

City of Sault Ste. Marie Sustainability Report: 2023 - 2024

Prepared by: Community Development and Enterprise Services

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Land Acknowledgement

The City of Sault Ste. Marie (the City) acknowledges, with respect, that we are in Robinson-Huron Treaty territory, that the land on which we are gathered is the traditional territory of the Anishinaabe; home of Garden River First Nation, Batchewana First Nation and the Metis Nation. The City also acknowledges that this area is historically known as Bawating. The City recognizes the importance of our relationship with the Indigenous community, as we move forward together in Reconciliation, and the importance of meaningful consultation with the Indigenous community, who have a commitment to environmental stewardship.

List of Acronyms

AADT – Average Annual Daily Traffic	GIS – geographic information systems
ATMP – Active Transportation Master Plan	GJ – gigajoule
ATR – Automated Traffic Recorder	GMF – Green Municipal Fund
BEV – Battery Electric Vehicles	HDD – Heating Degree Days
CAC - Community Adjustment Committee	HOEP – Hourly Ontario Energy Price
CAC – Community Adjustment Committee	ICI – Industrial, Commercial and Institutional
ccASHP - Cold-Climate Air Source Heat Pump	ICLEI – Local Governments for Sustainability
CD&ES - Community Development and Enterprise Services	ICLEI – Local Governments for Sustainability (ICLEI Canada)
CD&ES – Community Development and Enterprise Services	IESO – Independent Electricity Systems Operator
CDD – Cooling Degree Days	IPPU -Industrial processes and product use
CDF – Community Development Fund	IT – Information Technology
CEF – Community Efficiency Financing	kW – kilowatt
CH ₄ - Methane	kWh – kilowatt hours
CO ₂ - Carbon Dioxide	LED – Light Emitting Diode
DSSMSSAB - District Sault Ste. Marie Social Services Administration Board	LFG - Landfill Gas
ECCC - Environment and Climate Change Canada	LNG – Liquefied Natural Gas
EIE – Environmental Insights Explorer	MCIP – Municipal Climate Innovation Program
EPA – Environmental Protection Act	MNRF - Ministry of Natural Resources and Forestry
ESC – Environmental Sustainability Committee	N ₂ O - Nitrous Oxide
ESP – Expanded Polystyrene	NAICS – North American Industry Classification System
EV – Electric Vehicle	NPRI - National Pollutant Release Inventory
EV – Electric Vehicle	NRCan – Natural Resources Canada
FCM - Federation of Canadian Municipalities	OEB – Ontario Energy Board
FCM – Federation of Canadian Municipalities	PCP – Partners for Climate Protection
FCM – Federation of Canadian Municipalities	PCP - Partners for Climate Protection Program
GHG – Greenhouse Gas	PCP – Partners for Climate Protection Program
GHG – Greenhouse Gas	RFP – Request for Proposal
GHG – Greenhouse Gas	ROI – Return on Investment
GHGRP - Greenhouse Gas Reporting Program	SMT – Senior Management Team
	SSMIC – Sault Ste. Marie Innovation Centre

t – tonnes; typically the unit of measure in which
GHG emissions are calculated
tCO₂e - tonnes of carbon dioxide equivalent
tCO₂e – tonnes of carbon dioxide equivalent
TOR – Time-of-Use

UN – United Nations
USA – United States of America
VKT – Vehicle Kilometres Travelled
Δ – Delta (change)

Executive Summary

December 14, 2024, marked four years since the City of Sault Ste. Marie (the City) Council unanimously endorsed *Sault Ste. Marie Community Greenhouse Gas (GHG) Reduction Plan 2020 – 2030* targets net-zero emissions by 2050, and has interim targets of 10% corporate reduction and 5% community reduction by 2030. Since Council's endorsement, the City has made measurable progress in implementing the plan's seven pillars: Buildings & Energy (Community and Corporate), Transportation, Waste, Green Space, Economic Development, and Municipal Leadership, which is highlighted in this report. See Appendix A for a review of all 60 actions implementation status.

As part of ongoing climate action efforts, the City of Sault Ste. Marie completed an update to both its community and corporate greenhouse gas (GHG) emissions inventories, building on the initial baseline established in 2017. The updated inventories were completed in accordance with the Partners for Climate Protection (PCP) methodology, and provide a comprehensive overview of emissions within the municipal boundary of Sault Ste. Marie.

2022 Community GHG Emissions Update

Community emissions account for approximately 99% of total emissions within the city. In 2022, total community GHG emissions were estimated at 1,547,088 tonnes of CO₂ equivalent (tCO₂e), a 3% increase from 2017 levels. The largest share of emissions continues to come from the energy sector (87%), followed by transportation (12%) and waste (1%). Notably, while energy and transportation emissions have risen slightly (3% and 6% respectively), emissions from waste have declined by 22%.

2023 Corporate GHG Emissions Update

Corporate emissions, representing operations directly controlled by the City totaled 10,862 tCO₂e in 2023, denoting a 5% increase from 2017. While building emissions saw a modest increase (5%), and outdoor lighting emissions rose by 70% (reflecting the increased use of natural gas in the Ontario electricity mix), and reductions in fleet emissions by 7%. Emissions from water and sewage services also rose by 20%. A detailed breakdown of the inventories, including methodology and data sources, can be found in Appendix B: *Sault Ste. Marie 2022 Community and 2023 Corporate Greenhouse Gas Emissions Inventory Update Report*.

This report summarizes highlights and progress made in 2023 and 2024, as well as the growing momentum toward environmental leadership and climate resilience in 2025 and beyond.

2023 Sustainability Highlights

In 2023, the City updated its corporate GHG emissions inventory based on 2022 data, revealing a 10% increase since 2017, reinforcing the urgency of action. To improve coordination, biannual energy and sustainability meetings with department heads and facility staff were launched. A climate impact statement was also integrated into Council reports to support policy alignment with emissions goals.

The City initiated or completed several energy efficiency projects, including LED lighting upgrades, the recommissioning of the GFL Memorial Gardens ice plant, and the purchase of electric ice resurfacers. Community engagement was strong through events such as World Water Day, the Northern Ontario Youth Climate Action Summit, the City Nature Challenge, Yellow Fish Road, Bike to Work Week, and the first EV Showcase.

Through the Green Initiatives Fund, \$52,144.22 was allocated to community projects such as stormwater Litter Traps, electric snowblowers for fire services, and Clear Your Gear fishing line recycling at the Parks Canada Sault Canal. The City also hosted a Sustainable Procurement Workshop for staff, published its first Sustainability Report, and secured funding for a Deep Energy Retrofit audit of top six emitting municipal buildings.

2024 Sustainability Highlights

In 2024, the City focused on major infrastructure and emissions planning. The Deep Energy Retrofit (DER) Project progressed with site assessments and design workshops for six high-emitting community buildings, with final reports expected in 2025. Solar and energy efficiency upgrades continued, including the Transit Administration Building solar project, John Rhodes roof replacement (to support future solar), and installation of five EV fleet chargers.

The Green Initiatives Fund supported 14 projects over four intakes with an allocation of \$57,479.39, funding projects including invasive species removal, an e-bike, LED retrofits, and school-based pollinator gardens. The Battery Electric Bus Study and participation in the ICLEI Buildings to Net-Zero Projects demonstrate further long-term climate action commitment.

Community engagement remained high, with the Earth Day video project, the second EV Showcase, and over 700 students from local schools participating in Yellow Fish Road program. The City also explored the Nature Canada Bird Friendly City program and partnered with Garden River First Nation and the Algoma Highlands Conservancy on the Ecological Corridor Project being led by Ontario Nature to enhance regional biodiversity.

As Sault Ste. Marie moves into 2025, continued leadership and stronger cross-departmental support will be critical to meet GHG reduction targets. A united focus on sustainable growth, infrastructure modernization, and community collaboration will drive progress aligned with the net zero target in the GHG Reduction Plan.

1. City of Sault Ste. Marie Sustainability Efforts: 2023 - 2024

This section of the City's Sustainability Report will outline sustainability efforts and projects that took place in 2023 and 2024. Efforts are broken down under the Sault Ste. Marie Community GHG Reduction Plan and has seven pillars, which are:

- | | |
|-----------------------------------|-------------------------|
| 1. Buildings & Energy – Community | 5. Green Space |
| 2. Buildings & Energy – Corporate | 6. Economic Development |
| 3. Transportation | 7. Municipal Leadership |
| 4. Waste | |

The report will start with a review of what was completed in 2023, followed by efforts from 2024. A summary of planned initiatives for 2025 will also be provided, followed by Appendix A, which will provide a task update on the actions outlined in the GHG Reduction Plan. The following section of this report outlines the 2023 substantiality efforts.

2. 2023 Sustainability Efforts Summary

An overview of key sustainability efforts and projects the City worked on in 2023 are listed below.

1. Buildings & Energy – Community

Community Energy Efficiency Prioritization

In 2023, a variety of initiatives were undertaken by the City to encourage energy efficiency in the community. In particular, the City partnered with the Sault Ste. Marie Innovation Centre to deliver a free two-part in-person luncheon information series on commercial and industrial natural gas energy conservation incentive programs. Representatives from Enbridge and the IESO attended to share incentive program information with industrial, commercial, and broader public sector attendees.

In addition, City Council approved that the City proceed to apply for funding from the Federation of Canadian Municipalities for phase two of the Community Efficiency Financing project. A feasibility study was completed in 2023 that identified that there is potential for residential greenhouse gas reduction from developing a community retrofit program. The Design Study is needed to finesse details about costs, measures, implementation etc.

2. Buildings & Energy – Corporate

Corporate GHG Emissions Inventory Update

Staff provided City Council with an [update](#) on corporate emissions in 2022. The inventory compared emissions in 2022 to 2017 baseline and show that corporate emissions had increased 10%.

Corporate Energy Efficiency Prioritization

In 2023, a bi-annual corporate energy and sustainability meeting was organized with Department heads and key facility management staff to help prioritize and track emissions reduction projects. It also included a Sustainability Audit of the City's budget to create a baseline of spending allocated towards corporate sustainability initiatives. The first meeting took place on February 28,

2023. The second and last meeting of the year was held on July 11, 2023, with City Department heads and key facility management staff to help prioritize and track emission reduction projects. This was a remedial action identified in the 2022 Corporate GHG emissions inventory update that noted that corporate emissions were up 10%.

Some key energy retrofit projects were completed, including an LED Upgrade to the PW Garage A and the Ice Plant Recommissioning project at the GFL Memorial Gardens. These projects were estimated to reduce the City's electricity consumption by 139,370 kWh and 3.55 tCO₂e.

As well, the annual 2023 Broader Public Sector Energy and Emissions (O.Reg 25/23) Reporting was completed for the City by October 31, 2023, as mandated by the Province.

The City also received funding from the FCM to conduct a Deep Energy Retrofit (DER) Audit Project. The DER audits will enable the City to identify a sequence of GHG reduction measures to reduce GHG emissions for a portfolio of the top six (6) emitters of community buildings including: the John Rhodes Community Centre, East End Wastewater Treatment Plant, GFL Memorial Gardens, Public Works Centre, Fire Hall 4 / RESC Centre, and Transit Administration.

Corporate Energy Efficiency Incentives and Funding

Multiple energy incentive grants have been pursued since 2022 to encourage energy savings and environmental sustainability. The following tables identify confirmed and prospective projects identified in 2023 and 2024.

Confirmed Projects

Year	Project	Estimated Annual Savings	Incentive Estimate	Incentive Funder	tCO ₂ e Reduction	Status
2023	NCC Heat Recovery	TBD	\$5,774.50	Enbridge	44.63	Complete
2023	PW Building A LED Retrofit	\$7,550.40	\$3,630.00	IESO	Unknown	Complete
2023	EV Zamboni #1 - NCC Twin Pad	N/A	N/A	N/A	9.3	Complete
2023	North Street Outdoor Sports Complex Ball Field Lights	\$6,184.62	\$22,320.00	IESO	1.21	Not started
2023	Strathclair Soccer Fields 1 & 2 LED	\$1,082.38	\$3,480.00	IESO	Unknown	Not complete
2024	PW Building G			IESO	Unknown	Complete
2024	Cemetery			IESO	Unknown	Complete
2024	Fire Hall 4 - Shop LED lights			IESO	Unknown	Complete
2024	Fire Hall - 72 Tancred for DCV installed on the rooftop	Unknown	\$500.00	Enbridge	Unknown	Complete
2024	Fire Hall 2 - Air Unit with ARV	Unknown		Enbridge	Unknown	Complete
2024	Fire Hall 3 - Air Unit with ARV	Unknown		Enbridge	Unknown	Complete
2024	SSM Museum - Heat Pump	Unknown	TBD	N/A	Unknown	Complete
2024	Submitted a rebate application to Enbridge for \$10K for an offset to Energy Audit cost			Enbridge	N/A	Complete
		\$14,817.40	\$35,204.50		55.14	

Projects In-Progress

Year	Project	Estimated Annual Savings	Incentive	Funder	tCO2e
2025	JRCC - heat recovery, HVAC, and roof replacement				
2025	GFL Parking Lot Lights	\$4,651.92	\$4,651.92	IESO	0.91
2025	PW Weather Stripping				
2025	Transit Electric 40' Bus				
2025	Transit Electric Parabus				
2025	EV Charger Allocation				
2025	Strathclair Dog Park Solar Lighting				
2025	GFL Chiller				
2025	JRCC LED Lighting				
2025	Police HQ HVAC Replacement				
2025	Fire Hall 4 Air Handling Units				
2025	JR Field B LED oval and soccer				

3. Transportation

City's First Electric Ice Resurfacer Purchased

In May 2023, the City of Sault Ste. Marie purchased and is using its very first electric resurfacer. A purchase was also approved for further into 2023. This was the City's first electric vehicle, and there are plans to electrify the entire ice resurfacing fleet.

Civic Centre EV Charger Project

Funding was allocated from the City's Green Initiatives Fund for the installation of two (2) chargers to initiate the installation of electric vehicle charging infrastructure in the City's fleet.

Bike to Work Week

The City of Sault Ste. Marie partnered with Algoma Public Health and the Sault Cycling Club to host a Bike to Work Week from June 3 – 9, 2023. Community members logged all non-car rides, also contributing to the ParticipACTION challenge. 85 participants were involved, resulting in 10 group rides and 2,802.06 kilometres travelled.

Activities to increase transit ridership

The City continues to offer incentives to encourage public transit use, including a semester pass for university students, a senior and youth pass, and a program with the District Sault Ste. Marie Social Services Administration Board (DSSMSSAB) for free ridership. The City has also expanded upon its on-demand transit, a real-time passenger app site, as well as the adventure bus program. Information is available on the City's website regarding bus routes and schedules.

Soo Moves Active Transportation

The City of Sault Ste Marie is developing the Soo Moves Active Transportation Master Plan (ATMP) to make the City more comfortable, more accessible and more convenient for people who walk, bike and wheel to get around.

Fire Services Electric Snowblower Project

Funding was allocated to the City from the Green initiatives fund to purchase an electric snowblower for fire services.

EV Showcase

The City of Sault Ste. Marie, PUC Services Inc. (PUC) and the Sault Climate Hub hosted Sault Ste. Marie's first [EV showcase](#) on Saturday, October 12, 2023. During the showcase, local EV owners displayed their electric vehicles, including plug-in-hybrids, and shared their EV knowledge with the community. The partners plan to host this on an annual basis.

4. Waste

Trapping the Flow Project



The City's Environmental Sustainability recommended that funding from the City's Green Initiatives fund be allocated to the Sault Ste. Marie Innovation Centre Lake Huron North project to install eight (8) [Litta Trap](#) Filters in stormwater drains at the intersection of Bay and East Street. Litta Traps are designed to capture plastic pollution that would otherwise flow into the St. Mary's River and the North Channel of Lake Huron¹.



Clear Your Gear Project

The City's Environmental Sustainability recommended funding from the City's Green Initiatives fund was allocated to Tourism Sault Ste. Marie, to purchase and install seven (7) [Clear Your Gear](#) fishing line recycling receptacles to provide a safe and environmentally friendly way to collect and recycle discarded fishing line in high-impact fishing areas at the Sault Canal. Improperly discarded fishing line can last in the environment for up to 600 years and is the leading cause of entanglement issues for people, property & wildlife. This program provides fishing line receptacles at the Sault Ste. Marie Canal and Whitefish Island, helping anglers responsibly dispose of waste fishing lines.



¹ <https://www.ctvnews.ca/northern-ontario/article/special-traps-help-keep-microplastics-out-of-sault-waterways/>

Supported by local partners, including Parks Canada, Tourism Sault Ste. Marie, Batchewana First Nation, Clear Your Gear ensures the protection of waterways and wildlife, promoting sustainable tourism for future generations².

World Water Day Community Presentation

The 2023 United Nations (UN) World Water Day theme was Accelerating Change to help solve the global water and sanitation crisis, and they are asking groups around the world to [Be the Change They Want to See in the World](#). In preparation for this, volunteers from across the Twin-Saults came together to prepare the 3rd annual local series of events to encourage people to learn about water conservation and take action. The City participated by holding a virtual community presentation that took place on: March 22, 2023 - 7 PM - 8:30 PM. Speakers include:

- **Candace Day Neveau**, Co-founder of Baawaating Water Protectors, “Guidance from an Anishinaabe Fisherman's Granddaughter”
- **Dr. Paula Cypas Antunes**, Senior Research Scientist, Nautilus Environmental, “Contaminants of Concern: Challenges & Remediation”
- **Dr. Michael Twiss**, Dean, Faculty of Science, Algoma University: “Our Relationship with the Great Lakes”

Northern Ontario Youth Climate Action Summit

The City of Sault Ste. Marie participated in the Science North Northern Ontario Youth Climate Action Summit April 25th – April 26th. The Sustainability Coordinator provided a group of high school students with an understanding of the City's climate change portfolio and engaged youth in a climate action planning activity. The City also supported a community clean-up led by the high school students as part of the summit.

Yellow Fish Road – June 5 – June 16th

Over 500 students from the Algoma District School Board with support from the City of Sault Ste. Marie hit the streets to paint yellow fish near storm drains to bring awareness to stormwater pollution through Trout Unlimited Canada's Yellow Fish Road Program³.

5. Green Space

FH Clergue Tree Planting Project

The F.H. Clergue Playground Tree Planting Project received funding from the City's Green Initiatives Fund. The playground had lacked sufficient tree cover, offering little shade during hot days and minimal protection from cold winter winds. This impacted student comfort and well-being. The project aimed to address these issues by planting a variety of trees to provide shade, reduce urban heat effects, and lower greenhouse gas emissions.

²<https://saulttourism.com/outdoors/fishing/#:~:text=Clear%20Your%20GEar&text=This%20program%20provides%20fishing%20line,the%20City%20of%20Sault%20Ste.>

³ <https://www.saultthisweek.com/news/local-news/adsb-students-take-a-walk-down-the-yellow-fish-road>

The initiative also supported local wildlife by restoring habitat for birds and pollinators, while contributing to improved mental health for students through exposure to natural, tree-filled spaces. Trees were planted along the Pine Street and Cunningham Street borders, spaced 3 metres from the



fence and approximately 5 metres apart—a plan approved by the Physical Plant Department to ensure ongoing maintenance was not disrupted. All materials, including trees, soil, and supplies, were purchased and delivered. The planting was carried out by families of students, building on a successful pilot in summer 2022, which involved around 30 volunteers. The main planting took place in late spring and summer of 2023, coordinated around tree delivery and volunteer availability.



Clean North Tree Planting Project

Clean North received funding from the City's Green Initiatives Fund to support the establishment of a white cedar forest grove and healing garden at the Sault Area Hospital (SAH) Residential Withdrawal Management Centre, located at the corner of Second Line East and Old Garden River Road. With an existing plantation of over 800 eastern white cedar trees at a nearby site, Clean North partnered with the SAH project team and the landscape architect to contribute 300–500 trees for the facility's exterior landscaping.



The trees were intended to enhance the aesthetic, spiritual, and environmental value of the site. They would provide green space around the outdoor healing lodge, act as visual and noise buffers from nearby roads, offer wind protection and shelter for residents and staff, and help with runoff control and groundwater infiltration. Eastern white cedar, one of the four sacred medicines in many First Nations and Métis traditions, was selected for its cultural significance.

The primary objective of the project was to transplant 300–500 eastern white cedar trees from Clean North's nursery to the SAH site. Clean North donated both the trees and the required labour at no cost to the project⁴.

⁴ <https://www.sahfoundation.com/post/trees-for-healing-sanctuary-clean-north-and-the-northway-wellness-centre-project>

Invasive Species Centre Himalayan Balsam Pull Project



The Invasive Species Centre (ISC) Himalayan Balsam Community Management Project received funding from the City's Green Initiatives Fund. The project brought together the ISC and several local environmental organizations to develop a coordinated response to the growing Himalayan balsam population in Sault Ste. Marie. Efforts focused on creating unified messaging around identification, prevention, reporting, and management of the invasive species.

