

# City of Grand Rapids General Retirement System

GASB Statement Nos. 67 and 68 Accounting and  
Financial Reporting for Pensions  
June 30, 2019



October 17, 2019

Mr. Jeff Dood, CFO  
Board of Trustees  
City of Grand Rapids General  
Retirement System  
Grand Rapids, Michigan

Dear Mr. Dood:

This report provides accounting and financial reporting information that is intended to comply with the Governmental Accounting Standards Board (GASB) Statement Nos. 67 and 68 for the City of Grand Rapids General Retirement System. These calculations have been made on a basis that is consistent with our understanding of these Statements.

GASB Statement No. 67 is the accounting standard that applies to the stand-alone financial reports issued by retirement systems. GASB Statement No. 68 establishes accounting and financial reporting for state and local government employers who provide their employees (including former employees) pension benefits through a trust.

This report was prepared at the request of the City and is intended for use by the Retirement System and those designated or approved by the City. This report may be provided to parties other than the System only in its entirety and only with the permission of the City. GRS is not responsible for unauthorized use of this report.

Our calculation of the liability associated with the benefits described in this report was performed for the purpose of providing reporting and disclosure information that satisfies the requirements of GASB Statement Nos. 67 and 68. The calculation of the plan's liability for this report is not applicable for funding purposes of the plan. A calculation of the plan's liability for purposes other than satisfying the requirements of GASB Statement No. 67 may produce significantly different results.

The valuation was based upon information furnished by the City and Plan Administrator, concerning Retirement System benefits, financial transactions, plan provisions, and active members, terminated members, retirees and beneficiaries. We checked for internal reasonability and year-to-year consistency, but did not audit the data. We are not responsible for the accuracy or completeness of the information provided by the City.

Mr. Jeff Dood  
City of Grand Rapids General  
Retirement System  
October 17, 2019  
Page 2

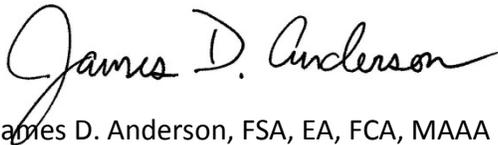
This report complements the actuarial valuation report that was provided to the Board and should be considered in conjunction with that report. Please see the actuarial valuation report as of June 30, 2018 for additional discussion of the nature of actuarial calculations and more information related to participant data, economic and demographic assumptions, and benefit provisions.

To the best of our knowledge, the information contained within this report is accurate and fairly represents the actuarial position of the City of Grand Rapids General Retirement System. All calculations have been made in conformity with generally accepted actuarial principles and practices as well as with the Actuarial Standards of Practice issued by the Actuarial Standards Board.

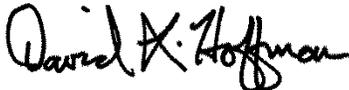
The signing individuals are independent of the plan sponsor.

James D. Anderson and Jeffrey T. Tebeau are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

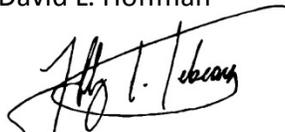
Respectfully submitted,



James D. Anderson, FSA, EA, FCA, MAAA



David L. Hoffman



Jeffrey T. Tebeau, FSA, EA, MAAA

JDA/DLH/JTT:dj

C0547



# Table of Contents

## Page

### **Section A Executive Summary**

|                         |     |
|-------------------------|-----|
| Executive Summary ..... | 1   |
| Discussion .....        | 2-5 |

### **Section B Financial Statements**

|   |    |
|---|----|
| Statement of Pension Expense .....  | 6  |
| Statement of Outflows and Inflows Arising from the Current Reporting Period.....            | 7  |
| Statement of Outflows and Inflows Arising from the Current and Prior Reporting Periods .... | 8  |
| Recognition of Deferred Outflows and Inflows of Resources .....                             | 9  |
| Statement of Fiduciary Net Position.....  | 10 |
| Statement of Changes in Fiduciary Net Position .....  | 11 |

### **Section C Required Supplementary Information**

|  |    |
|--|----|
| Schedule of Changes in the Net Pension Liability and Related Ratios Current Reporting Period ..... | 12 |
| Schedule of Changes in the Employer's Net Pension Liability and Related Ratios .....               | 13 |
| Schedule of the Employer's Net Pension Liability .....   | 14 |
| Schedule of Contributions .....  | 15 |
| Notes to Schedule of Contributions .....   | 16 |

### **Section D Notes to Financial Statements**

|   |    |
|---|----|
| Long-Term Expected Return on Plan Assets.....   | 17 |
| Sensitivity of the Net Pension Liability to the Single Discount Rate Assumption ..... | 18 |
| Summary of Population Statistics.....   | 19 |

### **Section E Summary of Benefits.....20-31**

### **Section F Actuarial Cost Method and Actuarial Assumptions**

|   |       |
|---|-------|
| Valuation Methods, Entry Age Normal.....  | 32    |
| Actuarial Assumptions, Input to Discount Rates, Mortality Assumptions, and Experience Studies ..... | 33-36 |
| Miscellaneous and Technical Assumptions .....   | 37    |

### **Section G Calculation of the Single Discount Rate**

|  |       |
|--|-------|
| Calculation of the Single Discount Rate.....               | 38    |
| Projection of Contributions .....                          | 39    |
| Projection of Plan Fiduciary Net Position .....            | 40    |
| Present Values of Projected Benefit Payments.....          | 41-42 |
| Projection of Plan Net Position and Benefit Payments ..... | 43    |

### **Section H Michigan Public Act 202.....44-45**

### **Section I Glossary of Terms.....46-49**

**SECTION A**

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**EXECUTIVE SUMMARY**

# Executive Summary

|   |               |
|---|---------------|
| Actuarial Valuation Date                            | June 30, 2019 |
| Measurement Date of the Net Pension Liability       | June 30, 2019 |
| Employer's Fiscal Year Ending Date (Reporting Date) | June 30, 2020 |

## Membership

|                                |               |
|--------------------------------|---------------|
| Number of                      |               |
| - Retirees and Beneficiaries   | 1,186         |
| - Inactive, Nonretired Members | 106           |
| - Active Members               | 446           |
| - Total                        | 1,738         |
| Covered Payroll <sup>(1)</sup> | \$ 29,695,997 |

## Net Pension Liability

|   |                |
|---|----------------|
| Total Pension Liability   | \$ 539,265,786 |
| Plan Fiduciary Net Position   | 419,215,052    |
| Net Pension Liability   | \$ 120,050,734 |
| Plan Fiduciary Net Position as a Percentage<br>of Total Pension Liability | 77.74%         |
| Net Pension Liability as a Percentage<br>of Covered Payroll               | 404.27%        |

## Development of the Single Discount Rate

|   |       |
|---|-------|
| Single Discount Rate  | 7.00% |
| Long-Term Expected Rate of Investment Return  | 7.00% |
| Long-Term Municipal Bond Rate <sup>(2)</sup>  | 3.13% |
| Year when the Plan Fiduciary Net Position is projected to<br>no longer be sufficient to make Projected Benefit Payments | N/A   |

**Total Pension Expense** \$ 22,009,033

## Deferred Outflows of Resources and Deferred Inflows of Resources

|   | Deferred Outflows<br>of Resources | Deferred Inflows<br>of Resources |
|---|-----------------------------------|----------------------------------|
| Difference between expected and actual experience                                   | \$ -                              | \$ 2,093,398                     |
| Changes in assumptions  | 5,543,674                         | -                                |
| Net difference between projected and actual earnings<br>on pension plan investments | 11,979,739                        | 4,457,039                        |
| <b>Total</b>  | <b>\$ 17,523,413</b>              | <b>\$ 6,550,437</b>              |

<sup>(1)</sup> The amount provided represents the annual pays for members active on the valuation date and does not necessarily represent Covered Payroll as defined in GASB Statements No. 67 and 68.

<sup>(2)</sup> Source: Fixed-income municipal bonds with 20 years to maturity that include only federally tax-exempt municipal bonds as reported in Fidelity Index's "20-Year Municipal GO AA Index" as of June 28, 2019. In describing this index, Fidelity notes that the municipal curves are constructed using option-adjusted analytics of a diverse population of over 10,000 tax-exempt securities.

# Discussion

## Accounting Standard

For pension plans that are administered through trusts or equivalent arrangements, Governmental Accounting Standards Board (GASB) Statement No. 67 establishes standards of financial reporting for separately issued financial reports and specifies the required approach for measuring the pension liability. Similarly, GASB Statement No. 68 establishes standards for state and local government employers (as well as non-employer contributing entities) to account for and disclose the net pension liability, pension expense, and other information associated with providing retirement benefits to their employees (and former employees) on their basic financial statements.

The following discussion provides a summary of the information that is required to be disclosed under these accounting standards. A number of these disclosure items are provided in this report. However, certain information, such as notes regarding accounting policies and investments, is not included in this report and the retirement system and/or plan sponsor will be responsible for preparing and disclosing that information to comply with these accounting standards.

## Financial Statements

GASB Statement No. 68 requires state or local governments to recognize the net pension liability and the pension expense on their financial statements. The net pension liability is the difference between the total pension liability and the plan's fiduciary net position. In traditional actuarial terms, this is analogous to the accrued liability less the market value of assets (not the smoothed actuarial value of assets that is often encountered in actuarial valuations performed to determine the employer's contribution requirement).

Paragraph 57 of GASB Statement No. 68 states, "Contributions to the pension plan from the employer subsequent to the measurement date of the collective net pension liability and before the end of the employer's reporting period should be reported as a deferred outflow of resources related to pensions." The information contained in this report does not incorporate any contributions made to the System subsequent to the measurement date of June 30, 2019.

The pension expense recognized each fiscal year is equal to the change in the net pension liability from the beginning of the year to the end of the year, adjusted for deferred recognition of the liability and investment experience.

Pension plans that prepare their own, stand-alone financial statements are required to present two financial statements – a statement of fiduciary net position and a statement of changes in fiduciary net position in accordance with GASB Statement No. 67. The *statement of fiduciary net position* presents the assets and liabilities of the pension plan at the end of the pension plan's reporting period. The *statement of changes in fiduciary net position* presents the additions, such as contributions and investment income, and deductions, such as benefit payments and expenses, and net increase or decrease in the fiduciary net position.

## Notes to Financial Statements

GASB Statement No. 68 requires the notes of the employer's financial statements to disclose the total pension expense, the pension plan's liabilities and assets, and deferred outflows and inflows of resources related to pensions.

GASB Statement Nos. 67 and 68 require the notes of the financial statements for the employers and pension plans to include certain additional information. The list of disclosure items should include:

- a description of benefits provided by the plan;
- the type of employees and number of members covered by the pension plan;
- a description of the plan's funding policy, which includes member and employer contribution requirements;
- the pension plan's investment policies;
- the pension plan's fiduciary net position and the net pension liability;
- the net pension liability using a discount rate that is 1% higher and 1% lower than used to calculate the total pension liability and net pension liability for financial reporting purposes;
- significant assumptions and methods used to calculate the total pension liability;
- inputs to the discount rates; and
- certain information about mortality assumptions and the dates of experience studies.

Retirement systems that issue stand-alone financial statements are required to disclose additional information in accordance with GASB Statement No. 67. This information includes:

- the composition of the pension plan's Board and the authority under which benefit terms may be amended;
- a description of how fair value is determined;
- information regarding certain reserves and investments, which include concentrations of investments greater than or equal to 5%, receivables, and insurance contracts excluded from plan assets; and
- annual money-weighted rate of return.

## Required Supplementary Information

GASB Statement No. 67 requires a 10-year fiscal history of:

- sources of changes in the net pension liability;
- information about the components of the net pension liability and related ratios, including the pension plan's fiduciary net position as a percentage of the total pension liability, and the net pension liability as a percent of covered payroll; and
- a comparison of the actual employer contributions to the actuarially determined contributions based on the plan's funding policy.

## General Implications of Contribution Allocation Procedure or Funding Policy on Future Expected Plan Contributions and Funded Status

Given the plan's contribution allocation procedure, if all actuarial assumptions are met (including the assumption of the plan earning 7.00% on the actuarial value of assets), then the following outcomes are expected:

1. The employer normal cost as a percentage of pay is expected to remain level as a percentage of payroll.
2. The unfunded liability is expected to be paid off in 30 years, which is the number of years remaining in the closed amortization schedule of the unfunded liability.
3. The funded status of the plan is expected to reach a 100% funded ratio in 30 years, which is the number of years remaining in the closed amortization schedule of the unfunded liability.

This funding policy results in the expectation that the plan's assets will be able to fully pay for promised benefits through at least 2119. The projections in this report are strictly for the purpose of determining the GASB single discount rate and are different from a funding projection for the ongoing plan.

## Timing of the Valuation

An actuarial valuation to determine the total pension liability is required to be performed at least every two years. The net pension liability and pension expense should be measured as of the pension plan's fiscal year end (measurement date) on a date that is within the employer's prior fiscal year. If the actuarial valuation used to determine the total pension liability is not calculated as of the measurement date, the total pension liability is required to be rolled forward from the actuarial valuation date to the measurement date.

The total pension liability shown in this report is based on an actuarial valuation performed as of June 30, 2019 and a measurement date of June 30, 2019.

## Single Discount Rate

Projected benefit payments are required to be discounted to their actuarial present values using a Single Discount Rate that reflects: (1) a long-term expected rate of return on pension plan investments (to the extent that the plan's fiduciary net position is projected to be sufficient to pay benefits); and (2) tax-exempt municipal bond rate based on an index of 20-year general obligation bonds with an average AA credit rating as of the measurement date (to the extent that the contributions for use with the long-term expected rate of return are not met).

For the purpose of this valuation, the expected rate of return on pension plan investments is 7.00%; the municipal bond rate is 3.13% (based on the weekly rate closest to but not later than the measurement date of the Fidelity "20-Year Municipal GO AA Index"); and the resulting Single Discount Rate is 7.00%.

