Texas Emergency Services Retirement System

2025 Experience Study and Review of Assumptions

August 11, 2025

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August 11, 2025

Via E-Mail: Jessica.Almaguer@tesrs.texas.gov
Board of Trustees
Texas Emergency Services Retirement System
c/o Ms. Jessica Almaguer, Executive Director
P.O. Box 12577
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Members of the Board of Trustees:

At the request of the Board of Trustees of the Texas Emergency Services Retirement System (the System), we have prepared a study of the experience of the System in order to comply with the state law governing the System. This study covers the experience for the six plan years 2019-2024.

We have also reviewed each of the actuarial assumptions used in the prior actuarial valuation and have prepared, based on this review and the experience study, our recommendation of assumptions to be used in the System's August 31, 2025 actuarial valuation. This report documents our analysis. Once the board has accepted this report, a copy should be sent to the Texas Pension Review Board.

We certify that we are members of the American Academy of Actuaries who meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained in this report.

Sincerely,

Mark R. Fenlaw

Mark R. Fenlaw, F.S.A.

Rebecca B. Morris

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Section I – Executive Summary

A. Scope and Purpose

This study of experience and review of assumptions has been conducted in order to determine whether the assumptions used in the most recent actuarial valuation should be adjusted to better fit recent experience and to recommend the assumptions to be used in the August 31, 2025 actuarial valuation of the System.

Actual plan experience over the six-year period from August 31, 2018 to August 31, 2024 has been studied in order to evaluate the following assumptions:

- Retirement Rates
- Termination Rates
- Disability Rates
- Deferred Benefit Commencement
- Marital Status at Benefit Commencement

In addition to the experience study and evaluation of the assumptions listed above, we have also reviewed all other actuarial assumptions used in the August 31, 2024 actuarial valuation to determine if they remain appropriate or if they need to be adjusted.

Actuarial assumptions form the basis for actuarial valuations which are used to determine appropriate contribution levels and to model costs of a retirement fund, but it is important to remember that the results of an actuarial valuation do not determine either the year by year costs or the ultimate cost of a retirement fund. The ultimate cost will be equal to the total benefits and expenses paid by a fund in excess of the investment income of the fund, including realized gains and losses on sales of fund investments. However, the results of an actuarial valuation can determine whether the existing contribution policy can reasonably be expected to be adequate for the current benefit formula over a long period of time or whether a new benefit formula should be studied for consideration. The accuracy and usefulness of actuarial valuations are dependent upon the use of actuarial assumptions that will reasonably reflect a fund's future experience as it unfolds over a long period of time.

We are guided in our review and selection of assumptions by the relevant actuarial standards of practice. As a result of our review, we have selected actuarial assumptions we consider to be reasonable and appropriate estimates of future experience for the System for the long-term future.

B. Summary of Recommended Changes

The table below provides a general description of our recommended changes. Details for each assumption can be found in Section II of this report. A summary of all assumptions and methods recommended for use in the August 31, 2025 actuarial valuation can be found in Section IV of this report. We consider the recommended assumptions to be reasonable and appropriate for the System for the long-term future, and each recommendation complies with applicable actuarial standards of practice. In addition, we believe that the combined effect of the assumptions is expected to have no significant bias, i.e., not significantly optimistic or pessimistic.

Assumption	Recommendation	Additional Details
1. Retirement Rates	Change retirement rates to reflect experience (minor adjustments)	See Section II.A.
2. Termination Rates	Change termination rates to reflect experience	See Section II.B.
3. Disability Rates	No change to the assumed rates	See Section II.C.
4. Mortality Rates	Update to new PubS-2016 total dataset mortality projected generationally with MP-2021 (somewhat longer life expectancies); no change to the rate of on-duty deaths	See Section II.D.
5. Deferred Benefit Commencement	No change to age 58	See Section II.E.
6. Marital Status	Change assumed married at benefit commencement to 85% of males and 45% of females, to reflect experience (minor reductions from 90% and 50%)	See Section II.F.
7. Investment Return	Lower rate from 7.25% to 7.0%	See Section II.G.

In summary, our report documents (1) our review of the experience of the active members of the System during the six-year study period and of the actuarial assumptions used in the most recent actuarial valuation of the System and (2) our recommendation of actuarial assumptions for the August 31, 2025 actuarial valuation. In addition, we will continue our regular review of the assumptions and experience that is a part of each actuarial valuation.

