Laborers' & Retirement Board and Employees' Annuity and Benefit Fund of Chicago

Actuarial Valuation Report for the Year Ending December 31, 2018

April 2019

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April 11, 2019

The Retirement Board of the
Laborers' and Retirement Board Employees'
Annuity and Benefit Fund of Chicago
321 North Clark Street, Suite 1300
Chicago, Illinois 60654

Subject: Actuarial Certification

Dear Members of the Board:

At your request, we have performed an actuarial valuation of the Laborers' and Retirement Board Employees' Annuity and Benefit Fund of Chicago ("the Fund") as of December 31, 2018. An actuarial valuation of the Fund is performed annually. The purposes of the actuarial valuation are to review the funded status of the Fund as of December 31, 2018, and develop the Actuarial Determined Contribution ("ADC") for fiscal year 2019 as defined in GASB Statement Nos. 67 and 68. The assumptions and methods used were recommended by the actuary and approved by the Board. Disclosure information required under GASB Statement Nos. 67 and 68 is provided in a separate report.

We have provided the supporting schedules for the actuarial section of the comprehensive annual financial report, including:

- Active Member Valuation Data;
- Retirees and Beneficiaries Added to and Removed from Rolls;
- Solvency (Termination) Test; and
- Analysis of Financial Experience.

We have also provided the following schedules for the financial sections of the report:

- Schedule of Funding Progress; and
- Schedule of Employer Contributions.

This actuarial valuation is based upon:

a. **Data Relative to the Members of the Fund** – Data utilized for active members and persons receiving benefits from the Fund was provided by the Fund's staff. We have tested this data for reasonableness; however, we have not audited the data.

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b. **Asset Values** – The values of assets of the Fund were provided by the Fund's staff. An actuarial value of assets was used in determining the Actuarial Determined Contribution ("ADC").

c. **Actuarial Method** – The actuarial method utilized by the Fund is the Entry-Age Normal Actuarial Cost Method. The objective of this method is to recognize the costs of Fund benefits over the entire career of each member as a level percentage of compensation. Any Unfunded Actuarial Accrued Liability ("UAAL") under this method is separately amortized. All actuarial gains and losses under this method are reflected in the UAAL.

d. **Actuarial Assumptions** – Updated actuarial assumptions have been adopted by the Board beginning with this actuarial valuation based on the recommendations of the experience study performed for the period from January 1, 2012, to December 31, 2016.

e. **Plan Provision –** The actuarial valuation is based on plan provisions in effect as of December 31, 2018.

The funding objective is to provide employer and employee contributions sufficient to provide the benefits of the Fund when due. Pursuant to Public Act ("P.A.") 100-0023, effective July 6, 2017, the funding policy was amended and requires City contributions to equal $36 million in payment year 2018, $48 million in payment year 2019, $60 million in payment year 2020, $72 million in payment year 2021 and $84 million in payment year 2022. For payment years after 2022, the City contribution equals the sum of the net employer normal cost plus a level percent of payroll amortization of the unfunded liability needed to attain a 90 percent funded ratio by 2058 on an open group basis. After 2058, the City contribution equals the amount necessary to maintain the 90 percent funded ratio. While the new statutory funding policy is an improvement over the prior funding policy, it does not comply with generally accepted actuarial standards for the funding of retirement plans, and therefore we recommend strengthening the policy.

The most recent actuarial valuation of the Fund on the State reporting basis indicates that a contribution of $148 million is needed to adequately finance the Fund in Fiscal Year 2019 on an actuarial basis under a policy of contributing normal cost plus 30-year level dollar amortization of the unfunded liability. This compares to the statutory required City Contribution of $60 million in tax levy year 2019. It should be noted that the statutory employer contributions have been less than the Actuarial Determined Contribution for the past 13 years and are again expected to be less than the ADC for 2019.

The actuarial valuation results set forth in this report are based on the data and actuarial techniques described above, and upon the provisions of the Fund as of the actuarial valuation date. Based on these items, we certify these results to be true and correct. Alex Rivera, Jeffrey T. Tebeau and Lance J. Weiss are Members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein.

This report may be provided to parties other than the Fund only in its entirety and only with the permission of the Fund. GRS is not responsible for unauthorized use of this report.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law.

This report should not be relied on for any purpose other than the purpose stated.

The signing actuaries are independent of the plan sponsor.

Respectfully submitted,

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Summary of Actuarial Valuation

	December 31, 2017	December 31, 2018	% Change
Actuarial Values			
Actuarial Liability	$ 2,578,745,050	$ 2,652,874,883	**2.87 %**
Assets - Actuarial Value	1,245,119,356	1,185,292,117	**(4.80)%**
Unfunded Liability (Surplus)	1,333,625,694	1,467,582,766	**10.04 %**
Funded Ratio	**48.28%**	**44.68%**	**(7.46)%**
Actuarial Determined Contribution (ADC)	$ 129,247,584	$ 148,409,689	**14.83 %**
Market Values			
Actuarial Liability	$ 2,578,745,050	$ 2,652,874,883	**2.87 %**
Assets - Market Value	1,267,554,561	1,094,683,851	**(13.64)%**
Unfunded Liability	1,311,190,489	1,558,191,032	**18.84 %**
Funded Ratio	**49.15%**	**41.26%**	**(16.06)%**
Book Values			
Actuarial Liability	$ 2,578,745,050	$ 2,652,874,883	**2.87 %**
Assets - Book Value	1,012,876,216	1,022,123,846	**0.91 %**
Unfunded Liability (Surplus)	1,565,868,834	1,630,751,037	**4.14 %**
Funded Ratio	**39.28%**	**38.53%**	**(1.91)%**

Actuarial Liability includes pension liability only. Pursuant to the provisions contained in P.A. 98-0043, the city terminated health insurance supplement payments to eligible annuitants as of December 31, 2016, resulting in no OPEB liability.

Summary of Actuarial Valuation

	December 31, 2017	December 31, 2018	% Change
Assets			
Market Value - Beginning of Year	$1,167,740,724	$1,267,554,561	**8.55 %**
Income			
Investment Income	207,981,245	(75,219,068)	**(136.17)%**
Employer Contributions & Misc.	35,456,607	48,505,714	**36.80 %**
Employee Contributions	17,410,821	17,836,801	**2.45 %**
Subtotal	260,848,673	(8,876,553)	**(103.40)%**
Outgo (Refunds, Benefits & Expenses)	161,034,836	163,994,157	**1.84 %**
Net Change	99,813,837	(172,870,710)	**(273.19)%**
Market Value - End of Year	$1,267,554,561	$1,094,683,851	**(13.64)%**
Gain (Loss) on Investment Return	$124,383,638	($161,034,333)	
Estimated Rate of Return [1]	18.68%	(6.37)%	
Book Value - Beginning of Year	$1,068,986,041	$1,012,876,216	**(5.25)%**
Income			
Investment Income	52,057,583	106,899,272	**105.35 %**
Employer Contributions & Misc.	35,456,607	48,505,714	**36.80 %**
Employee Contributions	17,410,821	17,836,801	**2.45 %**
Subtotal	104,925,011	173,241,787	**65.11 %**
Outgo (Refunds, Benefits & Expenses)	161,034,836	163,994,157	**1.84 %**
Net Change	(56,109,825)	9,247,630	**116.48 %**
Book Value - End of Year	$1,012,876,216	$1,022,123,846	**0.91 %**
Gain (Loss) on Investment Return	(24,133,422)	39,548,187	
Estimated Rate of Return [1]	5.13%	11.50 %	
Actuarial Value - Beginning of Year	$1,263,664,871	$1,245,119,356	**(1.47)%**
Income			
Investment Income	89,621,893	37,824,403	**(57.80)%**
Employer Contributions & Misc.	35,456,607	48,505,714	**36.80 %**
Employee Contributions	17,410,821	17,836,801	**2.45 %**
Subtotal	142,489,321	104,166,918	**(26.89)%**
Outgo (Refunds, Benefits & Expense)	161,034,836	163,994,157	**1.84 %**
Net Change	(18,545,515)	(59,827,239)	**(222.60)%**
Actuarial Value - End of Year	$1,245,119,356	$1,185,292,117	**(4.80)%**
Gain (Loss) on Investment Return	($1,170,025)	($46,364,310)	
Estimated Rate of Return [1]	7.41%	3.26 %	

[1]*Net of investment expenses.*

Summary of Actuarial Valuation

	December 31, 2017	December 31, 2018	% Change
Members			
Actives [1]	2,794	2,715	**(2.83)%**
Inactives	1,469	1,489	**1.36 %**
Retirees	2,585	2,594	**0.35 %**
Survivors	1,050	1,030	**(1.90)%**
Reversionary Annuitants [2]	28	27	**(3.57)%**
Disabilities	219	168	**(23.29)%**
Children	40	37	**(7.50)%**
Payroll Data			
Valuation Payroll	$ 208,442,487	$ 211,482,201	**1.46 %**
Average Salary	$ 74,604	$ 77,894	**4.41 %**

[1]*Active participants include disabled employees.*
[2]*Includes 23 Reversionary Annuitants as of December 31, 2017, and 22 Reversionary Annuitants as of December 31, 2018, who are also Survivors.*

Discussion of Valuation Results

This report sets forth the results of the actuarial valuation of the Laborers' and Retirement Board Employees' Annuity and Benefit Fund of Chicago as of December 31, 2018. The purposes of this actuarial valuation are:

1. To develop the Actuarial Determined Contribution for fiscal year 2019, under GASB Statements Nos. 67 and 68; and
2. To review the funding status of the Fund as of December 31, 2018.

The results of the Fund's actuarial valuation for GASB Statements Nos. 67 and 68 financial reporting purposes are provided in a separate report.

The funded status in basic terms is a comparison of the Fund's liabilities to assets expressed as either an unfunded liability or as a ratio of assets to liabilities. This comparison can be measured in various ways. Fund liabilities are dependent on the actuarial assumptions and actuarial cost method. Fund assets can be measured at market value, book value or some variation to smooth the fluctuations that invariably occur from year to year.

For Fund and City financial reports, the funding status is measured using liabilities under the Entry Age Normal funding method and the Actuarial Value of Assets. The Actuarial Value of Assets is determined by annually spreading the difference between expected and actual investment earnings over a five-year period.

Actuarial Obligations of the Fund

The value of all future pension payments, calculated using the actuarial assumptions contained in this report, is the sum of payments to two major groups of beneficiaries – the retired lives and the active lives.

1. **Retired Lives:**

   For those currently receiving known benefits; i.e., current retirees, widows, widowers and children, the value is determined based on estimated future longevity with future benefit payments discounted to present time at the assumed investment earnings rate.

2. **Active Lives:**

   The value of future payments for active employees who will receive benefits in the future is estimated, because the amount of pension is only known at the actual time of retirement. This estimate is made using various assumptions as to future salary increases; probable retirement age; and probability of death, withdrawal or disablement before retirement. For active employees, the goal is to have enough assets on hand at retirement to pay for all future benefits promised. To provide for an orderly accumulation of these required assets, an actuarial funding method is used. Using the "Entry Age Normal" funding method, assets are allocated as a level amount (expressed as a percentage of salary) over the employee's working lifetime. These allocated costs are called "normal costs" and are sufficient, if set aside each year, to fully fund his or her benefits when and if she or he retires. The actuarial reserve (amount of assets needed now) is the present value of future benefits less the present value of future normal costs to be paid.

The difference between the sum of actuarial reserves for active and retired lives ("the Actuarial Accrued Liability") and the Actuarial Value of Assets is called the "Unfunded Actuarial Accrued Liability." If assets exceed the liability, there is a surplus. The unfunded liability depends upon the benefits, the characteristics of the covered group of employees and retirees, the actuarial assumptions and the actuarial funding method. The unfunded liability can be thought of as the amount of assets that will be needed in future years to provide for all future benefits payable when added to the future normal costs determined by the actuarial funding method, and current assets.

3. **Actuarial Balance**:

For the pension fund to be in balance (funded ratio of 100 percent), the present value of all benefits payable in the future must equal the sum of present assets plus the present value of all future contributions. If a plan is 100 percent funded, it does not mean that no contributions are ever needed again. It simply means that the plan is where it should be at a particular point in time; i.e., the assets of the plan are sufficient to provide for future benefits payable based on service to the date of valuation. **Future contributions are still needed** to fund the "normal costs" for service after the date of the valuation in order to have sufficient assets at retirement to provide the future payments of the total projected benefit.

Summary of Results

The term Annual Required Contribution ("ARC") is no longer defined in the GASB Statements. However, under GASB Statements Nos. 67 and 68, the Actuarial Determined Contribution ("ADC") is defined as:

A target or recommended contribution to a defined benefit pension plan for the reporting period, determined in conformity with the Actuarial Standards of Practice based on the most recent measurement date available when the contribution for the reporting period was adopted.

The ADC is presented in the financial statements as Required Supplementary Information and is compared to the actual contributions to the Fund that are calculated under the current statutory funding policy. The ADC under GASB Statements Nos. 67 and 68 for the year ending December 31, 2019, is $148.41 million. This amount is net of estimated employee contributions of $17.94 million and is based on a 30-year open amortization period.

Effective with Fiscal Year Ending December 31, 2014, GASB Statement No. 67 replaced GASB Statement No. 25 for pension plan financial reporting requirements. GASB Statement No. 68 replaced GASB Statement No. 27 for employer financial reporting effective with fiscal year ending December 31, 2015.

The significant provisions of GASB Statements Nos. 67 and 68 include:

1. Recognizing the entire Net Pension Liability (similar to the Unfunded Actuarial Liability) on the balance sheet. The Net Pension Liability is comparable to the Net Pension Obligation which was recognized under GASB Statement No. 27.

2. Use of a Single Equivalent Discount Rate based on:
    a. The full funding rate (7.25 percent) during the period that projected benefits for all current members can be paid from current assets and projected investment return, future employee contributions from current members, and future employer contributions attributable to current members, and
    b. The municipal bond rate (3.71 percent as of December 31, 2018) during the period that plan assets, attributable to current members, are projected to be depleted.

3. Use of Market Value of Assets to calculate Net Pension Liability.

4. Elimination of the Annual Pension Cost and replacing it with the Pension Expense, which is determined under a much shorter amortization period than 30 years.

Due to the single equivalent discount rate and shorter amortization periods required under GASB Statements Nos. 67 and 68, the unfunded liabilities and pension expense will be much higher and more volatile than under the prior GASB standards. The measurements required under GASB Statements Nos. 67 and 68 are provided in a separate report.

The Unfunded Actuarial Accrued Liability based on the Actuarial Value of Assets increased from $1,333.63 million to $1,467.58 million during the year, resulting in a decrease in the funded ratio from 48.3 percent to 44.7 percent. The increase in the Unfunded Actuarial Accrued Liability is mainly due to (1) unfavorable investment experience, and (2) contributions less than the Normal Cost plus interest on the Unfunded Actuarial Liability. A more thorough examination of these and other factors can be found in the Reconciliation of Unfunded Actuarial Accrued Liability (gain/loss analysis) in Table 2 and the Reconciliation of Funded Ratio in Table 2A.

Based on the Market Value of Assets, the Unfunded Actuarial Accrued Liability increased from $1,311.19 million to $1,558.19 million, and the funded ratio decreased from 49.2 percent to 41.3 percent.

According to the 50-year projections provided in Table 4 of this report, the funded ratio is projected to decline from 44.7 percent in 2018 to 37.4 percent in 2022 and then increase gradually to 90.0 percent in 2058. However, the funded ratio doesn't reach 50 percent until 2049. For payment years after 2022, the level percent of payroll amortization of the unfunded liability is equal to 48.156 percent.

Discussion of Valuation Results

Plan Membership

The major characteristics of the data on the members of the Fund are summarized as follows:

	December 31, 2017	December 31, 2018
Active Members [1]		
Number	2,794	2,715
Vested	1,979	1,884
Non-vested	815	831
Average Age	48.1	48.2
Average Service	16.1	16.3
Average Annual Salary	$74,604	$77,894
Inactive Members		
Number	1,469	1,489
Average Age	59.2	59.9
Average Service	2.1	2.2
Retirees		
Number	2,585	2,594
Average Age	70.5	70.7
Average Annual Benefit	$50,807	$52,478
Surviving Spouses		
Number	1,050	1,030
Average Age	77.5	77.5
Average Annual Benefit	$15,629	$16,020
Reversionary Annuitants [2]		
Number	28	27
Average Age	72.1	73.8
Average Annual Benefit	$6,018	$5,753
Children	40	37
Total Members	7,966	7,892

[1] *Active members include disabled employees.*

[2] *Includes 23 Reversionary Annuitants as of December 31, 2017, and 22 Reversionary Annuitants as of December 31, 2018, who are also Survivors.*

Total participants receiving benefits under the Fund, including disability, surviving spouses, reversionary annuitants and children, decreased 1.68 percent during 2018, from 3,922 to 3,856, Total expenditures for benefits increased from $155 million in 2017 to $157 million during 2018, or 1.29 percent.

Discussion of Valuation Results

Changes in Provisions of the Fund

There were no significant Public Acts passed in 2018 that made changes to the Fund provisions. However, Public Act 100-1166, was passed in January 2019.

A detailed description of the provisions of the Public Acts can be found in the Historical Information section of this report.

Discussion of Actuarial Assumptions

Actuarial assumptions are used to project future demographic and economic expectations for purposes of valuing the liabilities of the plan. The assumptions should reflect current patterns; however, their primary orientation is the long-term outlook for each factor affecting the actuarial valuation. Thus, while actual experience will fluctuate over the short run, actuarial assumptions are chosen in an attempt to model the future long term experience.

There are two general types of actuarial assumptions:

1. **Demographic Assumptions** – reflect the flow of participants into and out of a retirement system; and

2. **Economic Assumptions** – reflect the effects of the economic climate on a retirement system.

Demographic assumptions can be readily studied over recent plan experience. Economic assumptions can be studied against recent experience; however, future experience is more likely to be a result of outside factors than of plan specifics. The most significant demographic assumptions are active turnover, retirement and post-retirement mortality. The most significant economic assumptions are pay increases, investment return and inflation. Other actuarial assumptions include disability incidence, active mortality and percent married.

The actuarial assumptions used for this report are based on the results of the experience study performed for the period January 1, 2012, through December 31, 2016.

Experience Analysis

The Fund had an investment loss in 2018 of $161.0 million relative to the 7.25 percent expected rate of return, on a market value of assets basis. The loss on an actuarial value of assets basis relative to the 7.25 percent expected rate of return was $46.4 million.

Individual salary increases varied among plan participants, but the overall increase was greater than anticipated by the actuarial assumptions, resulting in an experience loss of $9.5 million.

Combined City and employee contributions were less than Normal Cost plus interest on the Unfunded Actuarial Accrued Liability, which resulted in an increase in the Unfunded Actuarial Accrued Liability of

$72.6 million. Contributions lower than Normal Cost plus interest have increased the Unfunded Actuarial Accrued Liability for the past 15 years.

There was an additional loss of $5.5 million from all other factors, including actual retirement, termination, disability, mortality experience and data changes. This is about -0.21% percent of the liabilities at December 31, 2018, which is a reasonable variation in aggregate.

Tables 2 and 2A summarize the experience gains and losses for the year.

Funding Analysis

The charts beginning on page 13 summarize the various measures of benefit security (funded ratio) examined in this valuation and highlight the trends of the measures.

Conclusion

When measured using the Actuarial Value of Assets, which smooths gains and losses over a five-year period, the funded ratio decreased from 48.3 percent in 2017 to 44.7 percent in 2018. On a market value of assets basis the funded ratio decreased from 49.2 percent in 2017 to 41.3 percent in 2018. There are deferred losses that will be recognized in the Actuarial Value of Assets in the next four years. Therefore, the funded ratio using the Actuarial Value of Assets is expected to decrease toward the funded ratio using the Market Value of Assets. Contributions continue to be insufficient to adequately finance the plan, and will result in further decreases in the funding ratio. Under the current funding policy, the funded ratio is projected to decline from 44.7 percent in 2018 to 37.4 percent in 2022 and then increase gradually to 52.05 percent in 2049 and ultimately to 90.0 percent in 2058. For payment years after 2022, the level percent of payroll amortization of the unfunded liability is equal to 48.156 percent.

The current statutory funding policy tends to back-load contributions and defers funding into the future and places a higher burden on future generations of taxpayer; thus, we would recommend strengthening the current statutory funding policy.

We recommend the following changes:

1. Implement a funding policy that contributes normal cost plus closed-period amortization as a level percentage of capped payroll amortization of the unfunded liability. Implement a policy which recognizes unfunded liability at the valuation date and not projected liability in the year 2058.
2. Target 100 percent funded; and
3. Shorten the amortization period to 15 or 20 years to avoid negative amortization of the unfunded actuarial accrued liability.

Finally, we strongly recommend that stress testing be performed and we will work with the Fund on developing specific stress testing scenarios.

We recognize that the State Statute governs the funding policy of the Fund. The purpose of these recommendations is to highlight the difference between the Statutory appropriation methodology and an actuarially sound funding policy and to highlight the risks and additional costs of continuing to underfund the Fund.

Risk Measures

The determination of the accrued liability and the statutory contribution requires the use of actuarial assumptions regarding future economic and demographic experience. Risk measures, as illustrated in this report, are intended to aid in the understanding of the effects of future experience differing from the actuarial assumptions used in the course of the actuarial valuation. Risk measures may also help with illustrating the potential volatility in the accrued liability and the total required employer contribution that result from the differences between actual experience and the actuarial assumptions.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions due to changing conditions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period, or additional cost or contribution requirements based on the Fund's funded status); and changes in plan provisions or applicable law. The scope of an actuarial valuation does not include an analysis of the potential range of such future measurements.

Examples of risk that may reasonably be anticipated to significantly affect the Fund's future financial condition include:

1. Investment risk – actual investment returns may differ from the expected returns;
2. Asset/Liability mismatch – changes in asset values may not match changes in liabilities, thereby altering the gap between the accrued liability and assets and consequently altering the funded status and contribution requirements;
3. Contribution risk – actual contributions may differ from expected future contributions. For example, actual contributions may not be made in accordance with the Fund's funding policy or material changes may occur in the anticipated number of covered employees, covered payroll, or other relevant contribution base;
4. Salary and Payroll risk – actual salaries and total payroll may differ from expected, resulting in actual future accrued liability and contributions differing from expected;
5. Longevity risk – members may live longer or shorter than expected and receive pensions for a period of time other than assumed; and
6. Other demographic risks – members may terminate, retire or become disabled at times or with benefits other than assumed resulting in actual future accrued liability and contributions differing from expected.

The effects of certain trends in experience can generally be anticipated. For example if the investment return since the most recent actuarial valuation is less (or more) than the assumed rate, the cost of the plan can be expected to increase (or decrease). Likewise if longevity is improving (or worsening), increases (or decreases) in cost can be anticipated.

The statutory contribution for payment year 2020 shown on page 17 should be considered as the minimum contribution that complies with the funding policy governed by statute. The timely receipt of the statutory contribution is critical to support the financial health of the System. Users of this report should be aware that contributions made at the statutorily determined amount do not necessarily guarantee benefit security.

Plan Maturity Measures

Risks facing a pension plan evolve over time. A young plan with virtually no investments and paying few benefits may experience little investment risk. An older plan with a large number of members in pay status and a significant trust may be much more exposed to investment risk. Generally accepted plan maturity measures include the following:

	2018	2017
Ratio of the Market Value of Assets to Covered Payroll	5.18	6.08
Ratio of Actuarial Accrued Liability to Covered Payroll	12.54	12.37
Ratio of Actives to Retirees and Beneficiaries	0.74	0.76
Ratio of Net Cash Flow to Market Value of Assets	-8.92%	-8.53%

Ratio of Market Value of Assets to Payroll

The relationship between assets and payroll is a useful indicator of the potential volatility of contributions. For example, if the market value of assets is 5.0 times the payroll, a return on assets 5 percent different than assumed would equal 25 percent of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in plan sponsor contributions as a percentage of payroll.

Ratio of Actuarial Accrued Liability to Payroll

The relationship between actuarial accrued liability and payroll is a useful indicator of the potential volatility of contributions for a fully funded plan. A funding policy that targets a funded ratio of 100 percent is expected to result in the ratio of assets to payroll and the ratio of liability to payroll converging over time.

The ratio of liability to payroll may also be used as a measure of sensitivity of the liability itself. For example, if the actuarial accrued liability is 13 times the payroll, a change in liability 2 percent other than assumed would equal 26 percent of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in liability (and also plan sponsor contributions) as a percentage of payroll.

