
Laredo Firefighters Retirement System

Actuarial Valuation as of September 30, 2020

June 14, 2021



R&W

Rudd and Wisdom, Inc.

Rudd and Wisdom, Inc.

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June 14, 2021

Board of Trustees
Laredo Firefighters Retirement System
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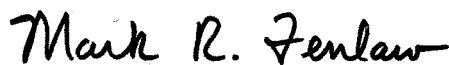
Members of the Board of Trustees:

At the request of the Board of Trustees of the Laredo Firefighters Retirement System, we have prepared this report of the results of the actuarial valuation of the system as of September 30, 2020. This valuation was prepared to determine whether the system has an adequate contribution arrangement.

In a separate report dated February 25, we provided the necessary disclosures for the system's compliance with the Governmental Accounting Standards Board (GASB) Statement No. 67 for the plan year ending September 30, 2020. Similarly, we provided a separate report dated December 16, 2020 containing the pension expense, net pension liability, and disclosure information for the city's compliance with GASB 68 for the fiscal year ending September 30, 2020. GASB 68 prescribes the city's accounting for your system, while this actuarial valuation report reflects the assumed continuation of the current contribution policy.

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

Sincerely,



Mark R. Fenlaw, F.S.A.



Rebecca B. Morris, A.S.A.

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Section I

Valuation Summary

An actuarial valuation of the assets and liabilities of the Laredo Firefighters Retirement System as of September 30, 2020 has been completed. The valuation was based on the Present Plan (plan effective January 1, 2019) and the provisions of the Texas Local Fire Fighters' Retirement Act (TLFFRA) which were in effect on September 30, 2020. Section II shows the summary of key results of the actuarial valuation as of September 30, 2020 and discusses the significant changes since the prior valuation that we prepared as of September 30, 2018.

This valuation reflects an actuarially assumed total contribution rate of 36.1%, comprised of 15.0% by the firefighters and 21.1% by the city. The total contribution rate of 36.1% exceeds the normal cost rate of 21.49%, leaving 14.61% available to amortize the unfunded actuarial accrued liability (UAAL) of \$119,630,161. Assuming that the total payroll increases at the rate of 2.75% per year in the future, the contributions in excess of the normal cost **will amortize the UAAL in 56.8 years.**

In order for a retirement plan to have an adequate contribution arrangement, contributions must be made that are sufficient to pay the plan's normal cost and to amortize the plan's UAAL over a reasonable period of time. Based on the Texas Pension Review Board guidelines for pension funding, our professional judgment, and the actuarial assumptions and methods used in making this valuation, we consider periods of 10 years to 25 years to be preferable and 40 years to be the current maximum acceptable period. The PRB guidelines will be changing to a maximum of 30 years allowing for phase in through 2025. Since the total contributions are not sufficient to pay the system's normal cost and to amortize the system's UAAL within the maximum acceptable period, we are of the opinion that the system, based on present levels of benefits and contributions, **has an inadequate contribution arrangement. Section III presents considerations for restoring an adequate contribution arrangement.**

Projected Actuarial Valuation Results

In addition to completing this actuarial valuation, we estimated the amortization periods as of September 30, 2022 and as of September 30, 2024 by making projections from the September 30, 2020 actuarial valuation. These projections examine the effect on the amortization period in the next two actuarial valuations of the actuarial investment gains and losses that the system experienced in the four years prior to the valuation date (losses in 2018, 2019, and 2020 and a gain in 2017) that have been only partially recognized as of September 30, 2020. As shown in Exhibit 8, a smoothing method is used to determine the actuarial value of assets (AVA) for this valuation. This method phases in over a five-year period any investment gains or losses (net actual investment return greater or less than the actuarially assumed investment return) that the system has had. The AVA used

in this current valuation is deferring recognition of various portions of the gains and losses in 2017-2020 that the system experienced. The AVA used in this valuation is \$176,451,338. The market value of assets (MVA) is \$167,670,584. The \$8.8 million difference between the MVA and the AVA is the net deferred loss over the past four years that will be recognized in the next two actuarial valuations.

The theory behind the AVA method is to allow time for investment gains and losses to partially offset each other and thereby dampen the volatility associated with the progression of the MVA over time. In practice, the timing and amounts of investment gains and losses can result in irregular effects on the AVA in a given year. However, as intended, the pattern of the AVA is smoother over time than the pattern of the market value of assets, as seen in Exhibit 9.

For the purpose of projecting the amortization period through 2024 we used six scenarios of various assumed annual rates of investment return, net of investment-related expenses, over the 2021-2024 projection period. These projections show the expected effects over the next four years after the valuation date (1) of the recognition of the portions of the investment gains and losses over the past four years that are deferred as of September 30, 2020, and (2) of investment returns over the next four years different from the 7.4% assumption used in this valuation.

	Scenario					
	1	2	3	4	5	6
Assumed Investment Return for Fiscal Year						
2020-2021	7.4%	20.0%	20.0%	20.0%	15.0%	15.0%
2021-2022	7.4	10.0	10.0	7.4	7.4	5.0
2022-2023	7.4	10.0	7.4	7.4	7.4	5.0
2023-2024	7.4	10.0	7.4	7.4	7.4	5.0
2024-2025 and later	7.4	7.4	7.4	7.4	7.4	7.4
Amortization Period in Years as of September 30:						
2020 (actual)	56.8	56.8	56.8	56.8	56.8	56.8
2022 (projected)	70.8	47.2	47.2	48.6	55.0	56.9
2024 (projected)	91.3	33.8	36.8	40.2	50.0	63.0

The projected future September 30, 2024 valuation in Scenario 1 reveals that the amortization period is projected to increase dramatically to 91.3 years instead of decreasing to the expected 4-year reduction to 52.8. This is the result of (1) the \$8.8 million net deferred loss that the system has as of September 30, 2020 and (2) the sensitivity of the amortization period to losses when it is above 40 years.

The system's rate of return through the first half of the fiscal year 2020-2021 was approximately 19%. We do not know what the markets will do through September 30, 2021, but we have assumed 20% for the year in Scenarios 2-4 and 15% in Scenarios 5-6. Even with the very optimistic Scenario 2, the system would not have an adequate contribution arrangement by September 30, 2024.

We do not know what the investment experience will be for each of the next four fiscal years. However, these scenarios show both the sensitivity of the UAAL amortization period when it is over 40 years as well as the challenge of reducing the amortization period with favorable investment experience. Variations in experience from the underlying assumptions, other than investment return, will cause the actual amortization periods to be different from the periods shown above. In addition, the future investment experience in each of the next four fiscal years could be better or worse than the assumed rates shown. These scenarios present a range of plausible scenarios for the next two valuations assuming no changes in benefits or contributions.

The primary conclusion from the scenarios is that it is very unlikely that the system would grow its way in the next four years through very favorable investment experience to an amortization period of under 30 years. The board and the system members must consider the changes in the plan provisions described in Section III that would strengthen the system for the long-term future.

Participant and Asset Data

We have relied on and based our valuation on the active firefighter data, pensioner data, and asset data provided on behalf of the board of trustees by the system's administrator, Mr. Jaime Jasso. We have not audited the data provided but have reviewed it for reasonableness and consistency relative to the data provided for the September 30, 2018 actuarial valuation. Exhibit 1 is a distribution of the active firefighters by age and service. The assumed 2020-2021 compensation used for projecting future contributions and benefits in the valuation was generally based on the actual pay for the 2019-2020 fiscal year, adjusted to fully reflect the 3% general pay increase effective in October 2020. The total of these assumed compensation amounts is our assumed annual covered payroll for the fiscal year beginning October 1, 2020 and is used in the valuation to determine the UAAL amortization period. The averages of the assumed compensation amounts for the 2020-2021 fiscal year are shown in Exhibit 1.

Exhibit 2 contains summary information on the pensioners. The monthly benefit payments are generally based on the amounts paid October 31, 2020. Exhibit 3 is a reconciliation of firefighters and pensioners from September 30, 2018 to September 30, 2020. Exhibit 4 shows a breakdown of the dollar amount of the monthly benefits for retirees and surviving spouses. Exhibit 5 shows a historical comparison of the actuarial accrued liability and the actuarial value of assets.