C. Impact of Recommended Assumptions

We redid the August 31, 2024 actuarial valuation using the recommended assumptions to see what their effect would have been as of that date compared to the current actuarial assumptions, except for the 7% investment return assumption, used for the actuarial analysis of SB 2065. Section III of the report summarizes the effect and compares the results to comparable calculations for the actuarial analysis of SB 2065.

Section II – Actuarial Assumptions for Actuarial Valuations

A. Retirement

Active members eligible for early or normal retirement are assumed to retire based on annual rates that vary by age. A member is eligible to retire at age 55 or above. Early retirement requires at least ten years. Normal retirement requires at least 15 years of qualified service. The only reduction for early retirement is the vesting percent.

The table below compares the actual number of retirements by active members to the number expected according to the current rates. Based on the pattern we observed for the six-year period, we developed a proposed set of rates that better reflects the recent experience and that we believe is appropriate for the future. The table also contains the expected number of retirements according to the proposed rates.

Ages	Years of Exposure	Actual Retirements	Expected Retirements		Actual/Expected	
			Current Rates	Proposed Rates	Current Rates	Proposed Rates
55	296	80	74.00	74.00	108%	108%
56-63	1,534	227	214.76	230.10	106	99
64-66	315	60	55.92	59.85	107	100
67-68	165	20	33.00	24.75	61	81
69	75	17	15.00	18.75	113	91
55-69*	2,385	404	392.68	407.45	103	99

*Excludes all exposure and retirements at ages 70 and above.

Both the current and proposed sets of rates include the assumption that all active members will retire at age 70, even though there were a number of active members age 70 and above, and 45 of them retired during the six years. Using a retirement rate of 100% at age 70 is a pragmatic simplification.

We believe the experience of the six-year study period is an appropriate basis for assumptions for the future. The rates will be applied only to active members who meet both the service and age requirements.

We also believe the experience of the six-year study period is an appropriate basis for assumptions for the future in spite of the different levels of benefits due to different contribution rates and to various amounts of service at retirement. Because of the physical requirements to provide the emergency services and because the level of the monthly retirement benefit is modest in most departments, the decision to retire as a volunteer will probably be more often affected by a person's physical condition and other personal considerations and less affected by the amount of the monthly benefit. We believe that the retirement experience by age is an adequate indicator of retirement rate experience for the active members expected in future years. **We recommend the adoption of the proposed rates based on the recent experience. The full set of rates is shown in Exhibit 2.**

B. Termination

The active members are assumed to terminate their volunteer service for causes other than death, disability, or retirement in accordance with annual rates that are based on years of qualified service and entry age group, e.g., entry age group 35 is for entry ages 33-37. The termination rates stop at the later of attaining age 55 or 10 years of qualified service.

The experience of the System during the six-year study period followed the general pattern of the current set of termination rates. Generally, we found that the recent experience had somewhat lower rates of termination than the currently assumed rates for years of service less than five.

The two tables below group all of the experience first by service and then by entry age group, comparing the actual number of terminations to the number expected according to the current rates. Based on the patterns we observed for each entry age group and across the entry age groups, we developed a proposed set of rates that better reflects the recent experience. The tables below also contain the expected number of terminations according to the proposed rates. The ratios in the last two columns are the actual number of terminations divided by the expected number. The closer a ratio is to 100%, the better the termination rates fit the actual experience of the study period.

By Years of Service

Years of Service	Years of Exposure	Actual Terminations	Expected Terminations		Actual/Expected	
			Current Rates	Proposed Rates	Current Rates	Proposed Rates
0-4	8,686	1,487	1,837.92	1,481.84	81%	100%
5-9	5,004	634	594.03	629.61	107	101
10-14	2,581	259	237.40	254.43	109	102
15-19	1,438	124	122.52	129.68	101	96
20+	1,254	96	84.07	92.08	114	104
Total	18,963	2,600	2,875.94	2,587.64	90	100

By Entry Age Group

Entry Age Group	Years of Exposure	Actual Terminations	Expected Terminations		Actual/Expected	
			Current Rates	Proposed Rates	Current Rates	Proposed Rates
20	4,305	643	742.96	654.70	87%	98%
25	4,136	617	673.26	618.72	92	100
30	3,756	494	524.25	487.28	91	101
35	2,534	307	372.46	303.61	82	101
40	1,790	214	229.06	211.66	93	101
45, 50, 55	2,442	325	315.95	311.67	103	104
Total	18,963	2,600	2,875.94	2,587.64	90	100

We recommend the adoption of the proposed rates based on the recent experience. The full set of rates is shown in Exhibit 3.

