Gabriel Roeder Smith & Company
Consultants & Actuaries

EMPLOYEES RETIREMENT SYSTEM OF TEXAS

AUGUST 31, 2016 ACTUARIAL VALUATION

UPDATED AS OF FEBRUARY 28, 2017

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April 12, 2017

Mr. Porter Wilson
Executive Director
Employees Retirement System of Texas
200 E. 18th Street
Austin, TX 78701

Re: Update Actuarial Valuation as of February 28, 2017

Dear Mr. Wilson:

We certify that the information contained in this report is accurate and fairly presents the actuarial position of the Employees Retirement System of Texas (ERS) as of February 28, 2017. This valuation is based on an update to the August 31, 2016 valuation, reflecting the impact of investment, salary, and payroll experience on the funded position of ERS through February 28, 2017, in accordance with the General Appropriations Act of the 85th Legislature.

Updated Actuarial Valuation

The updated valuation was primarily based upon information as of August 31, 2016, furnished by ERS staff, concerning system benefits, financial transactions, plan provisions and active members, terminated members, retirees and beneficiaries.

For purposes of the updated actuarial valuation, ERS provided the following information which was used to update the information originally provided for the August 31, 2016 actuarial valuation:

- Assets as of February 28, 2017
- Reconciliation of Assets from August 31, 2016 through February 28, 2017
- Covered Payroll of Active Membership from August 31, 2016 through February 28, 2017

ERS also provided detailed census data as of February 28, 2017 which was used to confirm that the underlying membership of ERS was consistent with the membership as of August 31, 2016.

Table 1 of this report summarizes the results of the updated actuarial valuation as of February 28, 2017, Table 2 summarizes the changes in plan assets from August 31, 2016 through February 28, 2017, and Table 3 shows the development of the actuarial value of assets as of February 28, 2017.

Unless otherwise noted, this updated actuarial valuation was based on the same assumptions, methods and plan provisions as the August 31, 2016 actuarial valuation. A complete description of these items can be found in the August 31, 2016 Actuarial Valuation Report for ERS.

Funding Adequacy

The funding objective of ERS is to fund the sum of the normal cost and the amount necessary to amortize any unfunded actuarial accrued liability over a period that does not exceed 30 years by one or more years. Contribution rates should be established which, over time, will remain level as a percent of payroll.

The member contribution rates are established by State statute and the State contribution rate is set by State statute and legislative appropriation. Members contribute 9.50% of payroll and the State is scheduled to contribute 10.00% of payroll (9.50% from statewide appropriations and 0.50% from agency appropriations) for each year in the future based on appropriations for the current biennium and expectations regarding future biennia. The long-term State contribution rates are subject to future legislative appropriations.

The unfunded actuarial accrued liability (UAAL) of ERS increased from $8.7 billion as of August 31, 2016 to $9.0 billion as of February 28, 2017. Additionally, the funded ratio of ERS—actuarial value of assets divided by the actuarial accrued liability—decreased from 75.2% as of August 31, 2016 to 74.9% as of February 28, 2017. The funded status is one of many metrics used to show trends and develop future expectations about the health of a retirement system. The funded status measure itself is not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations or assessing the need for or the amount of future contributions since it does not reflect normal cost contributions, the timing of amortization payments, or future experience other than expected.

The updated valuation shows that the total normal cost for funding purposes is 12.28% of payroll. The total contribution rate is 19.50% of payroll for fiscal year 2018. The total contribution rate for the 2018 fiscal year exceeds the normal cost by 7.22% of payroll, which is sufficient to amortize the UAAL over a period of 37 years. However, this funding period does not meet the Plan's funding objective and the Plan is at risk of further deterioration if actual experience deviates from the actuarial assumptions. An actuarial experience investigation study currently underway may modify the underlying actuarial assumptions to first be used in the August 31, 2017 actuarial valuation.

The determination of the funding period anticipates growth in the contributory payroll in accordance with the actuarial assumptions. Accordingly, the anticipated contributions that will be used to eliminate the UAAL are expected to increase over time. As a result, the amortization payments will not be sufficient to cover all of the interest charges on the UAAL (i.e., the UAAL is expected to increase each year) until the funding period reaches approximately 20 years, or less.

