231 South Bemiston
Suite 400
Clayton, MO 63105

November 11, 2022

Ms. Karen Dilber
City of Clayton
10 N. Bemiston Avenue
Clayton, MO 63105

RE: City of Clayton Uniformed Employees' Pension Plan – Section 105.665 Cost Statement

Dear Karen:

The purpose of this letter is to provide the City of Clayton Unifomed Employees' Pension Plan with a cost statement required under the Missouri Revised Statute Section 105.665 in connection with any proposed plan provisions containing the changes to plan funding described below.

A summary of the proposed changes in plan provisions are as follows:

The provisions for the Forward DROP enhancement are as follows:

- Under this proposal, if implemented, a participant may elect to join the forward DROP program any time after becoming eligible for normal retirement (i.e., at the earlier of age 50 with 25 years of service, age 55 with 10 years of service or age 65 with 5 years of service)
- Upon entering the DROP program, a participant must remain in the DROP program for at least 1 year but not to exceed 5 years
- While in DROP, participants do not accrue any additional benefits
    - COLA increases are not applied to the monthly benefits accumulating during the period in DROP.
    - COLA increases are applied to the monthly pension benefit after the DROP period has ended upon actual retirement. For example, if the DROP period was three years, the monthly pension benefit upon retirement is increased with three years of COLA increases applied going forward from actual retirement – but is not retroactively applied to monthly benefits accumulated in the DROP account during the DROP period.
- Upon actual retirement, participants will also receive their monthly pension benefit calculated upon entry into the DROP, adjusted for any applicable COLA increases occurring during the DROP period
- While in the DROP, participants do not pay employee contributions
- DROP balance interest crediting rate is 5.0%
- While in DROP, DROP balance will accumulate based on monthly accrued benefit the participant would have received if the participant had elected to retire, plus interest credited at the interest crediting rate
    - Monthly accrued benefit while in DROP will not be adjusted for any applicable COLA increases occurring during the DROP period
- When participants exit the DROP and retire, members receive a lump sum equal to the accumulated DROP balance at actual retirement

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- Death benefit during the DROP period equal to the lump sum value of the account at time of death is payable to the surviving beneficiary. The surviving beneficiary would receive 50% of the Member's accrued benefit, including applicable COLAs, payable immediately for non-duty related death or 100% of the Member's accrued benefit, including applicable COLAs, if the death was duty related.

The provisions for the one-time Back DROP enhancement are as follows:

- Under this proposal, if implemented, a participant may elect to join the Back DROP program if eligible for normal retirement as of January 1, 2023 (i.e., at the earlier of age 50 with 25 years of service, age 55 with 10 years of service or age 65 with 5 years of service)
- The one-time election will allow a participant to elect a DROP retroactively during the election period
- Participants electing a Back DROP will be required to retire within six months of the election period
- Participant may elect up to 3 years retroactively to be included in the Back DROP as long as the participant was eligible for normal retirement during the period of applicable Back DROP (e.g., if participant became eligible for normal retirement two years ago, the Back DROP will be limited to two years)
- Participants electing the Back DROP will not be eligible to participate in a forward DROP in the future
- Participant's monthly accrued benefit will be calculated based on the service and earnings at the beginning of the Back DROP period
- While in DROP, participants do not accrue any additional benefits
- The Back DROP balance will be calculated based on the monthly accrued benefit the participant would have received if the participant had elected to retire at the beginning of the Back DROP period, plus interest credited at the interest crediting rate
  - Monthly accrued benefit while in DROP will not be adjusted for any applicable COLA increases that occurred during the DROP period
- Employee contributions made during the Back DROP period elected by a participant will be credited to the DROP balance and accumulated to retirement based on interest crediting rate
- DROP balance interest crediting rate is 5.0%
- Upon actual retirement, members receive a lump sum equal to the accumulated DROP balance based on the period elected
- Participants will also receive their monthly pension benefit calculated at the beginning of the DROP period, adjusted for any applicable COLA increases occurring during the DROP period
- Death benefit between electing the Back DROP and actual retirement will equal the lump sum value of the account at time of death is payable to the surviving beneficiary. The surviving beneficiary would receive 50% of the Member's accrued benefit, including applicable COLAs, payable immediately for non-duty related death or 100% of the Member's accrued benefit, including applicable COLAs, if the death was duty related.

