



Staff Report

Operations – Sustainability & Solid Waste

Report To: COW-Operations, Planning and Development Services
Meeting Date: June 6, 2023
Report Number: CSOPS.23.018
Title: Municipal Net Zero Emissions Buildings and Municipal Construction Waste and Deconstruction Policies
Prepared by: Nicholas Cloet, Sustainability Coordinator and Jeffery Fletcher, Manager of Sustainability & Solid Waste

A. Recommendations

THAT Council receive Staff Report CSOPS.23.018, entitled “Municipal Net Zero Emissions Buildings and Municipal Construction Waste and Deconstruction Policies”

AND THAT Council approve the Town’s adoption of the Municipal Net Zero Emissions Buildings Policy;

AND THAT Council approve the Town’s adoption of the Municipal Construction Waste and Deconstruction Policy;

AND THAT the approved new policies be implemented beginning in 2024 for new building construction, renovation and demolition projects as applicable, and with projects initiated in 2023 or earlier exempt from adhering to these policies.

B. Overview

This staff report proposes two corporate policies: a Municipal Net Zero Emissions Buildings Policy; and a Municipal Construction Waste and Deconstruction Policy. These policies were developed in response to the Town’s Climate Change Emergency Declaration in 2019, to work towards Bold Action 8: Develop a net zero carbon municipal building policy, and Bold Action 12: Establish litter and construction waste management plans, in The Blue Mountains Future Story. These policies focus on addressing municipal greenhouse gas (GHG) emissions arising from building-related purchasing decisions and operational needs.

C. Background

In October 2019, the Town of The Blue Mountains declared a climate emergency, with a motion that included the following key statement: “Be it resolved that the Town of The Blue Mountains officially declares a Climate Change Emergency for the purpose of enhancing and accelerating

action on our commitment to protect our community, our economy, and our ecosystems from the impacts of climate change”. The full motion described the many reasons for declaring a climate emergency, and also provided direction for Council and staff to include climate change considerations in decision-making, with specific reference to the Town’s Strategic Plan. The Town’s 2020 – 2024 Corporate Strategic Plan included Action 3.5: Define the Town’s Climate Emergency Declaration, which directed staff to prepare a formal report outlining the Town’s initiatives to support the commitment to this declaration.

In March 2022, Town Council received staff report [CSOPS.22.001 Municipal Response to the Climate Emergency Declaration](#) , which described the Town’s GHG reduction targets of 40% by 2025 (with a 2005 baseline year) and net zero emissions by 2050, and sought direction to develop several new corporate policies to support climate change mitigation. These new corporate policy directions included:

- 1) Develop a Net Zero Carbon municipal building policy;
- 2) Create a policy that requires waste management plans for Town facilities and municipal building deconstruction;
- 3) Create a long-term plan to transition the Town’s fleet of vehicles into electric vehicles and plan for charging infrastructure to charge fleet vehicles at Town facilities; and,
- 4) Develop a tree and naturalization policy for municipally-owned lands and investigate methods of assessing carbon sequestration.

Council endorsed the above policy directions, and staff ensured they were included within the Bold Actions of the Town’s Integrated Community Sustainability Plan, entitled The Blue Mountains Future Story (TBM Future Story), which was endorsed by Council in July 2022.

This report describes and attaches two new municipal policies for Council’s consideration: a Municipal Net Zero Emissions Buildings Policy, aligning with Bold Action 8: Develop a net zero carbon municipal building policy; and a Municipal Construction Waste and Deconstruction Policy, as an important part of Bold Action 12: Establish litter and construction waste management plans.

Remaining policy directions from the above list are being developed separately and will be subjects of future staff reports when appropriate.

D. Analysis

The proposed Municipal Net Zero Emissions Buildings Policy (Attachment 1) and Municipal Construction Waste and Deconstruction Policy (Attachment 2), aim to help the Town address different aspects of municipal building related GHG emissions, including energy-related emissions arising from the operation of Town facilities, and embodied emissions associated with the Town’s choice of building materials and their end-of-life solutions.

