31.42	29.48
31	60.09	57.95	55.76	53.52	51.26	48.99	46.71	44.45	42.21	39.99	37.79	35.63	33.52	31.48	29.54
32	60.21	58.07	55.88	53.64	51.37	49.10	46.82	44.55	42.30	40.07	37.87	35.71	33.59	31.55	29.60
33	60.35	58.20	56.00	53.76	51.49	49.21	46.92	44.65	42.40	40.17	37.96	35.79	33.67	31.63	29.68
34	60.49	58.34	56.14	53.89	51.62	49.33	47.04	44.77	42.51	40.27	38.06	35.88	33.76	31.71	29.75
35	60.65	58.49	56.28	54.03	51.75	49.46	47.17	44.89	42.62	40.38	38.16	35.98	33.85	31.79	29.83



# TEACHER RETIREMENT SYSTEM OF TEXAS

## JOINT AND 100% BENEFICIARY WITH POP-UP FEATURE

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional benefit. Each percentage is based on age as of last birthday of member and beneficiary.  
Benefit reverts to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement														
	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89
36	60.81	58.65	56.44	54.18	51.90	49.60	47.30	45.01	42.74	40.50	38.27	36.09	33.95	31.89	29.92
37	60.99	58.82	56.61	54.34	52.05	49.75	47.44	45.15	42.87	40.62	38.39	36.20	34.06	31.99	30.02
38	61.17	59.01	56.78	54.52	52.22	49.91	47.60	45.30	43.02	40.75	38.52	36.32	34.17	32.10	30.12
39	61.37	59.20	56.97	54.70	52.40	50.08	47.76	45.45	43.17	40.90	38.66	36.45	34.29	32.21	30.23
40	61.58	59.41	57.17	54.89	52.58	50.26	47.94	45.62	43.33	41.05	38.80	36.59	34.42	32.33	30.34
41	61.81	59.63	57.38	55.10	52.79	50.46	48.12	45.80	43.50	41.21	38.96	36.73	34.56	32.47	30.47
42	62.05	59.86	57.61	55.32	53.00	50.66	48.32	45.99	43.68	41.39	39.12	36.89	34.71	32.61	30.60
43	62.30	60.10	57.85	55.55	53.23	50.88	48.53	46.20	43.88	41.58	39.30	37.06	34.87	32.76	30.74
44	62.56	60.37	58.11	55.80	53.47	51.12	48.76	46.41	44.08	41.78	39.49	37.24	35.05	32.92	30.90
45	62.85	60.64	58.38	56.07	53.72	51.36	49.00	46.64	44.31	41.99	39.69	37.44	35.23	33.10	31.06
46	63.15	60.94	58.66	56.35	53.99	51.63	49.25	46.89	44.54	42.21	39.91	37.64	35.42	33.28	31.23
47	63.46	61.25	58.97	56.64	54.28	51.90	49.52	47.15	44.79	42.45	40.14	37.86	35.63	33.48	31.42
48	63.80	61.57	59.29	56.95	54.59	52.20	49.81	47.42	45.05	42.70	40.38	38.09	35.85	33.68	31.62
49	64.15	61.92	59.63	57.28	54.91	52.51	50.11	47.71	45.33	42.97	40.64	38.33	36.08	33.90	31.83
50	64.52	62.29	59.99	57.63	55.25	52.84	50.43	48.02	45.63	43.26	40.91	38.59	36.33	34.14	32.05
51	64.92	62.67	60.36	58.00	55.61	53.19	50.77	48.35	45.94	43.56	41.20	38.87	36.59	34.39	32.28
52	65.33	63.08	60.76	58.40	55.99	53.56	51.12	48.69	46.28	43.88	41.50	39.16	36.87	34.65	32.53
53	65.77	63.51	61.19	58.81	56.39	53.95	51.50	49.06	46.63	44.21	41.82	39.47	37.16	34.93	32.80
54	66.24	63.97	61.63	59.25	56.82	54.36	51.90	49.44	47.00	44.57	42.17	39.79	37.47	35.22	33.08
55	66.72	64.45	62.11	59.71	57.27	54.80	52.33	49.85	47.39	44.95	42.53	40.14	37.80	35.53	33.37
56	67.24	64.96	62.61	60.20	57.74	55.27	52.78	50.29	47.81	45.35	42.91	40.51	38.15	35.87	33.69
57	67.78	65.50	63.14	60.72	58.25	55.76	53.25	50.75	48.26	45.78	43.32	40.90	38.52	36.22	34.02
58	68.36	66.07	63.70	61.27	58.79	56.28	53.76	51.24	48.73	46.24	43.76	41.31	38.92	36.60	34.38
59	68.96	66.67	64.29	61.85	59.36	56.84	54.30	51.77	49.24	46.72	44.23	41.76	39.34	37.00	34.76
60	69.60	67.30	64.92	62.47	59.97	57.43	54.88	52.33	49.78	47.24	44.73	42.24	39.80	37.43	35.17
61	70.27	67.97	65.58	63.12	60.61	58.06	55.49	52.92	50.36	47.80	45.26	42.75	40.28	37.89	35.61
62	70.97	68.67	66.28	63.81	61.29	58.73	56.15	53.56	50.97	48.39	45.83	43.29	40.80	38.39	36.08
63	71.70	69.40	67.01	64.54	62.01	59.44	56.84	54.23	51.63	49.03	46.44	43.88	41.36	38.92	36.59
64	72.47	70.17	67.78	65.31	62.77	60.19	57.58	54.96	52.33	49.71	47.10	44.51	41.97	39.50	37.13
65	73.26	70.98	68.59	66.12	63.58	60.99	58.36	55.72	53.08	50.43	47.80	45.18	42.61	40.12	37.72
66	74.09	71.82	69.44	66.97	64.43	61.83	59.19	56.54	53.87	51.21	48.55	45.91	43.31	40.78	38.35
67	74.94	72.69	70.32	67.86	65.32	62.71	60.07	57.40	54.72	52.03	49.35	46.68	44.05	41.49	39.04
68	75.82	73.59	71.24	68.79	66.25	63.64	60.99	58.31	55.62	52.91	50.20	47.51	44.85	42.26	39.77
69	76.72	74.52	72.19	69.75	67.22	64.62	61.96	59.28	56.57	53.84	51.11	48.39	45.70	43.08	40.56
70	77.64	75.47	73.16	70.74	68.23	65.63	62.98	60.29	57.57	54.83	52.08	49.33	46.61	43.96	41.40

# TEACHER RETIREMENT SYSTEM OF TEXAS

## JOINT AND 100% BENEFICIARY WITH POP-UP FEATURE

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional benefit. Each percentage is based on age as of last birthday of member and beneficiary.  
Benefit reverts to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement														
	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89
71	78.58	76.44	74.16	71.77	69.27	66.69	64.04	61.35	58.62	55.87	53.10	50.33	47.58	44.90	42.31
72	79.52	77.42	75.18	72.82	70.34	67.78	65.14	62.45	59.72	56.96	54.18	51.38	48.61	45.90	43.27
73	80.47	78.42	76.22	73.89	71.44	68.90	66.28	63.60	60.87	58.11	55.31	52.50	49.70	46.95	44.30
74	81.42	79.42	77.27	74.98	72.57	70.06	67.46	64.79	62.07	59.30	56.49	53.67	50.85	48.08	45.39
75	82.36	80.42	78.32	76.08	73.71	71.23	68.66	66.01	63.31	60.54	57.73	54.89	52.06	49.26	46.54
76	83.30	81.42	79.37	77.19	74.87	72.43	69.89	67.27	64.58	61.83	59.02	56.17	53.32	50.50	47.76
77	84.22	82.40	80.42	78.30	76.03	73.64	71.14	68.55	65.89	63.15	60.35	57.50	54.64	51.80	49.04
78	85.12	83.38	81.46	79.40	77.19	74.86	72.40	69.86	67.22	64.51	61.72	58.88	56.01	53.16	50.38
79	86.01	84.33	82.49	80.49	78.35	76.07	73.68	71.18	68.58	65.90	63.13	60.30	57.43	54.57	51.77
80	86.87	85.26	83.50	81.57	79.50	77.29	74.95	72.50	69.95	67.31	64.57	61.75	58.90	56.04	53.22
81	87.70	86.17	84.48	82.63	80.63	78.49	76.22	73.83	71.34	68.73	66.03	63.24	60.40	57.54	54.73
82	88.50	87.05	85.44	83.67	81.74	79.68	77.48	75.16	72.72	70.17	67.51	64.76	61.94	59.09	56.28
83	89.27	87.89	86.36	84.67	82.83	80.85	78.72	76.48	74.11	71.62	69.01	66.29	63.50	60.68	57.88
84	90.00	88.71	87.25	85.65	83.89	81.99	79.94	77.77	75.48	73.05	70.51	67.84	65.09	62.29	59.51
85	90.70	89.48	88.11	86.58	84.91	83.09	81.13	79.05	76.83	74.48	72.00	69.39	66.69	63.93	61.17
86	91.36	90.22	88.92	87.48	85.89	84.16	82.29	80.28	78.15	75.88	73.47	70.93	68.28	65.56	62.84
87	91.98	90.91	89.69	88.33	86.82	85.18	83.39	81.48	79.43	77.24	74.91	72.44	69.85	67.19	64.50
88	92.56	91.56	90.41	89.13	87.71	86.15	84.45	82.62	80.66	78.55	76.30	73.91	71.39	68.78	66.15
89	93.10	92.16	91.09	89.88	88.54	87.06	85.44	83.70	81.83	79.81	77.64	75.32	72.87	70.33	67.75
90	93.60	92.72	91.72	90.58	89.31	87.92	86.39	84.73	82.94	81.01	78.93	76.69	74.31	71.83	69.31
91	94.07	93.25	92.31	91.24	90.04	88.72	87.27	85.70	84.00	82.16	80.16	78.00	75.70	73.29	70.82
92	94.50	93.74	92.86	91.86	90.73	89.49	88.12	86.63	85.02	83.26	81.34	79.27	77.05	74.71	72.31
93	94.91	94.20	93.38	92.45	91.39	90.22	88.93	87.53	85.99	84.32	82.50	80.51	78.37	76.11	73.78
94	95.30	94.65	93.88	93.01	92.03	90.93	89.72	88.39	86.95	85.37	83.64	81.74	79.69	77.51	75.25
95	95.68	95.07	94.36	93.55	92.64	91.61	90.48	89.24	87.88	86.40	84.76	82.96	81.00	78.91	76.73
96	96.03	95.47	94.82	94.07	93.22	92.27	91.22	90.06	88.79	87.40	85.86	84.16	82.30	80.31	78.22
97	96.37	95.86	95.26	94.57	93.78	92.90	91.92	90.84	89.67	88.37	86.93	85.33	83.58	81.68	79.69
98	96.68	96.21	95.66	95.03	94.30	93.49	92.58	91.58	90.49	89.28	87.94	86.45	84.80	83.01	81.12
99	96.96	96.53	96.03	95.45	94.78	94.03	93.19	92.27	91.25	90.13	88.89	87.49	85.95	84.26	82.48
100	97.22	96.82	96.36	95.82	95.21	94.51	93.74	92.88	91.94	90.90	89.74	88.44	87.00	85.42	83.73

# TEACHER RETIREMENT SYSTEM OF TEXAS

## OPTION 1 FACTORS JOINT AND 100% BENEFICIARY WITH POP-UP FEATURE

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional benefit. Each percentage is based on age as of last birthday of member and beneficiary. Benefit reverts to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement										
	90	91	92	93	94	95	96	97	98	99	100
1	26.97	25.32	23.78	22.34	20.95	19.56	18.19	16.83	15.50	14.26	13.14
2	26.98	25.33	23.79	22.35	20.95	19.57	18.20	16.83	15.50	14.26	13.14
3	26.99	25.34	23.80	22.35	20.96	19.58	18.20	16.84	15.51	14.27	13.14
4	26.99	25.34	23.81	22.36	20.97	19.58	18.21	16.84	15.51	14.27	13.15
5	27.00	25.35	23.81	22.37	20.97	19.59	18.22	16.85	15.52	14.28	13.15
6	27.02	25.36	23.82	22.38	20.98	19.60	18.22	16.85	15.53	14.28	13.16
7	27.03	25.38	23.83	22.39	20.99	19.61	18.23	16.86	15.53	14.29	13.16
8	27.04	25.39	23.85	22.40	21.00	19.62	18.24	16.87	15.54	14.30	13.17
9	27.05	25.40	23.86	22.41	21.01	19.63	18.25	16.88	15.55	14.30	13.18
10	27.07	25.41	23.87	22.42	21.02	19.64	18.26	16.89	15.56	14.31	13.18
11	27.08	25.43	23.88	22.43	21.03	19.65	18.27	16.90	15.57	14.32	13.19
12	27.10	25.44	23.90	22.45	21.05	19.66	18.28	16.91	15.58	14.33	13.20
13	27.11	25.46	23.91	22.46	21.06	19.67	18.29	16.92	15.59	14.34	13.21
14	27.13	25.47	23.93	22.48	21.07	19.68	18.30	16.93	15.60	14.35	13.22
15	27.15	25.49	23.94	22.49	21.09	19.70	18.32	16.94	15.61	14.36	13.23
16	27.17	25.51	23.96	22.51	21.10	19.71	18.33	16.95	15.62	14.37	13.24
17	27.19	25.53	23.98	22.52	21.12	19.73	18.34	16.97	15.63	14.38	13.25
18	27.21	25.55	24.00	22.54	21.13	19.74	18.36	16.98	15.64	14.39	13.26
19	27.23	25.57	24.02	22.56	21.15	19.76	18.37	16.99	15.66	14.40	13.27
20	27.26	25.59	24.04	22.58	21.17	19.78	18.39	17.01	15.67	14.42	13.28
21	27.29	25.62	24.06	22.60	21.19	19.80	18.41	17.03	15.69	14.43	13.29
22	27.32	25.65	24.09	22.63	21.22	19.82	18.43	17.05	15.70	14.45	13.31
23	27.35	25.68	24.12	22.66	21.24	19.84	18.45	17.07	15.72	14.46	13.32
24	27.39	25.71	24.15	22.69	21.27	19.87	18.47	17.09	15.74	14.48	13.34
25	27.42	25.75	24.19	22.72	21.30	19.90	18.50	17.11	15.76	14.50	13.36
26	27.46	25.79	24.22	22.75	21.33	19.93	18.53	17.14	15.79	14.52	13.38
27	27.51	25.83	24.26	22.79	21.37	19.96	18.56	17.17	15.81	14.55	13.40
28	27.56	25.87	24.30	22.83	21.40	19.99	18.59	17.20	15.84	14.57	13.43
29	27.61	25.92	24.35	22.87	21.44	20.03	18.63	17.23	15.87	14.60	13.45
30	27.66	25.97	24.39	22.92	21.49	20.07	18.66	17.26	15.90	14.63	13.48
31	27.72	26.03	24.45	22.96	21.53	20.11	18.70	17.30	15.94	14.66	13.51
32	27.78	26.08	24.50	23.02	21.58	20.16	18.74	17.34	15.97	14.69	13.54
33	27.85	26.15	24.56	23.07	21.63	20.21	18.79	17.38	16.01	14.73	13.57
34	27.92	26.21	24.62	23.13	21.69	20.26	18.84	17.43	16.05	14.77	13.61
35	28.00	26.29	24.69	23.20	21.75	20.32	18.89	17.47	16.10	14.81	13.64

# TEACHER RETIREMENT SYSTEM OF TEXAS

## OPTION 1 FACTORS JOINT AND 100% BENEFICIARY WITH POP-UP FEATURE

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional benefit. Each percentage is based on age as of last birthday of member and beneficiary. Benefit reverts to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement										
	90	91	92	93	94	95	96	97	98	99	100
36	28.08	26.36	24.77	23.26	21.81	20.38	18.95	17.53	16.15	14.85	13.69
37	28.17	26.45	24.84	23.34	21.88	20.44	19.01	17.58	16.20	14.90	13.73
38	28.26	26.54	24.93	23.42	21.96	20.51	19.07	17.64	16.25	14.95	13.78
39	28.37	26.63	25.02	23.50	22.04	20.59	19.14	17.71	16.31	15.01	13.83
40	28.47	26.74	25.12	23.60	22.12	20.67	19.22	17.78	16.38	15.07	13.88
41	28.59	26.85	25.22	23.69	22.22	20.76	19.30	17.85	16.45	15.13	13.94
42	28.72	26.97	25.33	23.80	22.32	20.85	19.39	17.93	16.52	15.20	14.01
43	28.85	27.09	25.45	23.91	22.42	20.95	19.48	18.02	16.60	15.28	14.07
44	29.00	27.23	25.58	24.03	22.54	21.06	19.58	18.11	16.69	15.35	14.15
45	29.15	27.38	25.72	24.17	22.66	21.17	19.69	18.21	16.78	15.44	14.23
46	29.32	27.53	25.87	24.30	22.79	21.29	19.80	18.32	16.88	15.53	14.31
47	29.49	27.70	26.03	24.45	22.93	21.43	19.93	18.43	16.99	15.63	14.40
48	29.68	27.88	26.19	24.61	23.08	21.57	20.06	18.56	17.10	15.73	14.50
49	29.88	28.06	26.37	24.78	23.24	21.72	20.20	18.69	17.22	15.84	14.60
50	30.09	28.26	26.56	24.96	23.41	21.87	20.35	18.83	17.35	15.96	14.71
51	30.31	28.47	26.76	25.15	23.59	22.04	20.50	18.97	17.48	16.09	14.83
52	30.55	28.70	26.97	25.35	23.78	22.22	20.67	19.13	17.63	16.22	14.95
53	30.80	28.93	27.19	25.56	23.98	22.41	20.85	19.29	17.78	16.37	15.08
54	31.06	29.18	27.43	25.78	24.19	22.61	21.04	19.47	17.94	16.52	15.22
55	31.34	29.45	27.68	26.02	24.42	22.82	21.24	19.65	18.12	16.67	15.37
56	31.64	29.73	27.95	26.28	24.66	23.05	21.45	19.85	18.30	16.84	15.53
57	31.96	30.03	28.24	26.55	24.91	23.29	21.67	20.06	18.49	17.02	15.69
58	32.29	30.35	28.54	26.83	25.18	23.54	21.91	20.28	18.70	17.21	15.87
59	32.66	30.69	28.86	27.14	25.47	23.82	22.17	20.52	18.92	17.42	16.06
60	33.04	31.06	29.21	27.47	25.78	24.11	22.44	20.78	19.16	17.64	16.26
61	33.46	31.46	29.58	27.82	26.12	24.42	22.73	21.05	19.41	17.87	16.48
62	33.91	31.88	29.99	28.20	26.48	24.76	23.05	21.35	19.69	18.13	16.71
63	34.39	32.34	30.42	28.62	26.87	25.13	23.40	21.67	19.98	18.40	16.97
64	34.91	32.83	30.89	29.06	27.29	25.53	23.77	22.01	20.30	18.70	17.24
65	35.47	33.36	31.40	29.54	27.74	25.96	24.17	22.39	20.65	19.02	17.54
66	36.07	33.94	31.94	30.06	28.24	26.42	24.61	22.80	21.03	19.37	17.87
67	36.72	34.56	32.53	30.62	28.77	26.93	25.08	23.24	21.44	19.75	18.22
68	37.42	35.23	33.17	31.23	29.35	27.47	25.60	23.72	21.89	20.17	18.61
69	38.18	35.95	33.86	31.89	29.98	28.07	26.16	24.24	22.38	20.62	19.03
70	38.99	36.73	34.61	32.60	30.66	28.71	26.76	24.81	22.91	21.12	19.49

# TEACHER RETIREMENT SYSTEM OF TEXAS

## OPTION 1 FACTORS JOINT AND 100% BENEFICIARY WITH POP-UP FEATURE

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional benefit. Each percentage is based on age as of last birthday of member and beneficiary. Benefit reverts to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement										
	90	91	92	93	94	95	96	97	98	99	100
71	39.86	37.56	35.41	33.37	31.39	29.41	27.42	25.43	23.49	21.66	19.99
72	40.79	38.46	36.27	34.20	32.18	30.16	28.14	26.10	24.11	22.24	20.53
73	41.78	39.42	37.19	35.09	33.03	30.97	28.91	26.83	24.79	22.87	21.13
74	42.84	40.44	38.18	36.04	33.94	31.85	29.74	27.61	25.53	23.56	21.77
75	43.96	41.53	39.23	37.06	34.92	32.79	30.63	28.46	26.32	24.31	22.47
76	45.15	42.68	40.35	38.14	35.97	33.79	31.59	29.37	27.18	25.11	23.22
77	46.40	43.90	41.54	39.30	37.09	34.87	32.62	30.35	28.10	25.98	24.04
78	47.71	45.19	42.80	40.52	38.28	36.02	33.72	31.39	29.10	26.91	24.92
79	49.09	46.54	44.12	41.82	39.54	37.24	34.90	32.52	30.16	27.92	25.86
80	50.52	47.96	45.52	43.18	40.88	38.54	36.15	33.71	31.30	29.00	26.88
81	52.02	49.44	46.98	44.62	42.28	39.91	37.48	34.99	32.52	30.15	27.98
82	53.57	50.98	48.50	46.13	43.77	41.36	38.89	36.35	33.82	31.39	29.15
83	55.16	52.57	50.09	47.70	45.32	42.89	40.38	37.79	35.20	32.71	30.41
84	56.81	54.22	51.73	49.34	46.95	44.49	41.95	39.32	36.68	34.13	31.76
85	58.48	55.90	53.43	51.04	48.64	46.17	43.60	40.93	38.24	35.63	33.20
86	60.18	57.62	55.16	52.77	50.38	47.90	45.32	42.62	39.88	37.22	34.73
87	61.88	59.34	56.90	54.53	52.15	49.68	47.08	44.36	41.58	38.87	36.34
88	63.56	61.06	58.64	56.30	53.94	51.47	48.87	46.13	43.33	40.58	37.99
89	65.21	62.74	60.36	58.04	55.71	53.25	50.66	47.91	45.09	42.30	39.68
90	66.81	64.39	62.04	59.76	57.45	55.02	52.44	49.69	46.85	44.04	41.38
91	68.38	66.00	63.70	61.45	59.18	56.77	54.21	51.46	48.60	45.77	43.08
92	69.92	67.59	65.33	63.13	60.89	58.51	55.97	53.23	50.37	47.52	44.81
93	71.45	69.18	66.97	64.81	62.61	60.28	57.76	55.04	52.18	49.31	46.58
94	72.99	70.78	68.62	66.52	64.37	62.08	59.60	56.90	54.05	51.19	48.43
95	74.55	72.40	70.31	68.27	66.19	63.95	61.52	58.86	56.03	53.16	50.40
96	76.12	74.05	72.03	70.06	68.04	65.88	63.51	60.89	58.10	55.25	52.49
97	77.68	75.70	73.76	71.87	69.93	67.84	65.54	62.99	60.25	57.44	54.70
98	79.21	77.31	75.46	73.65	71.80	69.79	67.58	65.11	62.43	59.67	56.96
99	80.66	78.85	77.09	75.37	73.60	71.69	69.57	67.19	64.59	61.89	59.23
100	82.01	80.29	78.61	76.98	75.30	73.48	71.46	69.17	66.66	64.04	61.44