The provisions for Purchase of Military Service are as follows:

- Vested employees can purchase up to 5 years of U.S. full-time military service if no pension benefits are received from the service being requested to purchase. The employee would pay the full cost of the service at the time of purchase at an actuarially equivalent amount. The employee could pay upfront or over a 2 year period.

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For purposes of the cost statement, we have assumed that such plan provision changes described above were implemented retroactive to January 1, 2022. Proposed plan provisions will be implemented January 1, 2023. The projections use assets as of January 1, 2022 and do not take into account the adverse market conditions most likely seen in 2022. Actual results may differ as no gains or losses were assumed to occur on assets or liabilities after January 1, 2022.

In Exhibit I of the attached, current and proposed plan provisions assume that the actual return on assets is 7.0% in 2022 and 6.75% in 2023 and later years through the projection period. The 6.75% interest rate was approved by the Board of Trustees on August 8, 2022, and will be effective for the January 1, 2023, actuarial valuation.

Our cost statement, numbered to correspond with Section 105.665, follows below:

1. The level normal cost of plan benefits, less expected employee contributions, currently in effect is $916,792 or 12.59% of expected covered payroll, as calculated in our January 1, 2022 actuarial valuation.

2. The contribution amount for the Plan’s Surplus is $(219,338) or (3.01)% of expected covered payroll. The amortization period used to determine this amount is 30 years.

3. The total required contribution amount from items one and two above is $697,454 or 9.58% of expected covered payroll.

4. The total contribution rate defined in item 3 is being contributed in a timely manner.

5. As of January 1, 2022, the plan's actuarial value of assets is $57,683,090, the market value of assets is $61,686,966, the actuarial accrued liability under the Entry Age Normal cost method is $53,450,058, and the funded ratio on that basis is 107.92%.

6. The total required post-change contribution amount is $688,729, or 10.14% of expected covered payroll under the proposed provisions. For cost purposes, we assumed the proposed plan provisisions were implemented retroactively to January 1, 2022.

7. A 10-year projection of annual plan costs and funded ratios is presented in Exhibit I. The projections under both current and proposed plan provisions assume that the actual return on assets is 7.0% in 2022 and 6.75% in 2023 and later years.

8. The proposed provisions would result in additional contributions in the year of implementation.

9. Though the changes increase required employer contributions, the proposed provisions still ensures the Pension Plan is soundly financed and able to meet the obligation to pay benefits to its members, retirees and beneficiaries. Under the current provisions, cumulative contributions received through 2032 is approximately $8.09 million compared to $9.13 million under the proposed provisions.

10. The actuarial assumptions used in the January 1, 2022 actuarial valuation are presented in Exhibit II. Any assumptions used for the projections that are not listed in Exhibit II are included in Exhibit III.

11. The Actuary’s certification is below.

12. The actuarial funding method used in preparing the valuation along with the method applied in amortizing the Unfunded Actuarial Accrued Liability and Surplus is described in Exhibit II.

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Assumptions and Methods

In preparing the January 1, 2022, actuarial valuation, which is the basis for this cost statement, we have employed generally accepted actuarial methods and assumptions, in conjunction with employee data and financial information provided to us by the Plan, to determine a sound value for the Plan liability. The employee data has not been audited, but it has been reviewed and found to be consistent, both internally and with prior years' data. The validity of the funding analysis results is dependent upon the accuracy of the data and financial information provided.