Public outreach included community pull events, educational initiatives, and resources to help homeowners manage and replace Himalayan balsam on their own properties. A total of five Himalayan balsam pull events were carried out by the ISC and its partners, involving both public and private land. Community members were invited to participate in the public pulls, where they received hands-

on training in invasive species management and learned how to help control Himalayan balsam locally. Participants left with increased knowledge not only about this specific plant, but also about broader invasive species issues and practical prevention strategies they could apply in their daily lives⁵.

2023 City Nature Challenge

From April 28 – May the City of Sault Ste. Marie, in partnership with the Sault Naturalists and the Sault Ste. Marie Region Conservation Authority joined the [City Nature Challenge](#). Over 600 observations and 221 species were identified as part of the global BioBlitz. The City and the Sault Naturalists also met with the Central Algoma Elementary School Grade 6 class to talk about biodiversity and climate change as part of the City Nature Challenge.

World Migratory Bird Day

The City supported the Sault Naturalists in their World Migratory Bird Day outing with a proclamation at Council. This aligns with the City's efforts to work with [Nature Canada](#) to become a [Bird-Friendly City](#). Note that this initiative was ultimately not recommended for Council to pursue in 2024 as resources can be allocated better to other initiatives and projects.

6. Economic Development

In 2023/24, the economic development team engaged with several sustainable industries that were considering potentially locating in Sault Ste. Marie. These industries were Green Hydrogen, Mineral Reprocessing, Green Cement, and Green Energy. They also held discussions with representatives in the Forestry sector to explore unique products such as Biochar and Bio coal.

The team continues to look for opportunities to advance to a deep-sea Port in Sault Ste. Marie applied for funding under the Green Shipping Corridor Program, successfully securing funds for several environmental and engineering studies, with a focus on developing low-GHG infrastructure into Port design.

⁵ <https://www.saultthisweek.com/news/local-news/invasive-species-centre-leads-community-project>

Funding Received for Gateway Site Remediation Project

Funding from the FCM was secured by the City to conduct a Phase II ESA and Record of Site Conditions for the Gateway site. This is a key part of the planned brownfield redevelopment which will serve as a catalyst for community revitalization. Transforming abandoned or contaminated sites can breathe new life into neighborhoods, attracting investment, businesses, and residents.

Climate Impact Statement on Council Reports

Effective January 30, 2023, the Council Report template has been amended to include a section to address climate impact for relevant reports. The “STRATEGIC PLAN / POLICY IMPACT” section has been revised to include Climate impact as “STRATEGIC PLAN / POLICY IMPACT / **CLIMATE IMPACT.**” A background was also presented to Senior Management to support staff with this new criteria. Staff consult with the Sustainability Coordinator to support with this on council reports. Uptake is ongoing as it is currently voluntary.

City’s First Sustainability Report Approved

On May 29th, the City’s first [Sustainability Report](#) was approved by City Council. It aligns with the Sault Ste. Marie GHG Reduction plan seven pillars and highlights all corporate sustainability efforts from 2021 and 2022 and plans for 2023. Staff intend to provide an update on all corporate sustainability efforts to Council on an annual basis.

Municipal Climate Action Leadership Meeting

On November 27, 2023 the City’s Environmental Sustainability Committee held a special meeting featuring two guest speakers who spoke about advancing municipal climate change action. The meeting featured Gabrielle Kalapos, Executive Director from the Clean Air Partnership, a non-profit that motivates and supports local government action on clean air and climate change for over 20 years, and Mike Layton, Chief Sustainability Officer at York University, and former three term City Councillor at the City of Toronto. A recording of the meeting and presentations can be viewed [here](#).

3. 2024 Sustainability Summary

An overview of key sustainability highlights from the City that took place in 2024 are listed below.

1. Buildings & Energy – Community

Deep Energy Retrofit (DER) Audit Project Site Assessments

Phase 1 of the City’s DER project kicked off in 2023 with site assessments of the top six (6) emitters of community buildings (John Rhodes Community Centre, GFL, Transit Building, Public Works Building, Fire Hall 4 and the East End Wastewater Treatment Plant. These assessments will result in data driven financial analysis and accurate estimates of energy consumption, cost and savings as well as GHG emissions and emission reduction measures. Phase 2 was also completed which included an integrated design workshop assessing preliminary results of the audits.

2. Buildings & Energy – Corporate

Corporate Energy Efficiency Prioritization

See 2023 section of report.

John Rhodes Roof Replacement Kickoff

This project seeks to replace the roof to accommodate future solar panels, and also implement a heat recovery and HVAC replacement, aligning with the City's energy efficiency goals.

Transit Administration Solar Project

Work kicked off on the City of Sault Ste. Marie's Transit Administration Building Solar Project, the first solar project for the City of Sault Ste. Marie.

Manzo Pool LED Retrofit Conversion

A conversion of the Manzo Pool to LED lighting was completed in September 2024.

Buildings to Net Zero Project

The City of Sault Ste. Marie was selected as a cohort in ICLEI (Local Governments for Sustainability) Building to Net-Zero (BNZ) Project, a project designed to support municipalities in the adoption of building energy performance frameworks⁶.

3. Transportation

ChargeIT

Sault Ste. Marie's Community Electric Vehicle Charging Infrastructure Plan (ChargeIT) was unanimously approved by City Council on January 8, 2024. ChargeIT's goal is to help the City accelerate the deployment of public EV charging infrastructure in the community. To learn more click on the [ChargeIT Report](#) and the [ChargeIT Council Presentation](#).

Transit Electrification Study Project

In 2022, the City of Sault Ste. Marie, along with twelve (12) other municipalities in Ontario, started participating in a study that will develop information resources and implement a roadmap for the transition to electric buses. The study is being coordinated by Metrolinx Transit Procurement Initiative. This work was ongoing in 2024.

Active Transportation Master Plan

In 2022, the City of Sault Ste. Marie launched the active transportation master plan (ATMP) project. The plan will serve as a guiding document to inform future capital expenditures into pedestrian, cycling and recreational trails infrastructure. It will also provide guidance for the City's street policy, street plan and incorporate mountain biking opportunities, trail systems and ensure all are barrier free. Increasing active transportation is important for community health and

⁶ <https://icleicanada.org/project/bnz/>

wellness. It also contributes to reduced greenhouse gas emissions locally. This work was ongoing in 2024.

2024 Bike to Work Week

The City, Sault Cycling Club, and Algoma Public Health partnered for the second year in a row to host a Bike to Work Week in Sault Ste. Marie encouraged people to leave their cars at home and walk, cycle, carpool/ride-share, take transit or telecommute. #SooBikes2024 includes everything from getting groceries, riding to and from work or school, hitting the Hub Trail, trail rides, fat bike rides or other recreational rides exploring in and around Sault Ste. Marie. For more information on the seven days of challenges and prizes [click here](#).



2nd Sault Ste. Marie EV Showcase

The City of Sault Ste. Marie, PUC Services Inc. (PUC), and the Sault Climate Hub hosted the second annual Sault Ste. Marie Electric Vehicle (EV) Showcase, which took place in partnership with the Queen Street Cruise in Downtown



Sault Ste. Marie on June 14 and 15. As part of the Queen Street Cruise, local EV owners, including area



businesses with EVs, displayed their vehicles, including plug-in hybrids. PUC was on site with their EV fleet to share their knowledge and explain how the EV Home Charger Rental Program worked.

EV Fleet Charger Project



Five (5) electric vehicle (EV) level 2 chargers have been installed at 3 City sites for the use of future City EV vehicles (2 at Public Works, 2 at the Civic Centre, and 1 at Transit).

Final commissioning is expected by the end of May 2025. These chargers are for City fleet use only (not available to the public) and will ensure the City has charging infrastructure as it begins to procure EVs.

John Rhodes Public EV Charger Project

An application made to the Provincial ChargeON funding program has resulted in 50% of funding towards the costs of installing four (4) public Level 2 chargers at the John Rhodes Community Centre. Project planning and additional funding applications are still underway, and kickoff is still undetermined. More to come.

4. Waste

Yellow Fish Road



In 2024, over 700 Students from the Algoma District School Board (ADSB) and Huron-Superior Catholic District School Board (HSCDSB) with support from the City, participated in the Yellow Fish Road Program by painting yellow fish near storm drains to raise awareness about stormwater pollution. Painting activities took place at 14 ADSB and HSCDSB schools.



5. Green Space

2024 City Nature Challenge

The City, The Kensington Conservancy, the Sault Ste. Marie Region Conservation Authority and the Sault Naturalists organized the [2024 City Nature Challenge](#) (a global bioblitz for Algoma and Chippewa County). Over 2,800 observations were made and over 600 species were identified over four days during this community science initiative. Sault Ste. Marie ranked 11th in all of Canada for the global competition.

Ecological Corridor Project Kickoff

Sault Ste. Marie and Garden River First Nation are national priority areas for ecological corridors. The City, Garden River First Nation, and the Algoma Highlands Conservancy are working with Ontario Nature on a project funded by Parks Canada to delineate and characterize existing protected areas and unprotected natural habitats to develop a consolidated ecological corridor to enhance connectivity between Lake Superior and Lake Huron. To learn more [click here](#).

6. Economic Development

In 2023/24, the economic development team engaged with several sustainable industries that were considering potentially locating in Sault Ste Marie. These industries were Green Hydrogen, Mineral Reprocessing, Green Cement, and Green Energy. They also held discussions with representatives in the Forestry sector to explore unique products such as Biochar and Bio coal.

The team continues to look for opportunities to advance a deep-sea Port in Sault Ste. Marie and applied for funding under the Green Shipping Corridor Program, successfully securing funds for several environmental and engineering studies, with a focus on developing low-GHG infrastructure into Port design.

7. Municipal Leadership

Green Initiatives Fund Refresh

The City of Sault Ste. Marie's Environmental Sustainability Committee (ESC) kicked off the 2024 Green Initiatives Fund project season with a new [promotional video](#) designed to inspire increased participation. Applicant eligibility criteria has been expanded to include applications from local schools, unincorporated organizations and collectives with a minimum of two members, operational for at least one year. [Click here](#) to learn more and view the application [form here](#).

Earth Day School Video Project



2024 City Sustainability Project Assistant Summer Student Hannah Grisdale joins St. Francis French Immersion School to give them their FoodCycler.

As Earth Day approached on Monday, April 22, 2024, all Sault Ste. Marie schools were invited by the City to participate by creating a 1-minute video highlighting their sustainability initiatives. All submitted videos were compiled into one and shown on the City's Downtown Plaza screen as part of the City's Earth Day programming. Additionally, the videos were shared across the City's social media platforms. Each participating school was entered into a draw to win one of two countertop composters donated by FoodCycler (a countertop composter donated to the City). Ben R.



Students from Ben R McMillan Public School show their FoodCycler prize from the Earth Day Video project.

McMillan Public School and St. Francis French Immersion School were the winners.

City Sustainability Summer Student Work

The City applied to the Canada Parks and Recreation Association Green Jobs Grant and received funding to hire a sustainability summer student (Hannah Grisdale) who supported staff with creating educational programming to be shared at City community centres and the Plaza for environmental days including: Pollinator, Forest, Water Day and Earth Day Activities. The summer student also created and held youth pollinator activities at the Plaza, Manzo and Greco Pools. Hannah supported both City sustainability and recreation staff portfolios.

Algoma District School Board Speakers Summit

A presentation on the City's sustainability portfolio was presented to Algoma District School Board Students at their Speakers Summit by the City's Sustainability Coordinator. A focus on the City's Green Initiatives Fund which schools can apply for was highlighted to drive up applications.

Sault College Bachelor of Nursing Students Outreach

A presentation on the City's sustainability portfolio was presented to Sault College Bachelor of Nursing students in their population health course by the City's Sustainability Coordinator. A focus on the City's Climate Plan, net zero target progress, and climate risk assessment were

highlighted to showcase efforts to ensure the quality of life and health in Sault Ste. Marie as it pertains to climate change.

FCM Climate Ready Plans and Processes

The City applied to the FCM GMF Climate Ready-Plan fund. This funding is intended to support communities in adapting to the impacts of climate change by developing climate risk assessments and climate adaptation plans. If successful, the City will be using this money to create the first Sault Ste. Marie Climate Adaptation Plan.

Funding Application for \$1,000,000 submitted to the Government of Canada Green and Inclusive Community Buildings Fund

The Green and Inclusive Community Buildings (GICB) Program is a national merit-based Program with the objective of improving the availability and condition of community buildings in Canadian communities experiencing higher needs and who are currently underserved. At the same time, the Program helps to stimulate the economy while creating good job opportunities and aligning to the goals of Canada's strengthened climate plan. The Program advances the Government's climate priorities by improving energy efficiency, reducing GHG emissions, and enhancing the climate resilience of community buildings.

Environmental Sustainability Committee

In 2024, the City's ESC received 12 project applications and allocated \$57,479.39 towards them. \$3,414.99 was allocated towards tree planting on City land for 2025. The following table summarizes the projects

Line No	Applicant	Project	\$ Approved	Status
1	Invasive Species	Himalayan Balsam Pull	\$3,449.72	Complete
2	Sault Climate Hub	Eastview PS Little Forest	\$5,280.44	Complete
3	Sault Search and Rescue	E-Bike Project	\$8,786.25	Complete
4	SSM Museum	LED Retrofit	\$1,971.71	Complete
5	Algoma Fish and Game Club	Invasive Species Signs	\$885.92	Complete
6	NORDIK Institute	Shoreline Clean-Up	\$7,500.00	Complete
7	City of Sault Ste. Marie Rec & Culture	Electric Lawn Equipment	\$1,274.00	Complete
8	École Notre-Dame-du-Sault	Hydroponic Tower Garden	\$5,495.40	Complete
9	FH Clergue	Tree and Pollinator Program Project	\$4,125.75	In-progress
10	Habitat for Humanity	Kitchen Salvage Program Project	\$5,000.00	In-progress
11	Algoma University	Invasive Species Sign Posters Project	\$2,476.23	In-progress
12	Sault Climate Hub	White Pines Little Forest & Eastview Citizen Science Lab	\$11,233.97	In-progress

A variety of community initiatives took place as a result of the Green Initiatives Fund. City staff look forward to seeing the use of funds expand for community sustainability initiatives in the years to come.

4. City of Sault Ste. Marie 2025 Sustainability Priorities

Looking ahead to 2025, the City intends to work on further embedding sustainability into its operations and practices to improve its chances of meeting its GHG reduction targets (10% corporate and 5% community by 2050, as well as net zero by 2050), for which they are not on target to meet. From 2017 to 2022, the City's emissions have increased by 10%, led predominantly by emissions from fleet and equipment as well as natural gas consumption in City buildings. Efforts to reduce consumption and explore fuel switching technologies are essential to meet these targets, as well as mitigate the worst impacts of climate change. As part of an immediate remediation strategy, starting in 2023, a bi-annual corporate energy and sustainability meeting will be taking place with Department heads and key facility management staff to help prioritize and track emissions reduction projects

The completion of the deep energy retrofit (DER) audit project on the City's top six (6) GHG emitting facilities: 1. John Rhodes Community Centre, 2. East End Wastewater Treatment Plant, 3. GFL Memorial Gardens, 4. Public Works Centre, 5. Fire Hall 4 / RESC Centre, and 6. Transit Administration Garage, will be a key part of this. Work is underway on incorporating energy efficiency KPIs into the City's asset management process and working with Finance on developing a way to finance these audits to support the City's GHG Reduction Targets

Other key projects planned for 2025 include:

COMPLETE

- Corporate EV Charger Project
- World Water Day 2025 (Complete)

IN PROGRESS

- Corporate EV Charging Study
- Transit Depot Solar Project
- John Rhodes Roof Replacement, Heat Recovery and HVAC Replacement Project (roof will be designed to accommodate future solar)
- FCM CEF Phase 2: Program Design for a home-grown community retrofit program in SSM
- 2023 Sustainability Report
- 2023 Corporate Inventory
- 2022 Community Inventory Update
- 2024 City of SSM Energy Conservation and Demand Management Plan
- Deep Energy Retrofit Audit Project
- Active Transportation Master Plan
- Battery Electric Bus Study
- City Nature Challenge 2025
- Bike to Work Week 2025
- Buildings to Net Zero Project
- Ecological Corridor Project




Appendix A: Sault Ste. Marie Community GHG Reduction Plan Implementation Progress

The Sault Ste. Marie Community GHG Reduction Plan focuses on actions to be completed within a 10-year timeframe: 2020 to 2030. It also lays some of the preliminary groundwork for net-zero emissions by 2050.

The plan recommends 60 actions and is broken down into seven key sectors, predominantly based on emission sources and reduction action opportunities. Actions are based on both community and corporate efforts. The sectors are as follows:

- | | |
|-----------------------------------|-------------------------|
| 1. Buildings & Energy – Community | 5. Green Space |
| 2. Buildings & Energy - Corporate | 6. Economic Development |
| 3. Transportation | 7. Municipal Leadership |
| 4. Waste | |

Actions within the plan have been broken down into separate timeframes including: Immediate: action to begin right away, Short Term (1-2 Years), Medium Term (3-5 Years), Long Term (5+ Years), and ongoing (action which has been initiated and will continue throughout the life of the plan). Each action includes leads and partners, as well as performance measures to help measure progress towards implementation. The following section of this report outlines action progress from 2020 to 2022 by section. The legend below denotes the icons used to illustrate the progress levels which are used to categorize action to date:

 Complete	 In progress	 Not started
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Most actions (50) have been initiated, 6 are completed and 5 have not started. The following section of this report summarizes efforts on plan implementation to date.

1. Buildings & Energy – Community

The building and energy section of the GHG Reduction plan accounts for actions to reduce emissions generated using electricity, natural gas, propane, and heating oil. When it comes to community actions, the plan focuses on energy efficiency. Other action areas in the GHG reduction plan include exploring the possibility of diversifying the energy supply (e.g., increasing renewable energy use on municipal buildings and in the community). The following outlines actions to date in the Buildings & Energy – Community.

EDUCATION



Develop a webpage on the City's website as a source of information about the GHG Reduction plan and energy efficiency saving opportunities.

In December 2020, the City of Sault Ste. Marie created a [webpage](#) for the GHG Reduction Plan. This also includes a series of subpages where residents and businesses can access information about [available energy incentive programs](#), [EV charging stations](#) in Sault Ste. Marie, information about how to be a [community energy champion](#) through the ECO School Canada Program and Student Energy for post-secondary students. There is also information about City Climate Change Adaptation [efforts](#), including the completion of climate change adaptation planning and risk assessment completed by the City in 2020. Other pages have been and will continue to be added

with more programming information as the City continues its efforts in encouraging climate mitigation and adaptation.



Create a local 'Student Energy Chapter (at either Algoma University or Sault College).

City staff outreach is ongoing for this.



Increase the number of local schools enrolled in the Eco Schools Canada Program (eco-certification program for K-12).

City staff outreach is ongoing.

REDUCE ENERGY CONSUMPTION AND OPTIMIZE ENERGY EFFICIENCY



- Increase uptake in residential and commercial energy efficiency retrofits that reduce the use of fossil fuels.
- Increase the number of new homes and businesses builds to incorporate energy efficient equipment (e.g. new furnaces, weather stripping, efficient lighting, etc.).
- Develop a Green Building Policy.

Ongoing. Work aligns with past webinars available on the City's website as well as the BNZ project.



Develop a community energy efficiency retrofits program (either for energy efficiency retrofits or renewable energy).

In early 2025, the City received funding for Phase 2 of the three-part project to develop a detailed design for the community retrofit program. Work is underway to start this in partnership with the PUC and Your Neighborhood Credit Union.



Develop a thermal imaging camera borrowing program in partnership with the Library.

On October 14, 2021, the Environmental Sustainability Committee (ESC) supported a request for funding from the Sault Ste. Marie Public Library to the Community Development Fund (CDF) Green Initiatives Program for \$2,120 to go towards the purchase of four (4) infrared imaging cameras to create a borrowing program. This was furthered by support from Council at their November 15, 2021, meeting. The library purchased the cameras in 2021. Thermal cameras offer both a valuable diagnostic tool and a compelling means of fostering engagement and educating homeowners on heat dynamics and can instill an appreciation for energy efficiency in homes. With the information gained by using the cameras, homeowners will be able to make repairs to prevent/reduce heat loss which in turn will result in energy savings and reduce greenhouse gas emissions.

INDUSTRIAL / COMMERCIAL ENERGY EFFICIENCY



- ***Continue to consult with local industrial facilities to understand their current and planned energy efficiency and GHG reduction efforts.***
- ***Foster an environment that encourages new community energy projects to increase sustainable energy opportunities.***

The City has regular communication with industrial stakeholders in the community to understand their GHG reduction efforts.