## **SECTION B**

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### **FINANCIAL STATEMENTS**

**Statement of Pension Expense Under GASB Statement No. 68**  
**Measurement Date – June 30, 2019**  
**Reporting Date – June 30, 2020**

**A. Expense**

|   |                             |
|---|-----------------------------|
| 1. Service Cost   | \$ 4,657,970                |
| 2. Interest on the Total Pension Liability                                  | 36,626,148                  |
| 3. Current Period Benefit Changes   | 0                           |
| 4. Employee Contributions (made negative for addition here)                 | (2,677,960)                 |
| 5. Projected Earnings on Plan Investments (made negative for addition here) | (29,127,079)                |
| 6. Pension Plan Administrative Expense                                      | 596,090                     |
| 7. Other Changes in Plan Fiduciary Net Position                             | -                           |
| 8. Recognition of Outflow (Inflow) of Resources due to Liabilities          | 2,862,798                   |
| 9. Recognition of Outflow (Inflow) of Resources due to Assets               | 9,071,066                   |
| <b>10. Total Pension Expense</b>  | <b><u>\$ 22,009,033</u></b> |

# Statement of Outflows and Inflows Arising from the Current Reporting Period Measurement Date – June 30, 2019 Reporting Date – June 30, 2020

## A. Outflows (Inflows) of Resources Due to Liabilities

|  |                |
|--|----------------|
| 1. Difference between expected and actual experience<br>of the Total Pension Liability (gains) or losses   | \$ (2,877,132) |
| 2. Assumption Changes (gains) or losses  | \$ 7,963,218   |
| 3. Recognition period for Liabilities: Average of the<br>expected remaining service lives of all employees {in years}  | 2.3            |
| 4. Outflow (Inflow) of Resources to be recognized in the current pension expense for the<br>difference between expected and actual experience<br>of the Total Pension Liability      | \$ (1,250,927) |
| 5. Outflow (Inflow) of Resources to be recognized in the current pension expense for<br>Assumption Changes   | \$ 3,462,269   |
| 6. Outflow (Inflow) of Resources to be recognized in the current pension expense<br>due to Liabilities   | \$ 2,211,342   |
| 7. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses for the<br>difference between expected and actual experience<br>of the Total Pension Liability | \$ (1,626,205) |
| 8. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses for<br>Assumption Changes  | \$ 4,500,949   |
| 9. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses<br>due to Liabilities  | \$ 2,874,744   |

## B. Outflows (Inflows) of Resources Due to Assets

|  |              |
|--|--------------|
| 1. Net difference between projected and actual earnings on<br>pension plan investments (gains) or losses | \$ 7,755,582 |
| 2. Recognition period for Assets {in years}  | 5.0          |
| 3. Outflow (Inflow) of Resources to be recognized in the current pension expense<br>due to Assets        | \$ 1,551,116 |
| 4. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses<br>due to Assets   | \$ 6,204,466 |

# Statement of Outflows and Inflows Arising from the Current and Prior Reporting Periods Measurement Date – June 30, 2019 Reporting Date – June 30, 2020

## A. Outflows and Inflows of Resources Due to Liabilities and Assets to be Recognized in Current Pension Expense

|                       | Outflows<br>of Resources | Inflows<br>of Resources | Net Outflows<br>of Resources |
|-----------------------|--------------------------|-------------------------|------------------------------|
| 1. Due to Liabilities | \$ 5,752,942             | \$ 2,890,144            | \$ 2,862,798                 |
| 2. Due to Assets      | 11,270,586               | 2,199,520               | 9,071,066                    |
| <b>3. Total</b>       | <b>\$ 17,023,528</b>     | <b>\$ 5,089,664</b>     | <b>\$ 11,933,864</b>         |

## B. Outflows and Inflows of Resources by Source to be Recognized in Current Pension Expense

|   | Outflows<br>of Resources | Inflows<br>of Resources | Net Outflows<br>of Resources |
|---|--------------------------|-------------------------|------------------------------|
| 1. Differences between expected and actual experience                               | \$ 205,224               | \$ 2,462,949            | \$ (2,257,725)               |
| 2. Assumption Changes   | 5,547,718                | 427,195                 | 5,120,523                    |
| 3. Net Difference between projected and actual earnings on pension plan investments | 11,270,586               | 2,199,520               | 9,071,066                    |
| <b>4. Total</b>   | <b>\$ 17,023,528</b>     | <b>\$ 5,089,664</b>     | <b>\$ 11,933,864</b>         |

## C. Deferred Outflows and Deferred Inflows of Resources by Source to be Recognized in Future Pension Expenses

|   | Deferred Outflows<br>of Resources | Deferred Inflows<br>of Resources | Net Deferred<br>Outflows<br>of Resources |
|---|-----------------------------------|----------------------------------|--|
| 1. Differences between expected and actual experience                               | \$ -                              | \$ 2,093,398                     | \$ (2,093,398)                           |
| 2. Assumption Changes   | 5,543,674                         | -                                | 5,543,674                                |
| 3. Net Difference between projected and actual earnings on pension plan investments | 11,979,739                        | 4,457,039                        | 7,522,700                                |
| <b>4. Total</b>   | <b>\$ 17,523,413</b>              | <b>\$ 6,550,437</b>              | <b>\$ 10,972,976</b>                     |

## D. Deferred Outflows and Deferred Inflows of Resources by Year to be Recognized in Future Pension Expenses

| Year Ending<br>June 30 | Net Deferred<br>Outflows<br>of Resources |
|------------------------|--|
| 2021                   | \$ 7,913,743                             |
| 2022                   | 14,997                                   |
| 2023                   | 1,493,118                                |
| 2024                   | 1,551,118                                |
| 2025                   | -  |
| Thereafter             | -  |
| <b>Total</b>           | <b>\$ 10,972,976</b>                     |

# Recognition of Deferred Outflows and Inflows of Resources

## Measurement Date – June 30, 2019

### Reporting Date – June 30, 2020

| Year Established  | Initial Amount | Initial<br>Recognition<br>Period | Current Year<br>Recognition | Remaining<br>Recognition | Remaining<br>Recognition<br>Period |
|---|----------------|----------------------------------|-----------------------------|--------------------------|------------------------------------|
| <b>Deferred Outflow (Inflow) Due to Differences Between Expected and Actual Experience on Liabilities</b>     |                |                                  |                             |                          |                                    |
| 2016  | \$ 6,361,929   | 3.1                              | \$ 205,224                  | \$ 0                     | 0.0                                |
| 2017  | (971,718)      | 2.8                              | (277,634)                   | 0                        | 0.0                                |
| 2018  | (2,335,969)    | 2.5                              | (934,388)                   | (467,193)                | 0.5                                |
| 2019  | (2,877,132)    | 2.3                              | (1,250,927)                 | (1,626,205)              | 1.3                                |
| <b>Total</b>  |                |                                  | <b>\$ (2,257,725)</b>       | <b>\$ (2,093,398)</b>    |                                    |
| <b>Deferred Outflow (Inflow) Due to Assumption Changes</b>  |                |                                  |                             |                          |                                    |
| 2016  | \$ 0           | 3.1                              | \$ 0                        | \$ 0                     | 0.0                                |
| 2017  | (1,495,183)    | 2.8                              | (427,195)                   | 0                        | 0.0                                |
| 2018  | 5,213,623      | 2.5                              | 2,085,449                   | 1,042,725                | 0.5                                |
| 2019  | 7,963,218      | 2.3                              | 3,462,269                   | 4,500,949                | 1.3                                |
| <b>Total</b>  |                |                                  | <b>\$ 5,120,523</b>         | <b>\$ 5,543,674</b>      |                                    |
| <b>Deferred Outflow (Inflow) Due to Differences Between Projected and Actual Earnings on Plan Investments</b> |                |                                  |                             |                          |                                    |
| 2015  | \$ 19,720,977  | 5.0                              | \$ 3,944,197                | \$ 0                     | 0.0                                |
| 2016  | 28,876,365     | 5.0                              | 5,775,273                   | 5,775,273                | 1.0                                |
| 2017  | (10,707,601)   | 5.0                              | (2,141,520)                 | (4,283,041)              | 2.0                                |
| 2018  | (289,998)      | 5.0                              | (58,000)                    | (173,998)                | 3.0                                |
| 2019  | 7,755,582      | 5.0                              | 1,551,116                   | 6,204,466                | 4.0                                |
| <b>Total</b>  |                |                                  | <b>\$ 9,071,066</b>         | <b>\$ 7,522,700</b>      |                                    |

According to Paragraph 33 of GASB Statement No. 68, *differences between expected and actual experience and changes in assumptions* are recognized in pension expense using a systematic and rational method over a closed period equal to the average of the expected remaining service lives of all employees that are provided with pensions through the pension plan (active employees and inactive employees) determined as of the beginning of the measurement period.

At the beginning of the measurement period, the expected remaining service lives of all contributing members was 4,085 years. Additionally, the combined plan membership (active employees and inactive employees) was 1,738. As a result, the average of the expected remaining service lives for purposes of recognizing the applicable deferred outflows and inflows of resources established in the measurement period is 2.3 years.

Additionally, *differences between projected and actual earnings on pension plan investments* should be recognized in pension expense using a systematic and rational method over a closed five-year period. For this purpose, the deferred outflows and inflows of resources are recognized in the pension expense as a level dollar amount over the closed period identified above.

## Statement of Fiduciary Net Position as of June 30, 2019

### Assets

|   |           |                    |
|---|-----------|--------------------|
| Cash and Deposits                         | \$        | 8,663,699          |
| Receivables                               |           |                    |
| Accounts Receivable - Sale of Investments | \$        | 1,500,871          |
| Accrued Interest and Other Dividends      |           | 458,659            |
| Contributions                             |           | 923,506            |
| Accounts Receivable - Other               |           | -                  |
| Total Receivables                         | <u>\$</u> | <u>2,883,036</u>   |
| Investments                               |           |                    |
| Fixed Income                              | \$        | 101,747,755        |
| Equities                                  |           | 237,309,369        |
| Real Estate                               |           | 21,050,928         |
| Other - Private Equity and Commodities    |           | 50,100,537         |
| Total Investments                         | <u>\$</u> | <u>410,208,589</u> |
| <b>Total Assets</b>                       | <u>\$</u> | <u>421,755,324</u> |

### Liabilities

|  |           |                  |
|--|-----------|------------------|
| Payables                                   |           |                  |
| Accounts Payable - Purchase of Investments | \$        | 2,178,392        |
| Accrued Expenses                           |           | 104,728          |
| Accounts Payable - Other                   |           | 257,152          |
| Total Liabilities                          | <u>\$</u> | <u>2,540,272</u> |

|   |           |                    |
|---|-----------|--------------------|
| <b>Net Position Restricted for Pensions</b> | <u>\$</u> | <u>419,215,052</u> |
|---|-----------|--------------------|

# Statement of Changes in Fiduciary Net Position for Year Ended June 30, 2019

## **Additions**

|   |                      |
|---|----------------------|
| Contributions                                 |                      |
| Employer                                      | \$ 12,920,265        |
| Member  | 2,677,960            |
| Other   | -                    |
| <b>Total Contributions</b>                    | <b>\$ 15,598,225</b> |
| Investment Income                             |                      |
| Net Appreciation in Fair Value of Investments | \$ 17,272,627        |
| Interest and Dividends                        | 5,125,589            |
| Less Investment Expense                       | (1,026,719)          |
| <b>Net Investment Income</b>                  | <b>\$ 21,371,497</b> |
| Other   | \$ -                 |
| <b>Total Additions</b>                        | <b>\$ 36,969,722</b> |

## **Deductions**

|                                     |                      |
|-------------------------------------|----------------------|
| Benefit Payments and Refunds        | \$ 34,058,491        |
| Pension Plan Administrative Expense | 596,090              |
| Other                               | -                    |
| <b>Total Deductions</b>             | <b>\$ 34,654,581</b> |
| <b>Net Increase in Net Position</b> | <b>\$ 2,315,141</b>  |

## **Net Position Restricted for Pensions**

|                   |                |
|-------------------|----------------|
| Beginning of Year | \$ 416,899,911 |
| End of Year       | \$ 419,215,052 |

## **SECTION C**

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### **REQUIRED SUPPLEMENTARY INFORMATION**

# Schedule of Changes in the Net Pension Liability and Related Ratios

## Measurement Date – June 30, 2019

|  |                              |
|--|------------------------------|
| <b>A. Total Pension Liability</b>  |                              |
| 1. Service Cost  | \$ 4,657,970                 |
| 2. Interest on the Total Pension Liability   | 36,626,148                   |
| 3. Changes of benefit terms  | 0                            |
| 4. Differences between expected and actual experience<br>of the Total Pension Liability  | (2,877,132)                  |
| 5. Changes of assumptions  | 7,963,218                    |
| 6. Benefit payments, including refunds<br>of employee contributions                      | (34,058,491)                 |
| 7. Net change in Total Pension Liability   | \$ 12,311,713                |
| 8. Total Pension Liability – Beginning   | 526,954,073                  |
| 9. Total Pension Liability – Ending  | <u><u>\$ 539,265,786</u></u> |
| <b>B. Plan Fiduciary Net Position</b>  |                              |
| 1. Contributions – employer  | \$ 12,920,265                |
| 2. Contributions – employee  | 2,677,960                    |
| 3. Net investment income   | 21,371,497                   |
| 4. Benefit payments, including refunds<br>of employee contributions                      | (34,058,491)                 |
| 5. Pension Plan Administrative Expense   | (596,090)                    |
| 6. Other   | -                            |
| 7. Net change in Plan Fiduciary Net Position   | \$ 2,315,141                 |
| 8. Plan Fiduciary Net Position – Beginning   | 416,899,911                  |
| 9. Plan Fiduciary Net Position – Ending  | <u><u>\$ 419,215,052</u></u> |
| <b>C. Net Pension Liability</b>  | <u><u>\$ 120,050,734</u></u> |
| <b>D. Plan Fiduciary Net Position as a percentage<br/>of the Total Pension Liability</b> | <b>77.74%</b>                |
| <b>E. Covered-employee payroll*</b>  | <b>\$ 29,695,997</b>         |
| <b>F. Net Pension Liability as a percentage<br/>of covered employee payroll</b>          | <b>404.27%</b>               |

\* The amount provided represents the annual pays for members active on the valuation date and does not necessarily represent Covered Payroll as defined in GASB Statements No. 67 and 68.

