

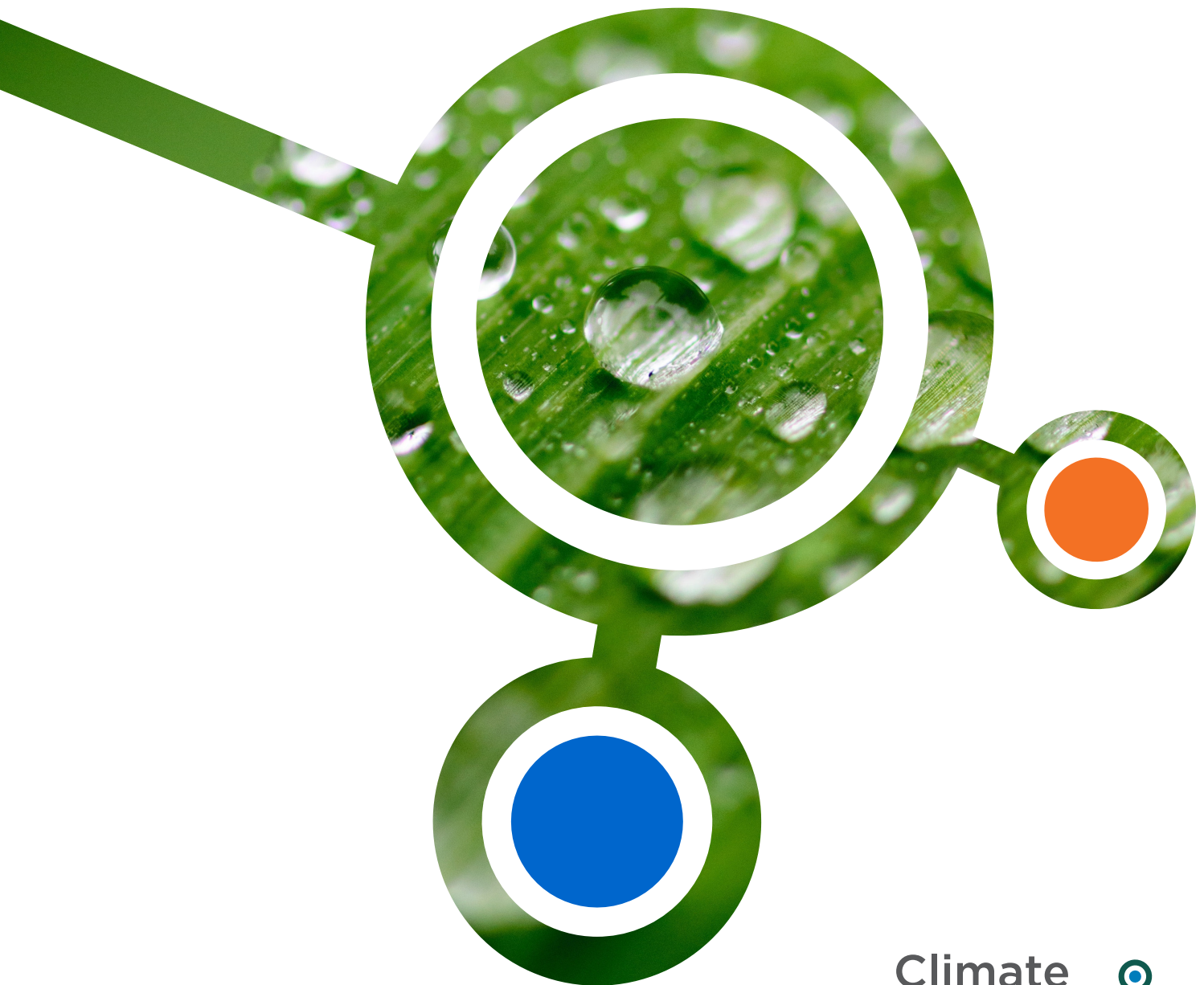


CLIMATE ACTION PLAN

Progress Report 2020

April 2021

-  Official Community Plan
-  Climate Action Plan





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THE LOW EMISSIONS COMMUNITY PLAN

Saskatoon's Actions for
Climate Change Mitigation
August, 2019.

