



BARTEL
ASSOCIATES, LLC

CITY OF CONCORD RETIREMENT SYSTEM

June 30, 2020 Actuarial Valuation

Final Results

Bartel Associates, LLC

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August 6, 2021

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BENEFIT SUMMARY

<ul style="list-style-type: none"> ■ Frozen Plan 	<ul style="list-style-type: none"> ■ CCRS was frozen in 1993 when future accruals for active members were transferred to CalPERS ■ Assets attributed to prior service credit for active members transferred to CalPERS in 1999 ■ Only retirees and inactives remain in CCRS plan
<ul style="list-style-type: none"> ■ Eligibility 	<ul style="list-style-type: none"> ■ General – Age 55 (Age 50 if termination > 6/28/1996) and <ul style="list-style-type: none"> • 20 years of City service; or • Accumulated employee contributions at termination > \$500; or • 5 years City service and termination > 7/1/1990 ■ Police – Age 50 and <ul style="list-style-type: none"> • 20 years of City service; or • Accumulated employee contributions at termination > \$500 ■ Can retire earlier if concurrent under reciprocal retirement system
<ul style="list-style-type: none"> ■ Service Retirement Benefit 	<ul style="list-style-type: none"> ■ (2% of Final Pay) x (Retirement Age Factor) x (Years of Service) ■ Police – maximum of 75% of Final Pay ■ Final Pay is highest 12 consecutive months base pay

BENEFIT SUMMARY

<ul style="list-style-type: none"> ■ Prior Plan Provisions 	<ul style="list-style-type: none"> ■ General with termination < 6/30/90 and Police with termination < 8/10/87 – benefit is reduced by: <ul style="list-style-type: none"> • (2/3% of FAP < SS Wage Base) x (Ret Age Factor) x (Years of OASDI covered service) ■ Police with 8/10/87 ≤ termination < 11/6/94 – benefit is reduced by: <ul style="list-style-type: none"> • (2/3% of FAP < \$400/mo) x (Ret Age Factor) x (Years of Service)
<ul style="list-style-type: none"> ■ Pre-Retirement Death Benefit 	<ul style="list-style-type: none"> ■ Return of accumulated employee contributions
<ul style="list-style-type: none"> ■ Normal Form 	<ul style="list-style-type: none"> ■ Life Annuity
<ul style="list-style-type: none"> ■ COLA 	<ul style="list-style-type: none"> ■ Based on CA CPI (Highest of SF/Oakland Urban & Wage CPI) ■ Maximum 2% ■ Commences May 1st of the second calendar year following the year of retirement

BENEFIT SUMMARY

<ul style="list-style-type: none"> ■ Employee Contributions 	<ul style="list-style-type: none"> ■ No employee contributions were made after the plan was frozen ■ Inactive members have employee contribution account balances ■ Interest credited annually based on fixed interest rate determined by Retirement Board 																						
<ul style="list-style-type: none"> ■ Pay-As-You-Go 	<table border="1"> <tr><td>■ 2019/20</td><td>\$5,499,565</td></tr> <tr><td>■ 2018/19</td><td>\$5,489,099</td></tr> <tr><td>■ 2017/18</td><td>\$5,426,000</td></tr> <tr><td>■ 2016/17</td><td>\$5,416,000</td></tr> <tr><td>■ 2015/16</td><td>\$5,500,000</td></tr> <tr><td>■ 2014/15</td><td>\$5,525,000</td></tr> <tr><td>■ 2013/14</td><td>\$5,516,000</td></tr> <tr><td>■ 2012/13</td><td>\$5,474,000</td></tr> <tr><td>■ 2011/12</td><td>\$5,530,000</td></tr> <tr><td>■ 2010/11</td><td>\$5,507,000</td></tr> <tr><td>■ 2009/10</td><td>\$5,490,000</td></tr> </table>	■ 2019/20	\$5,499,565	■ 2018/19	\$5,489,099	■ 2017/18	\$5,426,000	■ 2016/17	\$5,416,000	■ 2015/16	\$5,500,000	■ 2014/15	\$5,525,000	■ 2013/14	\$5,516,000	■ 2012/13	\$5,474,000	■ 2011/12	\$5,530,000	■ 2010/11	\$5,507,000	■ 2009/10	\$5,490,000
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BENEFIT SUMMARY