# Schedules of Required Supplementary Information

## Schedule of Changes in the Employers' Net Pension Liability and Related Ratios

| Measurement Date - June 30,   | 2019                  | 2018                  | 2017                  | 2016                  | 2015                  | 2014                  | 2013                  | 2012 | 2011 | 2010 |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------|------|------|
| <b>Total Pension Liability</b>  |                       |                       |                       |                       |                       |                       |                       |      |      |      |
| Service Cost  | \$ 4,657,970          | \$ 5,016,826          | \$ 5,161,510          | \$ 5,546,388          | \$ 6,348,067          | \$ 6,904,650          | \$ 7,294,537          |      |      |      |
| Interest on the Total Pension Liability   | 36,626,148            | 36,420,065            | 36,025,286            | 35,127,721            | 33,287,484            | 33,394,709            | 32,920,147            |      |      |      |
| Benefit Changes   | -                     | -                     | -                     | -                     | 20,882                | -                     | -                     |      |      |      |
| Difference between Expected and Actual Experience<br>of the Total Pension Liability | (2,877,132)           | (2,335,969)           | (971,718)             | 6,361,929             | 10,083,648            | (7,420,169)           | (6,012,166)           |      |      |      |
| Assumption Changes  | 7,963,218             | 5,213,623             | (1,495,183)           | -                     | 29,733,502            | -                     | -                     |      |      |      |
| Benefit Payments  | (34,016,875)          | (34,286,124)          | (31,894,361)          | (36,708,883)          | (39,570,343)          | (28,055,439)          | (27,037,516)          |      |      |      |
| Refunds   | (41,616)              | (109,451)             | (114,697)             | (208,843)             | (283,087)             | (152,273)             | (114,916)             |      |      |      |
| <b>Net Change in Total Pension Liability</b>  | <b>12,311,713</b>     | <b>9,918,970</b>      | <b>6,710,837</b>      | <b>10,118,312</b>     | <b>39,620,153</b>     | <b>4,671,478</b>      | <b>7,050,086</b>      |      |      |      |
| <b>Total Pension Liability - Beginning</b>  | <b>526,954,073</b>    | <b>517,035,103</b>    | <b>510,324,266</b>    | <b>500,205,954</b>    | <b>460,585,801</b>    | <b>455,914,323</b>    | <b>448,864,237</b>    |      |      |      |
| <b>Total Pension Liability - Ending (a)</b>   | <b>\$ 539,265,786</b> | <b>\$ 526,954,073</b> | <b>\$ 517,035,103</b> | <b>\$ 510,324,266</b> | <b>\$ 500,205,954</b> | <b>\$ 460,585,801</b> | <b>\$ 455,914,323</b> |      |      |      |
| <b>Plan Fiduciary Net Position</b>  |                       |                       |                       |                       |                       |                       |                       |      |      |      |
| Contributions - Employer  | \$ 12,920,265         | \$ 10,673,034         | \$ 10,237,538         | \$ 9,295,104          | \$ 11,327,704         | \$ 8,771,032          | \$ 8,135,843          |      |      |      |
| Contributions - Member  | 2,677,960             | 2,832,479             | 3,012,472             | 3,428,169             | 3,473,382             | 3,737,014             | 3,933,341             |      |      |      |
| Pension Plan Net Investment Income  | 21,371,497            | 29,177,311            | 38,296,115            | 289,104               | 11,478,680            | 65,337,996            | 44,058,818            |      |      |      |
| Benefit Payments  | (34,016,875)          | (34,286,124)          | (31,894,361)          | (36,708,883)          | (39,570,343)          | (28,055,439)          | (27,037,516)          |      |      |      |
| Refunds   | (41,616)              | (109,451)             | (114,697)             | (208,843)             | (283,087)             | (152,273)             | (114,916)             |      |      |      |
| Pension Plan Administrative Expense   | (596,090)             | (556,142)             | (558,024)             | (568,895)             | (567,869)             | (523,086)             | (476,059)             |      |      |      |
| Other   | -                     | -                     | -                     | -                     | -                     | (21,741)              | (15,873)              |      |      |      |
| <b>Net Change in Plan Fiduciary Net Position</b>                                    | <b>2,315,141</b>      | <b>7,731,107</b>      | <b>18,979,043</b>     | <b>(24,474,244)</b>   | <b>(14,141,533)</b>   | <b>49,093,503</b>     | <b>28,483,638</b>     |      |      |      |
| <b>Plan Fiduciary Net Position - Beginning</b>                                      | <b>416,899,911</b>    | <b>409,168,804</b>    | <b>390,189,761</b>    | <b>414,664,005</b>    | <b>428,805,538</b>    | <b>379,712,035</b>    | <b>351,228,397</b>    |      |      |      |
| <b>Plan Fiduciary Net Position - Ending (b)</b>                                     | <b>\$ 419,215,052</b> | <b>\$ 416,899,911</b> | <b>\$ 409,168,804</b> | <b>\$ 390,189,761</b> | <b>\$ 414,664,005</b> | <b>\$ 428,805,538</b> | <b>\$ 379,712,035</b> |      |      |      |
| <b>Net Pension Liability - Ending (a) - (b)</b>                                     | <b>\$ 120,050,734</b> | <b>\$ 110,054,162</b> | <b>\$ 107,866,299</b> | <b>\$ 120,134,505</b> | <b>\$ 85,541,949</b>  | <b>31,780,263</b>     | <b>76,202,288</b>     |      |      |      |
| <b>Plan Fiduciary Net Position as a Percentage<br/>of Total Pension Liability</b>   | <b>77.74 %</b>        | <b>79.12 %</b>        | <b>79.14 %</b>        | <b>76.46 %</b>        | <b>82.90 %</b>        | <b>93.10 %</b>        | <b>83.29 %</b>        |      |      |      |
| <b>Covered Payroll #</b>  | <b>\$ 29,695,997</b>  | <b>\$ 30,949,968</b>  | <b>\$ 33,647,390</b>  | <b>\$ 35,760,078</b>  | <b>\$ 38,492,586</b>  | <b>\$ 40,510,955</b>  | <b>\$ 43,783,450</b>  |      |      |      |
| <b>Net Pension Liability as a Percentage<br/>of Covered-Employee Payroll</b>        | <b>404.27 %</b>       | <b>355.59 %</b>       | <b>320.58 %</b>       | <b>335.95 %</b>       | <b>222.23 %</b>       | <b>78.45 %</b>        | <b>174.04 %</b>       |      |      |      |

Notes to Schedule:

N/A

# The amount provided represents the annual pays for members active on the valuation date and does not necessarily represent Covered Payroll as defined in GASB Statements No. 67 and 68.

## Schedules of Required Supplementary Information Schedule of the Employers' Net Pension Liability

| FY Ending<br>June 30, | Total<br>Pension<br>Liability | Plan Net<br>Position | Net Pension<br>Liability | Plan Net Position<br>as a % of Total<br>Pension Liability | Covered<br>Payroll <sup>#</sup> | Net Pension Liability<br>as a % of<br>Covered Payroll |
|-----------------------|-------------------------------|----------------------|--------------------------|---|---------------------------------|---|
| 2013                  | \$ 455,914,323                | \$ 379,712,035       | \$ 76,202,288            | 83.29%  | \$ 43,783,450                   | 174.04%   |
| 2014                  | 460,585,801                   | 428,805,538          | 31,780,263               | 93.10%  | 40,510,955                      | 78.45%  |
| 2015                  | 500,205,954                   | 414,664,005          | 85,541,949               | 82.90%  | 38,492,586                      | 222.23%   |
| 2016                  | 510,324,266                   | 390,189,761          | 120,134,505              | 76.46%  | 35,760,078                      | 335.95%   |
| 2017                  | 517,035,103                   | 409,168,804          | 107,866,299              | 79.14%  | 33,647,390                      | 320.58%   |
| 2018                  | 526,954,073                   | 416,899,911          | 110,054,162              | 79.12%  | 30,949,968                      | 355.59%   |
| 2019                  | 539,265,786                   | 419,215,052          | 120,050,734              | 77.74%  | 29,695,997                      | 404.27%   |

<sup>#</sup> The amount provided represents the annual pays for members active on the valuation date and does not necessarily represent Covered Payroll as defined in GASB Statements No. 67 and 68.

## Schedule of Contributions

| FY Ending<br>June 30, | Actuarially<br>Determined<br>Contribution | Actual<br>Contribution* | Contribution<br>Deficiency<br>(Excess) | Covered<br>Payroll <sup>#</sup> | Actual Contribution<br>as a % of<br>Covered Payroll |
|-----------------------|---|-------------------------|--|---------------------------------|---|
| 2013                  | \$ 8,135,843                              | \$ 8,135,843            | \$ -                                   | \$ 43,783,450                   | 18.58%  |
| 2014                  | 8,771,032                                 | 8,771,032               | -                                      | 40,510,955                      | 21.65%  |
| 2015                  | 11,327,704                                | 11,327,704              | -                                      | 38,492,586                      | 29.43%  |
| 2016                  | 9,295,104                                 | 9,295,104               | -                                      | 35,760,078                      | 25.99%  |
| 2017                  | 10,237,538                                | 10,237,538              | -                                      | 33,647,390                      | 30.43%  |
| 2018                  | 10,673,034                                | 10,673,034              | -                                      | 30,949,968                      | 34.48%  |
| 2019                  | 12,920,265                                | 12,920,265              | -                                      | 29,695,997                      | 43.51%  |

\* Actual contributions are based on covered payroll at the time of the contribution. Since it was reported to the actuary that the City's practice is to contribute the percent-of-payroll employer contribution rate show in the actuarial valuation report, the annual required contribution shown in the Schedule of Employer Contributions are the actual contributions made by the City in the fiscal year.

<sup>#</sup> The amount provided represents the annual pays for members active on the valuation date and does not necessarily represent Covered Payroll as defined in GASB Statements No. 67 and 68.

# Notes to Schedule of Contributions

**Valuation Date:** June 30, 2019  
**Notes** Actuarially determined contribution rates are calculated as of June 30, which is 1 year prior to the beginning of the fiscal year in which contributions are reported.

**Methods and Assumptions used to Determine Contribution Rates for the Fiscal Year Beginning July 1, 2018:**

|                               |  |
|-------------------------------|--|
| Actuarial Cost Method         | Individual Entry Age Normal  |
| Amortization Method           | Level Dollar, Closed   |
| Remaining Amortization Period | 28 - 30 years  |
| Asset Valuation Method        | 5-Year Smoothed Market   |
| Inflation                     | 2.50% -- approximate; No explicit price inflation assumption is used in this valuation.  |
| Salary Increases              | 3.25% to 7.70% including inflation   |
| Investment Rate of Return     | 7.25%  |
| Retirement Age                | Experience-based table of rates that are specific to the type of eligibility condition. Last updated for the 2015 valuation pursuant to an experience study of the period 2010 - 2014. |
| Mortality                     | RP-2014 Healthy Annuitant Mortality Table projected to 2019 using MP-2014 mortality improvement scale.   |

**Other Information:**

Notes

## **SECTION D**

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### **NOTES TO FINANCIAL STATEMENTS**

## Long-Term Expected Return on Plan Assets

The following table shows the long-term expected returns as of January 2019, as provided by the System's investment consultant, Wilshire Consulting.

| Asset Class                  | Target Allocation | Long-Term Expected Return |              |              |
|------------------------------|-------------------|---------------------------|--------------|--------------|
|                              |                   | 10-Year                   | 20-Year      | 30-Year      |
| U.S. Equity                  | 17.75%            | 7.00%                     | 7.53%        | 7.70%        |
| Non-U.S. Equity              | 17.75%            | 7.75%                     | 8.00%        | 8.08%        |
| Private Equity               | 5.00%             | 10.05%                    | 10.48%       | 10.62%       |
| Global Low Volatility Equity | 10.00%            | 7.39%                     | 7.82%        | 7.96%        |
| Private Credit               | 5.00%             | 9.01%                     | 8.76%        | 8.68%        |
| Core Fixed Income            | 24.50%            | 3.85%                     | 4.58%        | 4.82%        |
| Global REITs                 | 5.00%             | 5.85%                     | 6.63%        | 6.88%        |
| U.S. TIPS                    | 5.00%             | 3.00%                     | 4.15%        | 4.53%        |
| MLPs                         | 5.00%             | 8.40%                     | 9.33%        | 9.63%        |
| Commodities                  | 5.00%             | 4.35%                     | 5.05%        | 5.28%        |
| <b>Total</b>                 | <b>100.00%</b>    | <b>6.85%</b>              | <b>7.39%</b> | <b>7.57%</b> |
| <i>Inflation</i>             |                   | <i>1.70%</i>              | <i>2.23%</i> | <i>2.10%</i> |

For more information about the analysis of the investment return assumption, please see our memorandum to the Board of Trustees dated February 8, 2019.

## Single Discount Rate

A Single Discount Rate of 7.00% was used to measure the total pension liability. This Single Discount Rate was based on the expected rate of return on pension plan investments of 7.00%. The projection of cash flows used to determine this Single Discount Rate assumed that plan member contributions will be made at the current contribution rate and that employer contributions will be made at rates equal to the difference between actuarially determined contribution rates and the member rate. Based on these assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

Regarding the sensitivity of the net pension liability to changes in the Single Discount Rate, the following presents the plan's net pension liability, calculated using a Single Discount Rate of 7.00%, as well as what the plan's net pension liability would be if it were calculated using a Single Discount Rate that is one percent lower or one percent higher:

### Sensitivity of the Net Pension Liability to the Single Discount Rate Assumption

|                                | 1% Decrease<br>6.00% | Current Single Discount<br>Rate Assumption<br>7.00% | 1% Increase<br>8.00% |
|--------------------------------|----------------------|---|----------------------|
| <b>Total Pension Liability</b> | \$ 597,733,916       | \$ 539,265,786                                      | \$ 491,921,622       |
| <b>Plan Net Position</b>       | 419,215,052          | 419,215,052   | 419,215,052          |
| <b>Net Pension Liability</b>   | \$ 178,518,864       | \$ 120,050,734                                      | \$ 72,706,570        |

## Summary of Population Statistics

|   |            |
|---|------------|
| Inactive Plan Members or Beneficiaries Currently Receiving Benefits | 1,186      |
| Inactive Plan Members Entitled to But Not Yet Receiving Benefits    | 106        |
| Active Plan Members   | <u>446</u> |
| Total Plan Members  | 1,738      |

**SECTION E**

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**SUMMARY OF BENEFITS**

## Summary of Benefit Provisions Evaluated (June 30, 2019)

**Voluntary Retirement.** A member may retire after 30 years of service regardless of age, or after attaining age 62 and completing 8 years of service. Effective January 1, 2001, members covered by the Emergency Communications Operators Bargaining Unit, may retire after attaining age 55 and completing 8 years of service.

**Final Average Salary (FAS).** The average of member's highest annual salary rates, all before completion of the calendar year in which the member attains 40 years of service or reaches the benefit cap, during the three calendar years of credited service when such salary rates were the highest.

Members of the Crime Scene Technicians group have an additional sum added to their FAS, effective July 1, 2000. The sum is calculated based on an average of the group's additional compensation items during the previous three calendar years and the average of the group's valuation payroll as of June 30 for the five-year period immediately preceding the valuation.

Emergency Communication Operators I, II, and III also have an additional sum added to their FAS, effective July 1, 2005. The sum is calculated based on an average of the group's additional compensation items during the previous five calendar years and the average of the group's valuation payroll as of June 30 for the five-year period immediately preceding the valuation.

Members who retire with 10 or more years of continuous service may use up to two thousand eighty (2,080) hours (1,265 for Crime Scene Technician members) of accumulated sick leave to purchase up to one (1) year of additional credited service, on a pro rata basis.

**Full Age and Service Allowance.** The members' benefit multipliers, used to compute full age and service allowance, are shown in the tables on the following page.

In lieu of this single life-level amount form of payment, a retiring member may elect from several optional forms of payment, each of which is the actuarial equivalent of this single life-level payment form.

