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August 13, 2021

**Via Email**

Mr. Steve Swanson  
Executive Director  
Park Employees' Annuity and Benefit Fund of Chicago  
55 E. Monroe Street  
Chicago, Illinois 60603

Re: **House Bill 417 (Public Act 102-0263) – Impact Statement and Projections**

Dear Steve:

As requested, we have completed the requested House Bill (HB) 417 impact statement and projections of the Park Employees' Annuity and Benefit Fund of Chicago (PEABF) member and employer contribution requirements, funded ratio, and unfunded actuarial accrued liability. The exhibits accompanying this document were prepared using actuarial assumptions and methods consistent with those employed in the actuarial valuation of the Fund as of December 31, 2020.

**Projection Scenarios**

The contribution scenarios illustrated in these projections are:

- Baseline Scenario – December 31, 2020 valuation projection
- New Legislation Scenario – Baseline with expected employer contributions as follows:
  - Actual employer contribution of \$43.2 million for 2021 plus an additional \$40 million supplemental employer contribution during 2021
  - Employer contributions are then based on employer normal cost plus a 35-year closed period amortization of Unfunded Actuarial Liability (UAL) as of December 31, 2022, phased-in to 2023 where 2023 is the first full payment
  - Plan provisions of Tier 2a, members hired on or after January 1, 2022, are effective January 1, 2022 per new legislation

## **Summary of Projection Results**

Detailed exhibits for each scenario accompany this letter. The following table summarizes the projection results:

<b>Scenario</b>	<b>Projected Year of Insolvency</b>	<b>2022 Employer Contribution (Millions)</b>	<b>2032 Employer Contribution (Millions)</b>	<b>2042 Employer Contribution (Millions)</b>
Baseline	2028	\$13,481.4	\$91,559.7	\$101,544.2
New Legislation	Always solvent	\$41,936.9	\$67,036.4	\$80,494.4

In the baseline scenario, where there is a projected insolvency in 2028, the employer contributions in each year after insolvency is the amount necessary to fund projected benefit payments and expenses, less expected member contributions for that year. For the New Legislation Scenario where employer contributions are based on an actuarially determined amount, the employer contributions in each year after the Fund achieves a 100% funded ratio by 2057 will be the amount required to maintain the 100% funded ratio. The New Legislation scenario also reflects Tier 2a plan provisions effective January 1, 2022.

## **Analysis and Commentary**

Under the Baseline scenario, the Fund is projected to become insolvent within eight years. Upon insolvency, we have assumed that the Fund will operate on a pay-as-you-go basis, where the employer will make contributions to pay benefit payments and expenses, offset by member contributions<sup>1</sup>. Pay-as-you-go contributions would continue indefinitely. The exhibits show that projected benefit payments peak in 2042 and then begin to decline. This is the result of Tier 2 members replacing Tier 1 members in the payment status population. Once that transition is complete, we would expect the projected benefit payments to begin increasing again on a later date.

The New Legislation Scenario is based on increased funding amounts engineered to achieve full funding by a specified year. Beyond that specified year (and assuming all assumptions are realized), the employer contribution is equal to active member normal cost, less expected member contributions. In years in which total normal cost is less than projected member contributions, no employer contributions would be required.

The scenarios from this analysis assume that future returns on the market value of assets are equal to the assumption of 7.25%, unless otherwise stated.

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<sup>1</sup> Note that a portion of the asset value is attributable to active member contributions, which may not be able to be liquidated to pay benefit payments and expenses (as is assumed in the attached projections). In addition, as the year of projected insolvency approaches, the target investment allocation may require rebalancing to more liquid investments, resulting in a lower expected return. The implications of this are not contemplated in this analysis.

## **Discussion of Risk**

As noted, the results of these projections are based on all assumptions materializing as expected, including the 7.25% investment return assumption (unless otherwise stated). To the extent there is adverse experience, the projection scenarios would generate larger required employer contributions. For example, if members live longer than assumed under the current mortality table assumption, actuarial losses would occur and must be funded over time through increased employer contributions. Given the precarious funded status of PEABF, investment returns that are less than expected represent a significant risk to the solvency of the Fund (or to the magnitude of the required employer contributions). We have demonstrated the impact of several adverse investment return experience scenarios (Scenarios A and B below) on the projection results, but are available to model other scenarios that you might like to see as well.

The adverse investment return scenarios considered in these projections are:

- Scenario A – New Legislation, but assuming future investment returns of 6.25% per year rather than 7.25%.
- Scenario B – New Legislation, but assuming a market return of 0% for 2021 and 7.25% per year thereafter.

The following table summarizes the adverse scenarios results:

<b>Scenario</b>	<b>2022 Employer Contribution (Millions)</b>	<b>2032 Employer Contribution (Millions)</b>	<b>2042 Employer Contribution (Millions)</b>
New Legislation	\$41,936.9	\$67,036.4	\$80,494.4
New Legislation A	\$41,968.9	\$69,741.3	\$88,235.7
New Legislation B	\$42,169.3	\$69,218.8	\$83,190.3

The adverse scenarios result in increased employer contributions beginning in 2022 and gradually increase through the amortization period as investment losses are recognized. Scenario A has the largest long-term impact on contributions due to the compounding recognition of asset losses every year. Scenario B realizes a larger asset loss in 2021, causing a larger increase in the 2022 employer contribution. However, since the assumed deviation is only for one year, the contributions in later years (after the asset loss is fully recognized) are lower when compared to Scenario A.

