

**CITY OF PONTIAC**  
**GENERAL EMPLOYEES' RETIREMENT SYSTEM**  
**ANNUAL ACTUARIAL VALUATION REPORT**  
**DECEMBER 31, 2016**

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May 26, 2017

Retirement Board  
City of Pontiac General Employees' Retirement System  
Pontiac, Michigan

Dear Board Members:

Submitted in this report are the results of the December 31, 2016 actuarial valuation of the liabilities, funded position and contribution requirements associated with benefits provided by the City of Pontiac General Employees' Retirement System. The purpose of the valuation was to measure the System's funding progress, determine the employer contribution and provide related valuation results for the 2018-2019 fiscal year. This report should not be relied upon for any other purpose. This report may be provided to parties other than the Retirement Board only in its entirety and only with the permission of the Board.

The valuation was based upon the actuarial assumptions and methods adopted by the Retirement Board, information furnished by the Retirement System, including System benefits, financial transactions, and individual members, terminated members, retirees and beneficiaries. Data was checked for internal and year to year consistency, but was not audited by us. As a result, we are unable to assume responsibility for the accuracy or completeness of the data provided.

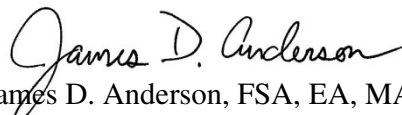
Future actuarial measurements may differ significantly from those presented in this report due to such factors as experience differing from that anticipated by actuarial assumptions, changes in plan provisions, actuarial assumptions/methods or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. This valuation assumes the continuing ability of the plan sponsor to make the contributions necessary to fund this plan. A determination of the plan sponsor's ability to make the necessary contributions is beyond the scope of our expertise and was not performed by GRS.

This report was prepared by actuaries who have substantial experience valuing public employee retirement systems. To the best of our knowledge, this report is complete and accurate and the valuation was conducted in accordance with standards of practice prescribed by the Actuarial Standards Board in compliance with the applicable state statutes. Louise M. Gates and James D. Anderson are independent of the plan sponsor and are Members of the American Academy of Actuaries (MAAA) who meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. It is our opinion that the actuarial assumptions used for the valuation produce results which are reasonable.

Respectfully submitted,



Louise M. Gates, ASA, MAAA



James D. Anderson, FSA, EA, MAAA

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**SECTION A**  
**EXECUTIVE SUMMARY**

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## 1. Computed Employer Contributions – Fiscal Year Beginning July 1, 2018

The computed City contributions are as follows:

**Computed Employer  
Contributions**

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\$0

## 2. Reasons for Change

There are three general reasons why contributions change from one valuation to the next. The first is a change in the benefits or eligibility conditions of the plan. The second is a change in the valuation assumptions used to predict future occurrences. The third is the difference during the year between the plan's actual experience and what the assumptions predicted. Although there was no change in the employer contribution from the prior year, there was an increase in the Retirement System's funding surplus.

The following benefit and assumption changes are reflected in this valuation of the System:

- A change in benefit formula and benefit eligibility for MAPE members hired after July 1, 2016 (see page C-1);
- A change in the wage inflation assumption from 4.5% to 2.5% per year;
- A change in the mortality assumption (see page D-3); and
- A change in the investment return assumption from 7.5% to 7.0% per year;
- Changes in miscellaneous and technical assumptions including liability loads.

The change in the investment return assumption increased System accrued liabilities by \$11 million. The removal of the 7% load for optional forms of benefit decreased System accrued liabilities by approximately \$0.4 million. The net increase in accrued liabilities due to the remaining assumption changes was \$5.1 million.

In addition, for this valuation of the System, valuation assets were set equal to the market value of System assets used in the determination of the employer contribution, funded ratio and System UAL. The 2017 valuation of the System will reflect the new asset valuation method adopted by the Board.

### 3. System Experience

For the year ended December 31, 2016 System experience was overall favorable. System liabilities increased by more than anticipated by actuarial assumptions due primarily to the payment of stipend benefits beyond August 2016 (approximately \$5.2 million). This experience loss was offset by higher than expected levels of recognized investment income due to the change in asset valuation method reflected in this valuation of the System (i.e. mark-to-market) totaling approximately \$45.7 million.

### 4. Reserve Transfers

In accordance with Ordinance Section 92-39(6) we have calculated the actuarial liability for members who have already retired (and their beneficiaries). This amount along with the reported retiree reserve account balance is shown below:

|                   |                    |
|-------------------|--------------------|
| Retiree Liability | \$241,243,240      |
| Retiree Reserve   | <u>228,737,770</u> |
| Difference        | \$ 12,505,470      |

The Board may wish to transfer the difference shown above from the pension reserve fund to the retirement reserve fund.