## Summary of Benefit Provisions Evaluated (June 30, 2019) (Continued)

| Covered Employee Group                        | Date of Termination                  | Benefit Multiplier  | Allowance Cap [apply as indicated and remain in effect for subsequent termination dates unless otherwise amended]  |
|---|--------------------------------------|---|--|
| ECO's I, II and III                           | January 1, 2002 to March 31, 2012    | 2.7%  | 100% applicable to ECO's I, II and III hired on or before May 6, 2002<br><br>90% applicable to ECO's I, II, and III hired from May 7, 2002 to January 23, 2012 |
| ECO's I, II and III                           | April 1, 2012                        | 2.7%, 2.5%, 2.2%, 2.0% or 1.8% for future service from and after April 1, 2012 depending on the individual election made by the employee as provided in Section 1.229(10)<br><br>Bargaining unit members hired on or after January 24, 2012 do not participate in the Retirement System       |  |
| GRPOA-Crime Scene Tech/Latent Print Examiners | July 1, 2002 to July 7, 2012         | 2.7%  | 100% applicable to CST's hired prior to January 1, 2002<br><br>90% applicable to CST's hired from January 1, 2002 to November 14, 2011                         |
| GRPOA-Crime Scene Tech/Latent Print Examiners | July 8, 2012                         | 2.7% or 2.5% or 2.2% or 2.0% or 1.8% for future service from and after July 8, 2012, depending on the individual election made by the employee as provided in Section 1.229(9)<br><br>Bargaining unit members hired on or after November 15, 2011 do not participate in the Retirement System | 100% applicable to CST's hired prior to January 1, 2002<br><br>90% applicable to CST's hired from January 1, 2002 to November 14, 2011                         |
| APAGR   | January 1, 2003 to December 31, 2004 | 2.6%  | 97.5% for employees hired prior to January 1, 2005   |
| APAGR   | January 1, 2005 to June 11, 2011     | 2.7%  | 97.5% for employees hired prior to January 1, 2005<br><br>94.5% for employees hired from January 1, 2005 to June 30, 2014                                      |
| APAGR   | June 12, 2011                        | 2.7% or 2.5% or 2.2% for future service from and after June 12, 2011, depending on the individual election made by the employee as provided in Section 1.229(3)<br><br>2.0% for members hired or re-entering service on or after June 12, 2011  |  |

## Summary of Benefit Provisions Evaluated (June 30, 2019) (Continued)

| Covered Employee Group                                    | Date of Termination                  | Benefit Multiplier  | Allowance Cap [apply as indicated and remain in effect for subsequent termination dates unless otherwise amended]                     |
|---|--------------------------------------|---|---|
| APAGR 61st Dist. Court                                    | January 1, 2003 to December 31, 2004 | 2.6%  | 97.5% for employees hired prior to January 1, 2005  |
| APAGR 61st Dist. Court                                    | January 1, 2005 to July 7, 2012      | 2.7%  | 97.5% for employees hired prior to January 1, 2005<br><br>94.5% for employees hired on or after January 1, 2005 to September 12, 2011 |
| APAGR 61st Dist. Court                                    | July 8, 2012                         | 2.7%, or 2.5%, or 2.2%, or 2.0% or 1.8% for future service from and after July 8, 2012, depending on the individual election made by the employee as provided in Section 1.229(8)<br><br>Bargaining unit members hired on or after September 13, 2011 do not participate in the Retirement System   |   |
| Non-Represented Members as defined in Section 1.192(18.1) | January 1, 2005 to September 4, 2010 | 2.7%  | 97.5% for employees hired prior to January 1, 2005<br><br>94.5% for employees hired on or after January 1, 2005                       |
| Non-Represented Members as defined in Section 1.192(18.1) | September 5, 2010                    | 2.7% or 2.5% or 2.2% for future service from and after September 5, 2010, depending on the individual election made by the employee as provided in Section 1.229(1)<br><br>2.0% for non-represented members hired or re-entering service from September 5, 2010 through June 30, 2011<br><br>Bargaining unit members hired on or after July 1, 2011 do not participate in the Retirement System | 97.5% for employees hired prior to January 1, 2005<br><br>94.5% for employees hired from January 1, 2005 to June 30, 2011             |
| 61 <sup>st</sup> District Court Judges                    | January 1, 2005 to January 8, 2011   | 2.7%  | 97.5%   |

## Summary of Benefit Provisions Evaluated (June 30, 2019) (Continued)

| Covered Employee Group   | Date of Termination                  | Benefit Multiplier  | Allowance Cap [apply as indicated and remain in effect for subsequent termination dates unless otherwise amended]        |
|--|--------------------------------------|---|--|
| 61 <sup>st</sup> District Court Judges   | January 9, 2011                      | 2.7% or 2.5% or 2.2% for future service from and after January 9, 2011, depending on the individual election made by the employee as provided in Section 1.229(2)   | 97.5%  |
| Museum Full-Time Supervisory and Administrative Staff and Museum Non-Supervisory Staff | January 1, 2005 to June 30, 2006     | 2.7%  | 97.5% for employees hired prior to January 1, 2005<br><br>94.5% for employees hired on or after January 1, 2005          |
| Library Management and Confidential Employees  | January 1, 2005 to September 4, 2010 | 2.7%  |  |
| EC Supervisors   | January 1, 2006 to January 7, 2012   | 2.7%  |  |
| EC Supervisors   | January 8, 2012                      | 2.7%, 2.5%, 2.2%, 2.0% or 1.8% for future service from and after January 8, 2012, depending on the individual election made by the employee as provided in Section 1.229(5)<br><br>Bargaining unit members hired on or after September 13, 2011 do not participate in the Retirement System | 90% applicable for all employees entering this unit after July 1, 2004   |
| GREIU  | January 1, 2005 to July 7, 2012      | 2.7%  |  |
| GREIU  | July 8, 2012                         | 2.7%, 2.5%, 2.2%, 2.0% or 1.8% for future service from and after July 8, 2012, depending on the individual election made by the employee as provided in Section 1.229(4)<br><br>Bargaining unit members hired on or after May 25, 2011 do not participate in the Retirement System          | 97.5% for employees hired prior to January 1, 2005<br><br>94.5% for employees hired from January 1, 2005 to May 24, 2011 |

## Summary of Benefit Provisions Evaluated (June 30, 2019) (Continued)

| Covered Employee Group  | Date of Termination             | Benefit Multiplier   | Allowance Cap [apply as indicated and remain in effect for subsequent termination dates unless otherwise amended]              |
|---|---------------------------------|--|--|
| GREIU - Public Library Rank & File and Supervisory Bargaining Units | January 1, 2006 to July 7, 2012 | 2.7%   | 97.5% for employees hired prior to January 1, 2005<br><br>94.5% for employees hired from January 1, 2005 to September 1, 2011  |
| GREIU - Public Library Rank & File and Supervisory Bargaining Units | July 8, 2012                    | 2.7%, 2.5%, 2.2%, 2.0% or 1.8% for future service from and after July 8, 2012, depending on the individual election made by the employee as provided in Section 1.229(6)<br><br>Bargaining unit members hired on or after September 2, 2011 do not participate in the Retirement System  |  |
| GREIU - 61st District Court   | January 1, 2005 to July 7, 2012 | 2.7%   | 97.5% for employees hired prior to January 1, 2005<br><br>94.5% for employees hired from January 1, 2005 to September 12, 2011 |
| GREIU - 61st District Court   | July 8, 2012                    | 2.7%, 2.5%, 2.2%, 2.0% or 1.8% for future service from and after July 8, 2012, depending on the individual election made by the employee as provided in Section 1.229(7)<br><br>Bargaining unit members hired on or after September 13, 2011 do not participate in the Retirement System |  |

## Summary of Benefit Provisions Evaluated (June 30, 2019) (Continued)

**Early Allowance.** If a member leaves covered employment after either (i) completing 20 years of credited service, or (ii) both attaining age 55 and completing 10 years or more of credited service, he can receive an immediate early allowance, computed in the same manner as an age and service allowance based upon salary and service to time of termination but actuarially reduced to reflect the fact that the age when payments begin is younger than age 62.

**Deferred Retirement.** A member with 8 or more years of credited service who terminates employment before voluntary retirement age and does not withdraw accumulated contributions will be eligible for a deferred allowance beginning at age 62, based upon service and final average salary at time of termination.

**Death Benefit.** If the member's termination of employment is because of death, a benefit equal to the termination benefit is payable to a beneficiary or estate, as follows:

A refund of accumulated contributions. In addition, a "termination bonus" equivalent to a certain percent of member contributions without interest may be payable. Such percent is 25%, plus 7.5% for each whole year of credited service in excess of 10 years, to a maximum of 100% for 20 or more years of service, times an age-based Termination Bonus Percent.

If the member was eligible for normal or early retirement at the time of death, in lieu of the lump sum death benefit an eligible beneficiary will begin receiving a B-100 joint and survivor pension computed in the same manner as a service retirement pension as if the member had retired the last day of his life.

Or, if the member was not represented by any collective bargaining unit or was represented by the Association of Public Administrators, the Grand Rapids Employees Independent Union or the 61<sup>st</sup> District Court Employee's Association, and the primary beneficiary was the surviving spouse, the benefit will be computed in the manner described in the preceding paragraph, except that the member will have been assumed to have reached the age for minimum service retirement at the date of his death.

The total amount of death benefit payable cannot exceed 90% of the member's annual rate of compensation at the time of death reduced by any worker's compensation or Social Security payments.

## Summary of Benefit Provisions Evaluated (June 30, 2019) (Continued)

**Disability Benefit.** If a member has 10 or more years of credited service before attaining the minimum service retirement age and becomes totally and permanently disabled, a benefit computed in the same manner as a full age and service benefit is payable. If disablement is a result of performance of duty, the 10-year minimum credited service requirement is waived and the benefit is computed as above with a minimum benefit of 50% (62% for those represented by police bargaining units) of final average salary.

The total amount of benefit payable due to disablement cannot exceed 90% of the member's annual rate of compensation at the time of disablement reduced by any worker's compensation payments, Social Security benefits, (disability benefits), and remuneration from any gainful employment.

**Member Contributions.** The contribution rates used are defined in the following table:

| Member Classification  | Period                               | Contribution Rate   |
|--|--------------------------------------|---|
| Non-Represented Members, as defined in Section 1.192(18.1), excluding secretarial or clerical members designated as management non-union for payroll purposes, and excluding the Executive Administrative Assistant at the Grand Rapids Public Library | On or before July 1, 1977            | 3%  |
|  | July 2, 1977 to December 31, 1994    | 4%  |
|  | January 1, 1995 to December 31, 1996 | 3%  |
|  | January 1, 1997 to December 31, 2004 | 3.28%   |
|  | January 1, 2005 to September 4, 2010 | 4.93%   |
|  | On or after September 5, 2010        | 10.20%, or 8.95% or 7.28%, depending on the individual election made by the member as provided in Section 1.229(1)<br><br>6.15% for those non-represented members hired or re-entering service from September 5, 2010 through June 30, 2011 |

## Summary of Benefit Provisions Evaluated (June 30, 2019) (Continued)

| Member Classification   | Period                               | Contribution Rate   |
|---|--------------------------------------|---|
| Non-Represented Members, as defined in Section 1.192(18.1), including only secretarial or clerical members designated as management non-union for payroll purposes, and including the Executive Administrative Assistant at the Grand Rapids Public Library | On or before July 1, 1977            | 3%  |
|   | July 2, 1977 to December 31, 1994    | 4%  |
|   | January 1, 1995 to December 31, 1996 | 3%  |
|   | January 1, 1997 to December 31, 2004 | 3.28%   |
|   | January 1, 2005 to September 4, 2010 | 4.93%   |
|   | September 5, 2010 to July 23, 2011   | 10.20%, or 8.95% or 7.28%, depending on the individual election made by the member as provided in Section 1.229(1)  |
|   | On or after July 24, 2011            | 6.15% for those non-represented members hired or re-entering service from September 5, 2010 through June 30, 2011<br><br>8.10% for members who elected a 2.7% multiplier under Section 1.229(1); 6.85% for members who elected a 2.5% multiplier under Section 1.229(1); 5.18% for members who elected a 2.2% multiplier under Section 1.229(1); 4.05% for members with a 2.0% multiplier who were hired or re-entered service from September 5, 2010 through June 30, 2011 |
| Emergency Communications Operators I, II and III represented by GRPOLC  | On or before July 1, 1977            | 3%  |
|   | July 2, 1977 to January 1, 1990      | 4%  |
|   | January 2, 1990 to January 1, 1991   | 3%  |
|   | January 2, 1991 to December 31, 1996 | 2%  |
|   | January 1, 1997 to June 30, 2005     | 2.28%   |
|   | July 1, 2005 to March 31, 2012       | 5.36%   |
|   | On or after April 1, 2012            | 10.63%, or 9.38%, or 7.71%, or 6.58%, or 5.36%, depending on the individual election made by the member as provided in Section 1.229(10)  |

## Summary of Benefit Provisions Evaluated (June 30, 2019) (Continued)

| Member Classification   | Period                               | Contribution Rate  |
|---|--------------------------------------|--|
| Emergency Communication Supervisors                               | On or before December 31, 2005       | 3.28%  |
|   | January 1, 2006 to January 7, 2012   | 6.27%  |
|   | On or after January 8, 2012          | 11.54%, or 10.29%, or 8.62%, or 7.49%, or 6.27%, depending on the individual election made by the member as provided in Section 1.229(5) |
| Crime Scene Techs/Latent Print Examiners represented by the GRPOA | On or before July 1, 1977            | 3%   |
|   | July 2, 1977 to July 1, 1989         | 4%   |
|   | July 2, 1989 to July 1, 1990         | 3%   |
|   | July 2, 1990 to July 7, 2012         | 2%   |
|   | July 8, 2012 to July 30, 2014        | 7.27%, or 6.02%, or 4.35%, or 3.22%, or 2.00%, depending on the individual election made by the member as provided in Section 1.229(9)   |
|   | On or after July 1, 2014             | 8.27%, or 7.02%, or 5.35%, or 4.22%, or 3.00%, depending on the individual election made by the member as provided in Section 1.229(9)   |
| GREIU   | On or before July 1, 1977            | 3%   |
|   | July 2, 1977 to January 1, 1990      | 4%   |
|   | January 2, 1990 to December 31, 1996 | 3%   |
|   | January 1, 1997 to December 31, 2004 | 3.28%  |
|   | January 1, 2005 to July 7, 2012      | 3.89%  |
|   | On or after July 8, 2012             | 9.16%, or 7.91%, or 6.24%, or 5.11%, or 3.89%, depending on the individual election made by the member as provided in Section 1.229(4)   |
| GREIU - 61st District Court                                       | Prior to January 1, 1990             | 4%   |
|   | January 1, 1990 to December 31, 1996 | 3%   |
|   | January 1, 1997 to May 31, 2005      | 3.28%  |
|   | June 1, 2005 to July 7, 2012         | 4%   |
|   | On or after July 8, 2012             | 9.16%, or 7.91%, or 6.24%, or 5.11%, or 3.89%, depending on the individual election made by the member as provided in Section 1.229(7)   |

