



# The Corporation of the Town of Milton

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**Report To:** Council

**From:** Glen Cowan, Chief Financial Officer / Treasurer

**Date:** February 6, 2023

**Report No:** CORS-003-23

**Subject:** Purchasing Various - February 2023

**Recommendation:** THAT Council approve the budget amendments and related funding sources as outlined on Schedule A;

THAT the single source award to MTB Transit Solutions for the supply and delivery of the Zero Emissions Vehicle (ZEV) Clean Power technology to implement the Milton Transit Battery Electric Bus (BEB) Pilot Project, including all vehicle components, charging infrastructure, warranty and training, be approved in the total amount of \$882,000 (exclusive of HST) as outlined in Schedule B;

THAT the award of the cooperative request for proposal for the supply of an electric ice resurfacer to Zamboni Company Ltd. in the amount of \$196,149 (exclusive of HST) be approved as outlined in Schedule D.

THAT the Manager, Purchasing and Risk Management be authorized to execute the contract(s), as outlined by the purchasing by-law, and the Mayor and the Town Clerk be authorized to sign any required paperwork.

## EXECUTIVE SUMMARY

This report is being submitted to obtain Council's authorization on the various items on the attached schedules. Requests are being made as per the guidelines outlined in the Purchasing By-law No. 061-2018 and the Budget Management Policy (Policy No.113). The body of the report and accompanying schedules also include supplementary details on the Battery Electric Bus pilot that was approved through the 2023 Budget and being recommended for award through this purchasing report.

## REPORT

### Background

Procurement of goods and services is governed by By-law No. 061-2018. Purchasing activity is undertaken in a manner that is intended to support the Town's mandate to



## Background

provide effective, responsible government and efficiently deliver services to the residents of Milton.

## Discussion

Information pertaining to the recommended purchasing awards is included on the corresponding Schedules (A to D) attached.

Included within this report is the award related to the Battery Electric Bus (BEB) pilot that was approved through the 2023 Budget. This pilot is intended to support sustainability initiatives, climate change goals and Greenhouse Gas (GHG) emission impacts. It involves a mid-life conversion from diesel-to-electric of a 12 metre conventional bus (unit 1701). The pilot will complement the current Town Fleet Strategy BEB Feasibility Study by evaluating technology capabilities, limitations, service delivery implications, change management and lifecycle costing.

Further details of the purchasing award are provided in Schedule B, and additional detail related to the pilot is included as Schedule C. The initial capital award amounts to \$882,000 (excluding HST), and is recommended to be made through a single source award to MTB Transit Solutions.

Also included in this report is the award to Zamboni for an electric ice resurfacers. This unit will replace an existing unit at the Milton Sports Centre, and represents a continued progression towards the electrification of the Town's resurfacers. This award is being made through the cooperative program offered by Canoe Procurement Group of Canada, which is associated with LAS/AMO.

## Financial Impact

Financial impacts are outlined in detail on the attached Schedules A through D, and include a transfer from the project variance account of \$34,508.

As outlined in Schedule C, one of the goals of the BEB pilot program is to better understand the financial impacts as they pertain specifically to Milton's transit service. Based on preliminary projections, there may be additional costs associated with the mid-life conversion to electric depending on a number of variables. Should the price of diesel, for example, maintain the current market pricing over the remaining lifespan of the bus, a net lifecycle cost increase of \$144,000 could occur by year 12 for the electric conversion relative to a diesel refurbishment.

Respectfully submitted,

Glen Cowan  
Chief Financial Officer / Treasurer



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For questions, please contact: Tony D'Alessandro, Director,  
Transit Services Phone: Ext. 2548  
Doug Sampano, Director,  
Facilities, Operations &  
Environment Ext. 2547

## Attachments

Schedule A – Capital Budget Adjustment Summary

Schedule B – Single Source Award for Transit Zero Emission Vehicle Conversion

Schedule C – Supplemental Details on BEB Pilot Project

Schedule D – Request for Proposal Award for an Electric Ice Resurfacer

Approved by CAO  
Andrew M. Siltala  
Chief Administrative Officer

## Recognition of Traditional Lands

The Town of Milton resides on the Treaty Lands and Territory of the Mississaugas of the Credit First Nation. We also recognize the traditional territory of the Huron-Wendat and Haudenosaunee people. The Town of Milton shares this land and the responsibility for the water, food and resources. We stand as allies with the First Nations as stewards of these lands.