Pursuant to HB 417, subsection d-15, Tier 2 participants who became a member of the Plan on or after January 1, 2011 and prior to January 1, 2022 shall make an irrevocable election to opt-in to Tier 2a plan provisions during the specified election period. Tier 2a provisions include a reduction in retirement age upon the member agreeing to increase employee contributions for service annuities. The New Legislation scenario above assumes that no current Tier 2 participants elect to opt-in to Tier 2a.

Scenario C below illustrates the impact of 50% of current Tier 2 participants electing to opt-in to Tier 2a.

Scenario	2022 Employer Contribution (Millions)	2032 Employer Contribution (Millions)	2042 Employer Contribution (Millions)
New Legislation	\$41,936.9	\$67,036.4	\$80,494.4
New Legislation C	\$41,507.0	\$66,555.9	\$80,089.4

### **Actuarial Methodology**

The attached exhibits show projections to 2057 (an amortization period of 35 years effective December 31, 2022) of contributions, payroll, normal cost, benefit payouts, expenses, actuarial liability, assets, unfunded actuarial liability, and funded ratio. The analysis was based upon the census data, actuarial assumptions, and methods used in the December 31, 2020, valuation report, unless otherwise noted. Note that these projections reflect the provisions and assets of PEABF at the time the December 31, 2020 valuation report was completed. The projections assume all actuarial assumptions are met in the future, including the 7.25% investment return assumption, unless otherwise stated.

### **Comments about Projections**

Projections, by their nature, are not a guarantee of future results. The modeled projections are intended to serve as estimates of future financial outcomes that are based on the information available to us at the time the modeling is undertaken and completed, and the agreed upon assumptions and methodologies described herein. Emerging results may differ significantly if the actual experience proves to be different from these assumptions or if alternative methodologies are used. Actual experience may differ due to such variables as demographic experience, the economy, stock market performance and the regulatory environment.

The longer the projection period, the less reliable the projections become as there is more variability in results for the later years.

Respectfully submitted,



Matthew A. Strom, FSA, MAAA, EA  
Senior Vice President, Actuary

cc: Mr. Steve Lux, PEABF  
Ms. Patryk Tabernacki, Segal

**BASELINE**

**Park Employees' Annuity and Benefit Fund of Chicago**  
**Projection of Contributions, Liabilities, and Assets**

Based on the December 31, 2020 actuarial valuation

Member contributions are 9% for Fiscal Year 2021 and thereafter.

Tax levy is 1.1 for all fiscal years.

There are no future supplemental contributions reflected in this projection.

(All dollar amounts are in thousands. Actuarial Liability and asset figures as of end of year.)