### 5. System Funded Percent

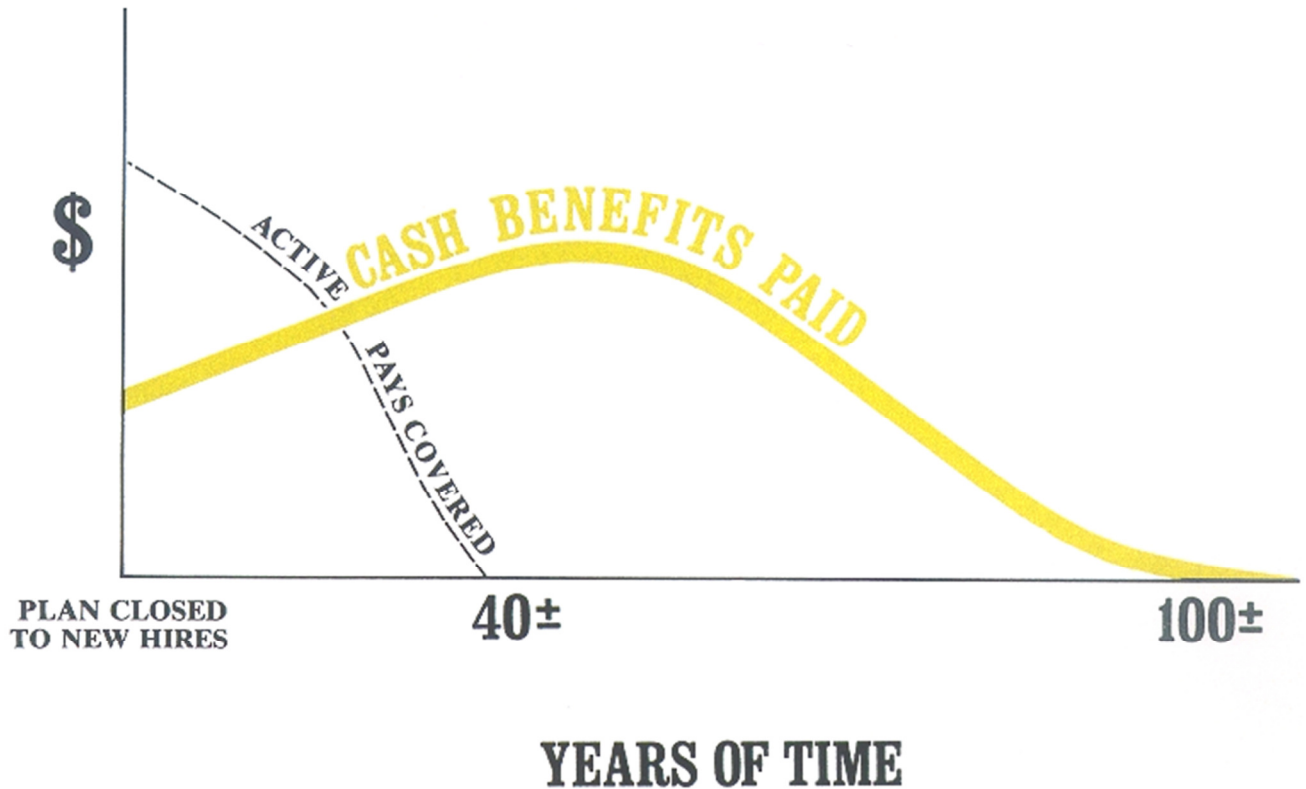
The System's funding percent based on the actuarial value of assets (market value for this valuation) is 176.1% as of December 31, 2016. As of December 31, 2015, the funding percent using the actuarial value of assets was 165.1%.

Unless otherwise indicated, a funding status measurement presented in this report is based upon the System's actuarial accrued liability and the market value of System assets (future valuations will use the funding value of assets). It is important to note that the funding status measurement presented in this report is inappropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations and the need for or the amount of future employer contributions.

### 6. Other

We understand that currently the Board does not have a formal funding policy. Based on the provisions of GASB statement No. 67 the System is required to have a funding policy. We recommend that the Board establish a funding policy.

## A CLOSED PENSION PLAN



A plan becomes closed when no new hires are admitted to active membership. The persons covered by the plan at the time of closing continue their normal activities and continue to be covered by the plan, until the last survivor dies.

**CASH BENEFITS LINE.** After a pension plan becomes closed, the usual pattern is for cash benefits to continue to increase for decades of time. Eventually the cash benefits will peak, and then gradually decrease over more decades of time, ultimately to zero. The last cash benefit is likely to occur a century after the time the plan is closed.

The precise amounts of cash benefits cannot be known now, and must be estimated by assumptions of future experiences in a variety of financial risk areas.