The Town’s corporate GHG inventory methodology, based on the Partners for Climate Protection (PCP) program, includes energy-related GHG emissions but does not include embodied emissions – those associated with the resource extraction, manufacturing and other lifecycle costs of building materials and equipment. Future amendments to these policies

and/or the Town’s corporate GHG inventory may be explored at a later date to reflect the embodied emissions piece.

The following sections provide commentary on each individual policy to complement the full policy text provided in Attachments 1 and 2.

Municipal Net Zero Emissions Buildings Policy

The purpose of the Municipal Net Zero Emissions Buildings Policy is to require that new municipal buildings are designed, constructed, and operated to enable the Town to achieve its net-zero by 2050 GHG reduction target.

The policy identifies seven pathways, all (or most) of which will be necessary for the Town to work towards its net zero by 2050 GHG reduction target, and includes procedures focusing on two of these pathways: Net Zero Energy Emissions for New Buildings, and Fuel Switching and Efficiency Retrofits.

The following table identifies and briefly outlines the procedures of this policy:

Procedure	Description
Interim 2040 Target for Net Zero Energy Emissions Buildings	Establishes a 2040 target to achieve Net Zero Energy Emissions Ready for all Town buildings (new and existing). This procedure aims to recognize the long-lived nature of buildings and avoid investing in fossil-fuel assets well in advance of the Town’s 2050 net zero target.
Net Zero Energy Emissions New Buildings	All new municipal buildings must be budgeted, designed, constructed, and operated as Net Zero Energy Emissions or Net Zero Energy Emissions Ready buildings beginning in 2024. This procedure includes a prohibition on fossil-fuel space and water heaters, and encourages adherence to an existing standard such as Passive House or Zero Carbon Building Standard. New building projects initiated prior to 2024 will not be required to interrupt the project or revise already-established building design requirements.
Retrofits and Equipment Replacement	This procedure ensures like-for-like replacements are avoided by mandating emissions reductions for major renovations (over 25% of building footprint) or equipment replacement (over \$25,000) beginning in 2024. New and existing municipal buildings may still need to install fossil fuel-fired backup power units to ensure key services, such as water and wastewater, are able to continue in the event of a power outage. The viability of battery backup to replace existing fossil-fuel generators will be evaluated on a case-by-case basis.

Performance-Based Contracts	New buildings, major renovations or major equipment replacements may require performance-based contracts to ensure cost savings and/or GHG emissions reductions are realized.
Plans for Deep Retrofits and Fuel Switching	<p>The upcoming Energy Conservation and Demand Management Plan (ECDMP) for 2024, and all future ECDMPs must include long-term plans to transition the Town’s portfolio of buildings to net zero emissions by 2040. These plans should include the phasing out of fossil-fuel equipment, alongside energy demand and efficiency initiatives.</p> <p>The ECDMP is a requirement for municipalities under O. Reg. 397/11 with updates every five years. The Town’s ECDMP was last updated in 2019¹, and includes an accounting of the municipality’s operational energy consumption and GHG emissions, and describes previous, current, and proposed measures to conserve energy.</p>
Social Cost of Carbon	<p>Ensures the Town’s future ECDMPs consider a social cost of carbon as part of evaluating options for building-related GHG emissions reductions. This policy uses the Federal carbon tax as the Town’s social cost of carbon, and requires the current maximum carbon tax of \$170/tonne (to be implemented Canada-wide in 2030) be used as the social cost of carbon for any project with operating costs extending through the 2040 interim target. The social cost of carbon is an estimate of the widespread damages of one additional tonne of carbon dioxide emissions.</p> <p>Avoiding the social cost of carbon is a way to inform the business case for GHG reduction projects and make them more attractive.</p>

In focusing on operational (energy-related) GHG emissions, this policy primarily addresses operational carbon. Embodied carbon is a different but still important pathway to achieving net zero emissions that may be addressed through future updates to the Town’s corporate GHG inventory and/or this policy. Research has shown that embodied carbon can be greatly reduced with materials and construction practice substitutions that add little to no additional cost, but this is still an area of exploration for the development industry and for municipalities across Canada. It is expected that additional guidance in this area will become available to municipalities over time.