Risk Measures

Ratio of Actives to Retirees and Beneficiaries

A young plan with many active members and few retirees will have a high ratio of active to retirees. A mature open plan may have close to the same number of actives to retirees resulting in a ratio near 1.0. A super-mature or closed plan may have significantly more retirees than actives resulting in a ratio below 1.0.

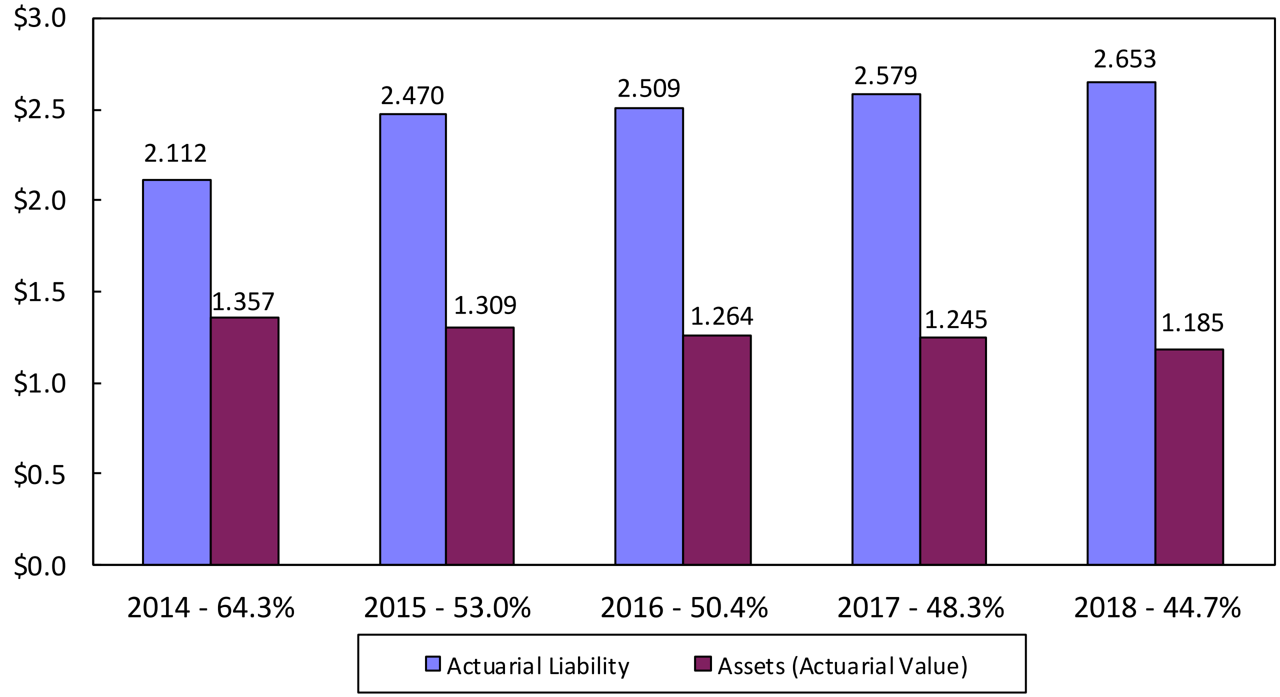
Ratio of Net Cash Flow to Market Value of Assets

A positive net cash flow means contributions exceed benefits and expenses. A negative cash flow means existing funds are being used to make payments. A certain amount of negative net cash flow is generally expected to occur when benefits are prefunded through a qualified trust. Large negative net cash flows as a percent of assets may indicate a super-mature plan or a need for additional contributions.

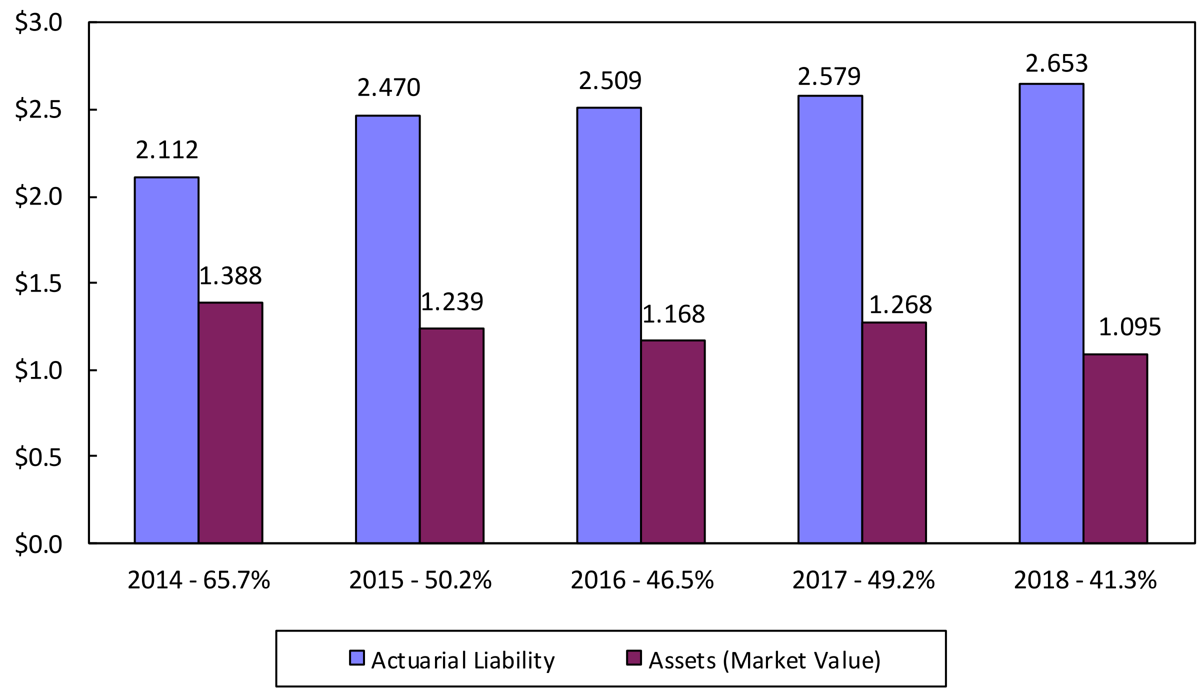
Additional Risk Assessment

Additional risk assessment is outside the scope of the annual actuarial valuation. Additional assessment may include scenario tests, sensitivity tests, stochastic modeling, stress tests and a comparison of the present value of accrued benefits at low-risk discount rates with the actuarial accrued liability. At the Board’s request, we conducted additional risk assessment of investment and contribution risk through stress testing the investment return assumption and future active population growth.

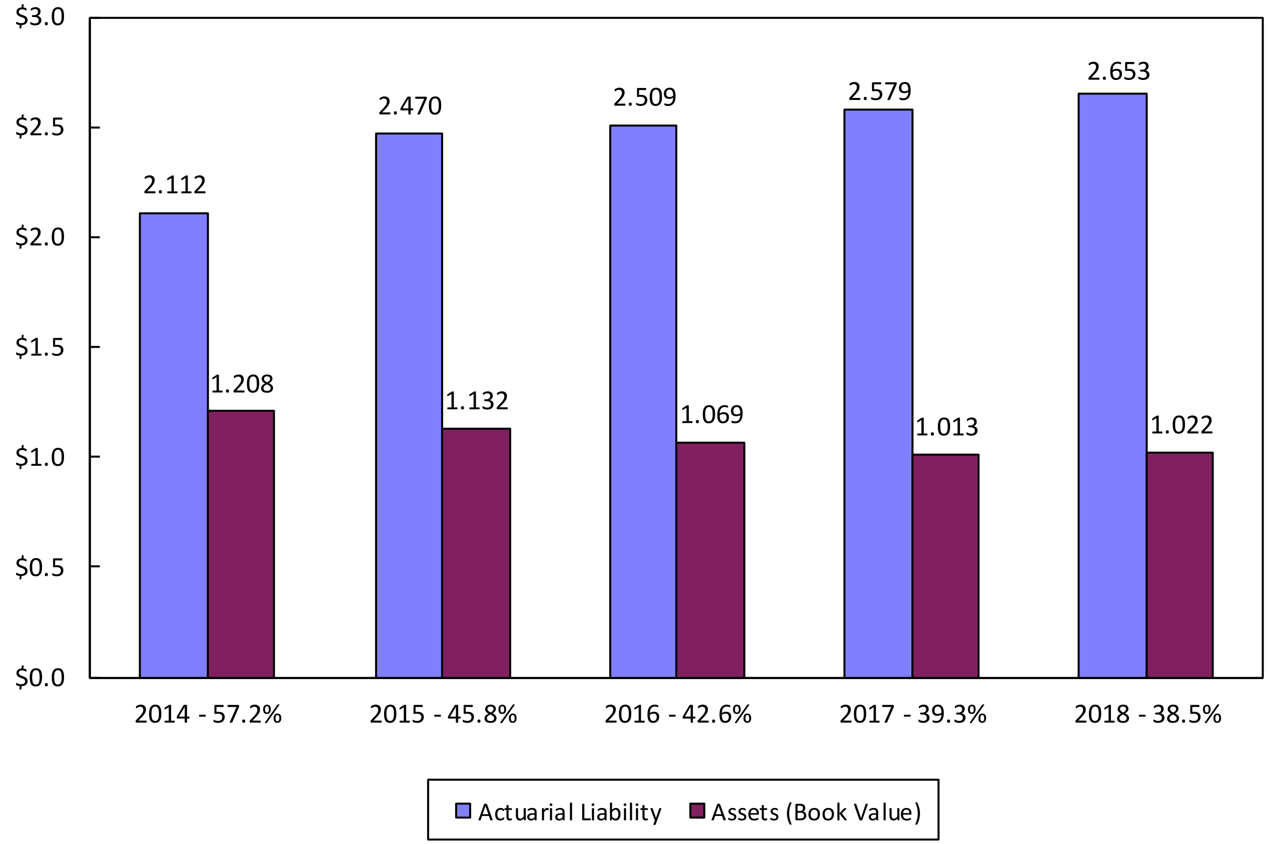
Components of Funding Ratio Based on Actuarial Value
($ in Billions)



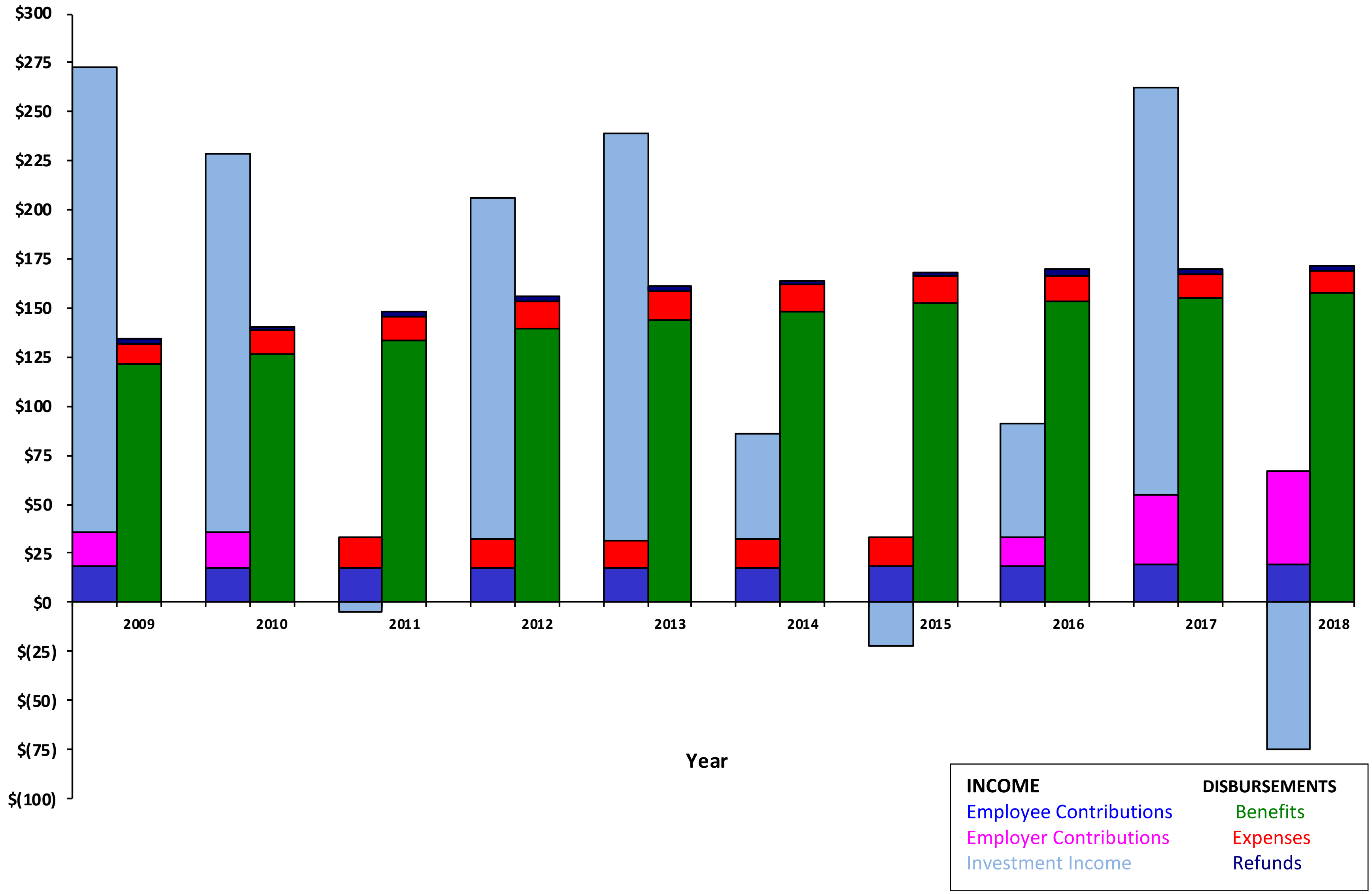
Components of Funding Ratio Based on Market Value
($ in Billions)



Components of Funding Ratio Based on Book Value
($ in Billions)



Summary of Income and Disbursements
($ in Millions)



ACTUARIAL COMPUTATIONS

Table 1
Development of Actuarial Determined Contribution under GASB Statements Nos. 67 and 68 for 2019

Fiscal Year		2018	2019
Payment Year		**2019**	**2020**
(1)	Normal Cost [1]	$ 39,336,823	$ 40,864,296
(2)	Actuarial Accrued Liability (AAL)	2,578,745,050	2,652,874,883
(3)	Unfunded AAL (UAAL)		
	(a) Actuarial Value of Assets	1,245,119,356	1,185,292,117
	(b) UAAL [2-3(a)]	1,333,625,694	1,467,582,766
(4)	Covered Payroll	208,442,487	211,482,201
(5)	Amortization (30-Year Level $) Payable at Mid-year [1]	102,735,335	117,081,193
(6)	Minimum Actuarially Calculated Contribution		
	(a) Interest Adjustment for May 1st Payment Date [2]	5,244,688	8,408,678
	(b) Total Minimum Contribution [1+5+6(a); but not less than zero]	147,316,846	166,354,167
	(c) Total Minimum Contribution (Percent of Pay)	70.68%	78.66%
(7)	Estimated Member Contributions [3]	18,069,262	17,944,478
(8)	Actuarial Determined Contribution (ADC)		
	(a) Actuarial Determined Contribution [6(b)-7]	$ 129,247,584	$ 148,409,689
	(b) Actuarial Determined Contribution (Percent of Pay)	62.01%	70.18%
(9)	Estimated City Contribution [4]	48,000,000	60,000,000
(10)	City Contribution Deficiency/(Excess)		
	(a) in Dollars [(8(a)-9]	81,247,584	88,409,689
	(b) as a Percentage of Pay	38.98 %	41.80 %
(11)	Combined City/Member Contributions Deficiency/(Excess)		
	(a) in Dollars [6(b)-7-9]	$ 81,247,584	$ 88,409,689
	(b) as a Percentage of Pay	38.98 %	41.80 %

[1] *Fiscal year 2018 normal cost is measured as of beginning of fiscal year, and includes administrative expenses of $3,934,479. Fiscal year 2019 normal cost is measured as of middle of fiscal year, and includes administrative expenses of $4,021,890. Amortization measured at beginning of year for fiscal year 2018 and at mid-year for fiscal year 2019.*

[2] *Interest adjustment based on semi-monthly payments for fiscal year 2018 and May 1st payment for fiscal year 2019.*

[3] *Projected contributions for fiscal year 2019 based on expected pay during the year.*

[4] *Pursuant to P.A. 100-0023, statutory city contributions are $48 million for payment year 2019 and $60 million for payment year 2020.*

Table 1A
Projection of City Contribution Requirements

Fiscal/Tax Levy Year	2019	2020	2021	2022	2023	2024
Payment Year	2020	2021	2022	2023	2024	2025
Statutory City Contribution[1]	$ 60,000,000	$ 72,000,000	$ 84,000,000	$ 131,490,682	$ 133,623,376	$ 135,759,577
GASB Statements Nos. 67 and 68 ADC	148,409,689	157,873,382	164,759,282	170,575,885	174,870,888	176,414,067
Actuarial Liability at Valuation Date	2,652,874,883	2,709,358,275	2,763,186,311	2,814,930,842	2,864,649,034	2,911,999,398
Actuarial Value of Assets at Valuation Date	1,185,292,117	1,126,186,863	1,095,123,053	1,074,810,613	1,070,367,154	1,095,407,994
Funded Ratio	44.68%	41.57%	39.63%	38.18%	37.36%	37.62%

[1] *Contributions beginning in payment year 2023 are based on the net employer normal cost plus a level percent of payroll amortization of the unfunded actuarial accrued liability needed to attain 90 percent funded ratio by 2058 on an open group basis.*

Pursuant to Public Act 100-0023, city contributions for payment year 2020 are $60 million, $72 million in payment year 2021 and $84 million in payment year 2022.

Table 1B
Active Accrued Liability and Normal Cost by Tier

	Tier 1 Members	Tier 2 Members [1]	Tier 3 Members [2,3]	Total
(1) Count	1,998	576	141	2,715
- Vested	1,884	-	-	1,884
- Non-vested	114	576	141	831
- Average Age	52.0	37.9	37.0	48.2
- Average Service	20.6	4.8	1.8	16.3
(2) Actuarial Accrued Liability (AAL)	$ 873,155,022	$ 19,382,278	$ 2,143,580	$ 894,680,880
(3) Uncapped Payroll	$ 163,609,223	$ 39,985,854	$ 7,938,779	$ 211,533,856
(4) Capped Payroll	$ 163,609,223	$ 39,935,554	$ 7,937,424	$ 211,482,201
(5) Average Capped Payroll	$ 81,886	$ 69,333	$ 56,294	$ 77,894
(6) Expected Capped Payroll	$ 159,901,110	$ 40,391,803	$ 7,996,349	$ 208,289,262
(7) Total Normal Cost	$ 33,508,050	$ 5,950,566	$ 1,405,680	$ 40,864,296
(8) Total Normal Cost as a Percent of Expected Capped Pay	20.96%	14.73%	17.58%	19.62%
(9) Estimated Member Contributions	$ 13,591,595	$ 3,433,303	$ 919,580	$ 17,944,478
(10) Member Contributions as a Percent of Expected Pay	8.50%	8.50%	11.50%	8.62%
(11) Net Employer Normal Cost	$ 19,916,455	$ 2,517,263	$ 486,100	$ 22,919,818
(12) Net Employer Normal Cost as a Percent of Pay	12.46%	6.23%	6.08%	11.00%

[1] *Members who began participating on or after January 1, 2011, but prior to July 6, 2017, and did not irrevocably elect the Tier 3 benefit structure.*

[2] *Members who began participating on or after July 6, 2017.*

[3] *29 Tier 2 members who elected Tier 3 began participating on or after July 6, 2017.*

Table 2
Reconciliation of Unfunded Actuarial Accrued Liability

	2014	2015	2016	2017	2018
Unfunded (Overfunded) Actuarial Accrued Liability (UAAL)					
Beginning of Year	$1,036,312,597	$754,252,757	$1,161,202,825	$1,245,607,640	$1,333,625,694
(Gains) Losses during the Year Attributable to:					
Contributions Less Than (in Excess of) Normal Cost plus Interest	87,798,075	62,450,347	95,638,449	80,435,077	72,629,506
(Gain) Loss on Investment Return on the Actuarial Value of Assets	(29,122,655)	18,785,834	9,501,636	1,170,025	46,364,310
(Gain) Loss from Salary Changes	(10,377,473)	(9,689,519)	(11,787,874)	(21,323,648)	9,500,944
(Gain) Loss from Retirement, Termination, & Mortality	(12,446,485)	(34,916,630)	(9,311,863)	(23,091,294)	5,481,519
(Gain) Loss from Data Corrections and Unexpected Service Changes	(30,347)	239,035	364,467	941,246	(19,207)
Change in Methodology	-	-	-	-	-
Change in Assumptions	-	-	-	49,793,283	-
Plan Amendments[1]	(317,880,955)	370,081,001	-	93,365	-
Net Increase (Decrease) in UAAL	(282,059,840)	406,950,068	84,404,815	88,018,054	133,957,072
Unfunded (Overfunded) Actuarial Accrued Liability (UAAL)					
End of Year	$754,252,757	$1,161,202,825	$1,245,607,640	$1,333,625,694	$1,467,582,766

[1] *The decrease in Unfunded Actuarial Accrued Liability for fiscal year 2014 of $317.9 million was a result of the benefit changes provided in P.A. 98-0641. The Public Act was ruled unconstitutional and void in its entirety on July 24, 2015, resulting in the increase in Unfunded Actuarial Accrued Liability for fiscal year 2015 of $370.1 million.*

Table 2A
Reconciliation of Funded Ratio (Based on Actuarial Value of Assets)

	2014	2015	2016	2017	2018
Funded Ratio Beginning of Year	**56.65%**	**64.28%**	**52.99%**	**50.36%**	**48.28%**
Expected Increase if All Assumptions Realized	1.09%	0.54%	1.11%	1.22%	1.16%
Expected Funded Ratio	**57.74%**	**64.82%**	**54.10%**	**51.58%**	**49.44%**
Gains (Losses) during the Year Attributable to:					
Contributions in Excess of (Less Than) Normal Cost plus Interest	-3.58%	-2.91%	-3.78%	-3.13%	-2.75%
Gain (Loss) on Investment Return on the Smoothed Value of Assets	1.19%	-0.88%	-0.37%	-0.05%	-1.76%
Gain (Loss) from Salary Changes	0.24%	0.28%	0.23%	0.41%	-0.16%
Gain (Loss) from Retirement, Termination, & Mortality	0.28%	1.02%	0.19%	0.44%	-0.09%
Gain (Loss) from Data Corrections	0.00%	-0.01%	-0.01%	-0.01%	0.00%
Change in Methodology	0.00%	0.00%	0.00%	0.00%	0.00%
Change in Assumptions	0.00%	0.00%	0.00%	-0.95%	0.00%
Plan Amendments[1]	8.41%	-9.33%	0.00%	-0.01%	0.00%
Total Gains (Losses) during the Year	**6.54%**	**-11.83%**	**-3.74%**	**-3.30%**	**-4.76%**
Funded Ratio End of Year	**64.28%**	**52.99%**	**50.36%**	**48.28%**	**44.68%**

[1] *The increase in the Funded Ratio for fiscal year 2014 of 8.41 percent was a result of the benefit changes provided in P.A. 98-0641. The Public Act was ruled unconstitutional and void in its entirety on July 24, 2015, resulting in a decrease in the Funded Ratio for fiscal year 2015 of 9.33 percent.*

Table 3
Summary of Basic Actuarial Values

APV of Projected Benefits	Tier 1	Tier 2	Tier 3	Total
(1) Values for Active and Inactive Members				
(a) Retirement	$ 1,012,354,268	$ 55,048,326	$ 11,449,855	$ 1,078,852,449
(b) Termination	24,268,899	8,817,463	2,146,620	35,232,982
(c) Death	16,323,711	3,241,567	492,937	20,058,215
(d) Inactive Vested and Non-Vested	27,962,432	369,506	37,037	28,368,975
(e) Disability	-	-	-	-
(f) Expenses of Administration	-	-	-	-
Total for Active and Inactive Members	$ 1,080,909,310	$ 67,476,862	$ 14,126,449	$ 1,162,512,621
(2) Values for Members in Payment Status				
(a) Retirees	$ 1,455,109,269	-	-	$ 1,455,109,269
(b) Future Widows of Current Retirees	148,052,012	-	-	148,052,012
(c) Surviving Spouses	126,155,159	8,752	-	126,163,911
(d) Reversionary Annuitants	122,679	-	-	122,679
(e) Children	293,856	83,301	-	377,157
Total for Members in Payment Status	$ 1,729,732,975	$ 92,053	$ -	$ 1,729,825,028
(3) Grand Totals	$ 2,810,642,285	$ 67,568,915	$ 14,126,449	$ 2,892,337,649