<ul style="list-style-type: none"> ■ Retirement Age Factors in Benefit Formula 	<ul style="list-style-type: none"> ■ Retirement Age Factors: <table border="1"> <thead> <tr> <th rowspan="3">Age at Retirement</th> <th rowspan="3">Police</th> <th colspan="3">General</th> </tr> <tr> <th colspan="3">Termination</th> </tr> <tr> <th>Before 6/30/90</th> <th>After 6/30/90 and before 6/28/96</th> <th>After 6/28/96</th> </tr> </thead> <tbody> <tr><td>50</td><td>1.00</td><td>n/a</td><td>n/a</td><td>0.713</td></tr> <tr><td>51</td><td>1.07</td><td>n/a</td><td>n/a</td><td>0.761</td></tr> <tr><td>52</td><td>1.14</td><td>n/a</td><td>n/a</td><td>0.814</td></tr> <tr><td>53</td><td>1.21</td><td>n/a</td><td>n/a</td><td>0.871</td></tr> <tr><td>54</td><td>1.28</td><td>n/a</td><td>n/a</td><td>0.933</td></tr> <tr><td>55</td><td>1.35</td><td>0.706</td><td>0.730</td><td>1.000</td></tr> <tr><td>56</td><td>1.35</td><td>0.755</td><td>0.776</td><td>1.026</td></tr> <tr><td>57</td><td>1.35</td><td>0.808</td><td>0.825</td><td>1.052</td></tr> <tr><td>58</td><td>1.35</td><td>0.867</td><td>0.879</td><td>1.078</td></tr> <tr><td>59</td><td>1.35</td><td>0.931</td><td>0.937</td><td>1.105</td></tr> <tr><td>60</td><td>1.35</td><td>1.000</td><td>1.000</td><td>1.137</td></tr> <tr><td>61</td><td>1.35</td><td>1.067</td><td>1.067</td><td>1.163</td></tr> <tr><td>62</td><td>1.35</td><td>1.136</td><td>1.136</td><td>1.183</td></tr> <tr><td>63+</td><td>1.35</td><td>1.209</td><td>1.209</td><td>1.209</td></tr> </tbody> </table>	Age at Retirement	Police	General			Termination			Before 6/30/90	After 6/30/90 and before 6/28/96	After 6/28/96	50	1.00	n/a	n/a	0.713	51	1.07	n/a	n/a	0.761	52	1.14	n/a	n/a	0.814	53	1.21	n/a	n/a	0.871	54	1.28	n/a	n/a	0.933	55	1.35	0.706	0.730	1.000	56	1.35	0.755	0.776	1.026	57	1.35	0.808	0.825	1.052	58	1.35	0.867	0.879	1.078	59	1.35	0.931	0.937	1.105	60	1.35	1.000	1.000	1.137	61	1.35	1.067	1.067	1.163	62	1.35	1.136	1.136	1.183	63+	1.35	1.209	1.209	1.209
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PARTICIPANT STATISTICS

June 30, 2020

	General	Police	Total
■ Inactives			
● Count	23	-	23
● Average Age	67.1	n/a	67.1
■ Retirees			
● Count	141	72	213
● Average			
➢ Age	76.7	73.0	75.5
➢ Retirement Age	58.1	50.7	55.8
➢ Monthly Benefit	\$1,465	\$3,084	\$2,013

PARTICIPANT STATISTICS

June 30, 2018

	General	Police	Total
■ Inactives			
● Count	26	4	30
● Average Age	64.8	57.7	63.9
■ Retirees			
● Count	159	70	229
● Average			
➢ Age	76.8	72.4	75.4
➢ Retirement Age	58.6	50.7	56.4
➢ Monthly Benefit	\$1,523	\$3,053	\$1,991