C. Disability

Active members are assumed to become disabled as defined by System provisions during the performance of emergency service duties based on rates that vary by age. There is no minimum service requirement. A disability benefit is payable during each month that the member is unable to perform his duties for the member's participating department or the duties of any other occupation for which the member is reasonably suited by education, training and experience. The disability benefit formula is different from the formula for a retirement benefit and would produce a greater benefit than for retirement in most cases.

A member whose service terminates as a result of becoming disabled while not performing emergency service duties is not eligible for a disability benefit. Instead, the member is eligible to receive an immediate or deferred benefit based on his age, years of qualified service, and vesting percent that is computed in the same manner for retirement.

Ages	Years of Exposure	Actual Disabilities	Expected Disabilities with Current Rates	Actual/Expected
20-69	21,385	2	1.84	109%

There were two disability retirees whose benefit commenced during the six-year study period. The expected number of on-duty disabilities according to the current rates during the six-year study period was 1.84, reasonably close to the two actual disabilities. **We recommend no change in the current assumed disability rates.**

D. Mortality

The System is not large enough to use its own mortality experience as the basis of the mortality assumption. We have always used a published mortality table we considered appropriate for our public pension clients, and since 2006, making changes periodically for projecting mortality improvement. The Society of Actuaries (SOA) conducted the first ever mortality study of public pension plans, which was finalized in January 2019. The SOA released its second study of public pension plans in May 2025 which, like the first study, resulted in three sets of mortality tables; one for teachers, one for public safety, and one for general employees. We believe that the tables for public safety are appropriate for the System. Within each set of tables, there are separate sex-distinct tables for employees and for retirees. In addition, the employee and retiree tables are subdivided into above-median income tables, below-median income tables and total dataset tables. The System currently uses the below-median income tables which was determined based solely on the income levels provided by the System. However, since the System benefits are not likely the sole source of income in retirement members, we now believe that the new total dataset tables are appropriate for the System. The mortality experience of these new tables comes from calendar years 2013-2019, with a midpoint of July 1, 2016. The naming convention uses Pub-2016 as the core acronym, with PubS-2016 the acronym for the public safety set of tables.

The base tables are designed to be projected for future mortality improvement. In the prior actuarial valuation, the mortality assumption included generational projection of mortality improvement (a different effective mortality table for each year of birth cohort) using one of the recently developed mortality improvement projection scales developed by the SOA, the

MP-2019. We recommend using the most recent projection scale, the MP-2021, which included experience through 2019. A more recent projection scale has not yet been developed because of the distorting effects of COVID on the more recent national mortality experience.

In summary, we recommend updating the mortality assumption for the August 31, 2025 actuarial valuation from the PubS-2010 below-median income mortality tables, projected generationally using the projection scale MP-2019, to the PubS-2016 total dataset mortality tables, projected for mortality improvement generationally using the projection scale MP-2021.

We also reviewed the on-duty mortality experience. There were three on-duty deaths during the six-year study period. The assumption used in the most recent valuation was a mortality rate of 0.15 per 1,000 life years, with the same rate applied at each age. Using this assumption, the expected number of on-duty deaths during the six years was 3.20.

Ages	Years of Exposure	Actual Deaths	Expected Deaths with Current Rate	Actual/Expected
20-69	21,385	3	3.20	94%

Because the expected number based on the prior assumption was reasonably close to the actual three on-duty deaths, we recommend no change. The actual on-duty death rate during the six years was 0.14 per 1,000 life years. **We recommend no change in the assumed on-duty mortality rate of 0.15 per 1,000 life years.** This rate will be added to the mortality rate for each age in the base mortality tables for actives. Then the generational projection of mortality improvement will gradually reduce the effective rate over the years.

E. Deferred Benefit Commencement for Vested Terminated Members

An active member who terminates service before age 55 with at least enough years of qualified service to be vested (five years before 2007 and 10 years beginning in 2007), is entitled to a monthly retirement benefit upon attainment of age 55 and application for the retirement benefit. During the six-year study period, there were 588 vested terminated members whose monthly retirement benefit commenced. The table below shows the 588 by their age at the commencement of the benefit.