Actuarial Accrued Liability	Tier 1	Tier 2	Tier 3	Total
(1) Values for Active and Inactive Members				
(a) Retirement	$ 857,693,866	$ 17,817,387	$ 2,099,541	$ 877,610,794
(b) Termination	3,179,574	580,939	(31,705)	3,728,808
(c) Death	12,281,582	983,952	75,744	13,341,278
(d) Inactive Vested and Non-Vested	27,962,432	369,506	37,037	28,368,975
(e) Disability	-	-	-	-
(f) Expenses of Administration	-	-	-	-
Total for Active and Inactive Members	$ 901,117,454	$ 19,751,784	$ 2,180,617	$ 923,049,855
(2) Values for Members in Payment Status	$ 1,729,732,975	$ 92,053	$ -	$ 1,729,825,028
(3) Grand Totals	$ 2,630,850,429	$ 19,843,837	$ 2,180,617	$ 2,652,874,883

Normal Cost for Fiscal Year 2019	Tier 1	Tier 2	Tier 3	Total
(1) Values for Active and Inactive Members				
(a) Retirement	$ 21,723,592	$ 3,125,098	$ 807,521	$ 25,656,211
(b) Termination	2,971,390	639,861	166,291	3,777,542
(c) Death	618,520	185,391	34,313	838,224
(d) Inactive Vested and Non-Vested	-	-	-	-
(e) Disability	5,083,089	1,240,736	246,604	6,570,429
(f) Expenses of Administration	3,111,459	759,480	150,951	4,021,890
Total for Active and Inactive Members	$ 33,508,050	$ 5,950,566	$ 1,405,680	$ 40,864,296
(2) Values for Members in Payment Status	$ -	$ -	$ -	$ -
(3) Grand Totals	$ 33,508,050	$ 5,950,566	$ 1,405,680	$ 40,864,296
Actuarial Present Value of Future Compensation	$ 1,134,399,072	$ 517,183,879	$ 101,515,876	$ 1,753,098,827

Table 4
50-Year Projections

Laborers' and Retirement Board Employees' Annuity and Benefit Fund of Chicago
Actuarial Valuation Projection Results as of December 31, 2018
Based on the Provisions in Effect as of December 31, 2018
($ in Thousands)

PYE 12/31	Present Value of Benefits	Actuarial Accrued Liability	Market Value of Assets	Actuarial Value of Assets	Unfunded Liability	Funded Ratio	Capped Payroll	Actuarial Determined Contribution	ADC as % of Pay[1]	Total Statutory Contribution[2]	Statutory Contribution % of Pay[1]	Total Normal Cost	Total Employee Contribution	Benefits	Administrative Expenses
2018	$ 2,892,338	$ 2,652,875	$ 1,094,684	$ 1,185,292	$ 1,467,583	44.68%	$ 211,482	$ 129,248	61.12%	$ 48,506	22.94%	$ 39,337	$ 17,837	$ 160,061	$ 3,933
2019	2,948,654	2,709,358	1,073,289	1,126,187	1,583,171	41.57%	214,368	148,410	69.23%	60,000	27.99%	40,864	17,944	168,021	4,022
2020	3,003,365	2,763,186	1,055,586	1,095,123	1,668,063	39.63%	218,009	157,873	72.42%	72,000	33.03%	41,090	18,464	174,674	4,112
2021	3,056,556	2,814,931	1,042,604	1,074,811	1,740,120	38.18%	222,246	164,759	74.13%	84,000	37.80%	41,435	19,085	180,706	4,205
2022	3,107,921	2,864,649	1,070,367	1,070,367	1,794,282	37.36%	227,185	170,576	75.08%	131,491	57.88%	41,874	19,787	186,630	4,300
2023	3,157,684	2,911,999	1,095,408	1,095,408	1,816,591	37.62%	232,173	174,871	75.32%	133,623	57.55%	42,337	20,518	192,763	4,396
2024	3,205,249	2,956,426	1,118,326	1,118,326	1,838,099	37.83%	237,282	176,414	74.35%	135,760	57.21%	42,782	21,288	199,248	4,495
2025	3,249,625	2,997,407	1,138,864	1,138,864	1,858,543	37.99%	242,814	177,857	73.25%	138,069	56.86%	43,261	22,122	206,063	4,596
2026	3,291,023	3,034,658	1,156,905	1,156,905	1,877,752	38.12%	248,545	179,183	72.09%	140,449	56.51%	43,749	22,990	212,918	4,700
2027	3,328,554	3,067,539	1,172,044	1,172,044	1,895,495	38.21%	254,574	180,362	70.85%	142,932	56.15%	44,255	23,916	220,146	4,805
2028	3,361,718	3,095,813	1,184,314	1,184,314	1,911,499	38.26%	260,952	181,424	69.52%	145,590	55.79%	44,807	24,881	227,340	4,914
2029	3,391,343	3,120,040	1,194,389	1,194,389	1,925,651	38.28%	267,313	182,334	68.21%	148,234	55.45%	45,365	25,858	233,675	5,024
2030	3,416,029	3,139,254	1,201,485	1,201,485	1,937,769	38.27%	273,771	183,072	66.87%	150,912	55.12%	45,937	26,862	240,670	5,137
2031	3,435,612	3,153,806	1,206,266	1,206,266	1,947,540	38.25%	280,575	183,658	65.46%	153,774	54.81%	46,560	27,900	247,024	5,253
2032	3,450,897	3,163,873	1,208,881	1,208,881	1,954,992	38.21%	286,982	184,073	64.14%	156,472	54.52%	47,167	28,894	252,862	5,371
2033	3,461,570	3,169,350	1,209,360	1,209,360	1,959,990	38.16%	293,308	184,277	62.83%	159,115	54.25%	47,739	29,869	258,451	5,492
2034	3,467,608	3,170,729	1,208,466	1,208,466	1,962,263	38.11%	299,827	184,299	61.47%	161,877	53.99%	48,347	30,854	263,276	5,615
2035	3,469,600	3,168,719	1,207,173	1,207,173	1,961,546	38.10%	306,497	184,155	60.08%	164,772	53.76%	49,009	31,834	267,181	5,742
2036	3,468,556	3,163,881	1,206,193	1,206,193	1,957,688	38.12%	313,039	183,799	58.71%	167,644	53.55%	49,669	32,772	270,301	5,871
2037	3,464,580	3,156,776	1,206,377	1,206,377	1,950,399	38.22%	319,712	183,206	57.30%	170,605	53.36%	50,359	33,715	272,710	6,003
2038	3,458,900	3,147,706	1,208,155	1,208,155	1,939,552	38.38%	326,139	182,349	55.91%	173,473	53.19%	51,011	34,593	274,626	6,138
2039	3,451,247	3,136,889	1,212,048	1,212,048	1,924,841	38.64%	332,657	181,178	54.46%	176,373	53.02%	51,664	35,485	276,193	6,276
2040	3,442,150	3,125,296	1,219,399	1,219,399	1,905,896	39.02%	339,372	179,740	52.96%	179,424	52.87%	52,388	36,392	276,769	6,417
2041	3,432,776	3,114,040	1,231,642	1,231,642	1,882,398	39.55%	346,124	178,021	51.43%	182,565	52.75%	53,166	37,281	276,264	6,562
2042	3,424,276	3,103,797	1,249,713	1,249,713	1,854,084	40.26%	352,742	175,962	49.88%	185,684	52.64%	53,943	38,125	275,128	6,709

[1] *Contribution rate is shown as a percentage of capped payroll.*
[2] *Contribution receivable to be paid in the following fiscal year. The funded ratio includes receivable contributions.*

Table 4
50-Year Projections

Laborers' and Retirement Board Employees' Annuity and Benefit Fund of Chicago
Actuarial Valuation Projection Results as of December 31, 2018
Based on the Provisions in Effect as of December 31, 2018
($ in Thousands)

PYE 12/31	Present Value of Benefits	Actuarial Accrued Liability	Market Value of Assets	Actuarial Value of Assets	Unfunded Liability	Funded Ratio	Capped Payroll	Actuarial Determined Contribution	ADC as % of Pay[1]	Total Statutory Contribution[2]	Statutory Contribution % of Pay[1]	Total Normal Cost	Total Employee Contribution	Benefits	Administrative Expenses
2043	$ 3,417,092	$ 3,095,115	$ 1,274,557	$ 1,274,557	$ 1,820,558	41.18%	$ 359,459	$ 173,510	48.27%	$ 188,865	52.54%	$ 54,731	$ 38,968	$ 273,540	$ 6,860
2044	3,412,060	3,088,593	1,307,166	1,307,166	1,781,427	42.32%	366,212	170,646	46.60%	192,089	52.45%	55,530	39,793	271,491	7,015
2045	3,409,658	3,084,354	1,347,998	1,347,998	1,736,356	43.70%	372,819	167,301	44.87%	195,237	52.37%	56,301	40,598	269,444	7,173
2046	3,409,646	3,082,827	1,398,072	1,398,072	1,684,755	45.35%	379,751	163,462	43.04%	198,550	52.28%	57,122	41,445	267,187	7,334
2047	3,413,112	3,084,515	1,458,352	1,458,352	1,626,163	47.28%	386,675	159,121	41.15%	201,905	52.22%	57,969	42,271	264,659	7,499
2048	3,420,200	3,089,644	1,529,619	1,529,619	1,560,024	49.51%	393,698	154,207	39.17%	205,327	52.15%	58,840	43,103	262,156	7,668
2049	3,431,189	3,098,534	1,612,800	1,612,800	1,485,734	52.05%	400,850	148,681	37.09%	208,834	52.10%	59,746	43,946	259,617	7,840
2050	3,446,609	3,111,226	1,708,532	1,708,532	1,402,694	54.92%	408,021	142,490	34.92%	212,374	52.05%	60,665	44,777	257,310	8,017
2051	3,466,582	3,127,190	1,816,889	1,816,889	1,310,302	58.10%	415,130	135,582	32.66%	215,906	52.01%	61,591	45,596	255,785	8,197
2052	3,489,673	3,146,089	1,938,324	1,938,324	1,207,766	61.61%	422,474	127,894	30.27%	219,561	51.97%	62,608	46,495	254,902	8,381
2053	3,516,105	3,167,892	2,073,551	2,073,551	1,094,341	65.46%	429,846	119,377	27.77%	223,257	51.94%	63,649	47,389	254,274	8,570
2054	3,545,372	3,192,614	2,223,448	2,223,448	969,166	69.64%	437,373	109,950	25.14%	227,037	51.91%	64,737	48,321	253,876	8,763
2055	3,577,676	3,220,156	2,388,799	2,388,799	831,356	74.18%	444,972	99,550	22.37%	230,872	51.88%	65,824	49,233	253,773	8,960
2056	3,612,621	3,250,547	2,570,570	2,570,570	679,977	79.08%	452,613	88,091	19.46%	234,736	51.86%	66,940	50,164	253,865	9,162
2057	3,650,257	3,284,097	2,770,134	2,770,134	513,963	84.35%	460,425	75,488	16.40%	238,686	51.84%	68,069	51,105	253,866	9,368
2058	3,690,646	3,320,946	2,988,734	2,988,734	332,212	90.00%	468,330	61,695	13.17%	242,725	51.83%	69,204	52,008	253,952	9,579
2059	3,734,521	3,360,702	3,024,632	3,024,632	336,070	90.00%	475,813	46,624	9.80%	44,332	9.32%	70,269	52,790	254,574	9,794
2060	3,781,015	3,402,828	3,062,545	3,062,545	340,283	90.00%	482,931	66,975	13.87%	58,913	12.20%	71,316	34,947	255,896	10,014
2061	3,829,763	3,447,034	3,102,330	3,102,330	344,703	90.00%	489,629	67,879	13.86%	59,907	12.24%	72,328	35,442	257,624	10,240
2062	3,880,486	3,493,117	3,143,806	3,143,806	349,312	90.00%	496,245	68,789	13.86%	60,587	12.21%	73,313	35,922	259,659	10,470
2063	3,933,038	3,540,923	3,186,831	3,186,831	354,092	90.00%	502,835	69,714	13.86%	61,289	12.19%	74,294	36,397	261,968	10,706
2064	3,987,224	3,590,280	3,231,252	3,231,252	359,028	90.00%	509,349	70,659	13.87%	62,026	12.18%	75,277	36,871	264,560	10,947
2065	4,042,849	3,641,033	3,276,929	3,276,929	364,103	90.00%	515,835	71,620	13.88%	62,794	12.17%	76,261	37,342	267,405	11,193
2066	4,099,767	3,693,033	3,323,730	3,323,730	369,303	90.00%	522,328	72,598	13.90%	63,592	12.17%	77,249	37,812	270,489	11,445
2067	4,157,809	3,746,153	3,371,538	3,371,538	374,615	90.00%	528,848	73,593	13.92%	64,419	12.18%	78,245	38,284	273,787	11,702

[1] *Contribution rate is shown as a percentage of capped payroll.*

[2] *Contribution receivable to be paid in the following fiscal year. The funded ratio includes receivable contributions.*

Table 5
Actuarial Accrued Liability Prioritized Solvency Test

Valuation Date 12/31	(1) Active and Inactive Member Contributions	(2) Retirees and Beneficiaries	(3) Active and Inactive Members (ER Financed Portion)	Actuarial Value of Assets	Portion (%) of Present Value Covered By Assets (1)	(2)	(3)
2009	$ 254,604,734	$ 1,203,586,162	$ 559,296,180	$ 1,601,351,633	100.00%	100.00%	25.60%
2010	254,138,112	1,281,511,698	535,736,023	1,529,403,512	100.00%	99.51%	0.00%
2011 [2]	251,243,991	1,403,258,511	536,679,260	1,422,414,349	100.00%	83.46%	0.00%
2012 [2]	253,449,161	1,519,775,727	601,617,743	1,315,913,597	100.00%	69.91%	0.00%
2013 [1]	258,837,708	1,537,553,531	594,181,889	1,354,260,531	100.00%	71.24%	0.00%
2014 [1]	264,822,986	1,364,252,443	482,628,690	1,357,451,362	100.00%	80.09%	0.00%
2015 [1]	272,689,815	1,588,566,637	608,622,867	1,308,676,494	100.00%	65.22%	0.00%
2016	284,417,732	1,595,221,142	629,633,637	1,263,664,871	100.00%	61.39%	0.00%
2017 [1,2]	293,443,711	1,683,342,341	601,958,998	1,245,119,356	100.00%	56.53%	0.00%
2018	298,252,627	1,729,825,028	624,797,227	1,185,292,117	100.00%	51.28%	0.00%

[1] *Change in benefits.*
[2] *Change in actuarial assumptions.*

The prioritized solvency test is another means of checking a system's progress under its funding program, based on the Actuarial Accrued Liability. In this test, the plan's present assets (cash and investments) are compared with obligations in order of priority: (1) active and inactive member contributions on deposit; (2) the present value of future benefits to present retired lives; and (3) the employer financed portion for present active and inactive members. In a system that has been following the discipline of financing, the obligation for active and inactive member contributions on deposit (present value 1) and the present value of future benefits to present retired lives (present value 2) will be fully covered by present assets (except in rare circumstances). In addition, the Actuarial Accrued Liability for present active and inactive members (present value 3) is covered by the remainder of present assets. Generally, if the system has been following a system of amortizing the Unfunded Liability, the funded portion of present value (3) will increase over time.

Due to the inadequacy of funding, the current assets are only sufficient to cover active and inactive member contributions and 51 percent of retiree liabilities. **The present value of employer financed benefits for active and inactive members is completely unfunded.**

Table 6
Statutory Reserves as of December 31, 2018

	New in 2018			Continuing from 2017			Total		
	Annuity Payment Fund	Prior Service Fund	Total	Annuity Payment Fund	Prior Service Fund	Total	Annuity Payment Fund	Prior Service Fund	Total
Statutory Reserve [1]									
Retirees	$ 25,845,276	$ 52,393,702	$ 78,238,978	$ 285,128,776	$1,135,264,148	$ 1,420,392,924	$ 310,974,052	$ 1,187,657,850	$ 1,498,631,902
Future Surviving Spouses	$ 5,148,935	$ 3,826,608	$ 8,975,543	$ 77,742,954	$ 106,316,252	$ 184,059,206	$ 82,891,889	$ 110,142,860	$ 193,034,749
Spouses [2]	$ 5,210,501	$ 3,299,959	$ 8,510,460	$ 58,819,124	$ 43,692,289	$ 102,511,413	$ 64,029,625	$ 46,992,248	$ 111,021,873
Annual Benefits									
Retirees	$ 2,368,061	$ 2,812,411	$ 5,180,472	$ 32,648,567	$ 98,298,346	$ 130,946,913	$ 35,016,628	$ 101,110,757	$ 136,127,385
Future Surviving Spouses	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Spouses [2]	$ 570,407	$ 482,474	$ 1,052,881	$ 8,434,074	$ 7,169,071	$ 15,603,145	$ 9,004,481	$ 7,651,545	$ 16,656,026

[1] *As required by State statutes, calculated using the Combined Annuity Mortality Table with interest at 3.00 percent per annum, except for employees and spouses of employees who were participants on or before January 1, 1952, for whom the American Experience Table of Mortality with interest at 4.00 percent per annum is used.*

[2] *Surviving spouses also include reversionary annuitants.*

Table 7
State Reporting Disclosure

	2017	2018
Actuarial Present Value of Earned Benefits[1]		
Payable to Retirees and Beneficiaries	$ 1,683,342,341	$ 1,729,825,028
Current Active and Inactive Employees:		
Accumulated Employee Contributions	293,443,711	298,252,627
Payable to Vested and Non-Vested Employees	502,792,469	524,410,467
Total APV	$ 2,479,578,521	$ 2,552,488,122
Net Assets Available for Benefits, Actuarial Value	$ 1,245,119,356	$ 1,185,292,117
Unfunded AAL (AAL in excess of assets)	$ 1,234,459,165	$ 1,367,196,005
Percent Funded	50.21 %	46.44 %
Unfunded AAL as Percent of Payroll	592.23%	646.48%
Payroll	$ 208,442,487	$ 211,482,201

[1]*Referred to under State reporting disclosures as the actuarial present value of credited projected benefits.*

The actuarial present value of credited projected benefits is based on the RP-2014 Blue Collar Healthy Annuitant Mortality Table, sex distinct, with scaling factors of 117 percent for males, and 102 percent for females and applying generational mortality improvement using MP-2017 2-dimensional mortality improvement scales, and a discount rate of 7.25 percent.

Table 8
Actuarial Reserve Liabilities for the Fiscal Year Ended December 31, 2018

Accrued Liabilities for Active and Inactive Participants[1]	$ 923,049,855
Reserves For Members in Payment Status:	
Service Retirement Pension	$ 1,455,109,269
Future Widows of Current Retirees	148,052,012
Surviving Spouse Pension	126,286,590
Children Annuitants	377,157
Subtotal Reserves	$ 1,729,825,028
Total Accrued Liabilities	$ 2,652,874,883
Actuarial Value of Assets	$ 1,185,292,117
Unfunded Actuarial Accrued Liabilities (Surplus)	$ 1,467,582,766

[1] *Accrued liabilities for active participants includes retirement liability for members in ordinary or duty disabled status. Liability for disability benefits is recognized as a one-year term cost of 3.00 percent of pay added to the normal cost.*

The actuarial present value of accrued liabilities is based on the RP-2014 Blue Collar Healthy Annuitant Mortality Table, sex distinct, with scaling factors of 117 percent for males, and 102 percent for females and applying generational mortality improvement using MP-2017 2-dimensional mortality improvement scales, and a discount rate of 7.25 percent.

Assets of the Plan

Assets of the Plan

The book value of plan assets, net of accounts payable, increased from $1.01 billion as of December 31, 2017, to $1.02 billion as of December 31, 2018, and the market value of plan assets decreased from $1.27 billion as of December 31, 2017, to $1.09 billion as of December 31, 2018. Table 9 details the development of asset values during 2018 and Table 10 shows the development of the actuarial value of assets as of December 31, 2018.

Table 9
Reconciliation of Asset Values as of December 31, 2018

		Market Value	Book Value	Actuarial Value
(1)	Value of Assets as of 12/31/2017	$ 1,267,554,561	$ 1,012,876,216	$ 1,245,119,356
(2)	Income for Plan Year:			
	(a) Member Contributions	$ 17,836,801	$ 17,836,801	$ 17,836,801
	(b) City Contributions & Miscellaneous [1]	48,505,714	48,505,714	48,505,714
	(c) Investment Income Net of Expenses	(75,435,617)	106,682,723	37,607,854
	(d) Income from Securities Lending	216,549	216,549	216,549
	(e) Total Income	$ (8,876,553)	$ 173,241,787	$ 104,166,918
(3)	Disbursements for Plan Year:			
	(a) Benefit Payments - Pension	$ 157,317,980	$ 157,317,980	$ 157,317,980
	(b) Refunds and Rollovers	2,742,788	2,742,788	2,742,788
	(c) Administration and OPEB Expenses	3,933,389	3,933,389	3,933,389
	(d) Total Disbursements	$ 163,994,157	$ 163,994,157	$ 163,994,157
(4)	Value of Assets as of 12/31/2018	$ 1,094,683,851	$ 1,022,123,846	$ 1,185,292,117
(5)	Estimated Rate of Return in 2018:			
	(a) Gross (Investment Expense of $7,886,654) [2]	(5.70)%	12.35%	3.39%
	(b) Net of Investment Expense [2]	(6.37)%	11.50%	3.26%
	(c) Gain (Loss) on Investment Return	$ (161,034,333)	$ 39,548,187	$ (46,364,310)

[1] *Miscellaneous income equals $661,530 due to implementation of GASB Statement No. 75.*

[2] *The City Contribution for fiscal year 2017 of $35,456,607 is assumed to be deposited May 1, 2018, and the contribution for fiscal year 2018 of $47,844,184 is assumed to be deposited May 1, 2019.*

Table 10
Development of Actuarial Value of Assets as of December 31, 2018

Laborers' and Retirement Board Employees' Annuity and Benefit Fund of Chicago
DEVELOPMENT OF THE ACTUARIAL VALUE OF ASSETS

Year Ending December 31	2018	2019	2020	2021	2022
Beginning of Year:					
(1) Market Value of Assets	$ 1,267,554,561				
(2) Actuarial Value of Assets	1,245,119,356				
End of Year:					
(3) Market Value of Assets	1,094,683,851				
(4) Contributions and Disbursements					
(4a) City Contributions & Misc. [1]	48,505,714				
(4b) Member Contributions	17,836,801				
(4c) Benefit Payouts & Refunds	(160,060,768)				
(4d) Administrative and OPEB Expenses	(3,933,389)				
(4e) Net of Contributions and Disbursements	(97,651,642)				
(5) Total Investment Income =(3)-(1)-(4e)	(75,219,068)				
(6) Projected Rate of Return	7.25%				
(7) Projected Investment Income [2]	85,815,265				
(8) Investment Income in Excess of Projected Income	(161,034,333)				
(9) Excess Investment Income Recognized This Year (5-year recognition)					
(9a) From This Year	(32,206,867)				
(9b) From One Year Ago	24,876,728	$ (32,206,867)			
(9c) From Two Years Ago	(6,031,018)	24,876,728	$ (32,206,867)		
(9d) From Three Years Ago	(24,348,945)	(6,031,018)	24,876,728	$ (32,206,867)	
(9e) From Four Years Ago	(10,280,760)	(24,348,946)	(6,031,018)	24,876,726	$ (32,206,865)
(9f) Total Recognized Investment Gain	(47,990,862)	(37,710,103)	(13,361,157)	(7,330,141)	(32,206,865)
(10) Change in Actuarial Value of Assets =(4e)+(7)+(9f)	(59,827,239)				
End of Year:					
(3) Market Value of Assets	**$ 1,094,683,851**				
(11) Actuarial Value of Assets =(2)+(10)	**$ 1,185,292,117**				

[1] *Miscellaneous income equals $661,530 due to implementation of GASB Statement No. 75.*

[2] *The City Contribution is assumed to be deposited May 1, 2019.*

PLAN MEMBER DATA

Exhibit A

Summary of Changes in Active and Inactive Participants for the Year Ending December 31, 2018

Active Participants [1]	Number at Beginning of Year	New	Inactive to Active	Total Increases	Decreases	Number at End of Year
Males	2,235	76	9	85	148	2,172
Females	559	24	2	26	42	543
Active Total	**2,794**	**100**	**11**	**111**	**190**	**2,715**
Inactive Participants	**Number at Beginning of Year**	**New**	**Active to Inactive**	**Total Increases**	**Decreases**	**Number at End of Year**
Males	1,313	1	60	61	47	1,327
Females	156	2	18	20	14	162
Inactive Total	**1,469**	**3**	**78**	**81**	**61**	**1,489**
Total - Actives and Inactives	**4,263**	**103**	**89**	**192**	**251**	**4,204**