Fiscal Year	Employee Contributions	Employer Contributions	Payroll	Normal Cost	Benefit Payouts	Estimated Expenses	Total Actuarial Liability	Actuarial Value of Assets	Unfunded Actuarial Liability	Funded Ratio
2020							1,190,365.6	342,131.7	848,233.9	28.7%
2021	12,768.8	13,159.8	140,488.2	16,948.6	82,583.2	1,654.3	1,209,267.7	308,528.5	900,739.2	25.5%
2022	12,540.9	13,481.4	137,955.9	16,674.7	83,785.1	1,712.2	1,228,000.9	266,678.8	961,322.1	21.7%
2023	12,415.8	13,624.3	136,566.2	16,497.3	85,127.9	1,772.1	1,246,510.5	229,389.0	1,017,121.6	18.4%
2024	12,323.3	13,381.1	135,538.0	16,296.3	86,584.8	1,834.2	1,264,636.8	182,121.3	1,082,515.5	14.4%
2025	12,255.8	13,247.7	134,788.4	16,109.5	88,086.6	1,898.4	1,282,320.6	128,803.9	1,153,516.7	10.0%
2026	12,200.9	13,148.9	134,178.2	15,919.4	89,660.8	1,964.8	1,299,451.4	69,678.1	1,229,773.3	5.4%
2027	12,147.5	13,076.9	133,585.0	15,704.9	91,355.6	2,033.6	1,315,837.9	4,244.6	1,311,593.3	0.3%
2028	12,103.0	78,987.2	133,090.9	15,500.4	93,230.0	2,104.7	1,331,250.7	0.0	1,331,250.7	0.0%
2029	12,054.0	85,304.2	132,545.9	15,256.8	95,179.8	2,178.4	1,345,499.3	0.0	1,345,499.3	0.0%
2030	12,017.4	87,322.4	132,139.9	15,046.8	97,085.1	2,254.7	1,358,581.3	0.0	1,358,581.3	0.0%
2031	11,984.3	89,533.5	131,772.2	14,833.0	99,184.3	2,333.6	1,370,207.0	0.0	1,370,207.0	0.0%
2032	11,958.0	91,559.7	131,479.3	14,616.3	101,102.4	2,415.2	1,380,455.6	0.0	1,380,455.6	0.0%
2033	11,943.6	93,491.9	131,320.0	14,404.6	102,935.8	2,499.8	1,389,320.4	0.0	1,389,320.4	0.0%
2034	11,946.4	95,441.9	131,351.1	14,204.1	104,801.0	2,587.3	1,396,680.0	0.0	1,396,680.0	0.0%
2035	11,944.5	97,056.4	131,329.6	13,987.2	106,323.1	2,677.8	1,402,763.2	0.0	1,402,763.2	0.0%
2036	11,971.8	98,829.5	131,632.3	13,798.8	108,029.7	2,771.6	1,407,317.0	0.0	1,407,317.0	0.0%
2037	11,981.9	97,921.2	131,744.9	13,597.8	107,034.6	2,868.6	1,413,016.6	0.0	1,413,016.6	0.0%
2038	12,010.8	99,271.2	132,065.6	13,407.0	108,313.0	2,969.0	1,417,599.9	0.0	1,417,599.9	0.0%
2039	12,046.5	100,239.4	132,462.7	13,218.9	109,213.0	3,072.9	1,421,381.2	0.0	1,421,381.2	0.0%
2040	12,109.4	100,951.8	133,161.1	13,065.0	109,880.8	3,180.4	1,424,579.6	0.0	1,424,579.6	0.0%
2041	12,186.2	101,435.8	134,015.3	12,929.9	110,330.3	3,291.7	1,427,399.2	0.0	1,427,399.2	0.0%
2042	12,281.3	101,544.2	135,071.4	12,840.2	110,418.5	3,406.9	1,430,235.6	0.0	1,430,235.6	0.0%
2043	12,401.1	101,245.5	136,403.3	12,782.2	110,120.5	3,526.2	1,433,524.2	0.0	1,433,524.2	0.0%
2044	12,545.8	100,728.5	138,010.4	12,754.5	109,624.6	3,649.6	1,437,535.3	0.0	1,437,535.3	0.0%
2045	12,706.8	99,788.1	139,799.6	12,753.9	108,717.6	3,777.3	1,442,776.6	0.0	1,442,776.6	0.0%
2046	12,897.7	98,735.9	141,920.3	12,796.4	107,724.0	3,909.5	1,449,473.0	0.0	1,449,473.0	0.0%
2047	13,096.2	97,649.2	144,125.6	12,871.9	106,699.0	4,046.4	1,457,798.1	0.0	1,457,798.1	0.0%
2048	13,302.0	96,505.4	146,413.3	12,962.2	105,619.5	4,188.0	1,467,942.3	0.0	1,467,942.3	0.0%
2049	13,521.3	95,297.2	148,849.1	13,058.9	104,483.9	4,334.6	1,480,102.3	0.0	1,480,102.3	0.0%
2050	13,747.4	93,730.0	151,361.8	13,188.7	102,991.1	4,486.3	1,494,830.0	0.0	1,494,830.0	0.0%
2051	14,003.2	92,267.3	154,203.4	13,355.6	101,627.2	4,643.3	1,512,217.9	0.0	1,512,217.9	0.0%
2052	14,265.1	91,088.1	157,113.9	13,545.6	100,547.4	4,805.8	1,532,189.1	0.0	1,532,189.1	0.0%
2053	14,523.1	89,764.7	159,981.0	13,734.4	99,313.8	4,974.0	1,555,089.0	0.0	1,555,089.0	0.0%
2054	14,802.8	88,486.7	163,088.5	13,940.9	98,141.4	5,148.1	1,581,085.5	0.0	1,581,085.5	0.0%
2055	15,095.3	87,094.3	166,338.4	14,166.8	96,861.3	5,328.3	1,610,535.6	0.0	1,610,535.6	0.0%
2056	15,408.7	85,753.7	169,820.9	14,428.0	95,647.6	5,514.8	1,643,658.6	0.0	1,643,658.6	0.0%
2057	15,735.6	84,429.2	173,452.9	14,706.4	94,457.0	5,707.8	1,680,715.4	0.0	1,680,715.4	0.0%
2058	16,079.9	83,312.8	177,278.6	15,016.0	93,485.1	5,907.6	1,721,798.0	0.0	1,721,798.0	0.0%
2059	16,437.5	81,934.4	181,251.2	15,341.5	92,257.5	6,114.4	1,767,480.2	0.0	1,767,480.2	0.0%

**NEW LEGISLATION**

**Park Employees' Annuity and Benefit Fund of Chicago  
Projection of Contributions, Liabilities, and Assets**

Based on the December 31, 2020 actuarial valuation

Plan provisions for Tier 2a are effective January 1, 2022, per HB 417 legislation.

Tier 1 and 2 member contributions are 9% and Tier 2a Member contributions are 11% for Fiscal Year 2021 and thereafter.

Employer Contributions are ER Normal Cost plus a 35-year closed period amortization of UAL as of December 31, 2022 (phased-in from 2020 to 2023).

Reflects budgeted employer contributions of \$43.2 million for 2021 and \$42.5 million for 2022.

There is supplemental employer contribution of \$40 Million in 2021.

(All dollar amounts are in thousands. Actuarial Liability and asset figures as of end of year.)