ALTERNATIVE ENERGY GENERATION



- ***Explore opportunities for increasing the use of solar photovoltaic (PV) electric net metering in Sault Ste. Marie.***
- ***Investigate the use of energy storage integration to move forward with balancing clean energy projects.***

As of 2025, the City is in the process of moving forward with its first net metering project for a solar PV project on the Transit Administration building. Work is also underway for a roof replacement project at the John Rhodes Community Centre that will accommodate solar panels in the future.

2. Buildings and Energy – Corporate

Currently, corporate operations result in approximately 1% of community-wide emissions. While this number may seem low, the Municipality has a responsibility to lead and demonstrate practices that will encourage broader emission reduction within the community to achieve climate targets and positively impact sustainable economic development. The corporate GHG emissions inventory indicates an opportunity to achieve emission reductions by focusing on fleet and equipment as well as the corporate building stock. When it comes to corporate actions, similar to the community, a focus on energy efficiency projects is encouraged. This aligns with the City's *Third-party service review of municipal operations* which was presented to Council on January 6, 2020, which recommends pursuing and implementing energy efficiency projects. According to KPMG this has potential cost savings of up to \$100,000 annually (KPMG, 2019).

GREEN FINANCING



- ***Develop a local improvement charge (LIC) by-law to allow clean energy improvement financing for new buildings/or upgrades, including green standards in Sault Ste. Marie.***

Phase 2 funding has been received to develop a Sault Ste. Marie Community retrofit program. The program design is expected to be completed in 2025.



- ***Review and streamline the Municipal Environmental Initiatives (Green) Committee to oversee applications to the Green Initiatives Program under the Community Development Fund (CDF), and act as the overseeing body for the GHG reduction plan implementation.***

ENERGY EFFICIENCY



- ***Continue implementing energy efficiency retrofit projects identified in the IB Story Audits of 2010 and the 2019 Energy Conservation and Demand Management Plan (see Appendix 3 for a list of City retrofits).***
- ***Include wording in all requests for proposals (RFP) for capital projects to include applying for Ontario energy incentives.***

Energy efficiency projects are assessed by the Sustainability Coordinator on an annual basis once the capital and operational projects are approved to identify projects for incentives as well as projects that are planned to reduce energy consumption for the City that year.

To ensure the City maximizes opportunities to take advantage of energy efficiency incentives, tender documents wording in the RFP to ensure incentive compliance is always encouraged.



- ***Take a portfolio approach to energy efficiency by establishing an implementation plan specifically for retrofits of existing buildings (if plans are dated or nonexistent, a revision of the audit should be done).***
- ***Ensure zero-emission technology is incorporated in regulations and public tenders.***

The Deep Energy Retrofit audits due for completion in 2025 are expected to do this.

ENERGY MANAGEMENT



- ***Integrate sustainable energy technology and energy management practices across the municipality.***
- ***Integrate energy and climate considerations into the Asset Management Process.***
- ***Improve energy data tracking and use (e.g., utility meters and databases).***

The City is exploring the use of energy tracking software and data management programs (e.g., Energy Star Portfolio Manager, RETScreen, and Association of Municipalities of Ontario (AMO) Energy Planning Tool (EPT) Program). Outreach has also been conducted with the PUC and a process has been established to better obtain energy data tracking as part of the City's O.Reg 25/23 energy and emissions reporting. It is also important to note that in November 2021, the Ontario Government announced that in the next two years, Ontario electricity and natural gas utilities will be required to allow customers to download their natural gas and electricity data in a standardized format under the Green Button standard. This access to energy data will provide the City with better information regarding energy consumption.

ALTERNATIVE ENERGY



- ***Commission a study to evaluate the business case for the deployment of hydrogen fuel cell applications as part of establishing a role for a low-carbon economy and community energy strategy.***
- ***Explore the feasibility of renewable energy procurement. (Note: the business case must be evaluated based on current renewable energy cost and effectiveness).***

- ***Increase the amount of solar power generation within municipal buildings and parking lots.***

Work is ongoing to incorporate solar energy into the Transit Administration/ Garage building located on Huron Street.

3. Transportation

In the Sault Ste. Marie community, the GHG emissions inventory and the transportation sector include emissions from the mobile combustion of gasoline and diesel, and were broken down by on-road transportation and railway diesel. Most transportation emissions come from on-road transportation, which is often one of the highest-emitting sectors in Ontario due to the heavy reliance on personal vehicles with combustion engines. As well, according to the *Canadian Municipal Backgrounder* (an annual survey of mayors and councillors in more than 400 municipalities across Canada, 90% of Sault Ste. Marie residents commute to work by car, 5% walk, 4% use transit, and 1% bike (Canadian Municipal Barometer, n.d.). This presents ample opportunity to improve upon active transportation in Sault Ste. Marie.

ACTIVE TRANSPORTATION



- ***Increase education and awareness about the environmental, economic and health benefits related to active transportation.***
- ***Develop and maintain bike friendly infrastructure (e.g., bike lanes, trails and racks make cycling a safer, more attractive option for travel and commuting.***
- ***Initiate a commuter challenge (e.g., annual bike to work week or car-free day).***

Ongoing (see transportation section of the 2023 / 2024 summary of this report).



- ***Encourage local companies to reward cyclists (e.g. develop a reward program for those who are bike friendly, such as a parking spot by the door covered from the rain.***
- ***Create an inventory of bike trails, including shortcut trails.***

INCREASE TRANSIT RIDERSHIP



- ***Improve transit options and non-motorized accessibility to major centers.***
- ***Create incentives for public transit use as a strategy to increase ridership.***
- ***Seek input from key bus users (e.g. seniors, students, commuters, etc.)***
- ***Educate the public on how to use bus routes (they will be more inclined to use them if they know how).***

The City does have incentives to encourage public transit use including a semester pass for university students, a senior and youth pass and a program with the District Social Services Administration Board (DSSMSSAB) for free ridership. The City has also expanded upon its on-

demand transit and the development of a real time passenger app site and adventure bus program. Information is available on the City's [website](#) regarding roads and schedules.

The City has also created a series of partnerships with local community organizations such as the Algoma District School Board and Algoma University to encourage transit ridership. These efforts are ongoing.

ZERO-EMISSION TRANSPORTATION



- ***Support transportation electrification infrastructure opportunities (e.g. electric vehicles charging stations).***
- ***Transition to purchasing only vehicles that are highly efficient and run on zero-carbon and renewable energy fuels.***
- ***Support transportation electrification opportunities (e.g. electric vehicles, alternative energy vehicles, buses, etc).***

The City purchased its first electric vehicle in 2025. Five electric chargers for the City fleet have been installed, and there are plans to develop a costing study to meet the resolution of converting the future light-duty fleet to electric vehicles. Work on this is ongoing.



- ***Develop and/or commission a community zero-emission vehicle strategy.***
- ***Update the Green Fleet Plan.***

Complete in 2024.

PLANNING



- ***Review potential actions that align with existing City Plans (e.g. Transportation Master Plan (2015), Green Fleet Plan (2011), and Cycling Master Plan (2007)).***
- ***Encourage land use planning that reduces the distance people have to travel by car.***
- ***Active Transportation Master Plan.***

A fundamental objective of the new Official Plan will be to reduce the distances that people must travel by car. As well at the end of 2021, the City hired a consultant to complete an Active Transportation Master Plan. The plan will take a holistic approach and include a series of recommendations. It will also serve as guidance for the city's street policy, street plan and incorporate mountain biking opportunities, trail systems and ensure all are barrier free. Work on this is ongoing.

4. Waste

It is important for the City to continue, as well as increase their efforts to divert waste from the municipal landfill to reduce community emissions associated to solid waste.

EDUCATION



- ***Educate and engage residents and business about waste diversion.***

Efforts such as the Litta Traps and Clear Your Gear projects funded by the Green Initiatives fund continue to support waste diversion opportunities in Sault Ste. Marie. Collaboration with key stakeholders like Clean North also support these efforts as well as project arise.

WASTE DIVERSION



- ***Review strategies and policies that support ways to divert waste to extend the life of the landfill.***
- ***Encourage businesses and residents to reduce waste put into the landfill by using recyclables and reusable products.***
- ***Reduce the environmental impacts of City operations to demonstrate commitment and spur innovation (e.g. reducing or eliminating single use plastic products at facilities and events).***
- ***Explore organic waste diversion from the landfill.***

Waste diversion priority in extending landfill life and reducing environmental impact. With the transition of recycling to the producer responsibility model, the City's role has shifted; however, efforts continue to engage and educate residents on the importance of waste reduction, proper recycling practices, and the environmental benefits of minimizing landfill-bound waste.

Efforts to advance the development of a Single-Source Organics facility that will significantly reduce the amount of organic waste sent to landfill. While this project presents financial and logistical challenges, it remains a critical long-term investment in our waste diversion strategy and climate action goals.

WASTE TO ENERGY



- ***Expand landfill gas capture as part of landfill expansion plans and review feasibility of using gas as a form of energy generation.***

5. Green Space

FOREST MANAGEMENT



- ***Manage City woodlands and street trees for the purpose of carbon offsetting, heat sinks and aesthetics.***

City forest management practices do not include the purpose of carbon offsetting and heat island mitigation via a policy. Currently, it is more of an understanding and best practice.



- ***Encourage the planting of native, and non-invasive tree species that are resilient to climate change and provide high levels of carbon sequestration.***

Under the Green Space pillar, the Environmental Sustainability Committee has recommended to the Planning Department that the Official Plan encourage the planting of diverse and non-invasive tree species that are more resilient to climate change.

PLANNING



Develop an Urban Forest Management Plan, including an inventory of the tree canopy to understand Sault Ste. Marie's carbon sequestration potential.

The Great Lakes Forestry Centre has offered to support the City with developing a Lidar Forest Inventory. This is a year or two away but is appreciated seeing as there are no monies currently allocated towards this project.

ENVIRONMENTAL STEWARDSHIP



- ***Partner with local school boards (e.g. ADSB) to participate in an Environmental Stewardship activity with a focus on nature preservation (e.g. building a butterfly garden or hosting a community tree plant).***
- ***Encourage tree planting and preservation of natural areas a priority as part of community sustainability efforts.***

In partnership with Freshwater Conservation Canada, the City has successfully delivered the Yellow Fish Road over the past three years (and also planned for 2025) program to engage local students in stormwater pollution prevention and watershed education. Through this hands-on initiative, over 1,000 students from both the Algoma District School Board (ADSB) and the Huron-Superior Catholic District School Board have participated to date.

Students learn about the impact of pollution on local water bodies and take direct action by painting yellow fish symbols with the words “Rainwater Only” near storm drains—reminding residents that anything entering a catch basin flows untreated into nearby rivers and lakes. Participants also distribute fish-shaped brochures to homes in the area, raising awareness about water pollution prevention. These events are typically held in low-traffic neighbourhoods with access to storm sewers, ensuring student safety while allowing for impactful, community-facing education. The Yellow Fish Road is a national initiative that encourages youth to be stewards of clean water and healthy aquatic ecosystems.

6. Economic Development

SUSTAINABILITY



Encourage local businesses to embrace sustainability.

The City continues to encourage local businesses to embrace sustainability as a core part of their operations. Municipal staff regularly partner with local stakeholders to deliver education and engagement opportunities, including webinars, workshops, and community events such as the EV Showcase. These initiatives aim to build awareness, share practical tools, and highlight the economic and environmental benefits of sustainable business practices.

LOCAL FOOD PRODUCTION



- ***Support local food production and consumption to reduce transportation emissions and costs of importing food to the community.***
- ***Expand opportunities and markets for Sault Ste. Marie locally grown products.***

The Sault Ste. Marie Innovation Centre's Rural Agriculture Innovation Network (RAIN) is working on a variety of programs that support local food production, such as their Advancing Northern Maple program which increases maple syrup production in Northern Ontario and the Tile Drainage program which benefits commodity and crop production. They have also supported food processing infrastructure, such as a new slaughterhouse being built in Bruce Mines. RAIN has also supported businesses in Algoma through the Sustainable New Agri-Food Products and Productivity (SNAPP) Program which supports Northern Ontario agriculture and food producers, businesses, collaborations, communities, and First Nations to create new products, enhance abilities for season extension, scale up production or enhance productivity.

CLEAN MARKET GROWTH



- ***Encourage the development of a low-carbon economy in Sault Ste. Marie (e.g. develop a Smart Park that encourages energy efficiency, LEED building standards) to encourage clean-tech companies to relocate and/or expand in Sault Ste. Marie. Continue to work with local partners (private sector, indigenous groups and non-profits) to encourage clean growth opportunities.***

In 2023/24, the economic development team engaged with several sustainable industries that were considering potentially locating in Sault Ste Marie. These industries were Green Hydrogen, Mineral Reprocessing, Green Cement, and Green Energy. They also held discussions with representatives in the Forestry sector to explore unique products such as Biochar and Bio coal.

The team continues to look for opportunities to advance a deep-sea Port in Sault Ste. Marie and applied for funding under the Green Shipping Corridor Program, successfully securing funds for several environmental and engineering studies, with a focus on developing low-GHG infrastructure into Port design.

8. Municipal Leadership

HUMAN RESOURCES



- ***Assign and/or establish a position at the City to manage energy and sustainability initiatives, ensuring integration in all aspects of City operations and to act as a key municipal liaison towards community climate action.***
- ***Assign the newly established Environmental Sustainability Committee to oversee the implementation of the Sault Ste. Marie GHG Reduction Plan and climate change action across the community.***

Complete in 2022.

FINANCING



Leverage climate investment opportunities from all levels of government and private sector to encourage research and development (R&D) opportunities for the community to be a test site for GHG reduction strategies.

Ongoing. Multiple grants have been pursued since 2019 that encourage energy savings and environmental sustainability.

OPERATIONS / LEGISLATION



- ***Introduce a 'Climate Lens' policy (evaluate and consider the climate impacts of all major City decisions, including financial decisions), to ensure City investments, policies and programs are supporting climate change goals.***
- ***Embed the GHG reduction plan into the Municipal and Community Planning Process.***

Complete in 2023.



Draft bylaws and design infrastructure that encourage GHG mitigation at the citizen-level (e.g. discounted parking for electric vehicles)

This concludes the status overview of the GHG Reduction Plan Year implementation progress as of December 31, 2022.

**Appendix B: Sault Ste. Marie 2022 Community and 2023 Corporate Greenhouse Gas
Emissions Inventory Update**

2025 05 08

Prepared by: Community Development & Enterprise Services



Executive Summary

In 2017 the City of Sault Ste. Marie (the City) completed the very first community greenhouse gas (GHG) emissions inventory and also updated their corporate GHG emissions inventory. This greenhouse gas (GHG) report provides a comprehensive overview of the updated GHG emissions inventories for both corporate and community levels in Sault Ste. Marie. The report includes an update on corporate emissions (baseline year 2017, updated to 2023) and community emissions (baseline year 2017, updated to 2022). Both inventories follow the 2021 *PCP Protocol: Canadian Supplement to the International Emissions Analysis Protocol* created by ICLEI Canada and the FCM. The following tables highlight community and corporate emissions in tonnes of carbon dioxide equivalent (tCO₂e) in Sault Ste. Marie and highlights the delta in both.

Table 1: Sault Ste. Marie 2022 Community GHG Emissions Update

Sector	2022 Emissions (tCO ₂ e)	% of 2022 Emissions	2017 Emissions (tCO ₂ e)	% of 2017 Emissions	Delta	Scope of Data
Energy	1,342,979	87%	1,306,759	87%	↑ 3%	Natural gas, electricity, fuel oil, and propane
Transportation	197,313	12%	186,618	12%	↑ 6%	Railway and on-road transportation
Waste	6,796	1%	8,764	1%	↓ 22%	Landfill gas captured
Total Emissions	1,547,088	100%	1,502,142	100%	↑3%	

Table 2: City of Sault Ste. Marie 2023 Corporate GHG Emissions Update

Sector	2023 Emissions (tCO ₂ e)	% of Emissions (2017)	2017 Emissions (tCO ₂ e)	% of Emissions (2017)	Delta	Scope of Data
Buildings	3,832	35%	3,652	34%	↑5%	Natural gas and electricity
Vehicle Fleets and Equipment	5,658	52%	6,076	56%	↓7%	Gasoline and diesel
Outdoor Lighting	80	1%	48	0.4%	↑67%	Electricity
Water & Sewage	1,292	12%	1,080	10%	↑20%	Electricity and natural gas
Total Emissions	10,862		10,857	100%	↑5%	

The GHG inventory updates indicate that approximately 99% of emissions are produced by the greater community, with 1% attributed to emissions from the city. Community emissions are up by 3%, while corporate emissions are up by 5%. The GHG emissions inventory section of this report will break down emissions in more detail.

1. Background

Sault Ste. Marie is a medium-sized single-tier municipality located in Northern Ontario with a population of 76,731 people (Statistics Canada, 2022). It is located along the St. Mary's River and borders the northern part of the state of Michigan in the United States of America (USA). Major industry and business sectors include steel manufacturing and fabrication, forestry, lottery and gaming, information technology (IT); and tourism (Invest Sault Ste. Marie, n.d.).

In February of 2019, the city received funding from the Federation of Canadian Municipalities (FCM) Municipal Climate Innovation Program (MCIP) to increase capacity to reduce community GHG emissions. This funding aligns with the Corporate Strategic Plan, focus area 3 of infrastructure where the City seeks to be a leader in environmental sustainability and climate action.

To support municipalities in creating GHG emissions inventories, the FCM and ICLEI – Local Governments for Sustainability (ICLEI Canada) created the Partners for Climate Protection (PCP) Program to provide a forum for municipal governments on how to reduce GHG emissions. Participation in the program includes the completion of a 5-milestone framework which is intended to guide the municipality towards the development of a Climate Action Plan. The program is free to join and allows member cities to gain access to tools, resources, a community of practice and an online tool that assists in the development of GHG emissions inventories. The City has completed all five milestones.

In September 2019, the City Council passed a resolution to join the Partners for Climate Protection (PCP) Program. In doing so, the city committed to joining over 500 municipalities across Canada in working to reduce community GHG emissions. The PCP is a five-milestone framework which includes:

1. Creating a baseline emissions inventory and forecast,
2. Setting emissions reduction targets,
3. Developing a local action plan,
4. Implementing the local action plan, and
5. Monitoring progress and reporting results.

Joining the PCP program gave the city access to the PCP online milestone tool that allows them to update their GHG emissions inventories.

2. Methodology

The GHG inventory methodology used for this report is based on the 2021 *PCP Protocol: Canadian Supplement to the International Emissions Analysis Protocol* created by ICLEI Canada and the FCM. The PCP program began in 1997 and has evolved over time to reflect changes in emission factors and improved GHG accounting methodologies. It is important to note that “other standards and protocols exist for different reasons such as compliance with provincial acts and regulations, funding arrangements or recognition programs” (ICLEI and FCM, 2021, p.4). The following section of this report will document the community GHG emissions data collection process, accounting methodology and analysis to facilitate the possibility of repeating this in the future to measure actions to reduce community emissions.

3. Sault Ste. Marie Community Greenhouse Gas (GHG) Emission Inventory Analysis

3.1. Project Overview

The purpose of developing a greenhouse gas (GHG) emissions inventory is to provide a baseline against which the community can measure progress towards the reduction of GHGs. The *Partners for Climate Protection (PCP) Protocol: Canadian Supplement to the International Emissions Analysis Protocol* defines a community GHG inventory as a measurement of “emissions generated by key activities within the territorial boundary of the local government” (ICLEI and FCM, 2021, p.9). The PCP protocol outlines a series of sectors and emission sources that are required, as well as optional attributes for the development of a community GHG emissions inventory. For more details on PCP protocol reporting requirements, please see Appendix C. To be considered in compliance with the PCP protocol, community GHG inventories must include emissions from the following five activity sectors:

1. Stationary energy use for residential buildings,
2. Stationary energy for institutional and commercial buildings,
3. Stationary energy use for industrial buildings,
4. Transportation, and
5. Community solid waste.

The inventory update expresses GHG production as the number of tonnes of carbon dioxide equivalent (tCO₂e) produced by energy use, transportation, and waste production in the community. tCO₂e is a commonly used measure that expresses all greenhouse gas as an equivalent amount of carbon dioxide. The following section outlines the data collection and analysis process of the emission sources used to develop the community GHG emissions inventory update for Sault Ste. Marie.

3.2. Data Collection Process

The data for this report was obtained through a variety of different channels including utility consumption metrics, stakeholder interviews, City staff engagement, and reports, as well as publicly available data. Data types include electricity and natural gas consumption, Googles Environmental Insights Explorer, solid waste, and estimates for fuel oil and propane use.

The author of this report met with City staff, as well as relevant data stakeholders who offered required sources of information for the community GHG emissions inventory. Research was also conducted on what public GHG emissions data was available for organizations in Sault Ste. Marie.

