ALLIANCE BENEFIT GROUP

Saline Valley Fire Protection District Employees' Retirement Plan

Cost Statement of Proposed Plan Changes

October 16, 2018

Statement Outline

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- **Proposed Changes**
- **Reasons and Requirements**
- **Current and Projected Financial Impacts**
- **Assumptions**
- **Required Statements**

Certification

This cost statement was prepared for Saline Valley Fire Protection District to document impacts of implementing proposed pension plan changes under current consideration. The information contained in this document was prepared in order to meet the requirements of Missouri Statute 105.665 and 105.684.

Except where indicated otherwise, the results included in this cost statement are based on the same data, assumptions, methods, and provisions as the 1/1/2018 valuation. This cost statement has been prepared in accordance with generally accepted actuarial principles and practice using methods and assumptions we believe to be reasonable.

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 economic or demographic assumptions;
- Changes in economic or demographic assumptions;
- Increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period); and
- Changes in plan provisions or applicable law.

We did not perform an analysis of the potential range of future measurements due to the limited scope of our engagement.

Neither Alliance Benefit Group nor any of its employees have any relationship with the plan or its sponsor which could impair or appear to impair the objectivity of this report.

The consultant indicated below are compliant with the continuing education requirements of the Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States.

Nick H. Meggos

Nick H. Meggos, EA, FCA

Proposed Changes

CURRENT STRUCTURE

- **Credited Service**
  - Maximum number of years of service for benefit purposes is 30 years
- **Multiplier for Monthly Benefit**
  - $100 per month of credited service
- **Post-Retirement Supplemental Benefit**
  - None

PROPOSED STRUCTURE

The only changes to the above that is being proposed is as follows, costed as if effective on January 1, 2018, but anticipated to become effective no later than January 1, 2019:

- **Credited Service**
  - Maximum number of years of service for benefit purposes is 36 years
- **Multiplier for Monthly Benefit**
  - $110 per month of credited service
- **Post-Retirement Supplemental Benefit**
  - Amount - $500 per month starting at the later of retirement and age 60 and payable until 65 (to the participant or surviving spouse)
  - Eligibility - participant retires or terminates after age 55 with 20 or more years of service

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Reasons and Requirements

- **Reasons for the Statement**
  - Required by law (Missouri statute 105.665)
  - Document various impacts of making changes to plan benefits
  - Uniform information for every legislative body/committee before approving and implementing plan changes

- **Requirements of the Statement**
  - Immediate impacts to liabilities, normal costs, contributions and funded levels
  - Must use the methods of the most recent valuation
  - 10+-year projections of similar information
  - Assumptions and methods used to calculate the impacts
  - Specific statements about the plan's ability to make necessary contributions before and after the proposed changes
  - The cost statement must be available as public information for 45 days prior to implementing the changes
  - The cost statement must be kept on file by the legislative body/committee and filed with the joint committee on public employee retirement

Important Comments About Projections

The cost projections contained in this report are based on the January 1, 2018 valuation results. Census data and asset information were provided by the plan sponsor and asset advisor and are summarized in the January 1, 2018 actuarial valuation report. Reasonable actuarial techniques and assumptions were used to produce the cost projections.

The following pages show cost projections under different economic scenarios. Actual results will vary from projections shown in this report, perhaps significantly, due to changes in the assumptions, plan provisions, participant demographics, interest rate movement, actual asset performance, and other actual experience of the plan. Depending on the use of this information, additional cost projections may be necessary to quantify the sensitivity of results.