- Official Community Plan
- Climate Action Plan
- Low Emissions Strategy



City of
Saskatoon
saskatoon.ca/lowemissions

LOCAL ACTIONS

Saskatoon's Adaptation Strategy
Part 1: Climate Projections and Possible Impacts for Saskatoon

- Official Community Plan
- Climate Change
- Local Actions



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CORPORATE CLIMATE ADAPTATION STRATEGY

LOCAL ACTIONS:
Saskatoon's Adaptation Strategy (Part Two)
December, 2019

- Official Community Plan
- Climate Action Plan
- Local Actions Strategy



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Climate
CHANGE

EXECUTIVE SUMMARY

In 2019, the City of Saskatoon (City) established a Climate Action Plan comprised of two long-term strategies. *The Low Emissions Community Plan (LEC Plan)* is the roadmap to reduce emissions and help mitigate climate change, and the *Corporate Climate Adaptation Strategy* will help us prepare and adapt to the changing climate. Those strategies established a 30-year action plan for the City to follow. This report, the first since the Climate Action strategies were developed, provides an update on our current emissions, the status and accomplishments related to each of the actions, risks and barriers to completing the actions, and recommended next steps.

Low Emissions Community Plan Progress

The City completes annual inventories of the community's greenhouse gas (GHG) emissions and compares them to the 2014 baseline inventory and the Council-established target of reducing emissions by 80% below 2014 levels by 2050. Between 2014 and 2019, the community's GHG emissions decreased by 2% equating to a reduction of approximately 80,000 tonnes CO₂e over the 5 year period. This decrease likely has less to do with climate mitigation actions, and more to do with improved methodology on how inventory data is collected and reported.

Through the 2020/2021 Municipal Budget, the City allocated funding for projects to begin implementation of the *LEC Plan*. These actions are underway, but it is too early to see results through the emissions inventory. Instead, these actions begin laying the groundwork for future emissions reductions in the community. For instance, the Home Energy Loan Program is expected to be launched in 2021, making it easier for the community to invest in solar and energy efficiencies in their homes. Other success stories include Saskatoon Transit's electric bus pilot, an update to the *Official Community Plan*, and a feasibility study of the Parcel M utility-scale solar photovoltaic installation showing potential for a 2.2MW facility.

In other areas, the City is falling behind on the actions. Table 1 shows the status of sub-actions from the *LEC Plan* that were recommended to begin in 2019, 2020, or 2021. Some notable areas with little or no progress include the development of a municipal step code; a commercial, institutional, and industrial energy efficiency and renewables financing program; a virtual net metering policy; and an electric vehicle adoption strategy. More details are included within the report on why these actions have not progressed and, in some cases, recommended steps to get them on track. Additional sub-actions will come due in 2022, for instance further analysis of utility-scale solar feasibility. Appendix A includes a list of business cases that are being developed to request funding through the 2022/2023 Municipal Budget that respond to both outstanding sub-actions and those targeted for 2022/2023.

In contrast, the City's Corporate GHG emissions increased by 5% between 2014 and 2019, equating to an increase of approximately 5,000 tonnes CO₂e over the 5 year period. The City has realized emission reductions in its Buildings and Streetlight sectors, through the Facility Improvement Program and LED Street Light Conversion Project, respectively. However, emissions in all other sectors have increased relative to the 2014 baseline. Table 1 also shows the status of Corporate sub-actions from the *LEC Plan* that were recommended to begin in 2019, 2020, or 2021. No progress has been made on heat pumps or appliance upgrades; more information is presented in the report. An electric vehicle (EV) strategy for Corporate vehicles has also not been started, instead a pilot with four EVs is being rolled out in 2021. Corporate actions scheduled to start in 2022/2023 include assessments of municipal buildings to plan deep energy retrofits and solar panel installations. Appendix A lists the business cases being developed to further these Corporate actions.

Table 1. Report Card on LEC Plan Community Actions recommended to start in 2019, 2020, or 2021.

