

**GREATER SUDBURY
COMMUNITY ENERGY & EMISSIONS PLAN (CEEP)
IMPLEMENTATION
PHASE ONE (2021 – 2025)**

MUNICIPAL ACTIONS

LEGEND

Action types

- **Plans and Studies:** Conduct research or strategic planning projects to establish direction on new or emerging areas of interest.
- **Education & Outreach (E&O):** Undertake initiatives aimed at public education and outreach using a variety of means. Also includes sector or industry-specific E&O.
- **Policies, Guidelines, and Standards:** Establish or update rules and regulations to provide direction for projects, initiatives, or programs.
- **Procedures:** Develop and implement new ways of doing business or adapt existing practices and procedures to enhance low carbon resilience.
- **Programs and Projects:** Develop new programs or projects to advance climate action, with proof-of-concept pilot projects as needed.
- **Partnerships and Engagement:** Collaborate with stakeholders (both internal and external) to advance climate action for the Corporation and in the community and advocate on behalf of the City to other levels of government to advance and support local climate action.

Cost

Work Plan: cost and staff capacity accounted for through annual Work Plan and operating budgets.

\$ Low Cost: ≤ \$100,000

\$\$ Medium Cost: \$100,000 - \$500,000

\$\$\$ High Cost: > \$500,000

Timeline

■□□ **Short Term:** 1-2 years

□■□ **Medium Term:** 3+/- years

□□■ **Long Term:** 4-5 years

Recurring: Actions which happen on an ongoing basis

Status

Not Yet Initiated – Intentions to proceed with action uncertain; not part of existing work plans or budget.

Planned – Intention to complete the action is part of current or future work plans and/or budgets

In Progress – includes actions that have been initiated, are already funded, and/or are part of the business-as-usual operations of a team or division within the City.

City of Greater Sudbury CEEP Implementation Actions 2020-2025

CEEP Foundational Actions						
Action	Specific CEEP Goal (If Applicable)	Action Type	Timeline	Cost	Status	Division
Develop a Framework for Collaborative Implementation		Partnerships & Engagement	■□□	Work Plan	In progress	Planning Services
Develop a tool for tracking and reporting local GHGs		Programs & Projects	■□□	Work Plan	Planned	Planning Services
Develop a climate lens for decision-making		Policies, Guidelines & Standards	■□□	Work Plan	In progress	Planning Services
Compact, Complete Communities Actions						
Action	Specific CEEP Goal (If Applicable)	Action Type	Timeline	Cost	Status	Division
Tiny/Small Home Review	Goal 1 - Achieve energy efficiency and emissions reductions by creating compact, complete communities through infill developments, decreasing dwelling size through an increase in multi-family buildings, and increasing building type mix	Plans & Studies	■□□	Work Plan	In progress	Planning Services
Commercial Parking Standards Review	Goal 1	Policies, Guidelines & Standards	■□□	Work Plan	In progress	Planning Services
Lasalle Boulevard Corridor Study - Official Plan and Zoning By-law Amendment	Goal 1	Policies, Guidelines & Standards	■□□	Work Plan	In progress	Planning Services
Residential Parking Review	Goal 1	Policies, Guidelines & Standards	■□□	Work Plan	In progress	Planning Services
Official Plan Review Phase 2	Goal 1	Policies, Guidelines & Standards	■□□	Work Plan	In progress	Planning Services
Efficient Buildings Actions						
Action	Specific CEEP Goal (If Applicable)	Action Type	Timeline	Cost	Status	Division
Monitor local green building trends	Goal 2 - Periodically increase the energy efficiency of new buildings until all new buildings in 2030 onward are Passive House energy efficiency compliant.	Programs & Projects	■□□	Work Plan	Planned	Building Services
Education on Building Permit Requirements for Changes in Heat Source	Goal 2	Education & Outreach	■□□	Work Plan	Planned	Building Services
Develop a GSHC apartment building that meets Passive House standard.	Goal 2	Programs & Projects	■□□	\$\$\$	In progress	Housing Operations
Install regenerative elevators in one Greater Sudbury Housing Corporation building	Goal 3 - The existing building stock is retrofit for 50% increased energy efficiency by 2040 and large buildings are routinely recommissioned	Plans & Studies	■□□	\$	Not Yet Initiated	Housing Operations
Conversion to more energy efficient boilers in GSHC buildings	Goal 3	Programs & Projects	■□□	\$\$\$	Planned	Housing Operations
Implement optimization strategy of GSHC housing stock.	Goal 3	Procedures	■□□	\$	Planned	Housing Operations
Feasibility Study on Community Efficiency Financing	Goal 3	Plans & Studies	■□□	\$	Not Yet Initiated	Planning Services
Conduct an energy audit for the older section of Pioneer Manor identified for bed redevelopment	Goal 4 - Achieve net-zero emissions in City buildings by 2040.	Plans & Studies	■□□	\$	Not Yet Initiated	Long-term Care Services
Continue to undertake energy retrofits as required at Pioneer Manor	Goal 4	Programs & Projects	□■□	\$\$	Not Yet Initiated	Long-term Care Services
Conduct infrared scan of roof at Pioneer Manor	Goal 4	Plans & Studies	■□□	\$	Not Yet Initiated	Long-term Care Services
Bed redevelopment at Pioneer Manor	Goal 4	Programs & Projects	□■□	\$\$\$	Not Yet Initiated	Long-term Care Services
Assess efficacy of energy efficient technology for arenas	Goal 4	Procedures	■□□	\$\$	In progress (2 arenas); others in	Leisure Services
Assess efficacy of laser system for standard ice thickness	Goal 4	Procedures	Recurring	Work Plan	In progress	Leisure Services
Use of building automation	Goal 4	Programs & Projects	□□■	\$	Not Yet Initiated	Assets & Fleet Services