## **SECTION II**

# TEACHER RETIREMENT SYSTEM OF TEXAS

## OPTION 2 FACTORS JOINT AND 50% BENEFICIARY WITH POP-UP FEATURE

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional benefit. Each percentage is based on age as of last birthday of member and beneficiary. Benefit reverts to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement														
	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
1	99.60	99.56	99.53	99.49	99.46	99.41	99.37	99.32	99.27	99.21	99.14	99.07	99.00	98.92	98.83
2	99.60	99.57	99.54	99.50	99.46	99.42	99.38	99.33	99.28	99.22	99.15	99.08	99.01	98.93	98.84
3	99.61	99.58	99.54	99.51	99.47	99.43	99.39	99.34	99.29	99.23	99.16	99.09	99.02	98.94	98.86
4	99.62	99.59	99.55	99.52	99.48	99.44	99.40	99.35	99.30	99.24	99.17	99.10	99.03	98.95	98.87
5	99.63	99.60	99.56	99.53	99.49	99.45	99.41	99.36	99.31	99.25	99.18	99.12	99.04	98.96	98.88
6	99.64	99.60	99.57	99.54	99.50	99.46	99.42	99.37	99.32	99.26	99.20	99.13	99.05	98.98	98.89
7	99.64	99.61	99.58	99.55	99.51	99.47	99.43	99.38	99.33	99.27	99.21	99.14	99.07	98.99	98.90
8	99.65	99.62	99.59	99.56	99.52	99.48	99.44	99.39	99.34	99.28	99.22	99.15	99.08	99.00	98.92
9	99.66	99.63	99.60	99.57	99.53	99.49	99.45	99.40	99.35	99.30	99.23	99.17	99.09	99.02	98.93
10	99.67	99.64	99.61	99.58	99.54	99.50	99.46	99.42	99.37	99.31	99.25	99.18	99.11	99.03	98.95
11	99.68	99.65	99.62	99.59	99.55	99.52	99.47	99.43	99.38	99.32	99.26	99.19	99.12	99.05	98.96
12	99.69	99.66	99.63	99.60	99.56	99.53	99.49	99.44	99.39	99.34	99.28	99.21	99.14	99.06	98.98
13	99.70	99.67	99.64	99.61	99.58	99.54	99.50	99.46	99.41	99.35	99.29	99.23	99.16	99.08	99.00
14	99.70	99.68	99.65	99.62	99.59	99.55	99.51	99.47	99.42	99.37	99.31	99.24	99.17	99.10	99.02
15	99.71	99.69	99.66	99.63	99.60	99.56	99.53	99.48	99.44	99.38	99.32	99.26	99.19	99.12	99.03
16	99.72	99.70	99.67	99.64	99.61	99.58	99.54	99.50	99.45	99.40	99.34	99.28	99.21	99.13	99.05
17	99.73	99.70	99.68	99.65	99.62	99.59	99.55	99.51	99.47	99.41	99.36	99.29	99.23	99.15	99.07
18	99.74	99.71	99.69	99.66	99.63	99.60	99.57	99.53	99.48	99.43	99.37	99.31	99.25	99.17	99.10
19	99.74	99.72	99.70	99.67	99.64	99.61	99.58	99.54	99.50	99.45	99.39	99.33	99.27	99.19	99.12
20	99.75	99.73	99.71	99.68	99.65	99.63	99.59	99.55	99.51	99.46	99.41	99.35	99.29	99.22	99.14
21	99.76	99.74	99.71	99.69	99.67	99.64	99.60	99.57	99.53	99.48	99.43	99.37	99.31	99.24	99.16
22	99.77	99.75	99.72	99.70	99.68	99.65	99.62	99.58	99.54	99.50	99.45	99.39	99.33	99.26	99.18
23	99.77	99.75	99.73	99.71	99.69	99.66	99.63	99.60	99.56	99.51	99.46	99.41	99.35	99.28	99.21
24	99.78	99.76	99.74	99.72	99.70	99.67	99.64	99.61	99.57	99.53	99.48	99.43	99.37	99.30	99.23
25	99.79	99.77	99.75	99.73	99.71	99.68	99.65	99.62	99.59	99.54	99.50	99.44	99.39	99.32	99.25
26	99.79	99.77	99.75	99.74	99.71	99.69	99.67	99.63	99.60	99.56	99.51	99.46	99.41	99.35	99.28
27	99.80	99.78	99.76	99.74	99.72	99.70	99.68	99.65	99.61	99.57	99.53	99.48	99.43	99.37	99.30
28	99.80	99.79	99.77	99.75	99.73	99.71	99.69	99.66	99.63	99.59	99.55	99.50	99.45	99.39	99.32
29	99.81	99.79	99.78	99.76	99.74	99.72	99.70	99.67	99.64	99.60	99.56	99.52	99.47	99.41	99.35
30	99.81	99.80	99.78	99.77	99.75	99.73	99.71	99.68	99.65	99.62	99.58	99.53	99.48	99.43	99.37
31	99.82	99.80	99.79	99.77	99.76	99.74	99.72	99.69	99.66	99.63	99.59	99.55	99.50	99.45	99.39
32	99.82	99.81	99.79	99.78	99.76	99.75	99.73	99.70	99.68	99.64	99.61	99.57	99.52	99.47	99.41
33	99.83	99.81	99.80	99.79	99.77	99.75	99.74	99.71	99.69	99.66	99.62	99.58	99.54	99.49	99.44
34	99.83	99.82	99.81	99.79	99.78	99.76	99.74	99.72	99.70	99.67	99.63	99.60	99.55	99.51	99.46
35	99.84	99.82	99.81	99.80	99.78	99.77	99.75	99.73	99.71	99.68	99.65	99.61	99.57	99.53	99.48

# TEACHER RETIREMENT SYSTEM OF TEXAS

## OPTION 2 FACTORS JOINT AND 50% BENEFICIARY WITH POP-UP FEATURE

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional benefit. Each percentage is based on age as of last birthday of member and beneficiary. Benefit reverts to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement														
	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
36	99.84	99.83	99.82	99.80	99.79	99.78	99.76	99.74	99.72	99.69	99.66	99.62	99.59	99.54	99.49
37	99.85	99.83	99.82	99.81	99.80	99.78	99.77	99.75	99.73	99.70	99.67	99.64	99.60	99.56	99.51
38	99.85	99.84	99.83	99.82	99.80	99.79	99.78	99.76	99.74	99.71	99.68	99.65	99.62	99.58	99.53
39	99.85	99.84	99.83	99.82	99.81	99.80	99.78	99.77	99.75	99.72	99.69	99.66	99.63	99.59	99.55
40	99.86	99.85	99.84	99.83	99.82	99.80	99.79	99.77	99.75	99.73	99.71	99.68	99.64	99.61	99.57
41	99.86	99.85	99.84	99.83	99.82	99.81	99.80	99.78	99.76	99.74	99.72	99.69	99.66	99.62	99.58
42	99.87	99.86	99.85	99.84	99.83	99.82	99.80	99.79	99.77	99.75	99.73	99.70	99.67	99.63	99.60
43	99.87	99.86	99.85	99.84	99.83	99.82	99.81	99.80	99.78	99.76	99.74	99.71	99.68	99.65	99.61
44	99.87	99.86	99.85	99.85	99.84	99.83	99.82	99.80	99.79	99.77	99.75	99.72	99.69	99.66	99.63
45	99.88	99.87	99.86	99.85	99.84	99.83	99.82	99.81	99.79	99.78	99.76	99.73	99.70	99.67	99.64
46	99.88	99.87	99.86	99.86	99.85	99.84	99.83	99.82	99.80	99.78	99.76	99.74	99.71	99.69	99.65
47	99.88	99.87	99.87	99.86	99.85	99.85	99.84	99.82	99.81	99.79	99.77	99.75	99.73	99.70	99.67
48	99.89	99.88	99.87	99.86	99.86	99.85	99.84	99.83	99.82	99.80	99.78	99.76	99.74	99.71	99.68
49	99.89	99.88	99.88	99.87	99.86	99.86	99.85	99.84	99.82	99.81	99.79	99.77	99.75	99.72	99.69
50	99.89	99.89	99.88	99.87	99.87	99.86	99.85	99.84	99.83	99.82	99.80	99.78	99.76	99.73	99.71
51	99.90	99.89	99.88	99.88	99.87	99.87	99.86	99.85	99.84	99.82	99.81	99.79	99.77	99.74	99.72
52	99.90	99.89	99.89	99.88	99.88	99.87	99.86	99.85	99.84	99.83	99.81	99.80	99.78	99.75	99.73
53	99.90	99.89	99.89	99.88	99.88	99.87	99.87	99.86	99.85	99.84	99.82	99.80	99.79	99.76	99.74
54	99.90	99.90	99.89	99.89	99.88	99.88	99.87	99.87	99.86	99.84	99.83	99.81	99.79	99.77	99.75
55	99.91	99.90	99.90	99.89	99.89	99.88	99.88	99.87	99.86	99.85	99.84	99.82	99.80	99.78	99.76
56	99.91	99.90	99.90	99.89	99.89	99.89	99.88	99.88	99.87	99.86	99.84	99.83	99.81	99.79	99.77
57	99.91	99.91	99.90	99.90	99.89	99.89	99.89	99.88	99.87	99.86	99.85	99.84	99.82	99.80	99.78
58	99.91	99.91	99.90	99.90	99.90	99.90	99.89	99.89	99.88	99.87	99.86	99.84	99.83	99.81	99.79
59	99.92	99.91	99.91	99.90	99.90	99.90	99.90	99.89	99.88	99.87	99.86	99.85	99.84	99.82	99.80
60	99.92	99.91	99.91	99.91	99.90	99.90	99.90	99.89	99.89	99.88	99.87	99.86	99.84	99.83	99.81
61	99.92	99.92	99.91	99.91	99.91	99.91	99.90	99.90	99.89	99.88	99.88	99.86	99.85	99.84	99.82
62	99.92	99.92	99.92	99.91	99.91	99.91	99.91	99.90	99.90	99.89	99.88	99.87	99.86	99.84	99.83
63	99.93	99.92	99.92	99.92	99.91	99.91	99.91	99.91	99.90	99.89	99.89	99.88	99.86	99.85	99.84
64	99.93	99.92	99.92	99.92	99.92	99.92	99.91	99.91	99.91	99.90	99.89	99.88	99.87	99.86	99.84
65	99.93	99.93	99.92	99.92	99.92	99.92	99.92	99.91	99.91	99.90	99.90	99.89	99.88	99.87	99.85
66	99.93	99.93	99.93	99.92	99.92	99.92	99.92	99.92	99.91	99.91	99.90	99.89	99.88	99.87	99.86
67	99.93	99.93	99.93	99.93	99.93	99.92	99.92	99.92	99.92	99.91	99.91	99.90	99.89	99.88	99.87
68	99.94	99.93	99.93	99.93	99.93	99.93	99.93	99.92	99.92	99.92	99.91	99.90	99.89	99.88	99.87
69	99.94	99.93	99.93	99.93	99.93	99.93	99.93	99.93	99.92	99.92	99.91	99.91	99.90	99.89	99.88
70	99.94	99.94	99.93	99.93	99.93	99.93	99.93	99.93	99.93	99.92	99.92	99.91	99.90	99.90	99.89





# TEACHER RETIREMENT SYSTEM OF TEXAS

## OPTION 2 FACTORS JOINT AND 50% BENEFICIARY WITH POP-UP FEATURE

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional benefit. Each percentage is based on age as of last birthday of member and beneficiary. Benefit reverts to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement														
	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
1	98.74	98.64	98.54	98.43	98.30	98.17	98.03	97.88	97.72	97.55	97.37	97.17	96.96	96.73	96.49
2	98.75	98.65	98.55	98.44	98.32	98.19	98.05	97.90	97.74	97.56	97.38	97.18	96.97	96.74	96.50
3	98.76	98.67	98.56	98.45	98.33	98.20	98.06	97.91	97.75	97.58	97.39	97.19	96.98	96.76	96.51
4	98.77	98.68	98.57	98.46	98.34	98.21	98.07	97.92	97.76	97.59	97.40	97.21	97.00	96.77	96.53
5	98.79	98.69	98.58	98.47	98.35	98.22	98.08	97.93	97.77	97.60	97.42	97.22	97.01	96.78	96.54
6	98.80	98.70	98.60	98.49	98.36	98.24	98.10	97.95	97.79	97.62	97.43	97.24	97.03	96.80	96.56
7	98.81	98.72	98.61	98.50	98.38	98.25	98.11	97.96	97.80	97.63	97.45	97.25	97.04	96.82	96.57
8	98.83	98.73	98.63	98.51	98.39	98.27	98.13	97.98	97.82	97.65	97.46	97.27	97.06	96.83	96.59
9	98.84	98.74	98.64	98.53	98.41	98.28	98.14	98.00	97.84	97.67	97.48	97.29	97.08	96.85	96.61
10	98.86	98.76	98.66	98.55	98.43	98.30	98.16	98.01	97.85	97.68	97.50	97.31	97.10	96.87	96.63
11	98.87	98.78	98.67	98.56	98.44	98.32	98.18	98.03	97.87	97.70	97.52	97.32	97.12	96.89	96.65
12	98.89	98.80	98.69	98.58	98.46	98.34	98.20	98.05	97.89	97.72	97.54	97.35	97.14	96.91	96.67
13	98.91	98.81	98.71	98.60	98.48	98.36	98.22	98.07	97.91	97.75	97.56	97.37	97.16	96.94	96.69
14	98.93	98.83	98.73	98.62	98.50	98.38	98.24	98.09	97.94	97.77	97.59	97.39	97.18	96.96	96.72
15	98.95	98.85	98.75	98.64	98.53	98.40	98.26	98.12	97.96	97.79	97.61	97.42	97.21	96.99	96.75
16	98.97	98.87	98.77	98.67	98.55	98.42	98.29	98.14	97.99	97.82	97.64	97.44	97.24	97.01	96.77
17	98.99	98.90	98.80	98.69	98.57	98.45	98.31	98.17	98.01	97.84	97.66	97.47	97.26	97.04	96.80
18	99.01	98.92	98.82	98.71	98.60	98.47	98.34	98.19	98.04	97.87	97.69	97.50	97.29	97.07	96.83
19	99.03	98.94	98.84	98.74	98.62	98.50	98.37	98.22	98.07	97.90	97.72	97.53	97.33	97.10	96.87
20	99.06	98.97	98.87	98.76	98.65	98.53	98.40	98.25	98.10	97.93	97.76	97.56	97.36	97.14	96.90
21	99.08	98.99	98.90	98.79	98.68	98.56	98.43	98.28	98.13	97.97	97.79	97.60	97.39	97.17	96.94
22	99.10	99.02	98.92	98.82	98.71	98.59	98.46	98.32	98.16	98.00	97.82	97.63	97.43	97.21	96.98
23	99.13	99.04	98.95	98.85	98.74	98.62	98.49	98.35	98.20	98.04	97.86	97.67	97.47	97.25	97.02
24	99.15	99.07	98.98	98.88	98.77	98.65	98.52	98.38	98.23	98.07	97.90	97.71	97.51	97.29	97.06
25	99.18	99.10	99.01	98.91	98.80	98.68	98.56	98.42	98.27	98.11	97.94	97.75	97.55	97.34	97.10
26	99.20	99.12	99.03	98.94	98.83	98.72	98.59	98.46	98.31	98.15	97.98	97.80	97.60	97.38	97.15
27	99.23	99.15	99.06	98.97	98.86	98.75	98.63	98.50	98.35	98.19	98.02	97.84	97.64	97.43	97.20
28	99.25	99.18	99.09	99.00	98.90	98.79	98.67	98.53	98.39	98.24	98.07	97.89	97.69	97.48	97.25
29	99.28	99.20	99.12	99.03	98.93	98.82	98.70	98.57	98.43	98.28	98.11	97.93	97.74	97.53	97.30
30	99.30	99.23	99.15	99.06	98.97	98.86	98.74	98.61	98.48	98.33	98.16	97.98	97.79	97.58	97.36
31	99.33	99.26	99.18	99.09	99.00	98.89	98.78	98.66	98.52	98.37	98.21	98.03	97.85	97.64	97.42
32	99.35	99.28	99.21	99.12	99.03	98.93	98.82	98.70	98.56	98.42	98.26	98.09	97.90	97.70	97.47
33	99.38	99.31	99.24	99.15	99.07	98.97	98.86	98.74	98.61	98.47	98.31	98.14	97.96	97.75	97.54
34	99.40	99.33	99.26	99.18	99.10	99.00	98.90	98.78	98.65	98.51	98.36	98.19	98.01	97.81	97.60
35	99.42	99.36	99.29	99.21	99.13	99.04	98.94	98.82	98.70	98.56	98.41	98.25	98.07	97.87	97.66

# TEACHER RETIREMENT SYSTEM OF TEXAS

## OPTION 2 FACTORS JOINT AND 50% BENEFICIARY WITH POP-UP FEATURE

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional benefit. Each percentage is based on age as of last birthday of member and beneficiary. Benefit reverts to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement														
	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
36	99.44	99.38	99.32	99.24	99.16	99.07	98.97	98.86	98.74	98.61	98.46	98.30	98.13	97.94	97.73
37	99.46	99.41	99.34	99.27	99.19	99.11	99.01	98.90	98.79	98.66	98.51	98.36	98.19	98.00	97.79
38	99.48	99.43	99.37	99.30	99.22	99.14	99.05	98.94	98.83	98.70	98.57	98.41	98.25	98.06	97.86
39	99.50	99.45	99.39	99.33	99.25	99.17	99.08	98.98	98.87	98.75	98.62	98.47	98.31	98.13	97.93
40	99.52	99.47	99.41	99.35	99.28	99.20	99.12	99.02	98.92	98.80	98.67	98.52	98.36	98.19	98.00
41	99.54	99.49	99.44	99.38	99.31	99.23	99.15	99.06	98.96	98.84	98.72	98.58	98.42	98.25	98.07
42	99.56	99.51	99.46	99.40	99.34	99.26	99.18	99.10	99.00	98.89	98.76	98.63	98.48	98.32	98.13
43	99.57	99.53	99.48	99.42	99.36	99.29	99.22	99.13	99.04	98.93	98.81	98.68	98.54	98.38	98.20
44	99.59	99.55	99.50	99.44	99.39	99.32	99.25	99.16	99.07	98.97	98.86	98.73	98.59	98.44	98.27
45	99.60	99.56	99.52	99.47	99.41	99.35	99.28	99.20	99.11	99.01	98.90	98.78	98.65	98.50	98.33
46	99.62	99.58	99.54	99.49	99.43	99.37	99.30	99.23	99.15	99.05	98.95	98.83	98.70	98.56	98.40
47	99.63	99.60	99.55	99.51	99.46	99.40	99.33	99.26	99.18	99.09	98.99	98.88	98.75	98.62	98.46
48	99.65	99.61	99.57	99.53	99.48	99.42	99.36	99.29	99.21	99.13	99.03	98.92	98.80	98.67	98.52
49	99.66	99.63	99.59	99.55	99.50	99.44	99.39	99.32	99.24	99.16	99.07	98.97	98.85	98.72	98.58
50	99.68	99.64	99.61	99.56	99.52	99.47	99.41	99.35	99.28	99.20	99.11	99.01	98.90	98.78	98.64
51	99.69	99.66	99.62	99.58	99.54	99.49	99.43	99.37	99.31	99.23	99.14	99.05	98.95	98.83	98.69
52	99.70	99.67	99.64	99.60	99.56	99.51	99.46	99.40	99.33	99.26	99.18	99.09	98.99	98.88	98.75
53	99.71	99.68	99.65	99.62	99.58	99.53	99.48	99.42	99.36	99.29	99.21	99.13	99.03	98.92	98.80
54	99.73	99.70	99.67	99.63	99.59	99.55	99.50	99.45	99.39	99.32	99.25	99.16	99.07	98.97	98.85
55	99.74	99.71	99.68	99.65	99.61	99.57	99.52	99.47	99.41	99.35	99.28	99.20	99.11	99.01	98.90
56	99.75	99.72	99.70	99.66	99.63	99.59	99.54	99.49	99.44	99.38	99.31	99.23	99.15	99.05	98.95
57	99.76	99.74	99.71	99.68	99.64	99.61	99.56	99.52	99.46	99.41	99.34	99.27	99.19	99.10	98.99
58	99.77	99.75	99.72	99.69	99.66	99.62	99.58	99.54	99.49	99.43	99.37	99.30	99.22	99.14	99.04
59	99.78	99.76	99.74	99.71	99.68	99.64	99.60	99.56	99.51	99.46	99.40	99.33	99.26	99.17	99.08
60	99.79	99.77	99.75	99.72	99.69	99.66	99.62	99.58	99.54	99.48	99.43	99.36	99.29	99.21	99.12
61	99.80	99.78	99.76	99.74	99.71	99.68	99.64	99.60	99.56	99.51	99.45	99.39	99.32	99.25	99.16
62	99.81	99.79	99.77	99.75	99.72	99.69	99.66	99.62	99.58	99.53	99.48	99.42	99.36	99.28	99.20
63	99.82	99.80	99.78	99.76	99.74	99.71	99.68	99.64	99.60	99.56	99.51	99.45	99.39	99.32	99.24
64	99.83	99.81	99.79	99.77	99.75	99.72	99.69	99.66	99.62	99.58	99.53	99.48	99.42	99.35	99.27
65	99.84	99.82	99.81	99.79	99.76	99.74	99.71	99.68	99.64	99.60	99.55	99.50	99.45	99.38	99.31
66	99.85	99.83	99.82	99.80	99.78	99.75	99.73	99.69	99.66	99.62	99.58	99.53	99.48	99.42	99.35
67	99.85	99.84	99.83	99.81	99.79	99.77	99.74	99.71	99.68	99.64	99.60	99.56	99.50	99.45	99.38
68	99.86	99.85	99.83	99.82	99.80	99.78	99.76	99.73	99.70	99.66	99.62	99.58	99.53	99.48	99.41
69	99.87	99.86	99.84	99.83	99.81	99.79	99.77	99.74	99.72	99.68	99.65	99.60	99.56	99.51	99.45
70	99.88	99.86	99.85	99.84	99.82	99.80	99.78	99.76	99.73	99.70	99.67	99.63	99.58	99.53	99.48