Fiscal Year	Employee Contributions	Employer Contributions	Supplemental Contribution	Payroll	Normal Cost	Benefit Payouts	Estimated Expenses	Total Actuarial Liability	Actuarial Value of Assets	Unfunded Actuarial Liability	Funded Ratio
2020								1,190,365.6	342,131.7	848,233.9	28.7%
2021	12,768.8	43,237.3	40,000.0	140,488.2	16,948.6	82,583.2	1,654.3	1,209,267.7	381,146.2	828,121.4	31.5%
2022	12,648.9	41,936.9	0.0	137,955.9	16,731.3	83,785.1	1,712.2	1,228,061.6	374,160.2	853,901.4	30.5%
2023	12,633.5	57,423.3	0.0	136,566.2	16,611.4	85,139.8	1,772.1	1,246,685.7	390,262.8	856,422.8	31.3%
2024	12,647.3	58,097.5	0.0	135,538.0	16,466.2	86,619.8	1,834.2	1,264,970.7	401,295.5	863,675.1	31.7%
2025	12,679.7	59,107.8	0.0	134,788.4	16,332.1	88,152.6	1,898.4	1,282,849.0	411,761.7	871,087.4	32.1%
2026	12,718.9	60,179.0	0.0	134,178.2	16,192.0	89,765.3	1,964.8	1,300,202.3	422,313.7	877,888.6	32.5%
2027	12,755.9	61,257.2	0.0	133,585.0	16,025.7	91,496.0	2,033.6	1,316,841.8	432,858.0	883,983.8	32.9%
2028	12,799.0	62,369.4	0.0	133,090.9	15,868.3	93,411.0	2,104.7	1,332,534.4	443,198.0	889,336.4	33.3%
2029	12,835.8	63,481.8	0.0	132,545.9	15,671.1	95,405.4	2,178.4	1,347,086.5	453,312.4	893,774.1	33.7%
2030	12,884.8	64,646.0	0.0	132,139.9	15,507.5	97,336.5	2,254.7	1,360,517.2	463,328.2	897,189.0	34.1%
2031	12,938.6	65,831.6	0.0	131,772.2	15,341.1	99,463.6	2,333.6	1,372,538.8	473,062.7	899,476.1	34.5%
2032	13,000.0	67,036.4	0.0	131,479.3	15,172.7	101,385.8	2,415.2	1,383,259.5	482,735.7	900,523.8	34.9%
2033	13,073.9	68,266.1	0.0	131,329.0	15,012.5	103,226.0	2,499.8	1,392,678.8	492,465.3	900,213.5	35.4%
2034	13,163.9	69,519.7	0.0	131,364.9	14,863.1	105,103.2	2,587.3	1,400,675.5	502,256.3	898,419.2	35.9%
2035	13,249.0	70,789.8	0.0	131,333.3	14,696.2	106,655.3	2,677.8	1,407,464.6	512,459.0	895,005.6	36.4%
2036	13,359.9	72,086.0	0.0	131,602.3	14,552.0	108,386.5	2,771.6	1,412,797.3	522,968.4	889,828.9	37.0%
2037	13,456.9	73,416.5	0.0	131,695.8	14,398.5	107,403.9	2,868.6	1,419,370.1	536,636.5	882,733.6	37.8%
2038	13,575.5	74,768.9	0.0	132,015.1	14,259.7	108,697.2	2,969.0	1,424,930.5	551,375.8	873,554.8	38.7%
2039	13,700.9	76,146.4	0.0	132,408.3	14,123.9	109,652.5	3,072.9	1,429,758.5	567,643.3	862,115.2	39.7%
2040	13,849.9	77,555.6	0.0	133,076.1	14,015.3	110,386.9	3,180.4	1,434,059.0	585,832.5	848,226.5	40.9%
2041	14,012.5	78,995.7	0.0	133,900.2	13,923.4	110,863.5	3,291.7	1,438,078.8	606,391.9	831,686.9	42.2%
2042	14,195.9	80,494.4	0.0	134,957.3	13,883.4	110,978.2	3,406.9	1,442,228.3	629,946.7	812,281.6	43.7%
2043	14,403.3	82,026.5	0.0	136,288.5	13,875.5	110,705.8	3,526.2	1,446,952.6	657,170.6	789,782.0	45.4%
2044	14,634.6	83,588.3	0.0	137,892.4	13,898.0	110,241.6	3,649.6	1,452,524.4	688,579.4	763,945.0	47.4%
2045	14,881.6	85,181.6	0.0	139,674.1	13,946.7	109,419.9	3,777.3	1,459,403.8	724,891.4	734,512.4	49.7%
2046	15,154.5	86,804.3	0.0	141,761.9	14,033.2	108,506.5	3,909.5	1,467,821.3	766,609.9	701,211.4	52.2%
2047	15,436.2	88,466.3	0.0	143,942.5	14,154.2	107,508.5	4,046.4	1,478,013.0	814,259.5	663,753.5	55.1%
2048	15,728.6	90,144.1	0.0	146,231.6	14,295.0	106,457.5	4,188.0	1,490,183.7	868,347.6	621,836.1	58.3%
2049	16,036.0	91,812.0	0.0	148,664.4	14,443.4	105,346.3	4,334.6	1,504,547.4	929,403.6	575,143.8	61.8%
2050	16,351.2	93,493.2	0.0	151,174.0	14,625.9	103,996.4	4,486.3	1,521,547.1	998,196.5	523,350.6	65.6%
2051	16,690.9	95,148.7	0.0	153,964.7	14,838.6	102,780.2	4,643.3	1,541,267.6	1,075,142.1	466,125.5	69.8%
2052	17,040.1	96,763.0	0.0	156,830.5	15,076.0	101,736.0	4,805.8	1,563,754.5	1,160,614.5	403,140.0	74.2%
2053	17,392.0	98,282.1	0.0	159,699.8	15,319.9	100,546.0	4,974.0	1,589,366.6	1,255,281.4	334,085.1	79.0%
2054	17,767.4	99,625.0	0.0	162,801.7	15,582.5	99,412.9	5,148.1	1,618,291.3	1,359,586.1	258,705.3	84.0%
2055	18,157.7	100,659.9	0.0	166,045.3	15,866.2	98,421.2	5,328.3	1,650,645.0	1,473,770.6	176,874.4	89.3%
2056	18,564.0	101,042.2	0.0	169,456.0	16,178.3	97,509.6	5,514.8	1,686,623.6	1,597,802.1	88,821.5	94.7%
2057	18,987.7	95,736.3	0.0	173,030.2	16,510.1	96,393.3	5,707.8	1,726,723.4	1,726,723.4	0.0	100.0%

# SCENARIO A

## Park Employees' Annuity and Benefit Fund of Chicago Projection of Contributions, Liabilities, and Assets

Based on the December 31, 2020 actuarial valuation

Plan provisions for Tier 2a are effective January 1, 2022, per HB 417 legislation.