Section 811.006 of the Texas Government Code limits the modifications to ERS that would, essentially, increase benefits or lower contributions to the trust unless the current level of benefits and contributions are considered actuarially sound. Section 811.006 defines actuarially sound as a retirement system that is receiving a total contribution rate sufficient to cover the normal cost, administrative expenses, and amortize the UAAL over a period of 31 years, or less. Based on the updated actuarial valuation as of February 28, 2017, the actuarially sound contribution (ASC) rate for ERS for fiscal year 2018 is 20.08% of payroll.

As noted, the ASC is currently calculated based on a 31-year open amortization period. This means that the ASC contribution will always be calculated with the same 31-year period and the UAAL would never completely disappear. Even though the contributions to ERS are not based on this ASC, the Board may want to consider adopting a funding policy that includes an ultimate goal of eliminating the UAAL by a certain date. This type of funding policy will allow the Board to better assess the level of contributions received from the employers and the State.

Certification

All of our work conforms with generally accepted actuarial principles and practices, and to the Actuarial Standards of Practice issued by the Actuarial Standards Board. In our opinion, our calculations also comply with the requirements of, where applicable, the Internal Revenue Code and ERISA.

The signing actuaries are independent of the plan sponsor. They are all Enrolled Actuaries, Fellows of the Society of Actuaries, and Members of the American Academy of Actuaries, and meet the Qualification Standards of the American Academy of Actuaries. Finally, each of the undersigned are experienced in performing valuations for large public retirement systems.

Respectfully submitted,
Gabriel, Roeder, Smith & Company

R. Ryan Falls, FSA, EA, MAAA
Senior Consultant

Joseph P. Newton, FSA, EA, MAAA
Senior Consultant

Dana Woolfrey, FSA, EA, MAAA
Consultant

SUMMARY OF VALUATION RESULTS

		February 28, 2017	August 31, 2016
1.	Valuation Payroll	$ 6,971,812,281	$ 6,806,457,317
2.	Normal Cost Rate (incl Admin Expenses)	12.28%	12.28%
	<u>Actuarial Information on Actuarial Value of Assets (smoothed)</u>		
3.	Actuarial Accrued Liability (AAL)	$ 35,962,207,740	$ 35,303,165,362
4.	Actuarial Value of Assets	26,950,085,364	26,557,130,705
5.	Unfunded AAL (3 - 4)	$ 9,012,122,376	$ 8,746,034,657
6.	Funded Ratio (4 / 3)	74.9%	75.2%
		2018 Fiscal Year	**2017 Fiscal Year**
7.	Amortization of UAAL Over 31 Years as a Level Percentage of Payroll	7.80%	7.60%
8.	Contribution Rate Needed to Fund Normal Cost Plus Amortize the UAAL Over 31 Years based on **Actuarial Value of Assets** (2 + 7)	20.08%	19.88%
9.	Allocation of Contribution Rate		
	a. State and Employer rates	10.00%	10.00%
	b. Member rate	9.50%	9.50%
	c. Total contribution rate (9a + 9b)	19.50%	19.50%
	d. Total normal cost rate (Item 2)	12.28%	12.28%
	e. Available contribution rate to amortize UAAL (9c - 9d)	7.22%	7.22%
	f. Total contribution rate (9d + 9e)	19.50%	19.50%
10.	Funding period based on statutory contribution rates (years)	37	35
	<u>Actuarial Information on Market Value of Assets</u>		
11.	Market Value of Assets	$ 25,031,258,764	$ 24,465,580,124
12.	Unfunded AAL (3 - 11)	10,930,948,976	10,837,585,238
13.	Funded Ratio (11 / 3)	69.6%	69.3%
14.	Funding period based on statutory contribution rates (years)	66	73
15.	Contribution Rate Needed to Fund Normal Cost Plus Amortize the UAAL Over 31 Years based on **Market Value of Assets**	21.54%	21.69%

The 2018 fiscal year contribution rates and funding periods are determined based on results projection to August 31, 2017.