## Summary of Changes in Capital Project Budgets and Funding

Schedule	D	Total Change in Funding Sources Increase / (Decrease)
Project Number	C45011120	
Project Description	Ice Resurfacer - Replacement	
<b>Total Approved Project Budget</b>	<b>\$ 171,393</b>	
<b>Recommended Budget Change</b>		
Project Variance Account	34,508	34,508
<b>Total Increase/(Decrease) in Funding</b>	<b>34,508</b>	<b>\$ 34,508</b>
<b>Total Revised Project Budget</b>	<b>\$ 205,901</b>	

**COUNCIL AUTHORITY FOR CONTRACT AWARDS  
SINGLE SOURCE AWARD**

<b>Project Award</b>	Single Source award to MTB Transit Solutions for the supply and delivery of the Zero Emissions Vehicle (ZEV) Clean Power technology, to facilitate the implementation of the Milton Transit Battery Electric Bus (BEB) Pilot Project.
<b>Recommendation</b>	Staff are recommending the single source award to MTB Transit Solutions for the supply and delivery of the Zero Emissions Vehicle (ZEV) Clean Power technology to implement the Milton Transit Battery Electric Bus (BEB) Pilot Project, including all vehicle components, charging infrastructure, warranty and training, in the total amount of \$882,000 (exclusive of HST)
<b>Purpose of Report</b>	As per Section 10.1 of Purchasing By-law No. 061-2018, Council approval is required.
<b>Background information</b>	<p>Supporting sustainability, climate change and greenhouse gas emission objectives, the Milton Transit BEB Pilot Project delivers a mid-life refurbishment and propulsion system conversion on one (1) 12 metre conventional transit bus (unit 1701) from a diesel-powered to battery electric-powered system. The pilot shall implement the Zero Emissions Vehicle (ZEV) Clean Power initiative developed by MTB Transit Solutions, as recommended in this report. The Town will be the first municipality in Canada to pilot diesel-to-battery-electric technology on a transit bus.</p> <p>MTB Transit Solutions is currently the Canadian sole supplier of ZEV Clean Power technology, repowering transit buses from a diesel-to-battery electric propulsion system. Located in Milton ON, MTB Transit Solutions provides mid-life transit and coach refurbishment, body repair, collision repair and OEM upgrades, campaigns and modifications. The ZEV Clean Power initiative was developed by MTB Transit Solutions from 2019-2021, with support from the National Research Council of Canada - Industrial Research Assistance Program (NRC IRAP), with research/development support from the Innovative Vehicle Institute (IVI) and participating Canadian post-secondary institutions. By June 2022, a demonstration bus had been completed and tested by MTB Transit Solutions, providing preliminary insight toward prospective outcomes and deliverables for the Milton Transit BEB Pilot Project.</p> <p>The project includes the exchange of diesel-powered systems with battery-electric systems for vehicle and non-vehicle infrastructure, including but not limited to: engineering components, battery systems, battery cooling/management system, electric steering, interior/exterior lighting, air compressor, power steering pump, charging system, electric motor and regeneration, and charging</p>

**Schedule B**

components/infrastructure. The pilot program will also include in-vehicle telematics to monitor and manage the health and performance of battery systems in real time. MTB Transit solutions will provide all high-voltage training supports for operations, maintenance and emergency services. Staff anticipate vehicle completion and delivery by the end of Q4, with on-road vehicle testing beginning in 2024. All vehicle warranty and support shall be coordinated by MTB Transit Solutions.

The BEB Pilot Project will complement the Town’s Fleet Strategy - BEB Feasibility Study and Fleet Transition Plan (currently in development by HDR consulting services) by exploring and evaluating technology capabilities, limitations, service delivery implications, maintenance and lifecycle costing. Pilot benefits and objectives include:

- Obtain lessons learned and requirements for the consideration of mid-life diesel-to-electric refurbishment as a mechanism to advance BEBs within the transit system
- Validate vehicle performance and reliability in Milton’s climate and topography
- Become familiar with charging infrastructure operation
- Assess maintenance, operating costs associated with BEBs
- Collect public, operator and maintenance feedback to understand challenges and perceptions of BEB technology
- Understand how BEBs will affect service scheduling
- Alignment with Town sustainability and climate change initiatives to mitigate reliance of fossil fuels

HDR has provided staff with a technical memorandum outlining pilot project considerations and recommendations, which have been incorporated into Appendix C and the pilot scope of work.

Staff have submitted an Expression of Interest (EOI) to Infrastructure Canada (INFC) to solicit grant funding through the Zero Emissions Transit Fund (ZETF). At this preliminary stage, it is premature to indicate whether that application will prove successful.