Action	Action Phase	Target Date	Progress
GOING NET ZERO WITH ENERGY EFFICIENT NEW HOMES AND RETROFITS			
Action 6: Create an electric and thermal energy consumption cap for new home construction by utilizing a municipal step code.			●○○○
Milestone Target: Improve energy use intensity (EUI) and thermal energy demand intensity (TEDI) for new residential buildings, targeting net-zero ready by 2036. Emission Reductions by 2050 = 1,130,000 tonnes CO ₂ e			
6.1 Complete research and engagement for step code design. Develop step code in consultation with stakeholders.	2	2021	●○○○
Action 10: Incentivize and later mandate homeowners to perform deep energy retrofits.			●○○○
Milestone Target: Through envelope and mechanical system retrofits and renovations, 50% of existing buildings are 50% more energy efficient by 2030, 90% by 2050. Emission Reductions by 2050 = 2,013,000 tonnes CO ₂ e			
10.1 Research, engagement, and development of a Property Assessed Clean Energy (PACE) program to be utilized by homeowners for energy efficiency and Solar photovoltaic retrofits; request funding and approval from Council on program implementation.	2	2021	●○○○
GETTING TO NET ZERO THROUGH ENERGY EFFICIENCY IN ICI BUILDINGS			
Action 8: Create an electric and thermal energy consumption cap for new Industrial, Commercial and Institutional (ICI) construction by utilizing a municipal step code.			●○○○
Milestone Target: Improve energy use intensity (EUI) and thermal energy demand intensity (TEDI) for new ICI buildings, targeting net-zero ready by 2036. Emission Reductions by 2050 = 6,660,000 tonnes CO ₂ e			
8.1 Complete research and engagement for step code design. Develop step code in consultation with stakeholders.	2	2021	●○○○
Action 11: Incentivize and later mandate ICI owners and operators to perform deep energy retrofits.			●○○○
Milestone Target: Through envelope and mechanical system retrofits and renovations, 50% of existing buildings are 50% more energy efficient by 2030, 90% by 2050. Emission Reductions by 2050 = 2,013,000 tonnes CO ₂ e			
11.1 Research, engagement, and development of a PACE program to be utilized by the Industrial, Commercial, and Institutional (ICI) sector for energy efficiency and Solar photovoltaic retrofits; request funding and approval from Council on program implementation.	2	2021	●○○○
ELECTRIFY COMMERCIAL AND PERSONAL VEHICLES			
Action 21: Electrify personal vehicles through incentive programs, education, and automotive dealer partnerships.			●○○○
Milestone Target: 30% of all new vehicle sales are electric by 2030, 90% by 2050. Emission Reductions by 2050 = 2,756,000 tonnes CO ₂ e			
21.1 Develop a detailed strategy to increase private EV sales - this will include an EV charging network and education or incentive programs. Request funding and approval for programs and EV chargers.	2	2021	●○○○
WASTE MANAGEMENT			
Action 24: Improve and expand waste management programs and services to increase reduction and diversion.			●○○○
Milestone Target: By 2050, achieve reduction and diversion rates of: 90% for organics, 95% for plastics, and 90% for paper. The existing goal is to divert 70% of waste from the Saskatoon Landfill by 2023. Emission Reductions by 2050 = 1,303,000 tonnes CO ₂ e			
24.1 Develop strategy for implementation of multi-unit and ICI (including Civic facilities) organics programs and education programs/partnerships on food waste reclamation and reduction. Request Council approval and funding for ICI and Multi-unit programs.	2	2021	●○○○

Not Started ○○○○ Initiated ●○○○ Moderate Progress ●●○○ Significant Progress ●●●○ Complete ●●●●