PARTICIPANT STATISTICS

Historical Participant Statistics

	6/30/07	6/30/10	6/30/12	6/30/14	6/30/16	6/30/18	6/30/20
■ Inactives							
● Count	84	73	54	46	39	30	23
● Average Age	53.3	56.3	57.7	59.8	61.6	63.9	67.1
■ Retirees							
● Count	234	223	232	238	235	229	213
● Average							
➢ Age	70.4	71.3	72.2	73.1	74.4	75.4	75.5
➢ Retirement Age	56.5	n/a	56.3	55.9	56.1	56.4	55.8
➢ Monthly Benefit	\$1,867	\$2,009	\$1,970	\$1,962	\$1,935	\$1,991	\$2,013

PARTICIPANT STATISTICS

Participant Reconciliation

	Inactives	Retirees	Total
■ June 30, 2018	30	229	259
● New Retirees	(7)	7	-
● Death without Survivor	-	(24)	(24)
● Death with Survivor	-	(2)	(2)
● New Survivor/Alt. Payee	-	3	3
● Lump Sum Payment	<u>-</u>	<u>-</u>	<u>-</u>
■ June 30, 2020	23	213	236

PARTICIPANT STATISTICS

Inactives by Age Group
June 30, 2020

Age	Count	Total Employee Contribution Account Balance
Under 45	-	\$ -
45-49	-	-
50-54	1	14,082
55-59	4	84,623
60-64	7	214,721
65-69	5	181,930
70 & Over	<u>6</u>	<u>90,150</u>
Total	23	585,506

PARTICIPANT STATISTICS

Retired Participants by Age Group
June 30, 2020

Age	Count	Total Monthly Benefits
Under 50	-	\$ -
50-54	1	332
55-59	5	4,808
60-64	20	23,036
65-69	38	70,257
70-74	32	56,925
75-79	52	119,310
80-84	33	83,749
85 & Over	<u>32</u>	<u>70,270</u>
Total	213	428,688

ASSETS

PARS Moderate Portfolio

	Range	Target	Actual 6/30/20 ¹
■ Asset Allocation			
• Equity	40% - 60%	50%	44%
• Fixed Income	40% - 60%	45%	55%
• Cash	0% - 20%	<u>5%</u>	<u>1%</u>
• Total		100%	100%

¹ From 6/30/20 US Bank/PARS statement.

ASSETS

Market Value of Plan Assets

(Amounts in 000's)

	2018/19	2019/20
■ Market Value (Beginning of Year)	\$32,829	\$32,064
• Contributions	2,822	2,715
• Benefit Payments	(5,489)	(5,500)
• Investment Earnings	2,081	1,410
• Expenses	<u>(179)</u>	<u>(177)</u>
■ Market Value (End of Year)	32,064	30,512
■ Approximate Annual Return	6.8%	4.5%

ACTUARIAL ASSUMPTIONS

Discount Rate

- Stochastic simulations of geometric average returns over 20 years
- 5,000 trials
- Projections based on 5 independent Investment Advisors 2017 10-year Capital Market Assumptions and, where available, investment advisors anticipated long-term trends:

	Geometric Average Real Rates of Return	Standard Deviation
Global Equities	4.82%	17.84%
Fixed Income	1.47%	4.24%
Cash	0.06%	0.97%

- Inflation Assumption: 2.75%

ACTUARIAL ASSUMPTIONS

Discount Rate

	PARS Moderate Portfolio
■ Confidence Levels	
• 55% Confidence Level	5.75%
• 50% Confidence Level ²	6.00%
■ Valuation Discount Rate	6.00%

² “50% Confidence Level” means that over the long term 50% of the time net returns are expected to be greater than 6.00% and 50% of the time net returns are expected to be less than 6.00%.