¹ <https://www.thebluemountains.ca/sites/default/files/2021-09/B-9-1-CSOPS-20-004-Energy-Conservation-and-Demand-Management-Plan-Final-Draft.pdf>

Grey County, its lower-tier municipalities and two other County partners will be collaborating on common Green Development Standards, an initiative that is expected to begin in 2023. This is an action within Grey County’s Climate Change Action Plan (Going Green in Grey, Action #11 Green Standard for New Buildings) and in TBM Future Story (Bold Action 9: Develop and implement Green Development Standards). Any Green Development Standard applying to development within The Blue Mountains would also apply to the design and construction of the Town’s municipal buildings, and updates to the proposed Municipal Net Zero Emissions Buildings Policy to integrate this standard may eventually be necessary. It is also possible that the issue of embodied carbon will be explored as part of this initiative, which could perhaps provide the Town and interested developers with guidance as part of a voluntary standard.

The Municipal Net Zero Emissions Buildings Policy will apply to all Town of The Blue Mountains buildings, employees, members of Council and Boards, to be reviewed and potentially updated every 2 years.

Municipal Construction Waste and Deconstruction Policy

The purpose of the Municipal Construction Waste and Deconstruction Policy is to establish deconstruction, rather than demolition, as the first option for removal of end-of-life Town-owned buildings, and for Town-owned buildings where any renovations will be undertaken to remove potentially useful building materials. Demolition typically involves fully removing a building by destroying it and landfilling most of its building materials and components, whereas deconstruction involves selectively dismantling buildings to recover potentially useful components.

Investing in the deconstruction of Town buildings will support the Town’s efforts to address the climate change emergency, improve waste diversion, and lead by example as an adopter of sustainable best practices. If recovered building materials or components are used in the construction of any new buildings or renovations, the embodied carbon of that development is reduced due to the carbon cost of existing materials/components having already been accrued when they were first manufactured.

The policy outlines several procedures that set minimum waste management and diversion requirements, applying to all buildings owned by the Town of The Blue Mountains that are to be removed or receive renovations.

The following table identifies and briefly outlines the procedures of this policy:

Procedure	Description
Tipping Fees	Waste originating from Town-owned building construction, renovation and demolition projects shall be charged all applicable tipping fees and diversion rates as included in the Town’s Solid Waste Tipping Fees.

	<p>For illustration purposes, the tipping fee for Unsorted Commercial, Construction and Demolition Waste (which includes items that could have been diverted through an existing program such as shingles, drywall or metal) is currently \$720/tonne, whereas the tipping fee for Sorted Commercial, Construction and Demolition waste is \$155/tonne, as per By-law 2023-16. This cost differential provides a disincentive to demolition and helps to encourage proper sorting and diversion of recyclable construction materials. This procedure ensures applicable Town-owned projects are subject to the same requirement.</p>
<p>Minimum Diversion Target</p>	<p>Applicable projects must achieve a minimum construction waste diversion target of 75% by weight or generate less than 100kg/m² of unsorted construction and demolition waste. Research indicating both of the above thresholds are used by the Toronto Green Standard (SW 4.2 Construction Waste Diversion²), along with the Town’s prior success setting a 75% diversion rate for the former Foodland property at 171 King St. in Thornbury, suggest that this threshold is a good starting point.</p>
<p>Performance Contracts to Achieve Diversion Targets</p>	<p>Building removal and renovation projects on properties owned by the Town where a demolition permit is being sought, and which are 100 m² or larger in size, must include a performance-based contract to support successful implementation of this policy.</p> <p>The threshold to require this procedure for building sizes of 100 m² (corresponding to approximately 1,076 square feet) or larger was chosen in collaboration with senior staff as a reasonable, round-number threshold that captures most of the Town’s buildings. Smaller projects below 100 m², such as park structures/storage sheds and smaller pumping stations, will still have the option of following this procedure.</p>

² Toronto Green Standard Version 4 (2022). City Agency, Corporation & Division-Owned Facilities Version 4: Waste and the Circular Economy. <https://www.toronto.ca/city-government/planning-development/official-plan-guidelines/toronto-green-standard/toronto-green-standard-version-4/city-agency-corporation-division-owned-facilities-version-4/waste-and-the-circular-economy/>