[1] *All employees receiving ordinary and duty disability benefits are included in the active count.*

Exhibit B
Summary of Changes in Annuitants and Beneficiaries for the Year Ending December 31, 2018

Annuitants and Beneficiaries	Number at Beginning of Year	Additions During Year	Terminations During Year	Number at End of Year
Employee Annuitants	2,585	111	102	2,594
Surviving Spouse Annuitants [1]	1,050	47	67	1,030
Reversionary Annuitants [2]	28	1	2	27
Child Annuitants	40	14	17	37
Annuitant Totals	**3,703**	**173**	**188**	**3,688**
Actives Receiving Disability				
Ordinary Disability Benefit	43	77	85	35
Duty Disability Benefit	176	173	216	133
Disability Totals	**219**	**250**	**301**	**168**
Totals	**3,922**	**423**	**489**	**3,856**

[1] *Terminations during the year include two surviving spouses reclassified as reversionary annuitants.*

[2] *Includes 23 Reversionary Annuitants as of December 31, 2017, and 22 Reversionary Annuitants as of December 31, 2018, that are also Survivors.*

Exhibit C

Part I – Total Lives and Annual Salaries of Active Male Participants Classified by Age and Years of Services as of December 31, 2018

Attained Age	Completed Years of Service									
	Under 1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35 & Over	Total
Under 20	- $ -	- $ -	- $ -	- $ -	- $ -	- $ -	- $ -	- $ -	- $ -	**-** **$ -**
20-24	7 $ 323,042	17 $ 989,809	1 $ 88,858	- $ -	- $ -	- $ -	- $ -	- $ -	- $ -	**25** **$ 1,401,709**
25-29	7 $ 389,314	51 $ 3,017,995	34 $ 2,566,061	- $ -	- $ -	- $ -	- $ -	- $ -	- $ -	**92** **$ 5,973,370**
30-34	8 $ 417,964	71 $ 4,785,982	65 $ 4,878,917	10 $ 837,575	- $ -	- $ -	- $ -	- $ -	- $ -	**154** **$ 10,920,438**
35-39	9 $ 445,117	36 $ 2,240,358	69 $ 5,660,980	39 $ 3,161,348	43 $ 3,721,968	4 $ 347,944	- $ -	- $ -	- $ -	**200** **$ 15,577,715**
40-44	3 $ 151,818	37 $ 2,473,123	43 $ 3,393,406	31 $ 2,374,377	59 $ 4,778,901	75 $ 6,353,629	5 $ 451,424	- $ -	- $ -	**253** **$ 19,976,678**
45-49	3 $ 143,706	30 $ 1,778,928	36 $ 2,940,487	30 $ 2,320,291	90 $ 7,234,589	103 $ 8,919,816	45 $ 3,974,228	1 $ 88,858	- $ -	**338** **$ 27,400,903**
50-54	3 $ 151,980	21 $ 1,351,032	37 $ 2,867,829	15 $ 1,175,911	87 $ 6,971,170	108 $ 8,970,738	108 $ 9,532,858	21 $ 1,863,263	- $ -	**400** **$ 32,884,781**
55-59	- $ -	16 $ 967,325	12 $ 952,937	26 $ 1,955,851	68 $ 5,410,656	108 $ 8,752,391	75 $ 6,504,399	44 $ 3,954,544	22 $ 2,236,404	**371** **$ 30,734,507**
60-64	- $ -	8 $ 428,322	14 $ 1,142,073	20 $ 1,537,821	54 $ 4,255,235	47 $ 3,603,387	57 $ 4,926,656	21 $ 1,746,595	25 $ 2,236,196	**246** **$ 19,876,285**
65-69	- $ -	- $ -	- $ -	5 $ 408,158	12 $ 936,520	12 $ 955,822	9 $ 822,608	8 $ 620,464	13 $ 1,104,980	**59** **$ 4,848,552**
70 & Over	- $ -	1 $ 46,634	1 $ 88,858	1 $ 76,814	8 $ 574,766	9 $ 692,719	8 $ 647,151	- $ -	6 $ 525,428	**34** **$ 2,652,370**
Total	**40** **$ 2,022,941**	**288** **$ 18,079,508**	**312** **$ 24,580,406**	**177** **$ 13,848,146**	**421** **$ 33,883,805**	**466** **$ 38,596,446**	**307** **$ 26,859,324**	**95** **$ 8,273,724**	**66** **$ 6,103,008**	**2,172** **$ 172,247,308**

Exhibit C

Part II – Total Lives and Annual Salaries of Active Female Participants Classified by Age and Years of Services as of December 31, 2018

	Completed Years of Service									
Attained Age	Under 1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35 & Over	Total
Under 20	-	-	-	-	-	-	-	-	-	**-**
	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	**$ -**
20-24	2	3	-	-	-	-	-	-	-	**5**
	$ 90,810	$ 174,616	$ -	$ -	$ -	$ -	$ -	$ -	$ -	**$ 265,426**
25-29	1	19	8	-	-	-	-	-	-	**28**
	$ 45,198	$ 1,037,979	$ 483,454	$ -	$ -	$ -	$ -	$ -	$ -	**$ 1,566,631**
30-34	1	30	16	7	-	-	-	-	-	**54**
	$ 53,310	$ 1,556,541	$ 1,144,277	$ 536,905	$ -	$ -	$ -	$ -	$ -	**$ 3,291,033**
35-39	2	13	8	17	6	1	-	-	-	**47**
	$ 89,668	$ 823,079	$ 460,099	$ 1,344,240	$ 472,928	$ 76,814	$ -	$ -	$ -	**$ 3,266,828**
40-44	1	8	13	18	18	25	-	-	-	**83**
	$ 61,584	$ 507,073	$ 925,847	$ 1,530,235	$ 1,429,802	$ 1,933,027	$ -	$ -	$ -	**$ 6,387,568**
45-49	-	15	9	12	23	24	3	1	-	**87**
	$ -	$ 774,641	$ 537,330	$ 927,346	$ 1,698,911	$ 1,940,764	$ 261,689	$ 77,147	$ -	**$ 6,217,828**
50-54	3	11	11	15	24	28	11	5	-	**108**
	$ 229,668	$ 579,052	$ 818,487	$ 1,098,489	$ 1,767,429	$ 2,216,385	$ 999,355	$ 481,387	$ -	**$ 8,190,252**
55-59	1	4	7	13	21	18	12	6	-	**82**
	$ 35,000	$ 307,730	$ 427,274	$ 917,892	$ 1,610,188	$ 1,372,896	$ 1,083,840	$ 537,359	$ -	**$ 6,292,179**
60-64	-	1	4	5	11	9	6	3	1	**40**
	$ -	$ 55,848	$ 241,731	$ 335,084	$ 856,250	$ 734,260	$ 498,615	$ 242,604	$ 107,976	**$ 3,072,368**
65-69	-	-	-	1	-	-	1	2	-	**4**
	$ -	$ -	$ -	$ 75,317	$ -	$ -	$ 72,384	$ 137,188	$ -	**$ 284,889**
70 & Over	-	-	-	-	-	3	1	1	-	**5**
	$ -	$ -	$ -	$ -	$ -	$ 210,207	$ 103,572	$ 86,112	$ -	**$ 399,891**
Total	**11**	**104**	**76**	**88**	**103**	**108**	**34**	**18**	**1**	**543**
	$ 605,238	**$ 5,816,559**	**$ 5,038,499**	**$ 6,765,508**	**$ 7,835,508**	**$ 8,484,353**	**$ 3,019,455**	**$ 1,561,797**	**$ 107,976**	**$ 39,234,893**

Exhibit C

Part III – Total Lives and Annual Salaries of Active Participants Classified by Age and Years of Services as of December 31, 2018

Attained Age	Completed Years of Service									Total
	Under 1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35 & Over	
Under 20	-	-	-	-	-	-	-	-	-	**-**
	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	**$ -**
20-24	9	20	1	-	-	-	-	-	-	**30**
	$ 413,852	$ 1,164,425	$ 88,858	$ -	$ -	$ -	$ -	$ -	$ -	**$ 1,667,135**
25-29	8	70	42	-	-	-	-	-	-	**120**
	$ 434,512	$ 4,055,974	$ 3,049,515	$ -	$ -	$ -	$ -	$ -	$ -	**$ 7,540,001**
30-34	9	101	81	17	-	-	-	-	-	**208**
	$ 471,274	$ 6,342,523	$ 6,023,194	$ 1,374,480	$ -	$ -	$ -	$ -	$ -	**$ 14,211,471**
35-39	11	49	77	56	49	5	-	-	-	**247**
	$ 534,785	$ 3,063,437	$ 6,121,079	$ 4,505,588	$ 4,194,896	$ 424,758	$ -	$ -	$ -	**$ 18,844,543**
40-44	4	45	56	49	77	100	5	-	-	**336**
	$ 213,402	$ 2,980,196	$ 4,319,253	$ 3,904,612	$ 6,208,703	$ 8,286,656	$ 451,424	$ -	$ -	**$ 26,364,246**
45-49	3	45	45	42	113	127	48	2	-	**425**
	$ 143,706	$ 2,553,569	$ 3,477,817	$ 3,247,637	$ 8,933,500	$ 10,860,580	$ 4,235,917	$ 166,005	$ -	**$ 33,618,731**
50-54	6	32	48	30	111	136	119	26	-	**508**
	$ 381,648	$ 1,930,084	$ 3,686,316	$ 2,274,400	$ 8,738,599	$ 11,187,123	$ 10,532,213	$ 2,344,650	$ -	**$ 41,075,033**
55-59	1	20	19	39	89	126	87	50	22	**453**
	$ 35,000	$ 1,275,055	$ 1,380,211	$ 2,873,743	$ 7,020,844	$ 10,125,287	$ 7,588,239	$ 4,491,903	$ 2,236,404	**$ 37,026,686**
60-64	-	9	18	25	65	56	63	24	26	**286**
	$ -	$ 484,170	$ 1,383,804	$ 1,872,905	$ 5,111,485	$ 4,337,647	$ 5,425,271	$ 1,989,199	$ 2,344,172	**$ 22,948,653**
65-69	-	-	-	6	12	12	10	10	13	**63**
	$ -	$ -	$ -	$ 483,475	$ 936,520	$ 955,822	$ 894,992	$ 757,652	$ 1,104,980	**$ 5,133,441**
70 & Over	-	1	1	1	8	12	9	1	6	**39**
	$ -	$ 46,634	$ 88,858	$ 76,814	$ 574,766	$ 902,926	$ 750,723	$ 86,112	$ 525,428	**$ 3,052,261**
Total	**51**	**392**	**388**	**265**	**524**	**574**	**341**	**113**	**67**	**2,715**
	$ 2,628,179	**$ 23,896,067**	**$ 29,618,905**	**$ 20,613,654**	**$ 41,719,313**	**$ 47,080,799**	**$ 29,878,779**	**$ 9,835,521**	**$ 6,210,984**	**$ 211,482,201**

Exhibit D
Part I – Age and Service Distribution for Inactives – Males
as of December 31, 2018

(Males Only)

Attained Age	Years of Service									Total
	Under 1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35+	
Under 20	-	-	-	-	-	-	-	-	-	**0**
20-24	3	2	-	-	-	-	-	-	-	**5**
25-29	5	10	1	-	-	-	-	-	-	**16**
30-34	17	14	1	-	-	-	-	-	-	**32**
35-39	12	21	1	2	1	-	-	-	-	**37**
40-44	33	29	7	10	6	1	-	-	-	**86**
45-49	46	26	9	6	6	1	-	-	-	**94**
50-54	66	25	6	7	5	6	1	-	-	**116**
55-59	225	39	6	3	7	3	2	-	1	**286**
60-64	174	60	3	-	4	4	-	-	-	**245**
65-69	99	43	7	2	1	1	-	-	-	**153**
70 & Over	136	82	11	9	7	3	5	2	-	**255**
w/o DOB	1	1	-	-	-	-	-	-	-	**2**
Total	**817**	**352**	**52**	**39**	**37**	**19**	**8**	**2**	**1**	**1,327**
Average Age										**60.66**
Average Service										**2.23**

For inactives without a birthdate on record, we assumed an average age of 59.87.

Exhibit D
Part II – Age and Service Distribution for Inactives – Females
as of December 31, 2018

(Females Only)

Attained Age	Years of Service									Total
	Under 1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35+	
Under 20	-	-	-	-	-	-	-	-	-	**0**
20-24	2	-	-	-	-	-	-	-	-	**2**
25-29	3	1	-	-	-	-	-	-	-	**4**
30-34	4	2	-	-	-	-	-	-	-	**6**
35-39	2	7	-	-	-	-	-	-	-	**9**
40-44	20	23	-	-	-	-	-	-	-	**43**
45-49	7	10	-	-	-	-	-	-	-	**17**
50-54	11	7	-	1	1	-	-	-	-	**20**
55-59	15	3	-	7	-	-	-	-	-	**25**
60-64	7	1	1	-	-	-	-	-	-	**9**
65-69	7	1	-	1	-	-	-	-	-	**9**
70 & Over	5	4	5	2	1	-	1	-	-	**18**
w/o DOB	-	-	-	-	-	-	-	-	-	**0**
Total	**83**	**59**	**6**	**11**	**2**	**0**	**1**	**0**	**0**	**162**
Average Age										**53.45**
Average Service										**2.19**

For inactives without a birthdate on record, we assumed an average age of 59.87.

Exhibit D
Part III – Age and Service Distribution for Inactives – Total
as of December 31, 2018

(Males and Females Combined)

Attained Age	Years of Service									Total
	Under 1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35+	
Under 20	-	-	-	-	-	-	-	-	-	**0**
20-24	5	2	-	-	-	-	-	-	-	**7**
25-29	8	11	1	-	-	-	-	-	-	**20**
30-34	21	16	1	-	-	-	-	-	-	**38**
35-39	14	28	1	2	1	-	-	-	-	**46**
40-44	53	52	7	10	6	1	-	-	-	**129**
45-49	53	36	9	6	6	1	-	-	-	**111**
50-54	77	32	6	8	6	6	1	-	-	**136**
55-59	240	42	6	10	7	3	2	-	1	**311**
60-64	181	61	4	-	4	4	-	-	-	**254**
65-69	106	44	7	3	1	1	-	-	-	**162**
70 & Over	141	86	16	11	8	3	6	2	-	**273**
w/o DOB	1	1	-	-	-	-	-	-	-	**2**
Total	**900**	**411**	**58**	**50**	**39**	**19**	**9**	**2**	**1**	**1,489**
Average Age										**59.87**
Average Service										**2.22**

For inactives without a birthdate on record, we assumed an average age of 59.87.

Exhibit E
Statistics on Employee Annuities Classified by Age as of December 31, 2018

	Male			Female			Total		
Age	No.		Annual Payments	No.		Annual Payments	No.		Annual Payments
Under 50	3	$	13,536	-	$	-	3	$	13,536
50-54	18		1,033,140	5		248,916	23		1,282,056
55-59	214		13,228,728	24		1,126,392	238		14,355,120
60-64	498		29,695,304	45		1,729,464	543		31,424,768
65-69	542		29,910,816	34		1,356,048	576		31,266,864
70-74	395		20,812,704	28		900,240	423		21,712,944
75-79	318		16,429,777	20		565,044	338		16,994,821
80-84	211		10,103,964	11		424,224	222		10,528,188
85-89	107		4,610,136	20		575,604	127		5,185,740
90-94	54		2,308,896	15		345,816	69		2,654,712
95-99	12		351,840	13		236,076	25		587,916
100 & over	-		-	7		120,720	7		120,720
Totals	**2,372**	**$**	**128,498,841**	**222**	**$**	**7,628,544**	**2,594**	**$**	**136,127,385**
Average Age	**70.43**			**73.72**			**70.71**		

Exhibit F
Part I – Statistics on Surviving Spouse Annuities Classified by Age as of December 31, 2018

	Male			Female			Total		
Age	No.		Annual Payments	No.		Annual Payments	No.		Annual Payments
Under 30	-	$	-	-	$	-	-	$	-
30-34	-		-	1		636	1		636
35-39	-		-	1		9,600	1		9,600
40-44	-		-	4		54,348	4		54,348
45-49	1		14,232	6		78,840	7		93,072
50-54	-		-	24		444,240	24		444,240
55-59	4		37,884	50		922,440	54		960,324
60-64	1		9,600	69		1,297,668	70		1,307,268
65-69	3		35,964	104		1,996,452	107		2,032,416
70-74	3		29,736	127		2,179,692	130		2,209,428
75-79	2		32,280	159		2,742,636	161		2,774,916
80-84	1		18,336	162		2,566,908	163		2,585,244
85-89	1		9,600	155		2,201,208	156		2,210,808
90-94	5		53,808	107		1,331,460	112		1,385,268
95-99	2		24,480	33		360,648	35		385,128
100 & over	-		-	5		48,000	5		48,000
Totals	**23**	**$**	**265,920**	**1,007**	**$**	**16,234,776**	**1,030**	**$**	**16,500,696**
Average Age	**75.83**			**77.49**			**77.46**		

Exhibit F
Part II – Statistics on Reversionary Annuities Classified by Age as of December 31, 2018

Age	Male		Female		Total	
	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments
Under 30	-	$ -	-	$ -	-	$ -
30-34	-	-	-	-	-	-
35-39	1	774	-	-	1	774
40-44	-	-	-	-	-	-
45-49	-	-	-	-	-	-
50-54	1	601	1	2,010	2	2,611
55-59	-	-	-	-	-	-
60-64	1	1,500	1	7,344	2	8,844
65-69	-	-	3	31,955	3	31,955
70-74	1	8,976	6	27,444	7	36,420
75-79	-	-	5	40,080	5	40,080
80-84	-	-	2	9,504	2	9,504
85 & Over	-	-	5	25,142	5	25,142
Totals	**4**	**$ 11,851**	**23**	**$ 143,479**	**27**	**$ 155,330**
Average Age	**56.65**		**76.75**		**73.77**	

Exhibit F
Part III – Statistics on Children Annuities Classified by Age as of December 31, 2018

Age	Male		Female		Total	
	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments
Under 6	2	$ 5,280	1	$ 2,640	3	$ 7,920
6	-	-	-	-	-	-
7	-	-	1	3,000	1	3,000
8	-	-	-	-	-	-
9	1	3,000	-	-	1	3,000
10	1	2,640	-	-	1	2,640
11	2	5,640	1	3,000	3	8,640
12	1	3,000	-	-	1	3,000
13	5	13,920	1	3,000	6	16,920
14	1	2,640	1	2,640	2	5,280
15	5	13,560	1	2,640	6	16,200
16	2	6,000	2	5,280	4	11,280
17	5	13,920	2	5,640	7	19,560
18	1	3,000	1	2,640	2	5,640
Totals	**26**	**$ 72,600**	**11**	**$ 30,480**	**37**	**$ 103,080**
Average Age	**13.04**		**13.99**		**13.32**	

Exhibit G
Part I – Number of Refund Payments during 2018 to Male Employees

Age at Date of Valuation	Length of Service at Date of Refund						Total
	Under 1 Year	Between 1 and 2	Between 2 and 3	Between 3 and 4	Between 4 and 5	5 and Over	
Under 20	-	-	-	-	-	-	-
20 to 24	-	1	-	-	-	-	1
25 to 29	-	-	1	-	-	-	1
30 to 34	1	1	-	1	-	3	6
35 to 39	2	1	-	1	1	-	5
40 to 44	-	-	-	1	-	1	2
45 to 49	-	-	-	1	1	-	2
50 to 54	-	-	-	-	-	3	3
55 to 59	-	1	1	-	-	-	2
60 & Over	1	-	-	-	-	1	2
Totals	4	4	2	4	2	8	24

Exhibit G
Part II – Number of Refund Payments Made during 2018 to Female Employees

Age at Date of Valuation	Length of Service at Date of Refund						Total
	Under 1 Year	Between 1 and 2	Between 2 and 3	Between 3 and 4	Between 4 and 5	5 and Over	
Under 20	-	-	-	-	-	-	-
20 to 24	-	-	-	-	-	-	-
25 to 29	-	1	-	-	1	-	2
30 to 34	-	-	-	-	1	2	3
35 to 39	-	-	-	-	-	-	-
40 to 44	-	-	-	-	-	1	1
45 to 49	-	-	-	-	-	1	1
50 to 54	-	-	-	-	-	-	-
55 to 59	-	-	-	-	-	-	-
60 & Over	-	-	-	-	-	-	-
Totals	-	1	-	-	2	4	7

Includes those who took a refund from both active and inactive status.

Exhibit G
Part III – Number of Refund Payments during 2018 to All Employees

Age at Date of Valuation	Length of Service at Date of Refund						Total
	Under 1 Year	Between 1 and 2	Between 2 and 3	Between 3 and 4	Between 4 and 5	5 and Over	
Under 20	-	-	-	-	-	-	-
20 to 24	-	1	-	-	-	-	1
25 to 29	-	1	1	-	1	-	3
30 to 34	1	1	-	1	1	5	9
35 to 39	2	1	-	1	1	-	5
40 to 44	-	-	-	1	-	2	3
45 to 49	-	-	-	1	1	1	3
50 to 54	-	-	-	-	-	3	3
55 to 59	-	1	1	-	-	-	2
60 & Over	1	-	-	-	-	1	2
Totals	**4**	**5**	**2**	**4**	**4**	**12**	**31**

Includes those who took a refund from both active and inactive status.

Exhibit I

Part I – Male Participants Receiving Duty Disability Classified by Age and Length of Service as of December 31, 2018

Service:	Under 1 Year		1 to 4		5 to 9		10 to 14		15 to 19		20 & Over		Total	
Attained Age	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments
Under 30	-	$ -	-	$ -	2	$ 78,530	-	$ -	-	$ -	-	$ -	2	$ 78,530
30 to 34	-	-	-	-	-	-	1	64,272	-	-	-	-	1	64,272
35 to 39	-	-	-	-	-	-	2	120,931	1	43,680	-	-	3	164,611
40 to 44	-	-	1	31,387	1	62,712	1	57,611	4	212,223	2	117,593	9	481,526
45 to 49	-	-	-	-	1	61,152	2	101,135	3	161,787	8	464,756	14	788,830
50 to 54	-	-	-	-	1	64,272	-	-	6	302,266	19	1,157,582	26	1,524,120
55 to 59	-	-	-	-	1	57,720	1	57,611	2	124,535	15	891,962	19	1,131,828
60 & Over	-	-	-	-	2	126,984	3	175,251	10	532,155	14	737,677	29	1,572,067
Totals	**-**	**$ -**	**1**	**$ 31,387**	**8**	**$ 451,370**	**10**	**$ 576,811**	**26**	**$ 1,376,646**	**58**	**$ 3,369,570**	**103**	**$ 5,805,784**

Part II – Female Participants Receiving Duty Disability Classified by Age and Length of Services as of December 31, 2018

Service:	Under 1 Year		1 to 4		5 to 9		10 to 14		15 to 19		20 & Over		Total	
Attained Age	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments
Under 30	-	$ -	1	$ 30,420	-	$ -	-	$ -	-	$ -	-	$ -	1	$ 30,420
30 to 34	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35 to 39	-	-	-	-	-	-	3	164,003	-	-	-	-	3	164,003
40 to 44	-	-	1	32,401	-	-	1	53,227	-	-	1	57,611	3	143,239
45 to 49	-	-	1	30,420	-	-	-	-	6	315,556	-	-	7	345,976
50 to 54	-	-	-	-	-	-	2	104,349	3	164,705	2	108,763	7	377,817
55 to 59	-	-	-	-	1	56,488	2	81,978	4	212,378	-	-	7	350,844
60 & Over	-	-	-	-	-	-	1	56,488	-	-	1	54,288	2	110,776
Totals	**-**	**$ -**	**3**	**$ 93,241**	**1**	**$ 56,488**	**9**	**$ 460,045**	**13**	**$ 692,639**	**4**	**$ 220,662**	**30**	**$ 1,523,075**

Benefit payments are annual amount before Workers' Compensation offset.