**Financial Planning Section: Budget Impact** (Note 1)

<b>Account Number(s)</b>	C56011023-A0631-7110
<b>Account Description</b>	Transit Bus Non Growth: Refurbishment
<b>Project Total Budget</b>	\$ 1,131,875
<b>Contract Budget</b>	\$903,120
<b>Actual</b> (Net of HST Rebate)	\$897,523
<b>Variance</b>	\$5,597 (F) (note 2)
<b>Funding Source</b>	Project Variance Account

## **Schedule B**

Note 1: Financial impact includes any non-refundable portion of HST.

Note 2: It is recommended that funds remain in the project during the pilot process, with any unused amounts returned to the project variance account at project closure.

## **Single Source award to MTB Transit Solutions for the supply and delivery of the Zero Emissions Vehicle (ZEV) Clean Power technology, to facilitate the implementation of the Milton Transit Battery Electric Bus (BEB) Pilot Project.**

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To support sustainability initiatives, climate change goals and greenhouse gas (GHG) emission objectives, staff are recommending the exploration of Battery Electric Bus (BEB) diesel-to-battery technology through the Milton Transit BEB Pilot Project. The pilot will include a mid-life, diesel-to-battery-electric conversion of a 12-metre conventional bus. The pilot will utilize the Zero Emissions Vehicle (ZEV) Clean Power initiative developed by MTB Transit Solutions to support the propulsion conversion on a 12-metre Milton Transit bus that is scheduled for mid-life refurbishment.

Piloting one (1) BEB in advance of purchasing a more significant number of vehicles will provide valuable information that will ensure the success of a potential fleet transition over the long term. The implementation of a BEB pilot will complement the Milton BEB Feasibility Study, currently in development by HDR consulting. HDR provided the Town with a technical memorandum that articulates considerations for pursuing a pilot of this nature, and the Town has incorporated that information into the proposed pilot below.

### **Market Conditions for Bus Propulsion Conversion Technology**

Conversion of a diesel-powered bus to a purely battery electric drivetrain is a developing value proposition. Transit buses typically have a lifespan of 12+ years depending on a variety of factors. By converting existing fleet at mid-life, it may be possible to accelerate the conversion to a zero emission fleet by not having to wait until newer fleet are retired at the end of their useful life. Another advertised benefit of powertrain conversions is that the time for manufacturers to complete a conversion is generally shorter than ordering a brand-new battery electric bus and may also extend the life of those vehicles.

MTB Transit Solutions is currently the Canadian sole supplier of ZEV Clean Power technology, repowering transit buses from a diesel-to-battery electric propulsion system. Located in Milton ON, MTB Transit Solutions provides mid-life transit and coach refurbishment, body repair, collision repair and OEM upgrades, campaigns and modifications. The ZEV Clean Power initiative was developed by MTB Transit Solutions from 2019-2021, with support from the National Research Council of Canada - Industrial Research Assistance Program (NRC IRAP), with research/ development support from the Innovative Vehicle Institute (IVI) and participating Canadian post-secondary institutions. By June 2022, a demonstration bus had been completed and tested by MTB Transit Solutions, providing preliminary insight toward prospective outcomes and deliverables for the Milton Transit BEB Pilot Project.

### **Project Overview**

The pilot will explore and evaluate technology capabilities, limitations, service delivery implications, maintenance, and lifecycle costing. Project benefits and objectives include:



- Obtain lessons learned and requirements for the consideration of mid-life diesel-to-electric refurbishment as a mechanism to advance BEBs within the Milton Transit system
- Validate vehicle performance and reliability in Milton's climate and topography
- Develop expertise and familiarity with BEBs, operation, maintenance and charging infrastructure
- Assess maintenance and operating costs associated with BEBs
- Collect public, operator and maintenance feedback to understand challenges and perceptions regarding BEB technology
- Understand how BEBs will affect scheduling of transit service
- Alignment with Town sustainability and climate change initiatives to mitigate reliance of fossil fuels

The project includes the exchange of diesel-powered systems with battery-electric systems for vehicle and non-vehicle infrastructure, including but not limited to: engineering components, battery systems, battery cooling/management system, electric steering, interior/exterior lighting, air compressor, power steering pump, charging system, electric motor and regeneration, and charging components/infrastructure. The pilot program will also include in-vehicle telematics to monitor and manage the health and performance of battery systems in real time. MTB Transit solutions will provide all high-voltage training supports for operations, maintenance and emergency services. Staff anticipate vehicle completion and delivery by the end of Q4, with on-road vehicle testing beginning in 2024. All vehicle warranty and support shall be coordinated by MTB Transit Solutions.