Tier 1 and 2 member contributions are 9% and Tier 2a Member contributions are 11% for Fiscal Year 2021 and thereafter.

Employer Contributions are ER Normal Cost plus a 35-year closed period amortization of UAL as of December 31, 2022 (phased-in from 2020 to 2023).

Reflects budgeted employer contributions of \$43.2 million for 2021 and \$42.5 million for 2022.

There is supplemental employer contribution of \$40 Million in 2021.

Assuming future investment returns of 6.25% per year rather than 7.25%.

(All dollar amounts are in thousands. Actuarial Liability and asset figures as of end of year.)

Fiscal Year	Employee Contributions	Employer Contributions	Supplemental Contribution	Payroll	Normal Cost	Benefit Payouts	Estimated Expenses	Total		Unfunded Actuarial Liability	Funded Ratio
								Actuarial Liability	Actuarial Value of Assets		
2020								1,190,365.6	342,131.7	848,233.9	28.7%
2021	12,768.8	43,237.3	40,000.0	140,488.2	16,948.6	82,583.2	1,654.3	1,209,267.7	380,437.9	828,829.8	31.5%
2022	12,648.9	41,968.9	0.0	137,955.9	16,731.3	83,785.1	1,712.2	1,228,061.6	371,950.8	856,110.8	30.3%
2023	12,633.5	57,556.6	0.0	136,566.2	16,611.4	85,139.8	1,772.1	1,246,685.7	385,740.9	860,944.8	30.9%
2024	12,647.3	58,373.7	0.0	135,538.0	16,466.2	86,619.8	1,834.2	1,264,970.7	393,597.0	871,373.6	31.1%
2025	12,679.7	59,584.0	0.0	134,788.4	16,332.1	88,152.6	1,898.4	1,282,849.0	399,992.2	882,856.8	31.2%
2026	12,718.9	60,916.9	0.0	134,178.2	16,192.0	89,765.3	1,964.8	1,300,202.3	406,269.8	893,932.4	31.2%
2027	12,755.9	62,277.6	0.0	133,585.0	16,025.7	91,496.0	2,033.6	1,316,841.8	412,394.4	904,447.3	31.3%
2028	12,799.0	63,690.8	0.0	133,090.9	15,868.3	93,411.0	2,104.7	1,332,534.4	418,197.0	914,337.3	31.4%
2029	12,835.8	65,122.4	0.0	132,545.9	15,671.1	95,405.4	2,178.4	1,347,086.5	423,690.8	923,395.7	31.5%
2030	12,884.8	66,623.6	0.0	132,139.9	15,507.5	97,336.5	2,254.7	1,360,517.2	429,029.6	931,487.6	31.5%
2031	12,938.6	68,163.7	0.0	131,772.2	15,341.1	99,463.6	2,333.6	1,372,538.8	434,049.7	938,489.1	31.6%
2032	13,000.0	69,741.3	0.0	131,479.3	15,172.7	101,385.8	2,415.2	1,383,259.5	438,990.8	944,268.7	31.7%
2033	13,073.9	71,363.0	0.0	131,329.0	15,012.5	103,226.0	2,499.8	1,392,678.8	443,992.5	948,686.3	31.9%
2034	13,163.9	73,028.6	0.0	131,364.9	14,863.1	105,103.2	2,587.3	1,400,675.5	449,082.2	951,593.3	32.1%
2035	13,249.0	74,731.9	0.0	131,333.3	14,696.2	106,655.3	2,677.8	1,407,464.6	454,634.8	952,829.8	32.3%
2036	13,359.9	76,484.0	0.0	131,602.3	14,552.0	108,386.5	2,771.6	1,412,797.3	460,571.4	952,225.9	32.6%
2037	13,456.9	78,294.6	0.0	131,695.8	14,398.5	107,403.9	2,868.6	1,419,370.1	469,770.0	949,600.1	33.1%
2038	13,575.5	80,153.4	0.0	132,015.1	14,259.7	108,697.2	2,969.0	1,424,930.5	480,168.1	944,762.4	33.7%
2039	13,700.9	82,066.5	0.0	132,408.3	14,123.9	109,652.5	3,072.9	1,429,758.5	492,249.8	937,508.7	34.4%
2040	13,849.9	84,044.0	0.0	133,076.1	14,015.3	110,386.9	3,180.4	1,434,059.0	506,437.3	927,621.6	35.3%
2041	14,012.5	86,089.4	0.0	133,900.2	13,923.4	110,863.5	3,291.7	1,438,078.8	523,210.5	914,868.3	36.4%
2042	14,195.9	88,235.7	0.0	134,957.3	13,883.4	110,978.2	3,406.9	1,442,228.3	543,230.9	898,997.5	37.7%
2043	14,403.3	90,464.1	0.0	136,288.5	13,875.5	110,705.8	3,526.2	1,446,952.6	567,214.6	879,738.0	39.2%
2044	14,634.6	92,779.0	0.0	137,892.4	13,898.0	110,241.6	3,649.6	1,452,524.4	595,725.9	856,798.5	41.0%
2045	14,881.6	95,192.2	0.0	139,674.1	13,946.7	109,419.9	3,777.3	1,459,403.8	629,538.9	829,865.0	43.1%
2046	15,154.5	97,714.8	0.0	141,761.9	14,033.2	108,506.5	3,909.5	1,467,821.3	669,223.1	798,598.2	45.6%
2047	15,436.2	100,373.5	0.0	143,942.5	14,154.2	107,508.5	4,046.4	1,478,013.0	715,385.1	762,627.9	48.4%
2048	15,728.6	103,167.6	0.0	146,231.6	14,295.0	106,457.5	4,188.0	1,490,183.7	768,636.3	721,547.4	51.6%
2049	16,036.0	106,101.4	0.0	148,664.4	14,443.4	105,346.3	4,334.6	1,504,547.4	829,641.8	674,905.6	55.1%
2050	16,351.2	109,239.5	0.0	151,174.0	14,625.9	103,996.4	4,486.3	1,521,547.1	899,352.1	622,194.9	59.1%
2051	16,690.9	112,602.0	0.0	153,964.7	14,838.6	102,780.2	4,643.3	1,541,267.6	978,431.0	562,836.6	63.5%
2052	17,040.1	116,261.1	0.0	156,830.5	15,076.0	101,736.0	4,805.8	1,563,754.5	1,067,601.6	496,152.9	68.3%
2053	17,392.0	120,301.9	0.0	159,699.8	15,319.9	100,546.0	4,974.0	1,589,366.6	1,168,041.6	421,325.0	73.5%
2054	17,767.4	124,882.6	0.0	162,801.7	15,582.5	99,412.9	5,148.1	1,618,291.3	1,280,979.5	337,311.9	79.2%
2055	18,157.7	130,342.3	0.0	166,045.3	15,866.2	98,421.2	5,328.3	1,650,645.0	1,407,976.6	242,668.4	85.3%
2056	18,564.0	137,489.6	0.0	169,456.0	16,178.3	97,509.6	5,514.8	1,686,623.6	1,551,596.6	135,027.1	92.0%
2057	18,987.7	157,776.8	0.0	173,030.2	16,510.1	96,393.3	5,707.8	1,726,723.4	1,726,723.4	0.0	100.0%