The summary of assets contained in Exhibit 6 is based on the September 30, 2020 market value of assets contained in the information received from the board. This exhibit also shows a comparison with the market values and actuarial values of assets as of September 30, 2018 and September 30, 2020. Exhibit 7 contains the statement of changes in assets for fiscal years ending September 30, 2020 and September 30, 2019. Exhibit 8 shows the development of the actuarial value of assets. Exhibit 9 shows a historical comparison between the market value and actuarial value of assets. A comparison of the market value asset allocation by asset class as of September 30, 2018 and September 30, 2020 is shown in Exhibit 10.

Assumptions

As a part of each actuarial valuation, we review the actuarial assumptions used in the prior actuarial valuation. As a result of our review and discussion with the board of trustees at your May 20 and June 9 meetings and of the decision by the board of trustees at your June 9 meeting, we have selected and used actuarial assumptions we consider to be reasonable and appropriate estimates of future experience for the system for the long-term future. Their selection complies with the applicable actuarial standards of practice. Significant actuarial assumptions used in the valuation are:

1. 7.4% annual investment return (interest rate) net of investment-related expenses;
2. 2.75% annual general compensation increase combined with promotion, step, and longevity increases that average 2.22% per year over a 30-year career;
3. Retirement rates which result in an average expected age at retirement of 54.8;
4. PubS-2010 (safety employees) total dataset mortality tables projected for mortality improvement using scale MP-2018; and
5. City contribution rate of 21.1% over the UAAL amortization period.

The following actuarial assumption changes have been made, and the new assumptions are compared to those used in the September 30, 2018 valuation:

1. The annual investment return assumption was changed from 7.5% to 7.4% net of investment-related expenses by lowering the assumed net real rate of return from 4.75% to 4.65%. The underlying inflation assumption was unchanged at 2.75%.
2. The assumed retirement rates were changed to better reflect the experience of the eight years ending September 30, 2020.
3. The assumed compensation increases for promotion, step, and longevity increases were modified to better fit the recent pattern by year of service.
4. The assumed disability rates were reduced to better reflect the very low incidence of disability during the 12 years ending September 30, 2020.

5. The assumed percent married at future benefit commencement and the assumed age difference between future retirees and their spouse were changed to reflect the experience of the eight years ending September 30, 2020.

The effects of these changes in assumptions on the UAAL and on the UAAL amortization period are identified in Section II. A summary of all the assumptions and methods used in the valuation is shown in Exhibits 11 and 12. Appendix A documents our review of the economic assumptions. In our opinion, the assumptions used, both in the aggregate and individually, are reasonably related to the experience of the system and to reasonable expectations. The assumptions represent a reasonable estimate of anticipated experience of the system over the long-term future, and their selection complies with the applicable actuarial standards of practice.

Funding Policy

The funding policy adopted by the board of trustees at its December 18, 2019 board meeting says that each actuarial valuation report will include a benchmark actuarially determined contribution (ADC) rate beginning with the first actuarial valuation after January 1, 2020. Then the fund’s actuary is to compare the benchmark ADC rate and the total contribution rate. The table below shows the September 30, 2020 actuarial valuation results in two key metrics, the amortization period and the total contribution rate.

	Amortization Period	Total Contribution Rate
Benchmark ADC rate	30.0 years	39.76%
Actuarial valuation	56.8 years	36.10%
Difference	+26.8 years	-3.66%

The actuarial valuation results are significantly worse than those two metrics in the benchmark ADC rate. Negative divergence from the benchmark means that the board’s next steps include (1) working with Rudd and Wisdom to develop potential changes that would reestablish an appropriate balance between benefits and contributions and (2) working with the firefighters and the city to achieve the necessary changes. Section III of this report gives the board some examples of potential changes.

Variability in Future Actuarial Measurement

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following:

- Plan experience differing from that anticipated by the current economic or demographic assumptions;

- Increases or decreases expected as part of the natural operation of the methodology used for these measurements;
- Changes in economic or demographic assumptions; and
- Changes in plan provisions.

Analysis of the potential range of such future measurements resulting from the possible sources of measurement variability was provided on pages 1-3 in the projected amortization periods for the next two biennial actuarial valuations under six scenarios. These projections were designed to assess the risk of variance of potential future investment rates of return in the four years following the actuarial valuation date from the assumed 7.4% rate and the potential effect on the amortization period. Additional or other sensitivity analysis could be performed in a subsequent report if desired by the board of trustees.

Respectfully submitted,
RUDD AND WISDOM, INC.

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Section II

Key Results of the Actuarial Valuation

	September 30, <u>2018¹</u>	September 30, <u>2020</u>
1. Actuarial present value of future benefits		
a. Those now receiving benefits or former firefighters entitled to receive benefits	\$ 109,859,367	\$ 129,331,414
b. Firefighters	<u>229,578,565</u>	<u>262,316,708</u>
c. Total	\$ 339,437,932	\$ 391,648,122
2. Actuarial present value of future normal cost contributions	\$ 79,654,517	\$ 95,566,623
3. Actuarial accrued liability (Item 1c – Item 2)	\$ 259,783,415	\$ 296,081,499
4. Actuarial value of assets	\$ 155,509,979	\$ 176,451,338
5. Unfunded actuarial accrued liability (UAAL) (Item 3 - Item 4)	\$ 104,273,436	\$ 119,630,161
6. Contributions (percent of pay)		
a. Firefighters	15.00%	15.00%
b. City of Laredo	<u>21.10%</u>	<u>21.10%</u>
c. Total	36.10%	36.10%
7. Normal cost (percent of payroll)	20.90%	21.49%
8. Percent of payroll available to amortize the UAAL (Item 6c - Item 7)	15.20%	14.61%
9. Annualized covered payroll	\$ 36,904,234	\$ 40,062,454
10. Present annual amount available to amortize the UAAL (Item 8 x Item 9)	\$ 5,609,444	\$ 5,853,125
11. Years to amortize the UAAL ³	43.0 years	56.8 years
12. Funded ratio (Item 4 ÷ Item 3) ²	59.9%	59.6%

¹ All items are based on the revised September 30, 2018 actuarial valuation and reflect the Present Plan.

² The funded ratio is not appropriate for assessing either the need for or the amount of future contributions or the adequacy of the assumed contribution rates. Using the market value of assets instead of the actuarial value of assets for Item 12 would have resulted in funded ratios of 59.6% as of September 30, 2018 and 56.6% as of September 30, 2020. **The best indicator of the system's health is item 11.**

³ Calculated reflecting the timing of the increases in the city contribution rate each October in 0.25% increments from 20.35% in October 2018 until it is 21.1% in October 2021.

Changes in the Unfunded Actuarial Accrued Liability

In comparing this actuarial valuation to the prior one, the UAAL increased by \$15,356,725 from \$104,273,436 as of September 30, 2018 to \$119,630,161 as of September 30, 2020. The table below summarizes the reasons for the decrease.

Reason for Change	Amount
<ul style="list-style-type: none"> • Expected increase (interest on UAAL greater than assumed amortization payments accumulated with interest) 	\$ 4,612,777
<ul style="list-style-type: none"> • Investment loss for the two years (based on the AVA average annual return of 5.4%) 	6,917,261
<ul style="list-style-type: none"> • Experience loss (net difference between actual experience and assumed experience for pay increases, retirements, mortality, and terminations) 	7,139,205
<ul style="list-style-type: none"> • Change in assumptions (net effect of all changes) 	<u>(3,312,518)</u>
Total	\$15,356,725

Changes in Amortization Period

The amortization period, based on the Present Plan provisions, was determined in the revised actuarial valuation as of September 30, 2018 to be 43.0 years. Since two years have passed since that valuation date, a 41.0-year amortization period would be expected if all actuarial assumptions had been exactly met, no changes had occurred (other than those expected) in the firefighter and pensioner data, and no changes in assumptions or methods had been made. The amortization period is now 56.8 years based on the same plan provisions. The actual experience occurring between September 30, 2018 and September 30, 2020 differed from the expected experience, and in combination with the changes in assumptions, the resulting amortization period was 56.8 years, which is 15.8 years more than the expected 41.0-year period for the following reasons:

1. The average annual rate of investment return, net of investment-related expenses, on the market value of assets during the two fiscal years 2019 and 2020 was 3.0%. However, the actuarial value of assets (AVA) used in the valuation and the determination of the amortization period is based on an adjusted market value. The average annual rate of return on the AVA, net of investment-related expenses, for fiscal years 2019 and 2020 was 5.4%, less than the assumed rate of return for those years of 7.5%. This resulted in an **increase** in the amortization period of 9.3 years.

