

**Hampshire County  
Retirement System**

**Independent Auditors' Report and  
Management's Financial Statements**

**December 31, 2018**

**Ron L. Beaulieu & Company**  

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**CERTIFIED PUBLIC ACCOUNTANTS**

HAMPSHIRE COUNTY RETIREMENT SYSTEM

DECEMBER 31, 2018

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# Ron L. Beaulieu & Company

CERTIFIED PUBLIC ACCOUNTANTS

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## INDEPENDENT AUDITORS' REPORT

To the Retirement Board of  
Hampshire County Retirement System  
Northampton, Massachusetts

We have audited the accompanying financial statements of Hampshire County Retirement System as of and for the year ended December 31, 2018, and the related notes to the financial statements, as listed in the table of contents.

### **Management's Responsibility for the Financial Statements**

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

### **Auditors' Responsibility**

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditors' judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

## Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of Hampshire County Retirement System, as of December 31, 2018, and the changes in financial position for the year then ended in accordance with accounting principles generally accepted in the United States of America.

## Other Matters

### *Required Supplementary Information*

Accounting principles generally accepted in the United States of America require that the management's discussion and analysis on pages 3.1 through 3.5 and the post employment benefit schedules on pages 13 through 17 be presented to supplement the financial statements. Such information, although not a part of the financial statements, is required by the Governmental Accounting Standards Board, who considers it to be an essential part of financial reporting for placing the financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the financial statements, and other knowledge we obtained during our audit of the financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

*Ron L. Beaulieu & Co.*

Portland, Maine  
September 06, 2019

# Management's Discussion and Analysis

Year ended December 31, 2018

This section presents Management's Discussion and Analysis (MD&A) of the Hampshire County Retirement System's (HCRS or the "Plan") financial activity and performance as of and for the year ended December 31, 2018. The MD&A is unaudited and is intended to serve as an introduction to the Plan's basic financial statements, as well as to offer readers of the Plan's financial statements a narrative view and analysis of the HCRS' financial activities.

## Overview of the Financial Statements

The basic financial statements consist of the: (1) Statements of Fiduciary Net Position; (2) Statements of Changes in Fiduciary Net Position; (3) Notes to the Financial Statements; and (4) Required Supplementary Information.

The Statements of Fiduciary Net Position report the Plan's assets, liabilities, and net position restricted for pensions at the end of the calendar year calculated using the following formula: Assets - Liabilities = Net position restricted for pensions.

The Statements of Fiduciary Net Position report the financial position of the Plan at a given point in time, in this case, December 31. Over time, the increase or decrease in fiduciary net position serves as a useful indicator of the Plan's financial health.

The Statements of Changes in Fiduciary Net Position report additions to and deductions from the Plan during the calendar year. The formula here is: Additions - Deductions = Net Increase (Decrease) in Plan Fiduciary Net Position. The Statements of Changes in Fiduciary Net Position report activity occurring over a specific period of time, in this case, the year beginning January 1 and ending December 31.

The Notes to the Financial Statements provide additional information that is essential to a full understanding of the data provided in the Plan's financial statements.

The Required Supplementary Information following the Notes to the Financial Statements consists of the schedules of changes in net pension liability and related ratios, investment returns, contributions, and notes to schedule of contributions.

These statements and schedules are prepared in conformity with U.S. generally accepted accounting principles, including the new accounting and financial reporting requirements found in GASB Statement No. 67.

## Financial Highlights

Fiduciary net position was the residual of the Plan's assets in excess of the Plan's liabilities as of a specific date, December 31, 2018, of the Statements of Fiduciary Net Position. The Plan's assets are held in trust to meet future benefit payments.

The fiduciary net position of the Plan as of December 31, 2018, totaled \$ 308.94 million, a decrease of \$9.3 million, or negative 2.92% from December 31, 2017. The decrease in net fiduciary net position was primarily due to a net loss in returns on investments. Net investment earnings was negative \$9.86 million, a significant decrease from \$43.4million earned in the prior year. The overall negative performance of investment earnings was due primarily to significant 4<sup>th</sup> quarter decline across all public equity markets, domestic and international. Employer/Employee contributions increased by \$2.27 million, which offset the increase of \$1.25 million in benefits paid, a net increase of \$1.02 million.

For reporting purposes in accordance with the Government Accounting Standards Board (GASB), the Plan's fiduciary net position as a percentage of the total pension liability was 58.9%.

## Assets and Liabilities – Fiduciary Net Position

Total assets are comprised of cash and cash equivalents; investments at fair value; and receivables, comprised of contributions due from plan members and investments sold but not yet received. Total Assets as of December 31, 2018 was \$308.94 million, a decrease of \$9.3 million, (- 2.92%) from December 31, 2017.

Total liabilities are comprised of payables for benefits payments due, accrued employee payroll and accrued compensated absences. Total liabilities as of December 31, 2018 was \$95,846 an increase of \$8,730 from the total liabilities as of December 31, 2017.

Fiduciary net position was the residual of the Plan's assets in excess of the Plan's liabilities as of the specific date, December 31, 2018 of the Statements of Fiduciary Net Position. As of December 31, 2018, the Plan's fiduciary net position was \$308.94 million. The fiduciary net position as a percentage of actuarial pension liability was 58.9% on December 31, 2018.

### Assets and Liabilities – Fiduciary Net Position 2018

|                               | 2018               | 2017               | Total \$ Change    | Total % Change |
|-------------------------------|--------------------|--------------------|--------------------|----------------|
| <b>Assets</b>                 |                    |                    |                    |                |
| Cash and cash equivalents     | 8,021,407          | 8,213,746          | (192,339)          | -2.34%         |
| Investments                   | 300,249,157        | 309,316,225        | (9,067,068)        | -2.93%         |
| Receivables                   | 763,485            | 791,665            | (28,180)           | -3.56%         |
| <b>Total Assets</b>           | <b>309,034,049</b> | <b>318,321,636</b> | <b>(9,287,587)</b> | <b>-2.92%</b>  |
| <b>Liabilities</b>            |                    |                    |                    |                |
| Payables                      | 596                | 1,273              | (677)              | -53.18%        |
| Accrued payroll               | 8,300              | 7,153              | 1,147              | 16.04%         |
| Accrued compensated absences  | 86,950             | 78,690             | 8,260              | 10.50%         |
| <b>Total Liabilities</b>      | <b>95,846</b>      | <b>87,116</b>      | <b>8,730</b>       | <b>10.02%</b>  |
| <b>Fiduciary Net Position</b> | <b>308,938,203</b> | <b>318,234,520</b> | <b>(9,296,317)</b> | <b>-2.92%</b>  |

