



Deloitte Consulting LLP
50 South 6th St Suite 2800
Minneapolis, MN 55402
USA

Tel: +1 612 692 7036
www.deloitte.com

April 14, 2021

Mr. Howard Merkwitz
Commonwealth of Massachusetts
1 Ashburton Place
9th Floor
Boston, MA 02108

**Subject: GASB 75 Reporting and Disclosure - Actuarial Information for Fiscal Year
Ending June 30, 2020 Reporting Date**

Dear Howard:

This letter and the associated exhibits contain certain information required by the Commonwealth of Massachusetts's Postemployment Benefits Other than Pensions ("OPEB Plan" or "the Plan") in connection with the Governmental Accounting Standards Board ("GASB") Statement No. 75, "Accounting and Financial Reporting for Postemployment Benefit Plans Other Than Pensions." The calculation of the liability associated with the benefits referenced in this letter was performed for the purpose of satisfying the requirements of GASB No. 75.

The information provided herein was determined using a Measurement Date of June 30, 2020 to be disclosed as of the June 30, 2020 Reporting Date.

The Total OPEB Liability, Net OPEB Liability (Total OPEB Liability minus Fiduciary Net Position), OPEB expense, and certain sensitivity information shown in this letter are based on the actuarial valuations performed as of January 1, 2020.

This letter and accompanying exhibits are based upon information furnished to us by the Commonwealth of Massachusetts, which includes benefit provisions, membership information, and financial data, and historical information provided by the Commonwealth's prior actuary in their financial disclosure reports. We have analyzed the data and other information provided for reasonableness, but we have not independently audited the data or other information provided. We have no reason to believe the data or other information provided is not complete and accurate and know of no further information that is essential to the preparation of the actuarial valuation.

This letter complements the GASB 74 report as of June 30, 2020, provided to the Commonwealth and should be considered together as a complete report. Please see the GASB 74 report as of June 30, 2020, for additional discussion of the results, including the nature of actuarial calculations and more information related to participant data, economic and demographic assumptions, and benefit provisions.

Actuarial Valuation Opinion

In our opinion, all costs, liabilities, rates of interest, and other factors underlying these actuarial computations have been determined on the basis of actuarial assumptions and methods that are each reasonable (or consistent with authoritative guidance) for the purposes described herein taking into account the experience of the Plan and future expectations.

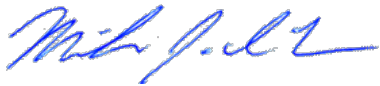
Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or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

The undersigned with actuarial credentials meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

This report was prepared solely for the benefit and internal use of the plan sponsor. This report is not intended for the benefit of any other party and may not be relied upon by any third party for any purpose, and Deloitte Consulting accepts no responsibility or liability with respect to any party other than the plan sponsor.

To the best of our knowledge, no employee of the Deloitte U.S. Firms is an officer or director of the employer. In addition, we are not aware of any relationship between the Deloitte U.S. Firms and the employer that may impair or appear to impair the objectivity of the work detailed in this report.

Deloitte Consulting LLP



Michael de Leon, EA, ASA, FCA, MAAA
Managing Director



Phillip Souzek, ASA, MAAA
Senior Manager

Schedule of Changes in Net OPEB Liability

(All dollar amounts are in thousands)