## Summary of Benefit Provisions Evaluated (June 30, 2019) (Continued)

| Member Classification   | Period   | Contribution Rate  |
|---|--|--|
| GREIU – Public Library Rank & File and Supervisory Bargaining Units | On or before July 1, 1977  | 3%   |
|   | July 2, 1977 to January 1, 1988  | 4%   |
|   | January 2, 1988 to May 13, 1990  | 4.91%  |
|   | May 14, 1990 to December 31, 1996  | 4%   |
|   | January 1, 1997 to December 31, 2005   | 3.28%  |
|   | January 1, 2006 to July 7, 2012  | 3.63%  |
|   | On or after July 8, 2012   | 8.90%, or 7.65%, or 5.98%, or 4.85%, or 3.63%, depending on the individual election made by the member as provided in Section 1.229(6) |
| Library Management and Confidential Employees                       | On or before July 1, 1977  | 3%   |
|   | July 2, 1977 to January 1, 1988  | 4%   |
|   | January 2, 1988 to May 13, 1990  | 4.91%  |
|   | May 14, 1990 to December 31, 1996  | 4%   |
|   | January 1, 1997 to December 31, 2004   | 3.28%  |
|   | January 1, 2005 to September 4, 2010   | 4.93%  |
|   | APAGR 61st District Court  | Prior to January 1, 1990   |
| January 1, 1990 to December 31, 1996                                | 3%   |  |
| January 1, 1997 to December 31, 2004                                | 3.28%  |  |
| January 1, 2005 to July 7, 2012                                     | 4%   |  |
| On or after July 8, 2012  | 9.27%, or 8.02%, or 6.35%, or 5.22%, or 4.00%, depending on the individual election made by the member as provided in Section 1.229(8) |  |

## Summary of Benefit Provisions Evaluated (June 30, 2019) (Continued)

| Member Classification  | Period                               | Contribution Rate   |
|--|--------------------------------------|---|
| Non-Represented Members of the 61 <sup>st</sup> District Court | January 1, 2005 to September 4, 2010 | 4%  |
| 61 <sup>st</sup> District Court Judges                         | January 1, 2005 to January 8, 2011   | 4%  |
| 61 <sup>st</sup> District Court Judges                         | On or after January 9, 2011          | 10.20%, or 8.95% or 7.28%, depending on the individual election made by the member as provided in Section 1.229(2)  |
| Association of Public Administrators of GR (APAGR)*            | Prior to December 31, 1994           | 4%  |
|  | January 1, 1995 to December 31, 1996 | 3%  |
|  | January 1, 1997 to December 31, 2004 | 3.28%   |
|  | January 1, 2005 to June 11, 2011     | 3.99%   |
|  | On or after June 12, 2011            | 9.26%, or 8.01% or 6.34%, depending on the individual election made by the member as provided in Section 1.229(3)<br><br>6.15% for those APAGR members hired or re-entering service on or after June 12, 2011 |

*\*[No contribution after completing 39 years of service.]*

## Summary of Benefit Provisions Evaluated (June 30, 2019) (Concluded)

If a member terminates employment before any allowance is payable, accumulated contributions (contributions plus regular interest) are refunded.

**Employer Contributions.** The City contributes the remainder amounts necessary to maintain the Retirement System in sound financial condition in accordance with its funding objectives.

**Compensation.** Compensation recognized for retirement system purposes includes base pay and longevity pay.

**Post-Retirement Increases.** Post-retirement benefit increases are 0% unless otherwise stated:

| Member Classification  | Termination Date               | Escalator          |
|--|--------------------------------|--------------------|
| GREIU and GREIU-61 <sup>st</sup> District Court                              | On or after March 24, 2009     | 1.0%, 4-year delay |
| GREIU Public Library Rank and File & Supervisory Bargaining Units            | On or after July 9, 2009       | 1.0%, 4-year delay |
| Crime Scene Techs/Latent Print Examiners represented by the GRPOA            | On or after May 12, 2009       | 1.0%, 6-year delay |
| Association of Public Administrators and APA 61 <sup>st</sup> District Court | On or after October 21, 2008   | 1.0%, 4-year delay |
| EC Supervisors   | On or after September 13, 2011 | 1.0%, 6-year delay |
| Non-Represented Members  | On or after July 1, 2014       | 1.0%, 7-year delay |

**13th Check.** One-half of net investment income over 8% which is attributable to retired life assets is distributed annually (in January) to retired members and beneficiaries who have been on the retirement rolls for 5 years in the form of a 13th check. Net investment income is based on a market value rate of return averaged over the preceding 5 plan years. The distribution is in proportion to points. An individual's points are determined by multiplying (i) the number of full years of retirement, to a maximum of 15, by (ii) the number of years, and fractions thereof, of service at retirement. Only member classification groups not covered by the post-retirement increase participate in the 13<sup>th</sup> check program.

## **SECTION F**

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### **ACTUARIAL COST METHOD AND ACTUARIAL ASSUMPTIONS**

## Valuation Methods

**Age and Service Benefits and Casualty Benefits.** Normal cost and the allocation of benefit values between service rendered before and after the valuation date was determined using an individual entry-age actuarial cost method having the following characteristics:

- (i) The annual normal costs for each individual active member, payable from the date of employment to the date of retirement, are sufficient to accumulate the value of the member's benefit at the time of retirement; and
- (ii) each annual normal cost is a constant percentage of the member's year-by-year projected covered pay.

## Actuarial Assumptions Used for the Valuation Adopted by the Board of Trustees

The actuary calculates the contribution requirements and benefit values of the System by applying financial assumptions to the benefit provisions and people information furnished, using the valuation methods described on the previous page.

The principal areas of financial risk which require assumptions about future experiences are:

- (i) Long-term rates of investment return to be generated by the assets of the System;
- (ii) patterns of pay increases to members;
- (iii) rates of mortality among members, retirants and beneficiaries;
- (iv) rates of withdrawal of active members (without entitlement to a retirement benefit);
- (v) rates of disability among members; and
- (vi) the age patterns of actual retirement.

In a valuation, the actuary calculates the monetary effect of each assumption for as long as a present covered person survives - - - a period of time which can be as long as a century.

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Actual experience of the System will not coincide exactly with assumed experience, regardless of the wisdom of the assumptions, or the skill of the actuary and the precision of the many calculations made. Each valuation provides a complete recalculation of assumed future experience and takes into account all past differences between assumed and actual experience. The result is a continual series of adjustments (usually small) to the computed contribution rate.

From time-to-time it becomes appropriate to modify one or more of the assumptions, to reflect experience trends (but not random year-to-year fluctuations).

The rationale for the assumptions used in this valuation is included in the 5-year experience study ending June 30, 2014, approved by the Board in November 2015. Note that the investment return assumption was updated for the June 30, 2019 valuation. All assumptions are expectations of future experience, not market measures.

**The rates of salary increase** used for individual members are in accordance with the following table. This assumption is used to project a member’s current salary to the salaries upon which benefit amounts will be based.

**Salary Increase Assumptions  
for an Individual Member**

| Sample<br>Ages | Merit &<br>Seniority | Base<br>(Economic) | Increase<br>Next Year |
|----------------|----------------------|--------------------|-----------------------|
| 20             | 4.16%                | 3.25%              | 7.41%                 |
| 25             | 2.88                 | 3.25               | 6.13                  |
| 30             | 1.98                 | 3.25               | 5.23                  |
| 35             | 1.52                 | 3.25               | 4.77                  |
| 40             | 1.10                 | 3.25               | 4.35                  |
| 45             | 0.66                 | 3.25               | 3.91                  |
| 50             | 0.32                 | 3.25               | 3.57                  |
| 55             | 0.14                 | 3.25               | 3.39                  |
| 60             | 0.00                 | 3.25               | 3.25                  |
| 65             | --                   | 3.25               | 3.25                  |

| Service<br>at Beginning<br>of Year | Additional Service Based<br>Merit/Seniority Portion<br>of Annual Increases |
|------------------------------------|--|
|                                    | Present  |
| 1                                  | 4.00%  |
| 2                                  | 3.00%  |
| 3                                  | 1.75%  |
| 4                                  | 1.75%  |
| 5                                  | 1.75%  |

If the number of active members remains constant, then the total active member payroll will increase 3.25% annually, the base portion of the individual salary increase assumptions. The 3.25% assumption was first used for the June 30, 2017 valuation.

**The rate of investment return** was 7.00% a year compounded yearly and was first used for the June 30, 2019 valuation.

**The mortality tables** were the RP-2014 Healthy Annuitant Mortality Table projected to 2019 using the MP-2014 mortality improvement scale. (These tables were first used for the June 30, 2015 valuation and benefit computations starting July 1, 2016.) The RP-2014 Disabled Retirees Table projected to 2019 using the MP-2014 mortality improvement scale were used for disabled members.

| Sample<br>Ages | Value at Retirement of<br>\$1 Monthly for Life |          | Future Life<br>Expectancy (Years) |       |
|----------------|--|----------|-----------------------------------|-------|
|                | Men  | Women    | Men                               | Women |
| 50             | \$150.66                                       | \$155.19 | 33.25                             | 35.95 |
| 55             | 143.61   | 148.86   | 28.92                             | 31.44 |
| 60             | 135.04   | 140.77   | 24.73                             | 27.02 |
| 65             | 124.49   | 130.67   | 20.70                             | 22.74 |
| 70             | 111.78   | 118.43   | 16.85                             | 18.67 |
| 75             | 96.95  | 104.09   | 13.26                             | 14.86 |
| 80             | 80.43  | 87.97    | 10.01                             | 11.41 |

This assumption is used to measure the probabilities of each benefit payment being made after retirement. For purposes of the pre-retirement death benefit, the RP-2014 Mortality Tables for Employees projected to 2019 using the MP-2014 mortality improvement scale was used and it was assumed that 100% of members were married at the time of death.

**The rates of retirement** used to measure the probability of eligible members retiring during the next year were as follows. These rates were first used for the June 30, 2015 valuation.

A member is eligible for retirement after completing 30 or more years of service or after both attaining age 62 and completing 8 or more years of service. Prior to the above eligibility, members who are eligible for early reduced retirement are assumed to elect this option at a 3% rate per year until eligible for Normal Retirement.

**Normal Unreduced Retirement**

| Retirement<br>Ages | Percent<br>Retiring | Retirement<br>Ages | Percent<br>Retiring |
|--------------------|---------------------|--------------------|---------------------|
| 50                 | 40%                 | 60                 | 40%                 |
| 51                 | 40                  | 61                 | 40                  |
| 52                 | 40                  | 62                 | 40                  |
| 53                 | 40                  | 63                 | 40                  |
| 54                 | 40                  | 64                 | 40                  |
| 55                 | 40                  | 65                 | 50                  |
| 56                 | 40                  | 66                 | 60                  |
| 57                 | 40                  | 67                 | 70                  |
| 58                 | 40                  | 68                 | 80                  |
| 59                 | 40                  | 69                 | 90                  |
|                    |                     | 70-79              | 100                 |
|                    |                     | 80                 | 100                 |

**Rates of separation from active membership** were as follows:

(Rates do not apply to members eligible to retire and do not include separation on account of death or disability.) This assumption measures the probabilities of members remaining in employment. These rates were first used for the June 30, 2015 valuation.

| Sample<br>Ages | Years of<br>Service | % of Active Members<br>Separating within Next Year |        |
|----------------|---------------------|--|--------|
|                |                     | Men  | Women  |
| ALL            | 0                   | 15.00%   | 15.00% |
|                | 1                   | 8.00   | 8.00   |
|                | 2                   | 7.00   | 7.00   |
|                | 3                   | 6.00   | 6.00   |
|                | 4                   | 5.00   | 5.00   |
| 20             | 5 & Over            | 3.53   | 7.94   |
| 25             |                     | 3.44   | 7.72   |
| 30             |                     | 3.29   | 7.22   |
| 35             |                     | 3.05   | 6.28   |
| 40             |                     | 2.72   | 5.15   |
| 45             |                     | 2.30   | 3.98   |
| 50             |                     | 1.61   | 2.56   |
| 55             |                     | 0.61   | 0.94   |
| 60             |                     | 0.06   | 0.09   |

**The rates of disability** were as follows:

| Sample<br>Ages       | % of Active Members Becoming<br>Disabled within Next Year |                  |     |
|----------------------|---|------------------|-----|
|                      | Duty Related  | Non-Duty Related |     |
| 20                   | 0.01%   |                  |     |
| 25                   | 0.01  |                  |     |
| 30                   | 0.01  |                  |     |
| 35                   | 0.04  |                  |     |
| 40                   | 0.07  |                  |     |
| 45                   | 0.16  |                  |     |
| 50                   | 0.31  |                  |     |
| 55                   | 0.47  |                  |     |
| 60                   | 0.61  |                  |     |
| Cause of Disability: | Men   | 30%              | 70% |
|                      | Women   | 30%              | 70% |

## Miscellaneous and Technical Assumptions

|  |   |
|--|---|
| <b>Marriage Assumption:</b>            | 100% of males and females are assumed to be married for purposes of death-in-service benefits.  |
| <b>Pay Increase Timing:</b>            | Beginning of (Fiscal) year. This is equivalent to assuming that reported pays represent amounts paid to members during the year ended on the valuation date.  |
| <b>Decrement Timing:</b>               | Decrements of all types are assumed to occur in the middle of the year.   |
| <b>Eligibility Testing:</b>            | Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.  |
| <b>Benefit Service:</b>                | Exact fractional service is used to determine the amount of benefit payable.  |
| <b>Decrement Relativity:</b>           | Decrement rates are used directly from the experience study, without adjustment for multiple decrement table effects.   |
| <b>Decrement Operation:</b>            | Disability and mortality decrements do not operate during the first 5 years of service. Disability and withdrawal do not operate during retirement eligibility.   |
| <b>Normal Form of Benefit:</b>         | The assumed normal form of benefit is the straight life form.   |
| <b>Other Adjustments:</b>              | Actuarial accrued liabilities were adjusted as a provision for subsidized service purchases, pending refunds, and other contingent events. Retirement present values were also adjusted for Crime Scene Technicians and ECO to reflect the “gross up factor.”   |
| <b>Incidence of Contributions:</b>     | Contributions are assumed to be received continuously throughout the year based upon the computed percent of payroll shown in this report, and the actual payroll payable at the time contributions are made. New entrant normal cost contributions are applied to the funding of new entrant benefits. |
| <b>Multiplier Election:</b>            | Most active members have the option to make higher member contributions and receive a higher benefit multiplier. Individual elections are reported and reflected in the valuation results.  |
| <b>13<sup>th</sup> Check Payments:</b> | Future liabilities of members in the 13 <sup>th</sup> Check program were increased by 5% to account for future payments.  |
| <b>Service Purchases:</b>              | Liabilities were increased by \$5 million to load for service purchases made to date.   |

## **SECTION G**

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### **CALCULATION OF THE SINGLE DISCOUNT RATE**

## Calculation of the Single Discount Rate

GASB Statement No. 67 includes a specific requirement for the discount rate that is used for the purpose of the measurement of the Total Pension Liability. This rate considers the ability of the Fund to meet benefit obligations in the future. To make this determination, employer contributions, employee contributions, benefit payments, expenses and investment returns are projected into the future. The Plan Net Position (assets) in future years can then be determined and compared to its obligation to make benefit payments in those years. As long as assets are projected to be on hand in a future year, the assumed valuation discount rate is used. In years where assets are not projected to be sufficient to meet benefit payments, the use of a municipal bond rate is required, as described in the following paragraph.