Water, wastewater, and solid waste						
Action	Specific CEEP Goal (If Applicable)	Action Type	Timeline	Cost	Status	Division
Finalize Water/Wastewater Assessment Management Plan	Goal 5 - Decrease energy use in the potable water treatment and distribution system by up to 60% by 2050.	Plans & Studies	■□□	Work Plan	In progress	Infrastructure Capital Planning
Apply energy-efficiency lens for routine equipment maintenance and replacement	Goal 5	Policies, Guidelines & Standards	Recurring	Work Plan to \$	In progress	Water/Wastewater
Develop Best Operating Practices/Best Operating Guidelines (Operational Excellence)	Goal 5	Policies, Guidelines & Standards	Recurring	Work Plan	Ongoing	Water/Wastewater
Conduct a full capital needs assessment for the Valley.	Goal 5	Plans & Studies	■□□	\$\$\$	In progress	Infrastructure Capital Planning
Inflow & Infiltration Reduction Plan	Goal 5	Plans & Studies	Recurring	\$\$\$	In progress	Infrastructure Capital Planning
Mobile District Metered Area Testing	Goal 5	Plans & Studies	■□□	\$	In progress	Infrastructure Capital Planning
Anaerobic Digester System - On-going Review	Goal 6 - Achieve 90% solid waste diversion by 2050. An organics and biosolids anaerobic digestion facility is operational by 2030.	Plans & Studies; Partnerships & Engagement	■□□	to be determined	In progress	Environmental Services
Develop a single-use plastics strategy, especially relating to water (e.g., straws, bottled water)	Goal 6	Policies, Guidelines & Standards	□■□	Work Plan (in part)	In progress	Environmental Services
Feasibility study for a small biodigester in the Valley (might be initiated by Environmental Services).	Goal 6	Plans & Studies	□■□	\$	Not Yet Initiated	Infrastructure Capital Planning
Low-carbon Transportation Actions						
Action	Specific CEEP Goal (If Applicable)	Action Type	Timeline	Cost	Status	Division
Transit Technology Improvements	Goal 7 - Enhance transit service to increase transit mode share to 25% by 2050.	Programs & Projects	Recurring	\$\$\$	Planned	Transit Services
Major Mobility Hub Infrastructure Improvements	Goal 7	Plans & Studies	Recurring	\$\$\$	Not Yet Initiated	Transit Services
Paris-Notre Dame Bikeway Construction	Goal 8 - Achieve 35% active mobility transportation mode share by 2050.	Programs & Projects	Recurring	\$\$\$	In progress	Infrastructure Capital Planning
Annual Active Transportation Infrastructure Improvements	Goal 8	Programs & Projects	Recurring	\$\$\$	In progress	Infrastructure Capital Planning
Traffic Signal System Renewal	Goal 8	Programs & Projects	Recurring	\$\$\$	In progress	Infrastructure Capital Planning
LED Streetlight Conversion	Goal 8	Programs & Projects	■□□	\$\$\$	In progress	Assets and Fleets Services
Electric Vehicle Procurement	Goal 9 - Electrify 100% of transit and city fleet by 2035.	Programs & Projects	■□□	Work Plan	Not Yet Initiated	Assets & Fleet Services
Drone Pilot Program	Goal 9	Programs & Projects	■□□	\$	Planned	Planning Services
Plan to Electricity Transit Fleet by 2035	Goal 9	Plans & Studies	■□□	\$\$	Not Yet Initiated	Transit Services
Local Clean Energy Generation Actions						
Action	Specific CEEP Goal (If Applicable)	Action Type	Timeline	Cost	Status	Division
Expand district energy	Goal 15 - Expand the downtown district energy system to 23 MW capacity.	Programs & Projects	□□■	\$	Not Yet Initiated	Assets & Fleet Services
Assess the potential to expand landfill gas collection to Azilda and Hanmer landfill sites		Plans & Studies; Partnerships & Engagement	□■□	\$	Not Yet Initiated	Environmental Services
Low-carbon Energy Procurement						
Action	Specific CEEP Goal (If Applicable)	Action Type	Timeline	Cost	Status	Division
Develop a green procurement strategy/plan (includes part of Goal 17)	Goal 17: Procure 100% of community-wide grid electricity and 75% of natural gas demand from renewable sources by 2050.	Policies, Guidelines & Standards	■□□	Work Plan	Planned	Purchasing Section
Carbon sequestration						
Action	Specific CEEP Goal (If Applicable)	Action Type	Timeline	Cost	Status	Division
Develop a Regreening Master Plan	Goal 18: Increase the reforestation efforts of the Regreening Program	Plans & Studies	□■□	Work Plan	Not yet initiated	Planning Services
Enhance carbon sequestration through soil creation		Plans & Studies; Partnerships & Engagement	□■□	to be determined	Not yet initiated	Environmental Services

CEEP FOUNDATIONAL ACTIONS

Action Summary

ACTION: Develop a framework for collaborative implementation

ACTION TYPE: Partnerships & Engagement

LEAD DIVISION: Planning Services

ACTION TIMELINE: Short Term

COST: Work Plan – cost and staff capacity accounted for through annual Work Plan and operating budgets.

STATUS: In Progress

ANTICIPATED YEAR OF BUSINESS CASE SUBMISSION (if applicable): N/A

MEASURABLE ENERGY/GHG REDUCTION TARGET (if applicable): N/A

ACTION DESCRIPTION: Develop a framework for collaborative implementation of the CEEP that allows collaboration not only between municipal divisions but also with a variety of local stakeholders, including residents. Action includes development of a CEEP Communications Plan to provide direction for community education and outreach.

CHALLENGES: Requires acceptance by all parties to be successful.

KEY ANTICIPATED RESULTS: Increased internal and external stakeholder collaboration in the implementation of the CEEP will aid in reaching the targets.

Action Summary

ACTION: Develop a tool for tracking and reporting GHGs

ACTION TYPE: Programs and Projects

LEAD DIVISION: Planning Services

ACTION TIMELINE: Short Term

COST: Work Plan – cost and staff capacity accounted for through annual Work Plan and operating budgets.

STATUS: Planned

ANTICIPATED YEAR OF BUSINESS CASE SUBMISSION (if applicable): N/A

MEASURABLE ENERGY/GHG REDUCTION TARGET (if applicable): N/A

ACTION DESCRIPTION: Develop a tool to track and report progress on the implementation of the CEEP. Successful implementation of the CEEP will depend on the ability to accurately track, assess and report on changes in energy use in various sectors through metering or fuel sales. GHG emissions in turn are estimated from the energy use based on modeling. All of the actions initiated to meet one of more goals of the CEEP are expected to lead to either energy reductions or GHG reductions, often both.

CHALLENGES: While the status of all CEEP actions can be monitored and reported, not all actions will lead to direct and measurable energy and GHG emission reductions.

KEY ANTICIPATED RESULTS: By monitoring the progress of the CEEP actions, delays and issues can be recognized and assessed in a timely manner so that changes may be made to adapt and find solutions to problems that arise.

Action Summary

ACTION: Develop a climate lens for decision-making

ACTION TYPE: Policies, Guidelines, and Standards

LEAD DIVISION: Planning Services

ACTION TIMELINE: Short Term

COST: Work Plan – cost and staff capacity accounted for through annual Work Plan and operating budgets.

STATUS: In Progress

ANTICIPATED YEAR OF BUSINESS CASE SUBMISSION (if applicable): N/A

MEASURABLE ENERGY/GHG REDUCTION TARGET (if applicable): N/A

ACTION DESCRIPTION: Develop a Climate Lens for consideration of GHG emissions and energy use in decisions made by staff and City Council.

CHALLENGES: None noted.

KEY ANTICIPATED RESULTS: Decision-making that inherently considers the effects on GHG emissions and energy use will create an organizational culture that increasingly recognizes the CEEP targets, accepts the CEEP mandate and encourages the implementation of the CEEP.

STRATEGY SECTOR # 1

Compact, Complete Communities

Action Summary

ACTION: Tiny/small home review

ACTION TYPE: Plans and Studies

LEAD DIVISION: Planning Services

ACTION TIMELINE: Short Term

COST: Work Plan – cost and staff capacity accounted for through annual Work Plan and operating budgets.

STATUS: In Progress

ANTICIPATED YEAR OF BUSINESS CASE: N/A

MEASURABLE ENERGY/GHG REDUCTION TARGET: N/A. Anticipated indirect reductions as a result of intensification of development and smaller building.

ACTION DESCRIPTION: Review provides a scan of best practices for enabling the development of small and tiny homes and other alternative forms of housing. Action items are proposed to build on current policy framework and further enable the development of small homes and alternative forms of housing to assist in improving the diversity of housing stock in terms of form and affordability.

CHALLENGES: A policy framework and provision of incentives can encourage the development of small and tiny homes, but development will depend upon a variety of factors including overall cost of development and demand for various housing products.

KEY ANTICIPATED RESULTS: The development of affordable housing that is transit-oriented and the intensification of development in locations that maximizes the use of existing infrastructure.

Action Summary

ACTION: Commercial parking standards review

ACTION TYPE: Policies, Guidelines, and Standards

LEAD DIVISION: Planning Services

ACTION TIMELINE: Short Term

COST: Work Plan – cost and staff capacity accounted for through annual Work Plan and operating budgets.

STATUS: In Progress

ANTICIPATED YEAR OF BUSINESS CASE: N/A

MEASURABLE ENERGY/GHG REDUCTION TARGET: N/A. Expected indirect reductions as a result of reduced personal vehicle use and increased use of transit.

