

ACTUARIAL COST STATEMENT FOR PROPOSED CHANGES FOR THE RETIREMENT PLAN FOR EMPLOYEES OF BLACK JACK FIRE PROTECTION DISTRICT

Prepared July 26, 2018

This actuarial statement is to disclose the financial impact of the Substantial Proposed Changes to the Retirement Plan for Employees of Black Jack Fire Protection District which would become effective on October 1, 2018. This statement is prepared using the actuarial assumptions and methods employed in the last annual actuarial valuation in accordance with R.S.Mo. § 105.665.

Proposed Changes

Pension Benefit Formula

The current pension benefit equals \$93 times credited service for uniformed employees, and \$45 times credited service for non-uniformed employees. There is also a Social Security Supplemental Benefit payable until age 62 based on estimated Social Security Benefits, and an additional Interim Benefit equal to \$20 times credited service payable until age 65.

Under the proposal, the Social Security Supplemental Benefit and the Interim Benefit are eliminated for future retirees. For uniformed employees, the pension is \$216 times credited service, and for non-uniformed employees the pension is \$161 times credited service.

Actuarial Analysis

1. The level normal cost of the current plan (Entry Age Normal Cost Method) is \$258,476, which is 6.55% of covered payroll.
2. As of 1/1/2018, there is no unfunded accrued liability. Accrued Plan assets of \$15,748,800 are in excess of the Actuarial Liability of \$15,002,297. Based on a 15 year amortization period, the amortization credit is \$(76,600).
3. The total contribution rate based on a 15 year amortization is \$181,876, or 4.77% of payroll.
4. The District is paying well in excess of the contribution rate of item 3 above. For 2017, the estimated accrued contribution to the plan was \$1,317,458.
5. As of 1/1/2018, the actuarial value of assets is \$15,748,800 and is equal to Accrued Market Value. The Actuarial Accrued Liability is \$15,002,297, and the Funded Ratio is 105%.



Actuarial Cost Statement
Black Jack Fire Protection District
Page 2

6. The post-change contribution rate initially is \$791,015, which is 20.73% of payroll. This amount decreases over time because expected plan contributions based on the \$0.2424 of assessed valuation are larger than the contribution rate.
7. Attached is a 10 year projection of the current plan and the proposed plan.
8. The basis of the proposed change is that the benefit formula is not indexed to inflation or related to pay, so the value of the benefit has eroded over time. The \$93 benefit level for uniformed employees has been in place since 1996. The tax rate increase passed in 2017 made funds available to support the proposed increase.
9. As shown in the projections, we do not believe that the proposed change would impair the ability of the plan to meet the obligations thereof in effect at the time the proposal is made.
10. The assumptions used for this analysis are listed in the cost projection exhibits and the 1/1/2018 actuarial report that has been attached.
11. We believe the assumptions used for the actuarial valuation produce results which, in the aggregate, are reasonable.
12. Individual Entry Age Normal method is used for the actuarial valuation. Unfunded Actuarial Liabilities are amortized over an open 15 year period. The Unfunded Accrued Liability equals the Accrued Liability less the Actuarial Value of Assets. .