The Single Discount Rate (SDR) is equivalent to applying these two rates to the benefits that are projected to be paid during the different time periods. The SDR reflects: (1) the long-term expected rate of return on pension plan investments (during the period in which the fiduciary net position is projected to be sufficient to pay benefits); and (2) tax-exempt municipal bond rate based on an index of 20-year general obligation bonds with an average AA credit rating as of the measurement date (to the extent that the contributions for use with the long-term expected rate of return are not met).

For the purpose of this valuation, the expected rate of return on pension plan investments is 7.00%; the municipal bond rate is 3.13%; and the resulting Single Discount Rate is 7.00%.

The tables in this section provide background for the development of the Single Discount Rate.

The projections in this report are strictly for the purpose of determining the GASB single discount rate and are different from a funding projection for the ongoing plan. For purposes of this projection, the Plan Fiduciary Net Position was amortized over a closed period of 26 years.

The **Projection of Contributions** table shows the development of expected contributions in future years. Normal Cost contributions for future hires are not included (nor are their liabilities).

The **Projection of Plan Fiduciary Net Position** table shows the development of expected asset levels in future years.

The **Present Values of Projected Benefit Payments** table shows the development of the SDR. It breaks down the benefit payments into present values for funded and unfunded portions and shows the equivalent total at the SDR.

# Single Discount Rate Development

## Projection of Contributions Beginning July 1, 2019

| Year | Payroll for<br>Current<br>Employees | Contributions<br>from Current<br>Employees | Service Cost<br>and Expense<br>Contributions | UAL<br>Contributions | Total<br>Contributions |
|------|-------------------------------------|--|--|----------------------|------------------------|
| 1    | \$ 29,695,997                       | \$ 2,352,600                               | \$ 2,217,230                                 | \$ 9,813,935         | \$ 14,383,765          |
| 2    | 28,444,101                          | 2,238,935                                  | 2,070,891                                    | 9,813,935            | 14,123,761             |
| 3    | 27,020,009                          | 2,113,954                                  | 1,928,774                                    | 9,813,935            | 13,856,663             |
| 4    | 25,451,169                          | 1,986,377                                  | 1,793,077                                    | 9,813,935            | 13,593,389             |
| 5    | 23,927,568                          | 1,855,038                                  | 1,658,031                                    | 9,813,935            | 13,327,004             |
| 6    | 22,298,621                          | 1,717,593                                  | 1,518,508                                    | 9,813,935            | 13,050,036             |
| 7    | 20,651,172                          | 1,581,303                                  | 1,382,567                                    | 9,813,935            | 12,777,805             |
| 8    | 19,038,623                          | 1,448,662                                  | 1,253,887                                    | 9,813,935            | 12,516,484             |
| 9    | 17,522,076                          | 1,313,400                                  | 1,126,506                                    | 9,813,935            | 12,253,841             |
| 10   | 15,849,204                          | 1,171,528                                  | 996,138                                      | 9,813,935            | 11,981,601             |
| 11   | 14,134,834                          | 1,024,596                                  | 867,414                                      | 9,813,935            | 11,705,945             |
| 12   | 12,315,900                          | 881,443                                    | 747,226                                      | 9,813,935            | 11,442,604             |
| 13   | 10,730,424                          | 761,639                                    | 647,709                                      | 9,813,935            | 11,223,283             |
| 14   | 9,409,006                           | 662,671                                    | 563,686                                      | 9,813,935            | 11,040,293             |
| 15   | 8,230,644                           | 569,437                                    | 483,799                                      | 9,813,935            | 10,867,171             |
| 16   | 7,026,114                           | 489,802                                    | 415,223                                      | 9,813,935            | 10,718,960             |
| 17   | 6,193,429                           | 429,003                                    | 362,424                                      | 9,813,935            | 10,605,361             |
| 18   | 5,434,919                           | 367,516                                    | 308,281                                      | 9,813,935            | 10,489,732             |
| 19   | 4,496,062                           | 300,424                                    | 249,311                                      | 9,813,935            | 10,363,670             |
| 20   | 3,569,251                           | 237,779                                    | 195,663                                      | 9,813,935            | 10,247,377             |
| 21   | 2,800,166                           | 185,150                                    | 150,345                                      | 9,813,935            | 10,149,429             |
| 22   | 2,152,075                           | 134,415                                    | 108,344                                      | 9,813,935            | 10,056,694             |
| 23   | 1,456,965                           | 89,775                                     | 72,748                                       | 9,813,935            | 9,976,457              |
| 24   | 995,061                             | 59,918                                     | 48,901                                       | 9,813,935            | 9,922,755              |
| 25   | 667,366                             | 38,007                                     | 31,102                                       | 9,813,935            | 9,883,044              |
| 26   | 393,563                             | 22,324                                     | 18,225                                       | 9,813,935            | 9,854,484              |
| 27   | 228,755                             | 12,908                                     | 10,474                                       | -                    | 23,382                 |
| 28   | 130,485                             | 7,353                                      | 5,908  | -                    | 13,261                 |
| 29   | 73,885                              | 4,095                                      | 3,294  | -                    | 7,389                  |
| 30   | 39,850                              | 2,179                                      | 1,754  | -                    | 3,933                  |
| 31   | 20,648                              | 1,113                                      | 906  | -                    | 2,019                  |
| 32   | 10,175                              | 552  | 437  | -                    | 989                    |
| 33   | 4,971                               | 276  | 227  | -                    | 503                    |
| 34   | 2,492                               | 139  | 107  | -                    | 247                    |
| 35   | 1,235                               | 68   | 51   | -                    | 119                    |
| 36   | 603                                 | 32   | 26   | -                    | 58                     |
| 37   | 298                                 | 15   | 10   | -                    | 24                     |
| 38   | 133                                 | 6  | 4  | -                    | 10                     |
| 39   | 50                                  | 2  | 1  | -                    | 3                      |
| 40   | 15                                  | 1  | 0  | -                    | 1                      |
| 41   | 3                                   | 0  | (0)  | -                    | -                      |
| 42   | 0                                   | 0  | (0)  | -                    | -                      |
| 43   | -                                   | -  | -  | -                    | -                      |
| 44   | -                                   | -  | -  | -                    | -                      |
| 45   | -                                   | -  | -  | -                    | -                      |
| 46   | -                                   | -  | -  | -                    | -                      |
| 47   | -                                   | -  | -  | -                    | -                      |
| 48   | -                                   | -  | -  | -                    | -                      |
| 49   | -                                   | -  | -  | -                    | -                      |
| 50   | -                                   | -  | -  | -                    | -                      |

# Single Discount Rate Development

## Projection of Plan Fiduciary Net Position Beginning July 1, 2019

| Year | Projected<br>Beginning Plan<br>Net Position | Projected Total<br>Contributions | Projected<br>Benefit<br>Payments | Projected<br>Administrative<br>Expenses | Projected<br>Investment<br>Earnings at<br>7.00% | Projected Ending Plan<br>Net Position |
|------|---|----------------------------------|----------------------------------|---|---|---------------------------------------|
|      | (a)   | (b)                              | (c)                              | (d)                                     | (e)   | (f)=(a)+(b)-(c)-(d)+(e)               |
| 1    | \$ 419,215,052                              | \$ 14,383,765                    | \$ 35,771,775                    | \$ 586,901                              | \$ 29,196,035                                   | \$ 426,436,176                        |
| 2    | 426,436,176                                 | 14,123,761                       | 36,643,205                       | 597,011                                 | 29,672,693                                      | 432,992,414                           |
| 3    | 432,992,414                                 | 13,856,663                       | 37,742,254                       | 606,189                                 | 30,093,802                                      | 438,594,436                           |
| 4    | 438,594,436                                 | 13,593,389                       | 38,906,536                       | 614,032                                 | 30,444,667                                      | 443,111,924                           |
| 5    | 443,111,924                                 | 13,327,004                       | 40,043,599                       | 620,357                                 | 30,718,926                                      | 446,493,897                           |
| 6    | 446,493,897                                 | 13,050,036                       | 41,176,476                       | 625,091                                 | 30,911,888                                      | 448,654,254                           |
| 7    | 448,654,254                                 | 12,777,805                       | 42,357,050                       | 628,116                                 | 31,016,150                                      | 449,463,043                           |
| 8    | 449,463,043                                 | 12,516,484                       | 43,252,995                       | 629,248                                 | 31,034,078                                      | 449,131,362                           |
| 9    | 449,131,362                                 | 12,253,841                       | 44,194,599                       | 628,784                                 | 30,968,960                                      | 447,530,781                           |
| 10   | 447,530,781                                 | 11,981,601                       | 45,148,983                       | 626,543                                 | 30,812,473                                      | 444,549,329                           |
| 11   | 444,549,329                                 | 11,705,945                       | 46,101,680                       | 622,369                                 | 30,557,332                                      | 440,088,558                           |
| 12   | 440,088,558                                 | 11,442,604                       | 46,933,122                       | 616,124                                 | 30,201,164                                      | 434,183,080                           |
| 13   | 434,183,080                                 | 11,223,283                       | 47,479,019                       | 607,856                                 | 29,753,183                                      | 427,072,671                           |
| 14   | 427,072,671                                 | 11,040,293                       | 47,827,186                       | 597,902                                 | 29,227,224                                      | 418,915,100                           |
| 15   | 418,915,100                                 | 10,867,171                       | 47,993,391                       | 586,481                                 | 28,633,098                                      | 409,835,496                           |
| 16   | 409,835,496                                 | 10,718,960                       | 48,014,254                       | 573,770                                 | 27,978,996                                      | 399,945,429                           |
| 17   | 399,945,429                                 | 10,605,361                       | 47,673,502                       | 559,924                                 | 27,280,661                                      | 389,598,026                           |
| 18   | 389,598,026                                 | 10,489,732                       | 47,283,868                       | 545,437                                 | 26,551,285                                      | 378,809,738                           |
| 19   | 378,809,738                                 | 10,363,670                       | 46,869,552                       | 530,334                                 | 25,790,919                                      | 367,564,441                           |
| 20   | 367,564,441                                 | 10,247,377                       | 46,307,214                       | 514,590                                 | 25,003,353                                      | 355,993,366                           |
| 21   | 355,993,366                                 | 10,149,429                       | 45,574,293                       | 498,391                                 | 24,199,026                                      | 344,269,138                           |
| 22   | 344,269,138                                 | 10,056,694                       | 44,738,099                       | 481,977                                 | 23,387,497                                      | 332,493,254                           |
| 23   | 332,493,254                                 | 9,976,457                        | 43,712,790                       | 465,491                                 | 22,579,217                                      | 320,870,648                           |
| 24   | 320,870,648                                 | 9,922,755                        | 42,476,418                       | 449,219                                 | 21,790,056                                      | 309,657,822                           |
| 25   | 309,657,822                                 | 9,883,044                        | 41,081,449                       | 433,521                                 | 21,036,092                                      | 299,061,989                           |
| 26   | 299,061,989                                 | 9,854,484                        | 39,598,616                       | 418,687                                 | 20,329,589                                      | 289,228,758                           |
| 27   | 289,228,758                                 | 23,382                           | 37,960,746                       | 404,920                                 | 19,345,583                                      | 270,232,057                           |
| 28   | 270,232,057                                 | 13,261                           | 36,225,866                       | 378,325                                 | 18,048,564                                      | 251,689,691                           |
| 29   | 251,689,691                                 | 7,389                            | 34,421,955                       | 352,366                                 | 16,786,506                                      | 233,709,265                           |
| 30   | 233,709,265                                 | 3,933                            | 32,591,340                       | 327,193                                 | 15,565,573                                      | 216,360,238                           |
| 31   | 216,360,238                                 | 2,019                            | 30,758,858                       | 302,904                                 | 14,389,838                                      | 199,690,332                           |
| 32   | 199,690,332                                 | 989                              | 28,922,777                       | 279,566                                 | 13,262,748                                      | 183,751,726                           |
| 33   | 183,751,726                                 | 503                              | 27,095,046                       | 257,252                                 | 12,187,603                                      | 168,587,534                           |
| 34   | 168,587,534                                 | 247                              | 25,304,698                       | 236,023                                 | 11,166,473                                      | 154,213,533                           |
| 35   | 154,213,533                                 | 119                              | 23,560,622                       | 215,899                                 | 10,200,175                                      | 140,637,306                           |
| 36   | 140,637,306                                 | 58                               | 21,869,441                       | 196,892                                 | 9,289,021                                       | 127,860,052                           |
| 37   | 127,860,052                                 | 24                               | 20,240,639                       | 179,004                                 | 8,432,768                                       | 115,873,201                           |
| 38   | 115,873,201                                 | 10                               | 18,679,431                       | 162,222                                 | 7,630,624                                       | 104,662,181                           |
| 39   | 104,662,181                                 | 3                                | 17,189,213                       | 146,527                                 | 6,881,433                                       | 94,207,877                            |
| 40   | 94,207,877                                  | 1                                | 15,771,817                       | 131,891                                 | 6,183,765                                       | 84,487,935                            |
| 41   | 84,487,935                                  | -                                | 14,427,838                       | 118,283                                 | 5,536,005                                       | 75,477,819                            |
| 42   | 75,477,819                                  | -                                | 13,156,879                       | 105,669                                 | 4,936,414                                       | 67,151,685                            |
| 43   | 67,151,685                                  | -                                | 11,957,807                       | 94,012                                  | 4,383,186                                       | 59,483,051                            |
| 44   | 59,483,051                                  | -                                | 10,829,039                       | 83,276                                  | 3,874,484                                       | 52,445,220                            |
| 45   | 52,445,220                                  | -                                | 9,768,820                        | 73,423                                  | 3,408,463                                       | 46,011,439                            |
| 46   | 46,011,439                                  | -                                | 8,775,403                        | 64,416                                  | 2,983,272                                       | 40,154,892                            |
| 47   | 40,154,892                                  | -                                | 7,847,130                        | 56,217                                  | 2,597,055                                       | 34,848,600                            |
| 48   | 34,848,600                                  | -                                | 6,982,443                        | 48,788                                  | 2,247,938                                       | 30,065,307                            |
| 49   | 30,065,307                                  | -                                | 6,179,856                        | 42,091                                  | 1,934,026                                       | 25,777,386                            |
| 50   | 25,777,386                                  | -                                | 5,437,934                        | 36,088                                  | 1,653,397                                       | 21,956,761                            |