# TEACHER RETIREMENT SYSTEM OF TEXAS

## OPTION 2 FACTORS JOINT AND 50% BENEFICIARY WITH POP-UP FEATURE

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional benefit. Each percentage is based on age as of last birthday of member and beneficiary. Benefit reverts to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement														
	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
71	99.88	99.87	99.86	99.85	99.83	99.82	99.80	99.77	99.75	99.72	99.69	99.65	99.61	99.56	99.51
72	99.89	99.88	99.87	99.86	99.84	99.83	99.81	99.79	99.76	99.74	99.71	99.67	99.63	99.59	99.54
73	99.90	99.89	99.88	99.86	99.85	99.84	99.82	99.80	99.78	99.75	99.73	99.69	99.66	99.61	99.57
74	99.90	99.89	99.88	99.87	99.86	99.85	99.83	99.81	99.79	99.77	99.74	99.71	99.68	99.64	99.59
75	99.91	99.90	99.89	99.88	99.87	99.86	99.84	99.83	99.81	99.78	99.76	99.73	99.70	99.66	99.62
76	99.91	99.90	99.90	99.89	99.88	99.86	99.85	99.84	99.82	99.80	99.78	99.75	99.72	99.69	99.65
77	99.92	99.91	99.90	99.89	99.88	99.87	99.86	99.85	99.83	99.81	99.79	99.77	99.74	99.71	99.67
78	99.92	99.91	99.91	99.90	99.89	99.88	99.87	99.86	99.84	99.83	99.81	99.78	99.76	99.73	99.69
79	99.93	99.92	99.91	99.91	99.90	99.89	99.88	99.87	99.85	99.84	99.82	99.80	99.78	99.75	99.72
80	99.93	99.92	99.92	99.91	99.90	99.90	99.89	99.87	99.86	99.85	99.83	99.81	99.79	99.77	99.74
81	99.93	99.93	99.92	99.92	99.91	99.90	99.89	99.88	99.87	99.86	99.84	99.83	99.81	99.78	99.76
82	99.94	99.93	99.93	99.92	99.92	99.91	99.90	99.89	99.88	99.87	99.85	99.84	99.82	99.80	99.77
83	99.94	99.94	99.93	99.93	99.92	99.91	99.91	99.90	99.89	99.88	99.87	99.85	99.84	99.82	99.79
84	99.95	99.94	99.94	99.93	99.93	99.92	99.91	99.91	99.90	99.89	99.87	99.86	99.85	99.83	99.81
85	99.95	99.95	99.94	99.94	99.93	99.93	99.92	99.91	99.90	99.89	99.88	99.87	99.86	99.84	99.82
86	99.95	99.95	99.94	99.94	99.94	99.93	99.92	99.92	99.91	99.90	99.89	99.88	99.87	99.86	99.84
87	99.96	99.95	99.95	99.94	99.94	99.93	99.93	99.92	99.92	99.91	99.90	99.89	99.88	99.87	99.85
88	99.96	99.96	99.95	99.95	99.94	99.94	99.93	99.93	99.92	99.92	99.91	99.90	99.89	99.88	99.86
89	99.96	99.96	99.96	99.95	99.95	99.94	99.94	99.93	99.93	99.92	99.91	99.91	99.90	99.89	99.87
90	99.96	99.96	99.96	99.95	99.95	99.95	99.94	99.94	99.93	99.93	99.92	99.91	99.90	99.89	99.88
91	99.97	99.96	99.96	99.96	99.95	99.95	99.95	99.94	99.94	99.93	99.93	99.92	99.91	99.90	99.89
92	99.97	99.97	99.96	99.96	99.96	99.95	99.95	99.95	99.94	99.94	99.93	99.92	99.92	99.91	99.90
93	99.97	99.97	99.97	99.96	99.96	99.96	99.95	99.95	99.95	99.94	99.94	99.93	99.92	99.92	99.91
94	99.97	99.97	99.97	99.97	99.96	99.96	99.96	99.95	99.95	99.95	99.94	99.93	99.93	99.92	99.91
95	99.97	99.97	99.97	99.97	99.97	99.96	99.96	99.96	99.95	99.95	99.94	99.94	99.94	99.93	99.92
96	99.98	99.97	99.97	99.97	99.97	99.97	99.96	99.96	99.96	99.95	99.95	99.94	99.94	99.94	99.93
97	99.98	99.98	99.98	99.97	99.97	99.97	99.97	99.96	99.96	99.96	99.95	99.95	99.95	99.94	99.93
98	99.98	99.98	99.98	99.98	99.97	99.97	99.97	99.97	99.96	99.96	99.96	99.95	99.95	99.95	99.94
99	99.98	99.98	99.98	99.98	99.98	99.97	99.97	99.97	99.97	99.96	99.96	99.96	99.95	99.95	99.95
100	99.98	99.98	99.98	99.98	99.98	99.98	99.97	99.97	99.97	99.97	99.96	99.96	99.96	99.95	99.95

# TEACHER RETIREMENT SYSTEM OF TEXAS

## OPTION 2 FACTORS JOINT AND 50% BENEFICIARY WITH POP-UP FEATURE

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional benefit. Each percentage is based on age as of last birthday of member and beneficiary. Benefit reverts to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement														
	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59
1	96.23	95.95	95.65	95.33	94.99	94.62	94.24	93.83	93.40	92.95	92.49	92.00	91.50	90.98	90.42
2	96.24	95.96	95.66	95.34	95.00	94.64	94.25	93.84	93.41	92.96	92.50	92.02	91.52	90.99	90.43
3	96.25	95.97	95.67	95.35	95.01	94.65	94.26	93.85	93.43	92.98	92.51	92.03	91.53	91.00	90.44
4	96.27	95.99	95.69	95.37	95.03	94.66	94.28	93.87	93.44	92.99	92.53	92.05	91.54	91.02	90.46
5	96.28	96.00	95.70	95.38	95.04	94.68	94.29	93.88	93.46	93.01	92.54	92.06	91.56	91.03	90.47
6	96.30	96.02	95.72	95.40	95.06	94.69	94.31	93.90	93.47	93.02	92.56	92.08	91.58	91.05	90.49
7	96.31	96.03	95.73	95.41	95.07	94.71	94.33	93.92	93.49	93.04	92.58	92.10	91.59	91.07	90.51
8	96.33	96.05	95.75	95.43	95.09	94.73	94.34	93.94	93.51	93.06	92.60	92.11	91.61	91.09	90.53
9	96.35	96.07	95.77	95.45	95.11	94.75	94.36	93.96	93.53	93.08	92.62	92.13	91.63	91.11	90.55
10	96.37	96.09	95.79	95.47	95.13	94.77	94.38	93.98	93.55	93.10	92.64	92.16	91.65	91.13	90.57
11	96.39	96.11	95.81	95.49	95.15	94.79	94.41	94.00	93.57	93.12	92.66	92.18	91.68	91.15	90.59
12	96.41	96.13	95.83	95.52	95.18	94.82	94.43	94.02	93.60	93.15	92.69	92.20	91.70	91.18	90.62
13	96.43	96.16	95.86	95.54	95.20	94.84	94.46	94.05	93.62	93.18	92.71	92.23	91.73	91.20	90.65
14	96.46	96.18	95.88	95.57	95.23	94.87	94.48	94.08	93.65	93.20	92.74	92.26	91.76	91.23	90.67
15	96.49	96.21	95.91	95.60	95.26	94.90	94.51	94.11	93.68	93.23	92.77	92.29	91.79	91.26	90.71
16	96.51	96.24	95.94	95.62	95.29	94.93	94.54	94.14	93.71	93.26	92.80	92.32	91.82	91.29	90.74
17	96.54	96.27	95.97	95.66	95.32	94.96	94.57	94.17	93.74	93.30	92.83	92.35	91.85	91.33	90.77
18	96.58	96.30	96.00	95.69	95.35	94.99	94.61	94.20	93.78	93.33	92.87	92.39	91.89	91.37	90.81
19	96.61	96.33	96.04	95.72	95.39	95.03	94.64	94.24	93.81	93.37	92.91	92.43	91.93	91.40	90.85
20	96.64	96.37	96.07	95.76	95.42	95.07	94.68	94.28	93.85	93.41	92.95	92.47	91.97	91.45	90.89
21	96.68	96.41	96.11	95.80	95.46	95.11	94.72	94.32	93.90	93.45	92.99	92.51	92.01	91.49	90.94
22	96.72	96.45	96.15	95.84	95.51	95.15	94.77	94.36	93.94	93.50	93.04	92.56	92.06	91.54	90.98
23	96.76	96.49	96.20	95.88	95.55	95.19	94.81	94.41	93.99	93.55	93.09	92.61	92.11	91.59	91.04
24	96.81	96.53	96.24	95.93	95.60	95.24	94.86	94.46	94.04	93.60	93.14	92.66	92.16	91.64	91.09
25	96.85	96.58	96.29	95.98	95.65	95.29	94.91	94.51	94.09	93.65	93.19	92.72	92.22	91.70	91.15
26	96.90	96.63	96.34	96.03	95.70	95.35	94.97	94.57	94.15	93.71	93.25	92.78	92.28	91.76	91.21
27	96.95	96.68	96.39	96.08	95.75	95.40	95.03	94.63	94.21	93.77	93.31	92.84	92.34	91.82	91.27
28	97.00	96.73	96.45	96.14	95.81	95.46	95.09	94.69	94.27	93.83	93.38	92.90	92.41	91.89	91.34
29	97.06	96.79	96.51	96.20	95.87	95.52	95.15	94.75	94.34	93.90	93.44	92.97	92.48	91.96	91.41
30	97.11	96.85	96.57	96.26	95.94	95.59	95.22	94.82	94.40	93.97	93.52	93.05	92.56	92.04	91.49
31	97.17	96.91	96.63	96.33	96.00	95.66	95.29	94.89	94.48	94.04	93.59	93.12	92.63	92.12	91.57
32	97.23	96.97	96.70	96.40	96.07	95.73	95.36	94.97	94.55	94.12	93.67	93.20	92.72	92.20	91.66
33	97.30	97.04	96.76	96.47	96.15	95.80	95.44	95.05	94.63	94.20	93.76	93.29	92.80	92.29	91.75
34	97.36	97.11	96.83	96.54	96.22	95.88	95.52	95.13	94.72	94.29	93.84	93.38	92.90	92.39	91.84
35	97.43	97.18	96.91	96.61	96.30	95.96	95.60	95.21	94.81	94.38	93.94	93.48	92.99	92.48	91.94

# TEACHER RETIREMENT SYSTEM OF TEXAS

## OPTION 2 FACTORS JOINT AND 50% BENEFICIARY WITH POP-UP FEATURE

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional benefit. Each percentage is based on age as of last birthday of member and beneficiary. Benefit reverts to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement														
	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59
36	97.50	97.25	96.98	96.69	96.38	96.05	95.69	95.30	94.90	94.48	94.03	93.57	93.09	92.59	92.05
37	97.57	97.32	97.06	96.77	96.46	96.13	95.78	95.40	95.00	94.58	94.14	93.68	93.20	92.70	92.16
38	97.64	97.40	97.14	96.86	96.55	96.22	95.87	95.49	95.10	94.68	94.24	93.79	93.31	92.81	92.28
39	97.71	97.48	97.22	96.94	96.64	96.32	95.97	95.59	95.20	94.79	94.35	93.90	93.43	92.93	92.40
40	97.79	97.55	97.30	97.03	96.73	96.41	96.07	95.70	95.31	94.90	94.47	94.02	93.55	93.06	92.53
41	97.86	97.63	97.38	97.12	96.82	96.51	96.17	95.80	95.42	95.01	94.59	94.14	93.68	93.19	92.66
42	97.93	97.71	97.47	97.20	96.92	96.61	96.27	95.91	95.53	95.13	94.71	94.27	93.81	93.32	92.80
43	98.00	97.79	97.55	97.29	97.01	96.71	96.38	96.03	95.65	95.25	94.84	94.40	93.95	93.46	92.95
44	98.08	97.87	97.64	97.38	97.11	96.81	96.49	96.14	95.77	95.38	94.97	94.54	94.09	93.61	93.10
45	98.15	97.94	97.72	97.48	97.21	96.91	96.60	96.26	95.89	95.51	95.10	94.68	94.24	93.76	93.26
46	98.22	98.02	97.80	97.56	97.30	97.02	96.71	96.37	96.02	95.64	95.24	94.83	94.39	93.92	93.42
47	98.29	98.10	97.89	97.65	97.40	97.12	96.82	96.49	96.14	95.77	95.38	94.97	94.54	94.08	93.59
48	98.35	98.17	97.97	97.74	97.50	97.22	96.93	96.61	96.27	95.91	95.53	95.12	94.70	94.25	93.76
49	98.42	98.24	98.05	97.83	97.59	97.33	97.04	96.73	96.40	96.04	95.67	95.28	94.86	94.42	93.94
50	98.48	98.31	98.12	97.91	97.68	97.43	97.15	96.85	96.52	96.18	95.82	95.43	95.02	94.59	94.12
51	98.55	98.38	98.20	98.00	97.77	97.53	97.26	96.97	96.65	96.32	95.96	95.59	95.19	94.76	94.30
52	98.61	98.45	98.27	98.08	97.86	97.63	97.36	97.08	96.78	96.45	96.11	95.74	95.36	94.94	94.49
53	98.66	98.51	98.34	98.16	97.95	97.72	97.47	97.20	96.90	96.59	96.25	95.90	95.52	95.12	94.68
54	98.72	98.57	98.41	98.23	98.03	97.81	97.57	97.31	97.02	96.72	96.40	96.05	95.69	95.30	94.87
55	98.77	98.63	98.48	98.31	98.12	97.90	97.67	97.42	97.14	96.85	96.54	96.21	95.86	95.48	95.06
56	98.83	98.69	98.54	98.38	98.19	97.99	97.77	97.52	97.26	96.98	96.68	96.36	96.02	95.66	95.26
57	98.88	98.75	98.61	98.45	98.27	98.08	97.86	97.63	97.37	97.10	96.82	96.51	96.18	95.83	95.45
58	98.93	98.80	98.67	98.51	98.35	98.16	97.95	97.73	97.49	97.23	96.95	96.66	96.35	96.01	95.64
59	98.97	98.86	98.72	98.58	98.42	98.24	98.04	97.83	97.59	97.34	97.08	96.80	96.50	96.18	95.82
60	99.02	98.91	98.78	98.64	98.49	98.31	98.13	97.92	97.70	97.46	97.21	96.94	96.66	96.35	96.01
61	99.06	98.95	98.83	98.70	98.55	98.39	98.21	98.01	97.80	97.57	97.33	97.08	96.81	96.51	96.19
62	99.11	99.00	98.89	98.76	98.62	98.46	98.29	98.10	97.90	97.68	97.45	97.21	96.95	96.68	96.37
63	99.15	99.05	98.94	98.82	98.68	98.53	98.36	98.18	97.99	97.78	97.57	97.34	97.10	96.83	96.54
64	99.19	99.09	98.99	98.87	98.74	98.60	98.44	98.27	98.08	97.88	97.68	97.46	97.23	96.98	96.71
65	99.23	99.14	99.04	98.92	98.80	98.66	98.51	98.34	98.17	97.98	97.79	97.58	97.37	97.13	96.87
66	99.27	99.18	99.08	98.97	98.85	98.72	98.58	98.42	98.25	98.07	97.89	97.70	97.49	97.27	97.03
67	99.30	99.22	99.13	99.02	98.91	98.78	98.64	98.49	98.33	98.16	97.99	97.81	97.62	97.41	97.18
68	99.34	99.26	99.17	99.07	98.96	98.84	98.71	98.56	98.41	98.25	98.09	97.91	97.73	97.54	97.33
69	99.38	99.30	99.21	99.12	99.01	98.90	98.77	98.63	98.49	98.33	98.18	98.02	97.85	97.67	97.47
70	99.41	99.34	99.26	99.17	99.06	98.95	98.83	98.70	98.56	98.42	98.27	98.11	97.96	97.79	97.60

# TEACHER RETIREMENT SYSTEM OF TEXAS

## OPTION 2 FACTORS JOINT AND 50% BENEFICIARY WITH POP-UP FEATURE

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional benefit. Each percentage is based on age as of last birthday of member and beneficiary. Benefit reverts to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement														
	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59
71	99.45	99.38	99.30	99.21	99.11	99.01	98.89	98.76	98.63	98.49	98.35	98.21	98.06	97.90	97.73
72	99.48	99.41	99.34	99.25	99.16	99.06	98.95	98.83	98.70	98.57	98.43	98.30	98.16	98.01	97.85
73	99.51	99.45	99.38	99.30	99.21	99.11	99.00	98.89	98.76	98.64	98.51	98.39	98.26	98.12	97.97
74	99.54	99.48	99.41	99.34	99.25	99.16	99.06	98.95	98.83	98.71	98.59	98.47	98.35	98.22	98.08
75	99.57	99.51	99.45	99.38	99.30	99.21	99.11	99.00	98.89	98.78	98.66	98.55	98.44	98.32	98.19
76	99.60	99.54	99.48	99.41	99.34	99.25	99.16	99.06	98.95	98.84	98.73	98.63	98.52	98.41	98.29
77	99.63	99.57	99.52	99.45	99.38	99.30	99.21	99.11	99.01	98.90	98.80	98.70	98.60	98.50	98.39
78	99.65	99.60	99.55	99.49	99.42	99.34	99.25	99.16	99.06	98.96	98.87	98.77	98.68	98.58	98.48
79	99.68	99.63	99.58	99.52	99.46	99.38	99.30	99.21	99.12	99.02	98.93	98.84	98.75	98.66	98.57
80	99.70	99.66	99.61	99.55	99.49	99.42	99.34	99.26	99.17	99.08	98.99	98.90	98.82	98.74	98.65
81	99.72	99.68	99.64	99.59	99.53	99.46	99.39	99.30	99.22	99.13	99.05	98.97	98.89	98.81	98.73
82	99.74	99.71	99.67	99.62	99.56	99.50	99.43	99.35	99.27	99.18	99.10	99.03	98.96	98.88	98.81
83	99.76	99.73	99.69	99.65	99.59	99.53	99.46	99.39	99.31	99.23	99.16	99.09	99.02	98.95	98.88
84	99.78	99.75	99.71	99.67	99.62	99.57	99.50	99.43	99.36	99.28	99.21	99.14	99.08	99.02	98.95
85	99.80	99.77	99.74	99.70	99.65	99.60	99.54	99.47	99.40	99.33	99.26	99.19	99.13	99.08	99.02
86	99.82	99.79	99.76	99.72	99.68	99.63	99.57	99.51	99.44	99.37	99.31	99.24	99.19	99.13	99.08
87	99.83	99.81	99.78	99.74	99.70	99.66	99.60	99.54	99.48	99.41	99.35	99.29	99.24	99.19	99.14
88	99.84	99.82	99.79	99.76	99.73	99.68	99.63	99.58	99.51	99.45	99.39	99.34	99.29	99.24	99.20
89	99.86	99.84	99.81	99.78	99.75	99.71	99.66	99.61	99.55	99.49	99.43	99.38	99.33	99.29	99.25
90	99.87	99.85	99.83	99.80	99.77	99.73	99.69	99.63	99.58	99.52	99.47	99.42	99.37	99.33	99.29
91	99.88	99.86	99.84	99.82	99.79	99.75	99.71	99.66	99.61	99.56	99.50	99.46	99.41	99.38	99.34
92	99.89	99.87	99.85	99.83	99.80	99.77	99.73	99.69	99.64	99.59	99.54	99.49	99.45	99.42	99.38
93	99.90	99.88	99.86	99.84	99.82	99.79	99.75	99.71	99.66	99.61	99.57	99.53	99.49	99.45	99.42
94	99.90	99.89	99.88	99.86	99.83	99.81	99.77	99.73	99.69	99.64	99.60	99.56	99.52	99.49	99.46
95	99.91	99.90	99.89	99.87	99.85	99.82	99.79	99.76	99.71	99.67	99.63	99.59	99.56	99.53	99.50
96	99.92	99.91	99.90	99.88	99.86	99.84	99.81	99.78	99.74	99.70	99.66	99.62	99.59	99.56	99.54
97	99.93	99.92	99.91	99.89	99.88	99.85	99.83	99.80	99.76	99.72	99.68	99.65	99.62	99.60	99.57
98	99.93	99.92	99.91	99.90	99.89	99.87	99.84	99.81	99.78	99.75	99.71	99.68	99.65	99.63	99.61
99	99.94	99.93	99.92	99.91	99.90	99.88	99.86	99.83	99.80	99.77	99.73	99.70	99.68	99.66	99.64
100	99.94	99.94	99.93	99.92	99.91	99.89	99.87	99.85	99.82	99.79	99.76	99.73	99.70	99.68	99.67

# TEACHER RETIREMENT SYSTEM OF TEXAS

## OPTION 2 FACTORS JOINT AND 50% BENEFICIARY WITH POP-UP FEATURE

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional benefit. Each percentage is based on age as of last birthday of member and beneficiary. Benefit reverts to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement														
	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74
1	89.82	89.19	88.50	87.77	86.99	86.14	85.24	84.27	83.23	82.13	80.95	79.69	78.36	76.94	75.44
2	89.84	89.20	88.52	87.78	87.00	86.15	85.25	84.28	83.25	82.14	80.96	79.71	78.37	76.96	75.45
3	89.85	89.21	88.53	87.80	87.01	86.17	85.26	84.30	83.26	82.15	80.98	79.72	78.39	76.97	75.47
4	89.86	89.23	88.55	87.81	87.03	86.18	85.28	84.31	83.28	82.17	80.99	79.74	78.40	76.99	75.48
5	89.88	89.24	88.56	87.83	87.04	86.20	85.30	84.33	83.29	82.19	81.01	79.75	78.42	77.00	75.50
6	89.90	89.26	88.58	87.85	87.06	86.22	85.31	84.35	83.31	82.20	81.02	79.77	78.44	77.02	75.52
7	89.92	89.28	88.60	87.86	87.08	86.24	85.33	84.36	83.33	82.22	81.04	79.79	78.45	77.04	75.53
8	89.93	89.30	88.62	87.88	87.10	86.25	85.35	84.38	83.35	82.24	81.06	79.81	78.47	77.06	75.55
9	89.96	89.32	88.64	87.90	87.12	86.28	85.37	84.40	83.37	82.26	81.08	79.83	78.50	77.08	75.57
10	89.98	89.34	88.66	87.93	87.14	86.30	85.39	84.43	83.39	82.28	81.11	79.85	78.52	77.10	75.60
11	90.00	89.37	88.68	87.95	87.16	86.32	85.42	84.45	83.41	82.31	81.13	79.88	78.54	77.12	75.62
12	90.03	89.39	88.71	87.98	87.19	86.35	85.44	84.48	83.44	82.33	81.16	79.90	78.57	77.15	75.65
13	90.05	89.42	88.74	88.00	87.22	86.37	85.47	84.50	83.47	82.36	81.18	79.93	78.59	77.18	75.67
14	90.08	89.45	88.76	88.03	87.25	86.40	85.50	84.53	83.50	82.39	81.21	79.96	78.62	77.21	75.70
15	90.11	89.48	88.80	88.06	87.28	86.43	85.53	84.56	83.53	82.42	81.24	79.99	78.65	77.24	75.73
16	90.14	89.51	88.83	88.10	87.31	86.47	85.56	84.60	83.56	82.45	81.28	80.02	78.69	77.27	75.76
17	90.18	89.54	88.86	88.13	87.35	86.50	85.60	84.63	83.60	82.49	81.31	80.06	78.72	77.31	75.80
18	90.22	89.58	88.90	88.17	87.38	86.54	85.64	84.67	83.63	82.53	81.35	80.09	78.76	77.34	75.84
19	90.26	89.62	88.94	88.21	87.42	86.58	85.68	84.71	83.68	82.57	81.39	80.14	78.80	77.38	75.88
20	90.30	89.67	88.98	88.25	87.47	86.63	85.72	84.76	83.72	82.61	81.43	80.18	78.85	77.43	75.92
21	90.34	89.71	89.03	88.30	87.51	86.67	85.77	84.80	83.77	82.66	81.48	80.23	78.89	77.47	75.97
22	90.39	89.76	89.08	88.35	87.56	86.72	85.82	84.85	83.82	82.71	81.53	80.28	78.94	77.53	76.02
23	90.44	89.81	89.13	88.40	87.62	86.78	85.87	84.91	83.87	82.77	81.59	80.33	79.00	77.58	76.07
24	90.50	89.87	89.19	88.46	87.67	86.83	85.93	84.97	83.93	82.82	81.65	80.39	79.06	77.64	76.13
25	90.56	89.93	89.25	88.52	87.74	86.89	85.99	85.03	83.99	82.89	81.71	80.45	79.12	77.70	76.19
26	90.62	89.99	89.31	88.58	87.80	86.96	86.06	85.09	84.06	82.95	81.77	80.52	79.18	77.77	76.26
27	90.69	90.05	89.38	88.65	87.87	87.03	86.13	85.16	84.13	83.02	81.85	80.59	79.26	77.84	76.33
28	90.75	90.13	89.45	88.72	87.94	87.10	86.20	85.24	84.20	83.10	81.92	80.67	79.33	77.91	76.41
29	90.83	90.20	89.52	88.80	88.02	87.18	86.28	85.32	84.28	83.18	82.00	80.75	79.41	78.00	76.49
30	90.91	90.28	89.60	88.88	88.10	87.26	86.36	85.40	84.37	83.26	82.09	80.83	79.50	78.08	76.58
31	90.99	90.36	89.69	88.97	88.19	87.35	86.45	85.49	84.46	83.36	82.18	80.93	79.59	78.17	76.67
32	91.08	90.45	89.78	89.06	88.28	87.44	86.55	85.59	84.56	83.45	82.28	81.02	79.69	78.27	76.77
33	91.17	90.54	89.87	89.15	88.38	87.54	86.65	85.69	84.66	83.56	82.38	81.13	79.80	78.38	76.87
34	91.27	90.64	89.97	89.25	88.48	87.65	86.75	85.79	84.77	83.66	82.49	81.24	79.91	78.49	76.98
35	91.37	90.75	90.08	89.36	88.59	87.76	86.87	85.91	84.88	83.78	82.61	81.36	80.03	78.61	77.10