<p>Construction Waste Management Plans</p>	<p>New construction, major renovations (affecting more than 25% of existing floor area) and building removal projects on properties owned by the Town must include Construction Waste Management Plans. A Construction Waste Management Plan will help to control and reduce construction-related litter and enable deconstruction and diversion activities.</p> <p>Construction Waste Management Plans are an initiative that the Town will eventually require for developments across the community as per TBM Future Story, Bold Action 12: Establish litter and construction waste management plans. This initiative will involve engaging the local development community.</p>
<p>Documentation</p>	<p>Copies of receipts detailing materials reused, recycled, and landfilled (not including hazardous materials) shall be documented and kept on file. The contractor for the project shall provide records outlining tonnages, diversion rates and certified records of final destination to the Town’s Manager of Sustainability and Solid Waste in a report submitted prior to final invoicing.</p>

This policy builds on the prior success of the former Foodland deconstruction project, which established a 75% minimum diversion rate tied to a performance-based contract, and achieved a diversion rate of approximately 79.5% by recovering materials such as concrete, ductwork, electrical components, aluminum and steel, and more for reuse or recycling.

Staff are also exploring options for a bulky item diversion program to support the recovery of cabinetry, furniture and other large items to support a more circular economy. This initiative may involve collaborating with organizations such as Beaver Valley Outreach and/or Grey County as this aligns with the County’s Climate Change Action Plan, Action 6: Re-Use/Re-Build It Operations.

Innovation and Risk

The proposed policies in this report represent new directions for the Town to follow on what is expected to be a long and sometimes complicated journey to reach net zero emissions by 2050. Reaching the Town’s GHG reduction targets may at times necessitate bold action and innovation, which brings many opportunities and benefits, but also potential risks – in particular, the risk that new building designs or systems do not perform as expected. The following actions will help mitigate the potential risks of ambitious new building, renovation and deconstruction projects and greatly improve the Town’s ability to realize the expected benefits for energy efficiency, GHG emissions reductions, and waste diversion.

- Performance contracts will allow the Town to ensure the intended results of projects falling under the proposed policies are realized, whether that be energy/GHG savings or a 75% waste diversion target. Both of the proposed policies in this report include language to support the use of performance contracts.
- Standardized language for Request for Proposals (RFPs) and tenders for construction will be developed in collaboration with the Town's Service Area Managers to help guide a consistent approach to soliciting bids on construction, renovation, and demolition projects that would fall under the proposed policies. An aspect of this work will involve establishing performance-related criteria for staff to draw upon which will provide clear guidance to prospective bidders and assist in the RFP evaluation process.
- Periodic reporting of corporate GHG emissions is one of the Key Steps identified under TBM Future Story Bold Action 1: Achieve Milestone 5 in the Federation of Canadian Municipalities Partners for Climate Protection program. These reports will be an opportunity to inform Council and the broader public of progress and challenges stemming from the Town's GHG emissions from buildings, alongside other corporate GHG emissions from vehicle fuel combustion, electricity used by streetlights, and the landfill.
- Staff will continue to build awareness of current and new technologies, seek case examples for similar projects, and learn from the experiences of other municipalities as this important work moves forward. Third-party funding may also be available to support ambitious projects for municipal facilities (i.e. FCM's Green Municipal Fund) which can offset the financial risks of such projects.

Current and Ongoing Efforts

Both of the proposed policies were developed in consultation with the Town's Service Area Managers (SAM) and Senior Management Team (SMT), and in particular with the Manager of Facilities and Fleet. Many of the procedures in the proposed policies reflect efforts that are already ongoing and ensure that energy efficiency, fuel switching, deconstruction and other building-related sustainability initiatives are formalized for continued future implementation and long-term planning.

An example of a major building project involving both energy efficient design and deconstruction is the Ravenna Public Works Yard Facilities project. This project will involve removal and deconstruction of existing facilities and design and construction of new facilities. Staff will be recommending a deconstruction diversion rate of 75% or better. Staff will be requesting that the Engineering firm hired to complete the redesign develop energy metrics that exceed industry standards for similar buildings by type and size and consider additional equipment that could lead to further energy savings. While this example falls outside of the proposed policies' starting date of 2024, it illustrates how the proposed policies will support comprehensive efforts like this as Town facility needs continue to grow and change over time.