# Single Discount Rate Development

## Present Values of Projected Benefit Payments

### Beginning July 1, 2019

| Year | Projected          |                   | Unfunded Portion  |            | Present Value of  | Present Value of   | Present Value of       |
|------|--------------------|-------------------|-------------------|------------|-------------------|--------------------|------------------------|
|      | Beginning Plan Net | Projected Benefit | Funded Portion of | of Benefit | Funded Benefit    | Unfunded Benefit   | Benefit                |
|      | Position           | Payments          | Benefit Payments  | Payments   | Payments using    | Payments using     | Payments using         |
|      |                    |                   |                   |            | Expected Return   | Municipal Bond     | Single Discount        |
|      |                    |                   |                   |            | Rate (v)          | Rate (vf)          | Rate (sdr)             |
| (a)  | (b)                | (c)               | (d)               | (e)        | (f)=(d)*v^(a)-.5) | (g)=(e)*vf^(a)-.5) | (h)=(c)/(1+sdr)^(a-.5) |
| 1    | \$ 419,215,052     | \$ 35,771,775     | \$ 35,771,775     | \$ -       | \$ 34,581,880     | \$ -               | \$ 34,581,880          |
| 2    | 426,436,176        | 36,643,205        | 36,643,205        | -          | 33,106,844        | -                  | 33,106,844             |
| 3    | 432,992,414        | 37,742,254        | 37,742,254        | -          | 31,868,996        | -                  | 31,868,996             |
| 4    | 438,594,436        | 38,906,536        | 38,906,536        | -          | 30,702,896        | -                  | 30,702,896             |
| 5    | 443,111,924        | 40,043,599        | 40,043,599        | -          | 29,532,901        | -                  | 29,532,901             |
| 6    | 446,493,897        | 41,176,476        | 41,176,476        | -          | 28,381,700        | -                  | 28,381,700             |
| 7    | 448,654,254        | 42,357,050        | 42,357,050        | -          | 27,285,452        | -                  | 27,285,452             |
| 8    | 449,463,043        | 43,252,995        | 43,252,995        | -          | 26,039,812        | -                  | 26,039,812             |
| 9    | 449,131,362        | 44,194,599        | 44,194,599        | -          | 24,866,066        | -                  | 24,866,066             |
| 10   | 447,530,781        | 45,148,983        | 45,148,983        | -          | 23,741,168        | -                  | 23,741,168             |
| 11   | 444,549,329        | 46,101,680        | 46,101,680        | -          | 22,656,201        | -                  | 22,656,201             |
| 12   | 440,088,558        | 46,933,122        | 46,933,122        | -          | 21,555,892        | -                  | 21,555,892             |
| 13   | 434,183,080        | 47,479,019        | 47,479,019        | -          | 20,380,016        | -                  | 20,380,016             |
| 14   | 427,072,671        | 47,827,186        | 47,827,186        | -          | 19,186,415        | -                  | 19,186,415             |
| 15   | 418,915,100        | 47,993,391        | 47,993,391        | -          | 17,993,542        | -                  | 17,993,542             |
| 16   | 409,835,496        | 48,014,254        | 48,014,254        | -          | 16,823,705        | -                  | 16,823,705             |
| 17   | 399,945,429        | 47,673,502        | 47,673,502        | -          | 15,611,503        | -                  | 15,611,503             |
| 18   | 389,598,026        | 47,283,868        | 47,283,868        | -          | 14,470,945        | -                  | 14,470,945             |
| 19   | 378,809,738        | 46,869,552        | 46,869,552        | -          | 13,405,744        | -                  | 13,405,744             |
| 20   | 367,564,441        | 46,307,214        | 46,307,214        | -          | 12,378,414        | -                  | 12,378,414             |
| 21   | 355,993,366        | 45,574,293        | 45,574,293        | -          | 11,385,510        | -                  | 11,385,510             |
| 22   | 344,269,138        | 44,738,099        | 44,738,099        | -          | 10,445,430        | -                  | 10,445,430             |
| 23   | 332,493,254        | 43,712,790        | 43,712,790        | -          | 9,538,356         | -                  | 9,538,356              |
| 24   | 320,870,648        | 42,476,418        | 42,476,418        | -          | 8,662,218         | -                  | 8,662,218              |
| 25   | 309,657,822        | 41,081,449        | 41,081,449        | -          | 7,829,665         | -                  | 7,829,665              |
| 26   | 299,061,989        | 39,598,616        | 39,598,616        | -          | 7,053,321         | -                  | 7,053,321              |
| 27   | 289,228,758        | 37,960,746        | 37,960,746        | -          | 6,319,237         | -                  | 6,319,237              |
| 28   | 270,232,057        | 36,225,866        | 36,225,866        | -          | 5,635,921         | -                  | 5,635,921              |
| 29   | 251,689,691        | 34,421,955        | 34,421,955        | -          | 5,004,928         | -                  | 5,004,928              |
| 30   | 233,709,265        | 32,591,340        | 32,591,340        | -          | 4,428,746         | -                  | 4,428,746              |
| 31   | 216,360,238        | 30,758,858        | 30,758,858        | -          | 3,906,295         | -                  | 3,906,295              |
| 32   | 199,690,332        | 28,922,777        | 28,922,777        | -          | 3,432,820         | -                  | 3,432,820              |
| 33   | 183,751,726        | 27,095,046        | 27,095,046        | -          | 3,005,503         | -                  | 3,005,503              |
| 34   | 168,587,534        | 25,304,698        | 25,304,698        | -          | 2,623,280         | -                  | 2,623,280              |
| 35   | 154,213,533        | 23,560,622        | 23,560,622        | -          | 2,282,687         | -                  | 2,282,687              |
| 36   | 140,637,306        | 21,869,441        | 21,869,441        | -          | 1,980,221         | -                  | 1,980,221              |
| 37   | 127,860,052        | 20,240,639        | 20,240,639        | -          | 1,712,838         | -                  | 1,712,838              |
| 38   | 115,873,201        | 18,679,431        | 18,679,431        | -          | 1,477,311         | -                  | 1,477,311              |
| 39   | 104,662,181        | 17,189,213        | 17,189,213        | -          | 1,270,517         | -                  | 1,270,517              |
| 40   | 94,207,877         | 15,771,817        | 15,771,817        | -          | 1,089,488         | -                  | 1,089,488              |
| 41   | 84,487,935         | 14,427,838        | 14,427,838        | -          | 931,447           | -                  | 931,447                |
| 42   | 75,477,819         | 13,156,879        | 13,156,879        | -          | 793,827           | -                  | 793,827                |
| 43   | 67,151,685         | 11,957,807        | 11,957,807        | -          | 674,281           | -                  | 674,281                |
| 44   | 59,483,051         | 10,829,039        | 10,829,039        | -          | 570,684           | -                  | 570,684                |
| 45   | 52,445,220         | 9,768,820         | 9,768,820         | -          | 481,132           | -                  | 481,132                |
| 46   | 46,011,439         | 8,775,403         | 8,775,403         | -          | 403,929           | -                  | 403,929                |
| 47   | 40,154,892         | 7,847,130         | 7,847,130         | -          | 337,571           | -                  | 337,571                |
| 48   | 34,848,600         | 6,982,443         | 6,982,443         | -          | 280,723           | -                  | 280,723                |
| 49   | 30,065,307         | 6,179,856         | 6,179,856         | -          | 232,202           | -                  | 232,202                |
| 50   | 25,777,386         | 5,437,934         | 5,437,934         | -          | 190,958           | -                  | 190,958                |

# Single Discount Rate Development

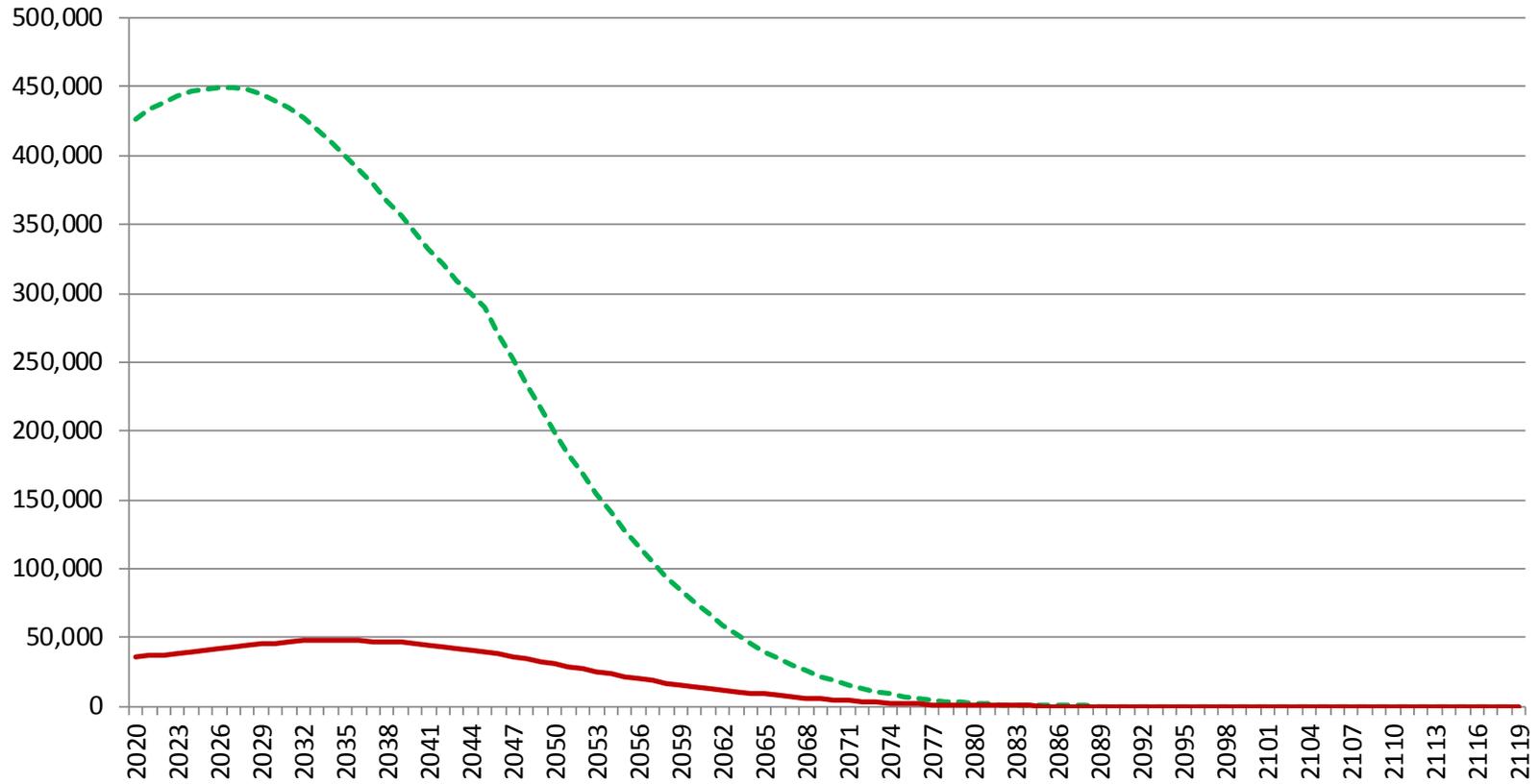
## Present Values of Projected Benefit Payments

### Beginning July 1, 2019 (Concluded)

| Year          | Projected<br>Beginning Plan<br>Net Position | Projected<br>Benefit<br>Payments | Funded<br>Portion of<br>Benefit<br>Payments | Unfunded<br>Portion of<br>Benefit<br>Payments | Present Value of<br>Funded Benefit<br>Payments using<br>Expected Return<br>Rate (v) | Present Value of<br>Unfunded Benefit<br>Payments using<br>Municipal Bond<br>Rate (vf) | Present Value of<br>Benefit<br>Payments using<br>Single Discount<br>Rate (sdr) |
|---------------|---|----------------------------------|---|---|---|---|--|
| (a)           | (b)   | (c)                              | (d)   | (e)   | (f)=(d)*v <sup>(a)-.5</sup>   | (g)=(e)*vf <sup>(a)-.5</sup>  | (h)=(c)/(1+sdr) <sup>(a)-.5</sup>  |
| 51            | \$ 21,956,761                               | \$ 4,755,317                     | \$ 4,755,317                                | \$ -  | \$ 156,063  | \$ -  | \$ 156,063   |
| 52            | 18,574,796                                  | 4,130,666                        | 4,130,666                                   | -   | 126,694   | -   | 126,694  |
| 53            | 15,602,237                                  | 3,562,573                        | 3,562,573                                   | -   | 102,121   | -   | 102,121  |
| 54            | 13,009,240                                  | 3,049,492                        | 3,049,492                                   | -   | 81,695  | -   | 81,695   |
| 55            | 10,765,468                                  | 2,589,652                        | 2,589,652                                   | -   | 64,837  | -   | 64,837   |
| 56            | 8,840,293                                   | 2,180,985                        | 2,180,985                                   | -   | 51,033  | -   | 51,033   |
| 57            | 7,203,085                                   | 1,821,064                        | 1,821,064                                   | -   | 39,824  | -   | 39,824   |
| 58            | 5,823,578                                   | 1,507,083                        | 1,507,083                                   | -   | 30,801  | -   | 30,801   |
| 59            | 4,672,289                                   | 1,235,892                        | 1,235,892                                   | -   | 23,606  | -   | 23,606   |
| 60            | 3,720,933                                   | 1,004,088                        | 1,004,088                                   | -   | 17,924  | -   | 17,924   |
| 61            | 2,942,762                                   | 808,125                          | 808,125                                     | -   | 13,482  | -   | 13,482   |
| 62            | 2,312,824                                   | 644,399                          | 644,399                                     | -   | 10,047  | -   | 10,047   |
| 63            | 1,808,151                                   | 509,285                          | 509,285                                     | -   | 7,421   | -   | 7,421  |
| 64            | 1,407,913                                   | 399,205                          | 399,205                                     | -   | 5,437   | -   | 5,437  |
| 65            | 1,093,526                                   | 310,692                          | 310,692                                     | -   | 3,954   | -   | 3,954  |
| 66            | 848,691                                     | 240,453                          | 240,453                                     | -   | 2,860   | -   | 2,860  |
| 67            | 659,373                                     | 185,433                          | 185,433                                     | -   | 2,061   | -   | 2,061  |
| 68            | 513,715                                     | 142,854                          | 142,854                                     | -   | 1,484   | -   | 1,484  |
| 69            | 401,905                                     | 110,250                          | 110,250                                     | -   | 1,071   | -   | 1,071  |
| 70            | 315,995                                     | 85,488                           | 85,488                                      | -   | 776   | -   | 776  |
| 71            | 249,686                                     | 66,766                           | 66,766                                      | -   | 566   | -   | 566  |
| 72            | 198,100                                     | 52,607                           | 52,607                                      | -   | 417   | -   | 417  |
| 73            | 157,551                                     | 41,831                           | 41,831                                      | -   | 310   | -   | 310  |
| 74            | 125,309                                     | 33,532                           | 33,532                                      | -   | 232   | -   | 232  |
| 75            | 99,395                                      | 27,033                           | 27,033                                      | -   | 175   | -   | 175  |
| 76            | 78,389                                      | 21,842                           | 21,842                                      | -   | 132   | -   | 132  |
| 77            | 61,283                                      | 17,616                           | 17,616                                      | -   | 100   | -   | 100  |
| 78            | 47,351                                      | 14,122                           | 14,122                                      | -   | 75  | -   | 75   |
| 79            | 36,058                                      | 11,202                           | 11,202                                      | -   | 55  | -   | 55   |
| 80            | 26,994                                      | 8,760                            | 8,760                                       | -   | 40  | -   | 40   |
| 81            | 19,822                                      | 6,730                            | 6,730                                       | -   | 29  | -   | 29   |
| 82            | 14,248                                      | 5,065                            | 5,065                                       | -   | 20  | -   | 20   |
| 83            | 10,006                                      | 3,723                            | 3,723                                       | -   | 14  | -   | 14   |
| 84            | 6,855                                       | 2,668                            | 2,668                                       | -   | 9   | -   | 9  |
| 85            | 4,576                                       | 1,860                            | 1,860                                       | -   | 6   | -   | 6  |
| 86            | 2,972                                       | 1,260                            | 1,260                                       | -   | 4   | -   | 4  |
| 87            | 1,877                                       | 828                              | 828   | -   | 2   | -   | 2  |
| 88            | 1,151                                       | 528                              | 528   | -   | 1   | -   | 1  |
| 89            | 686   | 326                              | 326   | -   | 1   | -   | 1  |
| 90            | 396   | 195                              | 195   | -   | -   | -   | -  |
| 91            | 222   | 113                              | 113   | -   | -   | -   | -  |
| 92            | 121   | 63                               | 63  | -   | -   | -   | -  |
| 93            | 64  | 34                               | 34  | -   | -   | -   | -  |
| 94            | 33  | 18                               | 18  | -   | -   | -   | -  |
| 95            | 17  | 9                                | 9   | -   | -   | -   | -  |
| 96            | 8   | 5                                | 5   | -   | -   | -   | -  |
| 97            | 4   | 2                                | 2   | -   | -   | -   | -  |
| 98            | 2   | 1                                | 1   | -   | -   | -   | -  |
| 99            | 1   | 1                                | 1   | -   | -   | -   | -  |
| 100           | 0   | 0                                | 0   | -   | -   | -   | -  |
| <b>Totals</b> |   |                                  |   |   | <b>\$ 569,296,517</b>   | <b>\$ -</b>   | <b>\$ 569,296,517</b>  |