It is important to note that due to challenges inherent in collecting local activity data and relying on diverse data sets, it is sometimes necessary to rely on national averages or other generalized data. For transparency, any time that estimates and assumptions were used instead of actual consumption metrics, will be identified in this report. Below is an overview of the data providers where both the required and optional data were obtained as part of the creation of the community GHG emissions inventory.

Table 3: Required Data Providers for 2022 Community GHG Inventory Update

Emissions Source	Service Provider	Quality of Data ⁷	Data Attribute	Comments
Electricity	PUC Services Inc. (Mark Britton, Business Development)	High	Consumption	Actual kilowatt hour (kWh) usage was provided by sector from the utility.
Natural Gas	Enbridge Inc. (Cindy Ni, Advisor Business Intelligence)	High	Consumption	Actual meters square (m3) usage was provided by sector from the utility.
Fuel Oil	Statistics Canada	Low	Consumption	Provincial fuel oil consumption (liters) was obtained and broken down per capita to obtain an estimate of emissions from this source in Sault Ste. Marie.
Propane	Statistics Canada	Low	Consumption	Provincial propane consumption (liters) was obtained and broken down per capita to obtain an estimate of emissions from this source in Sault Ste. Marie.
On Road Transportation	Google Environmental Insight Explorer	High	Vehicle Kilometres Travelled (VKT)	Google's estimate is a total of all trips taken within a municipal or regional boundary, and trips that cross the boundary. This is supplemented with the Climate Action for Urban Sustainability (CURB) tool's city energy profiles.
Waste	City of Sault Ste. Marie (Susan Hamilton Beach, Deputy CAO Public Works and Engineering) and Catherine Taddo, Manager of Engineering)	High	Landfill gas is collected and flared	City of Sault Ste. Marie 2022 Landfill Data Collection Form submitted to the Ministry of Environment and Climate Change.

⁷ High relates to actual consumption data and low relates to estimate data.

Table 4: Optional Data Provider for 2022 Community GHG Emissions Inventory Update

Emissions Source	Service Provider	Quality of Data	Data Attribute	Comments
Railway Diesel	Statistics Canada, 2023 National Inventory Report 1990-2023 and Sault Ste. Marie Innovation Centre (SSMIC)	Low (Estimate)	Rail	Total kilometres of rail track in Canada were obtained from Statistics Canada, as well as emissions for rail diesel from the <i>National Inventory Report 1990-2023</i> datasets to estimate an average emission per kilometre of rail in Canada. The total length of rail in Sault Ste. Marie was obtained from the SSMIC and this was multiplied by the emissions factor to obtain the estimate of emissions from this source for Sault Ste. Marie.

3.2.1. Excluded Emissions Data

The PCP program outlines optional reporting for several sources of emissions, including off-road transportation, rail, waterborne navigation, aviation, incineration and open burning, agriculture, forestry and other land uses, and industrial processes and product use. These emission sources are optional as they are often difficult to obtain with a level of accuracy and are beyond the control of a municipality. The community inventory in this report also excludes emissions from wood as it is considered biogenic in the PCP protocol, meaning that it assumes that carbon released during combustion is equal to carbon removed during the growth of the tree and it can be assumed that it is carbon neutral (ICLEI and FCM, 2021, p.10). The protocol does state that methane (CH₄) and nitrous oxide (N₂O) can be reported from wood combustion; however, this data is not readily available and figures for wood heat would be an estimate at best. A summary of input values into the PCP tool used to create the GHG emissions inventory, please see Appendix C. The next section of this report will identify actual emissions data metrics and will be followed by emissions data that require estimates due to lack of availability and/or privacy concerns.

3.2.2. Actual Data Consumption Collection and Analysis

Electricity Emissions

The author of this report contacted the PUC (the city's local electricity utility), to obtain 2022 community electrical consumption data by sector. The PUC provided a spreadsheet that broke down energy consumption by bill code. To calculate consumption data by sector, bill code consumption types were combined to ensure reasonable calculations for sector data and to maintain individual customer privacy. The PUC has 30 bill codes that describe the type of customer. Table 5 below illustrates the customer types and a description of what type of energy consumption those codes include:

Table 5: PUC Electricity Bill Codes⁸

Line No.	Bill Code	Explanation
1	FT290	Commercial FIT generation bill codes.
2	FT303	Commercial FIT generation bill codes.
3	FT343	Commercial FIT generation bill codes.
4	FT345	Commercial FIT generation bill codes.
5	FT447	Commercial FIT generation bill codes.
6	FT713	Commercial FIT generation bill codes.
7	G1	General Service <50 kilowatt (kW) - Non Time of Use.
8	G1I	General Service <50 kW Interval Meter.
9	G1TOU	General Service Time of Use.
10	G51	General Service >50 kW Regular Meter - Non Time of Use.
11	G51I	General Service >50 kW Interval Meter.
12	G51S	General Service > 50 kW Spot Price.
13	GSTI	City Street Light Interval Meter Hourly Ontario Energy Price (HOEP).
14	MF384	Commercial MicroFit generation bill codes.
15	MF396	Commercial MicroFit generation bill codes.
16	MF549	Commercial MicroFit generation bill codes.
17	MF642	Commercial MicroFit generation bill codes.
18	MF802	Commercial MicroFit generation bill codes.
19	MR1	Multi-Residential on Tier Pricing.
20	MR51	Multi-Unit Residential >50kW (T1 600-kilowatt hour (kWh)).
21	MRTOU	Multi-Residential Time of Use.
22	NB	Coded non billed ⁹
23	R1	Residential Regular Meter - Non Time of Use.
24	R1I	Residential Interval Meter.
25	R1TOU	Residential Time of Use.
26	S51	Sentinel Light Energy PUC.
27	SF42	Commercial Solar farm generation bill code.
28	ST51	Streetlight - not city.
29	TL1	City Traffic Lights.
30	UG1	Unmetered Scattered Load.

For this report, the above customer codes were combined into two distinct sectors (residential and commercial) to streamline the electrical consumption analysis for Sault Ste. Marie and to meet the category requirements of the PCP inventory tool. The PUC does not categorize customers into the industrial category; therefore, customer codes were not identified in this format. The table below displays the sector names and which PUC bill codes were combined to establish consumption metrics for that category.

⁸ M.Britton (Conservation Officer, PUC Services), personal communication, June 30, 2023.

⁹ Classified as commercial by the author of this report to account kWh.

Table 6: Sault Ste. Marie Energy Consumption Sectors

Sector	PUC Bill Code Combination
Commercial	FT290, FT303, FT343, FT345, FT447, FT713, G1, G1I, G1TOU, G51, G51I, G51S, GSTI, MF384, MF396, MF549, MF642, MF802, NB, S51, SF42, ST51, TL1, UG1.
Residential	MR1, MR51, MRTOU, R1, R1I, R1TOU.

The following table outlines the electricity consumption by sector for the community with 2022 as the base year.

Table 7: Sault Ste. Marie 2022 Electricity Consumption

Sector	2017	2022	Change (Δ) Summary
Commercial	330,100,574.42	359,737,109.7	8.98%
Residential	396,485,631.44	363,842,212.2	-8.23%
TOTAL	726,586,205.86	723,579,321.8	-0.41%

The electrical consumption data for Sault Ste. Marie was input into the PCP online tool to identify associated GHG emissions for this fuel type by sector.

Natural Gas Emissions

The author of this report contacted Enbridge to obtain 2022 natural gas consumption data by sector. Enbridge provided a spreadsheet that broke down energy consumption at the postal code level and summarized it by sector including residential, commercial, and industrial. This information is displayed in the table below.

Table 8: Sault Ste. Marie 2022 Natural Gas Consumption

Sector	Premise Count	% of Customer Base	2022 Consumption (m3)	% of Consumption
Commercial	1,849	7%	36,830,107	6%
Residential	23,145	93%	53,234,361	8%
Industrial	20	0%	562,786,740	86%
Total	25,014	100%	652,851,208	100%

Calculated Changes for Natural Gas usage from 2017-2022 is noted below and based on premise count, customer base, consumption and total consumption.

Natural Gas Premise count

Sector	2017	2022	Change (Δ) Summary
Commercial	2,021	1,849	-8.51%
Residential	22,657	23,145	2.15%
Industrial	10	20	100%
Total	24,688	25,014	1.32%

Natural Gas Percentage of Customer base

Sector	2017	2022
Commercial	8%	7%
Residential	92%	93%
Total	24,688	25,014

Natural Gas Percentage of Consumption

Sector	2017	2022
Commercial	6%	6%
Residential	7%	8%
Industrial	87%	86%
Total	100%	100%

Natural Gas Total Consumption (m³)

Sector	2017	2022	Change (Δ) Summary
Commercial	37,574,750	36,830,107	-2%
Residential	47,357,679	53,234,361	12.40%
Industrial	547,446,031	562,786,740	3%
Total	632,378,459.490	652,851,208	3.23%

The results from Enbridge show that the industrial sector accounts for 86% of the natural gas consumption locally. The total natural gas consumption data was input into the PCP milestone tool by sector.

On-road Transportation Emissions

An additional requirement of the community greenhouse gas (GHG) emissions inventory includes calculating emissions from on-road transportation within the municipal boundary. There are a variety of different methods of collecting transportation data. The table below outlines the three strategic alternatives identified in the PCP Protocol (2021) and provide a summary of each alternative's associated benefits and limitations regarding the data collection process. The emission of GHG from transportation relies on 5 essential factors.

Table 9: On-road transportation Greenhouse Gas (GHG) Emission Calculation Approaches¹⁰

Strategic Alternatives	Cost	Benefits	Limitations
1. Fuel Sales	\$135	Easy to obtain	Fuel sale volumes do not account for inbound or outbound
2. Vehicle Kilometres Travelled (VKT)	\$0.00	Easy to calculate if a municipality has a traffic volume counting program	Does not include travel on all roadways, and some counts are dated.

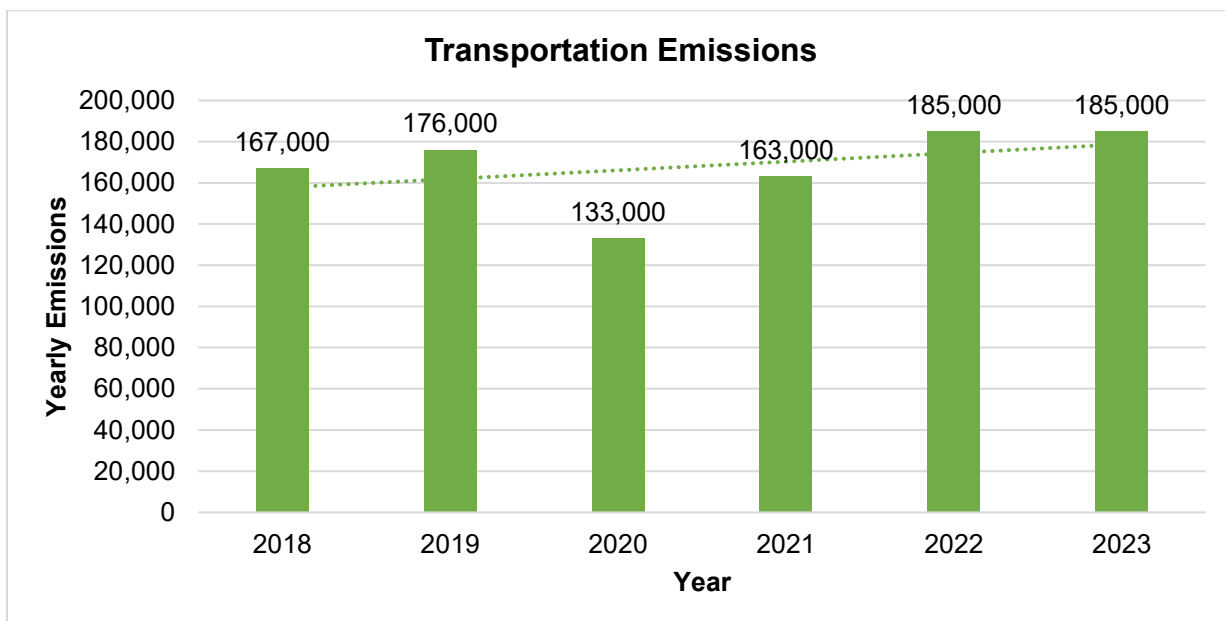
¹⁰ Source adapted from Federation of Canadian Municipalities and ICLEI Local Governments for Sustainability (2021). PCP Protocol: Canadian Supplement to International Emissions Analysis Protocol. Retrieved from: <https://www.pcp-pcc.ca/resources/partners-for-climate-protection-protocol>

3. Vehicle Registration	Unknown	Data includes the type of vehicles present in the community, and the average weighted fuel efficiencies of vehicle classes.	Some vehicles do not necessarily operate in the community they are registered in (e.g., companies with large fleets).
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Previously, the city used the VKT methodology to calculate the emissions from on-road transportation within the municipal boundary. This method calculated the emissions by collecting traffic volume data and center line length data of primary roads within city limits. The results were calculated by multiplying the observed 24-hour average annual daily traffic volumes by the single center-line length of the primary roadways. The City does not regularly collect this data and had to explore alternatives to obtain data.

Google Environmental Insights Explorer (EIE) is a tool developed to help cities reduce their carbon emissions. It provides access to data that can be used to make decisions regarding the city's carbon footprint and sustainability. Google EIE calculates an estimate of the city's yearly emissions. They obtain this estimate by using aggregated location information from user trips to infer traffic, mode of travel, and total distances driven in the city. These are combined with an estimate of the types of vehicles and average fuel consumption of each mode. This data was used in the 2022 community emissions inventory update. As well, the 2017 baseline data set has been adjusted to reflect the changed data collection method. Data was not available for 2017, so 2018 data was used in its place. The updated community emissions inventory reflects the most accurate and available data.

Table 10: Yearly Transportation Emissions from Google Environmental Insights Explorer



Between 2018 and 2022 there is a 10% increase in yearly transportation emissions using the Google Environmental Insights Explorer as the source of our data.

Solid Waste Emissions

The PCP online inventory tool outlines four strategic alternatives for determining community emissions from waste. The alternatives are:

1. Landfill with a comprehensive Landfill Gas (LFG)
2. Landfill with a partial LFG
3. Landfill with no LFG
4. Methane commitment approach

For this report, the author opted to pursue the first alternative (Landfill with a comprehensive Landfill Gas (LFG) as the city landfill has an active LFG collection system which was commissioned in 2011.

Insights obtained from City Engineering noted that the quantity of LFG collected and flared in 2022 was 2,596,660 m³ at an average methane concentration of 45%. This information was input into the PCP milestone tool to determine the tCO₂e from solid waste in the community.

Industry Processes and Product Use Emissions

This section of the report was not included in the inventory but is shared as it discusses an additional source of emissions. Emissions from industrial processes and product use (IPPU) is not a required reporting attribute of the community greenhouse gas (GHG) emissions inventory under the PCP protocol. The reasoning for this is that there is an emission threshold for industry that regulates the report to provincial and federal governing bodies, which is not controlled by municipalities in which they operate. Should a municipality decide to include IPPU in their inventory, a starting point is to speak directly to the industries that operate in their municipal boundary and obtain both their energy consumption information as well as process emissions information. Large emitters in Canada are required to report their GHG emissions under the Environment and Climate Change Canada (ECCC) Greenhouse Gas Reporting Program (GHGRP). This data is available publicly online. The GHGRP “has collected data from industrial facilities every year since 2004” and information is collected under section 46 of the *Canadian Environmental Protection Act*” (Environment and Climate Change Canada, 2019a).

The GHGRP uses a threshold that identifies reporting emitters. Of note:

“2017 marked the first year of the expansion of the GHGRP where the reporting threshold was lowered to 10 kilotons (kt) of CO₂e, meaning that all facilities that emit 10 kt or more of GHGs in CO₂e per year are required to submit a report. The GHGs reported include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride (SF₆)” (*Environment and Climate Change Canada, 2019a*).

In Sault Ste. Marie in 2017 (baseline) there were six (6) facilities that were required to report to the GHGRP. The facilities were:

1. Essar Steel Algoma Inc. - Essar Steel Algoma Inc.¹¹
2. Essar Power Canada Ltd. - Essar Power Canada Ltd

¹¹ Essar Steel Algoma Inc. is now known as ‘Algoma Steel Inc.’ due to company name change and restructuring.

3. City of Sault Ste. Marie - East Wastewater Treatment Plant (excluded as already included in Corporate emissions inventory)
4. City of Sault Ste. Marie - West End Water Pollution Control Plant (excluded as already included in Corporate emissions inventory)
5. Algoma Tubes Inc. - Tenaris Algoma Tubes
6. Sault Ste. Marie Municipal Landfill (excluded as already included in corporate emissions inventory)

The following table includes emissions data from the above facilities reported under the GHGRP for 2017.

Table 10: Sault Ste. Marie IPPU GHG (Tons CO₂ eq) Emissions for 2017 (Government of Canada, 2022)

GHGRP ID	Company & facility name	NAICS	CO2	CH4	N2O	Total
G10011	Essar Steel Algoma Inc. - Essar Steel Algoma Inc	331110	2,530,388.36	22,722.00	7,732.70	2,560,843.06
G10462	Essar Power Canada Ltd. - Essar Power Canada Ltd	221119	1,415,052.45	14,087.92	3,074.00	1,432,214.37
G10643	Algoma Tubes Inc. - Tenaris Algoma Tubes	331210	71,852.00	39.65	334.43	72,226.08
			4,017,292.81	36,849.57	11,141.13	4,065,283.51

In Sault Ste. Marie in 2022, four (4) facilities were required to report to the GHGRP. The facilities were:

1. Arauco Canada Limited – Flakeboard Company Limited
2. Sault Ste. Marie Municipal Landfill (excluded as already included in corporate emissions inventory)
3. Essar Steel Algoma Inc.
4. Tenaris Algoma Tubes

The following table includes emissions data for the above three facilities reported under the GHGRP for 2022.

Table 11: Sault Ste. Marie IPPU GHG (Tons CO₂ eq) Emissions for 2022 (Government of Canada, 2022)

GHGRP ID	Company & facility name	NAICS	CO2	CH4	N2O	Total
G10466	Arauco Canada Limited – Flakeboard Company Limited	321216	37,135	20	171	37,327
G10011	Algoma Steel Inc. - Algoma Steel Inc	331110	3,919,732	13,044	3,467	3,936,243
G10643	Algoma Tubes Inc. - Tenaris Algoma Tubes	331210	80,556	49	380	80,985

G10822	Sault Ste. Marie Municipal Landfill - SAULT STE. MARIE MUNICIPAL LANDFILL	562210	628	54,678	30	55,337
Total			4,038,051	67,791	4,048	4,109,892

Table 12: IPPU Delta 2017 to 2022

2017 IPPU	4,065,283.51
2022 IPPU	4,109,892
Delta	↑ 1%

The tonnes of CO₂e for local facilities that emit 10 kt of CO₂e were not input into the community GHG inventory update. It can be inferred that the industrial natural gas metrics are included in the Enbridge data pull for the community so this information would have double-counted that emissions metric. This information is for reference purposes only and is publicly available online as reported by the emitting facilities.

3.2.2. Estimate Data Consumption Collection and Analysis

This section of the community GHG emissions inventory report is based on estimates obtained by accessing national and provincial consumption metrics that have been broken down based on local variables.

Propane and Fuel Oil Emissions

Propane and fuel oil are other sources of energy that are required to report in a community GHG emissions inventory, under the PCP protocol. Attempts to acquire complete actual consumption data from local fuel oil and propane distributors were unsuccessful; therefore, provincial averages were used to create emissions estimates in Sault Ste. Marie, Ontario. Energy consumption averages for propane and fuel oil were obtained from the 2022 Statistics Canada *Report on Energy Supply and Demand in Canada* (Statistics Canada, 2022). Averages were divided by the population of Ontario to obtain a provincial consumption per capita value by fuel type. This value was multiplied by the population of Sault Ste. Marie to obtain an estimate value of liters of propane and fuel oil consumed in the city per capita (2021 population is 76,731 people). The table and figures below identify the variables used for calculating the estimate emissions as well as the estimate calculation method.