### Five Year History – Fiduciary Net Position

|                               | 2018               | 2017               | 2016               | 2015               | 2014               |
|-------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| <b>Assets</b>                 |                    |                    |                    |                    |                    |
| Cash and cash equivalents     | 8,021,407          | 8,213,746          | 2,934,088          | 15,207,180         | 2,141,887          |
| Investments                   | 300,249,157        | 309,316,225        | 271,800,130        | 240,599,412        | 255,811,148        |
| Receivables                   | 763,485            | 791,665            | 688,513            | 1,151,029          | 513,655            |
| <b>Total Assets</b>           | <b>309,034,049</b> | <b>318,321,636</b> | <b>275,422,731</b> | <b>256,957,621</b> | <b>258,466,690</b> |
| <b>Liabilities</b>            |                    |                    |                    |                    |                    |
| Payables                      | 596                | 1,273              | 450                | 12,432             | 1,031              |
| Accrued payroll               | 8,300              | 7,153              | 6,978              | 5,511              | 3,954              |
| Accrued compensated absences  | 86,950             | 78,690             | 81,880             | 79,297             | 75,273             |
| <b>Total Liabilities</b>      | <b>95,846</b>      | <b>87,116</b>      | <b>89,308</b>      | <b>97,240</b>      | <b>80,258</b>      |
| <b>Fiduciary Net Position</b> | <b>308,938,203</b> | <b>318,234,520</b> | <b>275,333,423</b> | <b>256,860,381</b> | <b>258,386,432</b> |

### Revenues - Additions to Plan Fiduciary Net Position

Revenue (Additions to the HCRS' fiduciary net position) includes contributions from active members, employers, non-employer entities, transfers in from other retirement systems and net investment income. For plan year, 2018 revenues totaled \$33.13 million.

Member contributions comprised of regular contributions and makeup/redeposit purchases of prior service, totaled \$8.10 million. There was 295 new members enrolled in 2018. Withdrawals and transfers of active members included 123 members, 1 death and 78 retirements. Member contributions generally increase annually as new members paying a higher percentage of salary replace retiring members contributing at a lower percentage of salary and due to increases in annual salaries of current active members.

Required employer contributions were determined by the biennial actuarial valuation that established a funding schedule with the target date to reach full funding in 2033. Total employer contributions for plan year 2018 was \$22.6 million. Total required employer contributions were distributed to unit employers based on aggregate salary data as of September 30 of prior year.

Non-employer contributions are comprised primarily of Commonwealth's COLA reimbursement for pre-1996 retirees but also includes worker's compensation offset settlements and recovery of 91A overearnings, totaling \$259,558, an increase of \$135,240. Commonwealth's COLA reimbursement decreases annually due to declining population of pre-1996 retirees. Additions from worker's compensation offset settlements and recovery of 91A overearnings are variable from year to year.

Transfers from other systems are comprised of transfers of member annuity savings accounts from service with other Massachusetts retirement systems and 3(8)(c) reimbursements of pension payments for retirees with service liabilities in other Massachusetts retirement systems. Transfers from other systems totaled \$2.17 million, an increase of \$552,004. Transfers from other systems varies annually depending on an increase or a decrease of employees/retirees who have changed public employers.

Net Investment Earnings, comprised of the net change in fair value of investments and interest earned on investments minus investment expenses, was a negative \$9.86 million. Loss of investment earnings was primarily due to significant negative returns in the 4<sup>th</sup> quarter of 2018 across all equity markets both domestic and international.

The asset allocation of investments was well diversified among domestic and global fixed income, domestic and international equities, real estate, private debt and private equities. Although net investment performance for 2018 was negative 2.92%, there was outperformance relative to benchmark market indices and the median peer universe of funds.

As of December 31, 2018, 1985-2018 (34 year) annualized returns were 8.11%. 10 year annualized returns were 8.71%. 5-year returns were 5.53%.

### Revenues - Additions To Plan Fiduciary Net Position 2018

|   | 2018               | 2017              | Total \$ change     | Total % change  |
|---|--------------------|-------------------|---------------------|-----------------|
| <b>Contributions</b>                                |                    |                   |                     |                 |
| Employer contributions                              | 22,597,993         | 21,331,218        | 1,266,775           | 5.94%           |
| Member contributions                                | 8,103,147          | 7,792,063         | 311,084             | 3.99%           |
| Non-employer entities                               | 259,558            | 124,318           | 135,240             | 108.79%         |
| Transfer from other systems                         | 2,170,184          | 1,618,180         | 552,004             | 34.11%          |
| <b>Total Contributions</b>                          | <b>33,130,882</b>  | <b>30,865,779</b> | <b>2,265,103</b>    | <b>7.34%</b>    |
| <b>Investment earnings</b>                          |                    |                   |                     |                 |
| Net increase(decrease) in fair value of investments | (7,646,331)        | 45,207,890        | (52,854,221)        | -116.91%        |
| Interest  | 16,299             | 31,443            | (15,144)            | -48.16%         |
| Gross investment earnings                           | (7,630,032)        | 45,239,333        | (52,869,365)        | -116.87%        |
| Less investment expenses                            | 2,226,111          | 1,881,955         | 344,156             | 18.29%          |
| <b>Net Investment Earnings</b>                      | <b>(9,856,143)</b> | <b>43,357,378</b> | <b>(53,213,521)</b> | <b>-122.73%</b> |
| <b>Total Additions (Revenues)</b>                   | <b>23,274,739</b>  | <b>74,223,157</b> | <b>(50,948,418)</b> | <b>-68.64%</b>  |

### 5 Year History – Contributions - Additions to Plan

|                             | 2018              | 2017              | 2016              | 2015              | 2014              |
|-----------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| <b>Contributions</b>        |                   |                   |                   |                   |                   |
| Employer contributions      | 22,597,993        | 21,331,218        | 19,693,436        | 18,626,735        | 17,436,197        |
| Member contributions        | 8,103,147         | 7,792,063         | 7,446,905         | 7,322,347         | 7,177,431         |
| Non-employer entities       | 259,558           | 124,318           | 331,313           | 135,964           | 227,088           |
| Transfer from other systems | 2,170,184         | 1,618,180         | 1,268,799         | 1,247,378         | 1,067,545         |
| <b>Total Contributions</b>  | <b>33,130,882</b> | <b>30,865,779</b> | <b>28,740,453</b> | <b>27,332,424</b> | <b>25,908,261</b> |