# TEACHER RETIREMENT SYSTEM OF TEXAS

## OPTION 2 FACTORS JOINT AND 50% BENEFICIARY WITH POP-UP FEATURE

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional benefit. Each percentage is based on age as of last birthday of member and beneficiary. Benefit reverts to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement														
	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74
36	91.48	90.86	90.19	89.48	88.70	87.88	86.98	86.03	85.00	83.90	82.73	81.48	80.15	78.74	77.23
37	91.59	90.97	90.31	89.60	88.83	88.00	87.11	86.15	85.13	84.03	82.86	81.61	80.28	78.87	77.36
38	91.71	91.09	90.43	89.72	88.95	88.13	87.24	86.29	85.27	84.17	83.00	81.75	80.43	79.01	77.51
39	91.83	91.22	90.56	89.85	89.09	88.27	87.38	86.43	85.41	84.32	83.15	81.90	80.58	79.16	77.66
40	91.96	91.36	90.70	89.99	89.23	88.41	87.53	86.58	85.56	84.47	83.30	82.06	80.73	79.32	77.82
41	92.10	91.50	90.84	90.14	89.38	88.56	87.68	86.74	85.72	84.63	83.47	82.23	80.90	79.49	77.99
42	92.25	91.64	91.00	90.29	89.54	88.72	87.85	86.90	85.89	84.80	83.64	82.40	81.08	79.67	78.17
43	92.40	91.80	91.15	90.46	89.70	88.89	88.02	87.08	86.07	84.98	83.82	82.59	81.27	79.86	78.36
44	92.55	91.96	91.32	90.62	89.88	89.07	88.20	87.26	86.25	85.17	84.02	82.78	81.46	80.06	78.56
45	92.71	92.13	91.49	90.80	90.06	89.25	88.39	87.45	86.45	85.37	84.22	82.99	81.67	80.27	78.77
46	92.88	92.30	91.67	90.99	90.25	89.45	88.58	87.65	86.65	85.58	84.43	83.20	81.89	80.49	79.00
47	93.06	92.48	91.86	91.18	90.44	89.65	88.79	87.87	86.87	85.80	84.65	83.43	82.12	80.72	79.23
48	93.24	92.67	92.05	91.38	90.65	89.86	89.01	88.09	87.09	86.03	84.89	83.67	82.36	80.97	79.48
49	93.42	92.86	92.25	91.58	90.86	90.08	89.23	88.32	87.33	86.27	85.13	83.92	82.61	81.22	79.74
50	93.61	93.06	92.45	91.80	91.08	90.31	89.47	88.56	87.58	86.52	85.39	84.18	82.88	81.49	80.01
51	93.80	93.26	92.67	92.02	91.31	90.54	89.71	88.81	87.83	86.79	85.66	84.45	83.16	81.78	80.30
52	94.00	93.47	92.88	92.24	91.55	90.79	89.96	89.07	88.10	87.06	85.94	84.74	83.45	82.07	80.60
53	94.20	93.68	93.10	92.48	91.79	91.04	90.22	89.34	88.38	87.35	86.23	85.04	83.76	82.38	80.92
54	94.41	93.89	93.33	92.71	92.04	91.30	90.49	89.62	88.67	87.64	86.54	85.35	84.08	82.71	81.25
55	94.61	94.11	93.56	92.96	92.29	91.57	90.77	89.91	88.97	87.95	86.86	85.68	84.41	83.05	81.60
56	94.82	94.33	93.79	93.20	92.55	91.84	91.06	90.20	89.28	88.27	87.19	86.02	84.76	83.41	81.96
57	95.02	94.55	94.03	93.45	92.82	92.12	91.35	90.51	89.60	88.60	87.53	86.37	85.12	83.78	82.34
58	95.23	94.77	94.27	93.70	93.08	92.40	91.65	90.82	89.92	88.94	87.88	86.74	85.50	84.17	82.74
59	95.43	94.99	94.50	93.96	93.35	92.69	91.95	91.14	90.26	89.30	88.25	87.12	85.89	84.57	83.15
60	95.63	95.21	94.74	94.21	93.63	92.98	92.26	91.47	90.60	89.66	88.63	87.51	86.30	84.99	83.59
61	95.83	95.43	94.97	94.46	93.90	93.27	92.57	91.80	90.95	90.03	89.01	87.91	86.72	85.43	84.04
62	96.02	95.64	95.20	94.72	94.17	93.56	92.89	92.14	91.31	90.40	89.41	88.33	87.15	85.88	84.50
63	96.21	95.85	95.43	94.96	94.44	93.85	93.20	92.47	91.67	90.78	89.81	88.75	87.60	86.34	84.99
64	96.40	96.05	95.66	95.21	94.71	94.14	93.51	92.81	92.03	91.17	90.22	89.18	88.05	86.82	85.48
65	96.58	96.25	95.88	95.45	94.97	94.43	93.82	93.15	92.39	91.55	90.63	89.62	88.52	87.31	86.00
66	96.75	96.44	96.09	95.69	95.23	94.71	94.13	93.48	92.75	91.94	91.05	90.07	88.99	87.81	86.52
67	96.92	96.63	96.30	95.91	95.48	94.99	94.43	93.81	93.11	92.33	91.47	90.51	89.46	88.31	87.05
68	97.09	96.81	96.50	96.14	95.73	95.26	94.73	94.13	93.46	92.72	91.88	90.96	89.94	88.82	87.59
69	97.24	96.98	96.69	96.35	95.96	95.52	95.02	94.45	93.81	93.10	92.30	91.41	90.42	89.34	88.14
70	97.39	97.15	96.87	96.56	96.19	95.78	95.30	94.76	94.15	93.47	92.70	91.85	90.90	89.85	88.69

# TEACHER RETIREMENT SYSTEM OF TEXAS

## OPTION 2 FACTORS JOINT AND 50% BENEFICIARY WITH POP-UP FEATURE

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional benefit. Each percentage is based on age as of last birthday of member and beneficiary. Benefit reverts to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement														
	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74
71	97.53	97.31	97.05	96.76	96.41	96.02	95.58	95.07	94.49	93.84	93.10	92.29	91.37	90.36	89.24
72	97.67	97.46	97.22	96.95	96.63	96.26	95.84	95.36	94.81	94.19	93.50	92.71	91.84	90.87	89.79
73	97.80	97.61	97.39	97.13	96.83	96.49	96.09	95.64	95.12	94.54	93.88	93.13	92.30	91.37	90.33
74	97.93	97.75	97.54	97.30	97.02	96.70	96.33	95.91	95.42	94.87	94.25	93.54	92.75	91.86	90.87
75	98.05	97.88	97.69	97.47	97.21	96.91	96.57	96.17	95.71	95.19	94.60	93.94	93.19	92.34	91.39
76	98.16	98.01	97.83	97.62	97.38	97.11	96.79	96.42	95.99	95.50	94.95	94.32	93.61	92.81	91.90
77	98.27	98.12	97.96	97.77	97.55	97.29	97.00	96.65	96.25	95.80	95.28	94.69	94.02	93.26	92.40
78	98.37	98.24	98.09	97.91	97.71	97.47	97.19	96.87	96.50	96.08	95.59	95.04	94.41	93.69	92.88
79	98.47	98.35	98.21	98.05	97.86	97.64	97.38	97.09	96.74	96.35	95.89	95.37	94.78	94.11	93.34
80	98.56	98.45	98.32	98.17	98.00	97.80	97.56	97.28	96.97	96.60	96.18	95.69	95.14	94.51	93.79
81	98.65	98.55	98.43	98.29	98.13	97.94	97.73	97.47	97.18	96.84	96.44	95.99	95.48	94.89	94.22
82	98.73	98.64	98.53	98.40	98.26	98.09	97.88	97.65	97.38	97.06	96.70	96.28	95.80	95.25	94.62
83	98.81	98.72	98.63	98.51	98.38	98.22	98.03	97.82	97.57	97.27	96.94	96.55	96.11	95.59	95.00
84	98.88	98.81	98.72	98.61	98.49	98.34	98.17	97.97	97.74	97.47	97.16	96.80	96.39	95.92	95.37
85	98.96	98.88	98.80	98.70	98.59	98.46	98.30	98.12	97.91	97.66	97.37	97.04	96.66	96.22	95.71
86	99.02	98.96	98.88	98.79	98.69	98.57	98.42	98.26	98.06	97.83	97.57	97.26	96.91	96.50	96.03
87	99.09	99.03	98.96	98.88	98.78	98.67	98.54	98.38	98.20	97.99	97.75	97.47	97.14	96.77	96.33
88	99.15	99.09	99.03	98.95	98.87	98.76	98.64	98.50	98.33	98.14	97.92	97.66	97.36	97.01	96.61
89	99.20	99.15	99.09	99.02	98.94	98.85	98.74	98.61	98.46	98.28	98.07	97.83	97.56	97.24	96.86
90	99.25	99.21	99.15	99.09	99.02	98.93	98.83	98.71	98.57	98.40	98.21	97.99	97.74	97.44	97.10
91	99.30	99.26	99.21	99.15	99.08	99.01	98.91	98.80	98.67	98.52	98.34	98.14	97.91	97.63	97.32
92	99.35	99.31	99.26	99.21	99.15	99.08	98.99	98.89	98.77	98.63	98.47	98.28	98.06	97.81	97.52
93	99.39	99.35	99.31	99.27	99.21	99.14	99.06	98.97	98.86	98.73	98.58	98.41	98.21	97.98	97.71
94	99.43	99.40	99.36	99.32	99.27	99.20	99.13	99.05	98.94	98.83	98.69	98.53	98.35	98.14	97.89
95	99.47	99.44	99.41	99.37	99.32	99.26	99.20	99.12	99.03	98.92	98.79	98.65	98.48	98.29	98.06
96	99.51	99.48	99.45	99.42	99.37	99.32	99.26	99.19	99.11	99.01	98.89	98.76	98.61	98.43	98.22
97	99.55	99.52	99.50	99.46	99.42	99.38	99.32	99.26	99.18	99.09	98.98	98.86	98.73	98.56	98.37
98	99.59	99.56	99.54	99.51	99.47	99.43	99.38	99.32	99.25	99.17	99.07	98.96	98.83	98.69	98.52
99	99.62	99.60	99.57	99.55	99.51	99.47	99.43	99.38	99.31	99.24	99.15	99.05	98.93	98.80	98.64
100	99.65	99.63	99.61	99.58	99.55	99.52	99.48	99.43	99.37	99.30	99.22	99.13	99.02	98.90	98.76

# TEACHER RETIREMENT SYSTEM OF TEXAS

## OPTION 2 FACTORS JOINT AND 50% BENEFICIARY WITH POP-UP FEATURE

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional benefit. Each percentage is based on age as of last birthday of member and beneficiary. Benefit reverts to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement														
	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89
1	73.85	72.16	70.39	68.53	66.59	64.59	62.52	60.41	58.24	56.03	53.78	51.49	49.19	46.90	44.65
2	73.86	72.17	70.40	68.54	66.61	64.60	62.54	60.42	58.25	56.04	53.79	51.50	49.20	46.91	44.66
3	73.87	72.19	70.41	68.55	66.62	64.62	62.55	60.43	58.27	56.06	53.80	51.52	49.21	46.92	44.67
4	73.89	72.20	70.43	68.57	66.63	64.63	62.56	60.45	58.28	56.07	53.82	51.53	49.23	46.93	44.68
5	73.90	72.22	70.44	68.59	66.65	64.65	62.58	60.46	58.30	56.08	53.83	51.54	49.24	46.95	44.70
6	73.92	72.24	70.46	68.60	66.67	64.66	62.60	60.48	58.31	56.10	53.85	51.56	49.26	46.96	44.71
7	73.94	72.25	70.48	68.62	66.68	64.68	62.61	60.50	58.33	56.12	53.86	51.57	49.27	46.98	44.72
8	73.96	72.27	70.50	68.64	66.70	64.70	62.63	60.51	58.35	56.13	53.88	51.59	49.29	46.99	44.74
9	73.98	72.29	70.52	68.66	66.72	64.72	62.65	60.53	58.37	56.15	53.90	51.61	49.31	47.01	44.76
10	74.00	72.32	70.54	68.68	66.74	64.74	62.67	60.55	58.39	56.17	53.92	51.63	49.32	47.03	44.78
11	74.03	72.34	70.56	68.70	66.77	64.76	62.70	60.58	58.41	56.20	53.94	51.65	49.34	47.05	44.79
12	74.05	72.36	70.59	68.73	66.79	64.79	62.72	60.60	58.43	56.22	53.96	51.67	49.37	47.07	44.81
13	74.08	72.39	70.62	68.76	66.82	64.81	62.74	60.62	58.46	56.24	53.99	51.69	49.39	47.09	44.84
14	74.11	72.42	70.64	68.78	66.85	64.84	62.77	60.65	58.48	56.27	54.01	51.72	49.41	47.11	44.86
15	74.14	72.45	70.67	68.81	66.87	64.87	62.80	60.68	58.51	56.29	54.04	51.74	49.44	47.14	44.88
16	74.17	72.48	70.71	68.84	66.91	64.90	62.83	60.71	58.54	56.32	54.06	51.77	49.46	47.16	44.91
17	74.20	72.52	70.74	68.88	66.94	64.93	62.86	60.74	58.57	56.35	54.09	51.80	49.49	47.19	44.93
18	74.24	72.55	70.78	68.91	66.97	64.97	62.90	60.77	58.60	56.38	54.13	51.83	49.52	47.22	44.96
19	74.28	72.59	70.82	68.95	67.01	65.01	62.93	60.81	58.64	56.42	54.16	51.86	49.55	47.25	44.99
20	74.33	72.64	70.86	69.00	67.06	65.05	62.97	60.85	58.68	56.46	54.20	51.90	49.59	47.28	45.02
21	74.37	72.68	70.90	69.04	67.10	65.09	63.02	60.89	58.72	56.50	54.24	51.94	49.63	47.32	45.06
22	74.42	72.73	70.95	69.09	67.15	65.14	63.07	60.94	58.77	56.54	54.28	51.98	49.67	47.36	45.10
23	74.48	72.79	71.01	69.14	67.20	65.19	63.12	60.99	58.81	56.59	54.33	52.03	49.71	47.40	45.14
24	74.53	72.84	71.06	69.20	67.26	65.25	63.17	61.04	58.87	56.64	54.38	52.08	49.76	47.45	45.18
25	74.60	72.91	71.13	69.26	67.32	65.31	63.23	61.10	58.92	56.70	54.43	52.13	49.81	47.50	45.23
26	74.66	72.97	71.19	69.33	67.38	65.37	63.29	61.16	58.99	56.76	54.49	52.19	49.87	47.55	45.28
27	74.73	73.04	71.26	69.40	67.45	65.44	63.36	61.23	59.05	56.82	54.55	52.25	49.93	47.61	45.34
28	74.81	73.12	71.34	69.47	67.52	65.51	63.43	61.30	59.12	56.89	54.62	52.31	49.99	47.67	45.40
29	74.89	73.20	71.42	69.55	67.60	65.59	63.51	61.38	59.19	56.97	54.69	52.38	50.06	47.74	45.46
30	74.98	73.29	71.50	69.64	67.69	65.67	63.59	61.46	59.27	57.04	54.77	52.46	50.13	47.81	45.53
31	75.07	73.38	71.59	69.73	67.78	65.76	63.68	61.55	59.36	57.13	54.85	52.54	50.21	47.89	45.61
32	75.17	73.48	71.69	69.82	67.88	65.86	63.77	61.64	59.45	57.22	54.94	52.62	50.29	47.97	45.68
33	75.27	73.58	71.80	69.93	67.98	65.96	63.88	61.74	59.55	57.31	55.03	52.72	50.38	48.06	45.77
34	75.39	73.69	71.91	70.04	68.09	66.07	63.98	61.85	59.66	57.42	55.14	52.82	50.48	48.15	45.86
35	75.50	73.81	72.03	70.16	68.21	66.19	64.10	61.96	59.77	57.53	55.24	52.92	50.58	48.25	45.96

# TEACHER RETIREMENT SYSTEM OF TEXAS

## OPTION 2 FACTORS JOINT AND 50% BENEFICIARY WITH POP-UP FEATURE

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional benefit. Each percentage is based on age as of last birthday of member and beneficiary. Benefit reverts to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement														
	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89
36	75.63	73.94	72.16	70.28	68.33	66.31	64.22	62.08	59.89	57.65	55.36	53.03	50.69	48.36	46.06
37	75.77	74.08	72.29	70.42	68.47	66.44	64.36	62.21	60.02	57.77	55.48	53.16	50.81	48.47	46.17
38	75.91	74.22	72.43	70.56	68.61	66.59	64.50	62.35	60.15	57.91	55.62	53.29	50.94	48.59	46.29
39	76.06	74.37	72.59	70.72	68.76	66.74	64.65	62.50	60.30	58.05	55.76	53.42	51.07	48.73	46.42
40	76.23	74.53	72.75	70.88	68.93	66.90	64.81	62.66	60.46	58.21	55.91	53.57	51.22	48.87	46.56
41	76.40	74.71	72.92	71.05	69.10	67.07	64.98	62.83	60.62	58.37	56.07	53.73	51.37	49.02	46.70
42	76.58	74.89	73.11	71.23	69.28	67.25	65.16	63.01	60.80	58.55	56.24	53.90	51.54	49.18	46.86
43	76.77	75.08	73.30	71.43	69.47	67.45	65.35	63.20	60.99	58.73	56.43	54.08	51.71	49.35	47.03
44	76.97	75.29	73.50	71.63	69.68	67.65	65.55	63.40	61.19	58.93	56.62	54.27	51.90	49.54	47.21
45	77.19	75.50	73.72	71.85	69.90	67.87	65.77	63.62	61.41	59.14	56.83	54.48	52.10	49.73	47.40
46	77.41	75.73	73.95	72.08	70.13	68.10	66.00	63.84	61.63	59.37	57.05	54.69	52.31	49.94	47.60
47	77.65	75.97	74.19	72.32	70.37	68.34	66.24	64.08	61.87	59.60	57.28	54.92	52.54	50.16	47.82
48	77.90	76.22	74.44	72.57	70.62	68.59	66.49	64.34	62.12	59.85	57.53	55.17	52.78	50.39	48.04
49	78.16	76.48	74.71	72.84	70.89	68.86	66.76	64.60	62.39	60.11	57.79	55.42	53.03	50.64	48.29
50	78.44	76.76	74.99	73.12	71.17	69.15	67.05	64.88	62.67	60.39	58.06	55.69	53.30	50.90	48.54
51	78.73	77.05	75.28	73.42	71.47	69.44	67.34	65.18	62.96	60.68	58.35	55.98	53.58	51.18	48.81
52	79.03	77.36	75.59	73.73	71.78	69.76	67.66	65.49	63.27	60.99	58.66	56.28	53.87	51.47	49.09
53	79.35	77.69	75.92	74.06	72.11	70.09	67.99	65.82	63.60	61.32	58.98	56.60	54.19	51.77	49.39
54	79.69	78.03	76.26	74.41	72.46	70.44	68.34	66.17	63.95	61.66	59.32	56.93	54.51	52.10	49.71
55	80.04	78.38	76.62	74.77	72.83	70.80	68.70	66.54	64.31	62.02	59.68	57.28	54.86	52.44	50.04
56	80.41	78.76	77.00	75.15	73.21	71.19	69.09	66.92	64.69	62.40	60.06	57.66	55.23	52.80	50.40
57	80.80	79.15	77.40	75.56	73.62	71.60	69.50	67.33	65.10	62.81	60.46	58.05	55.62	53.18	50.77
58	81.20	79.57	77.82	75.98	74.05	72.03	69.93	67.76	65.53	63.24	60.88	58.47	56.03	53.58	51.17
59	81.63	80.00	78.26	76.43	74.50	72.48	70.39	68.22	65.99	63.69	61.33	58.92	56.47	54.01	51.59
60	82.07	80.45	78.73	76.90	74.97	72.96	70.87	68.70	66.47	64.17	61.81	59.39	56.93	54.47	52.04
61	82.54	80.93	79.21	77.39	75.47	73.47	71.38	69.21	66.98	64.68	62.31	59.89	57.43	54.96	52.51
62	83.02	81.42	79.72	77.91	76.00	74.00	71.92	69.76	67.52	65.22	62.85	60.43	57.96	55.48	53.03
63	83.52	81.94	80.25	78.45	76.55	74.56	72.48	70.33	68.10	65.80	63.43	60.99	58.52	56.04	53.57
64	84.04	82.47	80.80	79.02	77.13	75.15	73.08	70.93	68.71	66.41	64.04	61.60	59.12	56.63	54.16
65	84.57	83.03	81.37	79.61	77.73	75.77	73.71	71.57	69.35	67.05	64.68	62.24	59.76	57.26	54.78
66	85.12	83.60	81.96	80.22	78.36	76.41	74.37	72.24	70.02	67.73	65.36	62.93	60.44	57.93	55.44
67	85.68	84.19	82.58	80.85	79.02	77.09	75.05	72.94	70.73	68.45	66.09	63.65	61.16	58.65	56.15
68	86.25	84.79	83.20	81.51	79.70	77.78	75.77	73.67	71.48	69.21	66.85	64.42	61.93	59.41	56.91
69	86.83	85.40	83.85	82.18	80.39	78.51	76.52	74.43	72.26	70.00	67.65	65.22	62.74	60.22	57.71
70	87.42	86.02	84.50	82.86	81.11	79.25	77.29	75.23	73.07	70.83	68.49	66.07	63.59	61.07	58.56

