OPERS

**Ohio Public Employees Retirement System**

November 1, 2016

Ms. Bethany Rhodes, Director
Ohio Retirement Study Council
30 East Broad Street, 2nd Floor
Columbus, OH 43215

Dear ~~Ms. Rhodes~~ Bethany:

Enclosed is a copy of the **Five Year Experience Study** for the Ohio Public Employees Retirement System (OPERS). This report analyzes OPERS' actual experience for the period January 1, 2011 through December 31, 2015, as compared to the assumptions used in the most recent annual actuarial valuation. The study was conducted by OPERS' actuarial consultant (Gabriel, Roeder, Smith and Company, hereafter referred to as GRS) in accordance with ORC 145.22 for the purpose of updating assumptions used to value the system's actuarial liabilities. The OPERS Board reviewed the results of the study and adopted updated assumptions (as summarized below) at its October 19, 2016 meeting.

As a starting point for comparison purposes, OPERS' funded ratio for its actuarial accrued pension liability as of December 31, 2015 (the date of the most recent actuarial valuation prior to the experience study) was **85.0%**. For the unfunded portion of the actuarial accrued pension liability, the projected amortization period was **19 years**, which is within the statutorily required amortization period. The key economic assumptions used by OPERS in the aforementioned actuarial valuation were an expected long-term average investment return of 8.00% and an expected long-term average wage inflation rate of 3.75%.

As in previous years, the experience study results are divided into two sections – 1) demographic assumptions and 2) economic assumptions. Key outcomes from each portion of the study are summarized below.

## Demographic assumptions

The demographic assumptions studied include expected rates of withdrawal, disability, retirement and mortality. Development of the assumptions related to demographic risk are primarily the responsibility of GRS, taking into consideration any factors or trends known by the Board or OPERS staff.

One key trend noted in the demographic portion of the study is that life expectancy continues to improve, especially for males. To reflect the expectation of increased longevity, GRS has recommended a change to a generational mortality assumption which incorporates expected mortality improvement by means of a two-dimensional mortality table.

Another significant change is a reduction in disability rates driven by the recent changes in the disability program that encourage disabled participants to seek rehabilitation and

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return to work. We are pleased that the OPERS experience study demonstrates the effectiveness of the disability changes.

As shown in the attached report, there are other demographic assumption changes recommended by GRS and adopted by the OPERS Board. Adopted demographic changes are summarized in Appendix 1.

## Economic assumptions

The economic portion of the experience study analyzes assumptions such as investment return, wage inflation and price inflation. Following the previous experience study, the Board's assumptions for these variables were as follows:

- Expected long-term average investment return = 8.00% (net of administrative and investment expenses)
- Expected long-term average wage inflation = 3.75%
- Expected long-term average price inflation = 3.00%

Rates of pay increases in excess of wage inflation (e.g., pay increases due to merit and seniority) were also analyzed during the economic portion of the experience study.

Based on recent investment and economic experience and consensus intermediate term forecasts that suggest a continuation of recent trends, GRS recommended, and the Board approved, reductions to all three key economic rates. These three rates typically move in concert to preserve internal consistency among them. A summary of OPERS' historical investment returns is summarized in Appendix 2.

GRS and the Board evaluated different alternatives for the investment return, wage growth and price growth assumptions. After considering historical experience and examining forward-looking forecasts from multiple independent sources as provided by GRS, the Board adopted the following set of economic assumptions to be used in annual actuarial valuations for the next five years:

- Expected long-term average investment return = 7.50% (excluding administrative and investment expenses)
- Expected long-term average wage inflation = 3.25%
- Expected long-term average price inflation = 2.50%

## Pension and Health Care Contribution Rate Allocation

In conjunction with the experience study, the Board reviewed the allocation of the contribution rates to pension and health care. The current employer contribution rate is allocated 12% to pension funding and 2% to health care funding. The current schedule anticipates a shift of 1% from pension to health care in 2017 and again in 2018.

**Current Allocation:**

| Year | Pension | Health Care | Total |
|---|---|---|---|
| 2016 | 12% | 2% | 14% |
| 2017 | 11% | 3% | 14% |
| 2018 | 10% | 4% | 14% |
| Thereafter | 10% | 4% | 14% |

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The Board approved a new allocation schedule as follows:

**New Allocation:**

| Year | Pension | Health Care | Total |
|---|---|---|---|
| 2017 | 13% | 1% | 14% |
| 2018 | 14% | 0% | 14% |
| Thereafter | 14% | 0% | 14% |

While the Board has established a new allocation schedule for 2017, 2018, and beyond, it is important to note that the Board reviews it annually and may adjust the schedule for the current year based on actual investment results. Current projections indicate the changes to the allocation will reduce the health care fund solvency, but will still allow for sufficient funding for health care at this time.