### Investment earnings

|   |                    |                   |                   |                   |                   |
|---|--------------------|-------------------|-------------------|-------------------|-------------------|
| Net increase(decrease) in fair value of investments | (7,646,331)        | 45,207,890        | 20,818,249        | 943,203           | 14,029,972        |
| Interest  | 16,299             | 31,443            | 22,284            | 0                 | 21,476            |
| Gross investment earnings                           | (7,630,032)        | 45,239,333        | 20,840,533        | 22,340            | 14,051,488        |
| Less investment expenses                            | 2,226,111          | 1,881,955         | 1,804,554         | 965,543           | 2,092,209         |
| <b>Net Investment Earnings</b>                      | <b>(9,856,143)</b> | <b>43,357,378</b> | <b>19,035,979</b> | <b>2,070,064</b>  | <b>11,959,239</b> |
| <b>Total Additions (Revenues)</b>                   | <b>23,274,739</b>  | <b>74,223,157</b> | <b>47,776,432</b> | <b>29,402,488</b> | <b>37,867,500</b> |

## Expenses – Deductions to Plan Fiduciary Net Position

Deductions to HCRS' fiduciary net position include benefits paid, refund of contributions to terminated members, transfers to other retirement systems and administrative expenses. Total Deductions for 2018 totaled \$32.57 million compared to \$31.32 million in 2017, an increase of \$1.25 million.

Benefits paid totaled \$28.25 million; an increase of \$1.63 was due to new retirees and cost of living adjustments (3% on first \$13,000). There was a net increase of 26 retirees (78 new retirees/survivors and 52 deceased retirees/survivors).

Overall, 123 members terminated from the system by either withdrawal of contributions or transfer to other systems. Refunds to members terminating employment and withdrawing contributions totaled \$538,578, a decrease of \$911,881 from 2017. Refunds to terminating members include only the members' contributions and minimal interest; Employer contributions are retained while pension liability is reduced.

Transfers to other systems of annuity savings accounts of former members and 3(8)(c) reimbursement of benefit payments to former members retired from other retirement systems totaled \$2.90 million, a decrease from \$2.98 million transferred in 2017. Employer contributions and pension liability for transferred members are retained.

Administrative expenses totaled \$879,770, an increase from \$814,052 in 2017.

### Expenses – Deductions To Plan Fiduciary Net Position - 2018

|                                    | 2018              | 2017              | Total \$ change  | Total % change |
|------------------------------------|-------------------|-------------------|------------------|----------------|
| Benefits Paid                      | 28,249,381        | 26,616,377        | 1,633,004        | 6.14%          |
| Refunds to terminated members      | 538,578           | 911,881           | (373,303)        | -40.94%        |
| Transfers to other systems         | 2,903,327         | 2,979,750         | (76,423)         | -2.56%         |
| Administrative expenses            | 879,770           | 814,052           | 65,718           | 8.07%          |
| <b>Total Deductions (Expenses)</b> | <b>32,571,056</b> | <b>31,322,060</b> | <b>1,248,996</b> | <b>3.99%</b>   |

### 5 Year History Expenses – Deductions To Plan Fiduciary Net Position

|                                    | 2018              | 2017              | 2016              | 2015              | 2014              |
|------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Benefits Paid                      | 28,249,381        | 26,616,377        | 24,973,457        | 23,410,439        | 22,164,495        |
| Refunds to terminated members      | 538,578           | 911,881           | 741,840           | 946,870           | 801,315           |
| Transfers to other systems         | 2,903,327         | 2,979,750         | 2,787,216         | 2,561,166         | 2,382,307         |
| Administrative expenses            | 879,770           | 814,052           | 800,877           | 835,479           | 754,997           |
| <b>Total Deductions (Expenses)</b> | <b>32,571,056</b> | <b>31,322,060</b> | <b>29,303,390</b> | <b>27,753,954</b> | <b>26,103,114</b> |

## Changes in Fiduciary Net Position – Summary

Changes in fiduciary net position as of December 31, 2018 was a net decrease of \$9.3 million, bringing net asset balance to \$308 million. The net decrease was attributable to significant decrease in investment returns plus normal increase in benefits paid for new retirees.



### Changes In Fiduciary Net Position – Summary 2018

|                             | 2018               | 2017              | Total \$ change     | Total % change  |
|-----------------------------|--------------------|-------------------|---------------------|-----------------|
| Total Additions (Revenues)  | 23,274,739         | 74,223,157        | (50,948,418)        | -68.64%         |
| Total Deductions (Expenses) | 32,571,056         | 31,322,060        | 1,248,996           | 3.99%           |
| <b>Net Position Change</b>  | <b>(9,296,317)</b> | <b>42,901,097</b> | <b>(52,197,414)</b> | <b>-121.67%</b> |

### 5 year History - Changes In Fiduciary Net Position

|                             | 2018               | 2017              | 2016              | 2015               | 2014              |
|-----------------------------|--------------------|-------------------|-------------------|--------------------|-------------------|
| Total Additions (Revenues)  | 23,274,739         | 74,223,157        | 47,776,432        | 26,227,903         | 37,867,500        |
| Total Deductions (Expenses) | 32,571,056         | 31,322,060        | 29,303,390        | 27,753,954         | 26,103,114        |
| <b>Net Position Change</b>  | <b>(9,296,317)</b> | <b>42,901,097</b> | <b>18,473,042</b> | <b>(1,526,051)</b> | <b>11,764,386</b> |

## TOTAL FUND BALANCE AT FAIR VALUE

As of December 31, 2018, the Total Fund Balance at Fair Value was \$308.94 million, a net decrease of \$9.3 million.