Exhibit I

Part III – All Participants Receiving Duty Disability Classified by Age and Length of Service as of December 31, 2018

Service:	Under 1 Year		1 to 4		5 to 9		10 to 14		15 to 19		20 & Over		Total	
Attained Age	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments
Under 30	-	$ -	1	$ 30,420	2	$ 78,530	-	$ -	-	$ -	-	$ -	3	$ 108,950
30 to 34	-	-	-	-	-	-	1	64,272	-	-	-	-	1	64,272
35 to 39	-	-	-	-	-	-	5	284,934	1	43,680	-	-	6	328,614
40 to 44	-	-	2	63,788	1	62,712	2	110,838	4	212,223	3	175,204	12	624,765
45 to 49	-	-	1	30,420	1	61,152	2	101,135	9	477,343	8	464,756	21	1,134,806
50 to 54	-	-	-	-	1	64,272	2	104,349	9	466,971	21	1,266,345	33	1,901,937
55 to 59	-	-	-	-	2	114,208	3	139,589	6	336,913	15	891,962	26	1,482,672
60 & Over	-	-	-	-	2	126,984	4	231,739	10	532,155	15	791,965	31	1,682,843
Totals	**-**	**$ -**	**4**	**$ 124,628**	**9**	**$ 507,858**	**19**	**$ 1,036,856**	**39**	**$ 2,069,285**	**62**	**$ 3,590,232**	**133**	**$ 7,328,859**

Benefit payments are annual amount before Workers' Compensation offset.

Exhibit I

Part IV – Male Participants Receiving Ordinary Disability Classified by Age and Length of Services as of December 31, 2018

Service:	Under 1 Year		1 to 4		5 to 9		10 to 14		15 to 19		20 & Over		Total	
Attained Age	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments
Under 30	-	$ -	-	$ -	-	$ -	-	$ -	-	$ -	-	$ -	-	$ -
30 to 34	-	-	1	42,848	2	90,449	-	-	-	-	-	-	3	133,297
35 to 39	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40 to 44	-	-	-	-	-	-	-	-	-	-	2	97,206	2	97,206
45 to 49	-	-	-	-	-	-	1	52,756	2	79,175	2	84,562	5	216,493
50 to 54	-	-	-	-	1	25,438	-	-	-	-	2	80,506	3	105,944
55 to 59	-	-	-	-	-	-	-	-	2	76,065	4	138,706	6	214,771
60 & Over	-	-	-	-	-	-	-	-	2	74,599	3	113,723	5	188,322
Totals	-	$ -	1	$ 42,848	3	$ 115,887	1	$ 52,756	6	$ 229,839	13	$ 514,703	24	$ 956,033

Part V – Female Participants Receiving Ordinary Disability Classified by Age and Length of Services as of December 31, 2018

Service:	Under 1 Year		1 to 4		5 to 9		10 to 14		15 to 19		20 & Over		Total	
Attained Age	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments
Under 30	-	$ -	-	$ -	-	$ -	-	$ -	-	$ -	-	$ -	-	$ -
30 to 34	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35 to 39	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40 to 44	-	-	-	-	-	-	-	-	-	-	1	44,429	1	44,429
45 to 49	-	-	-	-	-	-	1	38,407	1	38,407	-	-	2	76,814
50 to 54	-	-	-	-	-	-	1	38,407	1	37,658	4	147,721	6	223,786
55 to 59	-	-	-	-	-	-	-	-	-	-	2	76,065	2	76,065
60 & Over	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Totals	-	$ -	-	$ -	-	$ -	2	$ 76,814	2	$ 76,065	7	$ 268,215	11	$ 421,094

Exhibit I

Part VI – All Participants Receiving Ordinary Disability Classified by Age and Length of Services as of December 31, 2018

Service:	Under 1 Year		1 to 4		5 to 9		10 to 14		15 to 19		20 & Over		Total	
Attained Age	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments	No.	Annual Payments
Under 30	-	$ -	-	$ -	-	$ -	-	$ -	-	$ -	-	$ -	-	$ -
30 to 34	-	-	1	42,848	2	90,449	-	-	-	-	-	-	3	133,297
35 to 39	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40 to 44	-	-	-	-	-	-	-	-	-	-	3	141,635	3	141,635
45 to 49	-	-	-	-	-	-	2	91,163	3	117,582	2	84,562	7	293,307
50 to 54	-	-	-	-	1	25,438	1	38,407	1	37,658	6	228,227	9	329,730
55 to 59	-	-	-	-	-	-	-	-	2	76,065	6	214,771	8	290,836
60 & Over	-	-	-	-	-	-	-	-	2	74,599	3	113,723	5	188,322
Totals	**-**	**$ -**	**1**	**$ 42,848**	**3**	**$ 115,887**	**3**	**$ 129,570**	**8**	**$ 305,904**	**20**	**$ 782,918**	**35**	**$ 1,377,127**

Benefit payments are annual amount before Workers' Compensation offset.

Exhibit J
History of Average Annual Salaries

Year Ended	Members in Service	Percent Increase	Annual Salaries	Percent Increase	Average Salary	Percent Increase	Actuarial Salary Assumption	CPI Chicago [1]
2009	3,124	(6.05)%	$208,626,493	(3.75)%	$ 66,782	2.45 %	4.50 %	2.54 %
2010	2,956	(5.38)%	199,863,410	(4.20)%	67,613	1.24 %	4.50 %	1.23 %
2011	2,852	(3.52)%	195,238,332	(2.31)%	68,457	1.25 %	4.50 %	2.06 %
2012	2,865	0.46 %	198,789,741	1.82 %	69,386	1.36 %	4.50 %	1.68 %
2013	2,844	(0.73)%	200,351,820	0.79 %	70,447	1.53 %	3.75 %	0.51 %
2014	2,837	(0.25)%	202,673,014	1.16 %	71,439	1.41 %	3.75 %	1.48 %
2015	2,816	(0.74)%	204,772,903	1.04 %	72,718	1.79 %	3.75 %	0.00 %
2016	2,822	0.21 %	208,154,918	1.65 %	73,761	1.44 %	3.75 %	1.86 %
2017	2,794	(0.99)%	208,442,488	0.14 %	74,604	1.14 %	3.00 %	1.66 %
2018	2,715	(2.83)%	211,482,201	1.46 %	77,894	4.41 %	3.00 %	1.07 %
Average Increase (Decrease) for the Last Five Years		**(0.92)%**		**1.09 %**		**2.03 %**	**3.45 %**	**1.21 %**

[1] *CPI-Chicago as of the valuation date.*

Exhibit K
Part I – New Annuities Granted during 2018

	Male Annuitants	Female Annuitants	Spouse of Deceased Employees	Spouse of Deceased Annuitants
Number Retired/Deceased [1]	87	24	10	34
Average Age Attained	62.6	62.4	59.4	74.7
Average Length of Service	27.1	21.8	17.9	N/A
Total Annual Final Salary	$ 6,970,931	$ 1,655,581	$ 747,735	N/A
Average Annual Final Salary	$ 80,126	$ 68,983	$ 74,774	N/A
Total Annual Annuity	$ 4,310,220	$ 870,252	$ 186,300	$ 821,664
Average Annual Annuity	$ 49,543	$ 36,261	$ 18,630	$ 24,167
Total Actuarial Liability	$ 63,177,879	$ 12,976,638	$ 2,070,705	$ 6,804,569
Average Actuarial Liability	$ 726,183	$ 540,693	$ 207,071	$ 200,134
Total Contributed by EE [2]	$ 8,971,028	$ 1,542,807	$ 774,296	N/A
Average Contribution	$ 103,115	$ 64,284	$ 77,430	N/A
Liability/Contributions	7.04	8.41	2.67	N/A
Liability/Final Pay	9.06	7.84	2.77	N/A
Expected Future Lifetime	20.52	24.45	27.30	14.66
Payback Period (yrs.)	2.0813	1.7728	4.1562	N/A
Replacement Ratio [3]	61.83 %	52.56 %	24.92 %	N/A

[1] *Does not include three new retirees and one new survivor who were no longer on annuity at the end of the year.*

[2] *Includes "Pickup."*

[3] *Ratio of average annual annuity to average annual final salary.*

Exhibit K
Part II – Initial Year of Retirement Analysis

	Years of Credited Service								
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35+	Total
2012									
Avg Monthly Annuity	$ 258	$ 636	$ 1,256	$ 2,512	$ 2,705	$ 3,833	$ 5,013	$ 5,730	$ 3,824
Avg Monthly FAS	$ 4,613	$ 5,519	$ 4,895	$ 5,716	$ 5,258	$ 6,004	$ 6,580	$ 7,162	$ 6,085
Number of Retirees	4	6	9	9	22	17	54	15	136
2013									
Avg Monthly Annuity	$ 364	$ 745	$ 1,653	$ 2,517	$ 2,710	$ 3,726	$ 4,853	$ 4,566	$ 3,575
Avg Monthly FAS	$ 7,849	$ 6,176	$ 5,380	$ 5,962	$ 5,312	$ 5,701	$ 6,339	$ 5,711	$ 5,895
Number of Retirees	3	3	9	9	19	20	34	15	112
2014									
Avg Monthly Annuity	$ 314	$ 635	$ 1,067	$ 2,557	$ 3,065	$ 3,612	$ 5,469	$ 5,568	$ 3,991
Avg Monthly FAS	$ 5,938	$ 5,293	$ 3,384	$ 6,374	$ 5,876	$ 5,545	$ 7,051	$ 6,866	$ 6,313
Number of Retirees	5	1	2	9	21	19	38	7	102
2015									
Avg Monthly Annuity	$ 324	$ 1,003	$ 1,041	$ 2,204	$ 2,859	$ 3,895	$ 5,363	$ 4,471	$ 3,830
Avg Monthly FAS	$ 7,853	$ 6,679	$ 3,770	$ 5,643	$ 5,699	$ 6,033	$ 6,841	$ 6,227	$ 5,838
Number of Retirees	2	5	1	9	15	21	30	9	92
2016									
Avg Monthly Annuity	$ 412	$ 572	$ 2,596	$ 2,588	$ 3,035	$ 3,887	$ 5,386	$ 5,277	$ 3,625
Avg Monthly FAS	$ 10,379	$ 3,289	$ 8,013	$ 6,176	$ 5,813	$ 6,215	$ 7,053	$ 6,611	$ 6,653
Number of Retirees	6	1	1	10	17	16	15	8	74
2017									
Avg Monthly Annuity	$ 637	$ 1,051	$ -	$ 2,188	$ 3,411	$ 4,260	$ 4,432	$ 5,661	$ 3,747
Avg Monthly FAS	$ 7,306	$ 5,533	$ -	$ 5,853	$ 6,678	$ 6,434	$ 6,124	$ 7,057	$ 6,452
Number of Retirees	4	5	-	13	20	17	17	17	93
2018									
Avg Monthly Annuity	$ 291	$ -	$ 1,732	$ 2,127	$ 3,213	$ 3,762	$ 5,456	$ 5,633	$ 3,889
Avg Monthly FAS	$ 4,398	$ -	$ 5,591	$ 5,633	$ 6,301	$ 5,902	$ 7,078	$ 7,023	$ 6,329
Number of Retirees	4	-	5	15	23	21	29	14	111

Exhibit L
New Reciprocal Annuities Granted during 2018

	Reciprocal	
	Male Annuitants	Female Annuitants
Number Retired	7	2
Average Age Attained	66.5	61.0
Number with Spouses	5	1
Average Spouse Age	60.9	55.0
Percentage with Spouse	71.43%	50.00%
Total Annual Annuity	$ 217,464	$ 55,008
Average Annual Annuity	$ 31,066	$ 27,504
Total Liability (7.25% RP 2014 BC)	$ 3,031,854	$ 901,230
Average Liability	$ 433,122	$ 450,615

[1] *Does not include one new retiree who was no longer on annuity at the end of the year.*

Exhibit M

Part I – History of Retirees and Beneficiaries by Type of Benefit

	Annuitants				Reciprocal		Disability		Compensation
Years	Employee	Spouse	Child	Reversionary [3]	Employee	Spouse	Ordinary	Duty	Annuitants [2]
2009	2,413	1,210	41		270	62	62	188	1
2010	2,429	1,197	39		273	58	44	184	1
2011 [1]	2,438	1,158	38		283	63	54	190	1
2012	2,448	1,122	35	22	289	60	60	195	1
2013	2,433	1,102	38	24	294	63	50	174	1
2014	2,394	1,092	30	26	296	64	53	163	1
2015	2,362	1,059	32	27	303	63	51	188	1
2016	2,324	1,016	36	27	309	57	48	197	1
2017	2,277	992	40	28	308	58	43	176	1
2018	2,284	972	37	27	310	58	35	133	1

[1] *Includes one Reversionary Annuitant included as a Spouse Annuitant that is not a Spouse Annuitant.*

[2] *Compensation Annuitant is also included as a Spouse Annuitant.*

[3] *Prior to December 31, 2012, Reversionary Annuitants were included with Spouse Annuitants.*

Part II – Members in Pay Status as of December 31, 2018: Counts, Annual Benefits and Average Age by Tier

	Annuitants				Reciprocal		Disability	
	Employee	Spouse	Child	Reversionary	Employee	Spouse	Ordinary	Duty
Tier 1								
Counts	2,284	971	33	27	310	58	32	123
Annual Benefits	$127,013,253	$15,920,652	$92,160	$155,330	$9,114,132	$579,408	$1,264,412	$6,871,733
Average Age	70.7	77.5	14.1	73.8	70.7	78.1	52.6	53.3
Tier 2								
Counts	-	1	4	-	-	-	3	9
Annual Benefits	-	$636	10,920	-	-	-	$112,715	$425,739
Average Age	NA	30.5	6.8	NA	NA	NA	38.3	43.1
Tier 3								
Counts	-	-	-	-	-	-	-	1
Annual Benefits	-	-	-	-	-	-	-	$31,387
Average Age	NA	NA	NA	NA	NA	NA	NA	41.0

Exhibit N
History of Average Employee Retirement Benefits Payable

Year Ended	Average Annual Benefit	Average Current Age of Retirees	Average Annual Benefit at Retirement Current Year	Average Age at Retirement Current Year	Average Years Service at Retirement Current Year
2009	$36,868	70.3	$44,581	57.8	29.3
2010	38,962	70.0	48,489	58.2	29.1
2011	41,056	69.6	49,135	58.0	29.5
2012	42,688	69.6	46,231	58.6	28.2
2013	44,264	69.8	42,895	60.5	27.9
2014	45,968	69.8	47,940	60.5	27.9
2015	47,474	69.9	46,460	60.6	28.1
2016	49,062	70.3	43,506	62.6	26.3
2017	50,807	70.5	44,964	61.6	25.2
2018	52,478	70.7	46,668	62.6	26.0

Exhibit O
Surviving Spouses Receiving Benefits as of December 31, 2018 by Age and Years in Pay Status

Attained Age	Number of Years in Pay Status						Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 & Over	
Under 30	-	-	-	-	-	-	-
30 to 34	1	-	-	-	-	-	1
35 to 39	-	-	2	-	-	-	2
40 to 44	-	1	1	1	-	1	4
45 to 49	-	5	2	-	-	-	7
50 to 54	1	8	5	9	1	2	26
55 to 59	3	14	15	8	7	7	54
60 to 64	2	18	18	17	9	8	72
65 to 69	6	25	21	27	19	12	110
70 to 74	3	34	30	23	17	30	137
75 to 79	7	27	36	31	22	43	166
80 to 84	5	23	24	38	24	51	165
85 & Over	4	28	38	42	48	153	313
Totals	**32**	**183**	**192**	**196**	**147**	**307**	**1,057**

Includes 22 Reversionary Annuitants that are also Spouse Annuitants and five Reversionary Annuitants that are not Spouse Annuitants.

Exhibit P
History of Annuities 2009 – 2018

Employee Annuitants (Male and Female)			
Year Ended	Number of Annuitants	Total Annuities	Average Annuities
2009	2,683	$ 98,915,980	$ 36,868
2010	2,702	105,275,352	38,962
2011	2,721	111,712,416	41,056
2012	2,737	116,835,786	42,688
2013	2,727	120,707,652	44,264
2014	2,690	123,652,788	45,968
2015	2,665	126,518,076	47,474
2016	2,633	129,180,024	49,062
2017	2,585	131,336,039	50,807
2018	2,594	136,127,385	52,478

Surviving Spouse and Reversionary Annuitants			
Year Ended	Number of Annuitants [1]	Total Annuities	Average Annuities
2009	1,272	$ 15,375,816	$ 12,088
2010	1,255	15,605,676	12,435
2011 [1]	1,221	15,583,920	12,763
2012 [2]	1,204	15,579,660	12,940
2013 [3]	1,189	15,757,533	13,253
2014 [4]	1,182	16,357,413	13,839
2015 [4]	1,149	16,567,370	14,419
2016 [5]	1,100	16,397,000	14,906
2017 [4]	1,078	16,579,183	15,380
2018 [5]	1,057	16,656,026	15,758

[1] *Includes one Reversionary Annuitant that is not a Spouse Annuitant.*
[2] *Includes 20 Reversionary Annuitants that are not Spouse Annuitants.*
[3] *Includes 21 Reversionary Annuitants that are not Spouse Annuitants.*
[4] *Includes 23 Reversionary Annuitants that are not Spouse Annuitants.*
[5] *Includes 22 Reversionary Annuitants that are not Spouse Annuitants.*

Exhibit Q
Schedule of Retired Members by
Amount and Type of Benefit as of December 31, 2018

Amount of Monthly Benefit	Number of Employee Annuitants	Number of Spouse Annuitants	Number of Reversionary Annuitants [1]	Number of Child Annuitants	Total Number of Annuitants
$ 1 - 250	30	19	10	37	96
251 - 500	36	8	7	-	51
501 - 750	40	9	6	-	55
751 - 1,000	21	448	-	-	469
1,001 - 1,250	35	103	3	-	141
1,251 - 1,500	27	101	-	-	128
1,501 - 1,750	90	78	-	-	168
1,751 - 2,000	62	88	1	-	151
2,001 - 2,250	57	55	-	-	112
2,251 - 2,500	55	46	-	-	101
2,501 - 2,750	87	27	-	-	114
2,751 - 3,000	85	18	-	-	103
3,001 - 3,250	74	15	-	-	89
3,251 - 3,500	72	7	-	-	79
3,501 - 3,750	93	4	-	-	97
3,751 - 4,000	92	1	-	-	93
4,001 - 4,250	118	2	-	-	120
4,251 - 4,500	147	-	-	-	147
4,501 - 4,750	192	-	-	-	192
4,751 - 5,000	181	-	-	-	181
5,001 - 5,250	203	1	-	-	204
5,251 - 5,500	169	-	-	-	169
5,501 - 5,750	135	-	-	-	135
5,751 - 6,000	70	-	-	-	70
6,001 - 6,250	63	-	-	-	63
6,251 - 6,500	61	-	-	-	61
6,501 - 6,750	58	-	-	-	58
6,751 - 7,000	51	-	-	-	51
7,001 - 7,250	32	-	-	-	32
7,251 - 7,500	36	-	-	-	36
7,501 - 7,750	26	-	-	-	26
7,751 - 8,000	26	-	-	-	26
8,001 - 8,250	14	-	-	-	14
8,251 - 8,500	17	-	-	-	17
8,501 - 8,750	11	-	-	-	11
8,751 - 9,000	4	-	-	-	4
9,001 - 9,250	7	-	-	-	7
9,251 - 9,500	5	-	-	-	5
9,501 - 9,750	2	-	-	-	2
9,751 - 10,000	1	-	-	-	1
10,001 - 10,250	2	-	-	-	2
10,251 - 10,500	-	-	-	-	-
10,501 - 10,750	3	-	-	-	3
10,751 - 11,000	-	-	-	-	-
11,001 - 11,250	1	-	-	-	1
11,251 - 11,500	1	-	-	-	1
11,501 - 11,750	-	-	-	-	-
11,751 - 12,000	-	-	-	-	-
12,001 - 12,250	1	-	-	-	1
12,251 - 12,500	-	-	-	-	-
Over $12,500	1	-	-	-	1
Totals	**2,594**	**1,030**	**27**	**37**	**3,688**

[1] *Includes 22 reversionary annuitants that are also spouse annuitants.*

ACTUARIAL METHODS AND ASSUMPTIONS AS OF DECEMBER 31, 2018

Actuarial Methods and Assumptions as of December 31, 2018

Actuarial Cost Method

An Actuarial Cost Method is a set of techniques used by the actuary to develop contribution levels under a retirement plan. The principal Actuarial Cost Method used in this valuation is the Entry Age Normal Actuarial Cost Method. Under this Method, a Normal Cost is developed by spreading the actuarial value of benefits expected to be received by each active participant over the total working lifetime of that participant, from date of hire to termination, as a level percentage of pay.

To the extent that current assets and future Normal Costs do not support participants' expected future benefits, an Unfunded Actuarial Accrued Liability ("UAAL") develops. The UAAL is generally amortized over a defined period of time (e.g., 30 years). The total contribution developed under this method is typically the sum of the Normal Cost and the payment toward the UAAL.

Estimated annual administrative expenses are usually added to the normal cost. This method is used for LABF.

Current Actuarial Assumptions
(Adopted as of December 31, 2017, unless otherwise stated)

Demographic Assumptions

Mortality:

Post Retirement Mortality: Scaling factors of 117 percent for males, and 102 percent for females of the RP-2014 Blue Collar Healthy Annuitant mortality table, sex distinct, with generational mortality improvement using MP-2017 2-dimensional mortality improvement scales recently released by the SOA. This assumption provides a margin for mortality improvements. No adjustment is made for post-disabled mortality.

Pre-Retirement Mortality: Scaling factors of 109 percent for males, and 103 percent for females of the RP-2014 Blue Collar Employee mortality table, sex distinct, with generational mortality improvement using MP-2017 2-dimensional mortality improvement scales recently released by the SOA. This assumption provides a margin for mortality improvements.

Future mortality improvements in pre- and post-retirement mortality are reflected by projecting the base mortality tables back from the year 2014 to the year 2006 using the MP-2014 projection scale and projecting from 2006 using the MP-2017 projection scale.

Age	Future Life Expectancy (years) in 2018		Future Life Expectancy (years) in 2031	
	Postretirement		Postretirement	
	Male	Female	Male	Female
35	46.43	51.39	48.69	52.60
40	41.36	46.15	43.55	47.35
45	36.39	41.02	38.51	42.19
50	31.53	35.98	33.58	37.13
55	26.85	31.08	28.81	32.19
60	22.43	26.40	24.25	27.44
65	18.31	21.94	19.95	22.88
70	14.53	17.69	15.97	18.56
75	11.09	13.75	12.35	14.55

Disability: Liability for disability benefits is recognized as a one-year term cost of 3.00 percent of pay added to the normal cost.

Rate of Retirement:

Attained Age	Tier 1 Age-and-Service-Based Rates of Retirement								
	Years of Service								
	10	11-14	15-19	20-24	25-29	30-32	33-34	35-39	40+
50-54	-	-	-	-	-	17 %	28 %	25 %	100 %
55-59	-	-	-	9 %	13 %	13	22	19	100
60-64	9 %	6 %	6 %	9	13	13	22	19	100
65-69	11	11	17	17	17	17	28	25	100
70-79	17	17	17	17	17	17	28	28	100
80+	100	100	100	100	100	100	100	100	100

Attained Age	Tier 2 Age-and-Service-Based Rates of Retirement	
	Years of Service	
	10-39	40+
62-66	24 %	100 %
67-69	40	100
70-79	40	100
80+	100	100

Attained Age	Tier 3 Age-and-Service-Based Rates of Retirement	
	Years of Service	
	10-39	40+
60-64	24 %	100 %
65-69	40	100
70-79	40	100
80+	100	100

Rate of Termination:

Service[1]	Rate
0	20.00%
1	7.00%
2-3	4.00%
4-5	3.00%
6-9	2.00%
10-19	1.50%
20+	1.00%

[1]*Based on service at beginning of valuation year.*

Economic Assumptions

Investment Return Rate and Discount Rate: 7.25 percent per year (net of investment expense). The 7.25 percent assumption is composed of a 2.25 percent inflation assumption and a 5.00 percent real rate of return assumption.

Future Salary Increases: The assumed base rate of individual salary increase is 3.00 percent per year, plus a service-based increase in the first 15 years.

Completed Years of Service[1]	Additional Increase	Total Increase
1	12.00 %	15.00 %
2	9.50	12.50
3	7.00	10.00
4 – 6	2.00	5.00
7	3.00	6.00
8	1.00	4.00
9	0.20	3.20
10 – 30+	0.00	3.00

[1]*Based on projected service at end of valuation year.*

Asset Value: The Actuarial Value of Assets is smoothed by using a five-year phase-in of each year's unexpected investment gains and losses.

Expenses: Administrative expenses included in the normal cost are based on the previous years' administrative expenses increased by 2.25 percent. The assumption for fiscal year 2019 equals $4,021,890. Future administrative expenses are assumed to increase at the assumed inflation assumption of 2.25 percent.