2. The aggregate payroll increased at an average rate of 4.2% per year instead of the assumed 2.75% per year rate, which caused the amortization period to **decrease** by 4.7 years.
3. The net result of all experience other than the investment experience and the aggregate payroll experience had the combined effect of **increasing** the amortization period by 11.3 years. This was primarily the result of greater-than-expected pay increases.
4. The change in the assumed rates of retirement and disability; the assumed compensation increases for promotion, step, and longevity increases; and the assumed percent married and age difference between future retirees and their spouses had the combined net effect of **decreasing** the amortization period by 9.9 years.
5. The change in the investment return assumption from 7.5% to 7.4% per year net of investment-related expenses had the effect of **increasing** the amortization period by 9.8 years.

Contribution Rate for the Death Benefit Fund

The 2005 firefighter election and board approval established a Death Benefit Fund effective July 1, 2005. This fund is a separate account within the system used to pay lump sum death benefits. The Death Benefit Fund is funded by a portion of the city's total contribution rate. As a part of the September 30, 2018 actuarial valuation, the city contribution needed for the Death Benefit Fund was determined to be 0.28% of payroll. As a part of this September 30, 2020 actuarial valuation, the city contribution needed for the Death Benefit Fund has been determined also to be 0.28% of payroll. We recommend the continuation of this rate effective October 1, 2021, which is the beginning of the next plan year, for the next two plan years.

The remainder of the city's contribution will be used for the system's liabilities excluding the lump sum death benefits. The 0.28% city contribution rate is comprised of the normal cost percentage plus an additional amount to amortize the unfunded actuarial accrued liability (UAAL) for only the lump sum death benefits over 15 years as shown below. The amortization of this UAAL is determined as a level percentage of payroll assuming that the payroll will increase 2.75% per year.

Allocated City Contribution Effective October 1, 2021 for the Death Benefit Fund	
Normal cost	0.06%
15-year amortization of unfunded actuarial accrued liability	<u>0.22</u>
Total city contribution rate allocated to the Death Benefit Fund as of October 1, 2021	0.28%

The 0.28% city contribution rate was determined using the same actuarial cost method and actuarial assumptions used in the September 30, 2020 actuarial valuation for the system. In particular, the entry age actuarial cost method was used with the normal cost determined as a level percentage of payroll. The following is a summary of the actuarial valuation results of the liabilities for the lump sum death benefits.

Actuarial Valuation Results of the Death Benefit Fund as of September 30, 2020	
1. Actuarial present value of future benefits	
a. Current retired members and spouses	\$ 991,687
b. Current active members	<u>574,524</u>
c. Total	\$ 1,566,211
2. Actuarial present value of future normal cost contributions	\$ 249,194
3. Actuarial accrued liability (Item 1c – Item 2)	\$ 1,317,017
4. Assets of fund	\$ 379,069
5. Unfunded actuarial accrued liability (Item 3 – Item 4)	\$ 937,948

Section III

Restoring an Adequate Contribution Arrangement

The results of this actuarial valuation as of September 30, 2020 reveal that the system, based on the Present Plan of benefits and the current contribution rates, has an inadequate contribution arrangement. There are three options for restoring an adequate contribution arrangement: (1) a sufficient increase in the total contribution rate, (2) a package of sufficient decreases in benefits, or (3) a sufficient combination of increases in contributions and decreases in benefits.

Section I of this report included the funding policy's total ADC rate of 39.76% beginning October 1, 2020 which would have resulted in an amortization period of 30 years. However, we recommend a package of changes that would result in an amortization period of 25 years. The equivalent increase in the total contribution rate would be almost 6%.

Since it is too much of a challenge to restore an adequate contribution rate by increasing the total contribution rate by 6% by October 1, 2021, the board will need to consider combining contribution rate increases with some decreases in benefits. Changes in benefit eligibility and reductions in future benefit accruals are painful, but necessary. Here are some examples of options:

- Increase the earliest retirement age from 50 to 51, and increase the minimum age and service requirement for the RETRO DROP benefit calculation date from age 51 and 21 years of service to age 53 and 23 years of service.
- Exclude the firefighter contributions from the RETRO DROP lump sum.
- Reduce the benefit formula multiplier from 3.03% per year of service to 2.9% per year of service, and reduce the maximum of Final Average Monthly Salary from 93.93% to 87%.
- For determining the Final Average Monthly Salary, exclude pay for all overtime except "premium overtime".
- Increase the period for determining the Final Average Monthly Salary from 78 biweekly pay periods to 130 periods.

Any changes in plan provisions to reduce future benefit accruals would be designed by the board of trustees and Rudd and Wisdom working together to protect vested accrued benefits as of the effective date of change and to have a reasonable transition. The effect of any of these potential changes would have to be studied before any vote of the firefighters so the board and firefighters would know the potential effect.

Exhibit 2
Summary of Pensioner Data

Type of Benefit	Pensioner Data Used in September 30, 2020 Valuation	
	Number of Recipients	Total Monthly Benefit Payments
Service Retirement*	136	\$ 847,304
Disability Retirement	3	7,576
Vested Terminated	0	0
Surviving Spouse	33	83,146
Surviving Child	<u>4</u>	<u>3,370</u>
Total	176	\$ 941,396

Type of Benefit	Comparison of Pensioner Count by Type as of The Prior and Current Actuarial Valuations			
	September 30, 2018	New	Ceased	September 30, 2020
Service Retirement*	122	+18	-4	136
Disability Retirement	4	0	-1	3
Vested Terminated	0	0	0	0
Surviving Spouse	29	+5	-1	33
Surviving Child	<u>3</u>	<u>+1</u>	<u>0</u>	<u>4</u>
Total	158	+24	-6	176

* Alternate payees are not included in the number of recipients, but the total monthly payments reflect the total benefits including the payments made to alternate payees.

Exhibit 3
Firefighter and Pensioner Reconciliation

	Firefighters	Current Payment Status	Vested Terminated Firefighters	Total
1. As of September 30, 2018	410	158	0	568
2. Change of status				
a. retirement	(18)	18	0	0
b. disability	0	0	0	0
c. death	(1)	(6)	0	(7)
d. survivor payment begins	0	6	0	6
e. withdrawal	(3)	0	0	(3)
f. vested termination	0	0	0	0
g. completion of payment	0	0	0	0
h. QDRO alternate payee ¹	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
i. net changes	(22)	18	0	(4)
3. New firefighters	<u>19</u> ²	<u>0</u>	<u>0</u>	<u>19</u>
4. As of September 30, 2020	407	176	0	583

¹ Alternate payees are not included in the number of pensioners in current payment status, but the total monthly payments reflect the total benefits, including the payments made to the alternate payees.

² These are 19 John Does, anticipating part of the next class of new firefighters that will restore the staffing level to the budgeted number of positions of 407.