Age at Commencement	Number of Vested Terminated Members Commencing Benefit
55	276
56	75
57	35
58	38
59	24
60	24
61-65	73
66+	43
Total	588

It is surprising that more of the vested terminated members did not apply for their deferred benefit shortly after attaining age 55. However, some may have terminated many years before age 55 and forgot they were entitled to a benefit at age 55, especially if the benefit was for service in a department contributing the minimum monthly contribution and was based on only ten years of service. The average age at commencement for the 588 vested terminated members who started their benefit during the study period was 58.

In the prior valuation, we used an assumption that on average the deferred benefits of the vested terminated members would commence at age 58. We used age 58 based on the prior experience study which revealed that the average age at commencement of their benefits was 58 based on the review of 426 vested terminated members during the previous six-year study period. Any vested terminated member over age 58 on a valuation date was assumed to have had his benefit commence on the valuation date.

It is possible that if the System continues notifying vested terminated members who delay in applying for their benefits, the average age of benefit commencement could decrease over time. However, according to the data we received for the experience study, there were 761 vested terminated members 55 and older as of August 31, 2024, as shown in the table below, an increase from 535 six years earlier. Their average age as of August 31, 2024 of these vested terminated members was over 59.

Age as of August 31, 2024	Number of Vested Terminated Members Whose Benefit Had Not Yet Commenced
55	111
56	86
57	80
58	61
59	49
60	52
61-65	171
66+	151
Total	761

In light of the experience of vested terminated members whose benefit commenced at an average age of 58 during the current six-year study period and of the average age of over 59 of the large number of vested terminated members at ages over 55 whose benefit had not commenced as of August 31, 2024, **we recommend no change, continuing to assume that terminated members entitled to deferred benefits will begin their benefits at age 58 or their age on the valuation date, if older.**

F. Investment Return

Introduction

There are two components to the investment return assumption: (1) the rate of inflation and (2) the net real rate of return. The investment return assumption for the August 31, 2024 actuarial valuation was 7.25% per year net of investment-related expenses, consisting of an assumed rate of inflation of 2.75% per year and an assumed net real rate of return of 4.50%. Each component represents the annual average rate expected over the long-term future.

While this is a theoretical approach, it provides a reasonable basis for the selection of an investment return assumption.

Inflation

The most widely recognized and discussed measure of inflation is the Consumer Price Index for Urban Consumers (CPI-U). The CPI-U is a measure of price inflation, and it is not clear to what extent price inflation flows through to salary increases and to yield rates on investments. It is, however, probably the best measure that is readily available, and it is widely enough recognized and publicized that it impacts both salary increases and investment return. The table below shows average annual rates of the CPI-U over selected periods, based on December to December calculations.

Price Inflation in the USA – Average Annual Rates of Increase in the CPI-U

Years (Dec. to Dec.)	Number of Years	Average Annual Increase
1959 – 2024	65	3.72%
1964 – 2024	60	3.93
1969 – 2024	55	3.94
1974 – 2024	50	3.68
1979 – 2024	45	3.19
1984 – 2024	40	2.78
1989 – 2024	35	2.66
1994 – 2024	30	2.52
1999 – 2024	25	2.55
2004 – 2024	20	2.56

Inflation is an aspect of our economy that is studied, debated, and forecasted without arriving at any definitive answers. People holding one school of thought agree that inflation is caused primarily by an increase in the economy's money supply without an offsetting increase in the real gross national product. People holding another school of thought disregard monetary growth but focus instead on the federal deficit. Still other economists study business cycles to get insight into inflation. A number of other factors within our economy such as changes in wages and productivity, our savings versus our spending habits, and the unemployment rate have some effect on inflation. As the world economy has grown more complex and interdependent, other outside factors increasingly affect the economy of our country such as third world debt, levels of trade with other countries, the dollar's relative strength or weakness compared to the currency of other countries, inflation in other countries, business cycles in other countries, and the prices of food and oil. In recent years, the actions of the Federal Reserve Bank have been a significant influence.