### Total Fund Balance At Fair Value 2018

|                            | 2018               | 2017               | Total \$ change    | Total % change |
|----------------------------|--------------------|--------------------|--------------------|----------------|
| Beginning Fund Balance     | 318,234,520        | 275,333,423        | 42,901,097         | 15.58%         |
| <b>Ending Fund Balance</b> | <b>308,938,203</b> | <b>318,234,520</b> | <b>(9,296,317)</b> | <b>-2.92%</b>  |

### 5 Year History Total Fund Balance At Fair Value

|                            | 2018               | 2017               | 2016               | 2015               | 2014               |
|----------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Beginning Fund Balance     | 318,234,520        | 275,333,423        | 256,860,381        | 258,386,432        | 246,622,046        |
| <b>Ending Fund Balance</b> | <b>308,938,203</b> | <b>318,234,520</b> | <b>275,333,423</b> | <b>256,860,381</b> | <b>258,386,432</b> |

## OVERALL FINANCIAL POSITION

HCRS maintains a well-diversified portfolio of assets in domestic and global fixed income, domestic and international equities, real estate and alternative investments (private debt and private equity). The Board has as its primary purpose to grow Plan assets at a rate sufficient to meet promised benefits to members while minimizing the risks associated with achieving that growth. The Board maintains a relatively conservative asset allocation with an emphasis on protecting assets in down markets rather than capturing all up markets. The Board attempts to outperform actuarial assumptions to reduce the unfunded liability as soon as practicable. However, at no time is the Plan exposed to unreasonable risk levels.

In accordance with Massachusetts General Laws, Chapter 32, Section 22 (6a), the Plan performs actuarial valuations biennially and adopts a funding schedule to achieve a 100% funding level prior to the year 2040. The Board adopted the funding schedule with a full funding target date of 2033 and with long-term target of investment return rate of 7.45%.

As of December 31, 2018, the funded ratio for the Plan was to 58.9%.

HAMPSHIRE COUNTY RETIREMENT SYSTEM  
STATEMENT OF FIDUCIARY NET POSITION  
DECEMBER 31,

| ASSETS                                     | <u>2018</u>            |
|--|------------------------|
| Cash                                       | \$ 8,021,407           |
| Investments at fair value:                 |                        |
| Commingled international investments       | 25,126,519             |
| Commingled domestic fixed income           | 15,353,449             |
| Pooled domestic equity (NAV)               | 54,517,916             |
| Pooled alternative investments (NAV)       | 34,011,797             |
| Commingled international investments (NAV) | 49,750,279             |
| Commingled real estate (NAV)               | 47,917,632             |
| Commingled global fixed investments (NAV)  | 27,745,694             |
| Commingled domestic fixed income (NAV)     | 45,825,871             |
| Total investments at fair value            | <u>300,249,157</u>     |
| Receivables:                               |                        |
| Members receivable, net                    | 763,485                |
| Total receivables                          | <u>763,485</u>         |
| <br>TOTAL ASSETS                           | <br><u>309,034,049</u> |
| <br>LIABILITIES                            |                        |
| Accounts payable                           | 596                    |
| Accrued payroll                            | 8,300                  |
| Accrued compensated absences               | 86,950                 |
| TOTAL LIABILITIES                          | <u>95,846</u>          |
| <br>NET POSITION                           |                        |
| Restricted for pension benefits            | <u>\$ 308,938,203</u>  |

See accompanying independent auditors' report and management's notes to financial statements.

HAMPSHIRE COUNTY RETIREMENT SYSTEM  
STATEMENT OF CHANGES IN FIDUCIARY NET POSITION  
YEAR ENDED DECEMBER 31,

| ADDITIONS TO NET ASSETS ATTRIBUTED TO                | <u>2018</u>                  |
|--|------------------------------|
| Contributions:                                       |                              |
| Employer   | \$ 22,597,993                |
| Plan member  | 8,103,147                    |
| Nonemployer entities                                 | 259,558                      |
| Transfers from other systems                         | <u>2,170,184</u>             |
| Total contributions                                  | <u>33,130,882</u>            |
| Investment earnings                                  |                              |
| Net increase (decrease) in fair value of investments | (7,646,331)                  |
| Interest   | <u>16,299</u>                |
| Total investment earnings                            | (7,630,032)                  |
| Less investment expenses                             | <u>2,226,111</u>             |
| Net investment earnings                              | <u>(9,856,143)</u>           |
| TOTAL ADDITIONS                                      | <u>23,274,739</u>            |
| DEDUCTIONS TO NET ASSETS ATTRIBUTED TO               |                              |
| Benefits paid  | 28,249,381                   |
| Refunds of contributions                             | 538,578                      |
| Transfers to other systems                           | 2,903,327                    |
| Administrative expenses                              | <u>879,770</u>               |
| TOTAL DEDUCTIONS                                     | <u>32,571,056</u>            |
| NET INCREASE (DECREASE) IN NET POSITION              | (9,296,317)                  |
| NET POSITION - BEGINNING                             | <u>318,234,520</u>           |
| NET POSITION - ENDING                                | <u><u>\$ 308,938,203</u></u> |

See accompanying independent auditors' report and management's notes to financial statements.

HAMPSHIRE COUNTY RETIREMENT SYSTEM  
NOTES TO FINANCIAL STATEMENTS  
DECEMBER 31, 2018

NOTE 1 - DESCRIPTION OF PLAN

The following description of the Hampshire County Retirement System (the Plan), a cost sharing multiemployer plan serving 37 employers, provides only general information. Participants should refer to the Plan agreement for a complete description of the Plan's provisions.

General

The Plan is a defined benefit plan covering all member unit employees deemed eligible by the retirement board, with the exception of the school department employees who serve in a teaching capacity.

Plan Amendments

The Plan did not adopt any significant plan amendments during 2018.

Administration of the Plan

The Plan is administered by a five person Board of Retirement consisting of the Chairperson who shall be appointed by the other four board members, a second member appointed by the Advisory Council, a third and fourth member who shall be elected by the members in or retired from the service of the Plan, and a fifth member, who shall not be a member of the Plan, appointed by the other four board members. The Board of Retirement has the authority to amend or establish policies that are not governed by Massachusetts Law or the Public Employee Retirement Administration Commission.

Contributions

Participation in the plan is required for all full-time employees. There are three classes of membership:

Group 1:

General employees, including clerical, administrative, technical, and all other employees not otherwise classified.

Group 2:

Certain specified hazardous duty positions.

Group 4:

Police officers, firefighters, and other specified hazardous positions.

