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January 24, 2020

Board of Trustees
Hannibal Policemen and Firemen Retirement Fund

Cost statement of Proposed Changes to the City of Hannibal Policemen and Firemen Retirement Fund (“the Plan”)

Dear Board Members:

According to Missouri Revised Statute 105.665: 1. The legislative body or committee thereof which determines the amount and type of plan benefits to be paid shall, before taking final action on any substantial proposed change in plan benefits, cause to be prepared a statement regarding the cost of such change.

The change under consideration involves the Cost of Living Adjustment (COLA) provisions of the Plan. Currently the Plan provides that a cost-of-living increase may be given to participants in pay status. The increase is discretionary and limited based on the plan’s funded status, with a maximum increase of 3% per year.

Under consideration is a Plan provision that would eliminate the current COLA provision and replace it with the following provision:

From time to time, the Trustees may provide for the payment of an additional benefit check, with respect to the current month or any future month, in an amount of 100% of the person’s benefit for that month. In order to effectuate the payment of this additional benefit check, the Trustees shall approve, before or during the month with respect to which the additional benefit check will be payable, the authorization of the additional payment.

The following circumstances will be considered by the board prior to authorizing the additional payment:

- The funded status of the Plan. An additional payment will not be authorized if the funded status of the Plan is below 70%.
- An additional payment will not be authorized if the funded status of the Plan (including consideration of an additional payment) is below the funded status as calculated for the prior year.
- Asset gains from the prior year. An additional payment will not be authorized if the investment gains on the assets of the Plan for the preceding Plan year are insufficient to cover the cost of the additional benefit payment.



The following cost statement employs the methods used in preparing the most recent periodic actuarial valuation for the plan and addresses the requirements in the order they are requested in the Statute:

(1) The total level normal cost of employer provided plan benefits currently in effect, is \$64,013. Expressed as a percent of active employee payroll is 1.7%.

(2) The contribution for unfunded accrued liabilities currently payable by the plan is \$1,176,411. Expressed as a percent of active employee payroll over a period of 16-20 years is 31.5%;

(3) The total employer contribution rate, which is the total of the normal cost percent plus the contribution percent for unfunded accrued liabilities adjusted with interest is \$1,283,839. Expressed as a percent of active employee payroll over a period of 16-20 years is 34.4%;

(4) The legislative body is currently paying more than the total contribution rate as defined in subdivision (3) of this subsection;

(5) The plan's actuarial value of assets, market value of assets, actuarial accrued liability, and funded ratio as defined in section 105.660 as of the most recent actuarial valuation is:

Actuarial Value of Assets	\$18,566,496
Market Value of Assets	\$18,566,496
Actuarial Accrued Liability	\$33,553,926
Funded Ratio	55.3%

(6) The total post-change contribution rate is \$1,081,893. Expressed as a percent of active employee payroll over a period of 10-20 years is 29.0%. We expect that contributions will remain higher than recommended for the foreseeable future.

(7) The proposed change will improve the ability of the plan to meet its obligations with respect to all benefits offered by the Plan thereof in effect at the time the proposal is made. Please see attached actuarial projections.

(8) No additional contributions are mandated by the proposed change;

(9) The proposed change would not, in any way, impair the ability of the plan to meet the obligations thereof in effect at the time the proposal is made;

(10) All assumptions relied upon to evaluate the present financial condition of the plan and all assumptions relied upon to evaluate the impact of the proposed change upon the financial condition of the plan, which are those assumptions used in preparing the most recent periodic actuarial valuation for the plan, are:



(a) Investment return of 7.0%;

(b) Pay increases of 3.5%;

(c) Mortality of employees and officials, and other persons who may receive benefits under the plan is the RP-2014 Blue Collar tables at 2006, projected with generational improvements using the most recently available projection scale;

(d) Withdrawal (turnover) is based on past experience of the Plan. Sample rates are as follows:

Annual Rates	Age	of Termination
	25	10.0%
	30	7.5
	35	5.0
	40	4.0
	45	2.0
	50	1.0

(e) Disability is based on past experience of the Plan. Sample rates are as follows:

Annual Rates of Disability	
Age	Rate
25	0.18%
30	0.18
40	0.30
50	0.79
55	1.35
60	2.00

(f) Retirement rate is 75% at 25 years of service. If a Member has at least 20 years of service, the rate is 10% through age 61, 25% at age 62, 10% at age 63, 15% at age 64 and 100% for age 65 and older. For participants hired on or after July 1, 2007, the rate is 25% per year after first eligible for retirement, and 100% for ages 65 and older.;

(g) There has been no change in active employee group size;

(11) As the Plan actuary I certify that the assumptions used for the valuation produce results which, in the aggregate, are reasonable;

(12) Actuarial Method Used for the Valuation – Entry Age Normal



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Normal Cost. Normal cost and the allocation of actuarial present values between service rendered before and after the valuation date were determined using an individual entry-age actuarial cost method having the following characteristics:

The annual normal costs for each individual active Member, payable from date of hire to date of retirement, are sufficient to accumulate the value of the Member's benefit at the time of retirement;

Each annual normal cost is a constant percentage of the Member's year-by-year projected covered pay.