**Summary and cost impact**

In total, the assumption changes and contribution rate allocation schedule adopted by the OPERS Board increase its unfunded actuarial accrued pension liability and projected amortization period. If OPERS had used the newly-approved assumptions for the 2015 actuarial valuation, the funded ratio would have decreased from 85.0% to 80.3% and the projected number of years required to amortize the unfunded liability would have increased from 19 years to 20 years. As noted above, the OPERS Board adopted the revised actuarial assumptions on October 19, 2016. A copy of the complete experience study is enclosed.

In summary, OPERS remains proud of its fiscally responsible approach to funding pension liabilities. Recognizing the likelihood of lower investment returns than historical investment returns and allocating additional contributions to the pension plan helps ensure adequate funding of the pension liability and maintains confidence in the participants' retirement security.

If you have any questions or need any additional information, please let me know.

Sincerely,

Karen Carraher

Karen Carraher
Executive Director

Enclosure

cc: Senator Bill Beagle, Chair—ORSC
Representative Kirk Schuring, Vice Chair—ORSC
Senator Bill Coley, Chair—Senate Government Oversight & Reform
Representative Anne Gonzales, Chair—House Health & Aging

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## Appendix 1

### Impact of updated demographic assumptions on expected annual number of future decrements

For males

| Division | State | Local | Public Safety | Law Enforcement |
|---|---|---|---|---|
| Normal (unreduced) retirements | No change | No change | No change | No change |
| Early (reduced) retirements | No change | No change | No change | (n/a) |
| Withdrawals *(before 5 years of service)* | Increase | Increase | Increase | No change |
| Withdrawals *(after 5 years of service)* | Increase | Increase | No change | No change |
| Disability retirements | Decrease | Decrease | Decrease | Decrease |
| Post-retirement mortality *(non-disabled)* | Increase | Increase | Increase | Increase |
| Post-retirement mortality (disabled) | Increase | Increase | Increase | Increase |

For females

| Division | State | Local | Public Safety | Law Enforcement |
|---|---|---|---|---|
| Normal (unreduced) retirements | No change | No change | No change | No change |
| Early (reduced) retirements | No change | No change | No change | (n/a) |
| Withdrawals *(before 5 years of service)* | Increase | Increase | Increase | Increase |
| Withdrawals *(after 5 years of service)* | Increase | Increase | No change | No change |
| Disability retirements | Decrease | Decrease | Decrease | Decrease |
| Post-retirement mortality *(non-disabled)* | Increase | Increase | Increase | Increase |
| Post-retirement mortality (disabled) | Decrease | Decrease | Decrease | Decrease |

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## Appendix 2

### Historical investment returns for OPERS defined benefit pension fund

**Annualized returns (%)**

| Year | 1-year | 3-year | 10-year | 20-year | 30-year |
|---|---|---|---|---|---|
| 1996 | 7.86 | 9.11 | 9.27 | 9.75 | |
| 1997 | 13.35 | 13.77 | 10.50 | 10.49 | |
| 1998 | 14.44 | 11.85 | 11.02 | 11.12 | |
| 1999 | 12.11 | 13.30 | 10.42 | 11.60 | |
| 2000 | -0.71 | 8.40 | 9.66 | 11.04 | |
| 2001 | -4.60 | 2.02 | 7.57 | 10.74 | 8.31 |
| 2002 | -10.74 | -5.44 | 5.77 | 8.75 | 7.30 |
| 2003 | 25.39 | 2.21 | 7.19 | 9.48 | 8.87 |
| 2004 | 12.50 | 7.98 | 8.46 | 9.45 | 9.76 |
| 2005 | 9.25 | 15.50 | 7.41 | 8.69 | 9.37 |
| 2006 | 15.05 | 12.24 | 8.11 | 8.69 | 9.20 |
| 2007 | 8.89 | 11.03 | 7.67 | 9.08 | 9.54 |
| 2008 | -27.15 | -3.00 | 2.92 | 6.89 | 8.31 |
| 2009 | 19.09 | -1.88 | 3.54 | 6.92 | 8.84 |
| 2010 | 13.98 | -0.37 | 4.98 | 7.30 | 8.98 |
| 2011 | 0.36 | 10.85 | 5.51 | 6.54 | 8.97 |
| 2012 | 14.54 | 9.42 | 8.18 | 6.97 | 8.56 |
| 2013 | 14.38 | 9.55 | 7.19 | 7.19 | 8.71 |
| 2014 | 6.96 | 11.90 | 6.65 | 7.55 | 8.51 |
| 2015 | 0.33 | 7.07 | 5.74 | 6.57 | 7.70 |

Notes:

- The returns shown for 2004 and prior represent a composite return for OPERS' defined benefit pension and health care funds. Health care assets were segregated into a separate portfolio beginning in 2005.
- The multi-year annualized returns are calculated using geometric averages.