# TEACHER RETIREMENT SYSTEM OF TEXAS

## OPTION 2 FACTORS JOINT AND 50% BENEFICIARY WITH POP-UP FEATURE

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional benefit. Each percentage is based on age as of last birthday of member and beneficiary. Benefit reverts to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement														
	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89
71	88.00	86.65	85.16	83.56	81.84	80.02	78.08	76.04	73.91	71.69	69.37	66.96	64.48	61.97	59.46
72	88.59	87.27	85.83	84.27	82.59	80.80	78.89	76.89	74.78	72.58	70.28	67.89	65.42	62.92	60.41
73	89.18	87.90	86.50	84.98	83.34	81.59	79.72	77.75	75.68	73.50	71.22	68.85	66.40	63.90	61.40
74	89.76	88.53	87.18	85.70	84.10	82.39	80.57	78.63	76.60	74.45	72.20	69.85	67.42	64.93	62.44
75	90.33	89.15	87.84	86.42	84.87	83.20	81.42	79.53	77.53	75.42	73.20	70.88	68.47	66.00	63.52
76	90.89	89.76	88.50	87.13	85.63	84.01	82.28	80.43	78.48	76.41	74.23	71.94	69.55	67.11	64.64
77	91.43	90.35	89.15	87.83	86.38	84.82	83.14	81.34	79.44	77.41	75.27	73.02	70.67	68.25	65.80
78	91.96	90.93	89.79	88.52	87.13	85.62	83.99	82.25	80.40	78.43	76.33	74.12	71.80	69.42	67.00
79	92.48	91.50	90.41	89.19	87.86	86.41	84.84	83.16	81.36	79.44	77.40	75.23	72.96	70.61	68.22
80	92.97	92.05	91.01	89.85	88.58	87.19	85.68	84.06	82.32	80.46	78.47	76.36	74.13	71.82	69.47
81	93.45	92.57	91.59	90.49	89.28	87.95	86.51	84.95	83.27	81.47	79.54	77.48	75.31	73.05	70.74
82	93.90	93.08	92.15	91.11	89.95	88.69	87.31	85.82	84.21	82.47	80.61	78.61	76.50	74.29	72.03
83	94.33	93.56	92.68	91.70	90.61	89.41	88.09	86.67	85.13	83.46	81.66	79.73	77.68	75.53	73.32
84	94.74	94.02	93.19	92.27	91.24	90.10	88.85	87.50	86.03	84.43	82.70	80.84	78.85	76.77	74.62
85	95.12	94.45	93.68	92.81	91.84	90.77	89.58	88.30	86.90	85.37	83.72	81.93	80.01	77.99	75.91
86	95.49	94.86	94.14	93.32	92.41	91.40	90.28	89.06	87.73	86.29	84.71	82.99	81.15	79.20	77.18
87	95.82	95.24	94.57	93.80	92.95	92.00	90.94	89.79	88.54	87.16	85.65	84.02	82.25	80.37	78.42
88	96.14	95.59	94.97	94.25	93.45	92.56	91.57	90.48	89.29	87.99	86.56	85.00	83.30	81.50	79.62
89	96.43	95.92	95.34	94.67	93.92	93.08	92.15	91.13	90.01	88.77	87.42	85.93	84.31	82.58	80.77
90	96.69	96.22	95.68	95.06	94.36	93.57	92.70	91.73	90.68	89.51	88.22	86.81	85.26	83.61	81.87
91	96.94	96.51	96.00	95.42	94.76	94.03	93.21	92.30	91.30	90.20	88.99	87.64	86.17	84.59	82.92
92	97.17	96.77	96.30	95.76	95.14	94.45	93.69	92.84	91.90	90.86	89.71	88.44	87.04	85.52	83.93
93	97.39	97.01	96.58	96.07	95.50	94.86	94.14	93.35	92.47	91.50	90.41	89.20	87.87	86.43	84.91
94	97.59	97.25	96.84	96.38	95.85	95.25	94.58	93.84	93.02	92.11	91.09	89.95	88.70	87.33	85.88
95	97.79	97.47	97.10	96.67	96.18	95.62	95.00	94.31	93.55	92.70	91.75	90.69	89.50	88.21	86.83
96	97.98	97.68	97.34	96.95	96.49	95.98	95.41	94.77	94.06	93.28	92.39	91.40	90.29	89.08	87.78
97	98.15	97.88	97.57	97.21	96.79	96.32	95.79	95.20	94.55	93.82	93.01	92.08	91.05	89.92	88.70
98	98.31	98.07	97.78	97.45	97.07	96.63	96.15	95.61	95.01	94.34	93.58	92.73	91.77	90.72	89.58
99	98.46	98.24	97.98	97.67	97.32	96.92	96.47	95.98	95.43	94.81	94.12	93.33	92.44	91.46	90.40
100	98.59	98.39	98.15	97.87	97.54	97.18	96.77	96.31	95.80	95.24	94.60	93.87	93.05	92.14	91.14

# TEACHER RETIREMENT SYSTEM OF TEXAS

## OPTION 2 FACTORS JOINT AND 50% BENEFICIARY WITH POP-UP FEATURE

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional benefit. Each percentage is based on age as of last birthday of member and beneficiary. Benefit reverts to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement										
	90	91	92	93	94	95	96	97	98	99	100
1	42.48	40.41	38.43	36.52	34.64	32.73	30.78	28.80	26.84	24.96	23.22
2	42.49	40.42	38.44	36.53	34.64	32.73	30.79	28.81	26.85	24.97	23.23
3	42.50	40.43	38.45	36.54	34.65	32.74	30.80	28.82	26.85	24.97	23.23
4	42.51	40.44	38.46	36.55	34.66	32.75	30.81	28.83	26.86	24.98	23.24
5	42.53	40.45	38.47	36.56	34.67	32.76	30.82	28.84	26.87	24.99	23.25
6	42.54	40.46	38.48	36.57	34.69	32.77	30.83	28.85	26.88	25.00	23.26
7	42.55	40.48	38.49	36.59	34.70	32.79	30.84	28.86	26.89	25.01	23.27
8	42.57	40.49	38.51	36.60	34.71	32.80	30.85	28.87	26.90	25.02	23.28
9	42.59	40.51	38.52	36.61	34.73	32.81	30.86	28.88	26.91	25.03	23.29
10	42.60	40.53	38.54	36.63	34.74	32.83	30.88	28.89	26.93	25.04	23.30
11	42.62	40.54	38.56	36.65	34.76	32.84	30.89	28.91	26.94	25.05	23.31
12	42.64	40.56	38.58	36.66	34.77	32.86	30.91	28.92	26.95	25.07	23.32
13	42.66	40.58	38.59	36.68	34.79	32.88	30.93	28.94	26.97	25.08	23.33
14	42.68	40.60	38.62	36.70	34.81	32.89	30.94	28.96	26.98	25.09	23.35
15	42.70	40.63	38.64	36.72	34.83	32.91	30.96	28.97	27.00	25.11	23.36
16	42.73	40.65	38.66	36.74	34.85	32.93	30.98	28.99	27.02	25.13	23.38
17	42.75	40.67	38.68	36.77	34.87	32.95	31.00	29.01	27.03	25.14	23.39
18	42.78	40.70	38.71	36.79	34.89	32.97	31.02	29.03	27.05	25.16	23.41
19	42.81	40.73	38.73	36.82	34.92	33.00	31.04	29.05	27.07	25.18	23.43
20	42.84	40.76	38.76	36.84	34.95	33.02	31.07	29.07	27.09	25.20	23.45
21	42.88	40.79	38.79	36.87	34.98	33.05	31.09	29.10	27.12	25.22	23.47
22	42.91	40.83	38.83	36.91	35.01	33.08	31.12	29.13	27.14	25.24	23.49
23	42.95	40.86	38.87	36.94	35.04	33.12	31.15	29.16	27.17	25.27	23.51
24	43.00	40.91	38.91	36.98	35.08	33.15	31.19	29.19	27.20	25.30	23.54
25	43.04	40.95	38.95	37.02	35.12	33.19	31.22	29.22	27.24	25.33	23.57
26	43.09	41.00	39.00	37.07	35.16	33.23	31.26	29.26	27.27	25.36	23.60
27	43.15	41.05	39.05	37.12	35.21	33.28	31.31	29.30	27.31	25.40	23.64
28	43.21	41.11	39.10	37.17	35.26	33.32	31.35	29.34	27.35	25.44	23.67
29	43.27	41.17	39.16	37.23	35.31	33.38	31.40	29.39	27.39	25.48	23.71
30	43.33	41.23	39.22	37.29	35.37	33.43	31.45	29.44	27.44	25.52	23.75
31	43.41	41.30	39.29	37.35	35.43	33.49	31.51	29.49	27.49	25.57	23.80
32	43.48	41.38	39.36	37.42	35.50	33.55	31.57	29.55	27.55	25.62	23.85
33	43.56	41.45	39.44	37.49	35.57	33.62	31.64	29.61	27.60	25.68	23.90
34	43.65	41.54	39.52	37.57	35.65	33.69	31.70	29.68	27.67	25.74	23.95
35	43.75	41.63	39.61	37.66	35.73	33.77	31.78	29.75	27.73	25.80	24.01

# TEACHER RETIREMENT SYSTEM OF TEXAS

## OPTION 2 FACTORS JOINT AND 50% BENEFICIARY WITH POP-UP FEATURE

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional benefit. Each percentage is based on age as of last birthday of member and beneficiary. Benefit reverts to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement										
	90	91	92	93	94	95	96	97	98	99	100
36	43.85	41.73	39.70	37.75	35.81	33.86	31.86	29.83	27.80	25.87	24.08
37	43.95	41.83	39.80	37.84	35.91	33.95	31.95	29.91	27.88	25.94	24.14
38	44.07	41.94	39.91	37.95	36.01	34.04	32.04	29.99	27.96	26.02	24.22
39	44.19	42.06	40.03	38.06	36.12	34.15	32.14	30.09	28.05	26.10	24.30
40	44.33	42.19	40.15	38.18	36.23	34.26	32.24	30.19	28.15	26.19	24.38
41	44.47	42.33	40.28	38.31	36.36	34.38	32.36	30.30	28.25	26.29	24.47
42	44.62	42.48	40.43	38.45	36.49	34.50	32.48	30.41	28.36	26.39	24.57
43	44.79	42.64	40.58	38.60	36.63	34.64	32.61	30.54	28.48	26.50	24.67
44	44.96	42.81	40.74	38.75	36.79	34.79	32.75	30.67	28.60	26.62	24.79
45	45.14	42.99	40.92	38.92	36.95	34.94	32.90	30.81	28.74	26.75	24.91
46	45.34	43.18	41.10	39.10	37.12	35.11	33.06	30.97	28.89	26.89	25.04
47	45.55	43.38	41.30	39.30	37.31	35.29	33.23	31.13	29.04	27.03	25.18
48	45.77	43.60	41.51	39.50	37.51	35.48	33.41	31.30	29.20	27.19	25.32
49	46.01	43.83	41.73	39.72	37.72	35.68	33.61	31.49	29.38	27.36	25.48
50	46.26	44.07	41.97	39.95	37.94	35.90	33.81	31.69	29.57	27.53	25.65
51	46.52	44.33	42.22	40.19	38.17	36.12	34.03	31.89	29.76	27.72	25.82
52	46.80	44.60	42.48	40.44	38.42	36.36	34.26	32.11	29.97	27.92	26.01
53	47.09	44.88	42.76	40.71	38.68	36.62	34.50	32.35	30.20	28.13	26.21
54	47.40	45.18	43.05	41.00	38.96	36.88	34.76	32.59	30.43	28.35	26.42
55	47.72	45.50	43.36	41.30	39.25	37.16	35.03	32.85	30.68	28.58	26.64
56	48.07	45.84	43.69	41.62	39.56	37.46	35.32	33.12	30.94	28.83	26.88
57	48.43	46.19	44.04	41.95	39.88	37.78	35.62	33.41	31.21	29.09	27.13
58	48.82	46.57	44.40	42.31	40.23	38.11	35.94	33.72	31.51	29.37	27.39
59	49.23	46.97	44.80	42.69	40.60	38.47	36.29	34.05	31.82	29.67	27.67
60	49.67	47.40	45.21	43.10	41.00	38.85	36.65	34.40	32.15	29.99	27.97
61	50.14	47.86	45.66	43.53	41.42	39.26	37.05	34.78	32.51	30.33	28.29
62	50.64	48.35	46.14	44.00	41.87	39.70	37.47	35.18	32.90	30.69	28.64
63	51.18	48.87	46.65	44.50	42.35	40.17	37.92	35.62	33.31	31.08	29.01
64	51.75	49.43	47.20	45.03	42.88	40.67	38.41	36.08	33.75	31.51	29.42
65	52.36	50.03	47.79	45.61	43.44	41.21	38.93	36.59	34.23	31.96	29.85
66	53.02	50.68	48.42	46.23	44.04	41.80	39.50	37.13	34.75	32.46	30.32
67	53.72	51.37	49.10	46.89	44.68	42.43	40.10	37.71	35.31	32.99	30.83
68	54.47	52.10	49.82	47.60	45.38	43.10	40.76	38.35	35.92	33.57	31.38
69	55.26	52.89	50.59	48.36	46.13	43.83	41.47	39.03	36.57	34.20	31.98
70	56.11	53.73	51.42	49.17	46.93	44.61	42.23	39.76	37.28	34.87	32.62

# TEACHER RETIREMENT SYSTEM OF TEXAS

## OPTION 2 FACTORS JOINT AND 50% BENEFICIARY WITH POP-UP FEATURE

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional benefit. Each percentage is based on age as of last birthday of member and beneficiary. Benefit reverts to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement										
	90	91	92	93	94	95	96	97	98	99	100
71	57.00	54.61	52.30	50.04	47.78	45.45	43.04	40.55	38.04	35.60	33.32
72	57.94	55.55	53.23	50.97	48.69	46.34	43.92	41.40	38.86	36.39	34.07
73	58.94	56.55	54.22	51.95	49.66	47.30	44.85	42.31	39.73	37.23	34.88
74	59.98	57.59	55.26	52.98	50.68	48.31	45.84	43.27	40.67	38.14	35.75
75	61.07	58.68	56.36	54.07	51.77	49.38	46.90	44.31	41.68	39.11	36.69
76	62.21	59.83	57.50	55.22	52.91	50.52	48.01	45.40	42.74	40.14	37.69
77	63.38	61.02	58.70	56.42	54.11	51.71	49.19	46.56	43.88	41.24	38.76
78	64.60	62.25	59.94	57.67	55.37	52.96	50.44	47.79	45.08	42.41	39.89
79	65.85	63.52	61.23	58.97	56.67	54.27	51.74	49.07	46.34	43.65	41.10
80	67.13	64.83	62.56	60.32	58.03	55.63	53.10	50.43	47.68	44.96	42.37
81	68.44	66.16	63.92	61.71	59.44	57.05	54.52	51.84	49.08	46.33	43.72
82	69.76	67.53	65.32	63.13	60.89	58.52	56.00	53.32	50.54	47.78	45.14
83	71.10	68.91	66.75	64.59	62.38	60.03	57.53	54.85	52.07	49.30	46.64
84	72.45	70.31	68.19	66.08	63.90	61.59	59.11	56.45	53.67	50.89	48.21
85	73.80	71.72	69.65	67.58	65.45	63.17	60.73	58.09	55.32	52.54	49.86
86	75.14	73.11	71.10	69.09	67.01	64.78	62.37	59.77	57.02	54.25	51.56
87	76.45	74.48	72.53	70.58	68.55	66.38	64.02	61.46	58.74	55.98	53.30
88	77.72	75.82	73.93	72.04	70.08	67.96	65.66	63.14	60.46	57.73	55.07
89	78.94	77.11	75.28	73.45	71.55	69.50	67.25	64.79	62.15	59.46	56.82
90	80.11	78.34	76.58	74.81	72.98	70.99	68.80	66.39	63.80	61.15	58.54
91	81.22	79.52	77.82	76.13	74.35	72.42	70.30	67.95	65.41	62.80	60.22
92	82.30	80.66	79.03	77.40	75.69	73.83	71.77	69.48	67.00	64.43	61.88
93	83.35	81.78	80.22	78.65	77.01	75.21	73.23	71.00	68.57	66.05	63.55
94	84.39	82.89	81.39	79.89	78.33	76.61	74.69	72.53	70.18	67.71	65.26
95	85.42	83.99	82.57	81.15	79.65	78.01	76.18	74.10	71.82	69.42	67.02
96	86.44	85.09	83.74	82.40	80.98	79.43	77.68	75.69	73.50	71.18	68.84
97	87.44	86.17	84.90	83.63	82.30	80.84	79.19	77.30	75.19	72.97	70.71
98	88.40	87.20	86.01	84.82	83.58	82.21	80.65	78.87	76.87	74.74	72.58
99	89.29	88.18	87.06	85.95	84.79	83.51	82.05	80.37	78.48	76.46	74.40
100	90.11	89.07	88.03	86.99	85.91	84.71	83.35	81.77	79.99	78.08	76.12



## **SECTION III**

## TEACHER RETIREMENT SYSTEM OF TEXAS

### OPTION 3 FACTORS - 5 YEARS CERTAIN AND LIFE THEREAFTER

### OPTION 4 FACTORS - 10 YEARS CERTAIN AND LIFE THEREAFTER

Percentages to be applied to amount of single life service retirement benefits to obtain optional benefit based on ages as of last birthday of member.

Age of Member	Option 3	Option 4	Age of Member	Option 3	Option 4
40	99.98	99.89	71	98.85	95.73
41	99.97	99.88	72	98.68	95.09
42	99.97	99.87	73	98.47	94.32
43	99.97	99.85	74	98.22	93.41
44	99.96	99.83	75	97.91	92.34
45	99.96	99.80	76	97.53	91.08
46	99.95	99.77	77	97.07	89.63
47	99.94	99.73	78	96.51	87.97
48	99.93	99.68	79	95.85	86.08
49	99.92	99.62	80	95.06	83.98
50	99.90	99.55	81	94.15	81.66
51	99.88	99.47	82	93.09	79.12
52	99.85	99.39	83	91.88	76.37
53	99.82	99.30	84	90.47	73.43
54	99.79	99.20	85	88.83	70.31
55	99.76	99.11	86	86.93	67.06
56	99.73	99.03	87	84.77	63.71
57	99.70	98.95	88	82.36	60.34
58	99.67	98.87	89	79.77	57.01
59	99.65	98.79	90	77.08	53.80
60	99.63	98.70	91	74.35	50.73
61	99.60	98.60	92	71.60	47.81
62	99.57	98.48	93	68.83	45.02
63	99.54	98.34	94	65.92	42.28
64	99.50	98.18	95	62.78	39.54
65	99.45	97.98	96	59.38	36.79
66	99.39	97.74	97	55.72	34.05
67	99.31	97.47	98	51.93	31.37
68	99.23	97.13	99	48.20	28.87
69	99.12	96.74	100	44.70	26.59
70	99.00	96.28			

## **SECTION IV**

**TEACHER RETIREMENT SYSTEM OF TEXAS**

**OPTION 5 FACTORS  
JOINT AND 75% BENEFICIARY WITH POP-UP FEATURE**

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional optional benefit. Each percentage is based on age as of last birthday of member and beneficiary. Benefit reverts to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement														
	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
1	98.13	97.98	97.82	97.66	97.48	97.29	97.08	96.86	96.63	96.37	96.10	95.81	95.51	95.18	94.82
2	98.14	98.00	97.84	97.67	97.49	97.30	97.10	96.88	96.64	96.39	96.12	95.83	95.53	95.20	94.84
3	98.16	98.01	97.86	97.69	97.51	97.32	97.11	96.89	96.66	96.41	96.14	95.85	95.54	95.21	94.86
4	98.17	98.03	97.87	97.71	97.53	97.34	97.13	96.91	96.68	96.43	96.16	95.87	95.56	95.23	94.88
5	98.19	98.05	97.89	97.73	97.55	97.36	97.15	96.93	96.70	96.45	96.18	95.89	95.58	95.25	94.90
6	98.21	98.07	97.91	97.74	97.57	97.38	97.17	96.95	96.72	96.47	96.20	95.91	95.60	95.28	94.92
7	98.23	98.09	97.93	97.77	97.59	97.40	97.19	96.97	96.74	96.49	96.22	95.93	95.63	95.30	94.95
8	98.25	98.11	97.95	97.79	97.61	97.42	97.22	97.00	96.76	96.51	96.24	95.96	95.65	95.32	94.97
9	98.27	98.13	97.98	97.81	97.63	97.44	97.24	97.02	96.79	96.54	96.27	95.98	95.68	95.35	95.00
10	98.30	98.15	98.00	97.84	97.66	97.47	97.27	97.05	96.82	96.57	96.30	96.01	95.71	95.38	95.03
11	98.32	98.18	98.02	97.86	97.68	97.50	97.29	97.08	96.84	96.59	96.33	96.04	95.74	95.41	95.06
12	98.35	98.20	98.05	97.89	97.71	97.52	97.32	97.11	96.87	96.62	96.36	96.07	95.77	95.44	95.09
13	98.37	98.23	98.08	97.92	97.74	97.55	97.35	97.14	96.90	96.66	96.39	96.10	95.80	95.47	95.12
14	98.40	98.26	98.11	97.95	97.77	97.59	97.38	97.17	96.94	96.69	96.42	96.14	95.84	95.51	95.16
15	98.43	98.29	98.14	97.98	97.80	97.62	97.42	97.20	96.97	96.72	96.46	96.17	95.87	95.55	95.20
16	98.46	98.32	98.17	98.01	97.84	97.65	97.45	97.24	97.01	96.76	96.50	96.21	95.91	95.59	95.24
17	98.49	98.35	98.20	98.05	97.87	97.69	97.49	97.28	97.05	96.80	96.54	96.25	95.95	95.63	95.28
18	98.52	98.39	98.24	98.08	97.91	97.73	97.53	97.32	97.09	96.84	96.58	96.30	96.00	95.67	95.32
19	98.56	98.42	98.28	98.12	97.95	97.77	97.57	97.36	97.13	96.89	96.62	96.34	96.04	95.72	95.37
20	98.59	98.46	98.31	98.16	97.99	97.81	97.61	97.40	97.18	96.93	96.67	96.39	96.09	95.77	95.42
21	98.63	98.49	98.35	98.20	98.03	97.85	97.66	97.45	97.22	96.98	96.72	96.44	96.14	95.82	95.47
22	98.66	98.53	98.39	98.24	98.07	97.90	97.70	97.49	97.27	97.03	96.77	96.49	96.20	95.88	95.53
23	98.70	98.57	98.43	98.28	98.12	97.94	97.75	97.54	97.32	97.08	96.82	96.55	96.25	95.93	95.59
24	98.74	98.61	98.47	98.32	98.16	97.99	97.80	97.60	97.38	97.14	96.88	96.61	96.31	95.99	95.65
25	98.77	98.65	98.52	98.37	98.21	98.04	97.85	97.65	97.43	97.19	96.94	96.67	96.37	96.06	95.72
26	98.81	98.69	98.56	98.41	98.26	98.09	97.90	97.70	97.49	97.25	97.00	96.73	96.44	96.12	95.78
27	98.85	98.73	98.60	98.46	98.31	98.14	97.96	97.76	97.55	97.31	97.06	96.79	96.51	96.19	95.86
28	98.89	98.77	98.64	98.51	98.36	98.19	98.01	97.82	97.61	97.38	97.13	96.86	96.58	96.27	95.93
29	98.92	98.81	98.69	98.55	98.41	98.24	98.07	97.88	97.67	97.44	97.20	96.93	96.65	96.34	96.01
30	98.96	98.85	98.73	98.60	98.46	98.30	98.13	97.94	97.73	97.51	97.27	97.01	96.72	96.42	96.09
31	99.00	98.89	98.77	98.65	98.51	98.35	98.18	98.00	97.80	97.58	97.34	97.08	96.80	96.50	96.17
32	99.03	98.93	98.82	98.69	98.56	98.40	98.24	98.06	97.86	97.65	97.41	97.16	96.88	96.58	96.26
33	99.07	98.97	98.86	98.74	98.60	98.46	98.30	98.12	97.93	97.72	97.48	97.23	96.96	96.67	96.35
34	99.10	99.00	98.90	98.78	98.65	98.51	98.35	98.18	97.99	97.79	97.56	97.31	97.05	96.76	96.44
35	99.13	99.04	98.94	98.83	98.70	98.56	98.41	98.24	98.06	97.86	97.64	97.39	97.13	96.85	96.53