ACTION DESCRIPTION: The review recommended implementation of reductions to the City's current commercial parking standards as per the Zoning By-law 2010-100Z. Specifically, reductions would apply to GOVA routes 1 and 2, where bicycle parking or bus lay-by is provided or based on the findings of a parking study. Reductions also proposed for retail stores, restaurants, convenience stores, personal service shops and shopping centres.

CHALLENGES: Reductions in parking will be realized as new development occurs.

KEY ANTICIPATED RESULTS: A reduction in commercial parking standards would lead to less land being required for urban development and support the transit action plan, thereby supporting the aim of the CEEP.

Action Summary

ACTION: LaSalle Boulevard Corridor Study - Official Plan and Zoning By-law Amendment

ACTION TYPE: Policies, Guidelines, and Standards

LEAD DIVISION: Planning Services

ACTION TIMELINE: Short Term

COST: Work Plan – cost and staff capacity accounted for through annual Work Plan and operating budgets.

STATUS: In Progress

ANTICIPATED YEAR OF BUSINESS CASE: N/A

MEASURABLE ENERGY/GHG REDUCTION TARGET (if applicable): Increase active transportation, and use of public transit.

ACTION DESCRIPTION: The Official Plan Amendment introduces new land use designations for “Secondary Community Nodes” and “Regional Corridors” where transit supportive densities and mixed-use development are encouraged. The proposed Zoning Bylaw Amendment includes up-zoning of most of LaSalle Boulevard to C2 (General Commercial) and establishing a build-to line from the right-of-way to create a more pedestrian friendly environment.

CHALLENGES: Resulting change in the built environment will be incremental and take a number of years to see transformation along the LaSalle Corridor.

KEY ANTICIPATED RESULTS: New development along LaSalle Corridor will have a more consistent streetscape that is pedestrian friendly, and have a density and mix of uses that is transit supportive. The amendments will help guide investment and intensification to key nodes and corridors within the City.

Action Summary

ACTION: Residential parking review

ACTION TYPE: Policies, Guidelines, and Standards

LEAD DIVISION: Planning Services

ACTION TIMELINE: Short Term

COST: Work Plan – cost and staff capacity accounted for through annual Work Plan and operating budgets.

STATUS: In Progress

ANTICIPATED YEAR OF BUSINESS CASE: N/A

MEASURABLE ENERGY/GHG REDUCTION TARGET: N/A. Expected indirect reductions resulting from reduced personal vehicle use and increased use of transit.

ACTION DESCRIPTION: Review of residential parking standards in Zoning By-law 2010-100Z to ensure consistency with City Council's vision of a sustainable transportation system. Municipal best practice review revealed opportunities that warrant further study, including front yard parking requirements, tandem parking, and parking associated with long-term care uses.

CHALLENGES: Reductions in parking realized as new development occurs.

KEY ANTICIPATED RESULTS: Implementation of changes to residential parking standards could lead to less land being required for urban development and encourage transit-supportive densities, thereby supporting the aims of the CEEP.

Action Summary

ACTION: Official Plan Review Phase 2

ACTION TYPE: Policies, Guidelines, and Standards

LEAD DIVISION: Planning Services

ACTION TIMELINE: Short Term

COST: Work Plan – cost and staff capacity accounted for through annual Work Plan and operating budgets.

STATUS: In Progress

ANTICIPATED YEAR OF BUSINESS CASE: N/A

MEASURABLE ENERGY/GHG REDUCTION TARGET: N/A. Expected indirect reductions resulting from reduced traffic, increased active transportation and efficient use of water/wastewater infrastructure.

ACTION DESCRIPTION: Phase 2 of the Official Plan Review considers land-use planning recommendations of the Transportation Master Plan (TMP); the Water/Wastewater Master Plan (WWMP), and any land-use policy changes from the report entitled '*From the Ground Up 2015-2025*.' The amendment will introduce new active transportation policies and ensure that monitoring and allocation of water and wastewater capacity is consistent with the WWMP.

CHALLENGES: Reductions in GHG emissions will be indirect and dependent on the public use of active transportation options.

KEY ANTICIPATED RESULTS: Active transportation and transit-related policies anticipated to help the City improve air quality, reduce GHG emissions, reduce traffic congestion, increase mobility and contribute to a healthy community. The water/wastewater policies aim to achieve efficient use of infrastructure while ensuring sufficient capacity to accommodate development.

STRATEGY SECTOR # 2

Efficient Buildings

Action Summary

ACTION: Monitor local green building trends

ACTION TYPE: Programs and Projects

LEAD DIVISION: Building Services

ACTION TIMELINE: Short Term

COST: Work Plan – cost and staff capacity accounted for through annual Work Plan and operating budgets.

STATUS: Not Yet Initiated

ANTICIPATED YEAR OF BUSINESS CASE SUBMISSION: N/A

MEASURABLE ENERGY/GHG REDUCTION TARGET: N/A

ACTION DESCRIPTION: Developing a way to set Key Indicators for monitoring uptake on climate initiatives established by the Municipality or the Province.

CHALLENGES: Current technology used to extract the data to provide Key Indicators in order to measure the success of the project has limited capabilities. The launch of the Land Management Information System (LMIS) will assist greatly with this work.

KEY ANTICIPATED RESULTS: Provides Council with an understanding of how the community is responding to CEEP goals in line with Council's strategic goals.

Action Summary

ACTION: Education on permit requirements for heat source changes

ACTION TYPE: Education and Outreach

LEAD DIVISION: Building Services

ACTION TIMELINE: Short Term

COST: Low Cost

STATUS: Not Yet Initiated

ANTICIPATED YEAR OF BUSINESS CASE SUBMISSION: N/A

MEASURABLE ENERGY/GHG REDUCTION TARGET: N/A

ACTION DESCRIPTION: This education and outreach will be initially delivered to DLAC (Development Liaison Advisory Committee) for initial education on the requirements for building permits when changing from one heat source to another. Education material will be developed with input from DLAC and subsequently outreach to stakeholders and the public.

CHALLENGES: Education and outreach will be instrumental in incentive programs to convey the benefits of obtaining a building permit for the health and safety of the occupants.

Current technology that is used to extract the data to provide Key Indicators in order to measure the success of the project is outdated. The launch of the Land Management Information System will assist greatly with this work.

KEY ANTICIPATED RESULTS: The change to a heat source with greater energy efficiency will promote reduced costs and greater comfort for the health and safety of the occupants.

Provides Council with an understanding of how the community is responding to CEEP goals in line with Council's strategic goals.

Action Summary

ACTION: Develop the first newly built Greater Sudbury Housing Corporation apartment building that meets Passive House standards

ACTION TYPE: Programs and Projects

LEAD DIVISION: Housing Operations

ACTION TIMELINE: Short Term

COST: High Cost

STATUS: In Progress

ANTICIPATED YEAR OF BUSINESS CASE SUBMISSION (if applicable): Approved

MEASURABLE ENERGY/GHG REDUCTION TARGET (if applicable): N/A

ACTION DESCRIPTION: Build an approximately 14 unit Passive Built affordable housing building at 1310 Sparks Street, Sudbury. Near Net Zero will be a consideration for the architect during the design phase to further increase sustainability and eligibility for FCM grant funding.

CHALLENGES: The revitalization program is underway with the redevelopment of 1310 Sparks street and is dependent on the results of the community engagement process and rezoning. The results of both the architectural design and construction tenders have cost related risks that could impact forward progression of the project.

KEY ANTICIPATED RESULTS: New Passive built affordable housing project that marks the beginning of the Greater Sudbury Housing Corporation Revitalization plan will be completed in 2022.