In our opinion, the actuarial assumptions used are reasonable, taking into account the experience of the Plan and reasonable long-term expectations, and represent our best estimate of the anticipated long-term experience under the Plan. The actuary performs an analysis of Plan experience periodically and recommends changes if, in the opinion of the actuary, assumption changes are needed to more accurately reflect expected future experience. A summary of all assumptions and methods used are as described in Exhibit II. Unless otherwise specified in this study, all data, methods, assumptions, and provisions were provided in the January 1, 2022 Valuation dated May 2022.

With any change to the provisions of a Plan, experience must be monitored to adjust the new assumptions. Assumptions would be studied within a reasonable time of three to five years to evaluate the reasonableness when compared to the actual demographic experience. Retirement rates with a DROP option were increased from the current Retirement Rates reflecting the fact that more participants are likely to elect the DROP option. The DROP period length of three years was estimated by City of Clayton.

In selecting economic assumptions, the interest rate of 7.00% and 6.75% are based upon a review of the existing portfolio structure, a review of recent experience, and information provided by the Plan’s investment consultant regarding anticipated rates of return. The salary increase assumption is based on actual experience and future expectations of inflation, merit, and productivity components. COLA increases are capped at 2.00% annually, and the expectation is that actual inflation will be such that the annual increase will be 2.00%.

Where presented, references to “funded ratio” and “unfunded accrued liability” typically are measured on an actuarial value of assets basis. It should be noted that the same measurements using market value of assets would result in different funded ratios and unfunded accrued liabilities. Where presented, references to “accumulated benefit funded ratio” is measured on a market value of assets basis. Moreover, the funded ratios presented are appropriate for evaluating the need and level of future contributions but makes no assessment regarding the funded status of the plan if the plan were to settle (i.e. purchase annuities) for a portion or all of its liabilities.

Future actuarial measurements and contribution requirements may differ from those determined in the valuation because of:

(1) differences between actual experience and anticipated experience based on the assumptions;

(2) changes in actuarial assumptions or methods;

(3) changes in statutory provisions;

(4) differences between actuarially required contributions and actual contributions.

Buck prepared this cost statement for use by the Plan in reviewing the financial condition of the Plan, including the determination of implementing the proposed provisions. Use of this cost statement by other parties or for any other

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purpose may not be appropriate and may result in mistaken conclusions due to failure to understand applicable assumptions, methodologies, or the inapplicability of the cost statement for that purpose. Because of the risk of misinterpretation of actuarial results, Buck recommends requesting its advance review of any statement, document, or filing to be based on information contained in this cost statement. Buck will accept no liability for any such statement, document or filing made without its prior review.

The actuarial assumptions and methods used to value the plan are individually and in the aggregate reasonable and, in combination, represent a reasonable estimate of anticipated experience under the plan. The cost and actuarial exhibits presented in this cost statement were determined in accordance with actuarial procedures consistent with the Actuarial Standards of Practice (ASOPs) and appropriately disclose the actuarial position of the plan.

Actuarial Standards of Practice ("ASOPs") 27 and 35 ask the actuary to disclose the information and analysis used to support the actuary's determination that the assumptions selected by the Board do not significantly conflict with what, in the actuary's professional judgment, are reasonable for the purpose of the measurement. In the case of the Board's selection of expected return on assets ("EROA"), the signing actuaries have used economic information and tools provided by Buck's Financial Risk Management ("FRM") practice. A spreadsheet tool created by the FRM team converts averages, standard deviations, and correlations from Buck's Capital Markets Assumptions ("CMA") that are used for stochastic forecasting into approximate percentile ranges for the arithmetic and geometric average returns. It is intended to suggest possible reasonable ranges for EROA without attempting to predict or select a specific best estimate rate of return. It takes into account the duration (horizon) of investment and the target allocation of assets in the portfolio to various asset classes. Based on the actuary's analysis, including consistency with other assumptions used in the valuation and the percentiles generated by the spreadsheet described above, the actuary believes the EROA does not significantly conflict with what, in the actuary's professional judgment, is reasonable for the purpose of the measurement.