Financial Impacts – 20-Year Amortization of UAL and 7% Returns

Current Provisions	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Liability	$ 3,286,024	$ 3,559,910	$ 3,857,123	$ 4,175,777	$ 4,517,365	$ 4,871,450	$ 5,233,613	$ 5,602,384	$ 6,001,575	$ 6,429,896	$ 6,835,536	$ 7,277,582
Assets	3,090,836	3,472,357	3,880,973	4,318,603	4,787,305	5,277,265	5,784,699	6,310,014	6,873,085	7,476,620	8,077,090	8,721,156
Unfunded Accrued Liability	$ 195,188	$ 87,553	$ (23,850)	$ (142,826)	$ (269,940)	$ (405,815)	$ (551,086)	$ (707,630)	$ (871,510)	$ (1,046,724)	$ (1,241,554)	$ (1,443,574)
Funded Percentage	94.1%	97.5%	100.6%	103.4%	106.0%	108.3%	110.5%	112.6%	114.5%	116.3%	118.2%	119.8%
Normal Cost	$ 88,646	$ 92,166	$ 92,375	$ 92,552	$ 92,714	$ 92,868	$ 91,885	$ 95,269	$ 95,396	$ 88,652	$ 94,675	$ 92,545
% of Payroll	4.5%	4.6%	4.5%	4.3%	4.2%	4.1%	3.9%	4.0%	3.9%	3.5%	3.6%	3.4%
Payment on Unfunded	$17,219	$7,917	($2,216)	($13,672)	($26,706)	($41,641)	($58,891)	($79,129)	($102,547)	($130,456)	($165,205)	($207,074)
% of Payroll	0.9%	0.4%	-0.1%	-0.6%	-1.2%	-1.8%	-2.5%	-3.3%	-4.2%	-5.1%	-6.3%	-7.7%
Contribution BOY	105,865	100,083	90,159	78,880	66,008	51,227	32,994	16,140	(7,151)	(41,804)	(70,530)	(114,529)
Contribution EOY	**113,276**	**107,089**	**96,470**	**84,402**	**70,629**	**54,813**	**35,304**	**17,270**	**(7,652)**	**(44,730)**	**(75,467)**	**(122,546)**
% of Payroll	**5.8%**	**5.3%**	**4.7%**	**4.0%**	**3.2%**	**2.4%**	**1.5%**	**0.7%**	**-0.3%**	**-1.8%**	**-2.9%**	**-4.5%**
Payroll	1,950,408	2,008,920	2,069,188	2,131,263	2,195,201	2,261,057	2,328,889	2,398,756	2,470,719	2,544,840	2,621,185	2,699,821

Proposed Provisions	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Liability	$ 3,848,318	$ 4,171,231	$ 4,521,555	$ 4,897,525	$ 5,300,392	$ 5,719,979	$ 6,158,764	$ 6,601,556	$ 7,080,885	$ 7,595,794	$ 8,077,470	$ 8,602,162
Assets	3,090,836	3,462,559	3,860,722	4,287,200	4,744,003	5,221,266	5,721,365	6,230,884	6,777,113	7,362,689	7,928,299	8,535,171
Unfunded Accrued Liability	$ 757,482	$ 708,672	$ 660,833	$ 610,325	$ 556,389	$ 498,713	$ 437,399	$ 370,672	$ 303,772	$ 233,105	$ 149,171	$ 66,991
Funded Percentage	80.3%	83.0%	85.4%	87.5%	89.5%	91.3%	92.9%	94.4%	95.7%	96.9%	98.2%	99.2%
Normal Cost	$ 106,862	$ 110,961	$ 111,170	$ 111,345	$ 111,503	$ 111,655	$ 110,422	$ 114,380	$ 114,504	$ 106,523	$ 113,587	$ 110,797
% of Payroll	5.5%	5.5%	5.4%	5.2%	5.1%	4.9%	4.7%	4.8%	4.6%	4.2%	4.3%	4.1%
Payment on Unfunded	$66,823	$64,081	$61,397	$58,423	$55,045	$51,174	$46,742	$41,450	$35,743	$29,052	$19,849	$9,610
% of Payroll	3.4%	3.2%	3.0%	2.7%	2.5%	2.3%	2.0%	1.7%	1.4%	1.1%	0.8%	0.4%
Contribution BOY	173,685	175,042	172,567	169,768	166,548	162,829	157,164	155,830	150,247	135,575	133,436	120,407
Contribution EOY	**185,843**	**187,295**	**184,647**	**181,652**	**178,206**	**174,227**	**168,165**	**166,738**	**160,764**	**145,065**	**142,777**	**128,835**
% of Payroll	**9.5%**	**9.3%**	**8.9%**	**8.5%**	**8.1%**	**7.7%**	**7.2%**	**7.0%**	**6.5%**	**5.7%**	**5.4%**	**4.8%**
Payroll	1,950,408	2,008,920	2,069,188	2,131,263	2,195,201	2,261,057	2,328,889	2,398,756	2,470,719	2,544,840	2,621,185	2,699,821