### Financial Analysis

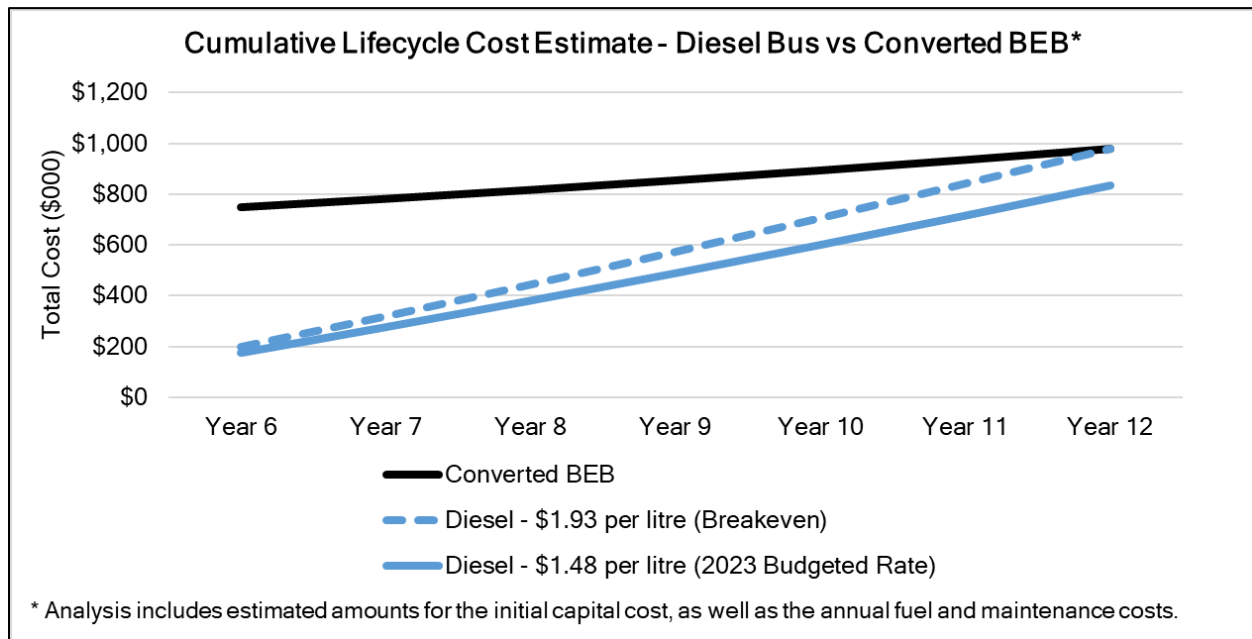
Staff have calculated the preliminary estimated economic impact of adopting BEB technology through the pilot compared to a diesel bus using Class D order of magnitude estimate based on current operational assumptions (Table 1). Although every attempt has been made to reflect accurate projections, actual costing will not be known until the pilot project is undertaken.

**Table 1. Operating Assumptions**

Average Bus Life Span	12 years, Altoona-tested
Average Annual Bus Operating KMs <ul style="list-style-type: none"> <li>• Based on current Milton Transit average vehicle usage</li> </ul>	72,000 KMs per bus
Average Annual Bus Operating Hours <ul style="list-style-type: none"> <li>• Based on current Milton Transit average vehicle usage</li> </ul>	3,750 hours per bus

Staff completed a high-level comparative analysis of diesel and BEB relative to mid-life capital costs and operational costs including fuel, electricity, servicing and maintenance for years 6-12 of the average bus life span.

The estimated costs of operations for BEBs were determined using assumptions from BEB and related industry studies. 50% of the charger installation cost was included, in recognition that each charger could service a minimum of two vehicles. Operating costs for diesel buses were determined based on the Town's experience with the same vehicle make/model to be used in the pilot. The results are presented in the following chart.



The following observations can be made from this preliminary analysis:

- Implementation of BEB will occur with a higher initial cost followed by lower annual operating costs;
- Annual maintenance costs for a converted BEB is estimated to be less than a diesel bus. Due to the removal/replacement of diesel components, accompanying servicing/repairs will no longer be required (e.g. engine and alternator servicing, coolant-related repairs, etc.). Maintenance costs attributed to BEBs will be related to battery/electrical and ongoing wear-and-tear components (e.g. brakes, air systems, lighting, etc.). The above analysis estimates an annual maintenance cost for BEB at 60% of a diesel bus. Further assessment of maintenance costs will be completed throughout pilot implementation.
- As the price of fuel will vary, one projection utilized the cost per litre for diesel as was incorporated into the 2023 Budget process, while a second analysis was undertaken to demonstrate the breakeven price for diesel (such that the total cost of the diesel bus was equivalent to the BEB solution over the 6 years);
- Assuming no grant funding is received and fuel prices remain at current levels, the pilot does have the potential to have a net overall higher cost of approximately \$144,000 over the entire period.