Action	Action Phase	Target Date	Progress
WATER CONSERVATION			
Action 26: Reduce residential and ICI water use through education programming and water efficiency incentive programs.			●○○○
Milestone Target: Reduce outside water use by 20% and reduce inside water use by 30% in 100% of new builds and retrofits. Emission Reductions by 2050 = 147,000 tonnes CO ₂ e			
26.1 Water Conservation Strategy presented to City Council for approval.	2	2020	●○○○
LAND USE			
Action 27: Build complete, compact communities through infill development, mixed-use buildings, and compact housing.			●○○○
Milestone Target: Achieve residential energy use reductions with energy efficient, mixed-use multi-family buildings in complete, compact neighbourhoods to achieve 5% less floor area than the current average by 2035 and 25% by 2050. Emission Reductions by 2050 = 3,353,000 tonnes CO ₂ e			
27.1 Official Community Plan update presented to City Council including variety of policies and plans related to infill development, corridor growth and long-term planning.	4	2020	●●●●
27.2 Corridor Plan implementation - segment-specific corridor plans targeting land use designation, rezoning and public realm design as well as necessary transportation and infrastructure plans and improvements to support growth.	4	2020 -ongoing	●○○○
SOLAR ENERGY: RESIDENTIAL, INDUSTRIAL/COMMERCIAL/INSTITUTIONAL, AND UTILITY SCALE			
Action 30: Install solar PV systems on municipal lands (Parcel M Project).			●○○○
Milestone Target: Install a 1MW capacity solar system on Parcel M or similar land area by 2022. Emission Reductions by 2050 = emissions included in Action #34			
30.1 Virtual Net Metering Policy presented to Council for approval.	2	2019	●●●●
30.2 Community engagement, feasibility, and detailed design for project.	2	2021	●○○○
Action 32: Encourage existing residential building owners and mandate new buildings to install solar PV systems.			●○○○
Milestone Target: Install 10 MW of residential solar capacity by 2030, 50 MW by 2050. Emission Reductions by 2050 = 195,000 tonnes CO ₂ e			
32.1 Research, engagement, and development of a PACE program to be utilized by homeowners for energy efficiency and Solar photovoltaic retrofits; request funding and approval from Council on program implementation.	2	2021	●●●○
LANDFILL GAS EXPANSION			
Action 31: Increase Landfill Gas Capture from the Saskatoon Landfill.			●○○○
Milestone Target: Increase methane capture and destruction from the landfill to 50%, by 2026. Emission Reductions by 2050 = 1,891,000 tonnes CO ₂ e			
31.1 Feasibility study and detailed engineering design for additional vertical wells and completion of the perimeter Landfill Gas (LFG) header for tying into the existing horizontal loop.	2	2020	●○○○

Not Started ○○○○

Initiated ●○○○

Moderate Progress ●●○○

Significant Progress ●●●○

Complete ●●●●

Table 2. Report Card on LEC Plan Corporate Actions recommended to start in 2019, 2020, or 2021.

Action	Action Phase	Target Date	Progress
INCREASE EFFICIENCY IN MUNICIPAL BUILDINGS			
Action 1: Apply energy efficiency standards (build to Passive House) to all new municipal buildings.			●○○○
Milestone Target: All new buildings are designed to target Passive House energy use standards starting immediately. Emission Reductions by 2050 = 28,000 tonnes CO ₂ e			
1.1 A new High Performance Civic Building Policy presented to Council (no requirement for Passive House); a new fire hall (currently being designed) could be built to Passive House Standard.	2	2020	●○○○
Action 3: Upgrade plugged appliances and improve energy conservation behaviours in municipal buildings.			○○○○
Milestone Target: Achieve 5% plug load energy savings in 100% of buildings by 2023. Emission Reductions by 2050 = 4,000 tonnes CO ₂ e			
3.1 Develop phasing strategy and detailed design for appliance upgrades in municipal buildings.	2	2020	○○○○
3.2 Request funding and approval from Council on appliance replacement (as per strategy).	2	2021	○○○○
Action 4: Update all municipal building lighting systems.			●○○○
Milestone Target: Achieve 20% savings in lighting energy use in municipal office buildings by 2026, and 100% of remaining buildings by 2051. Emission Reductions by 2050 = 5,000 tonnes CO ₂ e			
4.1 Energy Performance Contracting Project Phase 1-4 Scoping Complete by 2019.	1	2019	●●●●
4.2 Buildings that are part of the existing Energy Performance contract will have lighting retrofits completed.	1	2021	●○○○
Action 5: Retrofit municipal heating and cooling systems with ground-source or air source heat pumps.			○○○○
Milestone Target: Retrofit all municipal buildings with heat pumps and ensure all new municipal buildings have heat pumps, achieving retrofits of 100% of existing municipal buildings by 2026. Emission Reductions: by 2050 = 204,000 tonnes CO ₂ e			
5.1 Secure funding for feasibility study for heat pump retrofits.	2	2021	○○○○
ELECTRIFY MUNICIPAL FLEET			
Action 17: Electrify the municipal fleet over the near-term.			●○○○
Milestone Target: 100% of the municipal fleet is electrified by 2030. Emission Reductions by 2050 = 77,000 tonnes CO ₂ e			
17.1 Develop strategy for electric vehicle (EV) and charging station phase in for fleet. Request funding and council approval.	1	2021	○○○○
Action 18: Electrify the Municipal transit fleet.			●○○○
Milestone Target: 100% of transit fleet are electric by 2030. Emission Reductions by 2050 = 55,000 tonnes CO ₂ e			
18.1 Pilot leased EV bus (if funding secured), develop EV bus phase-in strategy and request funding and approval from Council. Develop RFP for EV buses and select supplier.	2	2021	●○○○