Because the investment return assumption is for the long-term future, we believe that the long-term perspective is particularly important, especially in the current interest rate and inflation environment. In our opinion, most inflation forecasts are too short-term in perspective for a public employee defined benefit pension plan. For example, the semiannual Livingston Survey, published by the Federal Reserve Bank of Philadelphia, includes a forecast for inflation for the next 10 years. It was 2.26% per year in the June 2025 Livingston Survey.

In contrast, the OASDI Trust Funds (Social Security) make 75-year projections that include an inflation assumption. In the 2025 OASDI Trust Funds report, the ultimate inflation assumptions for their 75-year projections were 3.0%, 2.4%, and 1.8% for the low-cost, intermediate, and high-cost assumptions, respectively. Looking at the average annual increase in the CPI-U over historical periods in the table above of 30 to 65 years above and considering the Social Security forecasts, we believe that reasonable assumed rates of inflation for the long-term future would range from 2.25% to 3.00%. **We recommend lowering the assumption from 2.75% to 2.50%, which is in the bottom half of our current range.**

Gross Real Rates of Return

There have been a number of theories and studies about gross real rates of return, one of the keys to the second component of the investment return assumption in addition to investment-related expenses. One ground-breaking, widely quoted study by Robert G. Ibbotson of the University of Chicago and Rex A. Sinquefield of the American National Bank & Trust Company placed real rates of return at 6.7% on common stocks, 1.7% on long-term corporate bonds and 1.0% on long-term government bonds over the period 1926-1976. Their study has been updated since it was published to add additional years to the observation period.

It should be pointed out that there are a number of weaknesses and criticisms of the historical studies of real rates of return. One of the primary weaknesses is that the studies compare actual investment experience to actual inflation and do not recognize expected inflation. For example, in the Wall Street Journal a number of years ago, Lindley H. Clark, Jr. said in a column that "the real cost of money has always been especially hard to measure because it is based not on the actual inflation rate but on a rate expected sometime in the future." Another criticism is that the historical studies are not of actual portfolios but are of market indices or a theoretical group of securities. A related criticism is that the historical studies do not consider market timing of buying and selling but rather only look at the market-value results of buying and holding.

Many investment firms annually provide their capital market expectations or forecasts for different classes of assets. Generally, the capital market expectations are for only a 10-year period. There are two characteristics of these forecasts, in addition to being for only 10 years, that limit their usefulness for making assumptions for 40 years or more. First, there is often a wide diversity of opinion on the capital market expectations. Second, it is not unusual for the same investment firm to issue reports just one year apart with a significant change in some of the forecasts.

Even though there is no real consensus on expected or forecasted real rates of return, most people will agree that equities are riskier investments compared to fixed income securities and that a reward is expected for taking on that risk in the form of higher returns for equities compared to bonds. Similarly, most people expect that the real rate of return on government bonds should be less than on corporate bonds because of the absence of the risk of call or prepayment or default on government bonds. Therefore, the asset mix of the plan's investment portfolio is a key factor in determining an appropriate assumed real rate of return for the plan.

Based on reviews of historical real rates of return by asset class and of various sets of real return capital market forecasts and recognizing the limitations of both, we selected assumed long-term future gross real rates of returns for each asset class in the System's current target

asset allocation. Using these assumed gross real rates of return and the estimated investment expenses for each fund or manager, all for the long-term future, we calculated a weighted average annual net real rate of return of 4.58%, shown in bold print on the next page for the current target asset allocation. The actual asset allocation for March 31, 2025 has a slightly higher net real rate of return of 4.65% due to more in equities and less in alternatives than the target asset allocation.