## SCENARIO B

### Park Employees' Annuity and Benefit Fund of Chicago Projection of Contributions, Liabilities, and Assets

Based on the December 31, 2020 actuarial valuation

Plan provisions for Tier 2a are effective January 1, 2022, per HB 417 legislation.

Tier 1 and 2 member contributions are 9% and Tier 2a Member contributions are 11% for Fiscal Year 2021 and thereafter.

Employer Contributions are ER Normal Cost plus a 35-year closed period amortization of UAL as of December 31, 2022 (phased-in from 2020 to 2023).

Reflects budgeted employer contributions of \$43.2 million for 2021 and \$42.5 million for 2022.

There is supplemental employer contribution of \$40 Million in 2021.

Assuming a market return of 0% in 2021 and future investment returns of 7.25%.

(All dollar amounts are in thousands. Actuarial Liability and asset figures as of end of year.)

Fiscal Year	Employee Contributions	Employer Contributions	Supplemental Contribution	Payroll	Normal Cost	Benefit Payouts	Estimated Expenses	Total Actuarial Liability	Actuarial Value of Assets	Unfunded Actuarial Liability	Funded Ratio
2020								1,190,365.6	342,131.7	848,233.9	28.7%
2021	12,768.8	43,237.3	40,000.0	140,488.2	16,948.6	82,583.2	1,654.3	1,209,267.7	376,010.7	833,257.0	31.1%
2022	12,648.9	42,169.3	0.0	137,955.9	16,731.3	83,785.1	1,712.2	1,228,061.6	363,459.7	864,601.9	29.6%
2023	12,633.5	58,069.0	0.0	136,566.2	16,611.4	85,139.8	1,772.1	1,246,685.7	373,781.5	872,904.2	30.0%
2024	12,647.3	59,104.1	0.0	135,538.0	16,466.2	86,619.8	1,834.2	1,264,970.7	378,812.3	886,158.3	29.9%
2025	12,679.7	60,498.5	0.0	134,788.4	16,332.1	88,152.6	1,898.4	1,282,849.0	383,135.8	899,713.2	29.9%
2026	12,718.9	61,973.7	0.0	134,178.2	16,192.0	89,765.3	1,964.8	1,300,202.3	392,629.1	907,573.2	30.2%
2027	12,755.9	63,145.1	0.0	133,585.0	16,025.7	91,496.0	2,033.6	1,316,841.8	402,417.7	914,424.0	30.6%
2028	12,799.0	64,335.0	0.0	133,090.9	15,868.3	93,411.0	2,104.7	1,332,534.4	412,261.0	920,273.4	30.9%
2029	12,835.8	65,512.0	0.0	132,545.9	15,671.1	95,405.4	2,178.4	1,347,086.5	422,082.2	925,004.3	31.3%
2030	12,884.8	66,731.0	0.0	132,139.9	15,507.5	97,336.5	2,254.7	1,360,517.2	431,942.8	928,574.4	31.7%
2031	12,938.6	67,965.6	0.0	131,772.2	15,341.1	99,463.6	2,333.6	1,372,538.8	441,585.9	930,952.9	32.2%
2032	13,000.0	69,218.8	0.0	131,479.3	15,172.7	101,385.8	2,415.2	1,383,259.5	451,225.4	932,034.2	32.6%
2033	13,073.9	70,496.8	0.0	131,329.0	15,012.5	103,226.0	2,499.8	1,392,678.8	460,976.4	931,702.4	33.1%
2034	13,163.9	71,799.2	0.0	131,364.9	14,863.1	105,103.2	2,587.3	1,400,675.5	470,844.1	929,831.4	33.6%
2035	13,249.0	73,118.6	0.0	131,333.3	14,696.2	106,655.3	2,677.8	1,407,464.6	481,181.5	926,283.1	34.2%
2036	13,359.9	74,464.9	0.0	131,602.3	14,552.0	108,386.5	2,771.6	1,412,797.3	491,887.8	920,909.5	34.8%
2037	13,456.9	75,846.3	0.0	131,695.8	14,398.5	107,403.9	2,868.6	1,419,370.1	505,820.3	913,549.9	35.6%