HAMPSHIRE COUNTY RETIREMENT SYSTEM  
 NOTES TO FINANCIAL STATEMENTS  
 DECEMBER 31, 2018

NOTE 1 - DESCRIPTION OF PLAN (CONTINUED)

Membership of each group as of December 31, 2018:

| <u>Group</u> | Active<br>members | Inactive<br>(retired)<br>members<br>receiving<br>benefits | Inactive<br>(retired)<br>members<br>entitled to<br>benefits<br>but not yet<br>receiving | Total        |
|--------------|-------------------|---|---|--------------|
| Group 1      | 1,634             | 1,090   | 545   | 3,269        |
| Group 2 & 4  | 374               | 218   | 126   | 718          |
|              | <u>2,008</u>      | <u>1,308</u>  | <u>671</u>  | <u>3,987</u> |

Member contributions vary depending on the most recent date of membership:

|                  |  |
|------------------|--|
| Prior to 1975:   | 5% of compensation                                     |
| 1975-1983:       | 7% of compensation                                     |
| 1984-6/30/96:    | 8% of compensation                                     |
| 7/1/96-present:  | 9% of compensation                                     |
| 1979 to present: | an additional 2% of compensation in excess of \$30,000 |

Upon termination, a member may withdraw their contributions plus statutory interest.

Employers were required to contribute \$22,597,993, for the year ended December 31, 2018.

Payment of Benefits

Once a member has met one of the conditions below, they are eligible to receive benefits:

Tier 1 (Membership prior to April 2, 2012):

- 1) Completion of 20 years of service, or
- 2) Reach age 55 if hired prior to 1978, or classified as Group 4, or
- 3) Reach age 55 with 10 years of service, if hired after 1978, and if classified in Group 1 and 2, or
- 4) Disabled or death

Tier 2 (Membership on or after April 2, 2012):

- 1) If classified as Group 1, attain age 60 with 10 years of creditable service, or
- 2) If classified as Group 2, attain age 55 with 10 years creditable service, or
- 3) If classified as Group 4, attain age 55, or
- 4) Disabled or death

HAMPSHIRE COUNTY RETIREMENT SYSTEM  
NOTES TO FINANCIAL STATEMENTS  
DECEMBER 31, 2018

NOTE 1 - DESCRIPTION OF PLAN (CONTINUED)

The amount of benefit is determined by their benefit rate and cannot exceed 80% of the member's highest three year average compensation. The benefit amount may be adjusted for a cost of living adjustment by annual vote of the Retirement Board. Cost of Living adjustment may be granted in an amount determined by the Retirement Board up to a maximum of 3% on the first \$13,000.

NOTE 2 - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Basis of Accounting

The financial statements are prepared using the accrual method of accounting.

Investment Policy

The provisions of Massachusetts General Laws Chapter 32, section 23(2) generally govern the investment practices of the system. The Board establishes the Investment Policy and Asset Allocation of the Plan. The Board retains an investment consultant to advise them on developing and implementing the Policy, and to closely monitor the individual performance of investment managers and the performance of the overall investment strategy.

Investment Valuation and Income Recognition

Investments are reported at fair value. Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date.

Interest income is recorded on the accrual basis. Net appreciation (depreciation) includes the Plan's gains and losses on investments bought, sold, and held.

Payments of Benefits

Benefits are recorded when paid.

NOTE 3 - RISKS AND UNCERTAINTIES

Nature of Operations

The operations of the Plan are subject to the administrative directives, rules and regulations of state regulatory agencies, including, but not limited to Public Employee Retirement Administration Commission (PERAC). Such administrative directives, rules and regulations are subject to change by an act of Legislature and any administrative change mandated by PERAC. Such changes may occur with little notice or inadequate funding to pay for the related costs, including the additional administrative burden, to comply with a change.

HAMPSHIRE COUNTY RETIREMENT SYSTEM  
NOTES TO FINANCIAL STATEMENTS  
DECEMBER 31, 2018

NOTE 3 - RISKS AND UNCERTAINTIES (CONTINUED)

Current Vulnerabilities Due to Certain Concentrations

*Deposits*

Custodial credit risk for deposits is the risk that in an event of a bank failure, deposits may not be recovered. The Plan does not have a deposit policy to manage custodial credit risk.

At December 31, 2018, the Plan held deposits of \$8,250,286 at a local bank. The Federal Deposit Insurance Corporation (FDIC) insures \$250,000 of that balance. The remaining balance was collateralized.

*Investments*

The Plan invests in various investment securities. Investment securities are exposed to various risks such as interest rate, market, and credit risks. Due to the level of risk associated with certain investment securities, it is at least reasonably possible that changes in the values of investment securities will occur in the near term and that such changes could materially affect the amounts reported in the statement of fiduciary net position.

Estimates

The preparation of financial statements in conformity with generally accepted accounting principles requires the plan administrator to make estimates and assumptions that affect certain reported amounts and disclosures. Accordingly, actual results may differ from those estimates.

Significant Estimates

None of the estimates used in preparing the financial statements were significant.

NOTE 4 - INVESTMENTS

Investments are reported at their fair value at year end. Although the Plan believes its valuation methods are appropriate and consistent with other market participants, the use of different methodologies or assumptions to determine the fair value of certain financial instruments could result in a different fair value measurement at year end.

The fair value measurement establishes a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value. The hierarchy has three levels which are described below.

*Level 1 Fair Value Measurements*

The fair value of commingled domestic and international investments is based on quoted prices of the funds held by the Plan at year-end.

HAMPSHIRE COUNTY RETIREMENT SYSTEM  
 NOTES TO FINANCIAL STATEMENTS  
 DECEMBER 31, 2018

NOTE 4 - INVESTMENTS (CONTINUED)

*Level 2 Fair Value Measurements*

Investments in certain preferred stocks are valued on the market approach using the quoted market price of the issuer's unrestricted common stock less an appropriate discount.

*Level 3 Fair Value Measurements*

The fair value of certain investments is not actively traded and significant other observable inputs are not available. In this case, management decides what the best valuation technique to use is.