Use of Models

Actuarial Standard of Practice No. 56 provides guidance to actuaries when performing actuarial services with respect to designing, developing, selecting, modifying, using, reviewing, or evaluating models. Due to limitation of model as defined by ASOP 56, simplified costing techniques due to complexity and lack of significant costs were implemented to analyze the impact of implementing the DROP of ancillary benefits. Buck uses third-party software in the performance of annual actuarial valuations and projections. The model is intended to calculate the liabilities associated with the provisions of the plan using data and assumptions as of the measurement date under the funding rules specified in this memorandum. The output from the third-party vendor software is used as input to an internally developed model that applies applicable funding rules to the derived liabilities and other inputs, such as plan assets and contributions, to generate many of the exhibits found in this memorandum. Buck has an extensive review process in which the results of the liability calculations are checked using detailed sample life output, changes from year to year are summarized by source, and significant deviations from expectations are investigated. Other funding outputs and the internal model are similarly reviewed in detail and at a higher level for accuracy, reasonability, and consistency with prior results. Buck also reviews the third-party model when significant changes are made to the software. This review is performed by experts within Buck who are familiar with applicable funding rules, as well as the manner in which the model generates its output. If significant changes are made to the internal model, extra checking and review are completed. Significant changes to the internal model that are applicable to multiple clients are generally developed, checked, and reviewed by multiple experts within Buck who are familiar with the details of the required changes.

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Assessment of Risks

Information about current plan risk can be found in the 2022 Actuarial Valuation Report for the City of Clayton Uniformed Employee's Pension Plan dated May 2022. However, providing the benefit enhancements may increase risk to the plan beyond what is stated in such report. Below is a list of risks to consider with the addition of the benefit enhancements:

- Investment return risk will have higher magnitude with a DROP when the return is less than 5% in any given year. When the investment return in a given year is less than 5%, the difference between the investment return and the 5% guaranteed interest will be incurred by the plan and increase costs.
- Behavioral risk may increase with a DROP option being implemented. This could create more uncertainty in retirement patterns and options selected by participants until actual experience can be examined.
- Liquidity risk may increase if participants elect to enter or exit the DROP at similar dates or if the plan sees a large number of eligible participants elect the one-time back DROP.

Actuarial Certification

The undersigned are Members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained in this memorandum. This memorandum has been prepared in accordance with all Applicable Actuarial Standards of Practice and we are available to answer any questions on the material contained in the memorandum, or to provide explanations or further details as may be appropriate.

Sincerely,

Matthew Staback, FSA, EA, MAAA, FCA
Senior Consultant, Wealth Consulting

Michael A. Ribble, FSA, EA, MAAA, FCA
Principal, Wealth Consulting

Buck Global, LLC (Buck)

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Exhibit I

City Of Clayton Uniformed Employees' Pension Plan
January 1, 2022 Projections
Current Plan Provisions