Projection Assumptions

Population: The active population is assumed to remain stable at the December 31, 2018, level.

New Entrant Profile: New entrants in the projection are assumed to have the following characteristics:

	Before Pay Cap	After Pay Cap
Average Age:	34.45	34.45
Average Salary:	$ 53,679	$ 53,663
Minimum Salary:	$ 9,272	$ 9,272
Maximum Salary:	$124,633	$114,952

New entrant characteristics are based upon current members who have been hired in the last 10 years. Approximately 77 percent of new entrants are assumed to be male.

Individual member new entrant uncapped pay at hire date is assumed to increase by 3.00 percent over the individual member new entrant pay during the prior period.

New entrant pay is calculated explicitly each year for each individual new entrant and is tested against the pensionable pay cap in the applicable year.

Individual new entrant pay once hired is assumed to increase in accordance with the salary increase assumptions used in the actuarial valuation until the pensionable pay cap is reached. Thereafter, pay increases at the same rate as the pay cap.

P.A. 96-0889 and P.A. 96-1490 Assumptions: Capped (pensionable pay) was $114,951.83 for fiscal year 2019 and increases at ½ CPI thereafter.

Employee and employer contributions and benefits are based on capped pay.

The annual increase in the Consumer Price Index-U is assumed to be 2.25 percent for all years.

Disability Payments in Lieu are assumed to reduce the applicable members' contributions used in the determination of the City's contribution by 7.6 percent.

Other Assumptions

Marital Status:	It is assumed that 75 percent of active members have an eligible spouse. The male spouse is assumed to be three years older than the female spouse. No assumption is made about other dependents.
Reciprocal Service:	No assumption for reciprocal service.
Benefit Service:	Exact fractional years of service are used to determine the amount of benefit payable.
Decrement Timing:	All decrements are assumed to occur mid-year.
Decrement Relativity:	Decrement rates are used directly from the experience study, without adjustment for multiple decrement table effects.
Decrement Operation:	Turnover decrements do not operate after member reaches retirement eligibility for a minimum annuity formula benefit.
Eligibility Testing:	Eligibility for benefits is determined based upon the age nearest birthday and service on the date the decrement is assumed to occur.
Pay Increase Timing:	Middle of (fiscal) year.
Loss in Tax Levy:	No loss on tax levy is assumed.

Three Methods of Financing Unfunded Liability

Normal Cost Plus Interest Method:	This is the method that was used in actuarial valuations prior to 1997. It is intended to continue the current provisions of the Article governing the Plan in full force and effect on a permanent basis and in the amount required each year to keep the unfunded liability from increasing if all assumptions are realized. The normal cost plus interest only method of funding is that recommended by the former Illinois Public Employees' Pension Laws Commission. It was also the minimum required for private pension plans for IRS qualification before ERISA.
Normal Cost Plus Amortization Method:	We have calculated the cost of amortizing the existing unfunded liability under a 30-year open amortization period. Both of these cost methods, the normal cost plus interest method and the normal cost plus amortization method, express the past service costs as a level annual dollar amount. It assumes that there will be a stable membership with a growing payroll. Consequently, as the total payroll increases in the future, the level annual dollar amount becomes a decreasing percent of the total payroll. Under both methods, level dollar amounts represent a greater percent of payroll initially and a decreasing percent of payroll as future payrolls increase.
Level Annual Percent of Payroll Method:	An alternative method for funding that is commonly used for public employee pension plans is a method that sets the funding standard cost objective as a level annual percent of payroll rather than as a level annual dollar amount. This method will result in increasingly greater dollar amounts each year as payrolls increase. For the Retirement Board's guidance, we have estimated the financial effects of these different amortization methods. The costs under these funding methods are contingent upon all actuarial assumptions being met and continued active membership at the same level. These three methods meet the requirements set forth in Illinois Compiled Statutes, Chapter 40, and Section 5/1A-102.

Actuarial Assets with Various Amortization Methods	Required 2019 Tax Levy	Effective Multiple Employer Contribution[1]	Unfunded Liability Will	Employer Contribution Portion Applicable to Unfunded Liability
1. Normal Cost Plus Interest Only	N/A	8.39	Remain Constant	$108,911,325
2. Normal Cost Plus 30-Year Level Dollar Amortization	N/A	9.35	Decrease	$124,113,272
3. Normal Cost Plus 30-Year Level % of Payroll	N/A	7.26	Increase	$90,856,332
4. Present Law	$60,000,000	3.78	Increase	$35,703,582

[1]*Pursuant to P.A. 100-0023, statutory contributions through tax levy year 2022 are a fixed dollar amount and the employer multiple contribution no longer applies.*

When evaluating and selecting a funding policy, it is important to consider the projected improvement of the funded ratio over time. In addition, the current and projected future funded status can change significantly downward or upward due to unfavorable or favorable experience on investment returns, salary increases, retirement patterns, longevity and changing plan membership.

SUMMARY OF PROVISIONS OF THE FUND AS OF DECEMBER 31, 2018

Summary of
Principal Eligibility and Benefit Provisions as of
December 31, 2018

Plan Description

Any employee of the City of Chicago or the Board of Education employed under the provisions of the municipal personnel ordinance as labor service or any person employed by a retirement board of any annuity and benefit fund in the city is covered by the Laborers' and Retirement Board Employees' Annuity and Benefit Fund of Chicago (Laborers' Plan) which is a defined benefit single employer pension plan with a money purchase minimum. Although this is a single employer plan, the defined benefits, as well as the employer and employee contribution levels, are mandated in Illinois Compiled Statutes (Chapter 40, Pensions, Article 5/11) and may be amended only by the Illinois legislature. The City of Chicago accounts for the plan as a pension trust fund. The City of Chicago payroll for employees covered by the Laborers' Plan for the year ended December 31, 2018, was $211,482,201. At December 31, 2018, the Laborers' Plan membership consisted of:

Retiree, surviving spouse, reversionary annuitant and child annuitants currently receiving benefits	3,688
Terminated inactive employees entitled to benefits or a refund of contributions but not yet receiving them	1,489
Current employees (includes 168 disabilities)	2,715

The Laborers' Fund provides retirement benefits as well as death and disability benefits. Employees age 55 or more with at least 10 years of service are entitled to receive a money purchase annuity with partial city contributions if under age 60 with less than 20 years of service. Employees age 55 or more with at least 20 years of service or age 50 or more with at least 30 years of service are entitled to receive a minimum formula annuity of 2.4 percent per year of service times the final average salary (highest average annual salary for any 4 consecutive years within the last 10 years of service immediately preceding the date of retirement). If the employee retires prior to age 60, the annuity shall be reduced by ¼ of 1.00 percent for each month the employee is under age 60, unless the employee is 50 or over with at least 30 years of service or 55 or over with at least 25 years of service. The original annuity is limited to 80 percent of the highest average annual salary. Beginning January 1, 1999, there is a 10-year deferred vested benefit payable at age 60. Employees who retire at age 60 or over with at least 10 years of service are entitled to a minimum of $850 per month.

The monthly annuity is increased by 3.00 percent in January of the year of the first payment date following the later of age 60 or the first anniversary of retirement, and by 3.00 percent annually thereafter; except that for an employee retiring prior to age 60 the first increase will occur no later than January of the year of the first payment date following the later of (1) the third anniversary of retirement or (2) the attainment of age 53.

Participants who first became members on or after January 1, 2011, are subject to different retirement eligibility conditions and benefit provisions as described on the following pages.

Plan Description (cont'd)

Covered employees are required to contribute 8.50 percent of their salary to the Laborers' Plan. If an employee leaves covered employment without qualifying for an annuity, accumulated contributions are refunded with 3.00 percent interest.

The City of Chicago is required by state statutes to contribute the remaining amounts necessary to finance the requirements of the Fund. In payment years prior to 2018, it is required to levy a tax at a rate not more than an amount equal to the total amount of contributions by the employees to the Fund made in the calendar year two years prior to the year for which the annual applicable tax is levied, multiplied by 1.00 annually. Beginning in payment year 2018, City contributions are equal to $36 million in payment year 2018, $48 million in payment year 2019, $60 million in payment year 2020, $72 million in payment year 2021 and $84 million in payment year 2022. For payment years after 2022, the City contribution equals the sum of the net employer normal cost plus a level percent of payroll amortization of the unfunded liability needed to attain a 90 percent funded ratio by 2058 on an open group basis. After 2058, the City contribution equals the amount necessary to maintain the 90 percent funded ratio.

Participants that first became members on or after January 1, 2011, are subject to a cap on pensionable salary upon which contributions are made as described on the following pages.

Definitions

These terms are defined in Article 1A of the Illinois Pension Code *Regulation of Public Pensions.*

"Accrued liability" means the actuarial present value of future benefit payments and appropriate administrative expenses under a plan, reduced by the actuarial present value of all future normal costs (including any participant contributions) with respect to the participant included in the actuarial valuation of the plan.

"Actuarial present value" means the single amount, as of a given valuation date, that results from applying actuarial assumptions to an amount or series of amounts payable or receivable at various times.

"Actuarial value of assets" means the value assigned by the actuary to the assets of a plan for the purposes of an actuarial valuation.

"Beneficiary" means a person eligible for or receiving benefits from the pension fund.

"Credited projected benefit" means that portion of a participant's projected benefit based on an allocation taking into account service to date determined in accordance with the terms of the plan based on anticipated future compensation.

"Current value" means the fair market value when available; otherwise, the fair value as determined in good faith by a trustee, assuming an orderly liquidation at the time of the determination.

"Normal cost" means that part of the actuarial present value of all future benefit payments and appropriate administrative expenses assigned to the current year under the actuarial valuation method used by the plan (excluding any amortization of the unfunded accrued liability).

"Participant" means a participating member or deferred pensioner or annuitant of the pension fund, or a beneficiary thereof.

"Pension Fund" or "Fund" means the Laborers' and Retirement Board Employees' Annuity and Benefit Fund of Chicago established under Article 11 of the Illinois Pension Code.

"Plan year" means the calendar year for which the records of a given plan are kept.

"Projected benefits" means benefit amounts which are expected to be paid at various future times under a particular set of actuarial assumptions, taking into account, as applicable, the effect of advancement in age and past and anticipated future compensation and service credits.

"Supplemental annual cost" means that a portion of the unfunded accrued liability is assigned to the current year under one of the following bases:

1. Interest only on the unfunded accrued liability;
2. The level annual amount required to amortize the unfunded accrued liability over a period not exceeding 30 years (40 years for pension unfunded accrued liability prior to 2007); and
3. The amount required for the current year to amortize the unfunded accrued liability over a period not exceeding 30 years as a level percentage of payroll (40 years for pension unfunded accrued liability prior to 2007).

"Total annual cost" means the sum of the normal cost plus the supplemental annual cost.

"Unfunded accrued liability" means the excess of the accrued liability over the actuarial value of the assets of a plan.

"Vested pension benefit" means an interest obtained by a participant or beneficiary in that part of an immediate or deferred benefit under a plan which arises from the participant's service and is not conditional upon the participant's continued service for an employer any of whose employees are covered under the plan, and which has been forfeited under the terms of the plan.

Participants

Any person employed by the City or the Board of Education in a position classified as labor service of the employer, any person employed by the Board and any person employed by the Retirement Board of any other Annuity and Benefit Fund which is in operation for the employer.

Summary of
Principal Eligibility and Benefit Provisions as of
December 31, 2018

Service

For minimum annuity, one half-year credit is given for one complete month of service and a full year credit is given for one complete month of service plus service in at least five other months. For money purchase annuity, 700 hours of service in any calendar year constitutes one year of service credit. For Ordinary Disability credit, the exact number of days, months and years is used.

Retirement Annuity

Money Purchase Formula

Maximum is 60 percent of highest salary. Applies in cases where an employee is age 55 or older and has a minimum of 10 years of service. If employee is age 55 to 60 with service less than 20 years, the annuity is based on all employee deductions plus 1/10th of the City contributions for each year over 10. In the case of withdrawal before age 55 and application after age 55, the annuity is based on employee deductions plus 1/10th of the City contributions for each year over 10, with interest to date of application or age 55, whichever is later. The age factor for age 55 is used.

The annuity is based on all employee deductions and City contributions in cases where the employee is (a) age 55 to 60 with 20 or more years of service; (b) age 60 or older; or (c) resigning at the time of disability credit expiration.

Minimum Annuity Formula

Maximum is 80 percent of final average salary.

An employee age 60 or older with at least 10 years of service, or an employee age 55 or older, with at least 20 years of service, or an employee age 50 or older with at least 30 years of service, is entitled to an annuity equal to 2.40 percent, for each year of service of the final average salary during the four highest consecutive years within the last 10 years of service prior to retirement. If the employee withdraws from service before age 60 with less than 20 years of service, he can begin to receive an annuity no earlier than age 60. For an employee who is eligible to begin receiving an annuity before age 60, the annuity is discounted 0.25 percent for each month the employee is younger than age 60, unless he has at least 30 years of service and is age 50 or over, or has at least 25 years of service and is age 55 or over.

The employee will receive a minimum annuity of $850 per month if the employee withdraws from service at age 60 or older with at least 10 years of service.

Participants who first became members on or after January 1, 2011, but prior to July 6, 2017, are first eligible for an unreduced annuity benefit upon attainment of age 67 with 10 years of service. Members are first eligible to begin receiving a reduced annuity benefit upon attainment of age 62 with 10 years of service. The annuity is discounted 0.50 percent for each full month the employee is younger than age 67. Final average salary is calculated using salary from the eight highest consecutive years within the last 10 *years of service prior to retirement. Pensionable salary is limited to $106,800 in 2011, increased by the lesser of 3 percent and one-half of the annual unadjusted percentage increase in the Consumer Price Index-U (but not less than zero) as measured in the preceding 12-month period ending with the September preceding the November 1, which is the date that the new amount will be calculated and made available to the pension funds.*

Participants who first became members on or after July 6, 2017, or participants who first became members on or after January 1, 2011, but prior to July 6, 2017, and irrevocably elected this benefit structure are first eligible for an unreduced annuity benefit upon attainment of age 65 with 10 years of service. Members are first eligible to begin receiving a reduced annuity benefit upon attainment of age 60 with 10 years of service. The annuity is discounted 0.50 percent for each full month the employee is younger than age 65. Final average salary is calculated using salary from the eight highest consecutive years within the last 10 years of service prior to retirement. Pensionable salary is limited to $106,800 in 2011, increased by the lesser of 3 percent and one-half of the annual unadjusted percentage increase in the Consumer Price Index-U (but not less than zero) as measured in the preceding 12-month period ending with the September preceding the November 1, which is the date that the new amount will be calculated and made available to the pension funds.

Reversionary Annuity

An employee may elect to reduce his or her annuity by an amount less than or equal to $400 to provide a reversionary annuity for a spouse, parent, child, brother or sister, to begin upon the employee's death. The election must be made before retirement and have been in effect one year prior to death. The one-year requirement is waived if the beneficiary is the employee's spouse. The death of the employee before retirement voids this election. The reversionary annuity cannot exceed 100 percent of the employee's reduced annuity. If the employee resigns after June 30, 1983, the 3.00 percent automatic annual increase in the annuity will be computed on the original, not the reduced, annuity; if the beneficiary dies before the employee annuitant, the full annuity is restored for annuities granted after June 30, 1983. The amount of the monthly reversionary annuity is determined by multiplying the amount of the monthly reduction in the employee's annuity by a factor based on the age of the employee and the difference between the ages of the employee and the reversionary annuitant at the starting date of the employee's annuity.

Automatic Increase in Annuity

An employee annuitant is entitled to receive an increase of 3.00 percent of the currently payable annuity (compound). This increase begins in January of the year of the first payment date following the earlier of:

1.) The later of the third anniversary of retirement and age 53; and
2.) The later of the first anniversary of retirement and age 60.

Increases apply only to life annuities.

An employee annuitant that first became a member on or after January 1, 2011, that is eligible to receive an increase in annuity benefit, shall receive an annual increase equal to the lesser of 3 percent and one-half of the annual unadjusted percentage increase in the Consumer Price Index-U (but not less than zero) as measured in the preceding 12-month period ending with the September preceding the increase. The increase is based on the amount of the originally granted benefit (simple). This increase begins on January 1 of the year of the first payment date following the later of:

1.) Attainment of age 67 for members hired on or after January 1, 2011, but prior to July 6, 2017;
2.) Attainment of age 65 for members hired on or after July 6, 2017, or participants that first became members on or after January 1, 2011, but prior to July 6, 2017, and irrevocably elected the Tier 3 benefit structure; and
3.) The first anniversary of the annuity start date.

Spouse Annuity

The surviving spouse annuity is the greater of the annuity under the money purchase formula or the minimum annuity formula. Surviving spouses who remarry on or after September 4, 2000, will not have their annuities terminated.

Money Purchase Formula

When an employee retires, the spouse's annuity is fixed, based on employee deductions and City contributions made for spouses' annuity purposes and a joint life age factor. (If the employee is a female, these are deductions accumulated since October 1974.)

If the employee dies in service, the spouse's annuity is based on all sums accumulated to their credit.

For 3.00 percent annuities fixed on or after August 1, 1983, the "Combined Annuity Mortality Table" shall continue to be used; however, surviving spouse's single life annuities and reversionary annuities shall be computed using the best factor (the factor producing the highest annuity), without regard to gender.

Spouses' Minimum Annuity Formula

If the employee retires or dies in service and is at least age 55 with 20 or more years of service, or is at least age 50 with 30 or more years of service, the spouse's annuity is equal to half the amount of annuity the employee was entitled to receive at the time of retirement or death in service. This annuity must then be discounted 0.25 percent for each month the spouse is under age 55 (or age 50 if the employee had at least 25 years of service) at the time the employee retires or dies in service.

If the employee dies while receiving a retirement annuity, the spouse is eligible for an annuity of one-half of the employee's annuity at death. This annuity is discounted for his/her age under 55 at the time of the employee's death, unless the employee had at least 25 years of service and withdrew from service on or after June 27, 1997, in which case the spouse annuity would be discounted for spouse age under 50 at the time of the employee's death.

If the employee dies in service on or after January 1, 2002, with at least 10 years of service, the spouse is entitled to an annuity of half of the minimum formula annuity earned and accrued to the credit of the employee at the date of death. For the purposes of this benefit, the minimum formula annuity earned and accrued to the credit of the employee is equal to 2.40 percent for each year of service of the highest average annual salary for any four consecutive years within the last 10 years of service immediately preceding the date of death, up to a maximum of 80 percent of the highest average annual salary. This annuity is not reduced due to the age of the employee or spouse. The spouse is eligible for this annuity only if the marriage was in effect for 10 full years or more.

The spouse will receive a minimum annuity of $800 per month if the employee retires with at least 10 years of service or dies in service with at least five years of service.

For participants that first became members on or after January 1, 2011, the annuity payable to the surviving spouse is equal to 66 2/3 percent of the participant's earned retirement annuity at the date of death without a reduction due to age.

Automatic Increase in Annuity

The widow or survivor of a participant that first became a member on or after January 1, 2011, shall receive an annual increase equal to the lesser of 3 percent and one-half of the annual unadjusted percentage increase in the Consumer Price Index-U (but not less than zero) as measured in the preceding 12-month period ending with the September preceding the date of the increase. The increase is based on the amount of the originally granted survivor's benefit (simple). This annual increase begins on January 1 following the commencement of the widow's or survivor's annuity if the deceased member died while receiving an annuity benefit and on January 1 following the first anniversary of the commencement of the annuity otherwise.

Child's Annuity

A child's annuity is provided for unmarried children of a deceased employee who are under the age of 18, if the child was conceived or born before the withdrawal from service. The annuity is $220 per month while the spouse of the deceased employee is alive and $250 per month if the spouse is deceased.

Family Maximum

Non-Duty Death: 60 percent of final monthly salary.
Duty Death: 70 percent of final monthly salary.

Disabilities

Duty Disability Benefits

Any employee who becomes disabled as the result of an injury incurred in the performance of any act of duty shall have a right to receive a duty disability benefit in the amount of 75 percent of salary at date of injury, plus $10 a month for each unmarried child (the issue of the employee) less than age 18. Child's duty disability benefit is limited to 15 percent of the employee's salary as of the date of injury. Duty disability benefits begin one day after the later of the last day worked or the last day paid.

If the disability has resulted from any mental disorder, physical defect or disease which existed at the time such injury was sustained, the duty disability benefit shall be 50 percent of salary at date of injury. Disablement because of heart attacks, strokes or any disablement due to heart disease shall not be considered the result of an accident suffered in the performance of duty; however, the employee will receive service credit and the City will contribute salary deductions for annuity purposes if the employee is receiving Workers' Compensation.

A duty disability benefit is payable to age 65 if the disability benefits begin before age 60. For an employee who begins disability on or after age 60, disability will continue for five years. A duty disability benefit which continues for more than five years and which starts before the employee's age 60, will be increased by 10 percent on January 1st of the sixth year. The City contributes salary deductions for annuity purposes for the duty disability benefit. Such amounts contributed by the City after December 31, 1983, while the employee is receiving duty disability benefits, are not refundable to the employee and will be used for annuity purposes only.

Ordinary Disability Benefit

This benefit is granted for disability incurred other than in performance of an act of duty and is 50 percent of salary as of the last day worked. The first payment shall be made one month after the disablement occurs. Disability is payable until age 65 and limited to a maximum of 25 percent of the employee's total service or five years, whichever occurs first.

For ordinary disability benefits paid on or after January 1, 2001, the Fund credits amounts equal to the amounts ordinarily contributed by an employee for annuity purposes for any period during which the employee receives ordinary disability. These amounts are used for annuity purposes but are not credited for refund purposes.

Refunds

To Employees

An employee who resigns before age 55, or before age 60 with less than 10 years of service, is entitled to all salary deductions for retirement annuity and spouse annuity accumulated with interest to date of resignation, plus the 0.50 percent deducted for annuity increase purposes without interest.

If the annuity of an employee is less than $800 a month, the employee may elect to receive a refund, as above, in lieu of an annuity.

Spouse's annuity deductions are payable to the employee if not married when he retires.

For participants that first became members on or after January 1, 2011, an employee who resigns before age 62 without regard to length of service or with less than 10 years of service regardless of age is entitled to all salary deductions for retirement annuity and spouse annuity accumulated with interest to date of resignation, plus the 0.50 percent deducted for annuity increase purposes without interest.

To Spouses

The spouse may choose a refund in lieu of annuity if the annuity would be less than $800 per month.

Remaining Amounts

Amounts contributed by the employee excluding 0.50 percent deductions for annuity increases, and which have not yet been paid out as annuity, are refundable to his estate with interest to his retirement or death if the employee died in service.

Deductions and Contributions

Tier 1 members (hired before January 1, 2011) are required to contribute 8.50 percent of their salary to the pension fund.

Tier 2 members (hired on or after January 1, 2011, and before July 6, 2017) are required to contribute 8.50 percent of their pensionable salary to the pension fund.

Required Tier 3 members (hired on or after July 6, 2017) are required to contribute the minimum of 11.50 percent or the total normal cost (subject to a floor of 8.50 percent) of their pensionable salary to the pension fund.

Elective Tier 3 members (Tier 2 members who irrevocable elect to be subject to the Tier 3 benefit structure) are required to contribute a percentage of their pensionable salary to the pension fund, according to the following schedule:

- 9.50 percent beginning July 6, 2017;
- 10.50 percent beginning January 1, 2018; and
- Minimum of 11.50 percent or the total normal cost (subject to a floor of 8.50 percent) beginning January 1, 2019.

Beginning with the first pay period on or after the date when the funded ratio of the Fund is first determined to have reached the 90 percent funding goal and each pay period thereafter for as long as the Fund maintains a funding ratio of 75 percent or more, employee contributions for required and elective Tier 3 members shall be 7.50 percent of their pensionable salary.

For participants that first became members on or after January 1, 2011, pensionable salary, upon which member contributions are made, is limited to $106,800 in 2011, increased by the lesser of 3 percent and one-half of the annual unadjusted percentage increase in the Consumer Price Index-U (but not less than zero) as measured in the preceding 12-month period ending with the September preceding the November 1, which is the date that the new amount will be calculated and made available to the pension funds.

Beginning in payment year 2018, the City's required annual contribution to the Fund for payment years 2018 through 2022 shall be:

- Payment year 2018 — $36,000,000
- Payment year 2019 — $48,000,000
- Payment year 2020 — $60,000,000
- Payment year 2021 — $72,000,000
- Payment year 2022 — $84,000,000

For payment years 2023 through 2058, the City's required annual contribution to the Fund shall be equal to the sum of (1) the City's portion of the projected normal cost for that fiscal year, plus (2) an amount determined on a level percentage of applicable employee payroll basis that is sufficient to bring total assets of the Fund up to 90 percent of the total actuarial liabilities of the Fund by the end of 2058.