Not Started ○○○○

Initiated ●○○○

Moderate Progress ●●○○

Significant Progress ●●●○

Complete ●●●●

Climate Adaptation Progress

Local Actions: Saskatoon's Adaptation Strategy is a two-part strategy consisting of *Climate Projections & Possible Impacts (Part 1)* and *Corporate Climate Adaptation Strategy (Part 2)*. The *Corporate Climate Adaptation Strategy (Adaptation Strategy)* prioritizes actions into near-term, mid-term, and long-term with near-term actions expected to start in 2020 or 2021. Table 2 shows the progress of these actions over the last two years. Progress on the *Adaptation Strategy* was made through actions including the *Green Infrastructure Strategy*, the *Triple Bottom Line Policy* and framework which has been rolled out across the Corporation, updates to the *Official Community Plan*, improvements to evacuation processes, and work on the *Corporate Asset Management Policy* and system. Actions that require further development include establishing data tracking processes for climate change indicators, establishing external working groups specific to climate data and education, monitoring funding opportunities, and utilizing current data in asset management decision-making.

The City has not developed a community adaptation strategy, which is an outstanding component relative to what is considered best practice for municipal adaptation planning.

Table 3. Report Card on Corporate Climate Adaptation Strategy Actions recommended to start by 2021.

Action and Initiative	Priority (1,2,3)	Start by Date	Progress
Action A: Document a process to support the consideration of adaptation for all new projects, programs and assets in a reliable and consistent manner.			
A.1 Create Administrative Procedure and Standard Work documents to support the consideration of climate change projections, positive and negative risk to operations, and resiliency options creation as part of the implementation of the Triple Bottom Line Policy.	1	2021	●●●○
A.2 Create internal training sessions that can be delivered on demand to support workgroups as they build climate change impact understanding and adaptation innovation capacity.	1	2021	●○○○
A.3 Create internal processes and dashboard for climate adaptation strategy key performance indicator tracking. Create a digital historical and future climate data hub to support reliable internal use and updating.	1	2021	○○○○
Action B: Explore and document existing municipal, provincial, federal, and international mechanisms for financing resiliency building that look beyond mill-rate increases and capital expenditure.			
B.4 Create and maintain a list of existing programs that fund resiliency building projects (include application process and requirements).	1	2021	○○○○
Action C: Look to partners across departments to support and integrate resiliency planning into current and future work.			
C.5 Review major upcoming projects (such as Bus Rapid Transit, Saskatoon Forestry Farm Park & Zoo Master Plan, Winter City Strategy, the new central library, and downtown arena) that may be good candidates for piloting resiliency building options.	1	2021	●●○○
C.6 Continue to work with Planning & Development to review current land use, zoning, and urban/regional design practices to ensure current requirements provide adequate flexibility to support resiliency building.	1	2021	●○○○