		2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A.	Number of Participants											
	Active	88	88	88	88	88	88	88	88	88	88	88
	Retired & Beneficiaries	73	80	82	84	88	89	90	91	92	93	92
	Vested Terminations	13	14	15	15	16	16	17	18	18	19	19
	Total	174	182	185	187	192	193	195	197	198	200	199
B.	Covered Payroll	$7,281,418	$7,505,331	$7,595,221	$7,796,840	$7,794,890	$7,984,568	$8,122,485	$8,288,928	$8,384,229	$8,623,735	$8,893,805
C.	Annual Benefits Payable to Retired Participants and Beneficiaries	$2,480,960	$2,807,660	$3,061,798	$3,175,951	$3,515,296	$3,646,730	$3,799,653	$3,963,488	$4,071,737	$4,187,217	$4,246,542
D.	Actuarial Liability - Entry Age Normal											
	Active	$23,795,453	$22,849,267	$22,201,848	$23,514,519	$21,587,117	$22,256,920	$22,627,939	$22,740,076	$23,653,686	$24,422,973	$26,506,501
	Retired & Beneficiaries	27,566,077	31,934,283	34,442,818	34,973,167	38,716,150	39,738,689	41,067,807	42,630,651	43,394,849	44,347,643	44,065,515
	Vested Terminations	2,088,528	2,467,678	2,763,572	3,058,320	3,337,681	3,609,307	3,879,727	4,162,327	4,469,747	4,793,090	5,136,358
	Total	$53,450,058	$57,251,228	$59,408,238	$61,546,006	$63,640,948	$65,604,916	$67,575,473	$69,533,054	$71,518,282	$73,563,706	$75,708,374
E.	Plan Assets - Actuarial Value	$57,683,090	$62,729,739	$66,433,916	$68,627,593	$70,772,944	$72,803,156	$74,835,833	$76,860,128	$78,904,561	$81,000,347	$83,200,078
F.	Unfunded Actuarial Liability	($4,233,032)	($5,478,511)	($7,025,678)	($7,081,587)	($7,131,996)	($7,198,240)	($7,260,360)	($7,327,074)	($7,386,279)	($7,436,641)	($7,491,704)
G.	Funded Ratio (E. / D.)	107.92%	109.57%	111.83%	111.51%	111.21%	110.97%	110.74%	110.54%	110.33%	110.11%	109.90%
H.	Total Normal Cost	$1,097,114	$1,206,266	$1,223,777	$1,256,937	$1,262,219	$1,293,333	$1,318,395	$1,346,373	$1,378,394	$1,420,356	$1,466,221
I.	Expected Employee Contributions	$364,071	$375,267	$379,761	$389,842	$389,745	$399,228	$406,124	$414,446	$419,211	$431,187	$444,690
	As a Percentage of Covered Payroll	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
J.	Administrative Expenses	$183,749	$183,749	$183,749	$183,749	$183,749	$183,749	$183,749	$183,749	$183,749	$183,749	$183,749
K.	Employer Normal Cost (H. - I. + J.)	$916,792	$1,014,748	$1,027,765	$1,050,844	$1,056,223	$1,077,854	$1,096,020	$1,115,676	$1,142,932	$1,172,918	$1,205,280
	As a Percentage of Covered Payroll	12.59%	13.52%	13.53%	13.48%	13.55%	13.50%	13.49%	13.46%	13.63%	13.60%	13.55%
L.	Amortization of Surplus (30 years open)	($219,338)	($275,930)	($353,855)	($356,671)	($359,210)	($362,546)	($365,675)	($369,035)	($372,017)	($374,554)	($377,327)
M.	Total Employer Cost as of January 1st (K. + L.)	$697,454	$738,818	$673,910	$694,173	$697,013	$715,308	$730,345	$746,641	$770,915	$798,364	$827,953
N.	Total Employer Cost As a Percentage of Covered Payroll	9.58%	9.84%	8.87%	8.90%	8.94%	8.96%	8.99%	9.01%	9.19%	9.26%	9.31%

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Exhibit I

City Of Clayton Uniformed Employees' Pension Plan
January 1, 2022 Projections
Proposed Plan Provisions