| | Discount Rate | Total OPEB Liability (a) | Plan Fiduciary Net Position (b) | Net OPEB Liability (a)-(b) |
|---|---------------|--------------------------|---------------------------------|----------------------------|
| Measurement Date of June 30, 2019* | 3.63% | \$ 19,662,106 | \$ 1,368,548 | \$ 18,293,558 |
| Service Cost | | 785,689 | | 785,689 |
| Interest | | 732,808 | | 732,808 |
| Changes In Benefit Terms | | - | | - |
| Changes In Assumptions - Discount Rate | | 4,272,139 | | 4,272,139 |
| Changes In Assumptions - Others | | (2,222,000) | | (2,222,000) |
| Differences Between Expected And Actual Experience | | (600,057) | | (600,057) |
| Benefit Payments** | | (525,174) | (525,174) | - |
| Contributions - Employer | \$ 547,611 | | 547,611 | (547,611) |
| Contributions - Employee | | | - | - |
| Contributions - Retiree | | - | - | - |
| Other Additions | | | 122 | (122) |
| Administrative Expenses | | | (175) | 175 |
| Net Investment Income | | | | |
| Expected Investment Earnings | \$ 100,017 | | | |
| Differences Between Projected And Actual Earnings | (76,637) | | | |
| Total | | | \$ 23,380 | \$ (23,380) |
| Net Change | | \$ 2,443,405 | \$ 45,764 | \$ 2,397,641 |
| Measurement Date of June 30, 2020 | 2.28% | \$ 22,105,511 | \$ 1,414,312 | \$ 20,691,199 |
| Measurement Date | | | June 30, 2020 | June 30, 2019* |
| Plan Fiduciary Net Position As A Percentage Of Total OPEB Liability | | | 6.4% | 7.0% |
| Covered Employee Payroll | | | \$6,608,652 | \$ 6,354,473 |
| Net OPEB Liability As A Percentage Of Covered Employee Payroll | | | 313.1% | 287.9% |
| Sensitivity of Liability to Changes in Discount Rate | | | \$ Change | % Change |
| A One Percentage point change in discount rate would have the following effect on Total OPEB Liability as of June 30, 2020: | | | | |
| One Percent Increase (3.28%) | | | \$ (3,297,842) | -15% |
| One Percent Decrease (1.28%) | | | \$ 4,173,841 | 19% |
| Net OPEB Liability at a One Percentage point change in discount rate as of June 30, 2020 is as follows: | | | | Net OPEB Liability |
| One Percent Increase (3.28%) | | | | \$ 17,393,357 |
| One Percent Decrease (1.28%) | | | | \$ 24,865,040 |
| Sensitivity of Liability to Changes in Trend Rate | | | \$ Change | % Change |
| A One Percentage point change in trend rate would have the following effect on Total OPEB Liability as of June 30, 2020: | | | | |
| One Percent Increase (7.7% / 5.9% grading to 5.0%) | | | \$ 5,161,768 | 23% |
| One Percent Decrease (5.7% / 3.9% grading to 3.0%) | | | \$ (3,885,154) | -18% |
| Net OPEB Liability at a One Percentage point change in trend rate as of June 30, 2020 is as follows: | | | | Net OPEB Liability |
| One Percent Increase (7.7% / 5.9% grading to 5.0%) | | | | \$ 25,852,967 |
| One Percent Decrease (5.7% / 3.9% grading to 3.0%) | | | | \$ 16,806,045 |
| Key Assumptions | | | June 30, 2020 | June 30, 2019* |
| Discount Rate | | | 2.28% | 3.63% |
| Investment Rate of Return | | | 7.15% | 7.25% |
| Inflation | | | 2.50% | 2.50% |
| Initial Medical Trend Rate | | | 6.7% / 4.9% | 4.5% - 7.5% |
| Ultimate Medical Trend Rate | | | 4.0% | 4.5% |
| Year Ultimate Trend Rate Reached | | | 2075 | 2026 |

*Measurement Date June 30, 2019 information was prepared by the prior plan actuary.

**Benefit Payments reflect actual claims, including the effect of implicit subsidy, net of retiree contributions.

**Development of OPEB Expense for Fiscal Year Ending June 30, 2021
(Measurement Year June 30, 2020)**

(All dollar amounts are in thousands)

| Components of OPEB Expense | Measurement Year Ended 06/30/2020 | |
|---|--|------------------|
| Service Cost | \$ | 785,689 |
| Interest | | 732,808 |
| Expected Investment Earnings | | (100,017) |
| Contributions - Employee | | - |
| Administrative Expenses | | 175 |
| Other | | (122) |
| Changes In Benefit Terms | | - |
| Recognition of Deferred Outflows and (Inflows) | | |
| Changes in assumptions | | (390,888) |
| Differences between expected and actual experience | | 49,866 |
| Differences between expected and actual investment earnings | | 8,397 |
| OPEB Expense | \$ | 1,085,908 |

| Assumptions Used to Determine OPEB Expense | Measurement Year Ended 06/30/2020 |
|---|--|
| Assumptions as of Measurement Date* | 6/30/2019 |
| Discount Rate | 3.63% |
| Investment Rate of Return | 7.25% |

*Measurement Date June 30, 2019 information was prepared by the prior plan actuary.