Action Summary

ACTION: Install regenerative elevators in one Greater Sudbury Housing Corporation building

ACTION TYPE: Plans and Studies

LEAD DIVISION: Housing Operations

ACTION TIMELINE: Short Term

COST: Low Cost

STATUS: Not Yet Initiated

ANTICIPATED YEAR OF BUSINESS CASE SUBMISSION (if applicable): 2022

MEASURABLE ENERGY/GHG REDUCTION TARGET (if applicable): N/A

ACTION DESCRIPTION: Engage the elevator consultant to engage in an industry study of regenerative elevator technology, options and viability.

CHALLENGES: Initial discussion with Elevator consultant and elevator Installation Company both suggest the technology has not matured and that it may not be appropriate for use at this time.

KEY ANTICIPATED RESULTS: A research report which provides the information necessary to make an informed decision regarding the technology.

Action Summary

ACTION: Conversion to energy-efficient boilers in Greater Sudbury Housing Corporation buildings

ACTION TYPE: Programs and Projects

LEAD DIVISION: Housing Operations

ACTION TIMELINE: Short Term

COST: High Cost

STATUS: Planned

ANTICIPATED YEAR OF BUSINESS CASE SUBMISSION (if applicable): 2021

MEASURABLE ENERGY/GHG REDUCTION TARGET (if applicable): The natural gas savings will be approximately 30,000 m³ and reduction of GHG emissions approximately 60,000 ekgCO₂.

ACTION DESCRIPTION: Removal and replacement of an old boiler system for heat and hot water at 1920 Paris Greater Sudbury Housing Corporation high rise. Current system is beyond end-of-life, not energy efficient and at risk of failure.

CHALLENGES: Heating systems should be replaced shortly after heating season ends and thus funding commitment as soon as possible is required to ensure adequate time for tendering and lead time for parts supply. The organization cannot take the risk of a heating system going to failure in a housing building.

KEY ANTICIPATED RESULTS: Reliable heat and hot water for vulnerable tenants in a community housing building. Significant increase in energy efficiency and GHG emissions reductions.

Action Summary

ACTION: Implement optimization strategy of Greater Sudbury Housing Corporation housing stock

ACTION TYPE: Procedures

LEAD DIVISION: Housing Operations

ACTION TIMELINE: Short Term

COST: Low Cost

STATUS: Planned

ANTICIPATED YEAR OF BUSINESS CASE SUBMISSION (if applicable): 2022

MEASURABLE ENERGY/GHG REDUCTION TARGET (if applicable): N/A

ACTION DESCRIPTION: Modernization and GHG emissions reductions for the GSHC includes disposal of ill-suited housing units that are inefficient and don't support the demand of the housing waitlist. The current procedure is to work with what the current GSHC housing infrastructure. The goal is to action a "change in procedure" and sell single family dwellings or duplex dwellings that don't support the modernization of the portfolio.

CHALLENGES: Gaining approval to action the sale of the houses. Disposal of the units strategically to gain the greatest capital value.

KEY ANTICIPATED RESULTS: Disposal of multiple single and duplex homes will provide the capital needed to be eligible for grant funds from higher orders of government. The housing portfolio will transition towards Net Zero buildings over the subsequent years.

Action Summary

ACTION: Feasibility study for community efficiency financing

ACTION TYPE: Plans and Studies

LEAD DIVISION: Planning Services

ACTION TIMELINE: Short Term

COST: Low Cost

STATUS: In Progress

ANTICIPATED YEAR OF BUSINESS CASE SUBMISSION (if applicable): N/A

MEASURABLE ENERGY/GHG REDUCTION TARGET (if applicable): N/A

ACTION DESCRIPTION: Perform a feasibility study to assess building retrofit programs for Greater Sudbury. Community Efficiency Financing (CEF) within the community will be an essential step towards the goal of becoming a net-zero emissions community by 2050. The study will help identify common barriers and evaluate which type of building retrofit or CEF program may be best suited for Greater Sudbury.

CHALLENGES: Action is dependent on approval of funding application submitted to Federation of Canadian Municipalities in October, 2020.

KEY ANTICIPATED RESULTS: The forecasted environmental benefits of a CEF program, with a starting participation of 20 households, will include a reduction of 21 tCO₂e/yr as well as a reduction of 744 GJ/yr. Education and outreach during the pilot project will raise public awareness of the net-zero goal and the benefits of retrofitting. The Feasibility Study will provide more details on the types of programs that would have higher impact on GHG reduction than others as well as the target number of participants for a pilot project.

Action Summary

ACTION: Conduct an energy audit for the older section of Pioneer Manor

ACTION TYPE: Plans and Studies

LEAD DIVISION: Long-Term Care Services

ACTION TIMELINE: Short Term

COST: Low Cost

STATUS: Not Yet Initiated

ANTICIPATED YEAR OF BUSINESS CASE SUBMISSION: 2022

MEASURABLE ENERGY/GHG REDUCTION TARGET: Audit will guide future energy upgrades to improve energy efficiency.

ACTION DESCRIPTION: Conduct energy audit of the older section within Pioneer Manor that current holds 149 beds built in 1972 to be used in future capital business cases.

CHALLENGES: Business case for Capital Bed Redevelopment has been submitted for consideration in the 2021 budget and if approved an energy audit will not be required in the older section that will be become vacant space upon completion.

KEY ANTICIPATED RESULTS: The energy audit will help prioritize future capital projects for Pioneer Manor.

Action Summary

ACTION: Continue to undertake energy retrofits as required at Pioneer Manor

ACTION TYPE: Programs and projects

LEAD DIVISION: Long-Term Care Services

ACTION TIMELINE: Medium Term

COST: Medium Cost

STATUS: Not Yet Initiated

ANTICIPATED YEAR OF BUSINESS CASE SUBMISSION: 2023

MEASURABLE ENERGY/GHG REDUCTION TARGET: Only projects identified during energy audit will be brought forward for consideration

ACTION DESCRIPTION: Once energy audit is completed, the analysis will help prioritize future energy retrofits.

CHALLENGES: Must complete an energy audit.

KEY ANTICIPATED RESULTS: The development of an energy retrofit plan, to support future capital prioritizations during the budget process.

Action Summary

ACTION: Conduct an infrared scan of roof at Pioneer Manor

ACTION TYPE: Plans and Studies

LEAD DIVISION: Long-Term Care Services

ACTION TIMELINE: Short Term

COST: Low Cost

STATUS: Not Yet Initiated

ANTICIPATED YEAR OF BUSINESS CASE SUBMISSION: 2022

MEASURABLE ENERGY/GHG REDUCTION TARGET: The roof scan will guide future areas for replacement to improve the Homes energy efficiency.

ACTION DESCRIPTION: Obtain quotes from suppliers estimated at \$15,000 and will be funded through Ministry of Long-Term Care (MOLTC) Capital Funding.

CHALLENGES: None anticipated.

KEY ANTICIPATED RESULTS: The analysis will help support the development of future capital prioritizations.

Action Summary

ACTION: Bed redevelopment at Pioneer Manor

ACTION TYPE: Programs & Projects

LEAD DIVISION: Long-Term Care Services

ACTION TIMELINE: Medium Term

COST: High Cost

STATUS: Not Yet Initiated (Initial architectural drawings completed)

ANTICIPATED YEAR OF BUSINESS CASE SUBMISSION: 2021 Budget

MEASURABLE ENERGY/GHG REDUCTION TARGET: The old section of Pioneer Manor was built in 1972 and is heated with electric baseboard, has older windows, low insulation and no air conditioning in the resident rooms. The 149 beds located in this area are eligible for provincial funding for capital bed redevelopment, which will be built to a newer and more energy efficient building standard.

ACTION DESCRIPTION: Business submitted for consideration in the 2021 budget.

CHALLENGES: Significant capital investment required.

KEY ANTICIPATED RESULTS: Build a new energy efficient wing attached to Pioneer Manor repurpose the vacated space for alternative usage.