- Funded percentages as 1/1/2018 satisfy 105.684 (above 80% currently above 75% after proposed changes)
- Impacts measured starting with data as of 1/1/2018, with a steady flat active population
- If implementation is during 2018 the differences would be very similar, but the specific dollar amounts would differ
- Contributions are shown with interest to reflect anticipated contribution timing
- Accrued Liability (AL) is calculated using the entry age level dollar cost method at 7.00%
- Assets are assumed to grow at **7.00% per annum**
- The unfunded liability is amortized over a closed **20-year** period beginning 1/1/2018
- Actual contributions are conservatively assumed to remain flat at $216K based on 2017 (2018 has already exceeded this amount)

Financial Impacts – 20-Year Amortization of UAL and 0% in 2018 - 7% Returns Thereafter

Current Provisions	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Liability	$ 3,286,024	$ 3,559,910	$ 3,857,123	$ 4,175,777	$ 4,517,365	$ 4,871,450	$ 5,233,613	$ 5,602,384	$ 6,001,575	$ 6,429,896	$ 6,835,536	$ 7,277,582
Assets	3,090,836	3,257,718	3,651,309	4,072,863	4,524,363	4,995,916	5,483,656	5,987,898	6,528,421	7,107,830	7,682,484	8,298,928
Unfunded Accrued Liability	$ 195,188	$ 302,192	$ 205,814	$ 102,914	$ (6,998)	$ (124,466)	$ (250,043)	$ (385,514)	$ (526,846)	$ (677,934)	$ (846,948)	$ (1,021,346)
Funded Percentage	94.1%	91.5%	94.7%	97.5%	100.2%	102.6%	104.8%	106.9%	108.8%	110.5%	112.4%	114.0%
Normal Cost	$ 88,646	$ 92,166	$ 92,375	$ 92,552	$ 92,714	$ 92,868	$ 91,885	$ 95,269	$ 95,396	$ 88,652	$ 94,675	$ 92,545
% of Payroll	4.5%	4.6%	4.5%	4.3%	4.2%	4.1%	3.9%	4.0%	3.9%	3.5%	3.6%	3.4%
Payment on Unfunded	$17,219	$27,325	$19,122	$9,851	($692)	($12,772)	($26,721)	($43,109)	($61,992)	($84,493)	($112,698)	($146,507)
% of Payroll	0.9%	1.4%	0.9%	0.5%	0.0%	-0.6%	-1.1%	-1.8%	-2.5%	-3.3%	-4.3%	-5.4%
Contribution BOY	105,865	119,491	111,497	102,403	92,022	80,096	65,164	52,160	33,404	4,159	(18,023)	(53,962)
Contribution EOY	**113,276**	**127,855**	**119,302**	**109,571**	**98,464**	**85,703**	**69,725**	**55,811**	**35,742**	**4,450**	**(19,285)**	**(57,739)**
% of Payroll	5.8%	6.4%	5.8%	5.1%	4.5%	3.8%	3.0%	2.3%	1.4%	0.2%	-0.7%	-2.1%
Payroll	1,950,408	2,008,920	2,069,188	2,131,263	2,195,201	2,261,057	2,328,889	2,398,756	2,470,719	2,544,840	2,621,185	2,699,821

Proposed Provisions	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Liability	$ 3,848,318	$ 4,171,231	$ 4,521,555	$ 4,897,525	$ 5,300,392	$ 5,719,979	$ 6,158,764	$ 6,601,556	$ 7,080,885	$ 7,595,794	$ 8,077,470	$ 8,602,162
Assets	3,090,836	3,248,251	3,631,412	4,041,839	4,481,466	4,940,352	5,420,786	5,909,266	6,432,981	6,994,468	7,534,302	8,113,595
Unfunded Accrued Liability	$ 757,482	$ 922,980	$ 890,143	$ 855,686	$ 818,926	$ 779,627	$ 737,978	$ 692,290	$ 647,904	$ 601,326	$ 543,168	$ 488,567
Funded Percentage	80.3%	77.9%	80.3%	82.5%	84.5%	86.4%	88.0%	89.5%	90.8%	92.1%	93.3%	94.3%
Normal Cost	$ 106,862	$ 110,961	$ 111,170	$ 111,345	$ 111,503	$ 111,655	$ 110,422	$ 114,380	$ 114,504	$ 106,523	$ 113,587	$ 110,797
% of Payroll	5.5%	5.5%	5.4%	5.2%	5.1%	4.9%	4.7%	4.8%	4.6%	4.2%	4.3%	4.1%
Payment on Unfunded	$66,823	$83,459	$82,702	$81,910	$81,018	$79,999	$78,864	$77,414	$76,236	$74,945	$72,276	$70,083
% of Payroll	3.4%	4.2%	4.0%	3.8%	3.7%	3.5%	3.4%	3.2%	3.1%	2.9%	2.8%	2.6%
Contribution BOY	173,685	194,420	193,872	193,255	192,521	191,654	189,286	191,794	190,740	181,468	185,863	180,880
Contribution EOY	**185,843**	**208,029**	**207,443**	**206,783**	**205,997**	**205,070**	**202,536**	**205,220**	**204,092**	**194,171**	**198,873**	**193,542**
% of Payroll	9.5%	10.4%	10.0%	9.7%	9.4%	9.1%	8.7%	8.6%	8.3%	7.6%	7.6%	7.2%
Payroll	1,950,408	2,008,920	2,069,188	2,131,263	2,195,201	2,261,057	2,328,889	2,398,756	2,470,719	2,544,840	2,621,185	2,699,821