**TEACHER RETIREMENT SYSTEM OF TEXAS**

**OPTION 5 FACTORS  
JOINT AND 75% BENEFICIARY WITH POP-UP FEATURE**

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional optional benefit. Each percentage is based on age as of last birthday of member and beneficiary. Benefit reverts to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement														
	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
36	99.16	99.08	98.98	98.87	98.75	98.61	98.47	98.30	98.13	97.93	97.71	97.47	97.22	96.94	96.63
37	99.20	99.11	99.02	98.91	98.79	98.67	98.52	98.36	98.19	98.00	97.79	97.56	97.31	97.03	96.73
38	99.23	99.14	99.05	98.95	98.84	98.71	98.58	98.42	98.26	98.07	97.86	97.64	97.39	97.12	96.83
39	99.25	99.18	99.09	98.99	98.88	98.76	98.63	98.48	98.32	98.14	97.94	97.72	97.48	97.22	96.93
40	99.28	99.21	99.12	99.03	98.93	98.81	98.68	98.54	98.38	98.21	98.01	97.80	97.57	97.31	97.03
41	99.31	99.24	99.16	99.07	98.97	98.86	98.73	98.59	98.44	98.27	98.09	97.88	97.65	97.40	97.13
42	99.33	99.26	99.19	99.10	99.01	98.90	98.78	98.65	98.50	98.34	98.16	97.96	97.74	97.50	97.23
43	99.36	99.29	99.22	99.14	99.04	98.94	98.83	98.70	98.56	98.40	98.23	98.04	97.82	97.59	97.32
44	99.38	99.32	99.25	99.17	99.08	98.98	98.87	98.75	98.62	98.47	98.30	98.11	97.91	97.68	97.42
45	99.41	99.35	99.28	99.20	99.12	99.02	98.92	98.80	98.67	98.53	98.36	98.18	97.99	97.77	97.52
46	99.43	99.37	99.31	99.23	99.15	99.06	98.96	98.85	98.72	98.58	98.43	98.26	98.07	97.85	97.61
47	99.45	99.39	99.33	99.26	99.19	99.10	99.00	98.89	98.77	98.64	98.49	98.33	98.14	97.94	97.71
48	99.47	99.42	99.36	99.29	99.22	99.13	99.04	98.94	98.82	98.70	98.55	98.39	98.22	98.02	97.80
49	99.49	99.44	99.38	99.32	99.25	99.17	99.08	98.98	98.87	98.75	98.61	98.46	98.29	98.10	97.89
50	99.51	99.46	99.41	99.35	99.28	99.20	99.12	99.02	98.92	98.80	98.67	98.52	98.36	98.18	97.97
51	99.53	99.49	99.43	99.37	99.31	99.23	99.15	99.06	98.96	98.85	98.72	98.58	98.43	98.25	98.05
52	99.55	99.51	99.46	99.40	99.34	99.27	99.19	99.10	99.00	98.90	98.77	98.64	98.49	98.32	98.13
53	99.57	99.53	99.48	99.42	99.36	99.30	99.22	99.14	99.05	98.94	98.83	98.70	98.55	98.39	98.21
54	99.59	99.55	99.50	99.45	99.39	99.33	99.26	99.17	99.09	98.99	98.87	98.75	98.61	98.46	98.29
55	99.61	99.57	99.52	99.47	99.42	99.36	99.29	99.21	99.12	99.03	98.92	98.80	98.67	98.53	98.36
56	99.62	99.59	99.54	99.50	99.44	99.38	99.32	99.24	99.16	99.07	98.97	98.86	98.73	98.59	98.43
57	99.64	99.60	99.56	99.52	99.47	99.41	99.35	99.28	99.20	99.11	99.01	98.90	98.79	98.65	98.50
58	99.66	99.62	99.58	99.54	99.49	99.44	99.38	99.31	99.24	99.15	99.06	98.95	98.84	98.71	98.56
59	99.67	99.64	99.60	99.56	99.52	99.46	99.41	99.34	99.27	99.19	99.10	99.00	98.89	98.77	98.63
60	99.69	99.66	99.62	99.58	99.54	99.49	99.43	99.37	99.30	99.23	99.14	99.05	98.94	98.82	98.69
61	99.70	99.67	99.64	99.60	99.56	99.51	99.46	99.40	99.34	99.26	99.18	99.09	98.99	98.88	98.75
62	99.72	99.69	99.66	99.62	99.58	99.54	99.49	99.43	99.37	99.30	99.22	99.13	99.04	98.93	98.80
63	99.73	99.71	99.68	99.64	99.60	99.56	99.51	99.46	99.40	99.33	99.26	99.18	99.08	98.98	98.86
64	99.75	99.72	99.69	99.66	99.62	99.58	99.54	99.49	99.43	99.37	99.30	99.22	99.13	99.03	98.92
65	99.76	99.73	99.71	99.68	99.64	99.61	99.56	99.52	99.46	99.40	99.33	99.26	99.17	99.08	98.97
66	99.77	99.75	99.72	99.70	99.66	99.63	99.59	99.54	99.49	99.43	99.37	99.30	99.22	99.13	99.02
67	99.78	99.76	99.74	99.71	99.68	99.65	99.61	99.57	99.52	99.47	99.40	99.33	99.26	99.17	99.07
68	99.79	99.77	99.75	99.73	99.70	99.67	99.63	99.59	99.55	99.50	99.44	99.37	99.30	99.22	99.12
69	99.80	99.79	99.77	99.74	99.72	99.69	99.65	99.62	99.57	99.52	99.47	99.41	99.34	99.26	99.17
70	99.81	99.80	99.78	99.76	99.73	99.71	99.67	99.64	99.60	99.55	99.50	99.44	99.38	99.30	99.22

**TEACHER RETIREMENT SYSTEM OF TEXAS**

**OPTION 5 FACTORS  
JOINT AND 75% BENEFICIARY WITH POP-UP FEATURE**

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional optional benefit. Each percentage is based on age as of last birthday of member and beneficiary. Benefit reverts to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement														
	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
71	99.82	99.81	99.79	99.77	99.75	99.72	99.69	99.66	99.62	99.58	99.53	99.48	99.42	99.34	99.26
72	99.83	99.82	99.80	99.78	99.76	99.74	99.71	99.68	99.65	99.61	99.56	99.51	99.45	99.38	99.31
73	99.84	99.83	99.81	99.80	99.78	99.76	99.73	99.70	99.67	99.63	99.59	99.54	99.49	99.42	99.35
74	99.85	99.84	99.82	99.81	99.79	99.77	99.75	99.72	99.69	99.66	99.62	99.57	99.52	99.46	99.39
75	99.86	99.85	99.83	99.82	99.80	99.78	99.76	99.74	99.71	99.68	99.64	99.60	99.55	99.50	99.43
76	99.87	99.86	99.84	99.83	99.81	99.80	99.78	99.75	99.73	99.70	99.66	99.63	99.58	99.53	99.47
77	99.87	99.86	99.85	99.84	99.83	99.81	99.79	99.77	99.75	99.72	99.69	99.65	99.61	99.56	99.51
78	99.88	99.87	99.86	99.85	99.84	99.82	99.80	99.79	99.76	99.74	99.71	99.68	99.64	99.59	99.54
79	99.89	99.88	99.87	99.86	99.85	99.83	99.82	99.80	99.78	99.76	99.73	99.70	99.66	99.62	99.57
80	99.90	99.89	99.88	99.87	99.86	99.84	99.83	99.81	99.79	99.77	99.75	99.72	99.69	99.65	99.61
81	99.90	99.89	99.89	99.88	99.86	99.85	99.84	99.82	99.81	99.79	99.77	99.74	99.71	99.68	99.63
82	99.91	99.90	99.89	99.88	99.87	99.86	99.85	99.84	99.82	99.80	99.78	99.76	99.73	99.70	99.66
83	99.91	99.91	99.90	99.89	99.88	99.87	99.86	99.85	99.83	99.82	99.80	99.78	99.75	99.72	99.69
84	99.92	99.91	99.91	99.90	99.89	99.88	99.87	99.86	99.85	99.83	99.81	99.79	99.77	99.75	99.71
85	99.92	99.92	99.91	99.90	99.90	99.89	99.88	99.87	99.86	99.84	99.83	99.81	99.79	99.77	99.74
86	99.93	99.92	99.92	99.91	99.90	99.90	99.89	99.88	99.87	99.85	99.84	99.82	99.81	99.78	99.76
87	99.93	99.93	99.92	99.92	99.91	99.90	99.89	99.89	99.88	99.86	99.85	99.84	99.82	99.80	99.78
88	99.94	99.93	99.93	99.92	99.92	99.91	99.90	99.89	99.88	99.87	99.86	99.85	99.83	99.82	99.79
89	99.94	99.94	99.93	99.93	99.92	99.92	99.91	99.90	99.89	99.88	99.87	99.86	99.85	99.83	99.81
90	99.95	99.94	99.94	99.93	99.93	99.92	99.91	99.91	99.90	99.89	99.88	99.87	99.86	99.84	99.82
91	99.95	99.95	99.94	99.94	99.93	99.93	99.92	99.91	99.91	99.90	99.89	99.88	99.87	99.85	99.84
92	99.95	99.95	99.95	99.94	99.94	99.93	99.93	99.92	99.91	99.90	99.89	99.89	99.88	99.87	99.85
93	99.96	99.95	99.95	99.94	99.94	99.94	99.93	99.92	99.92	99.91	99.90	99.89	99.89	99.88	99.86
94	99.96	99.96	99.95	99.95	99.94	99.94	99.94	99.93	99.92	99.92	99.91	99.90	99.89	99.89	99.87
95	99.96	99.96	99.96	99.95	99.95	99.94	99.94	99.94	99.93	99.92	99.92	99.91	99.90	99.89	99.88
96	99.97	99.96	99.96	99.96	99.95	99.95	99.95	99.94	99.94	99.93	99.92	99.92	99.91	99.90	99.89
97	99.97	99.97	99.96	99.96	99.96	99.95	99.95	99.95	99.94	99.94	99.93	99.92	99.92	99.91	99.90
98	99.97	99.97	99.97	99.96	99.96	99.96	99.95	99.95	99.95	99.94	99.94	99.93	99.92	99.92	99.91
99	99.97	99.97	99.97	99.97	99.96	99.96	99.96	99.95	99.95	99.95	99.94	99.93	99.93	99.93	99.92
100	99.97	99.97	99.97	99.97	99.97	99.96	99.96	99.96	99.95	99.95	99.95	99.94	99.94	99.93	99.92

**TEACHER RETIREMENT SYSTEM OF TEXAS**

**OPTION 5 FACTORS  
JOINT AND 75% BENEFICIARY WITH POP-UP FEATURE**

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional optional benefit. Each percentage is based on age as of last birthday of member and beneficiary. Benefit reverts to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement														
	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59
1	94.45	94.04	93.61	93.15	92.66	92.15	91.60	91.02	90.42	89.79	89.14	88.47	87.77	87.05	86.28
2	94.46	94.06	93.63	93.17	92.68	92.16	91.62	91.04	90.43	89.81	89.16	88.49	87.79	87.07	86.30
3	94.48	94.08	93.65	93.19	92.70	92.18	91.63	91.06	90.45	89.82	89.18	88.50	87.81	87.08	86.32
4	94.50	94.10	93.67	93.21	92.72	92.20	91.65	91.08	90.47	89.84	89.20	88.52	87.83	87.10	86.34
5	94.52	94.12	93.69	93.23	92.74	92.22	91.68	91.10	90.49	89.87	89.22	88.55	87.85	87.13	86.36
6	94.54	94.14	93.71	93.25	92.76	92.25	91.70	91.12	90.52	89.89	89.24	88.57	87.87	87.15	86.38
7	94.57	94.16	93.73	93.28	92.79	92.27	91.72	91.15	90.54	89.91	89.26	88.59	87.90	87.17	86.41
8	94.59	94.19	93.76	93.30	92.81	92.30	91.75	91.17	90.57	89.94	89.29	88.62	87.93	87.20	86.44
9	94.62	94.22	93.79	93.33	92.84	92.33	91.78	91.20	90.60	89.97	89.32	88.65	87.95	87.23	86.46
10	94.65	94.25	93.82	93.36	92.87	92.35	91.81	91.23	90.63	90.00	89.35	88.68	87.98	87.26	86.49
11	94.68	94.28	93.85	93.39	92.90	92.39	91.84	91.26	90.66	90.03	89.38	88.71	88.02	87.29	86.53
12	94.71	94.31	93.88	93.42	92.94	92.42	91.87	91.30	90.69	90.06	89.42	88.74	88.05	87.32	86.56
13	94.75	94.34	93.91	93.46	92.97	92.46	91.91	91.33	90.73	90.10	89.45	88.78	88.09	87.36	86.60
14	94.78	94.38	93.95	93.50	93.01	92.49	91.95	91.37	90.77	90.14	89.49	88.82	88.13	87.40	86.64
15	94.82	94.42	93.99	93.53	93.05	92.53	91.99	91.41	90.81	90.18	89.53	88.86	88.17	87.44	86.68
16	94.86	94.46	94.03	93.58	93.09	92.58	92.03	91.45	90.85	90.22	89.58	88.91	88.21	87.49	86.72
17	94.90	94.50	94.08	93.62	93.14	92.62	92.08	91.50	90.90	90.27	89.62	88.95	88.26	87.53	86.77
18	94.95	94.55	94.12	93.67	93.19	92.67	92.12	91.55	90.95	90.32	89.67	89.00	88.31	87.58	86.82
19	95.00	94.60	94.17	93.72	93.24	92.72	92.18	91.60	91.00	90.37	89.73	89.06	88.36	87.64	86.87
20	95.05	94.65	94.23	93.77	93.29	92.78	92.23	91.66	91.06	90.43	89.78	89.11	88.42	87.70	86.93
21	95.10	94.71	94.28	93.83	93.35	92.83	92.29	91.72	91.12	90.49	89.84	89.18	88.48	87.76	86.99
22	95.16	94.76	94.34	93.89	93.41	92.90	92.35	91.78	91.18	90.55	89.91	89.24	88.55	87.82	87.06
23	95.22	94.82	94.40	93.95	93.47	92.96	92.42	91.85	91.25	90.62	89.98	89.31	88.62	87.89	87.13
24	95.28	94.89	94.47	94.02	93.54	93.03	92.49	91.92	91.32	90.69	90.05	89.38	88.69	87.97	87.20
25	95.35	94.96	94.54	94.09	93.61	93.10	92.56	91.99	91.39	90.77	90.13	89.46	88.77	88.05	87.28
26	95.42	95.03	94.61	94.16	93.68	93.18	92.64	92.07	91.47	90.85	90.21	89.54	88.85	88.13	87.37
27	95.49	95.10	94.69	94.24	93.76	93.26	92.72	92.15	91.55	90.93	90.29	89.63	88.94	88.22	87.46
28	95.57	95.18	94.77	94.32	93.85	93.34	92.81	92.24	91.64	91.02	90.38	89.72	89.03	88.31	87.55
29	95.65	95.26	94.85	94.41	93.93	93.43	92.90	92.33	91.74	91.12	90.48	89.82	89.13	88.41	87.65
30	95.73	95.35	94.94	94.50	94.03	93.52	92.99	92.43	91.84	91.22	90.58	89.92	89.23	88.52	87.76
31	95.82	95.44	95.03	94.59	94.12	93.62	93.09	92.53	91.94	91.32	90.69	90.03	89.34	88.63	87.87
32	95.91	95.53	95.12	94.69	94.22	93.73	93.20	92.64	92.05	91.44	90.80	90.14	89.46	88.74	87.99
33	96.00	95.63	95.22	94.79	94.33	93.83	93.31	92.75	92.16	91.55	90.92	90.26	89.58	88.87	88.11
34	96.10	95.72	95.33	94.90	94.44	93.94	93.42	92.87	92.28	91.67	91.04	90.39	89.71	89.00	88.25
35	96.19	95.83	95.43	95.01	94.55	94.06	93.54	92.99	92.41	91.80	91.17	90.52	89.85	89.14	88.38

**TEACHER RETIREMENT SYSTEM OF TEXAS**

**OPTION 5 FACTORS  
JOINT AND 75% BENEFICIARY WITH POP-UP FEATURE**

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional optional benefit. Each percentage is based on age as of last birthday of member and beneficiary. Benefit reverts to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement														
	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59
36	96.29	95.93	95.54	95.12	94.67	94.18	93.67	93.12	92.54	91.94	91.31	90.66	89.99	89.28	88.53
37	96.40	96.04	95.65	95.24	94.79	94.31	93.80	93.25	92.68	92.08	91.45	90.81	90.14	89.43	88.69
38	96.50	96.15	95.77	95.36	94.92	94.44	93.93	93.39	92.82	92.22	91.61	90.96	90.29	89.59	88.85
39	96.61	96.26	95.89	95.48	95.04	94.57	94.07	93.53	92.97	92.38	91.76	91.12	90.46	89.76	89.02
40	96.71	96.37	96.01	95.61	95.18	94.71	94.21	93.68	93.12	92.54	91.93	91.29	90.63	89.93	89.20
41	96.82	96.49	96.13	95.74	95.31	94.85	94.36	93.84	93.28	92.70	92.09	91.47	90.81	90.12	89.38
42	96.93	96.60	96.25	95.87	95.45	95.00	94.51	93.99	93.45	92.87	92.27	91.65	90.99	90.31	89.58
43	97.04	96.72	96.37	96.00	95.59	95.14	94.67	94.16	93.61	93.05	92.45	91.83	91.19	90.51	89.78
44	97.14	96.83	96.50	96.13	95.73	95.29	94.82	94.32	93.79	93.23	92.64	92.03	91.39	90.71	90.00
45	97.25	96.95	96.62	96.26	95.87	95.44	94.98	94.49	93.96	93.41	92.83	92.23	91.60	90.93	90.22
46	97.35	97.06	96.74	96.39	96.01	95.59	95.14	94.66	94.14	93.60	93.03	92.43	91.81	91.15	90.45
47	97.45	97.17	96.86	96.52	96.15	95.74	95.30	94.83	94.32	93.79	93.23	92.64	92.03	91.38	90.68
48	97.55	97.28	96.98	96.65	96.29	95.89	95.46	95.00	94.51	93.98	93.44	92.86	92.25	91.61	90.93
49	97.65	97.39	97.10	96.78	96.43	96.04	95.63	95.17	94.69	94.18	93.64	93.08	92.48	91.85	91.18
50	97.74	97.49	97.21	96.90	96.56	96.19	95.79	95.35	94.88	94.38	93.85	93.30	92.72	92.10	91.43
51	97.84	97.59	97.32	97.02	96.70	96.34	95.94	95.52	95.06	94.57	94.06	93.52	92.95	92.35	91.69
52	97.92	97.69	97.43	97.14	96.83	96.48	96.10	95.69	95.24	94.77	94.27	93.75	93.19	92.60	91.96
53	98.01	97.78	97.54	97.26	96.95	96.62	96.25	95.85	95.42	94.96	94.48	93.97	93.43	92.85	92.23
54	98.09	97.88	97.64	97.37	97.08	96.76	96.40	96.02	95.60	95.16	94.69	94.20	93.67	93.11	92.50
55	98.17	97.97	97.74	97.48	97.20	96.89	96.55	96.17	95.77	95.35	94.90	94.42	93.91	93.37	92.77
56	98.25	98.05	97.83	97.59	97.32	97.02	96.69	96.33	95.95	95.53	95.10	94.64	94.15	93.62	93.05
57	98.33	98.13	97.92	97.69	97.43	97.14	96.83	96.48	96.11	95.72	95.30	94.86	94.38	93.88	93.32
58	98.40	98.21	98.01	97.79	97.54	97.26	96.96	96.63	96.27	95.90	95.49	95.07	94.62	94.13	93.59
59	98.47	98.29	98.10	97.88	97.64	97.38	97.09	96.77	96.43	96.07	95.68	95.28	94.85	94.38	93.86
60	98.54	98.37	98.18	97.97	97.75	97.49	97.21	96.91	96.59	96.24	95.87	95.48	95.07	94.62	94.13
61	98.60	98.44	98.26	98.06	97.84	97.60	97.34	97.05	96.73	96.40	96.05	95.68	95.29	94.86	94.39
62	98.67	98.51	98.34	98.15	97.94	97.71	97.45	97.17	96.88	96.56	96.23	95.87	95.50	95.10	94.65
63	98.73	98.58	98.41	98.23	98.03	97.81	97.56	97.30	97.01	96.71	96.40	96.06	95.71	95.32	94.90
64	98.79	98.65	98.49	98.31	98.12	97.91	97.67	97.42	97.15	96.86	96.56	96.24	95.91	95.54	95.14
65	98.85	98.71	98.56	98.39	98.21	98.00	97.78	97.54	97.28	97.00	96.72	96.42	96.10	95.76	95.38
66	98.90	98.77	98.63	98.47	98.29	98.10	97.88	97.65	97.40	97.14	96.87	96.59	96.29	95.96	95.61
67	98.96	98.84	98.70	98.54	98.37	98.19	97.98	97.76	97.52	97.27	97.02	96.75	96.47	96.16	95.83
68	99.01	98.90	98.76	98.61	98.45	98.27	98.08	97.86	97.64	97.40	97.16	96.90	96.64	96.36	96.04
69	99.07	98.95	98.83	98.69	98.53	98.36	98.17	97.96	97.75	97.52	97.29	97.05	96.81	96.54	96.25
70	99.12	99.01	98.89	98.75	98.60	98.44	98.26	98.06	97.86	97.64	97.42	97.20	96.97	96.72	96.44