Table 13: 2022 Sault Ste. Marie Propane and Fuel Oil Estimate Variables

Variable	Metric
Ontario Propane Consumption	1,799,100,000 liters (l)
Ontario Light Fuel Oil Consumption	296,200,000 liters (l)
Ontario Population	15,500,632 ¹² people

¹² Government of Ontario. (2023). Ontario Demographic Quarterly: Highlights of first quarter. Retrieved (July 21, 2023) from: <https://www.ontario.ca/page/ontario-demographic-quarterly-highlights-first-quarter>

Sault Ste. Marie Population	76,731 people ¹³
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Figure 1: Propane Estimate Calculations

$\frac{1,799,100,000 \text{ l of Propane Consumed in Ontario in 2012}}{15,500,632 \text{ Population of Ontario (2022)}} = 116.06 \text{ l of propane consumed per capita in Ontario}$
$116.06 \text{ l} \times 76,731 \text{ population of Sault Ste. Marie (2022)} = 8,905,878 \text{ liters of propane consumed in Sault Ste. Marie in 2022}$

Figure 2: Fuel Oil Estimate Calculations

$\frac{265,000,000 \text{ liters (l) of Fuel Oil Consumed in Ontario in 2022}}{15,500,632 \text{ Population of Ontario (2022)}} = 17.10 \text{ l of fuel oil consumed per capita in Ontario}$
$17.10 \text{ l} \times 76,731 \text{ population of Sault Ste. Marie (2022)} = 1,311,799.09 \text{ liters of fuel oil consumed in Sault Ste. Marie in 2022}$

Variable	2017	2022	Change (Δ) Summary
Ontario Propane Consumption (l)	1,961,800,000.00	1,799,100,000.00	-8.29%
Ontario Light Fuel Oil Consumption (l)	362,600,000	296,000,000	-18.31%
Ontario Population (People)	13,448,494	15,500,632	15.26%
Sault Ste. Marie Propane Consumption (l)	10,702,562	8,917,264	-16.68%
Sault Ste. Marie Light Fuel Oil Consumption (l)	1,978,157.32	1,797,412.27	-9.14%
Sault Ste. Marie Population	73,368	76,731	4.58%

The 2022 consumption values of 8,905,878 liters of propane consumption and 1,311,799.09 liters of fuel oil consumption per capita were input into the PCP milestone tool.

Rail Emissions

Rail emissions are not a required calculation of a community GHG emissions inventory under the PCP protocol as they are not regulated by municipalities. Similarly, to energy emission, acquiring actual consumption of rail diesel is the most accurate way of calculating emissions; however, this can be difficult to obtain and must be collected in a manner that does not infringe upon the privacy of the railway operator. As well, it is important to note that just because rail fuel was purchased in a municipality does not mean that it was consumed in the municipal boundary. Therefore, often rail emissions are estimated, or omitted completely.

The author of this report discussed estimating methodologies with ICLEI Canada, and it was determined that calculating the emissions per kilometre (km) of rail would be an acceptable estimate methodology. This calculation was established by taking the total kilotons of CO₂e from the railway sector (based on the 2023 *National Inventory Report*) in Canada and multiplying it by 1000 to achieve the tonnes of CO₂e which equates to 6,840,000 tCO₂e (Environment and Climate Change Canada, 2023). Subsequently, the total km of track in Canada was obtained

¹³ Statistics Canada. (2022). "Population and Dwelling Counts: Census Metropolitan Areas, Tracted Census Agglomerations and Census Tracts". Retrieved Aug 2, 2023, from: <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=9810001401&pickMembers%5B0%5D=1.3846>.

from Statistics Canada which is 66,978 (Statistics Canada, 2023). The tCO₂e per kilometre of rail in Canada was calculated by dividing the total tCO₂e from the railway sector by the total national rail track kms to obtain the tCO₂e per kilometre of rail which is 102.12 tCO₂e. Then the length of rail in the municipal boundary was obtained from the Sault Ste. Marie Innovation Centre (SSMIC) which is 120.24 km (which includes main lines, as well as spurs, sidings, and freight yards)¹⁴. Lastly the total length of rail track in Sault Ste. Marie was multiplied by the tCO₂e factor per km of rail which equates to 12,279.28 tCO₂e of rail emissions in Sault Ste. Marie. The following tables and figures further elaborate on the estimate variables and formulas used to calculate the rail emissions in Sault Ste. Marie.

Table 14: Sault Ste. Marie Rail Emission Variables

Variable	Metric
Railway Emissions in Canada	6,840,000 ¹⁵
Kilometres (km) of rail line operated in Canada	66,978 ¹⁶
Variable	Metric
tCO ₂ e / km	102.12
Km of line in Sault Ste. Marie	120.24
tCO ₂ e / km of rail in Sault Ste. Marie	12,279.28

Figure 3: Rail Line Emission Estimate Calculation

$\frac{6,840,000 \text{ Railway Emissions in Canada}}{66,978 \text{ Kilometres (km) of rail line operated in Canada}} = 102.12 \text{ tCO}_2\text{e / km of rail in Canada}$
$102.12 \text{ tCO}_2\text{e / km of rail in Canada} \times 120.24 \text{ (Km of rail line in Sault Ste. Marie)} = 12,279.28 \text{ tCO}_2\text{e/km of rail in Sault Ste. Marie}$

Variable	2017	2022	Change (Δ) Summary
Railway Emissions in Canada	6,570,000	6,840,000	4.11%
Kilometres (km) of rail line operated in Canada	61,859	66,978	8.28%
tCO ₂ e / km	106.21	102.12	-3.85%
km of line in Sault Ste. Marie	120.24	120.24	0%
tCO ₂ e / km of rail in Sault Ste. Marie	12,770.6	12,279.28	-3.85%

The total tCO₂e / km of rail in Sault Ste. Marie which is 12,279.28 was input into the PCP milestone tool to identify total rail emissions in the community inventory.

¹⁴ T. Favretto (Municipal/Utilities GIS Technician, Acorn Information Solutions, Sault Ste. Marie Innovation Centre), personal communication, August 1, 2019.

¹⁵ *National Inventory Report 1990-2021: Greenhouse Gas Source and Sinks in Canada, Part 3, Table A9-2, "2021 GHG Emissions for Railways"* Available at: https://publications.gc.ca/collections/collection_2023/eccc/En81-4-2021-3-eng.pdf

¹⁶ Statistics Canada. *Railway industry length of track operated at the end of the year by area, by company*. Table 23-10-0052-01 Retrieved (2 Aug. 2023) from: <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=2310005201>

The following section of this report summarizes the 2022 updates to the Sault Ste. Marie community GHG emissions inventory, as well as provides an update on 2023 corporate emissions, which was last completed for 2022.

4. Sault Ste. Marie Community Greenhouse Gas (GHG) Emissions Inventory

The Sault Ste. Marie's community greenhouse gas (GHG) emissions inventory refers to an estimate of aggregate emissions within the municipal boundary. Community emission metrics were broken down by sector and source to obtain an understanding of where community emissions come from.

4.1 2022 Community GHG Emissions Inventory Results

The 2022 community greenhouse gas (GHG) emissions inventory update provides an overview of all GHGs produced within the community of Sault Ste. Marie in comparison to the baseline year of 2017, both by residents in their homes and by local businesses and institutions as they carry out their operations. Six key sectors were included in the community inventory, including: residential, commercial and institutional, and industrial stationary energy emissions (natural gas and electricity), solid waste, rail, non-specified sector energy emissions (propane and fuel oil), and on-road transportation. In 2022, the community produced approximately 1,547,088 tCO₂e. Figure 4 and Table 14 provide a summary of GHG emissions produced by each sector and .

Figure 4: 2022 City of Sault Ste. Marie Community GHG Emissions by Sector

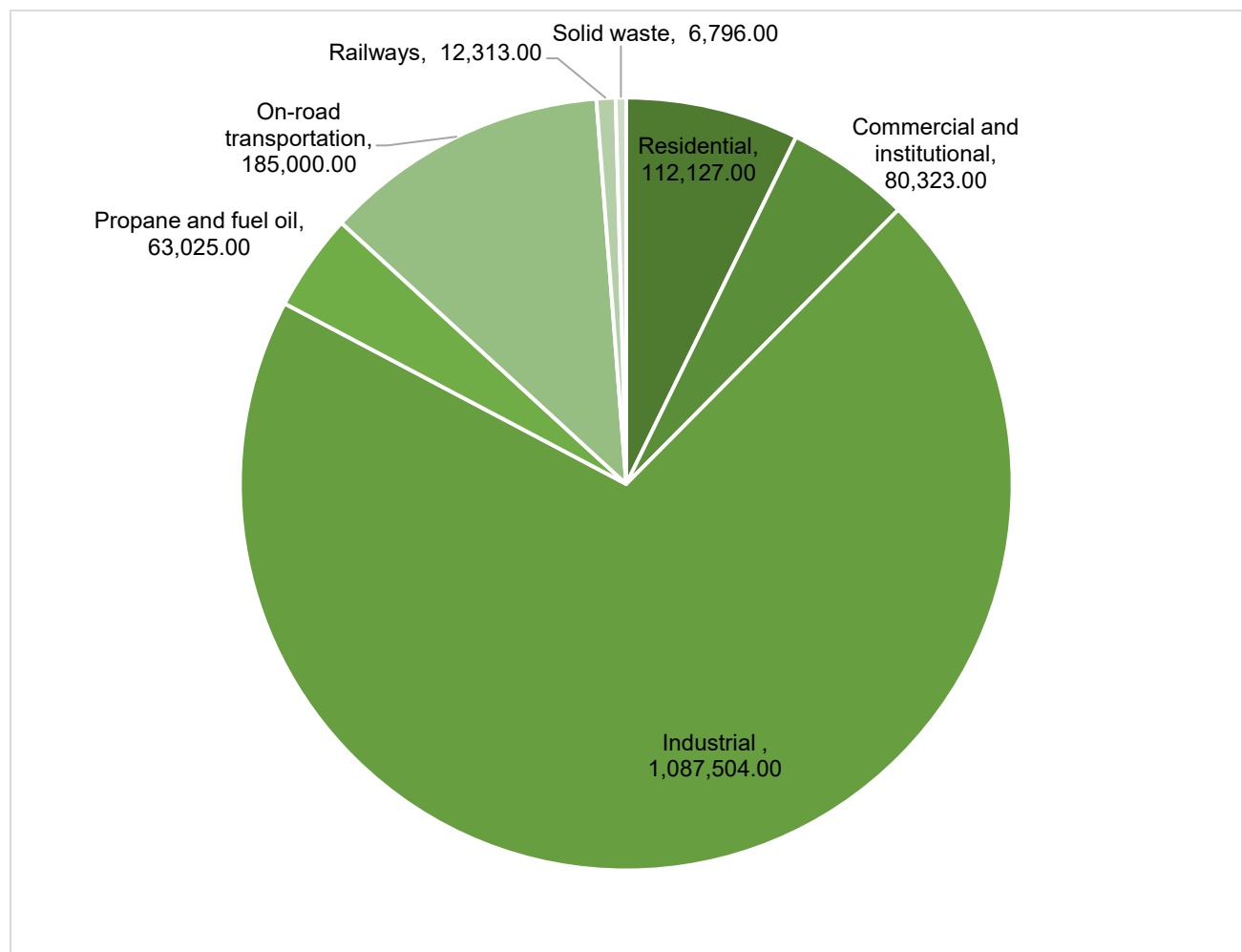


Table 15: Community Emissions Inventory: 2022 Data Compared to 2017 Baseline

Sector	2022 Emissions (tCO ₂ e)	%	2017 Emissions (tCO ₂ e)	%	Delta
Residential	112,127.00	7.2%	96,807.00	6%	14%
Commercial and institutional	80,323.00	5.2%	77,078.00	5%	4%
Industrial	1,087,504.00	70.3%	1,039,016.00	69%	4%
Propane and fuel oil	63,025.00	4.1%	93,080.00	6%	-48%
On-road transportation	185,000.00	12.0%	173,222.00	12%	6%
Railways	12,313.00	0.8%	12,771.00	1%	-4%
Solid waste	6,796.00	0.4%	8,764.00	1%	-29%
Total	1,547,088.00		1,500,738.00		3%

The Community Emissions Inventory comparing 2022 data to the 2017 baseline shows a 3% increase in total emissions, from 1,500,738 tCO₂e in 2017 to 1,547,088 tCO₂e in 2022. The Industrial sector remains the largest contributor, accounting for 70.3% of total emissions in 2022, with a 4% increase compared to 2017. The Residential sector saw a significant 14% increase, while Commercial and Institutional emissions grew by a modest 4%. On-road Transportation emissions increased by 6%, maintaining a consistent share of 12% of total emissions. Notably, there were substantial reductions in emissions from Propane and Fuel Oil (down 48%) and Solid Waste (down 29%), indicating progress in these areas. The Railways sector experienced a slight decrease of 4%. Overall, while certain sectors have made progress with emissions reductions, the increase in total emissions highlights ongoing challenges, particularly in the Industrial sector, which remains the largest contributor and requires targeted action to achieve long-term emission reduction goals.

Table 16: City of Sault Ste. Marie 2022 Community Inventory and Energy Emissions by Sector

Category	Sector	Emissions (tCO ₂ e)	Data Scope
Energy	Residential	112,127	Electricity (kWh) and natural gas (m3)
	Commercial and institutional	80,323	Electricity (kwh) and natural gas (m3)
	Industrial	1,087,504	Natural gas (m3)
	Propane and fuel oil	63,025	Estimate of propane (l) and fuel oil (l)
Transportation	On-road transportation	185,000	Vehicle Kilometres Travelled (VKT)
	Railways	12,280	Estimate of emissions / km of rail track
Waste	Solid waste	6,796	Annual landfill gas (LFG) collected
	Total GHG Emissions	1,547,088	

The community GHG emissions inventory indicates that energy used in buildings is the largest source of GHGs. When you break down energy emissions by sector, the industrial sector emits

City of Sault Ste. Marie 2022 Community and 2022 Corporate GHG Emissions Inventory Update

the most emissions due to its consumption of natural gas. The residential sector use of natural gas and electricity contributes to the second highest amount of energy GHGs, followed by community estimates on propane and fuel oil use. It is important to note that in Ontario, electricity generation is cleaner than natural gas, therefore the emissions from the residential sector are considerably lower. Natural gas emissions from the industrial sector created the largest portion of GHG emissions in the community. This is reasonable as manufacturing is significantly more energy intensive than other sectors operating within the city. The second largest source of emissions comes from transportation accounting for 12% of community emissions. The least amount of emissions are produced from the solid waste sector accounting for just 0.4% of community emissions. Emissions are further reviewed by their fuel source in the following section.

4.1.2 Community Energy Use and Emissions by Source

Breaking down emissions by source provides a deeper understanding of what produces the most GHGs. Table 17 provides a summary of community emissions produced by energy sources between 2022 and the 2017 baseline.

Table 17: Community Energy Use and GHG Emissions by Source (tonnes): 2022 vs. 2017

Source	2022 Emissions (tCO ₂ e)	%	2017 Emissions (tCO ₂ e)	%	Delta
Electricity	18,414.00	1%	12,568.00	1%	47%
Natural gas	1,261,540.00	82%	1,200,332.00	80%	5%
Diesel	12,313.00	1%	12,771.00	1%	-4%
Fuel oil	50,740.00	3%	76,515.00	5%	-34%
Propane	12,285.00	1%	16,565.00	1%	-26%
On-road transportation fuel	185,000.00	12%	173,222.00	12%	7%
Total	1,540,292.00		1,491,973.00		3%

As can be seen in Table 17, natural gas is the primary cause of greenhouse gas emissions in Sault Ste. Marie. Natural gas is responsible for 82% of energy emissions which minimizes propane at 1 %, the other significant energy source in buildings. The next largest emitter comes from fuel oil at 3%.

The concentration of industrial activity in Sault Ste. Marie is a significant contributor to the use of natural gas in the city. Industrial processes and heating of large industrial facilities use a large amount of natural gas and therefore create a considerable source of emissions. The next section of this report provides an update to the 2023 corporate GHG inventory.

4.2 2023 Corporate GHG Emissions Inventory Results

This section of the report refers to emissions from municipal operations in 2023. Corporate emission sources include municipal buildings, fleet and equipment, streetlights, and energy used for wastewater. It is important to note that due to the recently completed community GHG inventory having included emissions from community waste, it will not be included in the corporate inventory. In 2023, the city produced approximately 10,857 tCO₂e and cost the city approximately \$9,600,630 in energy and fuel costs. The following table illustrates the tCO₂e by sector.

Table 18: City of Sault Ste. Marie Corporate 2023 GHG Emissions

Sector	Emissions (tCO ₂ e)	% of Emissions	Scope of Data
Buildings	3,832	35%	Natural gas and electricity
Fleet and Equipment	5,658	52%	Gasoline and diesel
Outdoor lighting	80	1%	Electricity
Water and Sewage	1,292	12%	Electricity and natural gas
Total Emissions	10,862	100%	

The majority of 2023 corporate GHG emissions came from fleet, followed by buildings, then wastewater and streetlights

It is important to note that the city has already implemented many initiatives that save money and reduce GHG emissions over the years. This section of the report contains high-level insights into the emissions and cost data collected internally. For a more thorough overview of corporate emissions by sector, please refer to Appendix C for the 2023 Corporate Emissions Inventory update.

The 2022 community and 2023 corporate GHG inventories provide an update and can be used to measure progress in the future. The next section of this report looks at emissions projections for both the community and the corporate GHG inventories if no action is taken over the next 20 years.

Business-as-usual Emissions Projection

A business-as-usual (BAU) emissions forecast is used to estimate future GHG emission levels in the absence of local government action on climate change based on projected population growth. Based on Sault Ste. Marie Population Projections, which estimate population growth to increase 14% in the next 20 years, BAU emissions were extrapolated based on a 0.7 percent average annual population growth rate (Metro Economics, 2019). This assumes emissions will increase at the same rate as population growth. The following table and figure show the BAU forecast over 20 years for the community of Sault Ste. Marie and the City (corporate emissions).

Table 19: Total Community Current and BAU Emissions

Category	Year	tCO ₂ e	tCO ₂ e Increase
Baseline Emissions	2022	1,547,088	↑ 216,592 (or 14%)
BAU Emissions	2037	1,609,161.25	

If Sault Ste. Marie does not make any changes, emissions are estimated to increase 14% (or 3216,592 tCO₂e) in the next 20 years.

Figure 5: Community BAU GHG Emissions Forecast

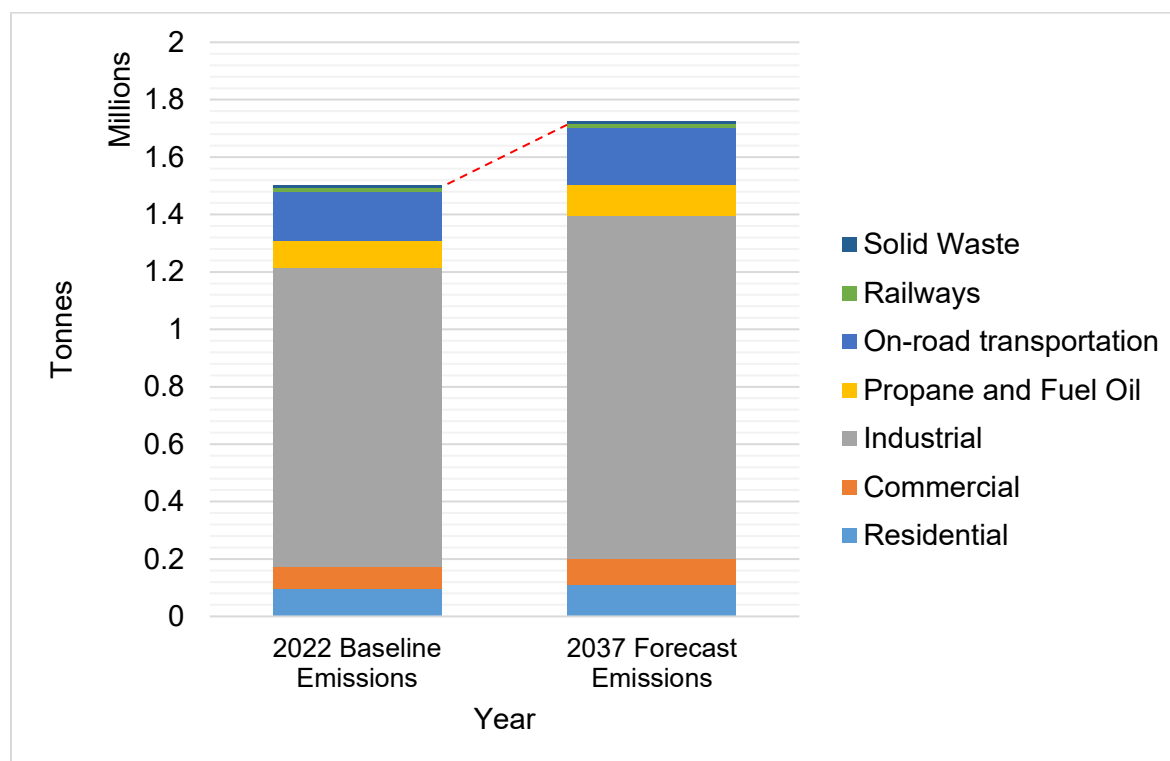
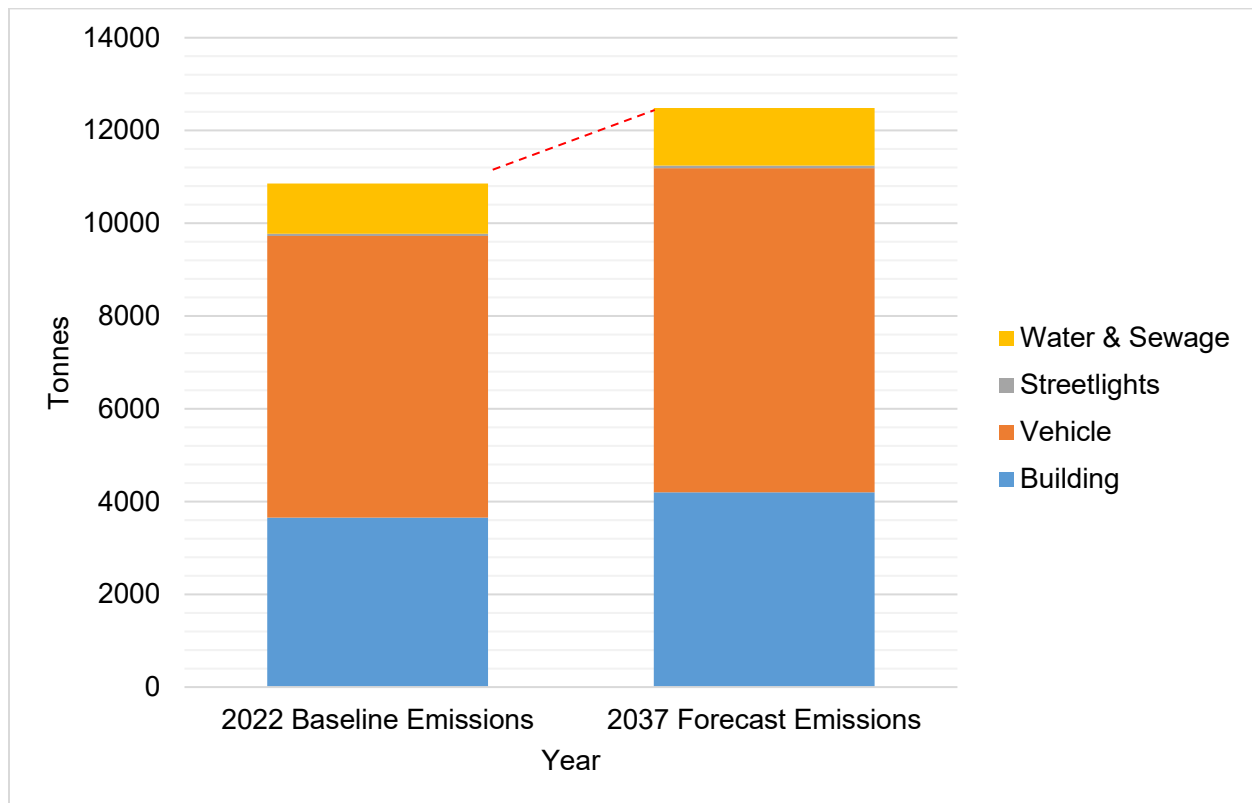