Ekon Benefits

David Shaw
Fellow of the Society of Actuaries
Enrolled Actuary, No. 17-4679



**RETIREMENT PLAN FOR EMPLOYEES OF BLACK JACK FIRE PROTECTION DISTRICT
10 YEAR COST PROJECTION UNDER CURRENT PLAN**

	1/1/2018	1/1/2019	1/1/2020	1/1/2021	1/1/2022	1/1/2023	1/1/2024	1/1/2025	1/1/2026	1/1/2027	1/1/2028
ACCRUED LIABILITY	\$15,002,297	\$15,748,455	\$16,548,669	\$17,322,889	\$18,116,034	\$18,913,769	\$19,712,854	\$20,584,959	\$21,415,239	\$22,272,322	\$23,151,795
ESTIMATED ASSETS*	\$15,748,800	\$17,541,850	\$19,487,517	\$21,513,271	\$23,672,096	\$25,958,299	\$28,377,903	\$31,012,502	\$33,757,890	\$36,694,090	\$39,828,905
UNFUNDED ACCRUED LIABILITY	(\$746,503)	(\$1,793,395)	(\$2,938,847)	(\$4,190,382)	(\$5,556,063)	(\$7,044,531)	(\$8,665,049)	(\$10,427,543)	(\$12,342,650)	(\$14,421,768)	(\$16,677,109)
ACCRUED LIABILITY FUNDED RATIO	105.0%	111.4%	117.8%	124.2%	130.7%	137.2%	144.0%	150.7%	157.6%	164.8%	172.0%
NORMAL COST	\$276,569	\$286,249	\$296,268	\$306,637	\$317,370	\$328,478	\$339,974	\$351,873	\$364,189	\$376,936	\$390,128
15 YEAR AMORT OF UNFUNDED LIABILITY	(\$81,962)	(\$119,560)	(\$195,923)	(\$279,359)	(\$370,404)	(\$469,635)	(\$577,670)	(\$695,170)	(\$822,843)	(\$961,451)	(\$1,111,807)
ANNUAL COST (end of year)	\$194,607	\$166,690	\$100,345	\$27,279	(\$53,035)	(\$141,156)	(\$237,696)	(\$343,296)	(\$458,654)	(\$584,516)	(\$721,679)
COST AS A % OF PAYROLL	4.77%	3.94%	2.29%	0.60%	-1.13%	-2.91%	-4.74%	-6.61%	-8.53%	-10.50%	-12.53%
EXPECTED CONTRIBUTION - EMPLOYER	\$1,271,206	\$1,306,164	\$1,342,084	\$1,378,991	\$1,416,913	\$1,455,878	\$1,495,915	\$1,537,053	\$1,579,322	\$1,622,753	\$1,667,379
ASSUMED PAYROLL	\$4,083,685	\$4,226,614	\$4,374,545	\$4,527,654	\$4,686,122	\$4,850,136	\$5,019,891	\$5,195,587	\$5,377,433	\$5,565,643	\$5,760,440

*Assumes \$1,317,458 in receivable contributions at 12/31/17

Assumptions

Discount Rate	7.0%
Rate of Return	7.0%
Aggregate Payroll Growth	3.5%
Expected Contribution	1,271,206
Expected Contribution Growth/Inflation	2.75%



**RETIREMENT PLAN FOR EMPLOYEES OF BLACK JACK FIRE PROTECTION DISTRICT
10 YEAR COST PROJECTION UNDER PROPOSED BENEFIT**

	1/1/2018	1/1/2019	1/1/2020	1/1/2021	1/1/2022	1/1/2023	1/1/2024	1/1/2025	1/1/2026	1/1/2027	1/1/2028
ACCRUED LIABILITY	\$19,698,862	\$20,900,113	\$22,147,084	\$23,231,644	\$24,280,687	\$25,267,139	\$26,185,475	\$27,191,852	\$28,017,387	\$28,802,876	\$29,530,333
ESTIMATED ASSETS*	\$15,748,800	\$17,532,062	\$19,422,299	\$21,216,124	\$23,045,514	\$24,888,846	\$26,746,432	\$28,780,689	\$30,729,438	\$32,740,658	\$34,804,058
UNFUNDED ACCRUED LIABILITY	\$3,950,062	\$3,368,051	\$2,724,785	\$2,015,520	\$1,235,173	\$378,294	(\$560,957)	(\$1,588,837)	(\$2,712,051)	(\$3,937,782)	(\$5,273,725)
ACCRUED LIABILITY FUNDED RATIO	79.9%	83.9%	87.7%	91.3%	94.9%	98.5%	102.1%	105.8%	109.7%	113.7%	117.9%
NORMAL COST	\$412,690	\$427,135	\$442,084	\$457,557	\$473,572	\$490,147	\$507,302	\$525,057	\$543,435	\$562,455	\$582,141
15 YEAR AMORT OF UNFUNDED LIABILITY	\$433,696	\$224,537	\$181,652	\$134,368	\$82,345	\$25,220	(\$37,397)	(\$105,922)	(\$180,803)	(\$262,519)	(\$351,582)
ANNUAL COST (end of year)	\$846,386	\$651,671	\$623,737	\$591,925	\$555,917	\$515,366	\$469,905	\$419,135	\$362,631	\$299,936	\$230,559
COST AS A % OF PAYROLL	20.73%	15.42%	14.26%	13.07%	11.86%	10.63%	9.36%	8.07%	6.74%	5.39%	4.00%
EXPECTED CONTRIBUTION - EMPLOYER	\$1,271,206	\$1,306,164	\$1,342,084	\$1,378,991	\$1,416,913	\$1,455,878	\$1,495,915	\$1,537,053	\$1,579,322	\$1,622,753	\$1,667,379
ASSUMED PAYROLL	\$4,083,685	\$4,226,614	\$4,374,545	\$4,527,654	\$4,686,122	\$4,850,136	\$5,019,891	\$5,195,587	\$5,377,433	\$5,565,643	\$5,760,440

*Assumes \$1,317,458 in receivable contributions at 12/31/17

Assumptions	
Discount Rate	7.0%
Rate of Return	7.0%
Payroll Growth	3.5%
Expected Contribution	1,271,206
Expected Contribution Growth Rate/Inflation	2.75%