Exhibit 4

Breakdown of Pensioners by Monthly Benefit Amounts as of September 30, 2020

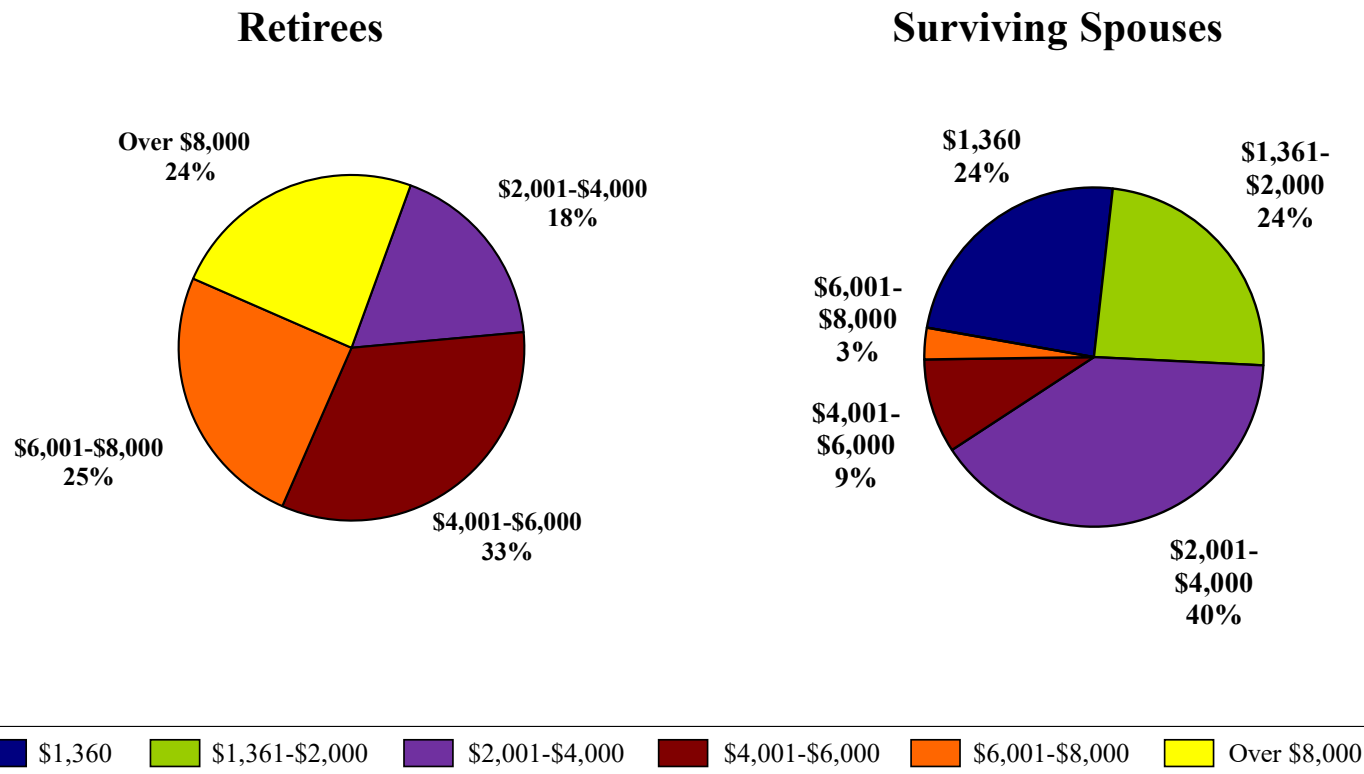


Exhibit 5
Historical Comparison of Actuarial Accrued Liability and Actuarial Value of Assets
(Valuations as of September 30)

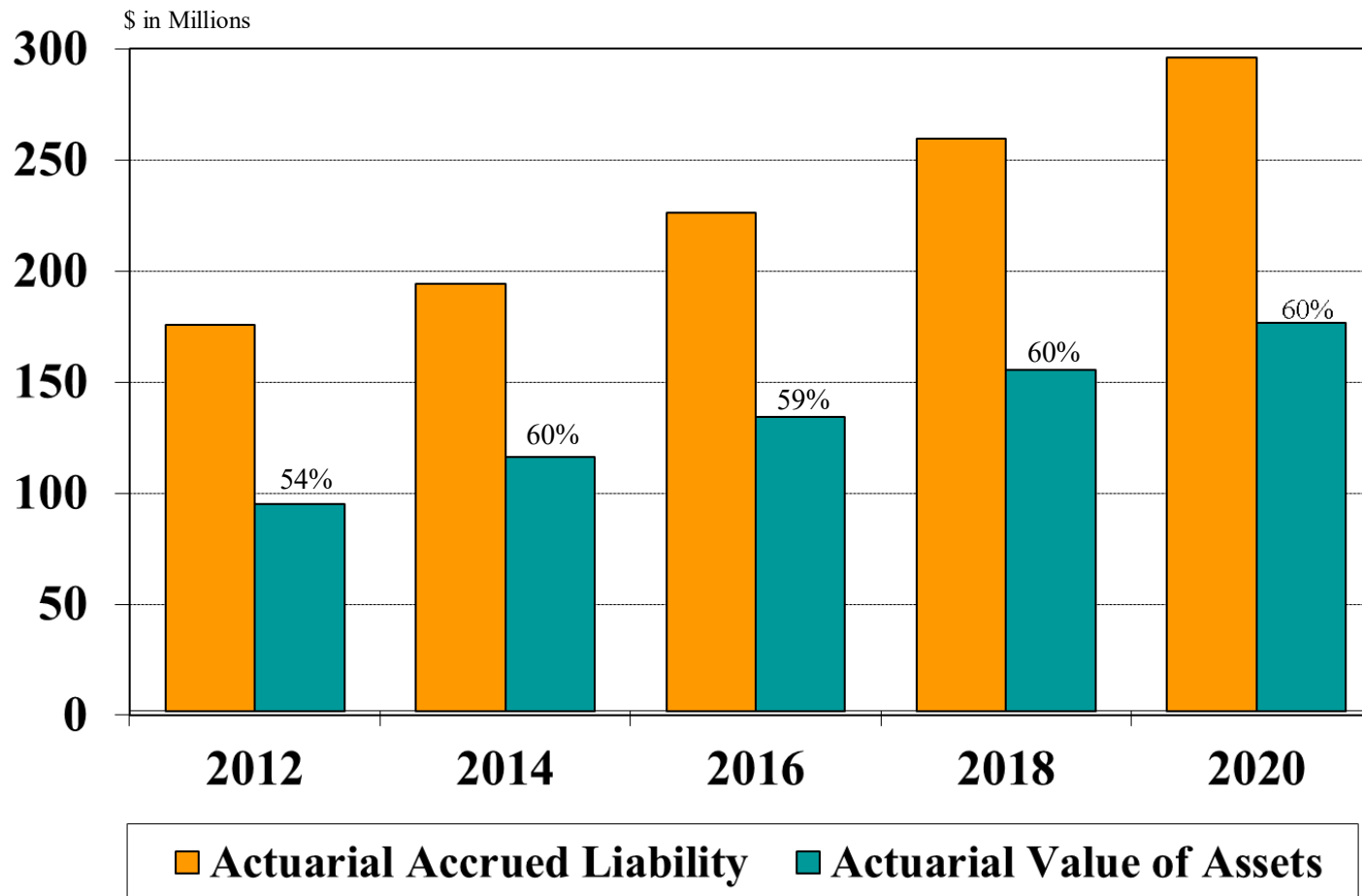


Exhibit 6
Summary of Asset Data¹

Asset Type	Market Value of Assets as of September 30, 2020	Allocation as a Percent of Grand Total
Equities		
Large Cap	\$ 23,758,125	14.2%
Mid Cap	13,158,940	7.8
Small Cap	16,944,074	10.1
International Developed	22,979,795	13.7
International Emerging	<u>14,445,172</u>	<u>8.6</u>
Total	91,286,106	54.4
Fixed Income		
Core	16,457,400	9.8
Core Plus	<u>16,307,228</u>	<u>9.7</u>
Total	32,764,628	19.5
Alternatives		
Hedge Funds	25,810,649	15.4
Real Estate (REIT)	8,139,367	4.9
Natural Resources	7,379,733	4.4
Private Debt	<u>797,063</u>	<u>0.5</u>
Total	42,126,812	25.2
Cash and Equivalents	<u>1,493,038</u>	<u>0.9</u>
Grand Total	\$ 167,670,584 ¹	100.0%

Comparison of Asset Values as of the Prior and Current Actuarial Valuation Dates		
	<u>September 30, 2018</u>	<u>September 30, 2020</u>
Market Value	\$154,813,837	\$167,670,584
Actuarial Value	\$155,509,979	\$176,451,338
Actuarial Value as a Percent of Market Value	100.4%	105.2%

¹ The market value of assets for each asset class except cash was from the investment consultant's report as of September 30, 2020. The grand total was from the audited financial report. The amount of cash was the balancing item.