Asset Allocation and Investment Return Assumption Development

	Gross Annual Real Rate of Investment Return (ROR)[1]	Estimated Investment Expenses[2]	Net Real ROR	Asset Allocation 3/31/25[3]	Asset Allocation **3/31/25 Target[3]**
Domestic Equity					
Large cap growth (Alger)	6.5%	0.85%	5.65%	13.1%	**10%**
Large cap value (Boston Partners)	6.5	0.70	5.80	14.7	**10**
SMID cap growth (Mainstay Fiera)	7.0	0.94	6.06	3.9	**5**
Small cap value (DFA)	7.0	0.43	6.57	4.1	**5**
				35.8	**30**
International Equity					
Developed growth (Fidelity & DFA)	7.0	0.23	6.77	19.6	**15**
Emerging markets (TBD)	8.0	1.15	6.85	0.0	**5**
				19.6	**20**
Fixed Income					
Core (Garcia Hamilton)	2.0	0.35	1.65	10.4	**10**
Core (Richmond Capital)	2.0	0.35	1.65	10.9	**10**
Non-Core (Pimco Diversified)	3.0	0.89	2.11	9.5	**10**
				30.8	**30**
Alternatives					
Global Infrastructure (IFM)	7.5	0.87	6.63	4.8	**5**
Real Estate (Morgan Stanley)	5.0	1.00	4.00	8.9	**10**
Multi Asset Income (TBD)	4.5	1.00	3.50	0.0	**5**
				13.7	**20**
Cash	0.3	0.30	0.00	0.1	**0**
				100.0%	**100%**
Weighted Average Net Real ROR Assumption				4.65%	**4.58%**
Possible Theoretical Annual Investment Return Assumption - Net Real ROR Plus Assumed Annual Rate of Inflation					
Assumed 2.50% Inflation				7.15%	**7.08%**

[1] A gross annual real rate of investment return assumption is the long-term total average annual rate of investment return, before any expenses, that is in excess of the assumed annual inflation rate. These are assumptions made by Rudd and Wisdom, Inc.
[2] These assumed investment-related expenses as a percent of assets are based primarily on information from investment consultant Mariner in their March 31, 2025 report and include both direct and indirect expenses, with an addition of 0.03% for the fees of the custodial bank and 0.07% for the fees of Mariner (average annual fees as a percent of assets for consulting fee, any manager searches and an asset/liability study periodically).
[3] From the March 31, 2025 report of Mariner.

Assumption Recommended

Based on our review, we recommend a 7.0% investment return assumption with an inflation assumption component of 2.5% and a net real rate of return assumption of 4.5%. We used 7.25% for the August 31, 2024 actuarial valuation as the assumed investment

return assumption net of investment-related expenses. However, the amended state law governing the System requires a 7% assumption for the actuarially determined state contribution. The 7% assumption enables us to recommend the lower inflation assumption of 2.5%. The Legislature was more comfortable with 7% than 7.25%, and we believe 7% is reasonable and appropriate for the System. It should be considered as a long-term annual average, not as a target rate for relatively short periods of time, e.g., 10 years, in the establishment of investment policy.

We will continue to review the investment return assumption and the associated inflation and gross real rates of return assumptions as a part of each biennial actuarial valuation. You may want to know how this key investment return assumption for your System compares to those of the other defined benefit public pension plans in Texas; so we have included Exhibit 1 with that information.

G. Other Assumptions

There are three other assumptions used in the August 31, 2024 actuarial valuation which we have reviewed.

- Marital Status at Benefit Commencement

  In the August 31, 2024 actuarial valuation, 90% of all male members and 50% of all female members were assumed to be married at the time benefits commence. Males were assumed to be two years older than female spouses. Once a benefit is being paid, the System provides the marital status of the retiree and the date of birth of the spouse, if applicable. We reviewed the members whose benefit began during the six-year study period. We found that 84% of the males were married and 47% of the females were married at the time they began receiving benefits. The males were 2.1 years older than their female spouse on average. **We recommend adjusting the marital status assumptions to assume 85% of all male members and 45% of all female members are married at the time benefits commence, with males assumed to be two years older than their female spouses.**

- Administrative Expenses

  The normal cost under the actuarial cost method is increased by an assumed amount to reflect annual administrative expenses expected to be incurred and paid with System assets in each year following the valuation date. The assumed amount is based on the average of (1) the budgeted administrative expenses for the year following the valuation date and (2) the estimated administrative expenses for the second year following the valuation date, reduced by the amount appropriated by the State of Texas for the System to pay part of the administrative expenses for the year following the valuation date. We assume continuation of similar amounts appropriated by the State of Texas to pay part of the administrative expenses. **We recommend no change in this assumption.**

- Contributions

  The total annual Part One contributions to be paid by all governing bodies for the participating departments for qualified service as it is earned is assumed to be the total contributions based on the number of active members in each department and known monthly contribution rates for each department as of the valuation date. We assume no changes in number of active members. **We recommend no change in this assumption.**

Section III - Impact of Recommended Actuarial Assumptions on the August 31, 2024 Actuarial Valuation Revised for the SB 2065 Actuarial Analysis