## Projection of Plan Net Position and Benefit Payments

\$ [thousands]



--- Projected Plan Net Position

— Projected Benefit Payments for Current Members

## SECTION H

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### **MICHIGAN PUBLIC ACT 202**

## State Reporting Assumptions as of June 30, 2019

The Protecting Local Government Retirement and Benefits Act, Public Act 202 of 2017 (PA 202), was put into law effective December 20, 2017. One outcome of the law is the requirement for the local unit of government to provide select reporting disclosures to the State. Section 5(1) of the Act provides the State treasurer with the authority to annually establish uniform actuarial assumptions for purposes of developing the requisite disclosures. Below you will find information which may be used to assist the local unit of government with required reporting.

Uniform Assumptions, as applicable to the measurement and the required disclosures under uniform assumptions are denoted below. Additional discussion of the PA 202 and uniform assumptions may be found on the State website in the uniform assumption memo dated September 25, 2018.

| Uniform Assumption   | PA 202  | Valuation Assumption Used   | Uniform Assumption Used   |
|--|---|---|---|
| Investment Rate of Return<br>Discount Rate                             | Maximum of 7.00%^   | 7.00%   | <b>7.00%</b>  |
| Salary Increase  | Minimum of 3.50%<br>or based on<br>experience study<br>within last 5 years            | 3.25% + Merit and longevity (based<br>on experience study dated October 8,<br>2015) | 3.25% + Merit and longevity (based<br>on experience study dated October 8,<br>2015) |
| Mortality  | Version of RP-2014<br>or based on experience study<br>within last 5 years             | A version of RP-2014  | A version of RP-2014  |
| Amortization of the Unfunded<br>Accrued Actuarial Liability:<br>Period | Maximum Period of 20 Years  | 26-30 years   | <b>20 years</b>   |
| Method   | Closed Plans: Level Dollar<br>Open Plans: Level Percent of<br>Payroll or Level Dollar | Level Dollar  | Level Dollar  |
| Type   | Closed  | Closed  | Closed  |

<sup>^</sup> A blended rate calculated using GASB Statement No. 68 methodology. For periods in which projected plan assets are sufficient to make projected benefit payments – maximum of 7.00%; for periods in which projected plan assets are NOT sufficient to make projected benefit payments – 3.00%.

## State Reporting as of June 30, 2019

The following information has been prepared to provide some of the information necessary to complete the pension reporting requirements for the State of Michigan's Local Government Retirement System Annual Report (Form No. 5572). Additional resources are available on the State website.

| Line      | Descriptive Information   |                   |
|-----------|---|-------------------|
| <b>23</b> | <b>Uniform Assumptions<sup>1</sup></b>  |                   |
| 24        | Enter retirement pension system's actuarial value of assets using uniform assumptions     | \$429,105,052     |
| 25        | Enter retirement pension system's actuarial accrued liabilities using uniform assumptions | \$539,265,786     |
| 26        | Funded ratio using uniform assumptions  | Auto <sup>2</sup> |
| 27        | Actuarially Determined Contribution (ADC) using uniform assumptions <sup>3</sup>          | \$ 11,952,794     |
| 28        | All systems combined ADC/Governmental fund revenues                                       | Auto <sup>2</sup> |

<sup>1</sup> Information on lines 24-28 is based on assumptions listed on the prior page as of the most recent valuation date, June 30, 2019, after reflecting uniform assumptions.

<sup>2</sup> Automatically calculated by State of Michigan Form 5572.

<sup>3</sup> For the fiscal year ending June 30, 2019.

## **SECTION I**

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### **GLOSSARY OF TERMS**

# Glossary of Terms

|   |   |
|---|---|
| <b><i>Accrued Service</i></b>   | Service credited under the system that was rendered before the date of the actuarial valuation.   |
| <b><i>Actuarial Accrued Liability (AAL)</i></b>   | The AAL is the difference between the actuarial present value of all benefits and the actuarial value of future normal costs. The definition comes from the fundamental equation of funding which states that the present value of all benefits is the sum of the Actuarial Accrued Liability and the present value of future normal costs. The AAL may also be referred to as "accrued liability" or "actuarial liability."  |
| <b><i>Actuarial Assumptions</i></b>   | These assumptions are estimates of future experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and compensation increases. Actuarial assumptions are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (compensation increases, payroll growth, inflation and investment return) consist of an underlying real rate of return plus an assumption for a long-term average rate of inflation. |
| <b><i>Actuarial Cost Method</i></b>   | A mathematical budgeting procedure for allocating the dollar amount of the actuarial present value of the pension trust benefits between future normal cost and actuarial accrued liability. The actuarial cost method may also be referred to as the actuarial funding method.   |
| <b><i>Actuarial Equivalent</i></b>  | A single amount or series of amounts of equal actuarial value to another single amount or series of amounts, computed on the basis of appropriate actuarial assumptions.  |
| <b><i>Actuarial Gain (Loss)</i></b>   | The difference in liabilities between actual experience and expected experience during the period between two actuarial valuations is the gain (loss) on the accrued liabilities.   |
| <b><i>Actuarial Present Value (APV)</i></b>   | The amount of funds currently required to provide a payment or series of payments in the future. The present value is determined by discounting future payments at predetermined rates of interest and probabilities of payment.  |
| <b><i>Actuarial Valuation</i></b>   | The actuarial valuation report determines, as of the actuarial valuation date, the service cost, total pension liability, and related actuarial present value of projected benefit payments for pensions.   |
| <b><i>Actuarial Valuation Date</i></b>  | The date as of which an actuarial valuation is performed.   |
| <b><i>Actuarially Determined Contribution (ADC) or Annual Required Contribution (ARC)</i></b> | A calculated contribution into a defined benefit pension plan for the reporting period, most often determined based on the funding policy of the plan. Typically the Actuarially Determined Contribution has a normal cost payment and an amortization payment.   |

# Glossary of Terms

|   |   |
|---|---|
| <b><i>Amortization Method</i></b>   | The method used to determine the periodic amortization payment may be a level dollar amount, or a level percent of pay amount. The period will typically be expressed in years, and the method will either be “open” (meaning, reset each year) or “closed” (the number of years remaining will decline each year).   |
| <b><i>Amortization Payment</i></b>  | The amortization payment is the periodic payment required to pay off an interest-discounted amount with payments of interest and principal.   |
| <b><i>Cost-of-Living Adjustments</i></b>  | Postemployment benefit changes intended to adjust benefit payments for the effects of inflation.  |
| <b><i>Cost-Sharing Multiple-Employer Defined Benefit Pension Plan (cost-sharing pension plan)</i></b> | A multiple-employer defined benefit pension plan in which the pension obligations to the employees of more than one employer are pooled and pension plan assets can be used to pay the benefits of the employees of any employer that provides pensions through the pension plan.   |
| <b><i>Covered Payroll</i></b>   | The payroll of employees that are provided with pensions through the pension plan.  |
| <b><i>Deferred Inflows and Outflows</i></b>   | The deferred inflows and outflows of pension resources are amounts used under GASB Statement No. 68 in developing the annual pension expense. Deferred inflows and outflows arise with differences between expected and actual experiences; changes of assumptions. The portion of these amounts not included in pension expense should be included in the deferred inflows or outflows of resources.   |
| <b><i>Deferred Retirement Option Program (DROP)</i></b>   | A program that permits a plan member to elect a calculation of benefit payments based on service credits and salary, as applicable, as of the DROP entry date. The plan member continues to provide service to the employer and is paid for the service by the employer after the DROP entry date; however, the pensions that would have been paid to the plan member are credited to an individual member account within the defined benefit pension plan until the end of the DROP period. Other variations for DROP exist and will be more fully detailed in the plan provision section of the valuation report. |
| <b><i>Discount Rate</i></b>   | For GASB purposes, the discount rate is the single rate of return that results in the present value of all projected benefit payments to be equal to the sum of the funded and unfunded projected benefit payments, specifically: <ol style="list-style-type: none"><li>1. The benefit payments to be made while the pension plans’ fiduciary net position is projected to be greater than the benefit payments that are projected to be made in the period; and</li><li>2. The present value of the benefit payments not in (1) above, discounted using the municipal bond rate.</li></ol>                         |

## Glossary of Terms

### ***Entry Age Actuarial Cost Method (EAN)***

The EAN is a cost method for allocating the costs of the plan between the normal cost and the accrued liability. The actuarial present value of the projected benefits of each individual included in an actuarial valuation is allocated on a level basis (either level dollar or level percent of pay) over the earnings or service of the individual between entry age and assumed exit age(s). The portion of the actuarial present value allocated to a valuation year is the normal cost. The portion of this actuarial present value not provided for at a valuation date by the actuarial present value of future normal costs is the actuarial accrued liability. The sum of the accrued liability plus the present value of all future normal costs is the present value of all benefits.

### ***Fiduciary Net Position***

The fiduciary net position is the market value of the assets of the trust dedicated to the defined benefit provisions.

### ***GASB***

The Governmental Accounting Standards Board is an organization that exists in order to promulgate accounting standards for governmental entities.

### ***Long-Term Expected Rate of Return***

The long-term rate of return is the expected return to be earned over the entire trust portfolio based on the asset allocation of the portfolio.

### ***Money-Weighted Rate of Return***

The money-weighted rate of return is a method of calculating the returns that adjusts for the changing amounts actually invested. For purposes of GASB Statement No. 67, money-weighted rate of return is calculated as the internal rate of return on pension plan investments, net of pension plan investment expense.

### ***Multiple-Employer Defined Benefit Pension Plan***

A multiple-employer plan is a defined benefit pension plan that is used to provide pensions to the employees of more than one employer.

### ***Municipal Bond Rate***

The Municipal Bond Rate is the discount rate to be used for those benefit payments that occur after the assets of the trust have been depleted.

### ***Net Pension Liability (NPL)***

The NPL is the liability of employers and non-employer contributing entities to plan members for benefits provided through a defined benefit pension plan.

### ***Non-Employer Contributing Entities***

Non-employer contributing entities are entities that make contributions to a pension plan that is used to provide pensions to the employees of other entities. For purposes of the GASB accounting statements, plan members are not considered non-employer contributing entities.

### ***Normal Cost***

The portion of the actuarial present value allocated to a valuation year is called the normal cost. For purposes of application to the requirements of this Statement, the term normal cost is the equivalent of service cost.

# Glossary of Terms

***Other Postemployment Benefits (OPEB)***

All postemployment benefits other than retirement income (such as death benefits, life insurance, disability, and long-term care) that are provided separately from a pension plan, as well as postemployment healthcare benefits regardless of the manner in which they are provided. Other post-employment benefits do not include termination benefits.

***Real Rate of Return***

The real rate of return is the rate of return on an investment after adjustment to eliminate inflation.

***Service Cost***

The service cost is the portion of the actuarial present value of projected benefit payments that is attributed to a valuation year.

***Total Pension Expense***

The total pension expense is the sum of the following items that are recognized at the end of the employer's fiscal year:

1. Service Cost
2. Interest on the Total Pension Liability
3. Current-Period Benefit Changes
4. Employee Contributions (made negative for addition here)
5. Projected Earnings on Plan Investments (made negative for addition here)
6. Pension Plan Administrative Expense
7. Other Changes in Plan Fiduciary Net Position
8. Recognition of Outflow (Inflow) of Resources due to Liabilities
9. Recognition of Outflow (Inflow) of Resources due to Assets

***Total Pension Liability (TPL)***

The TPL is the portion of the actuarial present value of projected benefit payments that is attributed to past periods of member service.

***Unfunded Actuarial Accrued Liability (UAAL)***

The UAAL is the difference between actuarial accrued liability and valuation assets.

***Valuation Assets***

The valuation assets are the assets used in determining the unfunded liability of the plan. For purposes of GASB Statement Nos. 67 and 68, the valuation assets are equal to the market value of assets.