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**SECTION B**  
**VALUATION RESULTS**

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## COMPUTED EMPLOYER CONTRIBUTION FOR THE FISCAL YEAR BEGINNING JULY 1, 2018

| Contributions for                       | Expressed as Dollar Amounts |
|-----------------------------------------|-----------------------------|
| A Normal Cost of Benefits               |                             |
| Age & Service                           | \$205,796                   |
| Disability                              | 26,559                      |
| Death-in-service                        | 6,769                       |
| Total Normal Cost                       | \$239,124                   |
| <br>B Member contributions              | <br>0.00                    |
| <br>C Employer Normal Cost              | <br>239,124                 |
| <br>D UAL payment / (credit)*           | <br>(15,687,756)            |
| <br>E Total Employer Contribution (D+C) | <br>\$0                     |

\* *Unfunded Accrued Liabilities were amortized over a period of 30 years using level dollar financing.*

## DETERMINATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITY AS OF DECEMBER 31, 2016

|                                               |  |                             |  |
|-----------------------------------------------|--|-----------------------------|--|
| A. Accrued Liability                          |  |                             |  |
| 1. For retirees and beneficiaries             |  | \$ 241,243,240              |  |
| 2. For vested and other terminated members    |  | 17,144,169                  |  |
| 3. For present active members                 |  |                             |  |
| a. Value of expected future benefit payments  |  | 7,910,460                   |  |
| b. Value of future normal costs               |  | 1,561,167                   |  |
| c. Active member accrued liability: (a) - (b) |  | <u>6,349,293</u>            |  |
| 4. Total accrued liability                    |  | 264,736,702                 |  |
| B. Valuation Assets (Funding Value)           |  | <u>466,143,339</u>          |  |
| C. Unfunded Accrued Liability: (A.4) - (B)    |  | <u><u>(201,406,637)</u></u> |  |
| D. Funding Ratio: (B) / (A.4)                 |  | <u>176.1%</u>               |  |

The accrued liability for current retirees and beneficiaries shown above includes a liability for stipend benefit payments guaranteed through August 2017.

**DEVELOPMENT OF EXPERIENCE GAIN/(LOSS)  
PERIOD ENDED DECEMBER 31, 2016**

Actual experience will never (except by coincidence) exactly match assumed experience. It is hoped that gains and losses will cancel each other over a period of years, but sizable year-to-year fluctuations are common. Detail on the derivation of the experience gain (loss) is shown below.

|                                                         |                 |
|---------------------------------------------------------|-----------------|
| (1) UAAL* at start of period                            | (\$164,794,447) |
| (2) Normal cost for period                              | 324,671         |
| (3) Actual contributions                                | 0               |
| (4) Interest accrual on (1), (2) and (3)                | (12,347,408)    |
| (5) Expected UAAL before changes: (1) + (2) - (3) + (4) | (176,817,184)   |
| (6) Change in actuarial assumptions                     | 15,686,953      |
| (7) Expected UAAL after changes: (5) + (6) + (7)        | (161,130,231)   |
| (8) Actual UAAL at end of period                        | (201,406,637)   |
| (9) Gain/(loss): (8) - (9)                              | 40,276,406      |

*\* The Unfunded Actuarial Accrued Liability (UAAL) as of December 31, 2015 was based on the GRS audit results as provided in our report dated February 21, 2017.*

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**SECTION C**

**SUMMARY OF BENEFIT PROVISIONS AND  
VALUATION DATA**

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**SUMMARY OF BENEFIT PROVISIONS  
AS OF DECEMBER 31, 2016**

**REGULAR RETIREMENT**

| Employee Group            | Eligibility <sup>^</sup> |                                     | Benefit Multiplier <sup>^</sup> | Post Retirement Adjustments <sup>+</sup>         |
|---------------------------|--------------------------|-------------------------------------|---------------------------------|--------------------------------------------------|
|                           | Age                      | Years of Service                    |                                 |                                                  |
| Teamsters #214            | 50<br>55<br>60           | with 30 or<br>with 25 or<br>with 10 | 2.50%                           | 2.00% of original retirement income for 18 years |
| MAPE –hired after 6/30/16 | 60<br>Any                | with 10 or<br>with 30               | 1.50%                           | 2.50% of original retirement income for 14 years |
| -hired before 7/1/16      | 50<br>55                 | with 25 or<br>with 10               | 2.00%                           |                                                  |
| PPFDA                     | 50<br>60                 | with 25 or<br>with 10               | 2.25%                           | 2.00% of original retirement income for 18 years |
| SAEA                      | 50<br>60                 | with 25 or<br>with 10               | 3.00%/2.50%/1.00% <sup>@</sup>  | 2.00% of original retirement income for 18 years |
| AFSCME #2002/PPMA         | 50<br>60                 | with 25 or<br>with 10               | 2.50%                           | 2.00% of original retirement income for 18 years |
| Non-Union                 | 50<br>55<br>60           | with 25 or<br>with 20 or<br>with 10 | 2.50%                           | 2.00% of original retirement income for 18 years |
| PMEA                      |                          |                                     | 2.00%                           | 2.00% of original retirement income for 14 years |
| Hospital                  |                          |                                     |                                 | Not eligible                                     |