		Current Assumptions[1]	Recommended Assumptions
1.	Actuarial Accrued Liability	$ 196,981,290	$ 199,609,706
2.	Actuarial Value of Assets	$ 144,234,911	$ 144,234,911
3.	Unfunded Actuarial Accrued Liability (UAAL) [(1)-(2)]	$ 52,746,379	$ 55,374,795
4.	Present Value of Part One Contributions in Excess of Normal Cost	$ 10,551,207	$ 8,683,349
5.	State Contribution Early September 2024	$ 1,262,764	$ 1,262,764
6.	UAAL for State Actuarially Determined Contribution (ADC) per year for 9/1/2025 – 8/31/2027 [(3)-(4)-(5)]	$ 40,932,408	$ 45,428,682
7.	State ADC per year for 9/1/2025 – 8/31/2027[2]	$ 3,298,595	$ 3,660,934

[1] SB 2065 specified an investment return assumption of 7%. So the column is based on the same assumptions used in the August 31, 2024 actuarial valuation, except for the 7% investment return assumption.
[2] First two years of the initial closed 30-year amortization period.

Section IV – Summary of Actuarial Assumptions Recommended for the August 31, 2025 Actuarial Valuation

a. Investment Return: Current and future System assets are assumed to yield an annual investment return of 7% net of investment expenses, 4.5% net real rate of return plus 2.5% inflation.

b. Salary Increase Rates: Not applicable.

c. Termination: The active members are assumed to terminate their membership for causes other than death, disability or retirement in accordance with annual rates per 1,000 members as illustrated in the rates shown below. The termination rates stop at the later of attaining age 55 or 10 years of qualified service.

Years of Service	Entry Age Group					
	20	25	30	35	40	45, 50, 55
0 - 4	200	200	160	140	140	140
5 - 9	140	140	130	120	110	110
10 - 14	100	110	95	95	90	0
15 - 19	70	100	95	95	0	0
20 - 24	70	100	95	0	0	0
25 - 29	50	50	0	0	0	0
30 - 34	50	0	0	0	0	0
35+	0	0	0	0	0	0

d. Mortality: The active and terminated members and the retirees and surviving spouses of the System are assumed to exhibit mortality in accordance with the following:

i. Pre-retirement Mortality:

- off duty — PubS-2016 (public safety) total dataset mortality tables for employees (sex distinct), projected for mortality improvement generationally using projection scale MP-2021
- on duty — Annual mortality rate of 0.015% added to the base mortality rate

ii. Post-retirement Mortality: PubS-2016 (public safety) total dataset mortality tables for retirees (sex distinct), projected for mortality improvement generationally using projection scale MP-2021

e. Retirement: Active members eligible for early or normal retirement are assumed to retire based on rates that vary by age as shown below.

Age	Rate per Year
55	25%
56-63	15
64-66	19
67-68	15
69	25
70+	100

Terminated members entitled to deferred benefits are assumed to begin their benefits at age 58 or their age on the valuation date, if older.

f. Disability: Active members are assumed to become disabled as defined by the System provisions during the performance of emergency service duties based on rates that vary by age as illustrated below.

Age	Rate per Year
20	0.0020%
25	0.0024
30	0.0037
35	0.0050
40	0.0069
45	0.0087
50	0.0119
55	0.0173
60	0.0255
65	0.0279

g. Marital Status: 85% of all active male members and 45% of all active female members are assumed to be married at the time benefits commence. Males are assumed to be two years older than female spouses.

h. Administrative Expenses: The normal cost under the actuarial cost method is increased by an assumed amount to reflect average annual administrative expenses expected to be incurred and paid by the System assets in the years following the valuation date. The assumed amount is based on input from the System about some of the details of (1) the budgeted administrative expenses for the year following the valuation date and (2) the estimated administrative expenses for the second year following the valuation date, reduced by the amounts appropriated by the State of Texas for the System to pay part of the administrative expenses in each of the two years following the valuation date.

i. Contributions: The total annual Part One contributions to be paid by all governing bodies for the participating departments for qualified service as it is earned is assumed to be the total contributions based on the number of active members in each department and known monthly contribution rates for each department as of the valuation date.

j. Pensioner Data: If the marital status field provided in the data was "married", "unknown", or was missing, then the annuity payment form was assumed to be a joint and two-thirds to spouse annuity. For all other marital status codes, the payment form was assumed to be a life annuity. Missing spouse date of birth was assumed to be two years from the retiree's date of birth, with females two years younger.

