DATE: April 11, 2023

TO: Kim Ramsay, CMA
Municipality of East Hants

FROM: Paul Burnell, FSA, FCIA
Managing Director
PLENUS CONSULTANTS

RE: ACTUARIAL VALUATION AS OF DECEMBER 31, 2022 – PRELIMINARY RESULTS

We are writing to provide you with the preliminary results in respect of the actuarial valuation for funding purposes as of December 31, 2022 for the Pension Plan. The last valuation for the Plan was prepared as of December 31, 2019. This memo provides preliminary results; a full actuarial valuation report as of December 31, 2022 still needs to be prepared, and must be completed and filed with the pension regulators by September 30, 2023. Note that our calculations as of December 31, 2022 are still in draft form. We do not expect any significant changes to the values outlined in this memo, but we have not finished all the checks which we normally do on our valuation results.

An actuarial valuation report produces three key financial results:

1. Plan's financial status on a going concern basis. The assumptions used to determine the Plan's financial status on this basis are determined by the plan sponsors (usually with significant input from the actuary) based on the expectation that the Plan will continue in operation indefinitely.

2. Plan's financial status on a solvency basis, which assumes that the Plan terminates (winds up) on the valuation date with all benefits being settled. The method used to determine assumptions is specified in pension legislation.

3. Cost of benefits expected to be earned in the upcoming year (current service cost), which is calculated on a basis consistent with the going concern valuation.

New funding rules were introduced at the time of the last valuation. Many of the provisions continue to be relevant for the valuation at December 31, 2022:

- An amount in excess of going concern liabilities continues to need to be funded. The excess is known as a PfAD (Provision for Adverse Deviation). The level of PfAD is based on how the Plan's assets are invested. For your plan, the PfAD remains 4.50% so you will need to fund 104.5% of going concern liabilities.
- Your plan continues to be exempt from solvency funding requirements.
- Increased contribution requirements are still being phased in. The new provisions take full effect in 2025.
- The next valuation that will need to be filed will be as of December 31, 2025.
    - Given the current funding status, in years where an actuarial valuation is not prepared, a cost certificate must be prepared and filed with the Superintendent of Pensions. The next cost certificates would need to be filed as of December 31, 2023. Based on the results in the cost certificate, the Superintendent has the power to order a full valuation.

Since the last valuation was prepared, plan amendments were introduced as follows:

- Benefit upgrades upon retirement for some new pensioners
- The contribution rate for employees has increased to 6.5% of payroll from 5.0% of payroll
- Other housekeeping amendments

ASSUMPTIONS

Going Concern Basis

Assumptions used in the funding basis are determined by the plan sponsor (with input from the actuary) based on long-term expectations. Assumptions are reviewed at the time each valuation is prepared to determine whether any changes are required. We believe that the interest rate assumption used in the previous valuation (5.45% net of expenses) can be increased; we believe it can be increased to 6.00%. It is possible to use a lower interest rate assumption and maintain a margin, but since legislation now forces an explicit Provision for Adverse Deviation we don't believe it is necessary to have a further margin for conservatism in the interest rate assumption.

Interest Rate Assumption

The interest rate assumption used in the previous valuation (as of December 31, 2019) was 5.45% per annum net of all expenses. The interest rate is the expected rate of return for Plan assets, after deducting expenses charged to the fund. Results are shown below at 5.45% and 6.00%.

Mortality Assumption

The last valuation assumed mortality based on the 2014 Canadian Pensioners Mortality Table for the Public Sector (CPM2014Publ). The table also assumes future mortality improvement based on the CPM Improvement Scale B (CPM-B). In our opinion, this assumption remains reasonable.

Retirement Age

The previous valuation assumed half of the members retired at the earliest age that they were entitled to an unreduced pension and the other half retired at age 65. We have maintained this assumption.

Solvency Basis

In the solvency valuation, individuals who are receiving a pension, are deferred vested, or who are active but eligible to retire are assumed to have annuities purchased on their behalf. Individuals who are active and not eligible to retire are assumed to have a lump sum paid to them. The assumptions used for annuity purchase and lump sum transfers in our December 31, 2022 valuation are summarized below, along with the assumptions from the December 31, 2019 valuation.

	Annuity Purchase Basis		**Lump Sum Basis**	
	At 31-Dec-2019	**At 31-Dec-2022**	**At 31-Dec-2019**	**At 31-Dec-2022**
Mortality	CPM2014 generational	CPM2014 generational	CPM2014 generational	CPM2014 generational
Interest Rates	2.96%	4.91%	2.4% for 10 years and 2.5% thereafter	4.1% for 10 years and 4.5% thereafter

ASSETS

The asset information used in our actuarial valuation is based on the financial statements prepared by Manulife. We have used market value of assets in the December 31, 2022 actuarial valuation; market value was also used in the December 31, 2019 valuation. Note that we've also included $-8,847 as contributions in transit in the December 31, 2022 market value. Contributions in transit are DC contributions that were remitted to the DB plan in error by Manulife.

The following table shows market values at December 31, 2019 and December 31, 2022.