RECONCILIATION OF PLAN NET ASSETS

	Six Month Period Ending February 28, 2017 (1)	Twelve Month Period Ending August 31, 2016 (2)
1. Market value of assets at beginning of period	$ 24,465,580,124	$ 23,998,481,161
2. Revenue for the period		
a. Contributions for the period		
i. State (including membership fees)	$ 349,759,100	$ 686,763,354
ii. Member (including penalty interest)	338,425,650	674,677,886
iii. Total	$ 688,184,750	$ 1,361,441,240
b. Net investment income	$ 1,012,862,575	$ 1,273,413,421
c. Total revenue	$ 1,701,047,325	$ 2,634,854,661
3. Disbursements for the period		
a. Benefit payments and refunds	1,159,614,919	2,215,784,680
b. Net transfers from TRS	(35,388,335)	(68,477,651)
c. Administrative expenses	11,142,101	20,448,669
d. Total expenditures	1,135,368,685	2,167,755,698
4. Increase in net assets (Item 2c - Item 3d)	$ 565,678,640	$ 467,098,963
5. Market value of assets at end of period (Item 1 + Item 4)	$ 25,031,258,764	$ 24,465,580,124
6. Estimated rate of return for the period	4.2%	5.3%

DEVELOPMENT OF ACTUARIAL VALUE OF ASSETS

		Six Month Period Ending February 28, 2017	Twelve Month Period Ending August 31, 2016
1.	Actuarial value of assets at beginning of period	$ 26,557,130,705	$ 25,850,542,024
2.	Net new investments		
	a. Contributions for the period	$ 688,184,750	$ 1,361,441,240
	b. Disbursements for the period	(1,135,368,685)	(2,167,755,698)
	c. Subtotal	(447,183,935)	(806,314,458)
3.	Assumed investment return rate	4.00%	8.00%
4.	Expected return	$ 1,053,341,550	$ 2,035,790,784
5.	Expected actuarial value of assets at end of period (Item 1 + Item 2c + Item 4)	$ 27,163,288,320	$ 27,080,018,350
6.	Market value of assets at end of period	$ 25,031,258,764	$ 24,465,580,124
7.	Excess earnings/(shortfall) (Item 6 - Item 5)	$ (2,132,029,556)	$ (2,614,438,226)
8.	Excess earnings/(shortfall) recognized*	$ (213,202,956)	$ (522,887,645)
9.	Actuarial value of assets (Item 5 + Item 8)	$ 26,950,085,364	$ 26,557,130,705
10.	Estimated rate of return for the period	3.2%	5.9%
11.	Actuarial value as percentage of market value	107.7%	108.5%

* 10% was recognized for the six month period ending February 28, 2017 and 20% was recognized for the twelve month period ending August 31, 2016.

GRS Gabriel Roeder Smith & Company
Consultants & Actuaries

LAW ENFORCEMENT AND CUSTODIAL OFFICER SUPPLEMENTAL RETIREMENT FUND OF THE EMPLOYEES RETIREMENT SYSTEM OF TEXAS

AUGUST 31, 2016 ACTUARIAL VALUATION
UPDATED AS OF FEBRUARY 28, 2017

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April 12, 2017

Mr. Porter Wilson
Executive Director
Employees Retirement System of Texas
200 E. 18th Street
Austin, TX 78701

Re: Update Actuarial Valuation as of February 28, 2017

Dear Mr. Wilson:

We certify that the information contained in this report is accurate and fairly presents the actuarial position of the Law Enforcement and Custodial Officer Supplemental Retirement Fund (LECOSRF) of the Employees Retirement System of Texas (ERS) as of February 28, 2017. This valuation is based on an update to the August 31, 2016 valuation, reflecting the impact of investment, salary, and payroll experience on the funded position of LECOSRF through February 28, 2017, in accordance with the General Appropriations Act of the 85th Legislature.

Updated Actuarial Valuation

The updated valuation was primarily based upon information as of August 31, 2016, furnished by ERS staff, concerning system benefits, financial transactions, plan provisions and active members, terminated members, retirees and beneficiaries.