## Summary and Recommendation

BEBs are a better choice for reducing GHGs compared to diesel fleet. Demonstrating a propulsion conversion concept provides a unique, innovative opportunity for the Town to test technology, acquire familiarity and expertise in BEBs for long term consideration of adoption.

Staff are recommending the single source award to MTB Transit Solutions for the supply and delivery of the Zero Emissions Vehicle (ZEV) Clean Power technology to implement the Milton Transit Battery Electric Bus (BEB) Pilot Project, including all vehicle components, charging infrastructure, warranty and training, in the total amount of \$882,000 (exclusive of HST).

## COUNCIL AUTHORITY FOR CONTRACT AWARDS

<b>Project Award</b>	Proposal Award No. 23-516 –Supply of an Electric Ice Resurfacers
<b>Recommendation</b>	<b>Staff is recommending the award of the cooperative request for proposal for the supply of an electric ice resurfacers to Zamboni Company Ltd. in the amount of \$196,149 (exclusive of HST).</b>
<b>Purpose of Report</b>	As per Section 6.3.14 of Purchasing By-law No. 061-2018, Council approval is required for proposal awards over \$100,000.
<b>Background information</b>	<p>The Canoe Procurement Group of Canada, in association with LAS (AMO), offers group buying opportunities to municipalities for a variety of goods and services that are utilized in the delivery of public services. Canoe currently offers municipalities the opportunity to acquire electric ice resurfacers using the competitive request for proposal process that was undertaken in 2020 through Sourcewell (RFP 120320). Sourcewell, a separate entity that undertakes competitive procurement processes for government entities in the US and Canada, entered into a contract with Zamboni Company Ltd. based on their RFP process. That contract extends to 2025, and allows municipalities to place orders on the basis of the pricing received through the RFP process. In the case of Zamboni, a 3% discount is provided to municipalities relative to the manufacturers suggested retail price.</p> <p>The Town's staff have reviewed Zamboni's specifications (Model 650) and pricing in relation to other recent competitive processes that have been undertaken. As the Town currently utilizes ice resurfacers from two other market competitors, the proposed acquisition will offer the Town an opportunity to more fully assess the performance and full lifecycle costs of numerous products prior to proceeding with additional future replacements.</p> <p>It is expected that an 8 month lead time will be required for the delivery of any unit ordered. The Town hopes to have the new unit available for the fall season in 2023.</p>
<b>Purchasing Section: Bid Award Information</b>	
<b>Request for Proposal Overview</b>	RFP #120320 was undertaken by Sourcewell in late 2020 for the provision of Ice Rink and Arena Equipment with Related Supplies and Services. Bids were received from 11 firms with 9 of those firms being evaluated, noting that vendors could bid on all or just portions of the total scope of the RFP.
<b>Evaluation Criteria</b>	<p>The proposals were evaluated using the following criteria:</p> <ul style="list-style-type: none"> <li>Conformance to RFP Requirements (5%)</li> <li>Pricing (40%)</li> <li>Financial Viability and Marketplace Success (7.5%)</li> <li>Ability to Sell and Deliver Services (10%)</li> <li>Marketing Plan (5%)</li> <li>Value Added Attributes (7.5%)</li> <li>Warranty (5%)</li> </ul>

**Schedule D**

	Depth and Breadth of Offered Equipment, Products or Services (20%)  Based on the results of the evaluation, contract 120320-FZC was executed between Sourcewell and Zamboni Company Ltd. on January 6, 2021.
<b>Financial Planning Section: Budget Impact</b> (Note 1)	
<b>Account Number(s)</b>	C45011120 – A1634 - 7110
<b>Account Description</b>	Ice Resurfacers - Replacement
<b>Project Total Budget</b>	\$171,393
<b>Contract Budget</b>	\$168,093
<b>Actual</b>	\$199,601
<b>Variance</b>	\$31,508 (U)
<b>Funding Source</b>	Project Variance Account

Note 1: Financial impact includes any non-refundable portion of HST.

Note 2: A transfer from the project variance account of \$34,508 has been requested to provide for shipping costs and any incidentals that may be required.