Valuation Date	31-Dec-2019	31-Dec-2022
Market Value	$11,740,715	$13,231,308

Note that the rate of return (net of all expenses) for assets since the last valuation is shown below. We were expecting returns of 5.45%.

Year	Rate of return (net of all expenses)
2020	7.95%
2021	9.52%
2022	-8.13%

DATA

The data used in the December 31, 2022 actuarial valuation are the same as used to prepare the employee pension statements as of December 31, 2022. In addition, we maintain records in respect of all pensioners and deferred vested members of the Plan. Details on membership will be included in the December 31, 2022 actuarial valuation report.

FINANCIAL RESULTS

Going Concern Basis

The following table summarizes the results of the going concern valuation for the plan as of December 31, 2022 under the different assumptions, with comparative results from the December 31, 2019 valuation.

Valuation Date	31-Dec-2019	31-Dec-2022	31-Dec-2022
Interest	5.45%	5.45%	6.00%
Assets	$11,740,715	$13,231,308	$13,231,308
Liabilities	12,605,099	15,215,875	14,279,892
Surplus (Deficit)	($864,384)	($1,984,567)	($1,048,584)
Funded Ratio	0.93	0.87	0.93
Annual Special Payment	$87,685	$209,343	$121,585
Numbers including PfAD			
PfAD	$567,229	$684,714	$642,595
Surplus (Deficit) incl PfAD	($1,431,613)	($2,669,282)	($1,691,180)
Funded Ratio incl PfAD	0.89	0.83	0.89
Special Payment Incl PfAD	$184,899	$279,591	$171,619
Required Annual Special Payments (phasing in new rules)			
2023	$146,013	$279,591	$171,619
2024	$165,456	$303,008	$188,297
2025 +	$184,899	$326,424	$204,975

There has been a deterioration in the funded status for the Plan prior to assumption changes and the introduction of the PfAD. The main reason for the deterioration is investment losses relative to expected performance.

Solvency Basis

The following table summarizes the results of the solvency valuation as of December 31, 2022 with comparative results from the December 31, 2019 valuation.

Valuation Date	31-Dec-2019	31-Dec-2022
Assets[1]	$11,665,715	$13,141,308
Liabilities	$18,302,712	$16,193,673
Surplus (deficit)	($6,636,997)	($3,052,365)
Transfer Ratio[2]	0.60	0.82

[1] Assets are market value and include provision for wind-up expenses.
[2] Transfer ratio liability includes the cost of grow-in benefits. The estimated cost of grow-in benefits is $1,198,518 as at December 31, 2022

Current Service Cost

The following table summarizes the results of the current service cost calculations for the plan as of December 31, 2022 under the different assumptions, with comparative results from the December 31, 2019 valuation.

Valuation Date	31-Dec-2019	31-Dec-2022	31-Dec-2022
Interest	5.45%	5.45%	6.00%
Payroll	$4,187,792	$5,379,081	$5,379,081
Total Cost	$575,861	$709,601	$654,762
EE contribution as a % of Pay	5.0%	6.5%	6.5%
Cost as a % of Pay	13.75%	12.81%	11.82%
Employer Cost	$366,471	$349,471	$294,632
Employer as % of Employee	175.0%	97.0%	81.8%

The employer cost as a percentage of payroll has decreased since the previous valuation prior to assumption changes. The cost has decreased due to an increase in the employee contribution rate (employee contribution rate increased from 5.00% to 6.50%) and a decrease in the average age.

Total Contribution Requirements

The total contribution requirements for the Municipality consists of contributions towards the going concern deficit (special payments) plus contributions towards new benefit accruals (current service cost). The following table summarizes the contribution requirements for 2023 under the different assumptions.

Valuation Date	31-Dec-2022	31-Dec-2022
Interest	5.45%	6.00%
Payroll	$5,379,081	$5,379,081
Special Payments	$279,591	$171,619
Current Service Cost (% of pay)	6.31%	5.32%
Current Service Cost ($)	$349,471	$294,632
Total Estimated Contribution	$629,062	$466,251

The contribution requirements outlined above are effective January 2023. Note that the special payment shown above is the special payment for 2023. The special payment is scheduled to increase in future years as the new funding rules continue to be phased in. Details on special payments by year are shown earlier in this memo.

POSSIBLE PLAN CHANGES

In conjunction with the December 31, 2022 actuarial valuation, we were asked to look at the cost impact of upgrading benefits so that Service prior to January 1, 2023 is based on highest average five year earnings on December 31, 2022. This change would not have an impact on current service cost, but would increase liabilities on both funding and solvency bases.

Based on an interest rate assumption of 6.00% going concern liabilities would increase by $1,099,000.

The increase in solvency liabilities has a direct impact on the funding requirements for the Plan. Specifically, as the Plan is taking advantage of solvency relief, pension legislation requires that the full cost of the benefit improvement on a solvency basis (plus interest from the effective date of the amendment) must be remitted to the fund. The cost of the benefit improvement on a solvency basis is $1,460,000.