<sup>@</sup> For retirements after July 1, 2010, 3.0% for the first 20 years, 2.5% for the next 5 years and 1.0% thereafter (until maximum benefit is reached)

<sup>+</sup> Varies by retirement date

<sup>^</sup> varies by retirement date and /or hire or other effective date

**SUMMARY OF BENEFIT PROVISIONS  
AS OF DECEMBER 31, 2016**

| <b>Eligibility</b>                                                                                                                                                                                      | <b>Amount</b>                                                                                                                                                                                                                                                                                                                                                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>EARLY REDUCED RETIREMENT</b>                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                  |
| Age 50 with 25 years of service.                                                                                                                                                                        | Regular retirement benefit reduced for service less than 30 years.                                                                                                                                                                                                                                                                                               |
| <b>DEFERRED RETIREMENT</b>                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                  |
| 10 or more years of service, benefit begins at age 60 (age 55 for MAPE if hired before 7/1/16); or with 25 or more years of service, benefit begins at age 55 (age 50 for MAPE if hired before 7/1/16). | Computed as a regular retirement but based upon service and final average earnings at termination date.                                                                                                                                                                                                                                                          |
| <b>DUTY DEATH-IN-SERVICE</b>                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                  |
| No age or service requirements.                                                                                                                                                                         | Payable upon expiration of workers compensation to the survivors of a member who died in the line of duty. Same amount that was paid by worker's compensation to widow, dependent widower, children under 18 and dependent parents.                                                                                                                              |
| <b>NON-DUTY DEATH-IN-SERVICE</b>                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                  |
| 10 years of service.                                                                                                                                                                                    | Computed as a regular retirement but actuarially reduced in accordance with a 100% joint and survivor election provided the member has an Option II election form on file with the Retirement Office.                                                                                                                                                            |
| <b>DUTY DISABILITY</b>                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                  |
| No age or service requirements.                                                                                                                                                                         | Computed as a regular retirement benefit. Upon termination of worker's compensation additional service credit is granted for period in receipt of worker's compensation and benefit is recomputed. Minimum benefit prior to voluntary retirement age is the greater of a) 15% of final average earnings, or b) an amount equal to worker's compensation benefit. |
| <b>NON-DUTY DISABILITY</b>                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                  |
| 10 or more years of service.                                                                                                                                                                            | Same as a regular retirement, with a minimum benefit of 15% of final average earnings.                                                                                                                                                                                                                                                                           |
| <b>MEMBER CONTRIBUTIONS</b>                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                  |
| None                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                  |

The Retirement System is closed to all new City employees except for new employees of the MAPE employment group.

**REPORTED FINANCIAL INFORMATION AT MARKET VALUE  
YEAR ENDED DECEMBER 31, 2016**

**Revenue and Disbursements**

|                                                               |                      |
|---------------------------------------------------------------|----------------------|
| <b>Market Value of Assets Beginning of Year:</b> <sup>1</sup> | \$459,392,841        |
| Audit Adjustment                                              | (50,487)             |
| <br><b>Revenues:</b>                                          |                      |
| a. Member contributions                                       | \$ 0                 |
| b. Employer contributions                                     | -                    |
| c. Net investment income                                      | 34,524,610           |
| d. Total                                                      | <u>34,524,610</u>    |
| <br><b>Disbursements:</b>                                     |                      |
| a. Pension benefits paid                                      | 27,024,651           |
| b. Administrative expenses                                    | 698,974              |
| c. Total                                                      | <u>27,723,625</u>    |
| <b>Market Value of Assets End of Year:</b>                    | <u>\$466,143,339</u> |

The net market value yield on plan assets during calendar year 2016 was 7.59%.

**Assets and Reserves as of December 31, 2016**

| <b>Assets:</b>                      |                       | <b>Reserve Accounts:</b>                |                      |
|-------------------------------------|-----------------------|-----------------------------------------|----------------------|
| a. Cash and Short Term <sup>2</sup> | \$ 15,923,328         | a. Employee contributions               | \$ 553,877           |
| b. Interest and Dividends           | 1,131,908             | b. Reserve for retired benefit payments | 228,737,770          |
| c. Fixed Income                     | 117,365,339           | c. Reserve for employer contributions   | 236,851,692          |
| d. Equities                         | 318,831,784           |                                         |                      |
| e. Private Equity                   | 13,600,005            |                                         |                      |
| f. Other                            | -                     |                                         |                      |
| g. Accounts Payable                 | <u>(709,025)</u>      | Total                                   | <u>\$466,143,339</u> |
| Total                               | <u>\$ 466,143,339</u> |                                         |                      |