Table 20: Corporate BAU GHG Emissions Forecast

Category	Year	tCO ₂ e	tCO ₂ e Increase
Baseline Emissions	2022	10,856	↑ 1,626 (or 14%)
BAU Emissions	2037	12,482	

Figure 6: Corporate BAU GHG Emissions Forecast



If Sault Ste. Marie does not make any changes, emissions are estimated to increase 14% (or 1,626 tCO₂e) in the next 20 years.

The BAU emissions for both the community and the city indicate what emissions will look like in twenty years if no action or changes are made. This sets the stage for action to create an action plan to reduce GHG emissions.

Appendices

The following section of this report contains Appendices A through F, referenced in the preceding document.

Appendix C: PCP Protocol Community Inventory Requirements¹⁷

Line No.	Activity Sector / Emission Source	PCP Reporting Requirements (Y/N)	Recommended Accounting Approach(es)	Data Acquired (Y/N)
1	Residential Energy Consumption			
a	Natural Gas	Y	Actual Consumption Data	N
b	Fuel Oil	Y	Actual Consumption Data	N
c	Propane	Y	Actual Consumption Data	N
d	Electricity	Y	Actual Consumption Data	Y
2	Commercial/Institutional Energy Consumption			
a	Natural Gas	Y	Actual Consumption Data	N
b	Fuel Oil	Y	Actual Consumption Data	N
c	Propane	Y	Actual Consumption Data	N
d	Electricity	Y	Actual Consumption Data	N
3	Industrial Energy Consumption			
a	Natural Gas	Y	Actual Consumption Data	N
b	Fuel Oil	Y	Actual Consumption Data	N
c	Propane	Y	Actual Consumption Data	Y
d	Electricity	Y	Actual Consumption Data	Y
4	On-road transportation			
a	Tailpipe combustion emissions from motor vehicles travelling within the community	Y	Retail Fuel Sales or Vehicle Kilometres Travelled or Vehicle Registration	Y
5	Local Public Transit Systems			
a	Combustion emissions from local rail and/or bus transit systems	Y	Actual Consumption Data	N
b	Emissions from electricity used in local rail and/or bus transit systems	Y	Actual Consumption Data	N
6	Solid Waste			

¹⁷ Source adapted from ICLEI – Local Governments for Sustainability and the Federation of Canadian Municipalities (FCM). (2014). *PCP Protocol: Canadian Supplement to the International Emissions Analysis Protocol*. Retrieved from: <https://fcm.ca/sites/default/files/documents/resources/report/protocol-canadian-supplement-pcp.pdf>

a	Projected downstream (future) emissions from disposal of community solid waste	Minimum	Methane commitment model	N
b	Emissions from in-boundary landfills, waste incineration and/or composting facilitates	Recommended	Landfill gas collection data or first order decay model	N
7	Agriculture			
a	Methane emissions from enteric fermentation	Optional	Livestock counts	N
b	Methane emissions from manure management	Optional	Livestock counts	N
8	Industrial Processes			
a	Non-energy related emissions from industrial processes (mineral products, chemical industries, metal products, etc.).	Optional	Seeking input	Y
9	Fugitive Emissions			
a	Fugitive emissions from the production, processing, transmission, storage and delivery of fossil fuels	Optional	Seeking input	N

Appendix D: Community GHG Emissions Inventory PCP Tool Input Data

Stationary Energy

Table 21: 2022 Residential energy consumption data

Fuel Type	Usage	Units	Data source(s)
Electricity	363,842,212.2	kWh	PUC Services Inc.
Natural Gas	53,234,361	m3	Enbridge Inc.

Table 22: 2022 Commercial & Institutional energy consumption data

Fuel Type	Usage	Units	Data source(s)
Electricity	359,737,109.7	kWh	PUC Services Inc.
Natural Gas	36,830,107	m3	Enbridge Inc.

Table 23: 2022 Industrial energy consumption data

Fuel Type	Usage	Units	Data source(s)
Natural Gas	562,786,740	m3	Enbridge Inc.

Non-specified sources

Table 24: 2022 Propane and Fuel Oil Consumption Data

Fuel Type	Usage	Units	Data source(s)
Propane	8,905,878	Liters (l)	Statistics Canada
Fuel Oil	1,311,799.09	Liters (l)	Statistics Canada

Transportation

Table 25: 2022 On-Road Transportation Data

Input	Usage	Units	Data source(s)
Environmental Insights Explorer	185,000	tCO ₂ e	Google estimates this by using aggregated location information from user trips to infer traffic, mode of travel, and total distances driven in the city. These are combined with an estimate of the types of vehicles and average fuel consumption of each mode

Table 26: Sault Ste. Marie Railway Track Emissions Data

Input	Usage	Units	Data source(s)
tCO ₂ e / km of rail in Sault Ste. Marie	12,279.28	tCO ₂ e	Estimate based on the 2019 National Inventory Report, Statistics Canada and total rail length in Sault Ste. Marie.

Waste

Table 27: 2022 Solid Waste Data

Input	Usage	Units	Data source(s)
Waste	2,596,660	Landfill gas collected (m3)	2022 Landfill Data Collection Form submitted to the Ministry of Environment and Climate Change.)

Appendix E: City of Sault Ste. Marie 2023 Corporate Greenhouse Gas Emissions Inventory Update

Prepared by: Community Development & Enterprise Services

Revised: 2025 04 29

2023 Corporate Inventory Summary

Accurate and reliable greenhouse gas (GHG) measurement provides local government with the necessary baseline information to monitor emissions reduction performance over time. In 2019, the City of Sault Ste. Marie (the City) joined the Federation of Canadian Municipalities (FCM) Partners for Climate Protection (PCP) program to help them develop and monitor their GHG emissions. A baseline emissions inventory was created based on 2017 data. On December 14, 2020, City Council endorsed the *Sault Ste. Marie Community GHG Reduction Plan: 2020 – 2030*, which targets a 10% corporate and 5% community reduction of emissions by 2030, with net zero emissions by 2050. In 2021, City Council further solidified their reduction commitment by signing the United Nations (UN) Cities Race to Zero pledge, which requires them to report on their corporate GHG emissions on an annual basis. This report completes the UN Cities Race to Zero requirement with an update to the corporate GHG emissions inventory for the year 2023. Emissions in tonnes of carbon dioxide equivalent (tCO₂e) for 2023 are highlighted below.

Table 28: City of Sault Ste. Marie 2023 Corporate GHG Emissions

Sector	Emissions (tCO ₂ e)	% of Emissions	Scope of Data
Buildings	3,832	35%	Natural gas and electricity
Fleet and Equipment	5,658	52%	Gasoline and diesel
Outdoor lighting	80	1%	Electricity
Water and Sewage	1,292	12%	Electricity and natural gas
Total Emissions	10,862	100%	

Emissions from fleet and equipment continue to be the highest corporate emitter, followed by buildings, which is the same as the 2017 baseline numbers. To understand emissions reduction efforts and trends, the author of this report compared the 2023 emissions to the baseline inventory in 2017. Emissions trends indicate an overall increase of corporate emissions of 5% compared to the baseline.

In 2023, a bi-annual corporate energy and sustainability meeting was organized with Department heads and key facility management staff to help prioritize and track emissions reduction projects. It also included a Sustainability Audit of the City's budget to create a baseline of spending allocated towards corporate sustainability initiatives. The first meeting took place on February 28, 2023. The second and last meeting of the year was held on July 11, 2023, with City Department heads and key facility management staff to help prioritize and track emission reduction projects. This was a remedial action identified in the 2022 Corporate GHG emissions inventory update that noted that corporate emissions were up 10%. Some key energy retrofit projects were completed, including an LED Upgrade to the PW Garage A and the Ice Plant Recommissioning project at the GFL Memorial Gardens. These projects were estimated to reduce the City's electricity consumption by 139,370 kWh and 3.55 tCO₂e.

The City also received funding from the FCM to conduct a Deep Energy Retrofit (DER) Audit Project. The DER audits will enable the City to identify a sequence of GHG reduction measures to reduce GHG emissions for a portfolio of the top six (6) emitters of community buildings including: the John Rhodes Community Centre, East End Wastewater Treatment Plant, GFL Memorial Gardens, Public Works Centre, Fire Hall 4 / RESC Centre, and Transit Administration

Despite these initiatives, efforts still fall short of the 1% reduction target per year for 10% corporate emissions reduction by 2030. A more aggressive corporate financial commitment and effort from all departments will be required to meet the 2030, and also 2050 net zero emissions reduction target.

City of Sault Ste. Marie 2022 Community and 2022 Corporate GHG Emissions Inventory Update

Background

In February of 2019, the City received funding from the FCM Municipal Climate Innovation Program (MCIP) to increase capacity to reduce community GHG emissions. The funding aligns with the community development pillar of Environmental Sustainability, which was identified as one of four strategic priorities in the Community Adjustment Committee (CAC) report *A Common Cause and New Direction for Sault Ste. Marie* (Community Adjustment Committee, 2017). FutureSSM was tasked with implementing and building on recommendations in the CAC report, including creating the City's first community GHG emissions inventory to help plan and implement municipal climate change priorities.

To support municipalities in creating GHG emissions inventories, the FCM and ICLEI – Local Governments for Sustainability (ICLEI Canada) created the Partners for Climate Protection (PCP) Program to provide a forum for municipal governments on how to reduce GHG emissions. Participation in the program includes the completion of a 5-milestone framework which is intended to guide the municipality towards the development of a Climate Action Plan. The program is free to join and allows member cities to gain access to tools, resources, a community of practice and an online tool that assists in the development of GHG emissions inventories.

In September 2019, City Council passed a resolution to join the Partners for Climate Protection (PCP) Program. In doing so, the City committed to joining over 400 municipalities across Canada in working to reduce community GHG emissions. The PCP is a five-milestone framework which includes:

1. Creating a baseline emissions inventory and forecast
2. Setting emissions reduction targets
3. Developing a local action plan
4. Implementing the local action plan, and
5. Monitoring progress and reporting results

The City 2017 inventory baseline and 2022 update express GHG production as the number of tonnes of carbon dioxide equivalent (tCO₂e) produced by energy use (electricity and natural gas) and transportation (gasoline and diesel). tCO₂e is a commonly used measure that expresses all GHG as an equivalent amount of carbon dioxide. The following section of this report outlines the data collection and analysis process of the emission sources.

Methodology

The methodology for conducting the City's Corporate GHG emissions data update utilized the *Partners for Climate Protection (PCP) Protocol: Canadian Supplement to the International Emissions Analysis Protocol*. This same methodology was used for the baseline corporate inventory which was completed for 2017 data. To be considered in compliance with the PCP protocol, municipal corporate GHG inventories must include emissions from the following four activity sectors:

1. Buildings and facilities;
2. Fleet Vehicles;
3. Streetlights and Traffic Signals;
4. Water and Wastewater;

5. Waste¹⁸

The following section of this report will document the data collection and analytics process, accounting methodology and analysis to facilitate the replication of the corporate inventory update in the future to measure results on corporate GHG reduction efforts. The data for this report was obtained through a variety of different channels including utility consumption metrics and the City's finance department. Data types include electricity, natural gas, and mileage, gasoline and diesel costs by each City department. It is important to note that due to challenges inherent in collecting department activity data, specifically for fleet vehicles it was necessary to estimate emissions based on the cost of fuel in that year. The following section of this report will outline and explain any carbon accounting adjustments undertaken as part of the corporate GHG inventory update for 2022.

2023 GHG Accounting Adjustments and Considerations

Buildings and Energy

Electricity

Electrical consumption data for all City assets (buildings, outdoor lighting and water and wastewater) was obtained by the author of this report from the PUC (the City's electric utility) for the year 2023 electricity consumption data. The PUC provided a spreadsheet that broke down energy consumption and cost by City account by year. The electrical consumption data for all buildings at the City was then input into the PCP online tool to identify associated GHG emissions by building for 2023. See Appendix A for more details.

Natural Gas

Natural gas consumption data for all City assets (buildings, water and wastewater) was obtained by the author of this report from Enbridge, by exporting consumption and invoice data from the City's *myenbridge* login portal for 2023. Natural gas consumption and cost by asset building was then input into the PCP online tool to identify associated GHG emissions for 2023. See Appendix A for more details.

Fleet and Equipment

Corporate fleet emissions were calculated by City departments based on their total costs associated to the use of gasoline and diesel fuel. The average cost per litre of gasoline and diesel was calculated from the Ontario Government *Fuel Price Survey* for the years 2023 (Government of Ontario, 2023). See table below for a breakdown of fuel averages for 2023.

Table 29: 2023 Average Fuel Prices (Cents / Litre) in Ontario

Fuel Type	2023
Gasoline	1.56
Diesel	1.81

¹⁸ Solid waste emissions are not included as they are part of the community emissions inventory and will be reported on every five years. The next community inventory update will occur in 2023 for 2022 data.

The average cost of fuel (gasoline and/or diesel by year) was then divided by the total amount of money spent on fuel by department to determine estimate fuel consumption figures. The amount spent by department was obtained by the author of this report from the City's Finance Department. The fuel consumption figures, both diesel and gasoline were then input into the online PCP tool to determine the GHGs by fuel type for each department by year. See Appendix B for more details on all fleet and equipment emissions from 2023.

Outdoor lighting

Energy consumption, cost and emissions were calculated for all City streetlights and traffic signal lighting, as well as all other outdoor public lighting such as park and recreational area lighting. Consumption data in kilowatt hours (kWh) as well as costs were provided to the author of this report by the PUC for 2023. Total consumption for each streetlight and traffic signal, and all other outdoor lighting, was then input into the online PCP inventory tool with the appropriate emissions coefficient to determine the GHG emissions per asset by year. See Appendix C for more details on all outdoor lighting emissions from 2023. From 2017 to 2023, the Ontario electrical grid became more carbon-intensive due to an increase in natural gas electricity generation¹⁹. This is forecast to continue to increase and will impact future emission inventory updates.

Water and Wastewater

Emissions were calculated for all municipal water and wastewater infrastructure, including lift, pumping stations, and treatment facilities for 2023. 2023 electricity consumption data and costs were provided to the author of this report by the PUC. Natural gas consumption and invoice data was obtained by the author of this report from Enbridge, by exporting consumption data from the City's *myenbridge* login portal for 2023. Consumption of each fuel type (electricity and natural gas) by asset was input into the PCP inventory tool with the appropriate emissions coefficient to determine the GHG emissions for 2023. See Appendix D for more details on all water and wastewater emissions in 2023.

The following section of this report reviews the City's corporate emissions from 2017 to 2023.

2023 Corporate GHG Emissions Inventory Update: Results

The City completed its first corporate GHG emissions inventory in 2007. It was updated in 2020 and established a new corporate baseline based on 2017 data. This section of the report contains high level overviews of the emissions, consumption and cost changes from 2017 to 2023. For a more thorough overview of the corporate emissions by sector, please refer to Appendices A to D of this report. The author of this report conducted a thorough analysis in comparison to the baseline inventory in 2017. All emissions information is included in the appendix section of this report. Corporate emission sources include municipal buildings, fleet and equipment, streetlights and energy used for water and wastewater. In 2023, the City produced approximately 10,853.76 tCO₂e and cost the City approximately \$9,599,011.30 in energy and fuel costs.

¹⁹ A.Gross, ICLEI, personal communication, July 29, 2022. The electricity emission factor has increased in Ontario from 17 gCO₂e/kWh in 2017 to 25 gCO₂e/kWh in 2020 due to the increase in natural gas use since some of the nuclear reactors have been down for refurbishment. The IESO also projects a continued rise in the emission factor due to increased reliance on natural gas for electricity generation. Also the 2021 emission factors have not been published yet - so the PCP Tool is pulling from the closest year available which is 2020. There is a 2-year lag in the publishing of emission factors for the Canada National Inventory Report.

Figure 7: Sault Ste. Marie Corporate Emissions (tCO₂e) 2017 to 2023

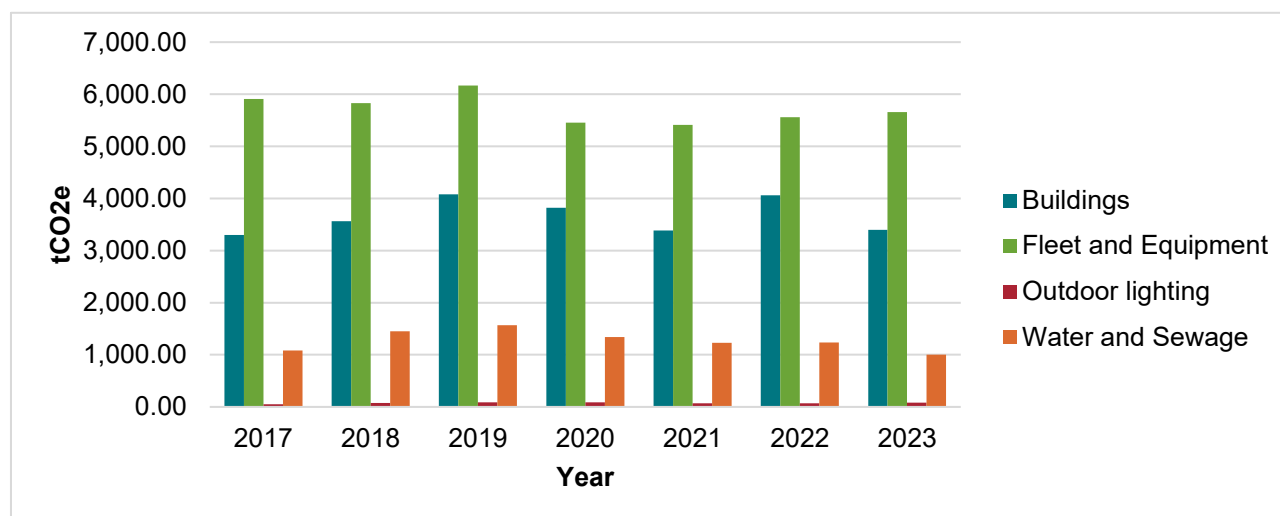


Table 30 Sault Ste. Marie Corporate Emissions (tCO₂e) 2017 to 2023

Sector	2017	2018	2019	2020	2021	2022	2023	% Δ 2017 to 2023
Buildings	3,300.95	3,566.38	4,078.17	3,823.10	3,385.34	4,063.10	3,831.92	16%
Fleet and Equipment	5,909.40	5,828.60	6,164.41	5,455.32	5,412.78	5,558.42	5,658.02	-4%
Outdoor lighting	48	75.04	85.25	87.12	71.73	71.49	79.93	67%
Water and Sewage	1,080.00	1,450.18	1,569.19	1,337.84	1,231.02	1,234.01	1,292.33	20%
TOTAL	10,338.35	10,920.20	11,897.02	10,703.38	10,100.87	10,927.02	10,862.2	5%

In 2023, emissions from fleet and equipment remain the highest corporate emitter, followed by buildings, which are the same as the 2017 baseline. The corporate GHG inventory update indicates that emissions have increased 5% from 2017 to 2023. Records show that three corporate building energy efficiency retrofits completed in 2023 were estimated to have reduced emissions by 54.14 tCO₂e since 2022, which falls short from the 1% reduction target per year for 10% corporate emissions reduction by 2020. This will be elaborated on in the corporate retrofit section of this report. It must also be noted that emissions factors in Canada are updated annually, and electricity emission factors have increased from 2017 to 2023 due to more natural gas generation in the Province of Ontario and are expected to continue to grow. This can be observed specifically with the emissions associated with outdoor lighting, where you see a jump from 48 tCO₂e in 2017 to ~80 tCO₂e in 2023. Despite efforts to reduce consumption through LED lighting retrofits, consumption continues to grow and emissions are also increasing due to the greater use of natural gas to generate electricity in the Province of Ontario²⁰. The next section of this report will look at corporate energy costs.