- Funded percentages as 1/1/2018 satisfy 105.684 (above 80% currently above 75% after proposed changes)
- Impacts measured starting with data as of 1/1/2018, with a steady flat active population
- If implementation is during 2018 the differences would be very similar, but the specific dollar amounts would differ
- Contributions are shown with interest to reflect anticipated contribution timing
- Accrued Liability (AL) is calculated using the entry age level dollar cost method at 7.00%
- Assets are assumed to grow at **0.00% in 2018 and 7.00% per annum thereafter**
- The unfunded liability is amortized over a closed **20-year** period beginning 1/1/2018
- Actual contributions are conservatively assumed to remain flat at $216K based on 2017 (2018 has already exceeded this amount)

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Assumptions

- **The following assumptions all match the January 1, 2018 valuation report as required:**
  - Investment Return – 7.00%
  - Salary Scale – N/A
  - Mortality – RP-2014 Blue Collar mortality table projected generationally from 2006 using the improvement assumptions from the 2017 Social Security Administration Trustees' Report
  - Retirement – Age 60
  - Withdrawal – Service based table as follows:

Service	Withdrawal Rate
0-4	4%
5-9	3%
10-19	2%
20+	1%

  - Disability – None assumed

- **Additional assumptions made to provide projections**
  - Active participant count flat over the projection period
  - 3.00% payroll growth to represent contribution amounts as a percent of pay
  - Flat contributions ($206K) made as outlined on the previous page

Required Statements

- **Current Contributions**
  - The plan has made and continues to make contributions well exceeding the contributions as calculated and recommended under current plan provisions.

- **Proposed Contributions**
  - To our knowledge the additional contributions described as part of the proposed benefit changes are not mandated, but we fully anticipate that they will be met and exceeded based on recent contributions levels provided by designated tax revenue. The projected improvement of the funding ratio of the plan under the proposed changes over the next 10 years demonstrates this outcome.

- **Assumptions Different from the Valuation**
  - A service based withdrawal table was created to best reflect the true cost of the proposed $500 supplement. The plan has averaged between 1 and 2 terminations per year over the last several years. The plan has conservatively not included a termination assumption until now.

Required Statements

➢ Actuarial Funding Methods

- The actuarial cost method used in the valuation was the projected unit credit cost method.

- Under this method, the normal cost is the sum of the individual normal costs for all participants. For an active participant, the individual normal cost is the present value at the current age of the projected benefit at the assumed retirement age, based on the actuarial assumptions, divided by the participant's expected years of credited service at that age. For a non-active participant, the normal cost is zero.

- The actuarial accrued liability is the sum of the individual accrued liabilities for all plan participants. For an active participant, the individual accrued liability is the product of the normal cost and the total years of credited service at the current age. For non-active participants, the individual accrued liability is the present value at the current age of future benefits. The unfunded actuarial accrued liability equals the actuarial accrued liability less the actuarial value of assets.

- The total annual contribution of the plan is calculated as the normal cost plus an amount to amortize the initial unfunded actuarial accrued liability (as of 1/1/2018) and any subsequent changes in unfunded actuarial accrued liability as a level amount over a closed 30-year period. Fifteen years after the establishment of the initial unfunded actuarial accrued liability amortization (as of 1/1/2033) additional 15-year gain/(loss) amortizations will be established annually to amortize annual gains or losses created by demographic, asset or assumption changes.