<sup>1</sup> based on the 2015 actuarial valuation report    <sup>2</sup> includes receivables / "pre-paid amounts"

**RETIRES AND BENEFICIARIES AS OF DECEMBER 31, 2016**  
**TABULATED BY RETIREMENT TYPE**

| Age           | Age and Service |                     | Death-in-Service Survivor |                   | Disability |                    | Totals       |                     |
|---------------|-----------------|---------------------|---------------------------|-------------------|------------|--------------------|--------------|---------------------|
|               | No.             | Annual Allowances   | No.                       | Annual Allowances | No.        | Annual Allowances  | No.          | Annual Allowances   |
| Under 20      | 1               | \$ 2,579            |                           |                   |            |                    | 1            | \$ 2,579            |
| 20 - 24       |                 |                     |                           |                   |            |                    |              |                     |
| 25 - 29       |                 |                     |                           |                   | 1          | \$ 10,937          | 1            | 10,937              |
| 30 - 34       |                 |                     |                           |                   |            |                    |              |                     |
| 35 - 39       | 1               | 5,026               | 2                         | \$ 55,455         |            |                    | 3            | 60,481              |
| 40 - 44       | 1               | 11,959              |                           |                   | 2          | 19,711             | 3            | 31,670              |
| 45 - 49       | 9               | 179,606             |                           |                   |            |                    | 9            | 179,606             |
| 50 - 54       | 18              | 581,050             | 2                         | 26,273            | 2          | 48,152             | 22           | 655,475             |
| 55 - 59       | 55              | 1,458,151           | 1                         | 16,165            | 8          | 144,798            | 64           | 1,619,114           |
| 60 - 64       | 168             | 4,356,668           | 3                         | 78,600            | 8          | 144,081            | 179          | 4,579,349           |
| 65 - 69       | 233             | 5,512,558           | 1                         | 31,472            | 17         | 307,734            | 251          | 5,851,764           |
| 70-74         | 172             | 3,328,962           | 5                         | 40,259            | 8          | 166,265            | 185          | 3,535,486           |
| 75-79         | 119             | 1,696,683           | 3                         | 65,107            | 13         | 131,921            | 135          | 1,893,711           |
| 80-84         | 101             | 1,685,674           | 1                         | 16,352            | 8          | 105,758            | 110          | 1,807,784           |
| 85-89         | 82              | 1,275,997           | 2                         | 8,297             | 3          | 18,389             | 87           | 1,302,683           |
| 90+           | 36              | 337,060             | 1                         | 6,807             | 2          | 6,533              | 39           | 350,400             |
| <b>Totals</b> | <b>996</b>      | <b>\$20,431,973</b> | <b>21</b>                 | <b>\$344,787</b>  | <b>72</b>  | <b>\$1,104,279</b> | <b>1,089</b> | <b>\$21,881,039</b> |

| <u>Valuation Division</u> | <u>Number</u> | <u>Total Benefits</u> |
|---------------------------|---------------|-----------------------|
| General                   | 642           | \$ 17,623,185         |
| Hospital                  | 447           | 4,257,854             |

The annual benefits shown in the schedule above do not include the temporary stipend benefit of \$400 per month.



**INACTIVE MEMBERS AS OF DECEMBER 31, 2016**  
**TABULATED BY ATTAINED AGE**

*Inactive members* included in the valuation and their estimated annual pension benefits are summarized in the table below. An inactive member is a person who has left covered employment after becoming eligible for a retirement benefit, but has not yet applied for a retirement allowance, and who has not withdrawn his or her accumulated contributions from the Employees' Savings Fund.

| <b>Valuation Division</b> | <b>Number<br/>of Members</b> | <b>Estimated<br/>Benefits</b> |
|---------------------------|------------------------------|-------------------------------|
| General                   | 167                          | \$2,075,879                   |
| Hospital                  | 34                           | 85,552                        |
| Total                     | 201                          | \$2,161,431                   |