²⁰ Electricity emissions in ON have increased from 2017 to 2022 due to the use of more natural gas in generation

Figure 8: Corporate Energy Costs 2017 to 2023

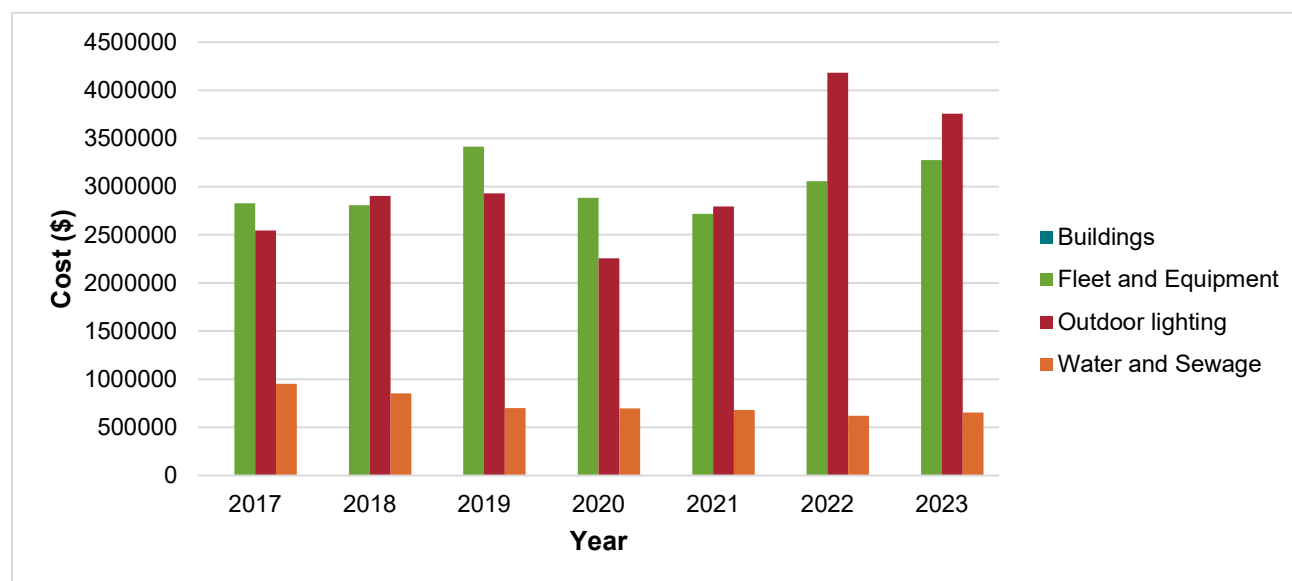


Table 31: Corporate Energy Costs 2017 to 2023

Sector	2017	2018	2019	2020	2021	2022	2023	% Δ 2017 to 2023
Buildings	\$2,826,579.70	\$2,807,582.83	\$3,414,143.58	\$2,883,239.61	\$2,716,117.81	\$3,056,640.20	\$3,274,276.37	14%
Fleet and Equipment	\$2,544,530.24	\$2,902,004.09	\$2,928,459.57	\$2,255,731.35	\$2,793,615.69	\$4,182,567.07	\$3,757,683.09	32%
Outdoor lighting	\$952,585.03	\$852,382.44	\$699,784.75	\$695,617.82	\$679,179.33	\$621,013.61	\$652,824.03	-46%
Water and Sewage	\$1,872,426.04	\$1,718,187.03	\$2,534,100.44	\$1,871,088.84	\$1,571,485.33	\$1,597,570.30	\$1,914,227.81	2%
TOTAL	\$8,196,121.01	\$8,280,156.39	\$9,576,488.34	\$7,705,677.62	\$7,760,398.16	\$7,960,09.30	\$9,599,011.30	15%

From 2017 to 2023, corporate energy costs increased by approximately 15%, or an average per year of 2.5%. Costs peaked in 2023 at \$9,599,011.30, with the majority of increases in fleet, equipment, and buildings. The City has prioritized energy LED lighting upgrades, which are discussed in more detail in Section 4 of this report. These provide excellent return on investment (ROI) and there are many incentives available from the Province of Ontario to help subsidize project costs. The City should continue to prioritize LED lighting conversion wherever possible. It aligns with the implementation of both the GHG Reduction Plan and the City's Energy Conservation and Demand Management Plan. The next section of this report reviews changes in electricity consumption for the City from 2017 to 2023.

Figure 9: Electricity (kWh) Consumption 2017 to 2023

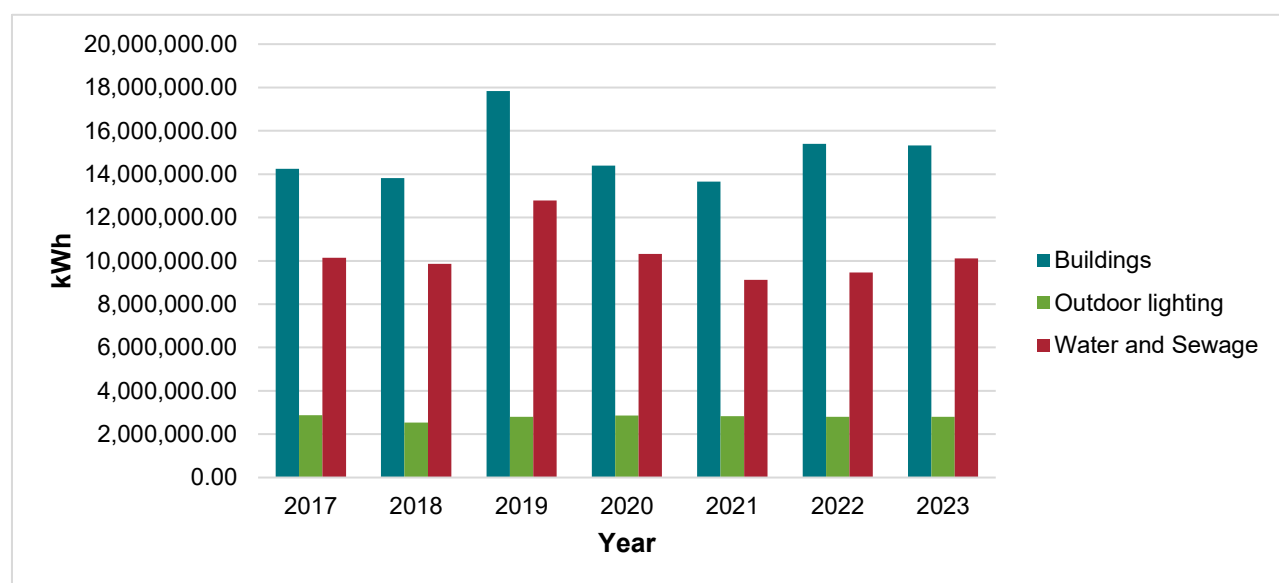


Table 32: Electricity (kWh) Consumption 2017 to 2023

Sector	2017	2018	2019	2020	2021	2022	2023	% Δ 2017 to 2023
Buildings	14,244,841.84	13,823,996.00	17,836,026.59	14,389,791.53	13,650,020.67	15,404,215.06	15,324,755.34	8%
Outdoor lighting	2,882,048.26	2,540,033.06	2,797,276.43	2,860,169.05	2,826,766.66	2,803,118.27	2,806,802.24	-3%
Water and Sewage	10,135,280.06	9,853,926.42	12,785,304.24	10,314,567.26	9,123,702.81	9,459,279.76	10,104,772.80	0%
TOTAL	27,262,170.16	26,217,955.48	33,418,607.26	27,564,527.84	25,600,490.14	27,666,613.09	28,236,330.38	4%

From 2017 to 2023, corporate electricity consumption, which is measured in kilowatt hours (kWh) increased by 4% or an average of 0.6% year. Consumption peaked in 2019 at 33,418,607.26 kWh and decreased in 2020 and 2021. The decrease is likely due to lockdowns in 2021 from the COVID-19 pandemic which would have reduced corporate energy consumption due to many staff working from home. Current data indicates consumption went up slightly again in 2023. The City has been prioritizing energy efficiency retrofits and should continue to do so to further reduce their consumption. It is however important to note that electricity emissions in Ontario are rising due to an increase in use of natural gas in generation. However, electricity is still a less carbon intensive fuel than natural gas and electrification should continue to be a corporate priority. Electricity consumption reduction should continue to be prioritized per the City's GHG Reduction and Energy Conservation Demand Management Plan. The next section of this report will review changes in natural gas consumption for the City from 2017 to 2023

Figure 10: Natural Gas (m³) Consumption 2017 to 2023

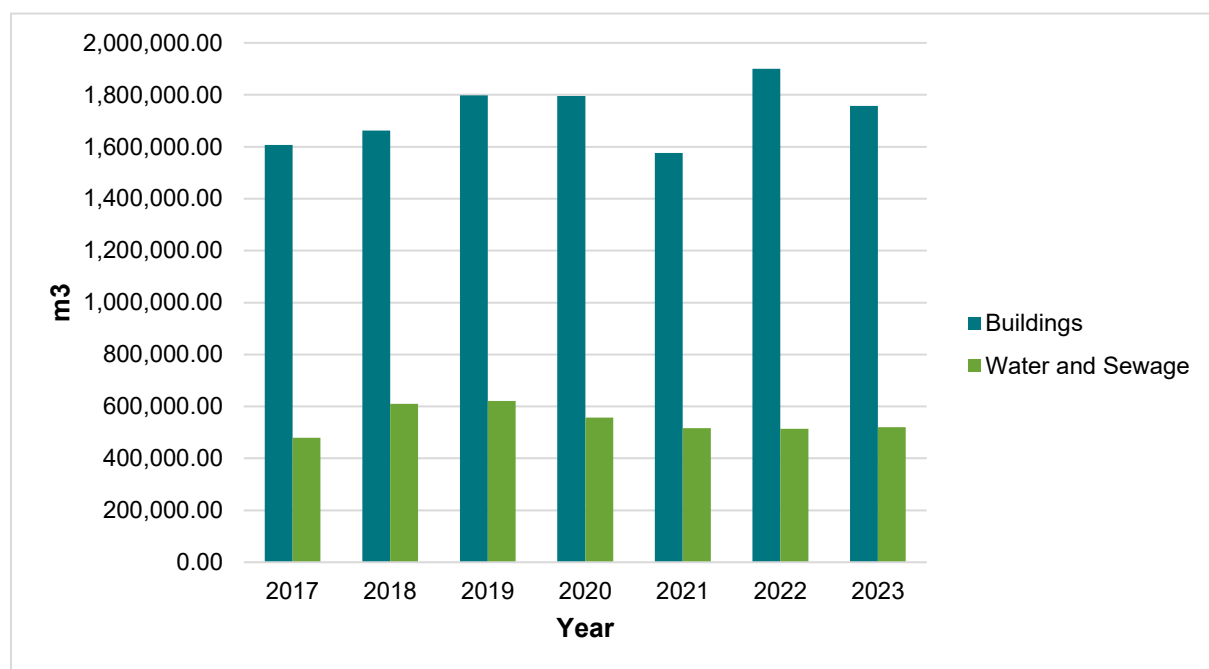


Table 33: Natural Gas (m³) Consumption 2017 to 2023

Natural Gas (m³) Energy Consumption				
-	2017	2018	2019	2020
Buildings	1,607,381.07	1,662,632.58	1,798,455.77	1,872,226.99
Water and Sewage	479,415.69	610,091.16	621,115.46	556,581.74
TOTAL	2,086,796.76	2,272,723.73	2,419,571.23	2,428,808.73

Sector	2017	2018	2019	2020	2021	2022	2023	% Δ 2017 to 2023
Buildings	1,607,381.07	1,662,632.58	1,798,455.77	1,794,941.52	1,575,613.53	1,899,792.35	1,757,230.00	9%
Water and Sewage	479,415.69	610,091.16	621,115.46	556,581.74	516,914.00	514,039.50	519,829.00	8%
TOTAL	2,086,796.76	2,272,723.73	2,419,571.23	2,351,523.25	2,092,527.53	2,413,831.85	2,277,059.00	9%

From 2017 to 2023, natural gas consumption increased by 9% or approximately 1.5% per year. Consumption peaked in 2019 and decreased in 2020 and again in 2021. Consumption increased again in 2022 but decreased in 2023. No large-scale natural gas reduction energy efficiency projects have occurred at the City since 2017, and there has also been an addition of assets consuming natural gas. If the City wishes to meet its emissions reduction target, a more concentrated effort and investment in energy efficiency projects that reduce natural gas consumption must occur.

The following section of this report outlines information regarding energy efficiency retrofits, which have been prioritized as part of the City's GHG Reduction Plan implementation strategy.

Corporate Energy Efficiency Retrofits

The following table lists tracked corporate energy efficiency retrofits as of December January 2023.

Multiple energy incentive grants have been pursued since 2022 that encourage energy savings and environmental sustainability. The following tables identify confirmed and prospective projects identified in 2023 and 2024.

Confirmed Projects

Year	Project	Estimated Annual Savings	Incentive Estimate	Incentive Funder	tCO2e Reduction	Status
2023	NCC Heat Recovery	TBD	\$5,774.50	Enbridge	44.63	Complete
2023	PW Building A LED Retrofit	\$7,550.40	\$3,630.00	IESO	Unknown	Complete
2023	EV Zamboni #1 - NCC Twin Pad	N/A	N/A	N/A	9.3	Complete
2023	North Street Outdoor Sports Complex Ball Field Lights	\$6,184.62	\$22,320.00	IESO	1.21	Not started
2023	Strathclair Soccer Fields 1 & 2 LED	\$1,082.38	\$3,480.00	IESO	Unknown	Not complete
2024	PW Building G			IESO	Unknown	Complete
2024	Cemetery			IESO	Unknown	Complete
2024	Fire Hall 4 - Shop LED lights			IESO	Unknown	Complete
2024	Fire Hall - 72 Tancred for DCV installed on rooftop	Unknown	\$500.00	Enbridge	Unknown	Complete
2024	Fire Hall 2 - Air Unit with ARV	Unknown		Enbridge	Unknown	Complete
2024	Fire Hall 3 - Air Unit with ARV	Unknown		Enbridge	Unknown	Complete
2024	SSM Museum - Heat Pump	Unknown	TBD	N/A	Unknown	Complete
2024	Submitted a rebate application to Enbridge for \$10K for offset to Energy Audit cost			Enbridge	N/A	Complete
		\$14,817.40	\$35,204.50		55.14	

Projects In-Progress

Year	Project	Estimated Annual Savings	Incentive	Funder	tCO2e
2025	JRCC - heat recovery, HVAC, and roof replacement				
2025	GFL Parking Lot Lights	\$4,651.92	\$4,651.92	IESO	0.91
2025	PW Weather Stripping				
2025	Transit Electric 40' Bus				
2025	Transit Electric Parabus				
2025	EV Charger Allocation				

2025	Strathclair Dog Part Solar Lighting				
2025	GFL Chiller				
2025	JRCC LED Lighting				
2025	Police HQ HVAC Replacement				
2025	Fire Hall 4 Air Handling Units				
2025	JR Field B LED oval and soccer				

2023 Weather Impacts on Energy Consumption

A key factor that can be considered for understanding changes in emissions relates to temperature. Two key metrics are used for this analysis including heating degree days (HDD) and cooling degree days (CDD). Heating Degree Days (HDD) are equal to the number of degrees Celsius a given day's mean temperature is below 18 °C. For example, if the daily mean temperature is 12 °C, the HDD value for that day is equal to 6 °C. If the daily mean temperature is above 18 °C, the HDD value for that day is set to zero. If a location shows a decrease in projected HDD values, this implies that it will experience shorter periods of cold weather, or that it will experience less severe cold (Government of Canada, 2025).

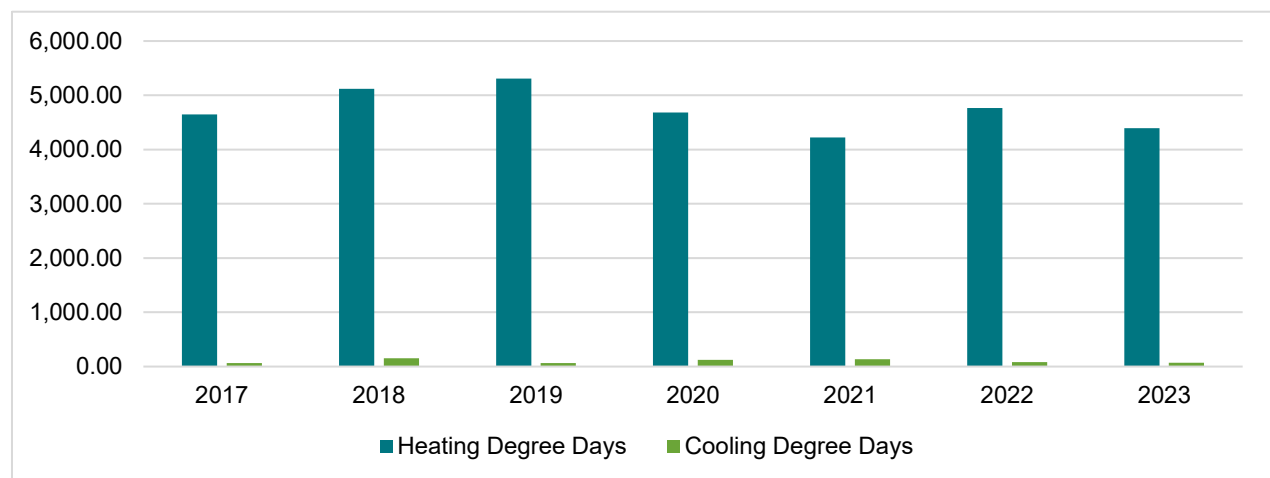
Cooling degree-days for a given day are the number of degrees Celsius that the mean temperature is above 18 °C. If the temperature is equal to or less than 18 °C, then the number will be zero. For example, a day with a mean temperature of 20.5 °C has 2.5 cooling degree-days; a day with a mean temperature of 15.5 °C has zero cooling degree-days. Cooling degree-days are used primarily to estimate the air-conditioning requirements of buildings (Government of Canada, 2025).

HDD and CDD data was analyzed in Sault Ste. Marie from 2017 to 2022. Total HDD and CDD were totaled for each year (2017 to 2023) and are summarized in the table below. (Government of Canada, 2025a).

Table 34: Sault Ste. Marie Heating and Cooling Degree Days 2017 to 2023

Year	2017	2018	2019	2020	2021	2022	2023	Δ 2017 - 2023
Heating Degree Days	4,649.6	5,117.8	5,306.5	4,684	4,222.1	4,767.1	4,393.8	-6%
Cooling Degree Days	61.7	150.3	62.3	121.5	134.4	82.2	69.4	12%

Figure 11: Sault Ste. Marie Heating and Cooling Degree Days 2017 to 2023



Over the past six years from 2017 to 2023, HDD has decreased by approximately 6% while CDD has increased approximately 12%. This clearly indicates that the winters are getting milder and shorter and summers are getting longer and hotter, as a result of climate change. These trends should continue to be monitored by the City as part of their energy and emissions monitoring, as well as climate adaptation planning.