ACTUARIAL ASSUMPTIONS

	June 30, 2018 Valuation	June 30, 2020 Valuation
■ Valuation Date	<ul style="list-style-type: none"> ■ June 30, 2018 ■ Fiscal Years 2018/19 and 2019/20 	<ul style="list-style-type: none"> ■ June 30, 2020 ■ Fiscal Years 2020/21 and 2021/22
■ Discount Rate	<ul style="list-style-type: none"> ■ 6.0%, assets in PARS Moderate investment mix ■ Net of investment expenses 	<ul style="list-style-type: none"> ■ Same
■ General Inflation	<ul style="list-style-type: none"> ■ 2.75% 	<ul style="list-style-type: none"> ■ Same
■ COLA	<ul style="list-style-type: none"> ■ 2.0% 	<ul style="list-style-type: none"> ■ Same
■ Salary Increase for Reciprocal Inactives	<ul style="list-style-type: none"> ■ 5.5% 	<ul style="list-style-type: none"> ■ Same

ACTUARIAL ASSUMPTIONS

	June 30, 2018 Valuation	June 30, 2020 Valuation
■ PARS Administrative Fee	<ul style="list-style-type: none"> ■ 0.15% of beginning of year Market Value of Assets included in Actuarially Determined Contribution 	<ul style="list-style-type: none"> ■ Same
■ Mortality	<ul style="list-style-type: none"> ■ CalPERS 1997-2015 Experience Study ■ Post-retirement mortality projected fully generational with Scale MP-2018 	<ul style="list-style-type: none"> ■ CalPERS 1997-2015 Experience Study ■ Mortality projected fully generational with Scale MP-2020
■ Retirement Age	<ul style="list-style-type: none"> ■ General – Age 59 ■ Police – Age 54 	<ul style="list-style-type: none"> ■ Same
■ Disability	<ul style="list-style-type: none"> ■ None 	<ul style="list-style-type: none"> ■ Same
■ Employee Contribution Interest Rate	<ul style="list-style-type: none"> ■ 6.0% 	<ul style="list-style-type: none"> ■ Same

ACTUARIAL METHODS

Method	June 30, 2018 Valuation	June 30, 2020 Valuation
■ Cost Method	■ Entry Age Normal	■ Same
■ Actuarial Value of Assets	■ Same as Market Value of Assets	■ Same
■ Amortization Method	■ Level dollar	■ Same
■ Amortization Period	■ 17 years	■ 15 years

ACTUARIAL METHODS

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RESULTS

Actuarial Obligations

(Amounts in 000's)

	6/30/14	6/30/16	6/30/18	6/30/20
■ Discount Rate	6.5%	6.0%	6.0%	6.0%
■ Actuarial Accrued Liability				
• Inactives	\$ 3,802	\$ 3,243	\$ 2,721	\$ 1,471
• Retirees	<u>61,487</u>	<u>58,450</u>	<u>55,710</u>	<u>51,683</u>
• Total	65,289	61,693	58,431	53,154
■ Market Value of Assets	<u>37,326</u>	<u>31,399</u>	<u>32,829</u>	<u>30,512</u>
■ Unfunded AAL	27,963	30,294	25,602	22,642
■ Funded Status	57.2%	50.9%	56.2%	57.4%

RESULTS

Estimated Actuarial Gains & Losses

(Amounts in 000's)

	AAL	Assets	UAAL
■ 6/30/18 Actual	\$58,431	\$32,829	\$25,602
■ 6/30/20 Expected	53,965	30,234	23,731
■ Assumption Changes			
• Mortality Improvement Scale MP-2020	(717)	-	(717)
■ Experience Gains & Losses			
• Demographic Gain	(94)	-	(94)
• Asset Gain ³	<u>-</u>	<u>278</u>	<u>(278)</u>
■ Total Changes	(811)	278	(1,089)
■ 6/30/20 Actual	53,154	30,512	22,642

³ Asset gain mainly due to larger than expected employer contribution during 2018/19 and 2019/20.

RESULTS

Actuarially Determined Contribution (ADC)

(Amounts in 000's)

	6/30/18 Valuation		6/30/20 Valuation	
	2018/19	2019/20	2020/21	2021/22
■ ADC - \$				
● Normal Cost	\$ -	\$ -	\$ -	\$ -
● Admin. Expense	49	47	46	44
● UAAL Amortization ⁴	<u>2,444</u>	<u>2,444</u>	<u>2,331</u>	<u>2,331</u>
● Total ADC	2,493	2,491	2,377	2,375
■ Amortization Period	17	16	15	14

⁴ Level dollar amortization, with interest to the end of the year.