Action Summary

ACTION: Assess efficacy of energy-efficient technology for arenas

ACTION TYPE: Procedures

LEAD DIVISION: Leisure Services

ACTION TIMELINE: Short Term

COST: Medium Cost

STATUS: In Progress for two arenas, Sudbury Arena and Countryside Arena. Other arenas in planning.

ANTICIPATED YEAR OF BUSINESS CASE SUBMISSION (if applicable): resubmitting for 2021 budget.

MEASURABLE ENERGY/GHG REDUCTION TARGET (if applicable): Varies by arena. Countryside will experience higher savings as that arena operates year-round.

ACTION DESCRIPTION: Current action to install the technology (energy efficient floating head pressure) at Sudbury Arena and Countryside Arena will be completed by mid-2021. Other arenas will proceed if capital budget is approved in the 2021 budget cycle.

CHALLENGES: None identified at this time. Technology is proven and effective. Our arena plants would support this new technology.

KEY ANTICIPATED RESULTS: Installation of floating head pressure control logic with capable remote access. By floating the head pressure in the colder months, the system will operate more efficiently and cost less to operate. Floating the head pressure requires less amperage draw on the compressor motors to have the same efficiency, which results in a decrease in kWh consumed.

Action Summary

ACTION: Assess efficacy of laser system for standard ice thickness

ACTION TYPE: Procedures

LEAD DIVISION: Leisure Services

ACTION TIMELINE: Recurring

COST: Work Plan – cost and staff capacity accounted for through annual Work Plan and operating budgets.

STATUS: In Progress

ANTICIPATED YEAR OF BUSINESS CASE SUBMISSION (if applicable): N/A

MEASURABLE ENERGY/GHG REDUCTION TARGET (if applicable): Preliminary analysis states that reducing the thickness of ice by even half an inch, reducing plant operations by 10% to 15%.

ACTION DESCRIPTION: Each year when replacing older ice resurfacers, the new ice resurfacer will be equipped with a laser level system and placed in the busiest arenas first.

CHALLENGES: None identified.

KEY ANTICIPATED RESULTS: Yearly energy savings will be achieved at arenas with the laser system as ice thickness will be reduced and maintained.

Action Summary

ACTION: Use of building automation

ACTION TYPE: Programs and Projects

LEAD DIVISION: Asset & Fleet Services

ACTION TIMELINE: Long Term

COST: Low Cost

STATUS: Not Yet Initiated

ANTICIPATED YEAR OF BUSINESS CASE SUBMISSION (if applicable): 2025

MEASURABLE ENERGY/GHG REDUCTION TARGET (if applicable): Use of remote monitoring and automated control of high-energy-use appliances such as HVAC will have a measurable impact on energy consumption.

ACTION DESCRIPTION: The centralized maintenance function continues to utilize and seeks to expand utilization of building automation technology in order to reduce energy use via travel time reductions and pre-set adjustments to HVAC equipment and other appliances.

CHALLENGES: To incorporate the many buildings and systems into one main centralized building automation function.

KEY ANTICIPATED RESULTS: It would be expected that the use of district energy for heating and cooling would result in competitive energy costs, environmental efficiency, lower capital costs, and reliable service as a result of designed redundancies.

STRATEGY SECTOR # 3

Water, Wastewater, and Solid Waste

Action Summary

ACTION: Finalize Water/Wastewater Assessment Management Plan

ACTION TYPE: Plans and Studies

LEAD DIVISION: Infrastructure Capital Planning

ACTION TIMELINE: Short Term

COST: Work Plan – cost and staff capacity accounted for through annual Work Plan and operating budgets.

STATUS: In Progress

ANTICIPATED YEAR OF BUSINESS CASE SUBMISSION: N/A

MEASURABLE ENERGY/GHG REDUCTION TARGET: N/A

ACTION DESCRIPTION: Finalize the Water/Wastewater Asset Management Plan which is used to identify and prioritize capital projects funded under the water rate.

CHALLENGES: The work required to complete the plan is heavily influenced by existing pressures on the capital budget and the significant number of water and wastewater treatment facilities included in the Asset Management Plan .

KEY ANTICIPATED RESULTS: To be determined.

Action Summary

ACTION: Apply an energy-efficiency lens for routine equipment maintenance and replacement

ACTION TYPE: Policies, Guidelines, and Standards

LEAD DIVISION: Water/Wastewater Treatment and Compliance

ACTION TIMELINE: Recurring

COST: Low Cost (Maintenance and “like-for-like” replacements are covered under existing budgets, with additional costs for implementing energy efficient options).

STATUS: In Progress

ANTICIPATED YEAR OF BUSINESS CASE SUBMISSION: N/A. Process ongoing as part of regular operations and maintenance activities.

MEASURABLE ENERGY/GHG REDUCTION TARGET: N/A. Energy & GHG reductions are dependent on the equipment which is repaired/replaced on an ongoing basis.

ACTION DESCRIPTION: As part of normal facility operations, energy intensive processes involving pumps, blowers and compressors require end of life replacements, upgrades or significant repairs. Performing this work provides the opportunity to install more efficient motors, eliminate energy intensive processes (e.g., compressed air powered pumps), repair broken infrastructure (e.g., aeration systems) or investigate more efficient control systems (e.g., variable frequency drives, etc.).

CHALLENGES: Equipment replacements must operate correctly as part of a larger process, integrate into existing Supervisory Control & Data Acquisition (SCADA) systems and fit inside existing building envelopes.

KEY ANTICIPATED RESULTS: Measured reductions in electricity consumption at facilities where air lift pumps are removed, blowers/pumps are replaced or significant process repairs are completed.

Action Summary

ACTION: Develop best operating practices/best operation guidelines

ACTION TYPE: Policies, Guidelines, and Standards

LEAD DIVISION: Water/Wastewater Treatment and Compliance

ACTION TIMELINE: Recurring

COST: Work Plan – cost and staff capacity accounted for through annual Work Plan and operating budgets.

STATUS: In Progress

ANTICIPATED YEAR OF BUSINESS CASE SUBMISSION: N/A

MEASURABLE ENERGY/GHG REDUCTION TARGET: N/A

ACTION DESCRIPTION: Ensure that a training program is in place to provide all operators with a common, consistent understanding of energy conservation and process optimization. This will require the updating of existing SOPs, Operating Manuals and reference documentation along with the development of additional resources and procedures.

CHALLENGES: The planned work requires involvement from senior operators, which can result in staffing issues.

KEY ANTICIPATED RESULTS: Increased operational efficiency and regulatory compliance through the consistent operation of all Wastewater Treatment Facilities.

Action Summary

ACTION: Conduct a full capital needs assessment for the Valley

ACTION TYPE: Plans and Studies

LEAD DIVISION: Infrastructure Capital Planning

ACTION TIMELINE: Short Term

COST: High Cost

STATUS: In Progress

ANTICIPATED YEAR OF BUSINESS CASE SUBMISSION: Project has already been approved as part of the overall Asset Management Plan.

MEASURABLE ENERGY/GHG REDUCTION TARGET: To be determined based on the findings of the study.

ACTION DESCRIPTION: The Valley East Wastewater Treatment Plant (WWTP) is undergoing a complete assessment of the facility and process as part of the Asset Management Plan. The purpose of this assessment is to replace assets that are at end of life, resolve outstanding safety issues and identify potential operational & process improvements.

CHALLENGES: Any process changes must be approved through the Ministry of Environment, Conservation & Parks. Any equipment installed or replaced at the facility must integrate with the existing process, SCADA systems and fit within the space available.

KEY ANTICIPATED RESULTS: The study will identify equipment that needs to be replaced and the available options to maintain regulatory compliance while reducing electricity consumption. A separate project will be initiated to implement the recommendations.