For payment years after 2058, the City's required annual contribution to the Fund shall be equal to the amount, if any, needed to bring the total actuarial assets of the Fund up to 90 percent of the total actuarial liabilities of the Fund as of the end of the year.

If the City does not make the statutorily required contributions, then the State, starting in payment year 2018, could withhold State grants to the City, and directly deposit the withheld funds in the Laborers' and Retirement Board Employees' Annuity and Benefit Fund of Chicago. The withheld funds are limited to 33 percent of total State grants to the City in payment year 2018, 67 percent in payment year 2019, and 100 percent on and after payment year 2020.

Tax Shelter of Employee Salary Deductions

Beginning January 1, 1982, the City employee salary deductions were designated for income tax purposes to be made by the employer. The W-2 salary is therefore reduced by the amount of contributions. For pension purposes the salary remains unchanged. Income tax will be paid when a refund or annuity is granted. For the purposes of benefits, refunds or financing, these contributions are treated as employee contributions.

Beginning September 1, 1981, the Board of Education paid contributions in the amount of 7.00 percent of the employee's salary. The 1985 amendments contained a provision whereby the amount of pick-up, if any, is included in the pensionable salary for contributions and benefits. Such provision was retroactive to September 1, 1981. Beginning May 28, 2000, the remainder of contributions due for Board of Education employee salary deductions was designated for income tax purposes to be made by the employer and treated in the same manner as City employee salary deductions.

Salary and COLA Development for Members Hired on or After January 1, 2011

Calendar Year	CPI-U	1/2 CPI-U	COLA	Maximum Annual Pensionable Earnings
2011				$106,800.00
2012	3.90%	1.95%	1.95%	$108,882.60
2013	2.00%	1.00%	1.00%	$109,971.43
2014	1.20%	0.60%	0.60%	$110,631.26
2015	1.70%	0.85%	0.85%	$111,571.63
2016	0.00%	0.00%	0.00%	$111,571.63
2017	1.50%	0.75%	0.75%	$112,408.42
2018	2.20%	1.10%	1.10%	$113,644.91
2019	2.30%	1.15%	1.15%	$114,951.83

HISTORICAL INFORMATION

Exhibit R
Legislative Changes 1984 through 2018

1984

Public Act 83-1257 (HB 3128)

- Approved August 15, 1984.
- Direct deposit.
- Illinois Public Employees' Pension Laws Commission abolished.

1985

Public Act 84-0159 (HB 398)

- Approved August 15, 1985.
- 1.80, 2.00, 2.20, 2.40 percent benefit accrual rate for those born before January 1, 1936, and retiring after August 16, 1985.
- Reduction in age discount factor (employee and widow) from 0.50 percent to 0.25 percent for employees born before January 1, 1936, and retiring or dying in service after August 16, 1985.
- Health insurance supplement up to $25 per month if the employee is age 65 or older with at least 15 years of service (for each employee annuitant in receipt of annuity and for each employee who retires on annuity in the future).
- Disability provisions extended to age 70 in certain cases.
- Unisex money purchase factors for widows/widowers.
- Membership provisions extended to age 70.
- Board of Education employee contribution "pick up" included in the definition of salary for contribution and benefit purposes.

1986

Public Act 84-1472 (HB 2630)

- Effective January 23, 1987.
- Cap removed on spouse maximum annuity.
- Automatic post-retirement increase to begin on first anniversary of retirement following attainment at age 60.

Exhibit R
Legislative Changes 1984 through 2018

1987

Public Act 85-0964 (HB 2715)

- Approved December 9, 1987.

- 1.80, 2.00, 2.20, 2.40 percent benefit accrual rate for those born on or after January 1, 1936, and retiring on or after January 1, 1988.

- Reduction in age discount factor (employee and widow) from 0.50 percent to 0.25 percent for employees born on or after January 1, 1936, and retiring or dying in service on or after January 1, 1988. No discount for employee age less than 60 if employee has at least 35 years of service.

- Minimum employee annuity of $250 and minimum spouse annuity of $200 under certain conditions.

- Change amount of children's benefits to $120 or $150 effective January 1, 1988.

- Provide for certain "Good Government" initiatives.

- Remove chronic alcoholism restriction for ordinary disability.

1988

- No changes.

1989

Public Act 86-0273 (SB 95)

- Approved August 23, 1989.

- Changed the amount of fund paid health insurance "supplement" from January 1, 1988, until December 31, 1992, to $65 per month for each annuitant not qualified to receive Medicare benefits (and $35 if qualified) and from January 1, 1993, until December 31, 1997, the amounts are $75 and $45, respectively. Widows will now be supplemented and employee annuitants will no longer be required to meet the age 65 and 15 years of service requirements. The City will be required to pay 50 percent of the aggregated cost of health care claims for the retired group under all health care plans offered by the City. A procedure was established for the City to determine, with the help of an independent actuary, the aggregate cost of claims and premiums for each calendar year from 1989 through 1997 for the retired group.

Public Act (HB 332)

- Approved August 23, 1989.

- Eliminated age related discriminatory provisions as required by Federal law or regulation. Provided for Age Discrimination changes effective January 1, 1988, to eliminate age 65 requirements for marriage in service and children's benefits, provided contributions after age 65 for spouse benefits, provided employee accumulation annuities be computed after age 70, provided employee and spouse accumulation annuities not be "fixed" at age 65, provided no age 70 restriction on disability benefits, provided for active members over age 65 that their accounts be "unfixed" and accumulate interest until the date of withdrawal, and provided that there be no age 70 membership limitation and removed the permitted "no spouse" refund at age 65.

- Eliminated the $300, $400 or $500 maximum spouse annuity limitation for spouses of employees who retired before January 23, 1987, but die after January 23, 1987.

- Allow for local labor officials on a leave of absence from the Fund to contribute for their current service as a local labor official.

1990

Public Act 86-0957 (SB 136)

- Effective January 1, 1990.

- Amends Chapter 120, Paragraph 671 of the Revenue Act to provide for a separate listing on the tax bill of the dollar amount of tax due from the person assessed which is allocable to a tax levied under the Illinois Pension Code, or any other tax levied by a municipality or township for public pension or retirement purposes.

1991

Public Act 86-1488 (SB 1951)

- Approved January 14, 1991.

- Beginning for withdrawals on or after January 1, 1991, annuity payments will be made as of the first day of the calendar month during the annuity payment period.

- 2.20 percent benefit accrual rate for employees retiring on or after July 1, 1990.

- No discount for employee age less than 60 if employee has at least 30 years of service and retires on or after July 1, 1990.

- Minimum employee annuity of $350 and minimum spouse of $300 under certain conditions.

- Spouses and widows of employees retiring or dying in service on or after July 1, 1990, with 20 or more years of service at age 55 or over will be eligible for half of the employees' annuity discounted 0.25 percent for each month the spouse or widow is less than 55.

- Retroactive eligibility for 35 years no discount and spouse and widow annuities computed as half of employee annuity.

- Refund in lieu of $300 annuity.

- Disability benefit retroactive one year from application; duty disability deductions in lieu for heart attack or stroke; 10 percent increase in duty disability benefit January 1 of the sixth year.

- Collateral for securities lending expanded.

- Fractional payment for refund repayment and temporary service authorized. Credit established by fractional payment shall be earliest service for which credit may be established.

1992

- No change.

1993

Public Act 87-1265 (SB 1650)

- Approved January 25, 1993.

- Transfer provisions for County elected officers and judges.

- Early Retirement Incentive was created for withdrawals from December 31, 1992, to June 30, 1993.

    – Requires a total of 20 years of service (with at least 10 in this fund, and up to five purchased under ERI).

    – Requires age 55 or older.

– Requires an election form to be filed before June 1, 1993.

– Requires a member to be a current contributor on November 1, 1992, and have not previously retired under this Article.

– Provides for elimination of the age discount for employees 55-60.

– Provides for 80 percent maximum final average salary compared to the present 75 percent.

– Provides for an optional purchase of up to five years of service credit for 4.25 percent of the November 1, 1992, salary.

– Provides for a 24-month option to pay for ERI service.

– Provides for a tax levy derived from ERI contributions.

1994

- No change.

1995

Public Act 89-0136 (SB 114)

- Approved July 14, 1995.

- The amount of earnings that may be taken into account by any retirement system is limited to the maximum dollar limitation specified in Section 401(a)(17) of the Internal Revenue Code, except for persons who became participants before 1996.

- The Fund is authorized to make certain involuntary distributions required by Section 401(a)(9) of the Internal Revenue Code.

Public Act 89-0113 (SB 424)

- Approved July 7, 1995.

- The Pension Laws Commission was created as a legislative support services agency.

1996

SBJPA

- On August 20, 1996, the Small Business Job Protection Act was signed by President Clinton.

- Treatment of governmental plans under Code Section 415:
  - Rule limiting annual benefit to 100 percent of the average of the highest three-year compensation no longer applies.
  - Excess benefit plans are permitted to provide participants with benefits in excess of the Code Section 415 limits.
  - Early retirement reduction does not apply to certain survivor and disability benefits.
  - The definition of compensation now includes elective deferrals.
- Taxation of distributions:
  - $5,000 death benefit exclusion was repealed for deaths after August 20, 1996.
  - Five-year averaging for lump sum distributions was repealed effective January 1, 2000.
  - Annuity payments will be taxed according to a simplified general rule which uses investment and age as of annuity starting date for annuities which start on or after November 19, 1996.

1997

Public Act 90-0031 (HB 15)

- Approved June 27, 1997.
- For withdrawals from service occurring on or after July 1, 1990, an alternate method of calculating salary using the annual equivalent of average salary instead of the salary rate applicable for the greatest part of the year is allowed.
- Annuities effective on or after January 1, 1998, will be payable on the first day of the calendar month.
- The prudent person rule for investing is allowed.
- An eligible employee is allowed to contribute for all periods of temporary service while still in City service, for up to 90 days after withdrawal from City service, or while in reciprocal service.
- The Board is allowed to adopt rules prescribing the manner of repaying refunds and purchasing any optional credit including accepting rollovers for payments.

- The City is allowed to use deposits from any legal source (including borrowing) in lieu of all or part of the tax levy on or after June 27, 1997.

- The requirement that any person employed by a retirement board of any other annuity and benefit fund in the City apply for participation in the Fund is eliminated.

- Payment is allowed for service as a police officer, firefighter or public school teacher in the City.

Public Act 90-0032 (HB 313)

- Approved June 27, 1997.

- For withdrawals from service occurring on or after June 27, 1997, an employee (and spouse) age 50 or over with at least 30 years of service is eligible to receive an annuity based on the minimum annuity formula.

- For withdrawals from service occurring on or after June 27, 1997, an employee under age 60 with at least 25 years of service is not subject to an age discount.

- The spouse of an employee dying on or after June 27, 1997, while receiving an annuity is eligible for one half of the employee's annuity at death, discounted for the spouse's age under 55 at the time of employee's death. Excess spouse refund, if any, must be repaid.

- Beginning June 27, 1997, employees already receiving annuity will receive a minimum annuity of $550 for life (reciprocal annuitants must have at least five years of Laborers' service). Any future employee annuitant withdrawing from service after attainment of age 60 with 10 or more years of service would qualify for this minimum.

- Beginning June 27, 1997, widow(er)s already receiving annuity will receive a minimum annuity of $500 for life (reciprocal annuitants must have at least five years of Laborers' service). For future spouses of retirees, 10 years of service is required. For spouses of employees dying in service in the future, five years of service is required.

- Beginning June 27, 1997, the child's annuity will be increased to $220 per month if the spouse of the deceased employee parent survives or $250 per month if no such spouse survives.

- Coverage in the City group health insurance is extended through June 30, 2002, with some modification in the plans offered. Pension fund supplement remains $45 and $75 for Medicare eligible and non-Medicare eligible annuitants respectively.

- Beginning June 27, 1997, spouses of employees dying in service after age 50, with at least 30 years of service or after age 55 with 25 years of service, will be eligible to receive 50 percent of the annuity that the employee would have received. This annuity will be reduced by 0.25 percent per month for each month that the spouse is below the age of 55.

Public Act 90-0511 (HB 1641)

- Approved August 22, 1997.

- Beginning August 22, 1997, for spouses of employees who retired or died in service before January 23, 1987, the previous $300, $400 or $500 maximum spouse annuity limitation is removed. If an excess spouse refund was paid, it must be repaid with interest.

- Service paid under Section 11-221 can be counted for ordinary disability purposes for periods of disability on or after August 22, 1997.

- Early Retirement Incentive was created for withdrawals from December 31, 1997, to June 30, 1998.

  - Requires a total of 20 years of service (with at least 10 in this fund, up to five in a Reciprocal fund, and up to five purchased under ERI) and age 55 or older.

  - Requires a total of 30 years of service (with at least 10 years of that service in this fund and without including any service purchased under the ERI provisions) and age 50 or older.

  - Requires an election form to be filed before June 1, 1998.

  - Requires a member to be a current contributor on November 1, 1997, and have not previously retired under this Article.

  - Provides for elimination of the age discount for employees age 55 to 60.

  - Provides for 80 percent maximum final average salary compared to the present 75 percent.
  - Provides for an optional purchase of up to five years of service credit for 4.25 percent of the November 1, 1997, salary.

  - Provides for a 24-month option to pay for ERI service.

  - Provides for a tax levy derived from ERI contributions.

1998

Public Act 90-0766 (HB 3515)

- Approved August 14, 1998.

- Beginning January 1, 1999, the automatic increase for employee annuitants changed to 3.00 percent compounded for all past, current and future annuitants regardless of the effective date of the annuity. Term annuities are not eligible for the increase.

- Employees withdrawing after January 1, 1999, will be eligible for the minimum formula upon attainment of age 60 if they have at least 10 years of service.

- Beginning January 1, 1999, employees already receiving an annuity as of August 14, 1998, will receive a minimum annuity of $850 for life (reciprocal annuitants must have at least five years of Laborers' service). Any future employee annuitant withdrawing from service after August 14, 1998, after attainment of age 60 with 10 or more years of service would qualify for this minimum.

- Beginning January 1, 1999, widow(er)s already receiving annuity as of August 14, 1998, will receive a minimum of $800 for life (reciprocal annuitants must have at least five years of Laborers' service). For future spouses of retirees dying after August 14, 1998, 10 years of service is required. For spouses of employees dying in service after August 14, 1998, five years of service is required.

- The conditions of the reversionary option were changed as follows:

  - The nullification of reversionary payment due to employee dying was reduced to 365 days after written designation was filed with the board and now applies only to parents, children and siblings (not spouses).

  - Employees may reduce their monthly annuity by as much as $400.

  - The increased annuity for spouse may now be as much as 100 percent of the reduced employee annuity.

- Spouses and widows that are eligible for the "50 percent employee amount" will no longer have this amount reduced for under age 55 if the employee dies on or after January 1, 1998, and withdrew from service on or after June 27, 1997, and the employee retired after age 55 with at least 25 years of service or after age 50 with at least 30 years of service. The age discount will only apply if the spouse is under age 50.

- The child of an annuitant who withdraws after January 1, 1998, having attained age 50 with at least 30 years of service is eligible for a child annuity upon the death of the annuitant.

- The required employer multiple has been set at 1.00 for 1999 and beyond.

- Money deposited under 5/11-169(f) may be used by the Fund for any of the purposes for which the proceeds of the tax levied by the City under this section may be used.

- The number of board members is changed from five to eight. The makeup of the board is two ex-officio members, three appointed persons, two employees and one annuitant.

Public Act 90-0731 (HB 1612)

- Effective July 1, 1999.

- Qualified Illinois Domestic Relations Orders recognized.

1999

- No Change.

2000

Public Act 91-0887 (HB 1583)

- Approved July 6, 2000.

- An employee or widow whose annuity would amount to less than $800 per month may elect to receive a refund in lieu of annuity. Formerly, only employees and widows whose annuity would be less than $300 per month could choose a refund.

- The reversionary annuity tables have been extended down to age 50 from age 55 to comply with the change in the law allowing retirement at age 50 with 30 years of service.

- The Board is allowed to pay an annuity (if the person qualifies) directly to a Medicare approved, State certified nursing home or to a publicly owned and operated nursing home, hospital or mental institution. Each person must qualify under the provisions of this amendment.

- Annuities of widows who remarry on or after the date 60 days after the effective date of this amendment would not be terminated upon remarriage.

- For annuities effective before January 1, 1998, all annuity payments will be made on the first day of the calendar month, for the entire month without proration.

2001

EGTRRA

- On June 7, 2001, the Economic Growth and Tax Relief Reconciliation Act of 2001 was signed by President Bush.

- Beginning January 1, 2002, payments for eligible optional service credits may be made with funds rolled over from a 457 deferred compensation plan or a 403(b) tax deferred annuity plan (if allowed by the 457 or 403(b) plan).

2002

Public Act 92-0609 (SB 314)

- Effective July 1, 2002.

- The accrual rate for the minimum formula annuity is changed from 2.20 percent to 2.40 percent of final average salary and the maximum annuity is changed from 75 percent to 80 percent of final average salary for employees withdrawing from service on or after January 1, 2002.
- The 3.00 percent post-retirement automatic increase will now begin no later than three years after retirement for an eligible retiree (an eligible retiree is an employee annuitant, not a widow or widower annuitant, originally granted a lifetime annuity). For eligible retirees less than age 60 on the first anniversary of retirement, the 3.00 percent increase will begin at the earlier of age 60, and the latest of the following dates:

  - The third anniversary of retirement;

  - The attainment of age 53; or

  - January 1, 2002.

  For eligible retirees age 60 or older on the first anniversary of retirement, the 3.00 percent increase will begin on the first anniversary of retirement.

Public Act 92-0599 (HB 5168)

- Effective June 28, 2002.

- For the eligible spouse of an employee who dies in service on or after August 28, 2002, with at least 10 years of service, the annuity is no less than 50 percent of the minimum formula annuity the employee would have been entitled to based on service and salary to the date of death without regard to age eligibility requirements. This is equal to 2.40 of final average salary for each year of service. The employee and the spouse must have been married for ten years.

- For children of employees who die in service on or after June 28, 2002, there is no service requirement for eligibility for children's annuity.

- The definition of "child" now includes any child adopted before employee withdraws from service and at least one year prior to the date any benefit for the child accrues. Previously the adoption also had to take place before the employee attained age 55.

- For ordinary disability benefits paid on or after January 1, 2001, the ordinary disability benefit is 50 percent of the employee's salary at the date of disability with the amounts ordinarily contributed by the employee for annuity purposes contributed by the Fund. These contributions are not refundable.

- The pension fund supplement for retiree health insurance was extended through June 30, 2003. For annuitants (other than child annuitants) taking the employer-provided plan, the supplement is $75 per month if the annuitant is not eligible for Medicare and $45 per month if the annuitant is eligible for Medicare.

2003

Public Act 93-0042 (SB 1701)

- Approved June 27, 2003, and effective July 1, 2003.

- The healthcare benefits were increased to $85 per month for non-Medicare eligible participants and $55 per month for Medicare eligible participants for the period from July 1, 2003, through June 30, 2008. Thereafter, the benefits are increased from $85 to $95 and $55 to $65 for the period July 1, 2008, to June 30, 2013.

- The healthcare benefits referred to above are not and shall not be construed to be pension or retirement benefits for the purposes of Section 5 of Article XIII of the Illinois Constitution of 1970.

2004

Public Act 93-0654 (HB 600)

- Effective January 16, 2004.

- Early Retirement Incentive was created for withdrawals from January 31, 2004, to February 29, 2004 (or to May 31, 2004, for those deemed critical employees).

  – Requires an election form to be filed before January 31, 2004.

  – Requires a member to be a current contributor who has not previously retired under this Article and satisfy one of the following:

- Active as of October 15, 2003
- Returned to active from approved leave of absence prior to December 15, 2003
- Receiving ordinary or duty disability benefits as of October 15, 2003
- Restored to service by January 31, 2004, after having been involuntarily laid off

– Requires that employees that reenter service forfeit their right to receive benefits and will have their benefits recalculated at the time of retirement excluding the benefits provided under the ERI.

– Requires that the participant is age 50 with 10 years of creditable service in this Fund and have 70 combined years of age and service, with service in one or more systems under the Reciprocal Act (excluding service purchased under the ERI).

– Provides for elimination of the age discount for employees younger than age 60.

– Provides for an optional purchase of up to five years of service credit for 4.25 percent of the monthly salary rate in effect October 15, 2003.

– Provides for a 24-month option to pay for ERI service.

– Provides for the exclusion of ERI contributions from the base from which the tax levy is derived.

– Provides for the exclusion of the liabilities arising from the ERI for the purpose of determining if a contribution by the city is required.

– Provides for a lump sum benefit option of 100 percent of salary at retirement and an actuarially reduced monthly annuity for those employees who were eligible for the maximum benefit (excluding purchased service under the ERI).

– Allows Board members to continue until the end of their terms without forfeiting the benefits provided by the early retirement incentive.

- Automatic increases in annuities will now take effect in the January of each year in which they are to be provided.

- An employee who previously withdrew contributions from the Fund, may have his rights under the Fund restored after repaying the withdrawn contributions with interest after completing the required amount of service after the date of refund. The required service is:

  – 90 days of service under this Fund; or
  – Two years of service under any participating Fund under the Reciprocal Act.

- Employees may elect to have their optional contributions "picked-up" by the employer, to be treated as employer contributions for tax purposes. The employee election is irrevocable.

- For the eligible spouse of an employee who died in service on or after January 1, 2002, and before August 28, 2002, with at least 10 years of service, the annuity is no less than 50 percent of the minimum formula annuity the employee would have been entitled to based on service and salary to date of death without regard to age eligibility requirements. This minimum formula annuity is equal to 2.40 percent of final average salary for each year of service. The employee and spouse must have been married for ten years.

2005

Public Act 94-0079 (SB 23)

- Approved June 27, 2005.

- Prohibits the investment or deposit from the retirement system or pension fund to certain entities doing business in or with the government of the Republic of the Sudan. Fund managing companies must certify that under Section 1-110.5 of the pension code that they have not loaned to, invested in or otherwise transferred any of the pension fund assets to a forbidden entity.

Public Act 94-0471 (SB 253)

- Approved August 4, 2005.

- Provides that, to qualify as an "emerging investment manager," the maximum value of an investment portfolio that a manager manages is $2,000,000,000 (was $400,000,000).

Public Act 94-0657 (SB 1446)

- Approved August 22, 2005, and effective July 1, 2006.

- Provides for various changes in provisions and procedures concerning Qualified Illinois Domestic Relations Orders. Allows for alternate payee's benefit to be based on a percentage of employee's benefit.

2006

- No Change.

2007

Public Act 94-1057 (HB 49)

- Approved August 17, 2007.

- Provides that, beginning on the effective date, legally adopted children shall be entitled to the same benefits as other children, and no child's or survivor's benefit shall be disallowed because the child is an adopted child.

Public Act 95-0521 (SB 1169)

- Approved August 28, 2007.

- Provides that, in order for an Illinois finance entity to be eligible for investment or deposit of retirement system or pension fund assets, the Illinois finance entity must annually certify that it complies with the requirements of the High Risk Home Loan Act and the rules adopted pursuant to that Act that are applicable to that Illinois finance entity. Requires the retirement system or pension fund to divest its assets with the Illinois finance entity if the certification is not made. Provides that these certification requirements are severable.

2008

- No Change.

2009

Public Act 95-1036 (SB 2520)

- Approved February 17, 2009.

- Provides that, before any action is taken by the Board on an application for a duty disability benefit or a widow's compensation or supplemental benefit, the employee or widow shall file a claim with the employer to establish that the disability or death occurred while the employee was acting within the scope of and in the course of his or her duties. Provides an offset of disability benefits for any amounts provided to the employee or surviving spouse as temporary total disability payments, permanent disability payments, a lump sum settlement award or other payment under the Workers' Compensation Act or the Workers' Occupational Diseases Act. Makes other changes concerning disability benefits.

Public Act 96-0753 (HB 2557)

- Approved August 25, 2009.

- Provides that it is the public policy of the State to encourage pension funds to promote the economy of Illinois through the use of economic opportunity investments within the bounds of financial and fiduciary prudence. Provides that the pension funds submit a report to the Governor and General Assembly by September 1 of each year identifying the economic opportunity investments made by the Fund, the primary location of the business or project, the percentage of the Fund's assets in economic opportunity investments and the actions the Fund has taken to increase the use of economic opportunity investments.