**ACTIVE MEMBERS AS OF DECEMBER 31, 2016  
BY AGE AND YEARS OF SERVICE**

| Age           | Years of Service on Valuation Date |           |          |          |          |          |          | Totals    |                    |
|---------------|------------------------------------|-----------|----------|----------|----------|----------|----------|-----------|--------------------|
|               | 0-4                                | 5-9       | 10-14    | 15-19    | 20-24    | 25-29    | 30 Plus  | No.       | Valuation Payroll  |
| 30-34         | 1                                  | 1         | 1        |          |          |          |          | 3         | \$ 101,470         |
| 35-39         | 1                                  | 1         |          | 1        |          |          |          | 3         | 116,768            |
| 40-44         |                                    | 3         | 1        | 2        |          |          |          | 6         | 299,131            |
| 45-49         |                                    | 2         | 1        | 3        |          |          |          | 6         | 375,267            |
| 50-54         |                                    |           | 1        | 1        | 1        |          |          | 3         | 151,892            |
| 55-59         |                                    | 2         | 1        | 1        | 1        |          |          | 5         | 276,721            |
| 60            |                                    |           | 1        |          |          |          |          | 1         | 49,802             |
| 63            |                                    |           |          |          | 1        |          |          | 1         | 52,019             |
| 66            |                                    | 1         |          |          |          |          |          | 1         | 35,861             |
| 67            |                                    | 1         |          |          |          |          |          | 1         | 41,197             |
| 70+           |                                    |           |          | 1        |          |          |          | 1         | 40,344             |
| <b>Totals</b> | <b>2</b>                           | <b>11</b> | <b>6</b> | <b>9</b> | <b>3</b> | <b>0</b> | <b>0</b> | <b>31</b> | <b>\$1,540,472</b> |

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

Age: 48.9 years  
Service: 13.0 years  
Annual Pay: \$ 49,693

The chart above includes 14 non-union employees and 17 MAPE employee members of the System.

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## **SECTION D**

### **ACTUARIAL METHODS, ACTUARIAL ASSUMPTIONS AND GLOSSARY**

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## VALUATION METHODS

***The Individual Entry-Age Actuarial Cost Method*** is a method for determining the normal cost and the allocation of benefit values between service rendered before and after the valuation date. It has the following characteristics:

- (i) the annual normal cost for each individual active member, payable from the date of employment to the date of retirement, is 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 gains/(losses), as they occur, reduce (increase) the Unfunded Actuarial Accrued Liability.

**Financing Unfunded Actuarial Accrued Liabilities** – As of the valuation date, System assets exceed System Actuarial Accrued Liabilities resulting in a funding surplus. This surplus was amortized over an open 30 year period using a level dollar amortization method.

**Valuation Assets** - The funding value of assets recognizes assumed investment income fully each year. Differences between actual and assumed investment income are phased-in over a closed 5-year period. During periods when investment performance exceeds the assumed rate, funding value of assets will tend to be lower than market value. During periods when investment performance is less than the assumed rate, funding value of assets will tend to be greater than market value. The funding value of assets is unbiased with respect to market value. At any time it may be either greater or less than market value.

The market value of System assets was used in the 2016 valuation of the System.

## ACTUARIAL ASSUMPTIONS USED FOR THE VALUATION

**Investment Return:** 7.00% per year net of administrative and investment expenses.

This assumption is used to equate the value of payments due at different points in time and was first used for the December 31, 2016 valuation.

**Pay Projections:** These assumptions are used to project current pays to those upon which benefits will be based. The base economic assumption was first used for the December 31, 2016 valuation.

| Sample Ages | Annual Rate of Pay Increase for Sample Ages |                   |       |
|-------------|---------------------------------------------|-------------------|-------|
|             | Base (Economic)                             | Merit & Longevity | Total |
| 20          | 2.50%                                       | 4.90%             | 7.40% |
| 25          | 2.50                                        | 3.70              | 6.20  |
| 30          | 2.50                                        | 2.90              | 5.40  |
| 35          | 2.50                                        | 2.10              | 4.60  |
| 40          | 2.50                                        | 1.60              | 4.10  |
| 45          | 2.50                                        | 1.40              | 3.90  |
| 50          | 2.50                                        | 1.30              | 3.80  |
| 55          | 2.50                                        | 1.10              | 3.60  |
| 60          | 2.50                                        | 1.10              | 3.60  |

**Other Liability Adjustments:** Retirement liabilities were loaded by 8.25% for non-union members (7.0% for MAPE members) to account for the member's right to use lump sum payments for unused sick leave at retirement.

**Mortality:** The RP-2014 Healthy Annuitant Mortality Table (unadjusted) projected to 2021 using a static projection based on the 2-dimensional MP-2014 improvement scales. This assumption was first used for the December 31, 2016 valuation. Sample values follow:

| Sample<br>Ages | Future Life<br>Expectancy (Years) |       |
|----------------|-----------------------------------|-------|
|                | Men                               | Women |
| 50             | 33.50                             | 36.20 |
| 55             | 29.15                             | 31.69 |
| 60             | 24.96                             | 27.26 |
| 65             | 20.91                             | 22.97 |
| 70             | 17.05                             | 18.88 |
| 75             | 13.44                             | 15.06 |
| 80             | 10.17                             | 11.58 |

This assumption is used to measure the probabilities of members dying before retirement and the probabilities of each benefit payment being made after retirement. The membership size in this group is not sufficiently large to determine if there is a margin for mortality improvements. However, based upon our experience with a broad cross section of public sector plans similar in nature to this plan, it is our opinion that there is a provision for future mortality improvement in the current mortality assumption.