Action Summary

ACTION: Inflow and infiltration reduction

ACTION TYPE: Plans and Studies

LEAD DIVISION: Infrastructure Capital Planning

ACTION TIMELINE: Recurring (Fall 2019 – 2025)

COST: High Cost

STATUS: In Progress

ANTICIPATED YEAR OF BUSINESS CASE SUBMISSION: N/A

MEASURABLE ENERGY/GHG REDUCTION TARGET: varies based on location

ACTION DESCRIPTION: Identifying where rain water and ground water enters municipal sanitary collection system and documenting recommended repairs. Repairs will include repairs to City infrastructure as well as areas where private premises are contributing to the problem.

CHALLENGES: Some locations will require that private individuals disconnect sump pumps and weeping tiles from the sanitary sewer system. It will be resource intensive to navigate with many private residents where to put that water without creating other problems (i.e., road and sidewalk icing).

KEY ANTICIPATED RESULTS: Once the infrastructure repairs are complete, less wastewater will need to be pumped at City plants, which will reduce chemical and energy use leading to lower GHG emissions. It will also reduce the size and therefore cost and overall environmental footprint of future plant and pump house requirements, and reduce the risk to our community and environment by having less environmental releases and sewer backups.

Action Summary

ACTION: Mobile District Metered Area (DMA) testing

ACTION TYPE: Plans and Studies

LEAD DIVISION: Infrastructure Capital Planning

ACTION TIMELINE: Short Term (Fall 2020-Spring 2021)

COST: Low Cost

STATUS: In Progress

ANTICIPATED YEAR OF BUSINESS CASE SUBMISSION (if applicable): N/A

MEASURABLE ENERGY/GHG REDUCTION TARGET (if applicable): 1.35 tonnes CO₂/year

ACTION DESCRIPTION: Mobile DMA testing allows City to establish the minimum nighttime water demands in a neighbourhood, as well as finding any excess flows that may be occurring as a result of leaks in the water distribution system. This study has selected 6 neighbourhoods to explore.

CHALLENGES: Once leaks are located, additional work is required to pinpoint and repair the leaks. This work may require further resources as it may be more time consuming than City has the ability to absorb operationally.

KEY ANTICIPATED RESULTS: Leakage reduction in the amount of 4L/s or an operational cost savings (chemicals and energy) of \$40,000-\$100,000 per year plus CO₂ reduction once leaks are repaired.

Action Summary

ACTION: Anaerobic digester system: on-going review

ACTION TYPE: Plans & Studies and Partnerships & Engagement

LEAD DIVISION: Environmental Services and/or Greater Sudbury Utilities

ACTION TIMELINE: Short Term

COST: To be determined

STATUS: In Progress

ANTICIPATED YEAR OF BUSINESS CASE SUBMISSION (if applicable): 2022

MEASURABLE ENERGY/GHG REDUCTION TARGET: To be determined.

ACTION DESCRIPTION: Greater Sudbury Utilities in collaboration with City staff initiated discussion in 2017 and conducted a feasibility study in 2018. The key project drivers and objectives were to focus on proven technologies, generate energy and revenue, build processing capacity for Sudbury's waste diversion efforts, reduce greenhouse gas emissions and promote land reclamation. Although the project did not proceed in 2018, Greater Sudbury Utilities, along with staff are committed in updating project objectives along with a revised scope of work. The project will produce a "Living" document that will be updated as new opportunities develop or as the industry evolves.

CHALLENGES: Developing tonnage agreements with commercial haulers and surrounding communities for medium to large type system options and developing a system in the short term to replace the City's current organic processing system.

KEY ANTICIPATED RESULTS: The reduction in greenhouse gases and the development of an Anaerobic Digester system to meet the long-term processing requirements for the City.

Action Summary

ACTION: Develop a single-use plastics strategy

ACTION TYPE: Education & Outreach and Policies, Guidelines, and Standards

LEAD DIVISION: Environmental Services

ACTION TIMELINE: Medium Term

COST: Work Plan – cost and staff capacity accounted for through annual Work Plan and operating budgets. (The cost to cover the installation of water filling units/stations will be determined during the policy development process).

STATUS: In Progress

ANTICIPATED YEAR OF BUSINESS CASE SUBMISSION: To be determined.

MEASURABLE ENERGY/GHG REDUCTION TARGET (if applicable): N/A

ACTION DESCRIPTION: Environmental Services will support the Federal ban on single-use plastics in promoting alternatives options and will develop a policy in collaboration with municipal facilities to phase out the sale or use of water bottles in municipal facilities. The policy will support the use of municipal tap water and provide guidelines for water filling units/stations.

CHALLENGES: None noted

KEY ANTICIPATED RESULTS: The ban on certain single use plastics will improve the quality of processed recyclables, reduce litter in the environment and promote the City's tap water.

Action Summary

ACTION: Conduct a feasibility study for a small biodigester in the Valley

ACTION TYPE: Plans and Studies

LEAD DIVISION: Infrastructure Capital Planning

ACTION TIMELINE: Medium Term

COST: Low Cost

STATUS: Not Yet Initiated

ANTICIPATED YEAR OF BUSINESS CASE SUBMISSION: N/A

MEASURABLE ENERGY/GHG REDUCTION TARGET: N/A

ACTION DESCRIPTION: Conduct a study to determine the suitability of a bio-digester at the Valley East Wastewater Treatment Plant (WWTP) for energy production.

CHALLENGES: Sludge from all WWTPs in the City of Greater Sudbury is currently processed under a Public/Private Partnership with Walker Environmental at the Sudbury WWTP. The diversion of any material for use in another process would impact this agreement.

KEY ANTICIPATED RESULTS: To be determined.

STRATEGY SECTOR # 4

Low-carbon Transportation

Action Summary

ACTION: Transit technology improvements

ACTION TYPE: Programs & Projects

LEAD DIVISION: Transit Services

ACTION TIMELINE: Recurring

COST: High

STATUS: Planned

ANTICIPATED YEAR OF BUSINESS CASE SUBMISSION (if applicable): A business case has been prepared for the 2021 Budget Deliberations to secure the Municipal portion of the project; Federal and Provincial funding secured.

MEASURABLE ENERGY/GHG REDUCTION TARGET (if applicable): Not yet determined

ACTION DESCRIPTION:

To support Goal 7 of the CEEP, various technology solutions will be implemented to improve operations and customer experience, which will make transit more attractive and result in increased ridership. To initiate the project, a comprehensive review of current technology will be completed to identify opportunities for improvement and challenges associated with implementation. An industry scan of best practices will be completed to support decisions for system upgrade/replacement/implementation. Analysis will directly support procurement of solutions that will revitalize outdated systems and provide more cost effective means to monitor performance, improve efficiency and service level delivery.

CHALLENGES: None yet identified

KEY ANTICIPATED RESULTS:

On-Demand technology, implemented in recent years throughout various municipalities, has proven to reduce the number of buses required to provide service and increases frequency and customer experience thereby increasing ridership and revenues. The Fare Box Collection System will be upgraded with Smart Card technology, which will also increase customer experience and also provide better data collection capabilities required to plan for service changes. The Fleet Management System will be upgraded, to more efficiently take stock of and manage costs associated with maintenance of the Transit Fleet. Customer Information technology and infrastructure, such as real-time information boards and monitors will improve customer experience and may also generate marketing revenues. Other minor improvements such as camera upgrades, software operating and planning modules will also be considered.

Action Summary

ACTION: Major mobility hub infrastructure improvements

ACTION TYPE: Plans and Studies followed by Infrastructure Improvement

LEAD DIVISION: Transit Services

ACTION TIMELINE: Recurring (January 2021 to March 2028)

COST: High Cost

STATUS: Not Yet Initiated

ANTICIPATED YEAR OF BUSINESS CASE SUBMISSION (if applicable): N/A – Funding has been secured from Federal, Provincial and Municipal levels of Government.