For purposes of the updated actuarial valuation, ERS provided the following information which was used to update the information originally provided for the August 31, 2016 actuarial valuation:

- Assets as of February 28, 2017
- Reconciliation of Assets from August 31, 2016 through February 28, 2017
- Covered Payroll of Active Membership from August 31, 2016 through February 28, 2017

ERS also provided detailed census data as of February 28, 2017 which was used to confirm that the underlying membership of LECOSRF was consistent with the membership as of August 31, 2016.

Table 1 of this report summarizes the results of the updated actuarial valuation as of February 28, 2017, Table 2 summarizes the changes in plan assets from August 31, 2016 through February 28, 2017, and Table 3 shows the development of the actuarial value of assets as of February 28, 2017.

Unless otherwise noted, this updated actuarial valuation was based on the same assumptions, methods and plan provisions as the August 31, 2016 actuarial valuation. A complete description of these items can be found in the August 31, 2016 Actuarial Valuation Report for LECOSRF.

Funding Adequacy

The funding objective of LECOSRF is to fund the sum of the normal cost and the amount necessary to amortize any unfunded actuarial accrued liability over a period that does not exceed 30 years by one or more years. Contribution rates should be established which, over time, will remain level as a percent of payroll.

The member contribution rates are established by State statute and the State contribution rate is set by State statute and legislative appropriation. Members contribute 0.50% of payroll and the State contributes 0.50% of payroll. LECOSRF also receives a portion of the court fees collected under Section 133.102 of the Local Government Code. Based on information provided by ERS, the contribution from this source is expected to be approximately $19.2 million for fiscal year 2017 and all subsequent years. It should be noted that level dollar court cost contributions in future years will result in total contributions that are not expected to remain level as a percent of payroll over time. The court fee contribution is approximately 1.10% of payroll for fiscal year 2017 and is expected to be approximately 1.06% of payroll for fiscal year 2018.

The unfunded actuarial accrued liability (UAAL) of LECOSRF increased from $379 million as of August 31, 2016 to $399 million as of February 28, 2017. Additionally, the funded ratio of LECOSRF—actuarial value of assets divided by the actuarial accrued liability—decreased from 71.1% as of August 31, 2016 to 70.3% as of February 28, 2017. The funded status is one of many metrics used to show trends and develop future expectations about the health of a retirement system. The funded status measure itself is not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations or assessing the need for or the amount of future contributions since it does not reflect normal cost contributions, the timing of amortization payments, or future experience other than expected.

The updated valuation shows that the total normal cost for funding purposes is 1.81% of payroll. The approximate total contribution rate is 2.06% of payroll for fiscal year 2018. The total contribution rate for fiscal year 2018 exceeds the normal cost by 0.25% of payroll, but it is not sufficient to amortize the UAAL over a finite period of time. As a result, the UAAL is expected to grow indefinitely and the funding objective is not currently being realized.

The results of this updated valuation continue to indicate that the currently scheduled member, employer and State contributions are not expected to accumulate sufficient assets in order to pay all of the currently scheduled benefits when due.

Section 811.006 of the Texas Government Code limits the modifications to LECOSRF that would, essentially, increase benefits or lower contributions to the trust unless the current level of benefits and contributions are considered actuarially sound. Section 811.006 defines actuarially sound as a retirement system that is receiving a total contribution rate sufficient to cover the normal cost, administrative expenses, and amortize the UAAL over a period of 31 years, or less. Based on the updated actuarial valuation as of February 28, 2017, the actuarially sound contribution (ASC) rate for

LECOSRF for fiscal year 2018 is 2.45% of payroll in addition to the annual court cost contribution of $19.2 million.

As noted, the ASC is currently calculated based on a 31-year open amortization period. This means that the ASC contribution will always be calculated with the same 31-year period and the UAAL would never completely disappear. Even though the contributions to LECOSRF are not based on this ASC, the Board may want to consider adopting a funding policy that includes an ultimate goal of eliminating the UAAL by a certain date. This type of funding policy will allow the Board to better assess the level of contributions received from the employers and the State.

Certification

All of our work conforms with generally accepted actuarial principles and practices, and to the Actuarial Standards of Practice issued by the Actuarial Standards Board. In our opinion, our calculations also comply with the requirements of, where applicable, the Internal Revenue Code and ERISA.