Exhibit 7

Statement of Changes in Audited Assets
for the Years Ended September 30, 2020 and 2019

	<u>9/30/2020</u>	<u>9/30/2019</u>
Additions		
1. Contributions		
a. Employer	\$ 8,145,656	\$ 7,555,193
b. Employees	<u>5,931,306</u>	<u>5,568,885</u>
c. Total	\$ 14,076,962	\$ 13,124,078
2. Investment Income		
a. Interest and dividends	\$ 3,139,056	\$ 2,556,843
b. Net appreciation in fair value	<u>4,501,141</u>	<u>103,261</u>
c. Total	\$ 7,640,197	\$ 2,660,104
3. Other Additions	<u>0</u>	<u>0</u>
Total Additions	\$ 21,717,159	\$ 15,784,182
Deductions		
4. Benefit Payments	\$ 12,421,926	\$ 10,889,659
5. Expenses		
a. Direct investment-related	\$ 379,939	\$ 441,375
b. General administrative	<u>242,952</u>	<u>268,743</u>
c. Total	\$ 622,891	\$ 710,118
Total Deductions	\$ 13,044,817	\$ 11,599,777
Net Increase in Assets	\$ 8,672,342	\$ 4,184,405
Market Value of Assets (Plan Net Position)		
Beginning of Year	\$158,998,242	\$154,813,837
End of Year	\$167,670,584	\$158,998,242
Rate of Return		
Net of All Expenses	4.39%	1.25%
Net of Investment-Related Expenses	4.55%	1.42%
Gross	4.79%	1.71%
Direct Investment-Related Expenses	0.24%	0.29%

Exhibit 8

**Laredo Firefighters Retirement System
Development of Actuarial Value of Assets**

Calculation of Actuarial Investment Gain/(Loss) Based on Market Value for Plan Years Ending September 30				
	2020	2019	2018	2017
1. Market Value of Assets as of Beginning of Year	\$158,998,242	\$154,813,837	\$141,983,274	\$126,305,204
2. Firefighter Contributions	5,931,306	5,568,885	5,416,147	5,109,297
3. City Contributions	8,145,656	7,555,193	7,264,588	6,845,693
4. Benefit Payments and Administrative Expenses ¹	(12,664,878)	(11,158,402)	(10,744,120)	(10,476,432)
5. Expected Investment Return ²	11,977,821	11,684,751	11,293,175	10,036,514
6. Expected Market Value of Assets as of End of Year	172,388,147	168,464,264	155,213,064	137,820,276
7. Actual Market Value of Assets as of End of Year	<u>167,670,584</u>	<u>158,998,242</u>	<u>154,813,837</u>	<u>141,983,274</u>
8. Actuarial Investment Gain/(Loss)	\$ (4,717,563)	\$ (9,466,022)	\$ (399,227)	\$ 4,162,998
9. Market Value Rate of Return Net of Expenses	4.55%	1.42%	7.62%	11.18%
10. Rate of Actuarial Investment Gain/(Loss)	(2.95)%	(6.08)%	(0.28)%	3.28%

¹ Administrative expenses are included for all years because the investment return assumption was net of investment-related expenses.

² Assuming uniform distribution of contributions and payments during the plan year. In 2020 and 2019, the investment return assumption was 7.5%, and in 2018 and 2017, it was 7.9%.

Plan Year	Investment Gain/(Loss)	Deferral Percentage	Deferred Gain/(Loss) as of 9/30/2020
2020	\$ (4,717,563)	80%	\$ (3,777,050)
2019	(9,466,022)	60%	(5,679,613)
2018	(399,227)	40%	(159,691)
2017	4,162,998	20%	832,600
Total			<u>\$ (8,780,754)</u>

Actuarial Value of Assets as of September 30, 2020	
11. Market Value of Assets as of September 30, 2020	\$ 167,670,584
12. Deferred Gain/(Loss) to be Recognized in Future	<u>(8,780,754)</u>
13. Preliminary Value (Item 11 – Item 12)	\$ 176,451,338
14. Corridor for Actuarial Value of Assets	
a. 90% of Market Value as of September 30, 2020 (minimum)	\$ 150,903,526
b. 110% of Market Value as of September 30, 2020 (maximum)	\$ 184,437,642
15. Actuarial Value as of September 30, 2020	\$ 176,451,338
16. Write Up/(Down) of Assets (Item 15 – Item 11)	\$ 8,780,754

Exhibit 9

Historical Comparison of Market and Actuarial Value of Assets
(Valuation as of March 31, 2010; as of September 30 beginning in 2012)

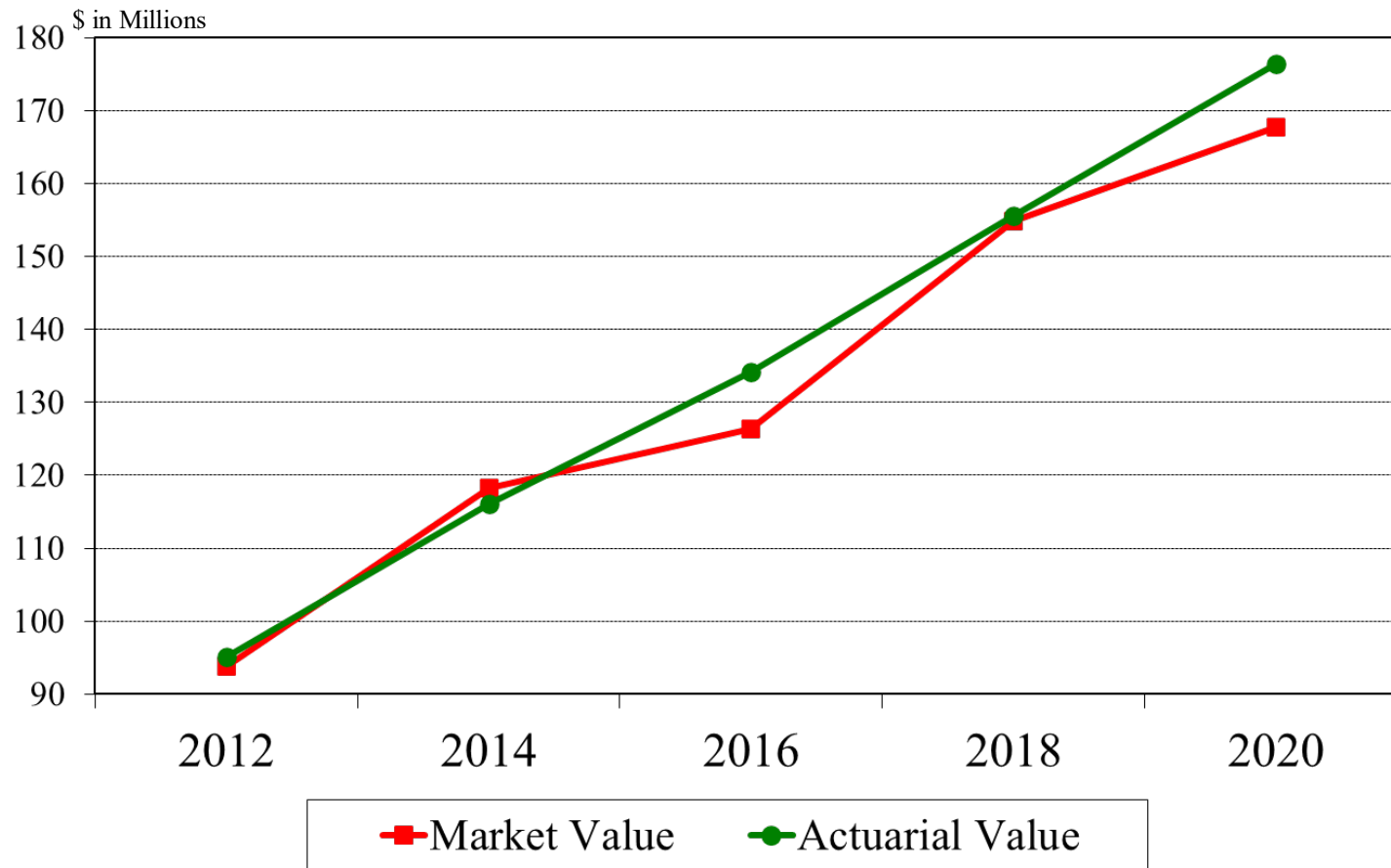
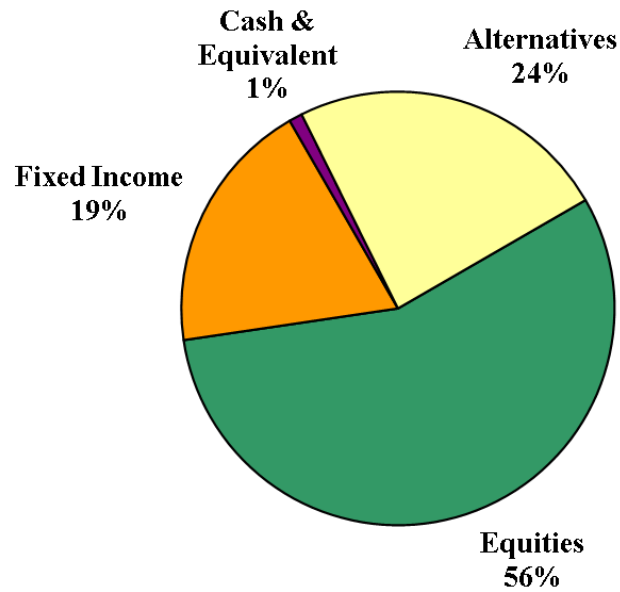