MEASURABLE ENERGY/GHG REDUCTION TARGET (if applicable): Not yet determined

ACTION DESCRIPTION:

The overall scope of work is to confirm locations and improvements required for Major Mobility Hubs considered for the Downtown, New Sudbury and South End areas of the transit network, which aim to enhance operational efficiency and customer experience. The project will first consist of a detailed design and functional requirement review. Once presented to, and approved by Council, the project will continue into the construction phase.

CHALLENGES: As with any change, getting buy-in from Council, Residents, Businesses and Community Groups in each of these areas will be important; balancing all stakeholder needs could be a challenge if not managed properly through a good communication and engagement plan. There may also be land procurement requirements needed which are not funded under this envelope, however the goal is to partner with, or use existing City owned property.

KEY ANTICIPATED RESULTS:

This project will undertake the planning, design and then construction of the three Major Mobility Hubs (New Sudbury, Downtown, South End) required to support the new restructured transit system and future service needs. The capital cost of each Major Mobility Hub will vary according to local conditions and requirements, with estimates for the Downtown Mobility Hub being the largest based on passenger activity. Each hub design will consider links with active transportation (sidewalks, bike lanes, bike racks etc), security (proper lighting, cameras), charging stations for electric buses, and customer experience improvements (access to amenities, real-time service information, safe and convenient waiting platforms etc).

Action Summary

ACTION: Paris-Notre Dame bikeway construction

ACTION TYPE: Programs and Projects

LEAD DIVISION: Infrastructure Capital Planning

ACTION TIMELINE: Recurring (2020 – 2024)

COST: High Cost

STATUS: In Progress

ANTICIPATED YEAR OF BUSINESS CASE SUBMISSION: A construction phase will be submitted for capital budget prioritization in each of the years from 2021 to 2024 (inclusive). Click [here](#) for the Construction Phasing Plan approved by Council.

MEASURABLE ENERGY/GHG REDUCTION TARGET (if applicable): TBD – GHG reduction may be calculated based on number of trips completed by bicycle as a result of the construction of the bikeway.

ACTION DESCRIPTION: The Paris-Notre Dame Bikeway is planned to be a 9 km physically separated cycling facility on Paris Street and Notre Dame Avenue that will act as a spine to connect the City's cycling network from Regent Street in the south to Turner Avenue in the north end. Engineering design of the project was completed in early 2020 with construction of a 1.6 km segment from LaSalle Boulevard to Wilma Street also completed in 2020.

CHALLENGES: Capital construction costs are significant and each segment of the bikeway requires approval through the annual capital budget cycle. Only partially completing the bikeway would have a direct impact on the utility of the corridor as a transportation alternative to motorized vehicles.

KEY ANTICIPATED RESULTS: This action directly supports CEEP Goal 8, for the City to achieve a 35% active transportation mode share by 2050. When complete, the Bikeway will provide a viable, safe and efficient alternative for residents to choose to cycle for transportation and will likely play a significant role in increasing the modal split for people using active transportation to commute in Greater Sudbury.

Action Summary

ACTION: Annual active transportation infrastructure improvements

ACTION TYPE: Programs and Projects

LEAD DIVISION: Infrastructure Capital Planning

ACTION TIMELINE: Recurring

COST: High Cost

STATUS: In Progress

ANTICIPATED YEAR OF BUSINESS CASE SUBMISSION: N/A – There is an annual, dedicated capital budget commitment of \$750,000 towards constructing new cycling infrastructure and \$600,000 for new sidewalks. These funds are for standalone projects and do not include the facilities that are constructed as part of other rehabilitation projects.

MEASURABLE ENERGY/GHG REDUCTION TARGET (if applicable): TBD – GHG reduction may be calculated based on number of trips completed on foot or by bicycle as a result of active transportation infrastructure improvements.

ACTION DESCRIPTION: Annual funding for these programs is used for the design and construction of standalone projects for cycling infrastructure and sidewalks. The cycling infrastructure projects are selected based on the recommended cycling network in the 2016 Transportation Master Plan while sidewalk projects are chosen based on the highest ranking projects from the [Sidewalk Priority Index](#).

CHALLENGES: Capital projects are subject to the annual capital budget process and require approval to move forward to design and construction.

KEY ANTICIPATED RESULTS: This action directly supports CEEP Goal 8, for the City to achieve a 35% active transportation mode share by 2050. Ultimately, the City of Greater Sudbury aims to provide a safe, affordable, convenient, and reliable transportation network for all residents of Greater Sudbury, no matter their age, income, physical or cognitive ability, or how they choose to travel. The City recognizes that complete streets are achieved through a series of incremental improvements to the transportation network over time.

Action Summary

ACTION: Traffic signal system renewal

ACTION TYPE: Programs and Projects

LEAD DIVISION: Infrastructure Capital Planning

ACTION TIMELINE: Recurring

COST: High Cost

STATUS: In Progress

ANTICIPATED YEAR OF BUSINESS CASE SUBMISSION: The budget for the traffic signal system renewal project was approved during the 2019 budget process.

MEASURABLE ENERGY/GHG REDUCTION TARGET (if applicable): GHG reduction may be calculated based on decreased idling times and more efficiencies gained by a more optimized traffic signal system.

ACTION DESCRIPTION: This project would involve the procurement of a new traffic signal system and the replacement of all the traffic controllers and cabinets installed on the roadside. These upgrades will promote a more efficient traffic movement and reduce idling in the city. In addition, this project would replace the existing traffic signal priority system. The traffic signal priority system is currently used by Fire Services to provide green lights to vehicles responding to emergency situations. The Transit Action Plan has identified the need to implement a priority system to improve reliability for customers. This project will be implemented over a five year time frame with phasing closely matching the priority routes identified in the Transit Action Plan.

CHALLENGES: The scope is the challenge of this project. It involves a complete overhaul of traffic signal equipment and upgrading to a new traffic management system.

KEY ANTICIPATED RESULTS: When complete, the upgraded traffic signal system will provide a more efficient system for road users. In addition, the new system will be able to accommodate new and emerging technologies to continue optimizing traffic flow. The upgrades to the traffic signal priority system will help transit services maintain schedules, optimize routes and reduce delays.

Action Summary

ACTION: LED streetlight conversion

ACTION TYPE: Programs and Projects

LEAD DIVISION: Assets & Fleet Services

ACTION TIMELINE: Short Term (by first quarter 2021)

COST: High Cost

STATUS: In Progress (84% complete)

ANTICIPATED YEAR OF BUSINESS CASE SUBMISSION (if applicable): NA

MEASURABLE ENERGY/GHG REDUCTION TARGET (if applicable): 7,399,527 kWh in energy savings

ACTION DESCRIPTION: Conversion of 10799 street light from High Pressure Sodium to LED. This action will reduce energy consumption and GHG emissions and may encourage greater active transportation due to brighter lighting.

CHALLENGES: None noted

KEY ANTICIPATED RESULTS:

1. Reduced energy consumption by 7,399,527 kWh or 61% reduction
2. Monetary savings of approximately \$1.0 Million or 40% savings

Action Summary

ACTION: Electric vehicle procurement

ACTION TYPE: Programs and Projects

LEAD DIVISION: Assets and Fleet Services

ACTION TIMELINE: Short Term

COST: Low Cost

STATUS: Not Yet Initiated

ANTICIPATED YEAR OF BUDGET SUBMISSION: 2021

MEASURABLE ENERGY/GHG REDUCTION TARGET: Intended to be direct energy/GHG reductions. The level of which is dependent on the models of vehicles being replaced.

ACTION DESCRIPTION: Replace existing conventional gasoline powered vehicles with electric vehicles.

CHALLENGES: Ensuring the electric vehicle fits the service delivery model.