		2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
A.	Number of Participants											
	Active	88	88	88	88	88	88	88	88	88	88	88
	Retired & Beneficiaries	73	86	91	93	99	97	101	101	103	103	99
	Vested Terminations	13	14	15	15	16	16	17	18	18	19	19
	Total	174	188	194	196	203	201	206	207	209	210	206
B.	Covered Payroll	$6,790,639	$7,172,767	$7,484,576	$7,479,253	$7,686,286	$7,954,293	$7,922,656	$8,128,341	$8,226,474	$8,490,982	$8,637,862
C.	Annual Benefits Payable to Retired Participants and Beneficiaries	$2,841,179	$2,888,992	$2,966,158	$3,031,997	$3,223,838	$3,337,150	$3,465,883	$3,607,893	$3,707,022	$3,836,027	$3,958,393
D.	One-Time Back DROP Lump Sum	$1,137,352	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
E.	Actuarial Liability - Entry Age Normal											
	Active	$18,354,719	$20,318,615	$20,869,801	$22,889,069	$22,044,927	$23,009,162	$23,549,485	$23,785,978	$24,872,696	$25,659,272	$27,894,109
	Retired & Beneficiaries	33,794,157	33,810,406	35,088,775	35,043,211	37,766,920	38,539,137	40,018,969	41,357,410	42,205,091	43,252,351	42,854,254
	Vested Terminations	2,088,528	2,467,678	2,763,572	3,058,320	3,337,681	3,609,307	3,879,727	4,162,327	4,469,747	4,793,090	5,136,358
	Total	$54,237,404	$56,596,699	$58,722,148	$60,990,600	$63,149,528	$65,157,606	$67,448,181	$69,305,715	$71,547,534	$73,704,713	$75,884,721
F.	Plan Assets - Actuarial Value	$57,683,090	$61,345,901	$65,007,664	$67,329,919	$69,527,056	$71,614,185	$73,978,514	$75,949,689	$78,255,715	$80,494,844	$82,763,559
G.	Unfunded Actuarial Liability	($3,445,686)	($4,749,202)	($6,285,516)	($6,339,319)	($6,377,528)	($6,456,579)	($6,530,333)	($6,643,974)	($6,708,181)	($6,790,131)	($6,878,838)
H.	Funded Ratio (F. / E.)	106.35%	108.39%	110.70%	110.39%	110.10%	109.91%	109.68%	109.59%	109.38%	109.21%	109.06%
I.	Total Normal Cost	$1,023,053	$1,214,141	$1,271,695	$1,276,060	$1,321,414	$1,373,858	$1,378,574	$1,424,762	$1,458,263	$1,515,330	$1,542,424
J.	Expected Employee Contributions	$339,532	$358,638	$374,229	$373,963	$384,314	$397,715	$396,133	$406,417	$411,324	$424,549	$431,893
	As a Percentage of Covered Payroll	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
K.	Administrative Expenses	$183,749	$183,749	$183,749	$183,749	$183,749	$183,749	$183,749	$183,749	$183,749	$183,749	$183,749
L.	Employer Normal Cost (I. - J. + K.)	$867,270	$1,039,252	$1,081,215	$1,085,846	$1,120,849	$1,159,892	$1,166,190	$1,202,094	$1,230,688	$1,274,530	$1,294,280
	As a Percentage of Covered Payroll	12.77%	14.49%	14.45%	14.52%	14.58%	14.58%	14.72%	14.79%	14.96%	15.01%	14.98%
M.	Amortization of Surplus (30 years open)	($178,541)	($239,198)	($316,576)	($319,286)	($321,210)	($325,192)	($328,907)	($334,630)	($337,864)	($341,991)	($346,459)
N.	Total Employer Cost as of January 1st (L. + M.)	$688,729	$800,054	$764,639	$766,560	$799,639	$834,700	$837,283	$867,464	$892,824	$932,539	$947,821
O.	Total Employer Cost As a Percentage of Covered Payroll	10.14%	11.15%	10.22%	10.25%	10.40%	10.49%	10.57%	10.67%	10.85%	10.98%	10.97%

*Back DROP participants are treated as retirees for cost purpose. These participants are replaced with new entrants with lower salaries which cause the decrease in covered payroll in 2022.

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Actuarial Assumptions and Methods

Actuarial Standards of Practice ("ASOPs") 27 and 35 ask the actuary to disclose the information and analysis used to support the actuary's determination that the assumptions selected by the Board:

- are reasonable, if selected with our advice, or
- do not significantly conflict with what, in the actuary's professional judgment, are reasonable for the purpose of the measurement, if selected without our advice.

The assumptions below have a significant effect on the measurement.

The following assumption was selected by the Board and the information and analysis used to determine the assumption does not significantly conflict with what, in the actuary's professional judgment, is reasonable for the purpose of the measurement as described in the cover letter of this report.