Exhibit 1

Investment Return Assumptions of Other Texas Systems

A. Large Local and Statewide Retirement Systems

System Name	Valuation Date	Investment Return Assumption	Rate of Inflation	Real Rate of Return
Austin Employees	12/31/2023	6.75%	2.50%	4.25%
Austin Fire	12/31/2023	7.30	2.50	4.80
Austin Police	12/31/2023	7.25	2.50	4.75
Dallas Employees	12/31/2023	7.25	2.50	4.75
Dallas Police and Fire	1/1/2023	6.50	2.50	4.00
El Paso Employees	9/1/2024	7.25	2.50	4.75
El Paso Fire	1/1/2024	7.75	2.75	5.00
El Paso Police	1/1/2024	7.75	2.75	5.00
Fort Worth Employees	12/31/2023	7.00	2.50	4.50
Houston Fire	7/1/2024	7.00	2.50	4.50
Houston Municipal	7/1/2024	7.00	2.25	4.75
Houston Police	7/1/2024	7.00	2.30	4.70
San Antonio Fire and Police	1/1/2024	7.25	3.00	4.25
Employees Retirement System	8/31/2024	7.00	2.30	4.70
Teacher Retirement System	8/31/2024	7.00	2.30	4.70
Texas County and District System	12/31/2024	7.50	2.50	5.00
Texas Municipal Retirement System	12/31/2024	6.75	2.50	4.25
Average		**7.14**	**2.51**	**4.63**

B. All 82 Active Texas Defined Benefit Retirement Plans in the PRB's July 10, 2025 Board Meeting Packet

Current Investment Return Assumption	Number of Active Plans
8.00%	0
7.51 – 7.99	7
7.50	10
7.01 – 7.49	23
7.00	23
under 7.00	19
	82
average	7.06%

Exhibit 2

Retirement Rates per Active Members Eligible for Retirement for the Texas Emergency Services Retirement System

Ages	Current Rate per Year	Proposed Rate per Year
55	25%	25%
56	14	15
57	14	15
58	14	15
59	14	15
60	14	15
61	14	15
62	14	15
63	14	15
64	14	19
65	20	19
66	20	19
67	20	15
68	20	15
69	20	25
70+	100	100

	Current Age	Proposed Age
Terminated members entitled to deferred benefits are assumed to begin their benefits at the indicated age or their age on the valuation date, if older	58	58

Exhibit 3

Termination Rates per Year per 1,000 Active Members for the Texas Emergency Services Retirement System

Current Rates

Years of Service	Entry Age Group					
	20	25	30	35	40	45, 50, 55
0 - 4	250	250	200	200	170	150
5 - 9	120	130	130	130	100	100
10 - 14	80	90	100	100	90	0
15 - 19	80	80	90	90	0	0
20 - 24	70	70	70	0	0	0
25 - 29	70	70	0	0	0	0
30 - 34	70	0	0	0	0	0
35+	0	0	0	0	0	0

Proposed Rates

Years of Service	Entry Age Group					
	20	25	30	35	40	45, 50, 55
0 - 4	200	200	160	140	140	140
5 - 9	140	140	130	120	110	110
10 - 14	100	110	95	95	90	0
15 - 19	70	100	95	95	0	0
20 - 24	70	100	95	0	0	0
25 - 29	50	50	0	0	0	0
30 - 34	50	0	0	0	0	0
35+	0	0	0	0	0	0

Exhibit 4

Disability Rates per Year per 1,000 Active Members for the Texas Emergency Services Retirement System

Age	Current and Proposed Rates	Age	Current and Proposed Rates
20	0.020	45	0.087
21	0.020	46	0.093
22	0.021	47	0.099
23	0.022	48	0.105
24	0.023	49	0.112
25	0.024	50	0.119
26	0.026	51	0.131
27	0.029	52	0.142
28	0.032	53	0.152
29	0.035	54	0.163
30	0.037	55	0.173
31	0.040	56	0.190
32	0.042	57	0.207
33	0.044	58	0.224
34	0.047	59	0.240
35	0.050	60	0.255
36	0.055	61	0.260
37	0.059	62	0.265
38	0.063	63	0.270
39	0.066	64	0.274
40	0.069	65	0.279
41	0.072	66+	0.000
42	0.075		
43	0.079		
44	0.083		