RESULTS

Schedule of Funding Progress

(Amounts in 000's)

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (b)	Unfunded Actuarial Accrued Liability (b-a=c)	Funded Ratio (a/b)	Covered Payroll (d)	UAAL as Percentage of Covered Payroll (c/d)
6/30/05	\$51,974	\$69,185	\$17,211	75.12%	n/a	n/a
6/30/07	51,199	83,912	32,713	61.02%	n/a	n/a
6/30/10	43,596	65,271	21,675	66.79%	n/a	n/a
6/30/12	39,820	63,895	24,075	62.32%	n/a	n/a
6/30/14	37,326	65,289	27,963	57.17%	n/a	n/a
6/30/16	31,399	61,693	30,294	50.90%	n/a	n/a
6/30/18	32,829	58,431	25,602	56.18%	n/a	n/a
6/30/20	30,512	53,154	22,642	57.40%	n/a	n/a

RESULTS

10-Year Contribution and Benefit Payment Projection

(Amounts in 000's)

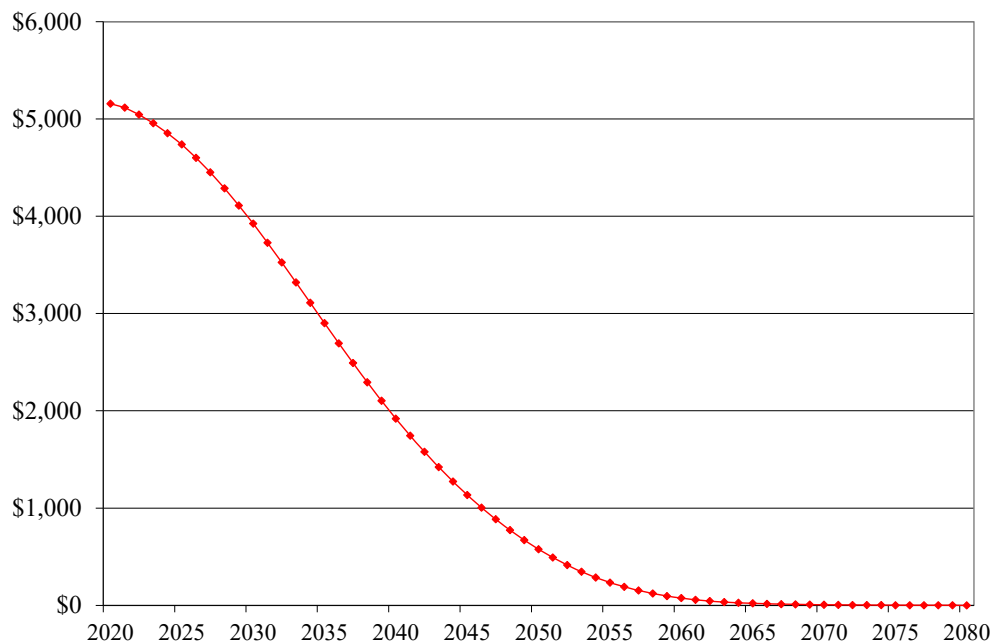
Fiscal Year Ending	Benefit Payments			ADC
	Inactives ⁵	Retirees	Total	
2021	\$83	\$5,075	\$5,158	\$2,377
2022	102	5,016	5,118	2,375
2023	103	4,942	5,045	2,374
2024	104	4,853	4,957	2,372
2025	105	4,749	4,854	2,370
2026	110	4,629	4,739	2,368
2027	111	4,490	4,601	2,367
2028	111	4,340	4,451	2,365
2029	111	4,176	4,287	2,364
2030	112	3,999	4,111	2,363

⁵ Based on the valuation assumption that inactives retire at age 59 (General) or age 54 (Police).