Interest Rate: 7.00%, net of investment expenses in 2022 and 6.75%, net of investment expenses in 2023 and later years

The following assumptions were selected by the Board with the actuary's advice. Buck believes the assumptions are reasonable for the purpose of the measurement. The information and analysis supporting these assumptions are as follows:

- Review of assumptions each year thoroughly while analyzing the plan's gain/(loss) and considering any future trends to determine the reasonability of each assumption
- Consultation with the Board and/or plan sponsor
- Buck reviews other public sector clients with similar size, location, and characteristics to help determine if adjustments should be made in addition to the plan's gain/(loss) review.

Pre-Retirement Mortality: Pub-2010 Safety Employees table, amount-weighted, projected generationally with scale MP-2021

Post-Retirement Mortality:

- Retired members: Pub-2010 Safety Retirees table, amount-weighted, projected generationally with scale MP-2021
- Disabled members: Pub-2010 Safety Disabled table, amount-weighted, projected generationally with scale MP-2021
- Beneficiary members: Pub-2010 Contingent Survivor table, amount-weighted, projected generationally with scale MP-2021

Salary Increase: 3.50% per annum.

Future COLA Increase: 2.00% per annum.

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Actuarial Assumptions and Methods (continued)

Turnover:

Sample rates are as follows:

Police Officers						
	Years of Service					
Age	0	1	2	3	4	5+
25	15.00%	10.00%	8.00%	7.00%	6.00%	4.83%
30	15.00%	10.00%	8.00%	7.00%	6.00%	3.62%
35	15.00%	10.00%	8.00%	7.00%	6.00%	3.22%
40	15.00%	10.00%	8.00%	7.00%	6.00%	2.82%
45	15.00%	10.00%	8.00%	7.00%	6.00%	3.33%
50	15.00%	10.00%	8.00%	7.00%	6.00%	3.83%

Firefighters						
	Years of Service					
Age	0	1	2	3	4	5+
25	7.50%	5.00%	4.50%	4.00%	3.50%	2.62%
30	7.50%	5.00%	4.50%	4.00%	3.50%	2.37%
35	7.50%	5.00%	4.50%	4.00%	3.50%	2.23%
40	7.50%	5.00%	4.50%	4.00%	3.50%	2.09%
45	7.50%	5.00%	4.50%	4.00%	3.50%	2.33%
50	7.50%	5.00%	4.50%	4.00%	3.50%	2.57%

Disability:

Sample rates are as follows (0% after age 55):

Age	Rate
30	0.08%
35	0.08%
40	0.20%

Age	Rate
45	0.26%
50	0.49%
55	0.89%

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Actuarial Assumptions and Methods (continued)

Retirement:

For persons age 50 through 59 with less than 10 years of credited service, the rate is 0%. For persons age 51 through 54 with exactly 25 years of credited service, the rate is 50%. For persons age 45 through 50, with exactly 25 years of credited service, the rate is 30%. For all others, the rates are as follows:

Age	Rate
45 - 50	15%
51 - 54	10%
55	90%
56	30%

Age	Rate
57	40%
58	50%
59	60%
60+	100%

Asset Valuation:

The Actuarial Value of Assets is Market Value as of the valuation date reduced by 2/3 and 1/3 of the gain/(loss) in each of the prior years, respectively. The gain/(loss) for each period is determined as the actual return on Market Value during the period less the expected return on Market Value based on an assumed earnings rate.

This method was adopted for the 2015 valuation smoothing the 2014 plan year experience.

Administrative Expense:

The total normal cost is increased by the expected administrative expenses based on actual administrative expenses in the prior year. For 2022, the total contribution increase was $183,749.

Pre-Retirement Death Assumption:

All deaths occurred are assumed to be duty related deaths.

Marital Percentage:

100% of participants are assumed to be married at death. Married men are assumed to be 3 years older than married women.

Valuation Method:

Entry Age Normal. Benefits are projected and spread so that the total normal cost will be a level percentage of salaries from date of hire to date of termination. The normal cost assigned to the City reflects a reduction due to mandatory employee contributions.