The investments of the Plan consisted of the following as of:

| Description                                | Fair Value            | December 31, 2018  |  |  |
|--|-----------------------|--|--|--|
|  |                       | Quoted prices<br>in active<br>markets for<br>identical assets<br>(Level 1) | Significant other<br>observable<br>inputs<br>(Level 2) | Significant un-<br>observable<br>inputs<br>(Level 3) |
| Commingled international investments       | \$ 25,126,519         | \$ 25,126,519  | \$ -   | \$ -   |
| Commingled domestic fixed income           | 15,353,449            | 15,353,449   | -  | -  |
| Pooled domestic equity (NAV)               | 54,517,916            | N/A  | N/A  | N/A  |
| Pooled alternative investments (NAV)       | 34,011,797            | N/A  | N/A  | N/A  |
| Commingled international investments (NAV) | 49,750,279            | N/A  | N/A  | N/A  |
| Commingled real estate (NAV)               | 47,917,632            | N/A  | N/A  | N/A  |
| Commingled global fixed investments (NAV)  | 27,745,694            | N/A  | N/A  | N/A  |
| Commingled domestic fixed income (NAV)     | 45,825,871            | N/A  | N/A  | N/A  |
| Total                                      | <u>\$ 300,249,157</u> | <u>\$ 40,479,968</u>   | <u>\$ -</u>  | <u>\$ -</u>  |

The investments valued using the net asset value (NAV) method had no unfunded commitments. They are redeemable at quarterly intervals and a notice of 30-60 days is required.

The following investments represent 5% or more of fiduciary net position:

|                               |            |
|-------------------------------|------------|
| Colchester Local Markets Debt | 19,126,432 |
| MFS International Equity Fund | 25,126,519 |
| PRIM Core Fixed Income        | 33,222,806 |
| PRIM Core Real Estate         | 47,917,632 |
| PRIM Emerging Markets         | 25,984,318 |
| RBC International Fund        | 23,765,961 |
| Rhumblin S&P 500              | 37,292,489 |

The annual money-weighted return for 2018 was -3.02%. This return is net of investment expenses and uses the average investment balance throughout the year.



HAMPSHIRE COUNTY RETIREMENT SYSTEM  
 NOTES TO FINANCIAL STATEMENTS  
 DECEMBER 31, 2018

NOTE 5 - PARTICIPANT CONTRIBUTIONS RECEIVABLE

Participant contributions receivable are stated at the amount the administrator expects to collect from balances outstanding at year-end. Balances that are still outstanding after the administrator has used reasonable collection efforts are written off through a charge to the valuation allowance and a credit to participant contributions receivable. The allowance for uncollectible accounts was estimated to be \$0 at December 31, 2018.

NOTE 6 - ACCRUED COMPENSATED ABSENCES

Summarized below are the accrued vacation and sick leave liabilities at December 31, 2018:

|                              | Balance<br>1/1/18 | Additions        | Deletions        | Balance<br>12/31/2018 | Current<br>Portion |
|------------------------------|-------------------|------------------|------------------|-----------------------|--------------------|
| Accrued compensated absences | \$ 78,690         | \$ 33,691        | \$ 25,431        | \$ 86,950             | \$ -               |
| Totals                       | <u>\$ 78,690</u>  | <u>\$ 33,691</u> | <u>\$ 25,431</u> | <u>\$ 86,950</u>      | <u>\$ -</u>        |

NOTE 7 - NET PENSION LIABILITY

The net pension liability is the actuarial total liability less the fiduciary net position. The components of the net pension liability are as follows:

|  |                       |
|--|-----------------------|
|  | <u>2018</u>           |
| Total pension liability                                      | \$ 524,593,396        |
| Plan fiduciary net position                                  | <u>308,938,203</u>    |
| Net pension liability (asset)                                | <u>\$ 215,655,193</u> |
| <br>Fiduciary net position as a % of total pension liability | <br>58.9%             |

Net Pension Liability (Asset) Sensitivity:

- |                            |               |
|----------------------------|---------------|
| 1) Discount rate 1% higher | \$164,896,357 |
| 2) Discount rate 1% lower  | \$275,455,356 |

The following are significant assumptions used to measure the total pension liability and projected cash flows:

- 1) Discount rate is estimated to be 7.45% per year based on prior results.
- 2) Inflation is estimated to be 3%.
- 3) Asset allocation is estimated to be 28% fixed income; 55% equities; 12% real estate; and 5% other.
- 4) Increase in salaries will be 4.25% per year for Group 1 and 4.75% for Group 4.
- 5) Mortality was based upon the RP2000 Table projected with scale BB with base year of 2009. Mortality for disabled lives used a base year of 2012.
- 6) Cost of Living Allowance base is fixed at \$13,000.
- 7) Mortality assumptions reflect the recent experience study published in 2014.

HAMPSHIRE COUNTY RETIREMENT SYSTEM  
NOTES TO FINANCIAL STATEMENTS  
DECEMBER 31, 2018

**NOTE 8 - OPERATING LEASE**

The Plan leases office space. Future minimum annual rental payments are as follows:

|      |          |
|------|----------|
| 2019 | \$44,796 |
| 2020 | \$45,265 |
| 2021 | \$45,935 |
| 2022 | \$46,866 |
| 2023 | \$47,665 |

Operating lease rent expense totaled \$44,034 for the year ended December 31, 2018.

**NOTE 9 - TAX STATUS**

The Internal Revenue Service has determined and informed the Plan by a letter, that the Plan and related trust are designed in accordance with applicable section of the Internal Revenue Code (IRC). The Plan Administrator and the Plan's Board believe that the Plan is designed and is currently being operated in compliance with the applicable requirements of the IRC.

The plan is not subject to examinations by compliance authorities.

**NOTE 10 - MANAGEMENT REVIEW**

Management has reviewed subsequent events as of September 06, 2019, the date the financial statements were available to be issued. At that time, there were no material subsequent events.