**TEACHER RETIREMENT SYSTEM OF TEXAS**

**OPTION 5 FACTORS  
JOINT AND 75% BENEFICIARY WITH POP-UP FEATURE**

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional optional benefit. Each percentage is based on age as of last birthday of member and beneficiary. Benefit reverts to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement														
	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59
71	99.17	99.07	98.95	98.82	98.68	98.52	98.34	98.16	97.96	97.76	97.55	97.34	97.12	96.89	96.63
72	99.22	99.12	99.01	98.88	98.75	98.60	98.43	98.25	98.06	97.87	97.67	97.47	97.27	97.05	96.81
73	99.27	99.17	99.07	98.95	98.82	98.67	98.51	98.34	98.16	97.97	97.79	97.60	97.41	97.21	96.99
74	99.31	99.22	99.12	99.01	98.88	98.74	98.59	98.43	98.25	98.08	97.90	97.72	97.54	97.35	97.15
75	99.36	99.27	99.17	99.07	98.95	98.81	98.67	98.51	98.34	98.18	98.01	97.84	97.67	97.50	97.31
76	99.40	99.32	99.23	99.12	99.01	98.88	98.74	98.59	98.43	98.27	98.11	97.95	97.80	97.63	97.46
77	99.44	99.36	99.28	99.18	99.07	98.95	98.81	98.67	98.52	98.36	98.21	98.06	97.92	97.76	97.60
78	99.48	99.41	99.33	99.23	99.13	99.01	98.88	98.75	98.60	98.45	98.31	98.17	98.03	97.89	97.74
79	99.52	99.45	99.37	99.28	99.19	99.08	98.95	98.82	98.68	98.54	98.40	98.27	98.14	98.01	97.87
80	99.55	99.49	99.42	99.33	99.24	99.14	99.02	98.89	98.76	98.62	98.49	98.37	98.24	98.12	97.99
81	99.58	99.53	99.46	99.38	99.29	99.19	99.08	98.96	98.83	98.70	98.58	98.46	98.34	98.23	98.11
82	99.62	99.56	99.50	99.43	99.34	99.25	99.14	99.03	98.90	98.78	98.66	98.55	98.44	98.34	98.23
83	99.65	99.59	99.54	99.47	99.39	99.30	99.20	99.09	98.97	98.85	98.74	98.63	98.53	98.44	98.33
84	99.67	99.63	99.57	99.51	99.44	99.35	99.26	99.15	99.04	98.93	98.82	98.72	98.62	98.53	98.44
85	99.70	99.66	99.61	99.55	99.48	99.40	99.31	99.21	99.10	98.99	98.89	98.80	98.71	98.62	98.54
86	99.72	99.68	99.64	99.58	99.52	99.44	99.36	99.26	99.16	99.06	98.96	98.87	98.79	98.71	98.63
87	99.74	99.71	99.67	99.62	99.56	99.49	99.41	99.32	99.22	99.12	99.03	98.94	98.86	98.79	98.72
88	99.77	99.73	99.69	99.65	99.59	99.53	99.45	99.36	99.27	99.18	99.09	99.01	98.93	98.87	98.80
89	99.78	99.75	99.72	99.67	99.62	99.56	99.49	99.41	99.32	99.23	99.15	99.07	99.00	98.94	98.87
90	99.80	99.77	99.74	99.70	99.65	99.60	99.53	99.45	99.37	99.29	99.21	99.13	99.07	99.01	98.95
91	99.82	99.79	99.76	99.72	99.68	99.63	99.56	99.49	99.41	99.33	99.26	99.19	99.12	99.07	99.01
92	99.83	99.81	99.78	99.75	99.71	99.66	99.60	99.53	99.46	99.38	99.31	99.24	99.18	99.13	99.08
93	99.84	99.82	99.80	99.77	99.73	99.68	99.63	99.57	99.50	99.42	99.35	99.29	99.23	99.18	99.14
94	99.86	99.84	99.81	99.79	99.75	99.71	99.66	99.60	99.53	99.47	99.40	99.34	99.29	99.24	99.20
95	99.87	99.85	99.83	99.80	99.77	99.74	99.69	99.63	99.57	99.51	99.44	99.39	99.34	99.29	99.25
96	99.88	99.86	99.84	99.82	99.79	99.76	99.72	99.66	99.61	99.55	99.49	99.43	99.39	99.35	99.31
97	99.89	99.88	99.86	99.84	99.81	99.78	99.74	99.69	99.64	99.58	99.53	99.48	99.43	99.40	99.36
98	99.90	99.89	99.87	99.85	99.83	99.80	99.77	99.72	99.67	99.62	99.57	99.52	99.48	99.44	99.41
99	99.91	99.90	99.88	99.87	99.85	99.82	99.79	99.75	99.70	99.65	99.60	99.56	99.52	99.49	99.46
100	99.92	99.90	99.89	99.88	99.86	99.84	99.81	99.77	99.73	99.68	99.63	99.59	99.56	99.53	99.50

**TEACHER RETIREMENT SYSTEM OF TEXAS**

**OPTION 5 FACTORS  
JOINT AND 75% BENEFICIARY WITH POP-UP FEATURE**

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional optional benefit. Each percentage is based on age as of last birthday of member and beneficiary. Benefit reverts to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement														
	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74
1	85.47	84.61	83.69	82.71	81.67	80.56	79.38	78.12	76.80	75.39	73.91	72.35	70.71	68.99	67.19
2	85.49	84.63	83.71	82.73	81.69	80.58	79.40	78.14	76.81	75.41	73.92	72.36	70.73	69.01	67.21
3	85.51	84.65	83.73	82.75	81.71	80.60	79.41	78.16	76.83	75.42	73.94	72.38	70.74	69.02	67.22
4	85.53	84.67	83.75	82.77	81.73	80.61	79.43	78.18	76.85	75.44	73.96	72.40	70.76	69.04	67.24
5	85.55	84.69	83.77	82.79	81.75	80.64	79.45	78.20	76.87	75.46	73.98	72.42	70.78	69.06	67.26
6	85.57	84.71	83.79	82.81	81.77	80.66	79.48	78.22	76.89	75.49	74.00	72.44	70.80	69.08	67.28
7	85.60	84.74	83.82	82.84	81.79	80.68	79.50	78.25	76.92	75.51	74.03	72.46	70.82	69.10	67.30
8	85.63	84.76	83.84	82.86	81.82	80.71	79.53	78.27	76.94	75.53	74.05	72.49	70.85	69.13	67.32
9	85.65	84.79	83.87	82.89	81.85	80.74	79.55	78.30	76.97	75.56	74.08	72.52	70.87	69.15	67.35
10	85.68	84.82	83.90	82.92	81.88	80.77	79.58	78.33	77.00	75.59	74.10	72.54	70.90	69.18	67.38
11	85.72	84.85	83.93	82.95	81.91	80.80	79.61	78.36	77.03	75.62	74.13	72.57	70.93	69.21	67.40
12	85.75	84.89	83.97	82.99	81.94	80.83	79.65	78.39	77.06	75.65	74.17	72.60	70.96	69.24	67.43
13	85.79	84.92	84.00	83.02	81.98	80.87	79.68	78.43	77.09	75.69	74.20	72.64	71.00	69.27	67.47
14	85.83	84.96	84.04	83.06	82.02	80.90	79.72	78.46	77.13	75.72	74.24	72.67	71.03	69.31	67.50
15	85.87	85.00	84.08	83.10	82.06	80.94	79.76	78.50	77.17	75.76	74.28	72.71	71.07	69.34	67.54
16	85.91	85.05	84.13	83.15	82.10	80.99	79.80	78.55	77.21	75.80	74.32	72.75	71.11	69.38	67.58
17	85.96	85.10	84.18	83.19	82.15	81.04	79.85	78.59	77.26	75.85	74.36	72.80	71.15	69.43	67.62
18	86.01	85.15	84.23	83.25	82.20	81.09	79.90	78.64	77.31	75.90	74.41	72.84	71.20	69.47	67.66
19	86.06	85.20	84.28	83.30	82.25	81.14	79.95	78.70	77.36	75.95	74.46	72.90	71.25	69.52	67.71
20	86.12	85.26	84.34	83.36	82.31	81.20	80.01	78.75	77.42	76.01	74.52	72.95	71.30	69.57	67.76
21	86.18	85.32	84.40	83.42	82.37	81.26	80.07	78.81	77.48	76.07	74.58	73.01	71.36	69.63	67.82
22	86.25	85.39	84.47	83.49	82.44	81.32	80.14	78.88	77.54	76.13	74.64	73.07	71.42	69.69	67.88
23	86.32	85.46	84.54	83.56	82.51	81.40	80.21	78.95	77.61	76.20	74.71	73.14	71.49	69.76	67.94
24	86.40	85.53	84.61	83.63	82.59	81.47	80.28	79.02	77.69	76.27	74.78	73.21	71.56	69.83	68.01
25	86.47	85.61	84.69	83.71	82.67	81.55	80.36	79.10	77.77	76.35	74.86	73.29	71.64	69.91	68.09
26	86.56	85.70	84.78	83.80	82.75	81.64	80.45	79.19	77.85	76.44	74.94	73.37	71.72	69.99	68.17
27	86.65	85.79	84.87	83.89	82.84	81.73	80.54	79.28	77.94	76.53	75.03	73.46	71.81	70.07	68.25
28	86.74	85.88	84.97	83.99	82.94	81.83	80.64	79.38	78.04	76.62	75.13	73.56	71.90	70.17	68.34
29	86.85	85.99	85.07	84.09	83.04	81.93	80.74	79.48	78.14	76.73	75.23	73.66	72.00	70.26	68.44
30	86.95	86.09	85.18	84.20	83.15	82.04	80.85	79.59	78.25	76.84	75.34	73.77	72.11	70.37	68.55
31	87.07	86.21	85.29	84.31	83.27	82.16	80.97	79.71	78.37	76.95	75.46	73.88	72.22	70.48	68.66
32	87.19	86.33	85.41	84.44	83.39	82.28	81.09	79.83	78.49	77.08	75.58	74.00	72.34	70.60	68.78
33	87.31	86.46	85.54	84.57	83.52	82.41	81.22	79.96	78.63	77.21	75.71	74.13	72.47	70.73	68.90
34	87.45	86.59	85.68	84.70	83.66	82.55	81.36	80.10	78.77	77.35	75.85	74.27	72.61	70.87	69.04
35	87.59	86.73	85.82	84.85	83.81	82.70	81.51	80.25	78.91	77.50	76.00	74.42	72.76	71.01	69.18

**TEACHER RETIREMENT SYSTEM OF TEXAS**

**OPTION 5 FACTORS  
JOINT AND 75% BENEFICIARY WITH POP-UP FEATURE**

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional optional benefit. Each percentage is based on age as of last birthday of member and beneficiary. Benefit reverts to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement														
	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74
36	87.74	86.89	85.98	85.00	83.96	82.85	81.67	80.41	79.07	77.65	76.16	74.58	72.91	71.17	69.34
37	87.89	87.04	86.14	85.16	84.13	83.02	81.83	80.58	79.24	77.82	76.32	74.74	73.08	71.33	69.50
38	88.06	87.21	86.31	85.34	84.30	83.19	82.01	80.75	79.42	78.00	76.50	74.92	73.26	71.51	69.67
39	88.23	87.39	86.48	85.52	84.48	83.38	82.20	80.94	79.60	78.18	76.69	75.11	73.44	71.69	69.86
40	88.41	87.57	86.67	85.71	84.67	83.57	82.39	81.13	79.80	78.38	76.89	75.30	73.64	71.89	70.05
41	88.60	87.77	86.87	85.91	84.87	83.77	82.60	81.34	80.01	78.59	77.09	75.51	73.85	72.10	70.26
42	88.80	87.97	87.08	86.12	85.09	83.99	82.81	81.56	80.23	78.81	77.32	75.74	74.07	72.32	70.48
43	89.01	88.18	87.29	86.34	85.31	84.21	83.04	81.79	80.46	79.05	77.55	75.97	74.31	72.55	70.71
44	89.23	88.40	87.52	86.57	85.55	84.45	83.28	82.03	80.70	79.29	77.80	76.22	74.55	72.80	70.96
45	89.46	88.64	87.76	86.81	85.79	84.70	83.54	82.29	80.96	79.55	78.06	76.48	74.81	73.06	71.22
46	89.69	88.88	88.00	87.06	86.05	84.96	83.80	82.56	81.23	79.82	78.33	76.75	75.09	73.34	71.49
47	89.93	89.13	88.26	87.32	86.32	85.24	84.08	82.84	81.52	80.11	78.62	77.04	75.38	73.63	71.78
48	90.19	89.39	88.53	87.60	86.60	85.52	84.37	83.13	81.82	80.41	78.92	77.35	75.68	73.93	72.08
49	90.45	89.66	88.81	87.88	86.89	85.82	84.67	83.44	82.13	80.73	79.24	77.67	76.01	74.25	72.41
50	90.71	89.94	89.09	88.18	87.19	86.13	84.99	83.77	82.46	81.06	79.58	78.01	76.34	74.59	72.74
51	90.99	90.22	89.39	88.48	87.51	86.45	85.32	84.10	82.80	81.41	79.93	78.36	76.70	74.95	73.10
52	91.27	90.51	89.69	88.80	87.83	86.79	85.66	84.45	83.16	81.77	80.29	78.73	77.07	75.32	73.48
53	91.55	90.81	90.00	89.12	88.17	87.13	86.02	84.82	83.53	82.15	80.68	79.12	77.46	75.72	73.87
54	91.84	91.11	90.32	89.45	88.51	87.49	86.39	85.20	83.91	82.54	81.08	79.53	77.88	76.13	74.28
55	92.13	91.42	90.64	89.79	88.87	87.86	86.77	85.59	84.32	82.95	81.50	79.95	78.31	76.56	74.72
56	92.42	91.73	90.97	90.14	89.23	88.24	87.16	85.99	84.73	83.38	81.94	80.40	78.76	77.02	75.18
57	92.71	92.04	91.30	90.49	89.60	88.62	87.56	86.41	85.17	83.83	82.39	80.86	79.23	77.50	75.66
58	93.01	92.36	91.64	90.85	89.97	89.02	87.97	86.84	85.61	84.29	82.86	81.34	79.72	78.00	76.16
59	93.30	92.67	91.97	91.20	90.35	89.42	88.40	87.28	86.07	84.76	83.35	81.84	80.23	78.52	76.69
60	93.59	92.98	92.31	91.56	90.73	89.82	88.82	87.73	86.54	85.25	83.86	82.36	80.77	79.06	77.25
61	93.87	93.29	92.64	91.92	91.12	90.23	89.26	88.19	87.02	85.75	84.38	82.90	81.32	79.63	77.82
62	94.15	93.60	92.97	92.28	91.50	90.64	89.69	88.65	87.51	86.26	84.91	83.46	81.89	80.22	78.43
63	94.43	93.90	93.30	92.63	91.89	91.06	90.13	89.12	88.00	86.78	85.46	84.03	82.48	80.83	79.05
64	94.70	94.19	93.62	92.98	92.27	91.46	90.57	89.59	88.50	87.31	86.01	84.61	83.09	81.45	79.70
65	94.96	94.48	93.94	93.33	92.64	91.87	91.01	90.06	89.00	87.85	86.58	85.20	83.71	82.10	80.37
66	95.21	94.76	94.25	93.66	93.01	92.27	91.45	90.53	89.51	88.38	87.15	85.81	84.34	82.76	81.06
67	95.45	95.03	94.54	93.99	93.37	92.67	91.88	90.99	90.01	88.92	87.72	86.41	84.99	83.44	81.76
68	95.69	95.29	94.83	94.31	93.72	93.05	92.30	91.45	90.51	89.46	88.30	87.03	85.64	84.12	82.48
69	95.92	95.54	95.11	94.62	94.06	93.43	92.71	91.90	91.00	89.99	88.87	87.64	86.29	84.81	83.21
70	96.14	95.79	95.38	94.92	94.40	93.80	93.12	92.35	91.48	90.51	89.44	88.25	86.94	85.51	83.94

**TEACHER RETIREMENT SYSTEM OF TEXAS**

**OPTION 5 FACTORS  
JOINT AND 75% BENEFICIARY WITH POP-UP FEATURE**

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional optional benefit. Each percentage is based on age as of last birthday of member and beneficiary. Benefit reverts to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement														
	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74
71	96.35	96.02	95.64	95.21	94.72	94.15	93.51	92.78	91.95	91.03	90.00	88.86	87.60	86.21	84.68
72	96.55	96.24	95.89	95.49	95.02	94.49	93.89	93.19	92.41	91.53	90.55	89.46	88.24	86.90	85.43
73	96.74	96.46	96.13	95.75	95.32	94.82	94.25	93.60	92.86	92.02	91.09	90.04	88.88	87.59	86.16
74	96.92	96.66	96.36	96.01	95.60	95.14	94.60	93.99	93.29	92.50	91.61	90.62	89.50	88.27	86.90
75	97.10	96.85	96.57	96.25	95.87	95.44	94.94	94.36	93.71	92.96	92.12	91.17	90.11	88.93	87.62
76	97.26	97.04	96.78	96.48	96.13	95.72	95.26	94.72	94.10	93.40	92.61	91.71	90.71	89.58	88.33
77	97.42	97.21	96.97	96.69	96.37	95.99	95.56	95.06	94.48	93.83	93.08	92.24	91.28	90.22	89.02
78	97.57	97.38	97.16	96.90	96.60	96.25	95.85	95.38	94.85	94.23	93.53	92.74	91.84	90.83	89.69
79	97.72	97.54	97.34	97.10	96.82	96.50	96.12	95.69	95.19	94.62	93.96	93.22	92.37	91.42	90.34
80	97.85	97.69	97.50	97.28	97.03	96.73	96.38	95.98	95.52	94.98	94.37	93.67	92.88	91.98	90.96
81	97.98	97.83	97.66	97.46	97.22	96.95	96.63	96.26	95.83	95.33	94.76	94.11	93.37	92.53	91.57
82	98.11	97.97	97.81	97.62	97.41	97.15	96.86	96.52	96.12	95.66	95.13	94.52	93.83	93.04	92.14
83	98.22	98.10	97.95	97.78	97.58	97.35	97.08	96.76	96.39	95.96	95.47	94.91	94.27	93.53	92.69
84	98.34	98.22	98.09	97.93	97.75	97.53	97.28	96.99	96.65	96.26	95.80	95.28	94.68	94.00	93.21
85	98.44	98.34	98.21	98.07	97.90	97.71	97.47	97.21	96.89	96.53	96.11	95.63	95.07	94.44	93.70
86	98.54	98.45	98.33	98.20	98.05	97.87	97.65	97.41	97.12	96.78	96.39	95.95	95.44	94.85	94.16
87	98.64	98.55	98.44	98.32	98.18	98.02	97.82	97.59	97.33	97.02	96.66	96.25	95.78	95.23	94.60
88	98.73	98.64	98.55	98.44	98.31	98.16	97.98	97.77	97.52	97.24	96.91	96.53	96.09	95.58	95.00
89	98.81	98.73	98.65	98.54	98.42	98.29	98.12	97.93	97.70	97.44	97.13	96.78	96.38	95.91	95.37
90	98.88	98.82	98.74	98.64	98.53	98.40	98.25	98.08	97.87	97.62	97.34	97.02	96.65	96.21	95.71
91	98.96	98.89	98.82	98.73	98.63	98.52	98.38	98.21	98.02	97.80	97.54	97.24	96.89	96.49	96.03
92	99.02	98.97	98.90	98.82	98.73	98.62	98.49	98.34	98.16	97.96	97.72	97.44	97.12	96.75	96.32
93	99.09	99.04	98.97	98.90	98.82	98.72	98.60	98.46	98.30	98.11	97.89	97.63	97.34	97.00	96.60
94	99.15	99.10	99.05	98.98	98.90	98.81	98.70	98.58	98.43	98.25	98.05	97.81	97.54	97.23	96.87
95	99.21	99.17	99.12	99.05	98.98	98.90	98.80	98.69	98.55	98.39	98.20	97.99	97.74	97.45	97.12
96	99.27	99.23	99.18	99.13	99.06	98.99	98.90	98.79	98.66	98.52	98.35	98.15	97.93	97.66	97.36
97	99.33	99.29	99.25	99.20	99.14	99.07	98.99	98.89	98.77	98.64	98.49	98.31	98.10	97.86	97.58
98	99.38	99.35	99.31	99.26	99.21	99.14	99.07	98.98	98.88	98.75	98.61	98.45	98.26	98.05	97.79
99	99.43	99.40	99.36	99.32	99.27	99.21	99.15	99.07	98.97	98.86	98.73	98.58	98.41	98.21	97.98
100	99.47	99.44	99.41	99.37	99.33	99.28	99.22	99.14	99.06	98.95	98.83	98.70	98.54	98.36	98.15

**TEACHER RETIREMENT SYSTEM OF TEXAS**

**JOINT AND 75% BENEFICIARY WITH POP-UP FEATURE**

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional optional benefit. Each percentage is based on age as of last birthday of member and beneficiary. Benefit reverts to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement														
	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89
1	65.31	63.34	61.31	59.21	57.06	54.87	52.66	50.42	48.18	45.93	43.68	41.44	39.23	37.06	34.97
2	65.32	63.36	61.32	59.23	57.08	54.89	52.67	50.44	48.19	45.95	43.70	41.45	39.24	37.07	34.98
3	65.34	63.38	61.34	59.24	57.09	54.90	52.68	50.45	48.21	45.96	43.71	41.46	39.25	37.08	34.99
4	65.36	63.39	61.36	59.26	57.11	54.92	52.70	50.47	48.22	45.97	43.72	41.48	39.26	37.09	35.00
5	65.37	63.41	61.37	59.27	57.12	54.93	52.72	50.48	48.24	45.99	43.74	41.49	39.27	37.10	35.01
6	65.39	63.43	61.39	59.29	57.14	54.95	52.73	50.50	48.25	46.00	43.75	41.51	39.29	37.12	35.03
7	65.42	63.45	61.41	59.31	57.16	54.97	52.75	50.52	48.27	46.02	43.77	41.52	39.30	37.13	35.04
8	65.44	63.47	61.44	59.34	57.18	54.99	52.77	50.54	48.29	46.04	43.78	41.54	39.32	37.15	35.05
9	65.46	63.50	61.46	59.36	57.21	55.01	52.79	50.56	48.31	46.06	43.80	41.56	39.34	37.16	35.07
10	65.49	63.52	61.48	59.38	57.23	55.04	52.82	50.58	48.33	46.08	43.82	41.57	39.35	37.18	35.09
11	65.52	63.55	61.51	59.41	57.25	55.06	52.84	50.60	48.35	46.10	43.84	41.59	39.37	37.20	35.10
12	65.55	63.58	61.54	59.44	57.28	55.09	52.86	50.63	48.38	46.12	43.86	41.62	39.39	37.22	35.12
13	65.58	63.61	61.57	59.47	57.31	55.12	52.89	50.65	48.40	46.15	43.89	41.64	39.41	37.24	35.14
14	65.61	63.64	61.60	59.50	57.34	55.15	52.92	50.68	48.43	46.17	43.91	41.66	39.44	37.26	35.16
15	65.65	63.68	61.64	59.53	57.37	55.18	52.95	50.71	48.46	46.20	43.94	41.69	39.46	37.28	35.18
16	65.69	63.72	61.67	59.57	57.41	55.21	52.98	50.74	48.49	46.23	43.97	41.71	39.49	37.31	35.21
17	65.73	63.76	61.71	59.60	57.44	55.25	53.02	50.77	48.52	46.26	44.00	41.74	39.51	37.33	35.23
18	65.77	63.80	61.75	59.64	57.48	55.28	53.05	50.81	48.55	46.29	44.03	41.77	39.54	37.36	35.26
19	65.82	63.84	61.80	59.69	57.53	55.32	53.09	50.85	48.59	46.33	44.06	41.80	39.57	37.39	35.28
20	65.87	63.89	61.85	59.74	57.57	55.37	53.14	50.89	48.63	46.36	44.10	41.84	39.60	37.42	35.31
21	65.92	63.95	61.90	59.79	57.62	55.42	53.18	50.93	48.67	46.41	44.14	41.88	39.64	37.46	35.35
22	65.98	64.01	61.96	59.84	57.68	55.47	53.23	50.98	48.72	46.45	44.18	41.92	39.68	37.49	35.38
23	66.05	64.07	62.02	59.90	57.73	55.53	53.29	51.04	48.77	46.50	44.23	41.96	39.72	37.53	35.42
24	66.12	64.14	62.08	59.97	57.80	55.59	53.35	51.09	48.83	46.55	44.28	42.01	39.77	37.58	35.46
25	66.19	64.21	62.15	60.03	57.86	55.65	53.41	51.15	48.88	46.61	44.33	42.06	39.82	37.62	35.51
26	66.27	64.28	62.23	60.11	57.93	55.72	53.48	51.22	48.95	46.67	44.39	42.12	39.87	37.68	35.56
27	66.35	64.37	62.31	60.19	58.01	55.80	53.55	51.29	49.01	46.73	44.45	42.18	39.93	37.73	35.61
28	66.44	64.45	62.39	60.27	58.09	55.88	53.63	51.36	49.09	46.80	44.52	42.24	39.99	37.79	35.66
29	66.54	64.55	62.49	60.36	58.18	55.96	53.71	51.44	49.16	46.88	44.59	42.31	40.06	37.85	35.72
30	66.64	64.65	62.59	60.46	58.27	56.05	53.80	51.53	49.25	46.96	44.67	42.38	40.13	37.92	35.79
31	66.75	64.76	62.69	60.56	58.37	56.15	53.89	51.62	49.34	47.04	44.75	42.46	40.20	37.99	35.85
32	66.87	64.87	62.80	60.67	58.48	56.25	53.99	51.72	49.43	47.13	44.84	42.55	40.28	38.07	35.93
33	66.99	65.00	62.92	60.79	58.60	56.37	54.10	51.82	49.53	47.23	44.93	42.64	40.37	38.15	36.01
34	67.12	65.13	63.05	60.91	58.72	56.49	54.22	51.94	49.64	47.34	45.03	42.73	40.46	38.24	36.09
35	67.27	65.27	63.19	61.05	58.85	56.61	54.35	52.06	49.76	47.45	45.14	42.84	40.56	38.33	36.18