Schedule of Deferred Outflows and Deferred Inflows of Resources*

(All dollar amounts are in thousands)

| Measurement Date Established | Initial Amount | Deferred Outflows of Resources as of 06/30/2020 | Deferred (Inflows) of Resources as of 06/30/2020** | Initial Years | Remaining Years | Outflows/(Inflows) Recognized in Measurement Year Ended 06/30/2020 |
|--|----------------|---|--|---------------|-----------------|--|
| Changes In Assumptions | | | | | | |
| 06/30/2017 | \$ (2,393,745) | - | (740,036) | 5.79 | 1.79 | \$ (413,427) |
| 06/30/2018 | 21,504 | 10,362 | - | 5.79 | 2.79 | 3,714 |
| 06/30/2019 | (1,935,139) | - | (1,259,697) | 5.73 | 3.73 | (337,721) |
| 06/30/2020 | 2,050,139 | <u>1,693,593</u> | <u>-</u> | 5.75 | 4.75 | <u>356,546</u> |
| Total | | \$ 1,703,955 | \$ (1,999,733) | | | \$ (390,888) |
| Differences Between Expected And Actual Plan Experience | | | | | | |
| 06/30/2017 | \$ (48,616) | - | (15,030) | 5.79 | 1.79 | \$ (8,396) |
| 06/30/2018 | 218,891 | 105,476 | - | 5.79 | 2.79 | 37,805 |
| 06/30/2019 | 715,192 | 465,561 | - | 5.73 | 3.73 | 124,815 |
| 06/30/2020 | (600,057) | <u>-</u> | <u>(495,699)</u> | 5.75 | 4.75 | <u>(104,358)</u> |
| Total | | \$ 571,037 | \$ (510,729) | | | \$ 49,866 |
| Net Difference Between Projected And Actual Earnings On Investments | | | | | | |
| 06/30/2017 | \$ (39,995) | - | (7,999) | 5.00 | 1.00 | \$ (7,999) |
| 06/30/2018 | (16,540) | - | (6,616) | 5.00 | 2.00 | (3,308) |
| 06/30/2019 | 21,885 | 13,131 | - | 5.00 | 3.00 | 4,377 |
| 06/30/2020 | 76,637 | <u>61,310</u> | <u>-</u> | 5.00 | 4.00 | <u>15,327</u> |
| Total*** | | \$ 74,441 | \$ (14,615) | | | \$ 8,397 |
| Balance as of 06/30/2020 | | \$ 2,349,433 | \$ (2,525,077) | | | \$ (332,625) |
| Deferred Outflows And Deferred (Inflows) Of Resources Will Be Recognized In Expense As Follows: | | | | | | |
| Measurement Year Ending: | | | | | | Outflows/(Inflows) |
| 06/30/2021 | | | | | | \$ (332,625) |
| 06/30/2022 | | | | | | (236,046) |
| 06/30/2023 | | | | | | 91,786 |
| 06/30/2024 | | | | | | 112,099 |
| 06/30/2025 | | | | | | 189,142 |
| Thereafter | | | | | | - |

*Deferred Outflows and Inflows of Resources established on or prior to June 30, 2019 were prepared by the prior plan actuary. There will also be a Deferred Outflow for Contributions Made after the Measurement Date (TBD for fiscal year ending 06/30/2021).

** Deferred (Inflows) should be disclosed as positive numbers in the Comprehensive Annual Financial Report.

*** Per GASB 75 Paragraph 43.b, Deferred outflows of resources and deferred inflows of resources arising from differences between projected and actual OPEB plan investment earnings in different measurement periods should be aggregated and reported as a net deferred outflow of resources related to OPEB or a net deferred inflow or resources related to OPEB. Therefore, a net deferred outflow of \$59,725 is recognized as of 06/30/2020.

Schedule of Net OPEB Liability

(All dollar amounts are in thousands)

| Measurement Year Ended* | Total OPEB Liability (a) | Plan Fiduciary Net Position (b) | Net OPEB Liability (c) | Plan Fiduciary Net Position As A Percentage Of Total OPEB Liability (d) | Covered Employee Payroll (e) | Net OPEB Liability As A Percentage Of Covered Employee Payroll (f) |
|-------------------------|--------------------------|---------------------------------|------------------------|---|------------------------------|--|
| | | | (a)-(b) | (b)/(a) | | (c)/(e) |
| June 30, 2017 | \$18,480,936 | \$996,407 | \$17,484,529 | 5.4% | \$5,927,012 | 295.0% |
| June 30, 2018 | \$19,761,333 | \$1,187,569 | \$18,573,764 | 6.0% | \$6,155,194 | 301.8% |
| June 30, 2019 | \$19,662,106 | \$1,368,548 | \$18,293,558 | 7.0% | \$6,354,473 | 287.9% |
| June 30, 2020 | \$22,105,511 | \$1,414,312 | \$20,691,199 | 6.4% | \$6,608,652 | 313.1% |

*Results for Measurement Dates on or prior to June 30, 2019 were prepared by the prior plan actuary.