- Requires the Fund to instruct the investment advisors to utilize investment strategies designed to ensure that all securities transactions are executed in such a manner that the total explicit and implicit costs and the total proceeds in every transaction are the most favorable under the circumstances.

Public Act 96-0006 (SB 364)

- Approved April 3, 2009.
- Requires Board members to file a verified written statement of economic interest annually with the office of the Clerk of Cook County.
- Requires the Board to adopt a policy that sets quantifiable utilization goals for the management of assets in specific asset classes for emerging investment managers. Goals shall be separated by minority ownership, female ownership and person with a disability ownership.
- Requires that if at least one emerging firm(s) meet criteria of search process, at least one shall be invited to present to the Board for final consideration.
- Requires the Board to adopt a policy that sets forth goals for increasing the racial, ethnic and gender diversity of its fiduciaries, including its consultants and senior staff.
- Requires the Board to adopt a policy that sets forth goals for utilization of WMDBE firms for all contracts and services, based on the percentage of total dollar amount of all contracts let.
- Requires the Board to adopt a policy that sets forth goals for increasing the utilization of minority broker-dealers.
- Requires an annual report to the Governor and General Assembly on the utilization of "emerging firms" as defined by Article 1 of the Pension Code.
- Requires the Board to award all contracts for investment services using a competitive process that is substantially similar to the process required for the procurement of professional services under Article 35 of the Illinois Procurement Code. Requires the Board to adopt a procurement policy which will be posted on the Fund's website and filed with the Illinois Procurement Policy Board.
- Provides that a person may not act as a consultant or investment adviser unless that person is registered as an investment adviser or bank under the Federal Investment Advisers Act of 1940.
- Requires investment contracts between the Retirement Board and investment service providers to include certain required information.
- Provides that consultant contracts cannot exceed five years in duration; however, incumbent consultant may compete for new contract.

- Requires investment consultants and advisers to disclose all direct and indirect fees, commissions, penalties and other compensation paid by or on behalf of the investment consultant or adviser in connection with the services provided.

- Requires that a description of every contract let for investment services be posted on the website, including name of entity awarded the contract, amount of contract, total fees paid and disclosure describing the factors that contributed to the selection.

- Requires the Fund to maintain a website that shall include standard investment reporting, a copy of relevant Board policies, a listing of investment consultants and managers, a notification of any requests for investment services and the names and e-mail addresses of Board members, Fund directors and senior staff.

- Requires Board members to attend at least eight hours of ethics training per year and requires each Board to annually certify its members' compliance and submit an annual certification to the Division of Insurance of the Department of Financial and Professional Regulation.

- Prohibits any Fund trustee or employee or their spouses or immediate family living with them to intentionally solicit or accept any gift from any prohibited source as prescribed in Article 10 of the State Officials and Employees Ethics Act, including educational materials and missions and travel expenses for discussing Fund business.

- Provides that any person who knowingly makes any false statement or falsifies or permits falsifying any record of the pension fund in an attempt to defraud is guilty of a Class 3 felony.

- Provides that no person or entity shall retain a person or entity to influence the outcome of an investment decision or the procurement of investment advice to a pension fund for compensation, contingent upon the decision of the Board.

- Requires approval for travel or education mission expense of a Trustee by a majority of the Board prior to the mission.

Public Act 96-0586 (SB 1440)

- Approved August 18, 2009.

- Provides that the Fund may, and to the extent required by federal law shall, allow an employee to roll over a refund, lump-sum benefit, or other non-periodic distribution (including the non-taxable portion) directly to any entity that is designated in writing by the person, is qualified under federal law to accept the distribution, and has agreed to accept the distribution.

2010

Public Act 96-0889 (SB 1946)

- Approved April 14, 2010 and effective January 1, 2011.
- Establishes a new tier of benefits for participants that first become members on or after the effective date.
  - Final average compensation is based on the average of the highest consecutive eight years within the last ten years of service.
  - Establishes a cap on final average salary of $106,800, as automatically increased by the lesser of 3 percent or one-half of the annual increase in the Consumer Price Index-U during the preceding 12-months
  - Increases eligibility for a retirement annuity:
    - Age 67 with 10 years of service for an unreduced benefit.
    - Age 62 with 10 years of service for a reduced benefit. Reduction is one-half percent for each full month that retirement precedes age 67.
  - Changes provisions for automatic increases in annuity:
    - Increases begin in the year following the later of the first anniversary of the annuity start date and attainment of age 67
    - Increases are equal to the lesser of 3 percent or one-half of the annual increase in the Consumer Price Index-U during the preceding 12 months
    - Increases are based on the amount of the originally granted benefit (not compounded).
  - Changes benefits provided to surviving spouses:
    - Surviving spouse annuity is equal to 66 2/3 percent of the participant's earned retirement annuity at the date of death
    - Provides an automatic increase in annuity
      - Increases begin on January 1 in the year following the commencement of the survivor's annuity if the deceased member died while receiving a retirement annuity and January 1 following the first anniversary of commencement otherwise
      - Increases are equal to the lesser of 3 percent or one-half of the annual increase in the Consumer Price Index-U during the preceding 12 months
      - Increases are based on the amount of the originally granted benefit (not compounded).
  - Establishes that members that are receiving a retirement annuity and accept a full-time position under the same Article or another Article established under the Illinois Compiled Statutes, would have their benefits suspended during employment. Their benefits would be recalculated, if applicable, upon termination of employment.

Public Act 96-1490 (SB 550)

- Approved December 30, 2010, and effective January 1, 2011.
- Amends certain provisions established in SB1946 that apply to participants that first become members on or after the effective date:

- Establishes the period for calculating the annual unadjusted percentage increase in the Consumer Price Index-U as the 12-month period ending with September for purposes of capping salary and calculating the automatic increase in annuity percentage.
- Establishes that the salary cap of $106,800 applies for all purposes under the Code, including the calculation of benefits and employee contributions.
- Establishes that the survivor's annuity is calculated with no reduction due to age.
- Establishes that members who withdraw before age 62, or with less than 10 years of service, regardless of age, are entitled to all salary deductions for retirement annuity and spouse annuity accumulated with interest to date of resignation, plus the 0.50 percent deducted for annuity increase purposes without interest.
- Establishes that increases in annuity for employee annuitants commence on January 1.

2011

Public Act 97-0530 (SB 1672)

- Approved August 23, 2011.
- Requires all pension funds and retirement systems subject to the Code to comply with the federal Heroes Earnings Assistance and Relief Tax Act of 2008.

Public Act 97-0609 (SB 1831)

- Approved August 26, 2011, and effective January 1, 2012.
- Applies to those members hired on or after the effective date.
  - Provides that if a new hire is receiving a retirement annuity or pension and accepts a contractual position to provide services to a governmental entity from which he or she has retired, then that person's annuity or pension will be suspended during that contractual service.
  - Makes it a Class A misdemeanor for a pensioner who is seeking contractual employment to fail to notify certain persons about his or her retirement status before accepting an employment contract.

Public Act 97-0504 (HB 1670)

- Approved August 23, 2011.
- Amends the Open Meetings Act.
  - Requires each elected or appointed member of a public body subject to this Act who is such a member on the effective date of the amendatory Act to successfully complete the electronic training curriculum developed and administered by the Public Access Counselor.
  - Requires those members to complete the training not later than one year after the effective date of the amendatory Act.

- Requires each elected or appointed member of a public body subject to the Act who becomes such a member after the effective date of the amendatory Act to successfully complete the electronic training curriculum developed and administered by the Public Access Counselor.
- Requires those members to complete the training not later than the 90th day after the date the member either (i) takes the oath of office, if the member is required to take an oath of office to assume the person's duties as a member of the public body or (ii) otherwise assumes responsibilities as a member of the public body, if the member is not required to take an oath of office to assume the person's duties as a member of the governmental body.
- Requires each member who successfully completes the curriculum to file a copy of the certificate of completion with the public body.
- Provides that the failure of one or more members of a public body to complete the training required by this Section does not affect the validity of an action taken by the public body.
- Provides that an elected or appointed member of a public body subject to this Act who has successfully completed the required training and filed a copy of the certificate of completion with the public body is not required to subsequently complete that training.

2012

Public Act 97-0651 (HB 3813)

- Approved and effective January 5, 2012.
- Requires any reasonable suspicion of fraud against the Fund to be reported to the State's Attorney for investigation.
- Changes provisions for Union Leaves of Absence as follows:
  - Service credit can be accrued only for union leaves that begin before the effective date of this amendatory Act.
  - "Any pension plan established by the local labor organization" is defined as any pension plan in which the member can receive credit as a result of his membership in the local labor organization. This is a declaration of existing law.
  - Salary used for calculation of final average salary must be a salary paid by an employer, not by the union. This is a declaration of existing law.
  - Minimum annuity section 11-134 is changed to add to the final average salary the product of (1) final average salary, (2) the average percentage increase in the CPI during the leave of absence and (3) the number of years of leave of absence. This does not seem to deal with a situation where the employee may have been on leave within the last 10 years but is last with Laborers. It also only amends paragraph (f-1) which applies to those members who go on annuity on or after the attainment of age 60.
  - Does not change that contributions are based current salary with the union.

Public Act 97-0967 (HB 3969)

- Approved and effective August 16, 2012.

- Applies if the member retired after the effective date with less than two years of service in a participating system under the Reciprocal Act after General Assembly service.
- Requires that if the final average salary in a participating system is used to calculate the annuity, the employer must pay the General Assembly Retirement System for any increased cost of the General Assembly annuity that is attributable to the higher salary under the participating system.

2013

***Public Act 98-0043 (SB 1584*)**

- Approved and effective June 28, 2013.
- Changes the duration of health insurance supplement payments to eligible employee annuitants to “Beginning July 1, 2008 and until such time as the city no longer provides a health care plan for such annuitants or December 31, 2016, whichever comes first.”

***Public Act 98-0433 (HB 2620*)**

- Approved and effective August 16, 2013.
- Allows for an additional exception to the RFP process for obtaining investment services for “contracts for follow-on funds with the same fund sponsor through close-end funds.”

2014

***Public Act 98-0641 (SB 1922*)**

- Approved and effective June 9, 2014.
- Implements a funding policy designed to achieve 90% funded ratio by 2055
- Provides for incrementally increased employer contribution multiple which eventually converts to actuarial based funding.
- Caps the current pension levy at the full required city contribution amount.
- Creates payment obligation to the fund, provides enforcement.
- Provides for incrementally increased employee contributions.
- Tier 1: Ties annual increase in retirement annuity to inflation, subject to 3% cap, delays initial annual increase by one year, and eliminates annual increases in 2017, 2019 and 2025 for most annuitants.
- Tier 2: Reduces minimum retirement age by two years, delays the initial annual increase by one year, and eliminates the annual increases in 2025.

Public Act 98-1022 (HB 452)

- Approved and effective August 22, 2014.
- Requires investment managers and consultants entering into a contract to disclose information on use of vendors owned by minorities, females and persons with disabilities.
- Requires minority consideration to be “within the bounds of financial and fiduciary prudence.”
- Defines “minority investment managers” and requires funds to adopt a policy to increase goals for utilization. Requires annual review.
- Declares it is the public policy of the State to encourage use of minority investment managers.

2015

Public Act 99-0462 (SB 1334)

- Approved August 25, 2015.
- Sets aspirational goals that, beginning January 1, 2016, at least 20% of the total funds under management be managed by emerging investment managers and that at least 20% of the investment advisors be minorities, females, and persons with disabilities.
- Sets the aspirational goal that, beginning January 1, 2016, at least 20% of contracts for “information technology services,” “accounting services,” “insurance brokers,” “architectural and engineering services” and “legal services” be awarded to businesses owned by minorities, females and persons with disabilities.

Johnson et al. v. Municipal Employees’ Annuity and Benefit Fund of Chicago, et al.

- Public Act 98-0641 was ruled unconstitutional by the circuit court on July 24, 2015. On March 24, 2016, the Illinois Supreme Court affirmed the circuit court’s decision.
- Restores full automatic annual increase, the date of initial increase and eliminates increase holidays.
- For Tier 2, changes retirement age for unreduced benefits back to age 67 and for reduced benefits to age 62.
- Eliminates new funding policy.

2016

Public Act 99-0683 (HB 6030)

- Approved July 29, 2016.

- Mandates that by June 30, 2017, each retirement system implement a monthly procedure to identify deceased annuitants.
- Provides that each system shall have access to the vital records of the Illinois Department of Public Health at no cost to the system.

2017

Public Act 100-0023 (HB 0042)

- Approved and effective July 6, 2017.
- Implements a new funding policy designed to achieve 90% funded status by 2058. Employer required contributions are $36MM in 2018; $48MM in 2019; $60MM in 2020; $72MM in 2021; $84MM in 2022; and for 2023 through 2058, contributions are determined as a level percentage of employee payroll sufficient to achieve 90% funding by 2058.
- Provides a new tier of benefits for participants who first become members on or after the effective date of July 6, 2017 ("Required Tier 3 Members"). Allows participants who first become members on or after January 1, 2011 and prior to July 6, 2017 to make a one-time irrevocable election to be subject to the new tier of benefits ("Elective Tier 3 Members").
  - Introduces new annuity eligibility ages:
    - Age 65 with 10 years of service, unreduced.
    - Age 60 with 10 years of service, reduced; reduction is ½ of 1% for each month that retirement precedes age 65.
  - Requires increased contributions:
    - Required Tier 3 Members will pay 11.5% of capped salary beginning July 6, 2017; and the lesser of 11.5% or normal cost (subject to 8.5% floor) effective January 1, 2018.
    - Elective Tier 3 Members will pay 9.5% effective July 6, 2017; 10.5% effective January 1, 2018; and the lesser of 11.5% or normal cost (subject to 8.5% floor) effective January 1, 2019.
    - When 90% funded status is reached, employee contributions drop from 11.5% to 7.5% and remain at 7.5% unless the funded ratio falls below 75%.
  - Changes the provisions for automatic increase in annuity:
    - Increases begin in the year following the later of the first anniversary of annuity start date and attainment of age 65.
- Provides that the governing body of the unit of local government may elect by ordinance or resolution to create a new tier of benefits—structured as a hybrid between a defined benefit and a defined contribution plan—which would be made available to certain members by choice in lieu of the benefits they would otherwise receive.

- For participants who first become members on or after the effective date, allows the Fund to pursue subrogation when a death or disability benefit is payable if such death or disability was caused by a third party.
- For participants who first become members on or after the effective date, the Fund is authorized to reduce any refund which may become payable due to felony conviction relating to or arising out of or in connection with service as an employee by any annuity benefit previously received by the member or the member's beneficiaries.
- Allows payment of annuity to a member's federally insured financial institution or trust established by the member or for the benefit of the member; or if the member is confined to a publicly owned and operated mental institution, payment can be paid on the member's behalf to the superintendent or head of such institution.

Public Act 100-0334 (HB 0350)

- Approved and effective August 25, 2017
- States a person otherwise entitled to a survivor benefit and who has been convicted of a felony in connection with the service rendered by the member, is not eligible for such survivor benefit, if such conviction was after the effective date.
- It further states for participants that first becomes members after the effective date the change is a condition of employment.

Public Act 100-0542 (SB 1714)

- Approved and effective November 9, 2017
- Investment consultants are required annually, as well as prior to being hired, to provide certain disclosures regarding searches involving and investments made with minority owned businesses, female owned businesses and businesses owned by persons with disabilities. Such disclosures shall be considered within the bounds of financial and fiduciary prudence prior to the awarding of a new investment consulting contract.
- Investment consultants are required annually, as well as prior to being hired, to provide certain disclosures regarding all compensation and economic opportunity received in the last 24 months from any investment advisors retained by Fund or any investment advisor that is recommended for selection by the consultant.

Exhibit S
History of Recommended Employer Multiples and Taxes Levied

Year of Report	Statutory Multiple	Normal Cost Plus Interest	Normal Cost Plus 30-Year Amortization [12]	Normal Cost Plus 30-Year % of Salary Amortization [12]	Tax Levy Year	City	Park	Total Tax Levy
1984	1.37	1.58	2.04	1.30	1984	$15,606,000	$32,000	$15,638,000
1985[2]	1.37	1.60	2.08	1.33	1985	15,618,000	29,000	15,647,000
1986[1]	1.37	0.99	1.84	0.94	1986	15,373,000	25,000	15,398,000
1987[1]	1.37	1.13	1.90	1.03	1987	15,260,000	21,000	15,281,000
1988	1.37	1.03	1.87	0.98	1988	15,380,000	20,000	15,400,000
1989[1,2]	1.37	0.56	1.49	0.56	1989	15,442,000	14,000	15,456,000
1990[1,2]	1.37	1.01	1.80	0.93	1990	15,261,000	12,000	15,273,000
1991	1.37	0.93	1.70	0.90	1991	16,382,000	10,000	16,392,000
1992[2]	1.37	0.80	1.75	0.80	1992	16,835,000	11,000	16,846,000
1993 [2]	1.37	0.83	1.96	0.83	1993	18,036,000	11,000	18,047,000
1994[1,2]	1.37	0.64	1.84	0.64	1994	17,069,000	12,000	17,081,000
1995 [2]	1.37	0.75	1.87	0.75	1995	18,726,000	9,500	18,735,500
1996	1.37	0.66	1.75	0.66	1996	20,037,300	6,900	20,044,200
1997[1,2,3,4]	1.37	N/A	N/A	N/A	1997	19,645,400	4,300	19,649,700
1998[1,2,4]	1.37	N/A	N/A	N/A	1998	19,757,000	4,600	19,761,600
1999[1,4,5]	1.00	N/A	N/A	N/A	1999	14,676,000	1,898	14,677,898
2000[4]	1.00	N/A	N/A	N/A	2000[6]	0	0	0
2001[4]	1.00	N/A	N/A	N/A	2001[7]	0	0	0
2002[2,4]	1.00	N/A	N/A	N/A	2002[8]	0	0	0
2003 [2]	1.00	0.44	0.43	0.53	2003[9]	0	0	0
2004 [1,2]	1.00	0.67	0.67	0.63	2004[10]	0	0	0
2005 [1]	1.00	1.18	1.23	0.63	2005[11]	0	0	0
2006	1.00	1.54	1.64	1.30	2006[13]	0	0	0
2007	1.00	1.12	1.19	0.99	2007	15,460,000	0	15,460,000
2008	1.00	1.98	2.12	1.60	2008	17,891,000	0	17,891,000
2009	1.00	2.54	2.76	1.97	2009	17,545,800	0	17,545,800
2010	1.00	3.57	3.89	2.71	2010	18,239,700	0	18,239,700
2011 [1]	1.00	4.95	5.41	3.67	2011 [1]	15,635,700	0	15,635,700
2012 [1]	1.00	6.78	7.48	5.44	2012 [1]	14,898,700	0	14,898,700
2013 [2]	1.00	6.42	7.20	5.26	2013 [2]	14,616,300	0	14,616,300
2014 [2]	1.00	4.87	5.48	4.05	2014 [2]	15,074,500	0	15,074,500
2015 [2]	1.00	7.08	7.94	5.75	2015 [2]	15,011,900	0	15,011,900
2016 [14]	1.00	7.38	8.14	5.84	2016 [14]	15,019,000	0	15,019,000
2017 [1,15]	3.08	7.44	8.28	6.33	2017 [15]	36,000,000	0	36,000,000
2018 [1,15]	3.78	8.39	9.35	7.26	2018 [15]	48,000,000	0	48,000,000

[1] Change in actuarial assumptions
[2] Change in benefits
[3] Change in asset valuation method to GASB
[4] No contribution is required under these valuation methods
[5] Change in actuary
[6] Tax levy based on the statutory multiple would be $16,726,700
[7] Tax levy based on the statutory multiple would be $16,504,660
[8] Tax levy based on the statutory multiple would be $16,892,000
[9] Tax levy based on the statutory multiple would be $19,430,000
[10] Tax levy based on the statutory multiple would be $19,570,600
[11] Tax levy based on the statutory multiple would be $18,970,900
[12] 40-year amortization for years prior to 2006; 30-year amortization for 2006 and after.
[13] Tax levy based on the statutory multiple would be $17,193,400
[13] Tax levy based on the statutory multiple would be $17,193,400
[14] Statutory multiple applicable in tax levy year 2016
[15] Fixed statutory contributions pursuant to PA 100-0023. Multiple no longer applies.

Exhibit T
Actuarial Determined Contributions of Employer and Trend Information

Year	Actuarial Determined Contribution (ADC) of the Employer[1]	Required Statutory Basis[2]	Actual[3]	Percent of ADC Contributed
2009	$ 37,199,049	$ 16,843,872	$ 17,189,811	46.21%
2010	50,274,041	17,510,112	17,938,810	35.68%
2011	60,801,575	15,010,272	15,358,602	25.26%
2012	80,636,419	14,302,752	14,414,835	17.88%
2013	109,290,128	14,031,648	14,100,639	12.90%
2014	108,538,602	14,471,520	14,520,515	13.38%
2015	82,252,473	14,411,424	14,566,544	17.71%
2016	119,215,489	14,418,240	14,443,495	12.12%
2017	124,226,042	36,000,000	35,456,607	28.54%
2018	129,247,584	48,000,000	47,844,184	37.02%

[1]*Under Normal Cost plus Level-Dollar Amortization. Amortization period of 30 years beginning in 2007 and 40 years prior to 2007. Negative ADC values are set to zero, as no contribution is then required.*
[2]*Tax levy after 4.00 percent overall loss for years 2008 through 2016.*
[3]*Net tax levy plus miscellaneous. Includes prior year adjustments for taxes beginning in 1991.*

Year	Assets[1] Available for Benefits as a % of Actuarial Accrued Liability	Unfunded Actuarial Accrued Liability (Surplus) as a % of Covered Payroll End of Year	Employer Contribution as a % of Covered Payroll Beginning of Year
2009	79.37%	199.46 %	8.24%
2010	73.83%	271.18 %	8.98%
2011	64.92%	393.76 %	7.87%
2012	55.41%	532.69 %	7.25%
2013	56.65%	517.25 %	7.04%
2014	64.28%	372.15 %	7.16%
2015	52.99%	567.07 %	7.11%
2016	50.36%	598.40 %	6.94%
2017	48.28%	639.81 %	17.01%
2018	44.68%	693.95 %	22.94%

[1]*Actuarial value of assets.*

Exhibit U

History of Retirees and Beneficiaries Added to Payrolls 2009-2018

Year	Added to Payroll No. [1]	Added to Payroll Ann. Benefits [2]	Removed from Payroll No. [1]	Removed from Payroll Ann. Benefits	Payroll End of Year No.	Payroll End of Year Ann. Benefits	Average Annual Benefit	Increase in Average Benefit
Employee Annuitants (Male and Female)								
2009	169	$ 9,882,832	132	$ 3,675,336	2,683	$ 98,915,980	$ 36,868	5.22%
2010	163	10,367,852	144	4,008,480	2,702	105,275,352	38,962	5.68%
2011	163	10,624,236	144	4,187,172	2,721	111,712,416	41,056	5.37%
2012	136	9,154,278	120	4,030,908	2,737	116,835,786	42,688	3.97%
2013	112	7,904,208	122	4,032,342	2,727	120,707,652	44,264	3.69%
2014	102	8,125,860	139	5,180,724	2,690	123,652,788	45,968	3.85%
2015	92	7,652,892	117	4,787,604	2,665	126,518,076	47,474	3.28%
2016	74	6,753,900	106	4,091,952	2,633	129,180,024	49,062	3.34%
2017	93	7,869,662	141	5,713,647	2,585	131,336,039	50,807	3.56%
2018	111	8,910,960	102	4,119,614	2,594	136,127,385	52,478	3.29%
Surviving Spouse and Reversionary Annuitants								
2009	49	$ 866,592	75	$ 772,740	1,272	$ 15,375,816	$ 12,088	2.67%
2010	57	1,000,668	74	770,808	1,255	15,605,676	12,435	2.87%
2011	57	1,000,152	91	1,021,908	1,221	15,583,920	12,763	2.64%
2012	74	1,028,112	91	1,032,372	1,204	15,579,660	12,940	1.39%
2013	51	908,433	66	730,560	1,189	15,757,533	13,253	2.42%
2014	62	1,333,056	69	733,176	1,182	16,357,413	13,839	4.42%
2015	45	1,093,704	78	883,747	1,149	16,567,370	14,419	4.19%
2016	40	940,530	89	1,110,900	1,100	16,397,000	14,906	3.38%
2017	59	1,324,260	81	1,142,077	1,078	16,579,183	15,380	3.18%
2018	48	1,039,044	69	962,202	1,057	16,656,026	15,758	2.46%

[1] *Numbers added and removed from payroll may include Reversionary Annuitants that are also Surviving Spouses.*
[2] *Annual benefits added to payroll include post-retirement increase amounts.*