**TEACHER RETIREMENT SYSTEM OF TEXAS**

**JOINT AND 75% BENEFICIARY WITH POP-UP FEATURE**

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional optional benefit. Each percentage is based on age as of last birthday of member and beneficiary. Benefit reverts to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement														
	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89
36	67.42	65.42	63.34	61.19	58.99	56.75	54.48	52.19	49.88	47.57	45.26	42.95	40.67	38.43	36.28
37	67.58	65.58	63.49	61.35	59.14	56.90	54.62	52.33	50.02	47.70	45.38	43.07	40.78	38.54	36.38
38	67.75	65.74	63.66	61.51	59.30	57.06	54.77	52.47	50.16	47.84	45.52	43.20	40.90	38.66	36.49
39	67.93	65.92	63.84	61.68	59.47	57.22	54.94	52.63	50.31	47.99	45.66	43.33	41.03	38.78	36.61
40	68.13	66.12	64.03	61.87	59.66	57.40	55.11	52.80	50.48	48.15	45.81	43.48	41.17	38.92	36.74
41	68.33	66.32	64.23	62.07	59.85	57.59	55.29	52.98	50.65	48.31	45.97	43.64	41.32	39.06	36.88
42	68.55	66.53	64.44	62.28	60.06	57.79	55.49	53.17	50.84	48.50	46.15	43.80	41.49	39.22	37.02
43	68.78	66.76	64.67	62.50	60.27	58.01	55.70	53.38	51.04	48.69	46.33	43.98	41.66	39.38	37.18
44	69.02	67.01	64.90	62.73	60.51	58.23	55.92	53.59	51.25	48.89	46.53	44.17	41.84	39.56	37.35
45	69.28	67.26	65.16	62.98	60.75	58.47	56.16	53.82	51.47	49.11	46.74	44.38	42.04	39.74	37.53
46	69.56	67.53	65.43	63.25	61.01	58.73	56.41	54.07	51.71	49.34	46.96	44.59	42.24	39.94	37.72
47	69.84	67.82	65.71	63.53	61.29	59.00	56.67	54.33	51.96	49.59	47.20	44.82	42.46	40.15	37.92
48	70.15	68.12	66.01	63.82	61.58	59.28	56.95	54.60	52.23	49.84	47.45	45.06	42.70	40.38	38.14
49	70.47	68.44	66.32	64.13	61.88	59.59	57.25	54.89	52.51	50.12	47.72	45.32	42.94	40.62	38.37
50	70.80	68.77	66.65	64.46	62.21	59.90	57.56	55.19	52.81	50.41	48.00	45.59	43.21	40.87	38.61
51	71.16	69.12	67.00	64.81	62.55	60.24	57.89	55.52	53.12	50.71	48.30	45.88	43.48	41.13	38.86
52	71.53	69.50	67.37	65.17	62.91	60.60	58.24	55.86	53.46	51.04	48.61	46.18	43.78	41.42	39.13
53	71.93	69.89	67.76	65.56	63.29	60.97	58.61	56.22	53.81	51.38	48.94	46.50	44.09	41.71	39.42
54	72.34	70.30	68.17	65.97	63.69	61.37	59.00	56.60	54.18	51.74	49.29	46.84	44.41	42.03	39.72
55	72.78	70.74	68.61	66.40	64.12	61.78	59.41	57.00	54.57	52.12	49.66	47.20	44.76	42.36	40.04
56	73.24	71.20	69.06	66.85	64.56	62.23	59.84	57.43	54.99	52.53	50.06	47.58	45.13	42.71	40.38
57	73.72	71.68	69.55	67.33	65.04	62.69	60.30	57.88	55.43	52.96	50.48	47.99	45.52	43.09	40.74
58	74.23	72.19	70.05	67.83	65.54	63.19	60.79	58.36	55.90	53.42	50.92	48.42	45.93	43.49	41.12
59	74.76	72.73	70.59	68.37	66.07	63.72	61.31	58.87	56.40	53.90	51.39	48.88	46.37	43.92	41.53
60	75.32	73.29	71.16	68.93	66.63	64.27	61.86	59.41	56.93	54.42	51.90	49.36	46.85	44.37	41.97
61	75.91	73.88	71.75	69.53	67.23	64.86	62.44	59.98	57.49	54.97	52.43	49.89	47.35	44.86	42.44
62	76.52	74.50	72.38	70.16	67.86	65.49	63.06	60.59	58.09	55.56	53.01	50.44	47.89	45.38	42.94
63	77.16	75.15	73.03	70.82	68.52	66.15	63.72	61.24	58.73	56.19	53.62	51.04	48.47	45.94	43.48
64	77.82	75.83	73.72	71.51	69.22	66.84	64.41	61.93	59.41	56.86	54.28	51.68	49.09	46.54	44.06
65	78.51	76.53	74.44	72.24	69.95	67.58	65.14	62.66	60.13	57.57	54.97	52.36	49.75	47.18	44.68
66	79.22	77.26	75.19	73.00	70.72	68.35	65.92	63.43	60.90	58.32	55.72	53.09	50.46	47.87	45.34
67	79.95	78.02	75.96	73.79	71.52	69.16	66.73	64.24	61.71	59.12	56.51	53.86	51.22	48.60	46.06
68	80.70	78.79	76.76	74.61	72.35	70.01	67.58	65.10	62.56	59.97	57.34	54.69	52.02	49.39	46.82
69	81.47	79.59	77.58	75.45	73.22	70.89	68.47	66.00	63.46	60.87	58.23	55.56	52.88	50.23	47.64
70	82.24	80.40	78.42	76.32	74.11	71.80	69.40	66.93	64.40	61.81	59.17	56.49	53.79	51.12	48.51

**TEACHER RETIREMENT SYSTEM OF TEXAS**

**JOINT AND 75% BENEFICIARY WITH POP-UP FEATURE**

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional optional benefit. Each percentage is based on age as of last birthday of member and beneficiary. Benefit reverts to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement														
	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89
71	83.02	81.22	79.28	77.22	75.03	72.75	70.37	67.91	65.39	62.80	60.15	57.46	54.76	52.07	49.44
72	83.81	82.05	80.16	78.13	75.98	73.72	71.36	68.92	66.41	63.83	61.19	58.49	55.78	53.07	50.42
73	84.60	82.89	81.04	79.05	76.94	74.71	72.38	69.97	67.47	64.90	62.27	59.57	56.85	54.13	51.47
74	85.38	83.73	81.92	79.98	77.91	75.73	73.43	71.04	68.57	66.02	63.39	60.70	57.97	55.25	52.57
75	86.16	84.56	82.81	80.92	78.90	76.75	74.50	72.14	69.70	67.17	64.55	61.87	59.15	56.41	53.72
76	86.93	85.38	83.69	81.86	79.89	77.79	75.58	73.27	70.85	68.35	65.76	63.08	60.37	57.63	54.93
77	87.68	86.19	84.56	82.79	80.87	78.83	76.67	74.40	72.03	69.56	66.99	64.34	61.63	58.90	56.20
78	88.41	86.99	85.42	83.71	81.86	79.88	77.77	75.55	73.22	70.79	68.25	65.63	62.93	60.21	57.51
79	89.13	87.77	86.27	84.62	82.83	80.91	78.87	76.70	74.43	72.04	69.54	66.94	64.27	61.57	58.87
80	89.82	88.53	87.09	85.51	83.79	81.94	79.96	77.86	75.64	73.30	70.84	68.28	65.64	62.96	60.27
81	90.48	89.26	87.89	86.38	84.73	82.95	81.04	79.00	76.84	74.56	72.16	69.64	67.04	64.38	61.71
82	91.12	89.96	88.66	87.23	85.65	83.94	82.10	80.14	78.05	75.83	73.48	71.02	68.45	65.83	63.19
83	91.73	90.64	89.41	88.05	86.55	84.91	83.15	81.25	79.24	77.09	74.80	72.39	69.88	67.29	64.69
84	92.31	91.28	90.13	88.83	87.41	85.85	84.16	82.35	80.41	78.33	76.12	73.77	71.31	68.78	66.21
85	92.86	91.90	90.81	89.59	88.24	86.76	85.15	83.42	81.55	79.56	77.42	75.14	72.74	70.26	67.74
86	93.38	92.48	91.46	90.31	89.03	87.63	86.10	84.45	82.67	80.75	78.69	76.49	74.16	71.74	69.27
87	93.86	93.02	92.06	90.98	89.78	88.46	87.00	85.43	83.73	81.90	79.92	77.80	75.54	73.19	70.78
88	94.32	93.53	92.63	91.62	90.49	89.24	87.86	86.37	84.76	83.00	81.11	79.06	76.89	74.60	72.26
89	94.74	94.00	93.16	92.21	91.15	89.97	88.67	87.26	85.72	84.05	82.24	80.28	78.18	75.97	73.69
90	95.12	94.44	93.66	92.77	91.77	90.65	89.43	88.09	86.64	85.05	83.32	81.43	79.41	77.27	75.07
91	95.48	94.85	94.12	93.28	92.34	91.30	90.14	88.88	87.50	85.99	84.34	82.54	80.59	78.53	76.39
92	95.82	95.23	94.55	93.77	92.89	91.91	90.82	89.63	88.32	86.89	85.32	83.60	81.74	79.75	77.68
93	96.13	95.59	94.95	94.23	93.40	92.48	91.46	90.34	89.12	87.76	86.27	84.64	82.85	80.94	78.95
94	96.43	95.93	95.34	94.66	93.90	93.04	92.08	91.04	89.88	88.61	87.20	85.65	83.95	82.13	80.21
95	96.72	96.26	95.71	95.09	94.37	93.58	92.68	91.71	90.63	89.44	88.12	86.65	85.04	83.30	81.47
96	96.99	96.57	96.07	95.49	94.83	94.09	93.26	92.35	91.35	90.24	89.01	87.63	86.11	84.46	82.72
97	97.25	96.86	96.40	95.87	95.26	94.58	93.81	92.97	92.04	91.01	89.86	88.58	87.15	85.60	83.95
98	97.49	97.13	96.71	96.22	95.66	95.04	94.33	93.55	92.69	91.74	90.67	89.48	88.15	86.69	85.14
99	97.70	97.38	96.99	96.55	96.03	95.45	94.80	94.08	93.29	92.41	91.43	90.32	89.08	87.71	86.25
100	97.90	97.60	97.25	96.83	96.36	95.83	95.23	94.57	93.83	93.02	92.11	91.08	89.92	88.65	87.28

**TEACHER RETIREMENT SYSTEM OF TEXAS**

**OPTION 5 FACTORS  
JOINT AND 75% BENEFICIARY WITH POP-UP FEATURE**

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional optional benefit. Each percentage is based on age as of last birthday of member and beneficiary. Bene to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement										
	90	91	92	93	94	95	96	97	98	99	100
1	32.99	31.13	29.38	27.72	26.10	24.49	22.87	21.24	19.65	18.15	16.78
2	33.00	31.14	29.39	27.73	26.11	24.50	22.87	21.25	19.66	18.15	16.78
3	33.01	31.15	29.40	27.74	26.12	24.50	22.88	21.25	19.66	18.16	16.79
4	33.02	31.16	29.41	27.75	26.13	24.51	22.89	21.26	19.67	18.17	16.79
5	33.03	31.17	29.42	27.76	26.14	24.52	22.90	21.27	19.68	18.17	16.80
6	33.05	31.18	29.43	27.77	26.15	24.53	22.91	21.28	19.68	18.18	16.81
7	33.06	31.19	29.44	27.78	26.16	24.54	22.91	21.29	19.69	18.19	16.81
8	33.07	31.21	29.45	27.79	26.17	24.55	22.93	21.30	19.70	18.19	16.82
9	33.09	31.22	29.47	27.80	26.18	24.56	22.94	21.31	19.71	18.20	16.83
10	33.10	31.24	29.48	27.82	26.19	24.57	22.95	21.32	19.72	18.21	16.84
11	33.12	31.25	29.50	27.83	26.21	24.59	22.96	21.33	19.73	18.22	16.85
12	33.14	31.27	29.51	27.85	26.22	24.60	22.97	21.34	19.74	18.23	16.86
13	33.16	31.29	29.53	27.86	26.24	24.61	22.99	21.35	19.75	18.24	16.87
14	33.17	31.31	29.55	27.88	26.25	24.63	23.00	21.37	19.77	18.26	16.88
15	33.20	31.33	29.57	27.90	26.27	24.65	23.02	21.38	19.78	18.27	16.89
16	33.22	31.35	29.58	27.91	26.29	24.66	23.03	21.39	19.79	18.28	16.90
17	33.24	31.37	29.60	27.93	26.31	24.68	23.05	21.41	19.81	18.29	16.91
18	33.26	31.39	29.63	27.95	26.33	24.70	23.06	21.43	19.82	18.31	16.93
19	33.29	31.42	29.65	27.98	26.35	24.72	23.08	21.44	19.84	18.32	16.94
20	33.32	31.44	29.68	28.00	26.37	24.74	23.10	21.46	19.86	18.34	16.96
21	33.35	31.47	29.70	28.03	26.39	24.76	23.13	21.48	19.87	18.36	16.97
22	33.38	31.50	29.73	28.06	26.42	24.79	23.15	21.50	19.90	18.38	16.99
23	33.42	31.54	29.77	28.09	26.45	24.82	23.18	21.53	19.92	18.40	17.01
24	33.46	31.58	29.80	28.12	26.48	24.85	23.20	21.56	19.94	18.42	17.03
25	33.50	31.62	29.84	28.16	26.52	24.88	23.23	21.58	19.97	18.44	17.05
26	33.55	31.66	29.88	28.20	26.56	24.91	23.27	21.62	20.00	18.47	17.08
27	33.60	31.71	29.93	28.24	26.60	24.95	23.30	21.65	20.03	18.50	17.11
28	33.65	31.76	29.97	28.28	26.64	24.99	23.34	21.68	20.06	18.53	17.13
29	33.71	31.81	30.03	28.33	26.68	25.04	23.38	21.72	20.10	18.56	17.16
30	33.77	31.87	30.08	28.39	26.73	25.08	23.43	21.76	20.14	18.60	17.20
31	33.83	31.93	30.14	28.44	26.79	25.13	23.47	21.81	20.18	18.64	17.23
32	33.90	32.00	30.20	28.50	26.84	25.19	23.52	21.85	20.22	18.68	17.27
33	33.98	32.07	30.27	28.56	26.90	25.24	23.58	21.90	20.27	18.72	17.31
34	34.06	32.14	30.34	28.63	26.97	25.30	23.63	21.96	20.32	18.77	17.35
35	34.14	32.23	30.42	28.71	27.04	25.37	23.70	22.02	20.37	18.82	17.40



**TEACHER RETIREMENT SYSTEM OF TEXAS**

**OPTION 5 FACTORS  
JOINT AND 75% BENEFICIARY WITH POP-UP FEATURE**

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional optional benefit. Each percentage is based on age as of last birthday of member and beneficiary. Bene to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement										
	90	91	92	93	94	95	96	97	98	99	100
36	34.23	32.31	30.50	28.79	27.11	25.44	23.76	22.08	20.43	18.87	17.45
37	34.33	32.41	30.59	28.87	27.19	25.52	23.83	22.15	20.49	18.93	17.50
38	34.44	32.51	30.69	28.96	27.28	25.60	23.91	22.22	20.56	18.99	17.56
39	34.55	32.62	30.79	29.06	27.37	25.69	23.99	22.29	20.63	19.06	17.62
40	34.68	32.73	30.90	29.17	27.47	25.78	24.08	22.38	20.71	19.13	17.69
41	34.81	32.86	31.02	29.28	27.58	25.88	24.18	22.47	20.79	19.21	17.76
42	34.95	32.99	31.15	29.40	27.70	25.99	24.28	22.56	20.88	19.29	17.84
43	35.10	33.13	31.28	29.53	27.82	26.11	24.39	22.67	20.98	19.38	17.92
44	35.26	33.29	31.43	29.67	27.95	26.23	24.51	22.78	21.08	19.48	18.01
45	35.43	33.45	31.59	29.82	28.09	26.37	24.64	22.89	21.19	19.58	18.11
46	35.61	33.62	31.75	29.98	28.24	26.51	24.77	23.02	21.31	19.69	18.21
47	35.80	33.81	31.93	30.15	28.41	26.66	24.91	23.16	21.43	19.81	18.32
48	36.01	34.01	32.12	30.33	28.58	26.83	25.07	23.30	21.57	19.93	18.44
49	36.23	34.22	32.32	30.52	28.76	27.00	25.23	23.46	21.71	20.07	18.56
50	36.46	34.44	32.53	30.72	28.95	27.18	25.41	23.62	21.87	20.21	18.70
51	36.71	34.67	32.76	30.94	29.16	27.38	25.59	23.79	22.03	20.36	18.84
52	36.96	34.92	32.99	31.16	29.38	27.59	25.79	23.98	22.20	20.52	18.99
53	37.24	35.18	33.25	31.40	29.61	27.80	25.99	24.17	22.38	20.69	19.15
54	37.53	35.46	33.51	31.66	29.85	28.03	26.21	24.38	22.58	20.87	19.32
55	37.84	35.76	33.79	31.93	30.10	28.28	26.44	24.59	22.78	21.06	19.49
56	38.16	36.07	34.09	32.21	30.38	28.54	26.69	24.82	23.00	21.26	19.68
57	38.51	36.40	34.41	32.52	30.67	28.81	26.95	25.07	23.22	21.48	19.88
58	38.87	36.75	34.75	32.84	30.98	29.11	27.22	25.33	23.47	21.71	20.09
59	39.27	37.13	35.11	33.18	31.30	29.42	27.52	25.61	23.73	21.95	20.32
60	39.69	37.53	35.49	33.55	31.66	29.75	27.84	25.91	24.01	22.21	20.57
61	40.14	37.96	35.91	33.95	32.03	30.11	28.18	26.23	24.31	22.49	20.83
62	40.62	38.42	36.35	34.37	32.44	30.50	28.54	26.57	24.63	22.79	21.11
63	41.14	38.92	36.83	34.83	32.88	30.92	28.94	26.94	24.98	23.12	21.41
64	41.69	39.46	37.34	35.32	33.35	31.37	29.36	27.34	25.36	23.47	21.74
65	42.29	40.03	37.89	35.86	33.86	31.85	29.82	27.78	25.76	23.85	22.10
66	42.93	40.65	38.49	36.43	34.41	32.38	30.32	28.25	26.20	24.26	22.49
67	43.62	41.32	39.13	37.05	35.00	32.94	30.86	28.76	26.68	24.71	22.91
68	44.36	42.04	39.83	37.72	35.65	33.56	31.45	29.31	27.20	25.20	23.36
69	45.16	42.81	40.57	38.44	36.34	34.22	32.08	29.91	27.77	25.73	23.86
70	46.01	43.63	41.37	39.21	37.08	34.94	32.76	30.56	28.38	26.31	24.40

**TEACHER RETIREMENT SYSTEM OF TEXAS**

**OPTION 5 FACTORS  
JOINT AND 75% BENEFICIARY WITH POP-UP FEATURE**

Percentage is applied to the amount of single life service retirement benefit in order to obtain the optional optional benefit. Each percentage is based on age as of last birthday of member and beneficiary. Bene to single life amount if beneficiary predeceases member.

Age of beneficiary	Age of Member at Date of Retirement										
	90	91	92	93	94	95	96	97	98	99	100
71	46.91	44.51	42.23	40.04	37.89	35.71	33.50	31.26	29.04	26.93	24.99
72	47.88	45.45	43.14	40.93	38.75	36.54	34.30	32.02	29.76	27.61	25.63
73	48.90	46.45	44.12	41.88	39.67	37.43	35.15	32.83	30.53	28.34	26.32
74	49.98	47.52	45.16	42.90	40.66	38.39	36.07	33.71	31.37	29.13	27.06
75	51.12	48.64	46.26	43.98	41.71	39.41	37.06	34.66	32.27	29.98	27.87
76	52.32	49.82	47.43	45.12	42.83	40.50	38.11	35.67	33.23	30.90	28.74
77	53.58	51.06	48.65	46.33	44.01	41.65	39.23	36.74	34.26	31.88	29.67
78	54.89	52.36	49.94	47.60	45.26	42.88	40.42	37.89	35.37	32.93	30.67
79	56.25	53.72	51.29	48.93	46.58	44.17	41.68	39.12	36.54	34.06	31.75
80	57.66	55.13	52.69	50.33	47.97	45.53	43.01	40.41	37.79	35.26	32.90
81	59.11	56.59	54.16	51.79	49.41	46.96	44.42	41.78	39.12	36.53	34.12
82	60.60	58.10	55.67	53.30	50.93	48.46	45.90	43.23	40.52	37.89	35.43
83	62.13	59.64	57.23	54.88	52.50	50.03	47.45	44.75	42.01	39.33	36.82
84	63.68	61.22	58.83	56.50	54.13	51.66	49.07	46.35	43.58	40.85	38.29
85	65.26	62.83	60.47	58.15	55.81	53.35	50.76	48.02	45.22	42.46	39.86
86	66.83	64.45	62.12	59.84	57.52	55.08	52.50	49.76	46.93	44.15	41.51
87	68.40	66.06	63.77	61.53	59.24	56.83	54.26	51.53	48.69	45.89	43.22
88	69.93	67.64	65.40	63.20	60.95	58.57	56.03	53.31	50.48	47.66	44.96
89	71.42	69.19	67.00	64.85	62.64	60.30	57.79	55.09	52.26	49.43	46.73
90	72.86	70.68	68.55	66.45	64.29	61.99	59.52	56.84	54.03	51.20	48.48
91	74.25	72.13	70.06	68.01	65.90	63.65	61.21	58.56	55.77	52.95	50.23
92	75.61	73.55	71.53	69.54	67.49	65.28	62.89	60.28	57.51	54.70	51.98
93	76.94	74.95	72.99	71.06	69.07	66.92	64.58	62.01	59.26	56.47	53.75
94	78.28	76.36	74.46	72.60	70.67	68.58	66.30	63.78	61.07	58.30	55.60
95	79.61	77.77	75.95	74.15	72.30	70.28	68.07	65.60	62.95	60.21	57.53
96	80.95	79.19	77.45	75.73	73.95	72.02	69.88	67.49	64.90	62.21	59.57
97	82.27	80.59	78.94	77.30	75.61	73.77	71.72	69.42	66.90	64.28	61.68
98	83.55	81.96	80.39	78.84	77.24	75.49	73.54	71.33	68.90	66.36	63.83
99	84.75	83.26	81.77	80.31	78.80	77.15	75.30	73.19	70.86	68.41	65.96
100	85.87	84.46	83.06	81.68	80.26	78.70	76.95	74.95	72.72	70.36	68.00