Exhibit 10

Comparison of Market Value Asset Allocation as of the Prior and Current Actuarial Valuation Dates

September 30, 2018



September 30, 2020

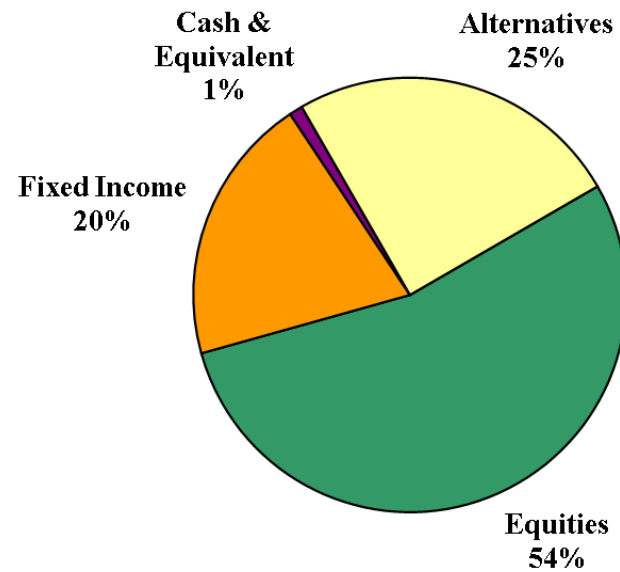


Exhibit 11 Actuarial Methods and Assumptions

A. Actuarial Methods

1. Actuarial Cost Method

The Entry Age Actuarial Cost Method is an actuarial cost method in which the actuarial present value of projected benefits of each active firefighter included in the valuation is allocated as a level percentage of compensation between age at hire and assumed termination. Each active firefighter's normal cost is the current annual contribution in a series of annual contributions which, if made throughout the firefighter's total period of employment, would fund his expected benefits. Each firefighter's normal cost is calculated to be a constant percentage of his expected compensation in each year of employment. The normal cost for the system is the sum of the normal costs for each active firefighter for the year following the valuation date. The normal cost as a percent of payroll reflects that contributions are made biweekly.

The system's actuarial accrued liability is the excess of the actuarial present value of projected benefits over the actuarial present value of all future remaining normal cost contributions. The unfunded actuarial accrued liability (UAAL) is the amount by which the actuarial accrued liability exceeds the actuarial value of assets. The UAAL is recalculated each time a valuation is performed. Experience gains and losses, which represent deviations of the UAAL from its expected value based on the prior valuation, are determined at each valuation and are amortized as part of the newly calculated UAAL.

2. Amortization Method

The UAAL is assumed to be amortized with level percentage of payroll contributions (total assumed contribution rate less normal cost contribution rate) based on assumed payroll growth of 2.75% per year. The actuarial determination of the amortization period reflects that contributions are made biweekly.

3. Actuarial Value of Assets Method

All assets are valued at market value with an adjustment made to uniformly spread actuarial gains or losses (as measured by actual market value investment return vs. expected market value investment return) over a five-year period. The total adjustment amount shall be limited as necessary such that the actuarial value of assets shall not be less than 90% of market value nor greater than 110% of market value. See Exhibit 8.

B. Actuarial Assumptions

As a part of each actuarial valuation, we review the actuarial assumptions used in the prior actuarial valuation. The investment return assumption is reviewed using the building block approach that includes several asset allocations, assumed real rates of return for each asset class, an assumed rate of investment-related expenses, and an assumed rate of inflation, with all assumptions for the long-term future. Our economic assumptions are influenced both by long-term historical experience and by future expectations of investment consultants and economists, but we select and recommend the economic assumptions and discuss them with the board before completing the actuarial valuation.

We review the termination and retirement experience since the prior valuation and periodically look back more than two years. We also periodically review the average salaries by years of service to get insights into the promotion, step, and longevity compensation patterns for the purpose of reviewing our compensation increase assumption. For the mortality assumptions, we use an appropriate published mortality table with projections for improvement beyond the valuation date. 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 and used actuarial assumptions we consider to be reasonable and appropriate estimates of future experience for the system for the long-term future.

1. Investment Return

7.4% per year net of investment-related expenses.

2. Inflation

2.75% per year included in compensation increases and investment return assumptions.

3. Mortality Rates

PubS-2010 (safety employees) total dataset mortality tables for employees and for retirees (sex distinct), projected for mortality improvement generationally using the projection scale MP-2018.

4. Compensation Increases

General increases of 2.75% per year combined with promotion, step, and longevity increases that average 2.22% per year over a 30-year career. See Exhibit 12.

5. Retirement Rates

Age	Rate per Year for Firefighters Eligible to Retire
50	20%
51-52	0
53-54	20
55-59	25
60	100

The average expected retirement age for firefighters under age 50 based on these rates is 54.8.

6. RETRO DROP Election

- a. Percent of firefighters eligible electing RETRO DROP: 90% of service retirements eligible to elect at least a 12-month lump sum.
- b. Months assumed for lump sum: Maximum they are eligible for, up to 24 months.

7. Termination Rates

See Exhibit 12.

8. Disability Rates

See Exhibit 12. The on-duty and off-duty rates are each 50% of the total rate at each age.

9. Reduction in Benefit after 2½ Years of Disability Retirement

45% weighted average reduction in benefit.

10. Percent Married

95% of the firefighters are assumed to be married at retirement, disability, or death while employed, with male firefighters having a spouse three years younger and female firefighters having a spouse three years older.

11. Payment Form for Retirement Benefits Due to Service Retirement, Disability Retirement, or Vested Termination

- Joint and 2/3 to surviving spouse for the 95% assumed to be married
- Life annuity for the 5% assumed to be single

To the extent optional forms of payment are elected and the amounts are determined under an actuarial basis which differs from the basis used in the valuation, actuarial gains or losses will occur. These gains or losses are expected to be very small and will be recognized through the valuation process for those retiring since the prior valuation who made an optional election.