E. Strategic Priorities

1. Communication and Engagement

We will enhance communications and engagement between Town Staff, Town residents and stakeholders

2. Organizational Excellence

We will continually seek out ways to improve the internal organization of Town Staff and the management of Town assets.

3. Community

We will protect and enhance the community feel and the character of the Town, while ensuring the responsible use of resources and restoration of nature.

4. Quality of Life

We will foster a high quality of life for full-time and part-time residents of all ages and stages, while welcoming visitors.

F. Environmental Impacts

No adverse impacts to the environment are anticipated due to the recommendations of this report.

As noted earlier in this report, the proposed Municipal Net Zero Energy Building Policy and Municipal Construction Waste and Deconstruction Policy both have positive impacts on environmental sustainability for the Town and represent an opportunity for the Town to lead by example in advance of upcoming Green Development Standards that would apply to the broader community – regardless of whether these include voluntary or mandatory measures, or a combination.

G. Financial Impacts

The Municipal Net Zero Energy Building Policy gives staff direction to pursue Net Zero Energy building designs. According to a 2019 Canada Green Building Council study, a typical Zero Carbon Building would require an 8% price premium and would have a positive financial return after 25 years compared to a typical (less-efficient) building option. Building to a Net Zero Energy performance standard is expected to be more affordable than building a less-efficient new building now, and then retrofitting to net zero energy performance at a later date. It is difficult to anticipate future costs, especially given recent world events and supply chain disruptions, which have increased building and construction-related costs in recent years. As municipalities across Canada work towards their own net zero emissions targets, there will be growing numbers of examples and lessons to learn that may inform more specific cost and payback expectations on a project-by-project basis. Any major investments in new buildings will

be considered in the normal budget processes and/or via reports to Council exploring the anticipated energy- and carbon-related costs and benefits.

Future Energy Conservation and Demand Management Plans (ECDMPs) will identify strategies and measures for fuel switching and improve energy efficiency at Town facilities. These initiatives will have associated up-front costs, to be considered alongside anticipated benefits that may include energy cost savings, reduced maintenance, and avoided GHG emissions. Projects implemented as part of the ECDMP will occur within normal budgeting processes and under the purview of the Manager of Facilities and Fleet. Including these initiatives within the ECDMP also provides more opportunity to apply for third-party funding (e.g. Green Municipal Fund) and is expected to make it easier to qualify and to submit compelling applications for such funding opportunities.

Deconstruction may be more expensive than demolition and can add time to typical building removal project timelines. Recovered building materials and components have value to recyclers and building projects that seek to incorporate reused/recovered options, which can offset the increased costs of deconstruction. It is expected that the value of recovered building materials will factor into cost reductions for deconstruction contractors, or may present opportunities for revenue to the Town. Exact costs and benefits of each deconstruction project will be assessed on a case-by-case basis.

H. In Consultation With

Phil Pesek, Manager of Facilities and Fleet

Serena Wilgress, Manager of Purchasing and Risk Management

Service Area Managers (SAM)

Senior Management Team (SMT)

I. Public Engagement

The topic of this Staff Report has not been the subject of a specific Public Meeting and/or a Public Information Centre. The proposed policies attached to this report align with TBM Future Story, which is the Town's Integrated Community Sustainability Plan (ICSP), specifically Bold Action 8: Develop a net zero carbon municipal building policy, and Bold Action 12: Establish litter and construction waste management plans. TBM Future Story was developed with extensive public engagement opportunities and input.

Any comments regarding this report should be submitted to Nicholas Cloet, Sustainability Coordinator sustainability@thebluemountains.ca.

J. Attached

1. Proposed Municipal Net Zero Emissions Buildings Policy
2. Proposed Municipal Construction Waste and Deconstruction Policy

Respectfully submitted,

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Report Approval Details

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Attachments:	- Attachment 1 Proposed Municipal Net Zero Emissions Buildings Policy.pdf - Attachment 2 Proposed Municipal Construction Waste and Deconstruction Policy.pdf
Final Approval Date:	May 15, 2023

This report and all of its attachments were approved and signed as outlined below:

Jeff Fletcher - May 12, 2023 - 11:15 AM

Shawn Carey - May 15, 2023 - 10:25 AM