2038	13,575.5	77,250.4	0.0	132,015.1	14,259.7	108,697.2	2,969.0	1,424,930.5	520,896.7	904,033.8	36.6%
2039	13,700.9	78,680.4	0.0	132,408.3	14,123.9	109,652.5	3,072.9	1,429,758.5	537,580.3	892,178.2	37.6%
2040	13,849.9	80,142.8	0.0	133,076.1	14,015.3	110,386.9	3,180.4	1,434,059.0	556,270.9	877,788.0	38.8%
2041	14,012.5	81,636.9	0.0	133,900.2	13,923.4	110,863.5	3,291.7	1,438,078.8	577,424.1	860,654.7	40.2%
2042	14,195.9	83,190.3	0.0	134,957.3	13,883.4	110,978.2	3,406.9	1,442,228.3	601,672.4	840,555.9	41.7%
2043	14,403.3	84,777.6	0.0	136,288.5	13,875.5	110,705.8	3,526.2	1,446,952.6	629,697.3	817,255.3	43.5%
2044	14,634.6	86,395.2	0.0	137,892.4	13,898.0	110,241.6	3,649.6	1,452,524.4	662,022.9	790,501.5	45.6%
2045	14,881.6	88,044.7	0.0	139,674.1	13,946.7	109,419.9	3,777.3	1,459,403.8	699,376.4	760,027.4	47.9%
2046	15,154.5	89,723.8	0.0	141,761.9	14,033.2	108,506.5	3,909.5	1,467,821.3	742,270.4	725,550.9	50.6%
2047	15,436.2	91,442.2	0.0	143,942.5	14,154.2	107,508.5	4,046.4	1,478,013.0	791,239.2	686,773.8	53.5%
2048	15,728.6	93,176.2	0.0	146,231.6	14,295.0	106,457.5	4,188.0	1,490,183.7	846,800.4	643,383.3	56.8%
2049	16,036.0	94,899.9	0.0	148,664.4	14,443.4	105,346.3	4,334.6	1,504,547.4	909,494.0	595,053.4	60.4%
2050	16,351.2	96,635.7	0.0	151,174.0	14,625.9	103,996.4	4,486.3	1,521,547.1	980,099.9	541,447.2	64.4%
2051	16,690.9	98,344.1	0.0	153,964.7	14,838.6	102,780.2	4,643.3	1,541,267.6	1,059,044.8	482,222.8	68.7%
2052	17,040.1	100,008.4	0.0	156,830.5	15,076.0	101,736.0	4,805.8	1,563,754.5	1,146,713.1	417,041.4	73.3%
2053	17,392.0	101,573.1	0.0	159,699.8	15,319.9	100,546.0	4,974.0	1,589,366.6	1,243,782.5	345,584.0	78.3%
2054	17,767.4	102,954.1	0.0	162,801.7	15,582.5	99,412.9	5,148.1	1,618,291.3	1,350,703.3	267,588.0	83.5%
2055	18,157.7	104,014.1	0.0	166,045.3	15,866.2	98,421.2	5,328.3	1,650,645.0	1,467,719.6	182,925.3	88.9%
2056	18,564.0	104,394.2	0.0	169,456.0	16,178.3	97,509.6	5,514.8	1,686,623.6	1,594,786.0	91,837.7	94.6%
2057	18,987.7	98,857.9	0.0	173,030.2	16,510.1	96,393.3	5,707.8	1,726,723.4	1,726,723.4	0.0	100.0%



## SCENARIO C

### Park Employees' Annuity and Benefit Fund of Chicago Projection of Contributions, Liabilities, and Assets

Based on the December 31, 2020 actuarial valuation

Plan provisions for Tier 2a are effective January 1, 2022, per HB 417 legislation.

Tier 1 and 2 member contributions are 9% and Tier 2a Member contributions are 11% for Fiscal Year 2021 and thereafter.

Employer Contributions are ER Normal Cost plus a 35-year closed period amortization of UAL as of December 31, 2022 (phased-in from 2020 to 2023).

Reflects budgeted employer contributions of \$43.2 million for 2021 and \$42.5 million for 2022.

There is supplemental employer contribution of \$40 Million in 2021.

Assumes that 50% of Tier 2 actives make an election into Tier 2a.

(All dollar amounts are in thousands. Actuarial Liability and asset figures as of end of year.)