12. Surviving Child's Death Benefit

None are assumed as a result of future deaths.

13. Firefighters' Contribution Rate

15.00% of covered pay.

14. City's Assumed Contribution Rate

21.10% of covered payroll over the UAAL amortization period, after increasing from 20.85% in October 2020 to 21.10% in October 2021.

15. Covered Payroll for First Year Following Valuation Date

In general, the assumed pay for fiscal year 2021 was the actual (or annualized) pay for the plan year ending September 30, 2020 with adjustment for each firefighter to reflect the 3% pay increase effective in October 2020. However, for firefighters whose fiscal year 2020 pay increased more than 10% over their fiscal year 2019 pay, the fiscal year 2019 pay was increased by 10% (to account for some part of the large increase in 2020) and by the 3% to determine their assumed pay for fiscal year 2021.

16. Administrative Expenses

The expenses paid by system assets for other than investment-related expenses are assumed to be 0.75% of payroll. The normal cost rate as a percent of payroll is assumed to be 0.75% of payroll higher to reflect these expenses.

Exhibit 12

Disability and Termination Rates per 1,000 Active Members
Compensation Increases by Years of Service

Disability Rates ¹		Termination Rates		Compensation Increases	
Attained Age	Rate per 1,000	Years of Service	Rate per 1,000	Years of Service	Increase Percent
20	0.07	0	18	1	14.05%
21	0.08	1	16	2	14.05
22	0.08	2	14	3	7.37
23	0.09	3	13	4	6.60
24	0.09	4	11	5	6.60
25	0.10	5	9	6	6.60
26	0.11	6	8	7	6.60
27	0.12	7	7	8	6.60
28	0.13	8	6	9	6.60
29	0.14	9	6	10	6.60
30	0.16	10	5	11	4.29
31	0.18	11	4	12	4.29
32	0.20	12	4	13	4.29
33	0.23	13	3	14	4.29
34	0.25	14	3	15	4.29
35	0.26	15	3	16	4.29
36	0.27	16	3	17	4.29
37	0.29	17	2	18	4.29
38	0.31	18	2	19	4.29
39	0.37	19	2	20	4.29
40	0.46	20 & Over	0	21	2.75
41	0.57			22	2.75
42	0.66			23	2.75
43	0.74			24	2.75
44	0.87			25	2.75
45	1.05			26	2.75
46	1.28			27	2.75
47	1.49			28	2.75
48	1.67			29	2.75
49	1.81			30	2.75
50	1.90			31	2.75
51	1.96			32	2.75
52	2.02			33	2.75
53	2.12			34	2.75
54	2.28			35	2.75
55	0.00			36	2.75
56	0.00			37	2.75
57	0.00			38	2.75
58	0.00			39	2.75
59	0.00			40	2.75

¹ The on-duty and off-duty rates are each 50% of the total rate shown at each age.

Exhibit 13

Definitions

1. Actuarial Accrued Liability That portion, as determined by the particular actuarial cost method used, of the Actuarial Present Value of future pension plan benefits as of the Valuation Date that is not provided for by the Actuarial Present Value of future Normal Costs.
2. Actuarial Assumptions Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, termination, disablement and retirement; changes in compensation; rates of investment earnings and asset appreciation; and other relevant items.
3. Actuarially Equivalent Of equal Actuarial Present Value, determined as of a given date with each value based on the same set of Actuarial Assumptions.
4. Actuarial Gain (Loss) A measure of the difference between actual experience and that expected based on the Actuarial Assumptions during the period between two Actuarial Valuation dates, as determined in accordance with the particular actuarial cost method used.
5. Actuarial Present Value The value of an amount or series of amounts payable or receivable at various times, determined as of a given date (the Valuation Date) by the application of the Actuarial Assumptions.
6. Actuarial Valuation The determination, as of a Valuation Date, of the Normal Cost, Actuarial Accrued Liability, Actuarial Value of Assets and related Actuarial Present Values for a pension plan.
7. Actuarial Value of Assets The value of cash, investments and other property belonging to a pension plan, as determined by a method and used by the actuary for the purpose of an Actuarial Valuation.

8. Entry Age Actuarial Cost Method
An actuarial cost method under which the Actuarial Present Value of the Projected Benefits of each individual included in the Actuarial Valuation is allocated as a level percentage of earnings between entry age and assumed termination. The portion of this Actuarial Present Value allocated to a valuation year is called the Normal Cost. The portion of this Actuarial Present Value not provided for at a Valuation Date by the Actuarial Present Value of future Normal Costs is called the Actuarial Accrued Liability. Under this method, Actuarial Gains (Losses), as they occur, reduce (increase) the Unfunded Actuarial Accrued Liability.
9. Plan Year
A 12-month period beginning October 1 and ending September 30.
10. Normal Cost
That portion of the Actuarial Present Value of pension plan benefits that is allocated to a valuation year by the actuarial cost method.
11. Projected Benefits
Those pension plan benefit amounts that are expected to be paid at various future times according to the Actuarial Assumptions, taking into account such items as the effect of advancement in age and past and anticipated future qualified service.
12. Overfunded Actuarial Accrued Liability
The excess, if any, of the Actuarial Value of Assets over the Actuarial Accrued Liability.
13. Unfunded Actuarial Accrued Liability
The excess, if any, of the Actuarial Accrued Liability over the Actuarial Value of Assets.
14. Valuation Date
The date upon which the Normal Cost, Actuarial Accrued Liability and Actuarial Value of Assets are determined. Generally, the Valuation Date will coincide with the end of a Plan Year, but it does not have to coincide.
15. Years to Amortize the Unfunded Actuarial Accrued Liability
The period is determined in each Actuarial Valuation as the number of years, beginning with the Valuation Date, to amortize the Unfunded Actuarial Accrued Liability with a level percent of payroll that is the difference between the expected total contribution rate and the Normal Cost contribution rate.

Exhibit 14

Summary of Present Plan

1. Service Retirement and Duty-Related Disability Retirement Monthly Benefit as a Percentage of Final Average Monthly Salary for Each Year of Service (20-year minimum for disability retirements), subject to a maximum benefit multiplier of 93.93% 3.03%

2. Off-Duty Disability Retirement Benefit is equal to the Duty-Related Disability Retirement Benefit multiplied by 8% for each year of service as of the date of employment termination (100% maximum). If the disability arose out of service with another employer, no monthly benefit will be payable.

3. Normal Service Retirement Eligibility Age 50 and 20 Years

4. RETRO DROP
 - (a) Earliest RETRO DROP benefit calculation date Age 51 and 21 Years
 - (b) Maximum RETRO DROP Benefit Accumulation Period 24 Months
 - (c) Earliest employment termination date with maximum RETRO DROP accumulation period Age 53 and 23 Years
 - (d) RETRO DROP lump sum includes
 - (i) monthly benefits that would have been received between RETRO DROP benefit calculation date and termination of employment,
 - (ii) accumulated contributions made by the firefighter after the RETRO DROP benefit calculation date, and
 - (iii) no interest

5. Early Service Retirement
 - (a) Eligibility Age 45 and 20 Years
 - (b) Reduction in Benefit Actuarially Equivalent

6. Early Service Retirement Benefit
 - (a) Equal to a percentage of the normal service retirement benefit
 - (b) Percentage based on age and calculated to make the early retirement benefit actuarially equivalent to unreduced benefit starting at age 50

7. Vested Terminated Benefit Eligibility 20 Years
 - (a) Benefit deferred to age 50 for an unreduced benefit
 - (b) If termination is before age 45, the only option is the benefit deferred to age 50.
 - (c) If termination is at ages 45 to 49, the terminated firefighter has the options of an early retirement benefit actuarially reduced based on age at commencement or deferring the benefit to begin at age 50 unreduced.