**HAMPSHIRE COUNTY RETIREMENT SYSTEM  
REQUIRED SUPPLEMENTARY INFORMATION  
SCHEDULE OF CHANGES IN NET PENSION LIABILITY - LAST TEN FISCAL YEARS  
DECEMBER 31, 2018**

|  | 2018                  | 2017                  | 2016                  | 2015                  | 2014                  |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| <b>Total pension liability</b>                     |                       |                       |                       |                       |                       |
| Service cost                                       | \$ 12,771,414         | \$ 11,029,438         | \$ 10,605,229         | \$ 10,269,070         | \$ 9,850,427          |
| Interest   | 37,396,643            | 36,888,260            | 34,627,268            | 34,842,587            | 33,371,689            |
| Changes of benefit terms                           | -                     | -                     | -                     | -                     | -                     |
| Differences between expected and actual experience | -                     | (434,874)             | (4,348,736)           | -                     | -                     |
| Changes of assumptions                             | -                     | (9,996,849)           | 16,610,092            | -                     | -                     |
| Benefit payments, including refunds                | (29,543,223)          | (28,662,890)          | (26,880,118)          | (25,512,793)          | (24,412,587)          |
| <b>Net change in total pension liability</b>       | <b>\$ 20,624,834</b>  | <b>\$ 8,823,085</b>   | <b>\$ 30,613,735</b>  | <b>\$ 19,598,864</b>  | <b>\$ 18,809,529</b>  |
| <b>Total pension liability - beginning</b>         | <b>503,968,562</b>    | <b>495,145,477</b>    | <b>464,531,742</b>    | <b>444,932,878</b>    | <b>426,123,349</b>    |
| <b>Total pension liability - ending</b>            | <b>\$ 524,593,396</b> | <b>\$ 503,968,562</b> | <b>\$ 495,145,477</b> | <b>\$ 464,531,742</b> | <b>\$ 444,932,878</b> |
| <b>Fiduciary net position</b>                      |                       |                       |                       |                       |                       |
| Contributions - employer                           | \$ 22,597,993         | \$ 21,331,218         | \$ 19,693,436         | \$ 18,626,735         | \$ 17,436,197         |
| Contributions - member                             | 8,103,147             | 7,792,063             | 7,446,905             | 7,322,347             | 7,177,431             |
| Contributions - nonemployer                        | 259,558               | 124,318               | 331,313               | 135,964               | 227,088               |
| Transfers from other systems                       | 2,170,184             | 1,618,180             | 1,268,799             | 1,247,378             | 1,067,545             |
| Net investment earnings                            | (9,856,143)           | 43,357,379            | 19,035,979            | (1,104,522)           | 11,959,239            |
| Benefits paid                                      | (28,249,381)          | (26,616,377)          | (24,973,457)          | (23,410,439)          | (22,164,495)          |
| Refunds of contributions                           | (538,578)             | (911,881)             | (741,840)             | (946,870)             | (801,315)             |
| Transfers to other systems                         | (2,903,327)           | (2,979,750)           | (2,787,216)           | (2,561,166)           | (2,382,307)           |
| Administrative expenses                            | (879,770)             | (814,052)             | (800,877)             | (835,479)             | (754,997)             |
| <b>Net change in fiduciary net position</b>        | <b>\$ (9,296,317)</b> | <b>\$ 42,901,098</b>  | <b>\$ 18,473,042</b>  | <b>\$ (1,526,052)</b> | <b>\$ 11,764,386</b>  |
| <b>Fiduciary net position - beginning</b>          | <b>318,234,520</b>    | <b>275,333,422</b>    | <b>256,860,381</b>    | <b>258,386,433</b>    | <b>246,622,046</b>    |
| <b>Fiduciary net position - ending</b>             | <b>\$ 308,938,203</b> | <b>\$ 318,234,520</b> | <b>\$ 275,333,423</b> | <b>\$ 256,860,381</b> | <b>\$ 258,386,432</b> |
| <b>Net pension liability (asset) - ending</b>      | <b>\$ 215,655,193</b> | <b>\$ 185,734,042</b> | <b>\$ 219,812,054</b> | <b>\$ 207,671,361</b> | <b>\$ 186,546,446</b> |

|  | 2013     | 2012     | 2011     | 2010     | 2009     |
|--|----------|----------|----------|----------|----------|
| <b>Total pension liability</b>                     |          |          |          |          |          |
| Service cost                                       | *        | *        | *        | *        | *        |
| Interest   | *        | *        | *        | *        | *        |
| Changes of benefit terms                           | *        | *        | *        | *        | *        |
| Differences between expected and actual experience | *        | *        | *        | *        | *        |
| Changes of assumptions                             | *        | *        | *        | *        | *        |
| Benefit payments, including refunds                | *        | *        | *        | *        | *        |
| <b>Net change in total pension liability</b>       | <b>*</b> | <b>*</b> | <b>*</b> | <b>*</b> | <b>*</b> |
| <b>Total pension liability - beginning</b>         | <b>*</b> | <b>*</b> | <b>*</b> | <b>*</b> | <b>*</b> |
| <b>Total pension liability - ending</b>            | <b>*</b> | <b>*</b> | <b>*</b> | <b>*</b> | <b>*</b> |
| <b>Fiduciary net position</b>                      |          |          |          |          |          |
| Contributions - employer                           | *        | *        | *        | *        | *        |
| Contributions - member                             | *        | *        | *        | *        | *        |
| Contributions - nonemployer                        | *        | *        | *        | *        | *        |
| Transfers from other systems                       | *        | *        | *        | *        | *        |
| Net investment earnings                            | *        | *        | *        | *        | *        |
| Benefits paid                                      | *        | *        | *        | *        | *        |
| Refunds of contributions                           | *        | *        | *        | *        | *        |
| Transfers to other systems                         | *        | *        | *        | *        | *        |
| Administrative expenses                            | *        | *        | *        | *        | *        |
| <b>Net change in fiduciary net position</b>        | <b>*</b> | <b>*</b> | <b>*</b> | <b>*</b> | <b>*</b> |
| <b>Fiduciary net position - beginning</b>          | <b>*</b> | <b>*</b> | <b>*</b> | <b>*</b> | <b>*</b> |
| <b>Fiduciary net position - ending</b>             | <b>*</b> | <b>*</b> | <b>*</b> | <b>*</b> | <b>*</b> |
| <b>Net pension liability (asset) - ending</b>      | <b>*</b> | <b>*</b> | <b>*</b> | <b>*</b> | <b>*</b> |

\* – Information not available

See accompanying independent auditors' report and management's notes to required supplementary information.