The signing actuaries are independent of the plan sponsor. They are all Enrolled Actuaries, Fellows of the Society of Actuaries, and Members of the American Academy of Actuaries, and meet the Qualification Standards of the American Academy of Actuaries. Finally, each of the undersigned are experienced in performing valuations for large public retirement systems.

Respectfully submitted,
Gabriel, Roeder, Smith & Company

R. Ryan Falls

R. Ryan Falls, FSA, EA, MAAA
Senior Consultant

Jo Newton

Joseph P. Newton, FSA, EA, MAAA
Senior Consultant

Dana Woolfrey

Dana Woolfrey, FSA, EA, MAAA
Consultant

SUMMARY OF VALUATION RESULTS

		February 28, 2017	August 31, 2016
1.	Valuation Payroll	$ 1,785,208,133	$ 1,743,679,004
2.	Normal Cost Rate (incl Admin Expenses)	1.81%	1.81%
	<u>Actuarial Information on Actuarial Value of Assets (smoothed)</u>		
3.	Actuarial Accrued Liability (AAL)	$ 1,344,132,977	$ 1,312,392,501
4.	Actuarial Value of Assets	945,221,172	933,534,062
5.	Unfunded AAL (3 - 4)	$ 398,911,805	$ 378,858,439
6.	Funded Ratio (4 / 3)	70.3%	71.1%
		2018 Fiscal Year	**2017 Fiscal Year**
7.	Amortization of UAAL Over 31 Years as a Level Percentage of Payroll	1.38%	1.29%
8.	Contribution Rate Needed to Fund Normal Cost Plus Amortize the UAAL Over 31 Years based on **Actuarial Value of Assets** (2 + 7)	3.19%	3.10%
9.	Expected Contribution from Court Fees		
	a. Expected level of contributions	$ 19.2 million per year	$ 19.2 million per year
	b. Expected contribution for fiscal year	$ 19,200,000	$ 19,200,000
	c. Equivalent contribution rate for fiscal year	1.06%	1.10%
10.	Contribution Rate <u>In Addition to Expected Court Fees</u> Needed to Fund Normal Cost Plus Amortize the UAAL Over 31 Years	2.45%	2.33%
11.	Allocation of Contribution Rate		
	a. State and Employer rates	1.56%	1.60%
	b. Member rate	0.50%	0.50%
	c. Total contribution rate (11a + 11b)	2.06%	2.10%
	d. Total normal cost rate (Item 2)	1.81%	1.81%
	e. Available contribution rate to amortize UAAL (11c - 11d)	0.25%	0.29%
	f. Total contribution rate (11d + 11e)	2.06%	2.10%
12.	Funding period based on statutory contribution rates (years)	Never	Never
	<u>Actuarial Information on Market Value of Assets</u>		
13.	Market Value of Assets	$ 877,840,006	$ 860,049,223
14.	Unfunded AAL (3 - 13)	466,292,971	452,343,278
15.	Funded Ratio (13 / 3)	65.3%	65.5%
16.	Funding period based on statutory contribution rates (years)	Never	Never
17.	Contribution Rate <u>In Addition to Expected Court Fees</u> Needed to Fund Normal Cost Plus Amortize the UAAL Over 31 Years based on **Market Value of Assets**	2.65%	2.58%

The 2018 fiscal year contribution rates and funding periods are determined based on results projection to August 31, 2017.

RECONCILIATION OF PLAN NET ASSETS

	Six Month Period Ending February 28, 2017 (1)	Twelve Month Period Ending August 31, 2016 (2)
1. Market value of assets at beginning of period	$ 860,049,223	$ 844,145,332
2. Revenue for the period		
a. Contributions for the period		
i. State (including membership fees)	$ 12,500,703	$ 27,497,297
ii. Member (including penalty interest)	4,829,128	9,538,658
iii. Total	$ 17,329,831	$ 37,035,955
b. Net investment income	$ 35,602,015	$ 44,831,113
c. Total revenue	$ 52,931,846	$ 81,867,068
3. Disbursements for the period		
a. Benefit payments and refunds	34,370,056	64,541,719
b. Net transfers from TRS	0	0
c. Administrative expenses	771,007	1,421,458
d. Total expenditures	35,141,063	65,963,177
4. Increase in net assets (Item 2c - Item 3d)	$ 17,790,783	$ 15,903,891
5. Market value of assets at end of period (Item 1 + Item 4)	$ 877,840,006	$ 860,049,223
6. Estimated rate of return for the period	4.2%	5.3%