The excess of accrued assets over actuarial accrued assets was amortized as a level percent-of-payroll over 16-20 years using layered amortization.

Respectfully submitted,

Traci M. Christian, EA, MAAA, MSPA, FCA

10 Year Projection of Contributions, Assets, Liabilities, and Funding Status

Current Plan Provisions

Year	Total Normal Cost	Employer Normal Cost	Amortization	Recommended City Contribution	Expected City Contribution	Payroll	Recommended Contribution as a % of Payroll	Expected Benefit Payments	Assets	Accrued Liability	Unfunded Liability	Funded Ratio
2020	607,176	46,935	1,217,585	1,308,779	1,438,465	3,863,726	33.9%	2,112,946	19,866,150	34,530,539	14,664,389	57.5%
2021	628,427	28,583	1,250,857	1,324,221	1,488,812	3,998,957	33.1%	2,050,935	21,161,140	35,410,456	14,249,315	59.8%
2022	650,422	29,584	1,294,637	1,370,569	1,540,920	4,138,920	33.1%	2,169,204	22,706,648	36,438,887	13,732,238	62.3%
2023	673,186	30,619	1,339,950	1,418,539	1,594,852	4,283,783	33.1%	2,282,580	24,314,477	37,440,434	13,125,957	64.9%
2024	696,748	31,691	1,386,848	1,468,188	1,650,672	4,433,715	33.1%	2,311,217	25,996,731	38,419,103	12,422,372	67.7%
2025	721,134	32,800	1,435,388	1,519,574	1,708,446	4,588,895	33.1%	2,517,342	27,849,099	39,461,851	11,612,752	70.6%
2026	746,374	33,948	1,485,626	1,572,759	1,768,241	4,749,506	33.1%	2,490,922	29,702,657	40,390,345	10,687,687	73.5%
2027	772,497	35,136	1,537,623	1,627,806	1,830,130	4,915,739	33.1%	2,603,798	31,801,145	41,438,185	9,637,040	76.7%
2028	799,534	36,366	1,591,440	1,684,779	1,684,779	5,087,790	33.1%	2,674,646	34,020,609	42,470,498	8,449,889	80.1%
2029	827,518	37,639	1,647,140	1,743,746	1,743,746	5,265,863	33.1%	2,785,876	36,192,136	43,530,676	7,338,540	83.1%

Proposed Plan Provisions

Year	Total Normal Cost	Employer Normal Cost	Amortization	Recommended City Contribution	Expected City Contribution	Payroll	Recommended Contribution as a % of Payroll	Expected Benefit Payments	Assets	Accrued Liability	Unfunded Liability	Funded Ratio
2020	574,412	14,171	1,048,403	1,099,765	1,438,465	3,863,726	28.5%	2,108,653	19,873,457	32,983,866	13,110,409	60.3%
2021	594,516	(5,328)	1,060,695	1,092,306	1,488,812	3,998,957	27.3%	2,041,938	21,180,965	33,724,901	12,543,936	62.8%
2022	615,324	(5,514)	1,097,820	1,130,536	1,540,920	4,138,920	27.3%	2,155,058	22,745,564	34,608,371	11,862,806	65.7%
2023	636,860	(5,707)	1,136,243	1,170,105	1,594,852	4,283,783	27.3%	2,262,927	24,379,443	35,458,868	11,079,425	68.8%
2024	659,150	(5,907)	1,176,012	1,211,059	1,650,672	4,433,715	27.3%	2,285,523	26,095,575	36,280,300	10,184,725	71.9%
2025	682,221	(6,114)	1,217,172	1,253,446	1,708,446	4,588,895	27.3%	2,485,087	27,990,759	37,159,696	9,168,937	75.3%
2026	706,098	(6,327)	1,259,773	1,297,316	1,768,241	4,749,506	27.3%	2,451,433	29,897,247	37,918,786	8,021,538	78.8%
2027	730,812	(6,549)	1,303,865	1,342,723	1,342,723	4,915,739	27.3%	2,556,361	32,060,194	38,791,393	6,731,199	82.6%
2028	756,390	(6,778)	1,349,501	1,389,718	1,389,718	5,087,790	27.3%	2,618,574	33,835,678	39,642,925	5,807,247	85.4%
2029	782,864	(7,015)	1,396,733	1,438,358	1,438,358	5,265,863	27.3%	2,720,419	35,747,255	40,517,044	4,769,789	88.2%

The results presented here are ESTIMATES. They are based on the data, assumptions, methods and plan provisions outlined in the July 1, 2019 Valuation report. These results are for **discussion purposes only** and should not be relied upon for purposes of making cash contributions to the Plan nor for any other purposes.