Fiscal Year	Employee Contributions	Employer Contributions	Supplemental Contribution	Payroll	Normal Cost	Benefit Payouts	Estimated Expenses	Total Actuarial Liability	Actuarial Value of Assets	Unfunded Actuarial Liability	Funded Ratio
2020								1,190,365.6	342,131.7	848,233.9	28.7%
2021	13,339.7	43,237.3	40,000.0	140,488.2	16,948.6	81,183.5	1,654.3	1,210,718.1	383,188.3	827,529.8	31.6%
2022	13,184.8	41,507.0	0.0	137,955.9	16,748.2	83,872.1	1,712.2	1,229,545.2	376,370.1	853,175.0	30.6%
2023	13,138.1	56,862.2	0.0	136,566.2	16,616.4	85,317.2	1,772.1	1,248,098.3	392,390.6	855,707.7	31.4%
2024	13,125.4	57,539.7	0.0	135,538.0	16,447.7	86,875.1	1,834.2	1,266,201.3	403,230.3	862,971.0	31.8%
2025	13,131.1	58,541.3	0.0	134,788.4	16,278.4	88,469.6	1,898.4	1,283,782.8	413,388.9	870,393.9	32.2%
2026	13,149.9	59,606.5	0.0	134,178.2	16,112.2	90,056.0	1,964.8	1,300,816.8	423,611.0	877,205.7	32.6%
2027	13,175.1	60,695.5	0.0	133,585.0	15,944.4	91,780.1	2,033.6	1,317,119.2	433,807.3	883,311.8	32.9%
2028	13,212.5	61,826.9	0.0	133,090.9	15,799.6	93,715.8	2,104.7	1,332,442.4	443,766.5	888,675.9	33.3%
2029	13,241.5	62,954.3	0.0	132,545.9	15,609.2	95,615.4	2,178.4	1,346,703.9	453,578.3	893,125.6	33.7%
2030	13,282.4	64,137.2	0.0	132,139.9	15,455.5	97,556.3	2,254.7	1,359,823.2	463,270.3	896,552.9	34.1%
2031	13,330.4	65,344.5	0.0	131,772.2	15,304.2	99,612.3	2,333.6	1,371,600.9	472,747.8	898,853.1	34.5%
2032	13,383.7	66,555.9	0.0	131,479.3	15,134.0	101,583.7	2,415.2	1,382,007.1	482,092.5	899,914.5	34.9%
2033	13,444.1	67,789.7	0.0	131,329.0	14,964.2	103,467.8	2,499.8	1,391,033.2	491,414.9	899,618.3	35.3%
2034	13,527.9	69,054.2	0.0	131,364.9	14,819.2	105,388.7	2,587.3	1,398,567.6	500,728.7	897,838.9	35.8%
2035	13,604.6	70,326.0	0.0	131,333.3	14,645.5	107,033.9	2,677.8	1,404,757.2	510,316.3	894,440.9	36.3%
2036	13,702.2	71,631.3	0.0	131,602.3	14,496.5	108,821.3	2,771.6	1,409,383.5	520,103.2	889,280.3	36.9%
2037	13,787.1	72,977.4	0.0	131,695.8	14,345.9	107,850.5	2,868.6	1,415,189.8	532,987.9	882,201.9	37.7%
2038	13,897.7	74,342.1	0.0	132,015.1	14,210.9	109,237.6	2,969.0	1,419,834.8	546,794.2	873,040.6	38.5%
2039	14,010.9	75,722.7	0.0	132,408.3	14,066.1	110,301.1	3,072.9	1,423,559.2	561,939.7	861,619.5	39.5%
2040	14,143.5	77,134.7	0.0	133,076.1	13,943.5	111,058.0	3,180.4	1,426,637.9	578,888.0	847,749.9	40.6%
2041	14,295.2	78,583.7	0.0	133,900.2	13,849.4	111,519.7	3,291.7	1,429,360.3	598,130.0	831,230.2	41.8%
2042	14,470.7	80,089.4	0.0	134,957.3	13,808.0	111,711.7	3,406.9	1,432,036.8	620,190.8	811,846.0	43.3%
2043	14,664.3	81,623.0	0.0	136,288.5	13,787.8	111,444.3	3,526.2	1,435,162.8	645,794.5	789,368.3	45.0%
2044	14,890.0	83,191.6	0.0	137,892.4	13,811.1	111,072.1	3,649.6	1,438,926.0	675,371.5	763,554.6	46.9%
2045	15,122.6	84,783.5	0.0	139,674.1	13,843.8	110,430.7	3,777.3	1,443,661.8	709,515.6	734,146.2	49.1%
2046	15,375.3	86,406.1	0.0	141,761.9	13,909.8	109,671.0	3,909.5	1,449,599.0	748,728.8	700,870.2	51.7%
2047	15,638.2	88,069.4	0.0	143,942.5	14,013.1	108,831.8	4,046.4	1,456,947.1	793,508.8	663,438.2	54.5%
2048	15,909.7	89,753.4	0.0	146,231.6	14,138.9	107,757.6	4,188.0	1,466,076.0	844,528.2	621,547.8	57.6%
2049	16,208.0	91,428.9	0.0	148,664.4	14,285.3	106,861.5	4,334.6	1,476,952.2	902,068.4	574,883.8	61.1%
2050	16,505.2	93,103.7	0.0	151,174.0	14,443.4	105,808.3	4,486.3	1,489,877.9	966,758.0	523,119.9	64.9%
2051	16,821.2	94,761.0	0.0	153,964.7	14,633.7	104,730.0	4,643.3	1,505,062.3	1,039,137.2	465,925.2	69.0%
2052	17,151.9	96,376.6	0.0	156,830.5	14,853.6	103,745.2	4,805.8	1,522,604.0	1,119,632.7	402,971.2	73.5%
2053	17,491.3	97,900.8	0.0	159,699.8	15,089.5	102,617.9	4,974.0	1,542,838.4	1,208,889.2	333,949.3	78.4%
2054	17,856.7	99,244.1	0.0	162,801.7	15,341.9	101,789.7	5,148.1	1,565,668.9	1,307,065.2	258,603.7	83.5%
2055	18,235.6	100,272.9	0.0	166,045.3	15,607.2	100,784.0	5,328.3	1,591,481.2	1,414,673.0	176,808.2	88.9%
2056	18,633.5	100,663.9	0.0	169,456.0	15,917.8	99,926.3	5,514.8	1,620,386.7	1,531,595.6	88,791.2	94.5%
2057	19,047.7	95,358.6	0.0	173,030.2	16,233.5	98,813.9	5,707.8	1,652,879.3	1,652,879.3	0.0	100.0%