DEVELOPMENT OF ACTUARIAL VALUE OF ASSETS

	Six Month Period Ending February 28, 2017	Twelve Month Period Ending August 31, 2016
1. Actuarial value of assets at beginning of period	$ 933,534,062	$ 909,249,614
2. Net new investments		
a. Contributions for the period	$ 17,329,831	$ 37,035,955
b. Disbursements for the period	(35,141,063)	(65,963,177)
c. Subtotal	(17,811,232)	(28,927,222)
3. Assumed investment return rate	4.00%	8.00%
4. Expected return	$ 36,985,138	$ 71,582,880
5. Expected actuarial value of assets at end of period (Item 1 + Item 2c + Item 4)	$ 952,707,968	$ 951,905,272
6. Market value of assets at end of period	$ 877,840,006	$ 860,049,223
7. Excess earnings/(shortfall) (Item 6 - Item 5)	$ (74,867,962)	$ (91,856,049)
8. Excess earnings/(shortfall) recognized*	$ (7,486,796)	$ (18,371,210)
9. Actuarial value of assets (Item 5 + Item 8)	$ 945,221,172	$ 933,534,062
10. Estimated rate of return for the period	3.2%	5.9%
11. Actuarial value as percentage of market value	107.7%	108.5%

* 10% was recognized for the six month period ending February 28, 2017 and 20% was recognized for the twelve month period ending August 31, 2016.

GRS Gabriel Roeder Smith & Company
Consultants & Actuaries

JUDICIAL RETIREMENT SYSTEM OF TEXAS, PLAN 2

AUGUST 31, 2016 ACTUARIAL VALUATION

UPDATED AS OF FEBRUARY 28, 2017

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April 12, 2017

Mr. Porter Wilson
Executive Director
Employees Retirement System of Texas
200 E. 18th Street
Austin, TX 78701

Re: Update Actuarial Valuation as of February 28, 2017

Dear Mr. Wilson:

We certify that the information contained in this report is accurate and fairly presents the actuarial position of the Judicial Retirement System of Texas, Plan 2 (JRS-2) as of February 28, 2017. This valuation is based on an update to the August 31, 2016 valuation, reflecting the impact of investment, salary, and payroll experience on the funded position of JRS-2 through February 28, 2017, in accordance with the General Appropriations Act of the 85th Legislature.

Updated Actuarial Valuation

The updated valuation was primarily based upon information as of August 31, 2016, furnished by ERS staff, concerning system benefits, financial transactions, plan provisions and active members, terminated members, retirees and beneficiaries.

For purposes of the updated actuarial valuation, ERS provided the following information which was used to update the information originally provided for the August 31, 2016 actuarial valuation:

- Assets as of February 28, 2017
- Reconciliation of Assets from August 31, 2016 through February 28, 2017
- Covered Payroll of Active Membership from August 31, 2016 through February 28, 2017

ERS also provided detailed census data as of February 28, 2017 which was used to confirm that the underlying membership of JRS-2 was consistent with the membership as of August 31, 2016.

Table 1 of this report summarizes the results of the updated actuarial valuation as of February 28, 2017, Table 2 summarizes the changes in plan assets from August 31, 2016 through February 28, 2017, and Table 3 shows the development of the actuarial value of assets as of February 28, 2017.

Unless otherwise noted, this updated actuarial valuation was based on the same assumptions, methods and plan provisions as the August 31, 2016 actuarial valuation. A complete description of these items can be found in the August 31, 2016 Actuarial Valuation Report for JRS-2.

Funding Adequacy

The funding objective of JRS-2 is to fund the sum of the normal cost and the amount necessary to amortize any unfunded actuarial accrued liability over a period that does not exceed 30 years by one or more years. Contribution rates should be established which, over time, will remain level as a percent of payroll.