RESULTS

Benefit Payment Projection

(Amounts in 000's)



PLAN RISKS

Discussion of Plan Risks

- Actuarial Standard of Practice No. 51, Assessment and Disclosure of Risk Associated with Measuring Pension Obligations and Determining Pension Plan Contributions, requires the actuary to assess and disclose the risk that actual future measurements may differ significantly from expected future measurements.
- The Plan is 57.4% funded as of June 30, 2020. Note that the unfunded liability calculated in an actuarial valuation is a snapshot on the valuation date and is impacted by experience gains and losses between snapshot dates, especially investment return fluctuations and also by changes in actuarial assumptions. The following are risks for this Plan that may affect the plan's future financial condition:
 - Investment risk – the potential that investment return will be different than expected
 - Asset/liability mismatch risk – the potential that changes in asset values are not matched by changes in the value of liabilities
 - Longevity risk – the potential that participants will live longer than projected
- This plan is considered a mature pension plan since it is a closed plan and all of the liabilities are for inactives and retirees. Mature plans are subject to increased contribution volatility, especially for investment gains and losses.

PLAN RISKS

- The following table presents various measures illustrating the plan's maturity:

Maturity Ratios	June 30, 2018	June 30, 2020
● Inactive AAL/total AAL	100.0%	100.0%
● Inactive participant count/total count	100.0%	100.0%
● Benefit payments/market value of assets	16.7%	16.9%
● Benefit payments/employer contributions	194.5%	217.0%

- The first two ratios illustrate the Plan's maturity and that all the liabilities are due to inactives and retirees who are in payment status. The second two ratios reflect the Plan's cash flow. The Plan currently has a negative cash flow (benefit payments larger than contributions). Negative cash flows are expected for a mature plan, however negative cash flows may amplify investment risk.
- Investment risk is the largest risk facing this plan due to its maturity. The Plan's investment manager must carefully manage the plan's liquidity needs as the plan "winds down" in the future.
- The scope of this valuation did not include a risk assessment based on numerical calculations, but we have included historical funded ratios and a graph of projected future benefit payments to assist in the Plan's management.

ACTUARIAL CERTIFICATION

This report presents the City of Concord Retirement System Plan (“Plan”) June 30, 2020 actuarial valuation. The purpose of this valuation is to:

- Determine the Plan’s June 30, 2020 Funded Status, and
- Calculate the 2020/21 and 2021/22 Actuarially Determined Contributions.

Information provided in this report may be useful to the City for the Plan’s financial management. Future valuations may differ significantly if the Plan’s experience differs from our assumptions or if there are changes in Plan design, actuarial methods, or actuarial assumptions. The project scope did not include an analysis of this potential variation.

The valuation is based on Plan provisions, participant data, and asset information provided by the City as summarized in this report, which we relied on and did not audit. We reviewed the participant data for reasonableness.

To the best of our knowledge, this report is complete and accurate and has been conducted using generally accepted actuarial principles and practices. As members of the American Academy of Actuaries meeting the Academy Qualification Standards, we certify the actuarial results and opinions herein.

Respectfully submitted,



Doug Pryor, ASA, EA, MAAA
Vice President
Bartel Associates, LLC
August 6, 2021



Catherine A. Wandro, ASA, MAAA, FCA
Assistant Vice President & Actuary
Bartel Associates, LLC
August 6, 2021



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DEFINITIONS

- **PVPB – Present Value of all Projected Benefits**
 - Discounted value, at measurement date (valuation date) of all future expected benefit payments
 - Expected benefit payments based on various actuarial assumptions
- **AAL – Actuarial Accrued Liability / Actuarial Obligation**
 - Discounted value at measurement date (valuation date) of benefits “earned” through measurement date based on actuarial cost method
 - Portion of PVPB “earned” at measurement
 - For retirees and inactives, $PVPB = AAL$
- **Pay-As-You-Go Cost (PayGo)**
 - Actual benefit payments to retirees
 - PayGo is the expected retiree benefit payments for the year



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