The Plan exceeded 100% as of January 1, 2022. The Plan implemented a valuation method for surplus to adjust total employer contribution based on a 30-year level percent of pay, opened amortization in years in which a surplus occurs.

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Exhibit II

Forward DROP Proposed Assumptions

- Retirement rates were adjusted, to reflect the fact that participants are more likely to elect to enter the DROP program upon eligibility for normal retirement.
- Proposed Retirement rates shown are the assumed rate at which participants either elect to enter the DROP or retire
- For those that enter the DROP, actual retirement will occur at the end of the DROP period
- Proposed Retirement rates for eligible participants during first year of implementation
    - 100% retirement rate for those with 30 or more years of service
    - 75% retirement rate for those under age 55 (with less than 30 years of service)
    - 100% retirement rate for those age 55 and older
- See below for the Proposed Retirement Rates after the first year of implementation
- DROP period is assumed to be 3 years
- DROP election rate – percentage of eligible participants assumed to retire who elect to enter DROP
    - 75% election rate
- All deaths occurred are assumed to be duty related deaths and occur 18 months into the DROP period
- Calculation uses the 6.75% interest rate recently approved by the Board of Trustees on August 8, 2022
- Participants who enter the DROP will no longer receive disability benefits and will exit the DROP to commence retirement benefits if a disability occurs

Proposed Retirement Rates after the first year of implementation (including participants who elect DROP rather than true retirement)

Less than 25 years of Service

- For persons age 50 through 59 with less than 10 years of credited service, the rate is 0%. For persons age 55 through age 64 with 10 or more years of credit service, the rate is 100%. For all others, members are assumed to retire at the rate of 100% at age 65 with 5+ years of service.

25 years of Service or more

- For persons age 45 through 50, with exactly 25 years of credited service, the rate is 30%. For persons age 51 through 54, with exactly 25 years of service, the rate is 75%. For persons age 55, with exactly 25 years of service, the rate is 100%. For persons at least age 51 with 30 or more years of service, the rate is 100%. For all others, the rates are as follows:

Age	Rate
45 - 50	15%
51	75%
52-54	50%
55	90%
56	30%

Age	Rate
57	40%
58	50%
59	60%
60+	100%

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Exhibit II

One-time Back DROP Assumptions

- Back DROP eligibility determined as of January 1, 2023
- 100% of participants elect the Back DROP if they have been eligible for 18 months or more
- Participants who have not been eligible for normal retirement for at least 18 months will not elect the Back DROP
- Participants assumed to elect the one-time back DROP option based on eligibility as of January 1, 2023 will not be eligible for the forward DROP
- Participants who are assumed to elect a Back DROP will be treated as a retiree for calculation purposes
- Participant will elect the maximum period of Back DROP based on the number of months the participant has been eligible for normal retirement, up to the maximum of 3 years for the Back DROP lump sum
- Employee contributions occur mid-year
- 2.00% per annum COLA increase occurs as of January 1st each year
- Benefits and employee contributions will receive 5% annual interest crediting rate
- 100% of participants are assumed to be married and elect a 50% Joint & Survivor Option

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Projection Assumptions

(1) New Entrants:	Active membership assumed to stay at the January 1, 2022 level throughout projection (88 active members). New active members entering the Plan are based on the average characteristics of new active members over the last five years and the proposed 2022 STEP salary structure. The expected salary in 2022 for a new entrant is $65,000 and 90% of new entrants are males and 10% females.
(2) Expenses:	Plan administrative expenses in 2022 ($183,749) are assumed level.
(3) Actual Return on Assets:	Under current and proposed provisions, the actual return on assets is 7.0% in 2022 and 6.75% in 2023 and later years through the projection.
(4) Employee Contributions:	Employee contributions are assumed to be 5% per year.
(5) Employer Contributions:	Employer contributions are assumed to be paid mid-year with a half year interest adjustment applied by the City of Clayton at the time of payment.
(6) Interest Rate	7.00%, net of investment expenses for 2022 and 6.75%, net of investment expense for 2023 and later years.

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