The member contribution rates are established by State statute and the State contribution rate is set by State statute and legislative appropriation. Members accruing benefits contribute 7.50% of payroll and the State contributes 15.663% of total payroll. Since some active JRS-2 members have elected to cease contributing to the plan as well as cease accruing additional benefits, the effective member contribution rate for the fiscal year beginning September 1, 2017 is 7.45% of payroll. The long-term State contribution rates are subject to future legislative appropriations.

The unfunded actuarial accrued liability (UAAL) of JRS-2 increased from $30.4 million as of August 31, 2016 to $31.8 million as of February 28, 2017. Additionally, the funded ratio of JRS-2—actuarial value of assets divided by the actuarial accrued liability—decreased slightly from 92.9% as of August 31, 2016 to 92.8% as of February 28, 2017. The funded status is one of many metrics used to show trends and develop future expectations about the health of a retirement system. The funded status measure itself is not appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations or assessing the need for or the amount of future contributions since it does not reflect normal cost contributions, the timing of amortization payments, or future experience other than expected.

The updated valuation shows that the total normal cost for funding purposes is 21.18% of payroll. The total contribution rate is 23.113% of payroll for fiscal year 2018, and potentially increasing to 23.163% of payroll for all future fiscal years. The total contribution rate for fiscal year 2018 exceeds the normal cost by 1.933% of payroll, which is sufficient to amortize the UAAL over a period of 68 years. However, this funding period does not meet the Plan's funding objective and the Plan is at risk of further deterioration if actual experience deviates from the actuarial assumptions. An actuarial experience investigation study currently underway may modify the underlying actuarial assumptions to first be used in the August 31, 2017 actuarial valuation.

The determination of the funding period anticipates growth in the contributory payroll in accordance with the actuarial assumptions. Accordingly, the anticipated contributions that will be used to eliminate the UAAL are expected to increase over time. As a result, the amortization payments will not be sufficient to cover all of the interest charges on the UAAL (i.e., the UAAL is expected to increase each year) until the funding period reaches approximately 20 years, or less.

Section 840.106 of the Texas Government Code limits the modifications to JRS-2 that would, essentially, increase benefits or lower contributions to the trust unless the current level of benefits and contributions are considered actuarially sound. Section 840.106 defines actuarially sound as a retirement system that is receiving a total contribution rate sufficient to cover the normal cost, administrative expenses, and amortize the UAAL over a period of 31 years, or less. Based on the updated actuarial valuation as of February 28, 2017, the actuarially sound contribution (ASC) rate for JRS-2 for fiscal year 2018 is 23.68% of payroll.

As noted, the ASC is currently calculated based on a 31-year open amortization period. This means that the ASC contribution will always be calculated with the same 31-year period and the UAAL would never completely disappear. Even though the contributions to JRS-2 are not based on this ASC, the Board may want to consider adopting a funding policy that includes an ultimate goal of eliminating the UAAL by a certain date. This type of funding policy will allow the Board to better assess the level of contributions received from the employers and the State.

Certification

All of our work conforms with generally accepted actuarial principles and practices, and to the Actuarial Standards of Practice issued by the Actuarial Standards Board. In our opinion, our calculations also comply with the requirements of, where applicable, the Internal Revenue Code and ERISA.

The signing actuaries are independent of the plan sponsor. They are all Enrolled Actuaries, Fellows of the Society of Actuaries, and Members of the American Academy of Actuaries, and meet the Qualification Standards of the American Academy of Actuaries. Finally, each of the undersigned are experienced in performing valuations for large public retirement systems.

Respectfully submitted,
Gabriel, Roeder, Smith & Company

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SUMMARY OF VALUATION RESULTS