KEY ANTICIPATED RESULTS: Electric vehicles would be expected to reduce energy use and overall maintenance costs.

Action Summary

ACTION: Drone Pilot Program

ACTION TYPE: Programs and Projects

LEAD DIVISION: Planning Services

ACTION TIMELINE: Short Term

COST: Work Plan – cost and staff capacity accounted for through annual Work Plan and operating budgets.

STATUS: Planned

ANTICIPATED YEAR OF BUSINESS CASE: N/A

MEASURABLE ENERGY/GHG REDUCTION TARGET: If successful this project would replace the flying of commercial aircraft two days per year with battery operated drones.

ACTION DESCRIPTION: The Drone Pilot Program will utilize CGS drones to annually monitor and photograph the City's cemeteries and landfills.

CHALLENGES: The pilot program will establish whether the information captured by the drone will be comparable to the fly-over method and therefore be a viable long-term alternative.

KEY ANTICIPATED RESULTS: If successful, the use of CGS-owned drones will partially eliminate the need for fuel-propelled aircraft for monitoring purposes.

Action Summary

ACTION: Plan to electrify transit fleet by 2035

ACTION TYPE: Plans and Studies

LEAD DIVISION: Transit Services

ACTION TIMELINE: Short Term

COST: Medium Cost

STATUS: Not Yet Initiated

ANTICIPATED YEAR OF BUSINESS CASE SUBMISSION (if applicable): Business case has been prepared for 2021 Budget Deliberations

MEASURABLE ENERGY/GHG REDUCTION TARGET (if applicable): Unknown at this time

ACTION DESCRIPTION: To support Goal 9 of the CEEP, this project aims to prepare a long-term plan which will outline the steps required to transition to a 100% Electric Transit Fleet by 2035.

CHALLENGES: Electrifying a fleet is a complex undertaking with many financial and operating implications. There is an urgency to begin buying electric vehicles from a political perspective, however the transition must be carefully planned and analyzed which takes time.

KEY ANTICIPATED RESULTS: Based on the service requirements, the fleet will first need to be right-sized. Discussions will be held with stakeholders, to ensure there is enough power in the grid to support a Transit Electric Fleet. A diesel bus can run the full service day, which is 19 hours; an analysis of how many electric buses can perform the same work within the same service hours will be undertaken and the financial implications on operating budgets will be determined. This analysis will also determine if the number of buses required to perform the service will increase and if additional space in the Garage will be required to house and charge the vehicles overnight. The review will determine what type of buses and charging stations can withstand Greater Sudbury's climate and topography. Finally, the plan will take all of these factors into consideration and identify the financial impacts and funding opportunities of realizing the transition.

STRATEGY SECTOR # 6

Local Clean Energy Generation

Action Summary

ACTION: Expand district energy

ACTION TYPE: Programs and Projects

LEAD DIVISION: Asset & Fleet Services

ACTION TIMELINE: Long Term

COST: Low Cost

STATUS: Not Yet Initiated

ANTICIPATED YEAR OF BUSINESS CASE SUBMISSION: 2025

MEASURABLE ENERGY/GHG REDUCTION TARGET: Reductions in energy use from owned appliances to district energy will be measurable once scope and design is determined.

ACTION DESCRIPTION: Utilize district energy for heating and/or cooling at 199 Larch Street when current appliances reached end of useful life.

CHALLENGES: Retrofitting new infrastructure into facilities.

KEY ANTICIPATED RESULTS: Use of district energy for heating and cooling expected to result in competitive energy costs, environmental efficiency, lower capital costs, and reliable service as a result of designed redundancies.

Action Summary

ACTION: Assess the potential to expand landfill gas collection to Azilda and Hanmer landfill sites

ACTION TYPE: Plans & Studies and Partnerships & Engagement

LEAD DIVISION: Environmental Services

ACTION TIMELINE: Medium Term

COST: Low Cost

STATUS: Not Yet Initiated

ANTICIPATED YEAR OF BUSINESS CASE SUBMISSION: 2023

MEASURABLE ENERGY/GHG REDUCTION TARGET: To be determined

ACTION DESCRIPTION: Determine the potential for the collection of landfill gas at the Azilda Landfill & Waste Diversion Site and the Hanmer Landfill & Waste Diversion Site. This study would estimate landfill gas production and the construction and management cost for a collection system at each site. The City would invite Greater Sudbury Utilities in participating in the development of the project scope and objectives.

CHALLENGES: None noted

KEY ANTICIPATED RESULTS: Estimate the potential reduction of greenhouse gases.

STRATEGY SECTOR # 7

Low-carbon Energy Procurement

Action Summary

ACTION: Develop a Green Procurement Strategy/Plan

ACTION TYPE: Policies, Guidelines, and Standards & Procedures

LEAD DIVISION: Purchasing Section

ACTION TIMELINE: Short Term

COST: Work Plan – cost and staff capacity accounted for through annual Work Plan and operating budgets.

STATUS: Planned

ANTICIPATED YEAR OF BUSINESS CASE SUBMISSION (if applicable): N/A

MEASURABLE ENERGY/GHG REDUCTION TARGET (if applicable): N/A

ACTION DESCRIPTION: Develop a green procurement strategy that enables/guides City staff to make procurement decisions that have a positive, or limited, impact on the environment. This will include:

- Consultation with stakeholders
- Updates to the Purchasing By-Law to include the requirement of environmental considerations when procuring goods and services, including construction
- Associated guides and procedures

CHALLENGES: Challenges that may be faced when developing a green procurement strategy include:

- Defining the scope of the green procurement strategy
- Determining whether environmental considerations are to be mandated or for consideration only
- How to balance the perception of higher financial cost versus environmental cost and the weight given to each

KEY ANTICIPATED RESULTS: Clear direction to City staff to make environmental considerations when buying goods, directing service providers to conduct their business in an environmentally conscious manner, and incorporating green practices in the various construction work the City performs.

STRATEGY SECTOR # 8

Carbon Sequestration

Action Summary

ACTION: Develop a Regreening Master Plan

ACTION TYPE: Plans & Studies

LEAD DIVISION: Environmental Services

ACTION TIMELINE: Medium Term

COST: Work Plan – cost and staff capacity accounted for through annual Work Plan and operating budgets.

STATUS: Planned

ANTICIPATED YEAR OF BUSINESS CASE SUBMISSION: N/A

MEASURABLE ENERGY/GHG REDUCTION TARGET: Estimate to be undertaken based on research currently underway at Laurentian University. Trees planted by the Regreening Program are estimated to have sequestered a cumulative total of 1 million tonnes of carbon dioxide equivalent since start of the Program in 1978.

ACTION DESCRIPTION: A Regreening Master Plan will identify the areas remaining to be regreened and the interventions required in the individual management units.

KEY ANTICIPATED RESULTS: An improved overall strategy for accomplishing the remaining regreening work.

Action Summary

ACTION: Enhance carbon sequestration through soil creation

ACTION TYPE: Plans & Studies & Projects and Partnerships & Engagement

LEAD DIVISION: Environmental Services

ACTION TIMELINE: Medium Term

COST: To be determined

STATUS : Not Yet Initiated

ANTICIPATED YEAR OF BUSINESS CASE SUBMISSION: 2022 or 2023

MEASURABLE ENERGY/GHG REDUCTION TARGET: To be determined

ACTION DESCRIPTION: Soil carbon sequestration is a process in which CO₂ is removed from the atmosphere and stored in the soil carbon. Increasing carbon in soil can be achieved by maintaining and enhancing soil fertility with organic fertilizer such as compost. The City will conduct research on the use of semi-processed and fully processed compost to improve local soils with community partners.

KEY ANTICIPATED RESULTS: Improve local soil health and fertility to improve carbon sequestration.