**HAMPSHIRE COUNTY RETIREMENT SYSTEM  
REQUIRED SUPPLEMENTARY INFORMATION  
SCHEDULE OF NET PENSION LIABILITY - LAST TEN FISCAL YEARS  
DECEMBER 31, 2018**

|   | <b>2018</b>           | <b>2017</b>           | <b>2016</b>           | <b>2015</b>           | <b>2014</b>           |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Total pension liability   | \$ 524,593,396        | \$ 503,968,562        | \$ 495,145,477        | \$ 464,531,742        | \$ 444,932,878        |
| Fiduciary net position  | 308,938,203           | 318,234,520           | 275,333,423           | 256,860,381           | 258,386,432           |
| Net pension liability (asset)   | <u>\$ 215,655,193</u> | <u>\$ 185,734,042</u> | <u>\$ 219,812,054</u> | <u>\$ 207,671,361</u> | <u>\$ 186,546,446</u> |
| <br>Fiduciary net position as a percentage of the total pension liability | <br>58.9%             | <br>63.1%             | <br>55.6%             | <br>55.3%             | <br>58.1%             |
| <br>Covered payroll   | <br>\$ 84,192,999     | <br>\$ 76,767,518     | <br>\$ 78,914,925     | <br>\$ 80,914,245     | <br>\$ 77,139,934     |
| <br>Net pension liability (asset) as a percentage of covered payroll      | <br>256.1%            | <br>241.9%            | <br>278.5%            | <br>256.7%            | <br>241.8%            |

|   | <b>2013</b> | <b>2012</b> | <b>2011</b> | <b>2010</b> | <b>2009</b> |
|---|-------------|-------------|-------------|-------------|-------------|
| Total pension liability   | *           | *           | *           | *           | *           |
| Fiduciary net position  | *           | *           | *           | *           | *           |
| Net pension liability (asset)   | <u>*</u>    | <u>*</u>    | <u>*</u>    | <u>*</u>    | <u>*</u>    |
| <br>Fiduciary net position as a percentage of the total pension liability | <br>*       | <br>*       | <br>*       | <br>*       | <br>*       |
| <br>Covered payroll   | <br>*       | <br>*       | <br>*       | <br>*       | <br>*       |
| <br>Net pension liability (asset) as a percentage of covered payroll      | <br>*       | <br>*       | <br>*       | <br>*       | <br>*       |

\* – Information not available

See accompanying independent auditors' report and management's notes to required supplementary information.

**HAMPSHIRE COUNTY RETIREMENT SYSTEM  
REQUIRED SUPPLEMENTARY INFORMATION  
SCHEDULE OF CONTRIBUTIONS - LAST TEN FISCAL YEARS  
DECEMBER 31, 2018**

|  | <b>2018</b>       | <b>2017</b>       | <b>2016</b>       | <b>2015</b>       | <b>2014</b>       |
|--|-------------------|-------------------|-------------------|-------------------|-------------------|
| Actuarially determined contribution                                  | \$ 22,597,993     | \$ 21,331,218     | \$ 19,693,436     | \$ 18,620,753     | \$ 17,349,877     |
| Contributions in relation to the actuarially determined contribution | <u>22,597,993</u> | <u>21,331,218</u> | <u>19,693,436</u> | <u>18,620,753</u> | <u>17,349,877</u> |
| Contribution deficiency (excess)                                     | <u>\$ -</u>       | <u>\$ -</u>       | <u>\$ -</u>       | <u>\$ -</u>       | <u>\$ -</u>       |
| <br>Covered payroll  | <br>\$ 84,192,999 | <br>\$ 76,767,518 | <br>\$ 78,914,925 | <br>\$ 80,914,245 | <br>\$ 79,029,000 |
| <br>Contributions as a percentage of covered payroll                 | <br>26.8%         | <br>27.8%         | <br>25.0%         | <br>23.0%         | <br>22.0%         |

|  | <b>2013</b> | <b>2012</b> | <b>2011</b> | <b>2010</b> | <b>2009</b> |
|--|-------------|-------------|-------------|-------------|-------------|
| Actuarially determined contribution                                  | *           | *           | *           | *           | *           |
| Contributions in relation to the actuarially determined contribution | *           | *           | *           | *           | *           |
| Contribution deficiency (excess)                                     | <u>*</u>    | <u>*</u>    | <u>*</u>    | <u>*</u>    | <u>*</u>    |
| <br>Covered payroll  | <br>*       | <br>*       | <br>*       | <br>*       | <br>*       |
| <br>Contributions as a percentage of covered payroll                 | <br>*       | <br>*       | <br>*       | <br>*       | <br>*       |

\* – Information not available

See accompanying independent auditors' report and management's notes to required supplementary information.

**HAMPSHIRE COUNTY RETIREMENT SYSTEM**  
**REQUIRED SUPPLEMENTARY INFORMATION**  
**SCHEDULE OF INVESTMENT RETURNS - LAST TEN FISCAL YEARS**  
**DECEMBER 31, 2018**

|   | <b>2018</b> | <b>2017</b> | <b>2016</b> | <b>2015</b> | <b>2014</b> |
|---|-------------|-------------|-------------|-------------|-------------|
| Annual money-weighted rate of return,<br>net of investment expenses | -3.02%      | 15.77%      | 7.43%       | -0.68%      | 4.84%       |
|   |             |             |             |             |             |
|   | <b>2013</b> | <b>2012</b> | <b>2011</b> | <b>2010</b> | <b>2009</b> |
| Annual money-weighted rate of return,<br>net of investment expenses | *           | *           | *           | *           | *           |

\* – Information not available

See accompanying independent auditors' report and management's notes to required supplementary information.

HAMPSHIRE COUNTY RETIREMENT SYSTEM  
NOTES TO REQUIRED SUPPLEMENTARY INFORMATION  
DECEMBER 31, 2018

**NOTE 1 – METHODS AND ASSUMPTIONS USED IN CALCULATIONS OF ACTUARIALLY DETERMINED CONTRIBUTIONS**

The actuarially determined contribution rates in the schedule of contributions were calculated as of December 31, 2018. The following actuarial methods and assumptions were used to determine contribution rates reported in that schedule:

|                                |  |
|--------------------------------|--|
| Actuarial cost method:         | Entry Age Normal   |
| Amortization method:           | Increasing dollar amount at 4.00%  |
| Remaining amortization period: | 15 years   |
| Asset valuation method:        | Market value adjusted by accounts payable and receivables adjusted to phase in over 5 years investment gains or losses above or below the expected rate of investment return. The actuarial value of assets must be no less than 90% of the adjusted market value nor more than 110% of the adjusted market value. |
| Inflation:                     | 3.00%  |
| Salary increases:              | 4.25% (Group 1) and 4.75% (Group 2)  |
| Investment rate of return:     | 7.45%  |