		February 28, 2017	August 31, 2016
1.	Valuation Payroll	$ 80,300,174	$ 78,238,000
2.	Normal Cost Rate (incl Admin Expenses)	21.18%	21.18%
	Actuarial Information on Actuarial Value of Assets (smoothed)		
3.	Actuarial Accrued Liability (AAL)	$ 439,381,945	$ 425,865,307
4.	Actuarial Value of Assets	407,586,400	395,457,335
5.	Unfunded AAL (3 - 4)	$ 31,795,545	$ 30,407,972
6.	Funded Ratio (4 / 3)	92.8%	92.9%
		2018 Fiscal Year	**2017 Fiscal Year**
7.	Amortization of UAAL Over 31 Years as a Level Percentage of Payroll	2.50%	2.30%
8.	Contribution Rate Needed to Fund Normal Cost Plus Amortize the UAAL Over 31 Years based on **Actuarial Value of Assets** (2 + 7)	23.68%	23.48%
9.	Allocation of Contribution Rate		
	a. State and Employer rates	15.663%	15.663%
	b. Member rate	7.45%	7.44%
	c. Total contribution rate (9a + 9b)	23.113%	23.103%
	d. Total normal cost rate (Item 2)	21.18%	21.18%
	e. Available contribution rate to amortize UAAL (9c - 9d)	1.933%	1.923%
	f. Total contribution rate (9d + 9e)	23.113%	23.103%
10.	Funding period based on statutory contribution rates (years)	68	49
	Actuarial Information on Market Value of Assets		
11.	Market Value of Assets	$ 394,859,991	$ 381,119,508
12.	Unfunded AAL (3 - 11)	44,521,954	44,745,799
13.	Funded Ratio (11 / 3)	89.9%	89.5%
14.	Funding period based on statutory contribution rates (years)	Never	Never
15.	Contribution Rate Needed to Fund Normal Cost Plus Amortize the UAAL Over 31 Years based on **Market Value of Assets**	24.50%	24.56%

The 2018 fiscal year contribution rates and funding periods are determined based on results projection to August 31, 2017.

RECONCILIATION OF PLAN NET ASSETS

		Six Month Period Ending February 28, 2017 (1)	Twelve Month Period Ending August 31, 2016 (2)
1.	Market value of assets at beginning of period	$ 381,119,508	$ 364,510,248
2.	Revenue for the period		
	a. Contributions for the period		
	i. State (including membership fees)	$ 6,196,548	$ 12,374,200
	ii. Member (including penalty interest)	2,986,304	5,754,349
	iii. Total	$ 9,182,852	$ 18,128,549
	b. Net investment income	$ 15,971,055	$ 19,861,581
	c. Total revenue	$ 25,153,907	$ 37,990,130
3.	Disbursements for the period		
	a. Benefit payments and refunds	11,289,703	21,154,764
	b. Net transfers from TRS	0	0
	c. Administrative expenses	123,721	226,106
	d. Total expenditures	11,413,424	21,380,870
4.	Increase in net assets (Item 2c - Item 3d)	$ 13,740,483	$ 16,609,260
5.	Market value of assets at end of period (Item 1 + Item 4)	$ 394,859,991	$ 381,119,508
6.	Estimated rate of return for the period	4.2%	5.3%

DEVELOPMENT OF ACTUARIAL VALUE OF ASSETS

		Six Month Period Ending February 28, 2017	Twelve Month Period Ending August 31, 2016
1.	Actuarial value of assets at beginning of period	$ 395,457,335	$ 372,615,005
2.	Net new investments		
	a. Contributions for the period	$ 9,182,852	$ 18,128,549
	b. Disbursements for the period	(11,413,424)	(21,380,870)
	c. Subtotal	(2,230,572)	(3,252,321)
3.	Assumed investment return rate	4.00%	8.00%
4.	Expected return	$ 15,773,682	$ 29,679,108
5.	Expected actuarial value of assets at end of period (Item 1 + Item 2c + Item 4)	$ 409,000,445	$ 399,041,792
6.	Market value of assets at end of period	$ 394,859,991	$ 381,119,508
7.	Excess earnings/(shortfall) (Item 6 - Item 5)	$ (14,140,454)	$ (17,922,284)
8.	Excess earnings/(shortfall) recognized*	$ (1,414,045)	$ (3,584,457)
9.	Actuarial value of assets (Item 5 + Item 8)	$ 407,586,400	$ 395,457,335
10.	Estimated rate of return for the period	3.6%	7.0%
11.	Actuarial value as percentage of market value	103.2%	103.8%

* 10% was recognized for the six month period ending February 28, 2017 and 20% was recognized for the twelve month period ending August 31, 2016.