**Rates of Separation from Active Membership:** The 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 City employment.

| Sample<br>Ages | Completed<br>Years of<br>Service | <u>% of Active Members<br/>Separating within Next Year</u> |
|----------------|----------------------------------|------------------------------------------------------------|
|                |                                  | All Members                                                |
| ALL            | 0                                | 20.00%                                                     |
|                | 1                                | 18.00%                                                     |
|                | 2                                | 15.00%                                                     |
|                | 3                                | 12.00%                                                     |
|                | 4                                | 10.00%                                                     |
| 25             | 5 & Over                         | 7.00%                                                      |
| 30             |                                  | 6.00%                                                      |
| 35             |                                  | 4.75%                                                      |
| 40             |                                  | 3.50%                                                      |
| 45             |                                  | 2.40%                                                      |
| 50             | 1.50%                            |                                                            |
| 55             | 1.00%                            |                                                            |
| 60             | 1.00%                            |                                                            |
| 65             | 1.00%                            |                                                            |

**Rates of Disability:** These rates represent the probabilities of active members becoming disabled.

| Sample<br>Ages | <b>Percent Becoming Disabled<br/>within Next Year</b> |
|----------------|-------------------------------------------------------|
|                | All Members                                           |
| 20             | 0.42%                                                 |
| 25             | 0.42                                                  |
| 30             | 0.45                                                  |
| 35             | 0.51                                                  |
| 40             | 0.67                                                  |
| 45             | 0.92                                                  |
| 50             | 1.36                                                  |
| 55             | 2.20                                                  |

All disabilities were assumed to be non-duty disabilities.

**Rates of Retirement:** These rates are used to measure the probabilities of an eligible member retiring during the next year.

| <b>Percent of Active Members Retiring within One Year</b> |          |
|-----------------------------------------------------------|----------|
| <b>All Members</b>                                        |          |
| <b>Ages</b>                                               | <b>%</b> |
| 50                                                        | 35%      |
| 51                                                        | 30       |
| 52                                                        | 25       |
| 53                                                        | 25       |
| 54                                                        | 25       |
| 55                                                        | 25       |
| 56                                                        | 25       |
| 57                                                        | 50       |
| 58                                                        | 50       |
| 59                                                        | 50       |
| 60                                                        | 20       |
| 61                                                        | 25       |
| 62                                                        | 30       |
| 63                                                        | 30       |
| 64                                                        | 25       |
| 65                                                        | 50       |
| 66                                                        | 100      |

Eligibility for retirement benefits is shown in Section C of this report.



## GLOSSARY

**Actuarial Accrued Liability** - The difference between (i) the actuarial present value of future plan benefits, and (ii) the actuarial present value of future normal cost. Sometimes referred to as “accrued liability” or “past service liability.” Under the actuarial cost method used the “AAL” differs somewhat from the value of future payments based on benefits earned as of the valuation date.

**Accrued Service** - The service credited under the plan which was rendered before the date of the actuarial valuation.

**Actuarial Assumptions** - Estimates of future plan experience with respect to rates of mortality, disability, retirement, investment income and salary increases. Decrement assumptions (rates of mortality, separation and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (salary increases and investment income) consist of an underlying rate appropriate in an inflation-free environment plus a provision for a long-term average rate of inflation.

**Actuarial Cost Method** - A mathematical budgeting procedure for allocating the dollar amount of the “actuarial present value of future plan benefits” between the normal costs to be paid in the future and the actuarial accrued liability. Sometimes referred to as the “actuarial funding method.”

**Actuarial Equivalent** - Benefits whose actuarial present values are equal.

**Actuarial Present Value** - The amount of funds presently required to provide a payment or series of payments in the future. It is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

**Amortization** - Paying off an interest-bearing liability by means of periodic contributions of interest and principal, as opposed to a lump sum payment.

## GLOSSARY

**Experience Gain (Loss)** - A measure of the difference between actual experience and experience anticipated by a set of actuarial assumptions during the period between two actuarial valuation dates, in accordance with the actuarial cost method being used.

**Normal Cost** - The annual cost assigned, under the actuarial funding method, to current and subsequent plan years. Sometimes referred to as “current service cost.” An amortization payment toward the unfunded actuarial accrued liability is in addition to the normal cost.

**Plan Termination Liability** - The actuarial present value of future plan benefits based on the assumption that there will be no further accruals for the future service and salary. The termination liability will generally be less than the liabilities computed on a “going-concern” basis and is not normally determined in a routine actuarial valuation.

**Reserve Account** - An account used to indicate that funds have been set aside for a specific purpose and are not generally available for other uses.

**Unfunded Actuarial Accrued Liability** - The difference between the actuarial accrued liability and valuation assets. Sometimes referred to as “unfunded accrued liability.”