Conclusion / Next Steps

The 2023 corporate inventory indicates a corporate emissions decrease of 2% from 2017 to 2023. As it currently stands, the City is not on track to meeting its corporate GHG emissions reduction target of 10% by 2030 (approximately 1% reduction per year) based on energy use reduction projects for both buildings and fleet and equipment. As such, a more aggressive corporate financial commitment and effort from all departments will be required to meet net zero emissions by 2050. The City must ensure that investments made to make new assets and/or additions as green and energy efficient as possible. The GHG Reduction Plan recommends establishing a green building policy that goes above and beyond the Ontario building code. Currently the City is one of 14 municipalities participating in the Buildings to Net Zero project which will develop a business case to support this important next step²¹. The completion of the six deep energy retrofit audits on the top six emitting facilities is an excellent step as well.

²¹ <https://icleicanada.org/project/bnz/>

Appendix F: City of Sault Ste. Marie Corporate Building Emissions Update

2023 Building Energy Consumption, Costs and tCO₂e

Department and Building	Electricity			Natural Gas				Total	
	Use (kWh)	Cost (\$)	tCO ₂ e	Use (m3)	Cost(\$)	Carbon Tax	tCO ₂ e	Cost	tCO ₂ e
Arenas									
GFL Essar Centre	2,736,255.15	\$424,147.30	77.91	392,025.00	\$260,385.74	\$43,858.93	757.53	\$684,533.04	835.44
John Rhodes Community Centre	2,962,363.35	\$441,496.11	84.35	522,979.00	\$134,861.99	\$57,613.95	1010.58	\$576,358.10	1094.93
Northern Community Centre	2,280,250.94	\$276,742.03	64.93	46,123.00	\$151,755.37	\$21,403.37	89.13	\$428,497.40	154.06
Outdoor Pools									
Greco	26,897.55	\$3,841.16	0.77	4,178.00	\$1,857.47	\$512.57	8.07	\$5,698.63	8.84
Manzo	17,223.49	\$2,657.09	0.49					\$2,657.09	0.49
Marinas									
Bellevue Marina	78,738.66	\$10,814.89	2.24					\$10,814.89	2.24
Bondar Marina	128,334.38	\$17,709.47	3.65					\$17,709.47	3.65
Senior Facilities									
Senior Drop-In (Bay)	160,382.65	\$22,896.65	4.57	13,375.00	\$7,398.84	\$1,458.05	25.85	\$30,295.49	30.42
Other									
Ermatinger	43,376.61	\$6,159.66	1.24	12,287.00	\$5,974.48	\$1,322.96	23.74	\$12,134.14	24.98
Bondar - Pavilion Feed	29,606.62	\$4,253.40	0.84	3,769.00	\$2,135.66	\$401.02	7.28	\$6,389.06	8.12
Bondar - Stage Building Electric	6,027.78	\$1,118.56	0.17					\$1,118.56	0.17
Norgoma	7,547.51	\$1,299.15	0.21					\$1,299.15	0.21
402 Fifth Line E DEMO	35,476.16	\$5,123.82	1.01					\$5,123.82	1.01

Department and Building	Electricity			Natural Gas				Total	
	Use (kWh)	Cost (\$)	tCO ₂ e	Use (m3)	Cost(\$)	Carbon Tax	tCO ₂ e	Cost	tCO ₂ e
Heritage Centre Bay	113,483.45	\$16,074.47	3.23	13,382.00	\$4,981.95	\$1,453.98	25.86	\$21,056.42	29.09
Plaza 535 Queen	28654.72	\$4,353.73	0.82	31,232.00	\$46,240.59	\$3,215.50	60.35	\$50,594.32	61.17
Cemetery									
Cem Garage	20,514.76	\$3,430.25	0.58	3,037.00	\$2,261.62	\$332.33	5.87	\$5,691.87	6.45
Cem Chapel	91,100.55	\$13,099.78	2.59	108,084.00	\$58,334.12	\$12,574.62	208.86	\$71,433.90	211.45
Landfill									
Landfill Administration	53,853.08	\$7,657.48	1.53	26,701.00	\$21,859.42	\$2,887.43	51.6	\$29,516.90	53.13
Pipe Plant - 115 Industrial Par				3,860.00	\$3,328.38	\$413.50	7.46	\$3,328.38	7.46
Landfill methane gas blower	49,724.25	\$6,959.94	1.42					\$6,959.94	1.42
Landfill Garage	155,291.82	\$23,044.77	4.42					\$23,044.77	4.42
HSW	38,768.34	\$5,605.35	1.1	1,977.00	\$1,303.34	\$216.80	3.82	\$6,908.69	4.92
Outdoor Rinks									
Rink Central	7,610.18	\$1,317.21	0.22					\$1,317.21	0.22
Rink Mark	11,202.00	\$1,783.05	0.32					\$1,783.05	0.32
Rink Patrick St	13,840.08	\$2,129.01	0.39					\$2,129.01	0.39
Parks									
Bellevue GRHS	59,838.83	\$9,103.56	1.7					\$9,103.56	1.7
Bellevue Canteen	33,143.96	\$4,783.56	0.94					\$4,783.56	0.94
Pointe Des Chenes Park	9,053.28	\$1,524.91	0.26					\$1,524.91	0.26
	Electricity			Natural Gas				Total	

Department and Building	Use (kWh)	Cost (\$)	tCO ₂ e	Use (m3)	Cost(\$)	Carbon Tax	tCO ₂ e	Cost	tCO ₂ e
James Elliott	8,699.16	\$1,726.38	0.25					\$1,726.38	0.25
North Stand CSB	6,656.62	\$1,129.44	0.19					\$1,129.44	0.19
Strathclair	3,186.19	\$729.13	0.09					\$729.13	0.09
Bay Street Fountain	24,644.25	\$3,383.85	0.7					\$3,383.85	0.7
Foster Sprinkler	7,971.93	\$1,262.50	0.23					\$1,262.50	0.23
Esposito Park				3,735.00	\$1,792.27	\$405.68	7.22	\$1,792.27	7.22
Splash Pad	2185.19	\$594.90	0.06					\$594.90	0.06
Public Works & Transit									
PWT Sackville Road	803,797.12	\$119,758.99	22.89	182,686.00	\$102,001.93	\$19,833.77	353.01	\$221,760.92	375.9
PWT A - 128 Sackville Rd Unit B Shop				8,606.00	\$4,911.90	\$944.42	16.63	\$4,911.90	16.63
Transit Terminal	60,510.45	\$8,403.65	1.72	4,183.00	\$2,837.42	\$448.06	8.08	\$11,241.07	9.8
Transit Administration	245,385.83	\$36,767.36	6.99	92,528.00	\$53,337.57	\$10,096.50	178.8	\$90,104.93	185.79
Engineering and Planning									
Civic – Civic Centre	2,429,968.57	\$354,307.01	69.19					\$354,307.01	69.19
Fire & Police Services									
Fire 1	150,606.30	\$21,391.91	4.29	49,677.00	\$29,367.50	\$5,354.20	95.99	\$50,759.41	100.28
Fire 2	40,105.71	\$5,460.03	1.14	7,742.00	\$4,338.38	\$855.93	14.96	\$9,798.41	16.1
Fire 3	44,805.35	\$6,277.47	1.28	6,792.00	\$3,853.74	\$732.19	13.12	\$10,131.21	14.4
Number 4 Fire Hall – RESCUE Center	508,662.47	\$75,817.52	14.48	82,145.00	\$51,171.36	\$9,197.52	158.73	\$126,988.88	173.21
	Electricity			Natural Gas				Total	

Department and Building	Use (kWh)	Cost (\$)	tCO ₂ e	Use (m3)	Cost(\$)	Carbon Tax	tCO ₂ e	Cost	tCO ₂ e
RESC B - 65 Old GR Rd Unit B				30,998.00	\$20,057.55	\$3,700.14	59.9	\$20,057.55	59.9
River Road - 2 Murphy St				11,103.00	\$2,818.83	\$1,203.52	21.45	\$2,818.83	21.45
Police Services Building	1,112,646.28	\$166,743.94	31.68	29,077.00	\$15,895.31	\$3,130.18	56.19	\$182,639.25	87.87
City Police - 311 Queen	5,918.15	\$1,105.30	0.17					\$1,105.30	0.17
Police 132 Industrial Cres				3,381.00	\$2,506.07	\$307.47	6.53	\$2,506.07	6.53
Museum & Library									
SSM Public Library – Centennial	414,962.92	\$71,215.33	11.82	49,582.00	\$39,122.86	\$5,340.53	95.81	\$110,338.19	107.63
Sault Ste. Marie Museum	255,482.70	\$35,057.06	7.27	11,986.00	\$7,326.58	\$1,280.92	23.16	\$42,383.64	30.43
Total	Use(kWh)	Cost(\$)	tCO₂e	m3	Cost(\$)	Carbon Tax	tCO₂e	Cost	tCO₂e
	15,324,755.34	\$2,230,258.13	436.34	1,757,230.00	\$1,044,018.24	210,496.04	3,395.58	\$3,274,276.37	3,831.92

Appendix G: City of Sault Ste. Marie Corporate Fleet and Equipment Emissions Update

2023 Vehicle Fleet and Equipment Fuel Usage, Costs and tCO₂e

Department / Division	2023 Gasoline Consumption (l)	2023 Gasoline Cost (\$)	2023 Gasoline tCO ₂ e	2023 Diesel Consumption (l)	2023 Diesel Cost (\$)	2023 Diesel tCO ₂ e	2023 Total Cost	2023 Total tCO ₂ e (t)
Fire - Support Services	64,084.03	\$99,971.08	148.51	43,609.84	\$78,933.81	119.83	\$178,904.89	268.34
PWT - Building & Equipment	210,131.49	\$327,805.12	486.95	659,561.23	\$1,193,805.82	1,812.32	\$1,521,610.94	2,299.27
Transit - Fleet	60,772.56	\$94,805.20	143.95	778,279.30	\$1,408,685.53	2,123.34	\$1,503,490.73	2,267.29
Transit - Para Bus	86,413.42	\$134,804.93	200.25	-			\$134,804.93	200.25
Transit - Operations	1,329.38	\$2,073.83	3.08	-		-	\$2,073.83	3.08
Cemetery	10,857.35	\$16,937.46	25.16	11,042.18	\$19,986.34	30.34	\$36,923.80	55.50
Rec & Culture - Admin	375.83	\$586.29	0.87	-	\$ -		\$586.29	0.87
CDES - McMeeken			-	-	\$ -		\$0.00	-
CDES - John Rhodes Arena	7,000.03	\$10,920.04	16.22	-	-		\$10,920.04	16.22
CDES - GFL Memorial Gardens	6,658.40	\$10,387.10	15.43	-	\$ -		\$10,387.10	15.43
CDES - NCC	-			-	\$ -		\$0.00	-
Police - Executive	10,979.83	\$17,128.53	25.44	-	\$ -		\$17,128.53	25.44
Police - Support Services	5,141.28	\$8,020.39	11.91	-	\$ -		\$8,020.39	11.91
Police - Patrol	181,890.65	\$283,749.42	421.51	-	\$ -		\$283,749.42	421.51
Police - Investigation	15,703.92	\$24,498.12	36.39	-	\$ -		\$24,498.12	36.39
Police - Community Services	-			-	\$ -		\$0.00	-
Police Admin	-		-	-	\$ -		\$0.00	-
Engineering - Technical	7,319.67	\$11,418.68	16.96	-	\$ -		\$11,418.68	16.96
Engineering - Bldg Inspection	4,678.69	\$7,298.76	10.84	-	\$ -		\$7,298.76	10.84
Eng. & Planning - Bylaw Enforce	1,393.69	\$2,174.16	3.23	-	\$ -		\$2,174.16	3.23
Mileage	2,366.97	\$3,692.48	5.49	-	\$-		\$3,692.48	5.49
TOTAL	677,097.17	\$1,056,271.59	1,572.19	1,492,492.54	\$2,701,411.50	4,085.83	\$3,757,683.09	5,658.02

Appendix H: City of Sault Ste. Marie Corporate Outdoor Lighting Emissions Update

2023 Outdoor Lighting Consumption, Cost and tCO_{2e}

Outdoor Lighting Group Name	Total Electricity(kWh)	Total Costs	tCO _{2e}
Traffic Lights			
Traffic Lights Main	157,890.55	\$23,378.46	4.5
Traffic Lights Bruce Street	1,812.19	\$547.80	0.05
Traffic Lights Carmen's Way	3,702.24	\$798.33	0.11
Traffic Lights Great Northern Road	761	\$393.74	0.02
Traffic Lights 312 Second Line West	3,706.95	\$800.72	0.11
Traffic Lights Lyons	2,807.48	\$678.79	0.08
Traffic- 818 Wellington St. East	3,487.24	\$775.65	0.1
Traffic - 742 Great Northern Rd	3,073.41	\$653.15	0.09
Traffic - 543 Trunk Rd	3,529.57	\$776.35	0.1
Traffic - John St.	3,248.45	\$737.86	0.09
Traffic - Black Rd	2,154.27	\$593.27	0.06
Traffic - Pine St.	3,031.94	\$709.83	0.09
T-Lts Pine St	4,021.48	\$842.89	0.11
Traffic - Queen St. E 1	4,048.62	\$847.20	0.12
Traffic Queen St. E 2	3,945.07	\$832.01	0.11
Traffic Second Line E	4,049.82	\$845.38	0.12
Traffic - St George's Ave	4,283.38	\$876.92	0.12
Traffic Second Line E			
Traffic - Bay St.	4,447.31	\$899.71	0.13
Traffic light - 180 BAY ST	5,327.04	\$1,018.54	0.15
Traffic light - 384 BAY ST	3,352.05	\$752.69	0.1
Traffic light - 70 EAST ST	4,986.64	\$973.37	0.14
Traffic light - 542 BAY ST	5,145.50	\$994.70	0.15
Traffic Light - 439 GRT NORTHERN RD	7,134.28	\$1,231.11	0.2
Traffic Light - 162 OLD GARDEN RIVER RD	3,003.04	\$703.00	0.09
Black Rd - Traffic	5,284.80	\$1,008.32	0.15
Total	248,234.32	\$42,669.79	7.09
Street Lights			
Street Lights Main	2,426,463.80	\$583,165.71	69.09
Street Lights St. Mary's Drive	28,111.78	\$3,809.05	0.8
Street Lights Foster Drive	8,475.40	\$1,457.64	0.24
639 Black Rd - Streetlights	3,291.58	\$691.01	0.09
42 Queen St E - streetlights	639.94	\$531.62	0.02
Slts - Mary	0	\$216.96	0
6 King St SLTS	126.15	\$203.13	0
SLTS - 57 DES CHENES DR	0	\$650.88	0
Total	2,467,108.65	\$590,726.00	70.24

Outdoor Lighting Group Name	Total Electricity(kWh)	Total Costs	tCO2e
Parking Lots			
PkLts King	16767.04	2,360.34	0.48
PkLts Spring	2985.73	693.82	0.09
PkLts Brock	7186.63	1,251.44	0.2
Bruce Street KIOSK	1919.38	560.55	0.05
Bruce Street Lot	559.4	369.17	0.02
Queen Street KIOSK	2079.75	582.62	0.06
PkLts Bingham			
Sackville Parking Lot	1282.59	456.8	0.04
Civic Centre East Parking Lot	13111.44	1,914.09	0.37
West Korah Cemetery Parking Lot	8.19	302.41	0
Mausoleum	16853.19	2,556.41	0.48
Pointe Des Chenes			
Bay Street Lights	1595.2	518.2	0.05
Total			
Hub Traill Lights			
Hub Trail Texas	1309	462.59	0.04
Hub Trail Northwood	1424.31	475.21	0.04
Hub - 542 Bay St	696.41	387.14	0.02
Hub - 32 Bay St	1190.18	446.6	0.03
Hub - 440 Bay St	0	301.25	0
Hub - 269 Bay St	1098.13	435.38	0.03
Hub - 648 Bay St	824.6	402.06	0.02
Hub Trail Church	18341.94	2,562.21	0.52
Hub Trail Queen St	2077.52	552.79	0.06
Hub Trail	148.64	318.44	0
Total	91,459.27	\$17,909.52	2.60
Sentinel Light			
Sentinel Bocci	0	867.84	
Sentinel Greenwood	0	216.96	
972 Second Line 2 Sentinel	0	433.92	
Total	0	1518.72	0
Total (All Outdoor)	Total Electricity(kWh)	Total Costs	tCO2e
	2,806,802.24	\$652,824.03	79.93

Appendix I: City of Sault Ste. Marie Corporate Water / Wastewater Emissions Update

2023 Wastewater Consumption, Cost and tCO₂e

Facility Group	2023 Electricity			2023 Natural Gas				Total	
	Total Electricity(kWh)	Total Costs(\$)	Total tCO ₂ e	Natural Gas(m3)	Total Costs(\$)	Total Carbon Tax (\$)	Total tCO ₂ e	Total Costs(\$)	Total tCO ₂ e
Pump Stations									
Gore Pump Station	5,309.30	1023.11	0.15					\$1,023.11	0.15
Bonney Pump Station	21,911.34	3,269.41	0.62					\$3,269.41	0.62
Muriel PMP	13,063.97	2,072.95	0.37					\$2,072.95	0.37
Lower Lake Pump Station	2,411.27	627.79	0.07					\$627.79	0.07
Pine PMP	8,651.54	1,481.01	0.25					\$1,481.01	0.25
McGregor Pump Station	2,777.69	677.35	0.08					\$677.35	0.08
Foster Drive Pump Station	18,184.71	2,497.76	0.52					\$2,497.76	0.52
Landfill Pump Station	110,391.67	17,373.01	3.14					\$17,373.01	3.14
Varsity Pump Station	10,313.85	1,703.76	0.29					\$1,703.76	0.29
Fort Creek PMP	7,812.31	1,373.21	0.22					\$1,373.21	0.22
Tallack PMP	2,870.55	690.5	0.08					\$690.50	0.08
Mary PMP	3,396.17	768.12	0.1					\$768.12	0.10
Ind Crt B PMP	9,453.71	1,572.87	0.27					\$1,572.87	0.27
Upper Lake Pump Station	14,619.34	2,319.01	0.42					\$2,319.01	0.42
Glasgow PMP	2,680.25	560.39	0.08					\$560.39	0.08
Millwood Pump Station	7,809.62	1,358.36	0.22					\$1,358.36	0.22
Frontenac Pump Station	4,441.48	896.02	0.13					\$896.02	0.13
Atlas Pump Station	904.64	324.64	0.03					\$324.64	0.03
Dell Pump Station	904.69	324.13	0.03					\$324.13	0.03
WEWWTP Main Pump Station	1,479,012.33	226,783.54	42.11					\$226,783.54	42.11
Clark A	904.64	324.64	0.03					\$324.64	0.03
Clark SPS	662,728.02	121,587.97	18.87					\$121,587.97	18.87
816 Bay Street/PimStreet SPS	370,618.17	77,960.22	10.55					\$77,960.22	10.55
River Road Pump Station	181,520.17	32,752.09	5.17					\$32,752.09	5.17
Bellevue SSO	104,086.52	14,402.03	2.96					\$14,402.03	2.96
Lyons Pump Sensor	364.36	245.26	0.01					\$245.26	0.01
Young Pump Station	403,576.10	71,170.00	11.49					\$71,170.00	11.49
John St Pump Station	350,064.80	62,513.41	9.97					\$62,513.41	9.97
Canal Dr Sewage Pump Station	2,819.45	685.61	0.08					\$685.61	0.08
Glasgow Ave Pump 2	4,046.53	711.07	0.12						0.12

Total	3,803,602.66	\$649,338.17	108.43	-	\$-	\$-	-	\$649,338.17	108.43
Treatment Plants									
	Total Electricity(kWh)	Total Costs(\$)	Total tCO2e	Natural Gas(m3)	Total Costs(\$)	Total Carbon Tax (\$)	Total tCO2e	Total Costs(\$)	Total tCO2e
West End Waste Water Treatment Plant	1,265,308.01	190,072.26	36.03	142,409.00	78,487.16	16,537.93	275.18	\$268,559.42	311.21
East End WWTP	5,000,234.28	723,804.64	142.37	377,420.00	267,425.99	40,783.32	729.31	\$991,230.63	871.68
Pointe Des Chenes WT Facility	35,627.85	5,099.59	1.01					\$5,099.59	1.01
Total	6,301,170.14	\$918,976.49	179.41	519,829.00	\$345,913.15	\$57,321.25	1,004.49	\$1,264,889.64	1,183.90
Final Total	Total Electricity(kWh)	Total Costs(\$)	Total tCO2e	Natural Gas(m3)	Total Costs(\$)	Total Carbon Tax (\$)	Total tCO2e	Total Costs(\$)	Total tCO2e
	10,104,772.80	\$1,568,314.66	287.84	519,829.00	\$345,913.15	\$57,321.25	1,004.49	\$1,914,227.81	1,292.33

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