8. Disability Retirement Monthly Benefit for Firefighters Who Become Totally Disabled
 - (a) For initial 30-month period:
 - (i) For duty-related disability, benefit in item 1
 - (ii) For off-duty disability, benefit in item 2
 - (b) Following initial 30-month period, the greater of (i) and (ii):
 - (i) Initial benefit reduced by the portion of the initial benefit equal to estimated annual residual earning capacity divided by annual base earnings
 - (ii) Initial benefit multiplied by percentage of disability
 - (c) Upon attaining eligibility for normal retirement, the member's vested retirement benefit becomes payable if the disability benefit has been reduced

9. Surviving Spouse's Monthly Death Benefit for a Firefighter Not Eligible for Service Retirement
 - (a) Portion of monthly retirement benefit for other active firefighters following an on-duty death or an off-duty death with 10 or more years of service (benefit calculated with a minimum of 20 years of service) Two-Thirds
 - (b) Monthly off-duty death benefit for active firefighters with less than 10 years of service:
 - (i) 5 to 9 years \$175
 - (ii) Less than 5 years \$150

10. Surviving Spouse's Monthly Death Benefit for a Firefighter Eligible for Service Retirement: The monthly benefit the firefighter could have received on the date of death if the firefighter had elected the Joint and 100% Surviving Spouse optional form of payment (96% option factor). The 2-year RETRO DROP option is also available to surviving spouses of firefighters who were eligible for the RETRO DROP at the time of death

11. Surviving Children's Death Benefit
 - (a) Monthly benefit per unmarried child \$1,360
 - (b) Maximum monthly amount payable for all children \$1,360

12. Lump Sum Death Benefits
 - (a) Payable for the death of an active firefighter \$35,000
 - (b) Payable for the death of a retired firefighter or the surviving spouse \$12,000

13. Contributions as a Percent of Pay by:
 - (a) Firefighters 15.00%
 - (b) City of Laredo 21.10%¹

14. The normal form of benefit payment at retirement is a Joint and Two-Thirds to Surviving Spouse, and payment is the last day of each month. A Joint and 50% to Surviving Spouse Option and a Joint and 100% to Surviving Spouse Option are available to married firefighters as optional forms of a service retirement benefit. Retirement benefit options are also available with a reduced initial monthly benefit that automatically increases each year.

¹Increasing from 20.85% in October 2020 to 21.10% in October 2021.

15. Salary used to determine the Final (three-year) Average Monthly Salary includes all elements of pay except for all lump sum distributions for unused sick leave or vacation upon termination. The average is based on the highest consecutive 78 biweekly pay periods out of the last 104 biweekly pay periods.
16. Refund of firefighters' accumulated contributions without interest will be paid to firefighters who terminate employment and either are not eligible for any other benefit from the system or request a refund from the system.
17. An option to purchase military service prior to employment with the city as service credit under the plan is available (one month of service credit for approximately each year of military service, with a maximum of five months).

Appendix A

Review of the Actuarial Economic Assumptions
for the September 30, 2020 Actuarial Valuation

Asset Allocation and Investment Return Assumption Development

	Gross Annual Real Rate of Investment Return (ROR) ¹	Estimated Investment Expenses ²	Net Real ROR	<u>Asset Allocation</u>	
				9/30/20 Actual ³	Current Target
Equities					
Domestic large cap	6.5%	0.11%	6.39%	14.2%	15.0%
Domestic mid cap	7.0	0.81	6.19	7.8	8.0
Domestic small cap	7.0	1.09	5.91	10.1	10.0
International developed	7.0	0.99	6.01	13.7	12.0
Emerging markets	8.5	0.79	7.71	<u>8.6</u>	<u>10.0</u>
				54.4	55.0
Fixed Income					
Domestic core	2.0	0.57	1.43	9.8	10.0
Domestic core plus	2.5	0.51	1.99	<u>9.7</u>	<u>10.0</u>
				19.5	20.0
Alternatives					
Private debt	5.0	1.59	3.41	0.5	0.0
Real estate	5.0	0.23	4.77	4.9	5.0
Multi-strategy hedge	4.0	1.04	2.96	7.4	7.0
Equity hedge	5.0	1.09	3.91	8.0	8.0
Natural resources	5.0	1.02	3.98	<u>4.4</u>	<u>5.0</u>
				25.2	25.0
Cash					
	0.5	0.20	0.30	<u>0.9</u>	<u>0.0</u>
				100.0%	100.0%
<u>Weighted Average Net Real ROR Assumption</u>				4.77%	4.84%
<u>Possible Theoretical Annual Investment Return Assumption (Total Net Annual ROR) – Net Real ROR Plus Assumed Annual Rate of Inflation</u>					
Assumed 2.75% Inflation				7.52%	7.59%
Assumed 2.50% Inflation				7.27%	7.34%

¹ A gross annual real rate of investment return is the total annual rate of investment return, before any expenses, that is in excess of the assumed annual inflation rate. These are long-term assumptions made by Rudd and Wisdom, Inc.

² These assumed investment-related expenses are primarily based on information from the Fund Evaluation Group (FEG) as of September 30, 2020 for both direct and indirect expenses, with an addition of 0.03% for bank custody fees plus 0.06% for investment consultant fees.

³ This allocation is from FEG's September 30, 2020 performance review and report, adjusted for total assets in the auditor's final draft.

Appendix A (continued)

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

<u>Years (Dec. to Dec.)</u>	<u>Number of Years</u>	<u>Average Annual Increase</u>
1955 – 2020	65	3.56%
1960 – 2020	60	3.68
1965 – 2020	55	3.90
1970 – 2020	50	3.83
1975 – 2020	45	3.50
1980 – 2020	40	2.80
1985 – 2020	35	2.51
1990 – 2020	30	2.25
1995 – 2020	25	2.14
2000 – 2020	20	2.04

Most inflation forecasts are for 10 years or less. For example, the average 10-year forecast in the December 2020 Livingston Survey published by the Federal Reserve Bank of Philadelphia was 2.23%. However, 10 years is much too short a forecast period for a public employee defined benefit pension plan. In the 2020 annual report of the OASDI Trust Funds (Social Security), the ultimate inflation assumptions for their 75-year projections are 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 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 3.25%. We recommend continuing to use the 2.75% assumption, which is in the middle of our current range.

Administrative Expenses Paid by the System

<u>Plan Year Ending 9/30</u>	<u>Administrative Expenses Paid by the System</u>	<u>Covered Payroll</u>	<u>% of Payroll (2) ÷ (3)</u>
(1)	(2)	(3)	(4)
2020	\$242,952	\$39,542,040	0.61%
2019	268,743	37,125,900	0.72
2018	272,399	36,107,647	0.75
2017	310,945	34,061,980	0.91
2016	209,946	33,836,000	0.62
2015	239,505	30,951,480	0.77
2015-2020	\$1,544,490	\$211,625,047	0.73%

The administrative expenses are reflected as a percent of payroll that is added to the normal cost contribution rate. For the September 30, 2020 actuarial valuation, we recommend 0.75%, the average developed above for the last six plan years rounded to the near multiple of 0.05%. The covered payroll was determined as the firefighter contributions for the plan year divided by the firefighter contribution rate during the plan year. This is the same percent that was assumed for the prior actuarial valuation.

Appendix A (continued)

Comparison of 9/30/2018 Actuarial Economic Assumptions
with 9/30/2020 Actuarial Economic Assumptions

<u>Actuarial Assumption¹</u>	<u>9/30/2018 Actuarial Economic Assumptions</u>	<u>9/30/2020 Actuarial Economic Assumptions</u>
Inflation (Price)	2.75%	2.75%
Net real rate of return ²	<u>4.75</u>	<u>4.65</u>
Net total investment return ²	7.50	7.40
Firefighter pay increase ³	4.64	4.97
Aggregate payroll increase	2.75	2.75
Admin. expense (% of payroll)	0.75	0.75

¹ All assumptions are annual rates.

² Net of all investment-related expenses.

³ For 9/30/2018, a 2.75% annual general compensation increase combined with promotion, step, and longevity pay increases that average 1.89% over a 30-year career. For 9/30/2020, a 2.75% annual general compensation increase combined with promotion, step, and longevity pay increases that average 2.22% over a 30-year career.