**Valuation Assets** - The value of current plan assets recognized for valuation purposes.

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**SECTION E**  
**OTHER FINANCIAL DISCLOSURES**

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## SCHEDULE OF FUNDING PROGRESS

| Actuarial<br>Valuation<br>Date | Actuarial<br>Value of<br>Assets<br>(a) | Entry Age<br>Accrued<br>Liability<br>(b) | Unfunded<br>AAL<br>(UAAL)<br>(b) – (a) | Funded<br>Percent<br>(a) / (b) | Covered<br>Payroll<br>(c) | UAAL<br>as a %<br>of Covered<br>Payroll<br>[(b) – (a)] / (c) |
|--------------------------------|----------------------------------------|------------------------------------------|----------------------------------------|--------------------------------|---------------------------|--------------------------------------------------------------|
| 12/31/1995@                    | \$237,353,362                          | \$174,206,716                            | \$ (63,146,646)                        | 136.2 %                        | \$15,057,551              | --                                                           |
| 12/31/1996@                    | 256,723,386                            | 184,624,697                              | (72,098,689)                           | 139.1                          | 15,915,806                | --                                                           |
| 12/31/1997@#                   | 287,764,412                            | 189,207,579                              | (98,556,833)                           | 152.1                          | 18,295,631                | --                                                           |
| 12/31/1998                     | 315,420,281                            | 194,984,577                              | (120,435,704)                          | 161.8                          | 18,362,384                | --                                                           |
| 12/31/1999@                    | 350,846,897                            | 209,172,136                              | (141,674,761)                          | 167.7                          | 18,747,510                | --                                                           |
| 12/31/2000@                    | 378,063,942                            | 217,942,909                              | (160,121,033)                          | 173.5                          | 18,728,688                | --                                                           |
| 12/31/2001@#                   | 395,743,819                            | 227,901,435                              | (167,842,384)                          | 173.6                          | 19,887,803                | --                                                           |
| 12/31/2002@                    | 393,214,033                            | 235,422,367                              | (157,791,666)                          | 167.0                          | 20,039,136                | --                                                           |
| 12/31/2003                     | 394,367,065                            | 247,396,857                              | (146,970,208)                          | 159.4                          | 20,807,612                | --                                                           |
| 12/31/2004                     | 394,807,254                            | 258,365,787                              | (136,441,467)                          | 152.8                          | 21,320,477                | --                                                           |
| 12/31/2005                     | 391,409,757                            | 260,103,260                              | (131,306,497)                          | 150.5                          | 16,751,815                | --                                                           |
| 12/31/2006                     | 409,983,490                            | 266,457,429                              | (143,526,061)                          | 153.9                          | 14,996,753                | --                                                           |
| 12/31/2007                     | 433,028,186                            | 257,940,349                              | (175,087,837)                          | 167.9                          | N/A                       | --                                                           |
| 12/31/2008                     | 416,678,512                            | 261,497,756                              | (155,180,756)                          | 159.3                          | N/A                       | --                                                           |
| 12/31/2009                     | 405,193,572                            | 255,720,207                              | (149,473,365)                          | 158.5                          | N/A                       | --                                                           |
| 12/31/2010                     | 399,573,669                            | 253,866,554                              | (145,707,115)                          | 157.4                          | N/A                       | --                                                           |
| 12/31/2011                     | 383,349,729                            | 249,739,988                              | (133,609,741)                          | 153.5                          | N/A                       | --                                                           |
| 12/31/2012                     | 369,621,671                            | 247,968,743                              | (121,652,928)                          | 149.1                          | N/A                       | --                                                           |
| 12/31/2013                     | 396,857,874                            | 279,931,726                              | (116,926,148)                          | 141.8                          | N/A                       | --                                                           |
| 12/31/2014                     | 413,418,482                            | 270,139,151                              | (143,279,331)                          | 153.0                          | N/A                       | --                                                           |
| 12/31/2015#                    | 417,151,476                            | 252,615,769                              | (164,535,707)                          | 165.1                          | 1,528,731                 | --                                                           |
| 12/31/2016#@                   | 466,143,339                            | 264,736,702                              | (201,406,637)                          | 176.1                          | 1,540,472                 | --                                                           |

*Results for the 2007-2015 valuations were prepared by previous actuarial firms and shown here for comparison*

# Assumption/method change

@ Plan provision changes

Ms. Deborah Munson  
Interim Executive Director  
City of Pontiac General Employees'  
Retirement System  
2201 Auburn Road Suite B  
Auburn Hills, Michigan 48326

Dear Deborah:

Enclosed is a copy of the report of the December 31, 2016 annual actuarial valuation of the pension liabilities covering the City of Pontiac General Employees' Retirement System.

Sincerely,

A handwritten signature in cursive script that reads "Louise M. Gates".

Louise M. Gates

Enclosure