Not Started ○○○○

Initiated ●○○○

Moderate Progress ●●○○

Significant Progress ●●●○

Complete ●●●●

Action and Initiative	Priority (1,2,3)	Start by Date	Progress
Action D: Continue to develop relationships with external organizations that produce high quality historical and future climate data for use in data-driven decision-making.			
D.7 Work with external partners to define ways to visualize climate change projection data to improve corporate impact and risk assessment discussions, inform user-driven science, and aid in public education campaigns.	1	2021	●●●●
Action H: Continue work with internal staff and external partners to improve evacuation processes.			
H.20 Continue to work with the Provincial Emergency Social Services Committee, City stakeholders, external partners, and at-risk communities to define efficient, culturally appropriate evacuation processes and suitable temporary housing locations that balance the needs of those in unsafe situations with the needs of Saskatoon residents.	1	2021	●●●●
Action K: Integrate climate risk consideration and resiliency building options in the development of the Corporate Asset Management Program.			
K.24 Develop and document processes that allow future climate projections to be considered in the design of new and upgraded corporate assets.	1	2021	●●●●
K.26 Network and share information with other municipalities that will likely experience Saskatoon's projected climate conditions.	1	2021	●●●●
K27 Continue to participate in Saskatoon Water's design curve update project to inform climate projection and risk management through asset design.	1	2021	●●●●

Not Started ○○○○

Initiated ●○○○

Moderate Progress ●●○○

Significant Progress ●●●○

Complete ●●●●

INTRODUCTION

The City of Saskatoon (City) is taking action on climate change by working to reduce greenhouse gas emissions and adapt infrastructure, services, and programs to the current and projected impacts of a changing climate. Citizens, businesses, and organizations all need to be engaged and contribute to our success. Supported by the *2018-2021 Strategic Plan* and guided by commitments to the Global Covenant of Mayors for Climate & Energy, the City has a Climate Action Plan comprised of *The Low Emissions Community Plan* and *Local Actions: Saskatoon's Adaptation Strategy*.

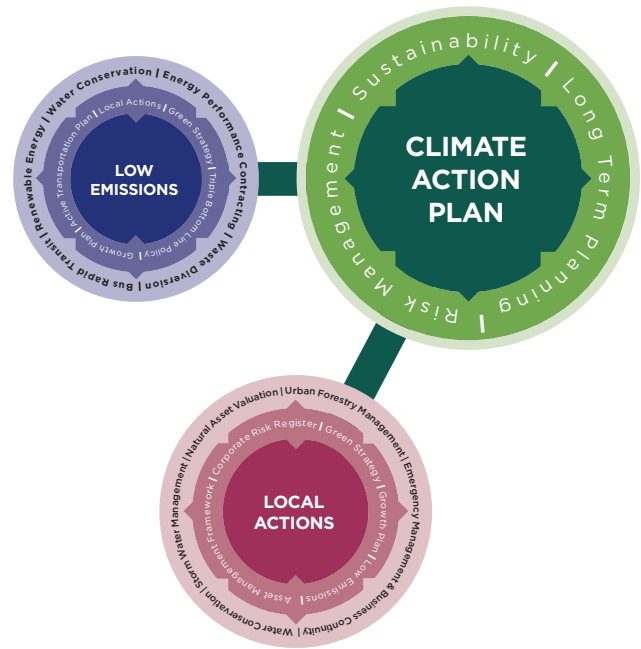
The Global Covenant of Mayors for Climate & Energy is a global alliance that includes over 10,000 cities and local governments working towards a resilient and low-emission society. Our commitments to this initiative include the completion of greenhouse gas emission inventories; an assessment of local climate hazards, risks, and vulnerabilities; setting measurable emissions targets and climate adaptation goals; establishing plans to meet those targets and goals; and making all this information publicly available.

In addition to responding to our Strategic Goals and commitment to the Global Covenant of Mayors, the Climate Action Plan mitigates risks identified by the City in its Strategic Risk Register. Three separate yet interrelated strategic risks have been identified in this area, including the risk that “the City may not be prepared for the effects of climate change; that “the City’s community education and awareness initiatives regarding carbon footprint may not be affecting change in people’s attitudes and behaviors”; and that “the City may fail to identify and pursue CO₂ reduction initiatives”.

Climate Action Plan: Progress Report 2020 presents the most recent greenhouse gas emission inventories for the City (Corporation) and the community and provides progress updates toward the actions in the *LEC Plan* and the *Adaptation Strategy*. The report ends by outlining some of the emerging trends and issues that will be incorporated into future climate action planning. Appendices A & B list the business cases in development to request additional funding through the 2022/2023 Municipal Budget for continued progress towards the actions and targets in the Climate Action Plan.

It is important to note this is an interim report, highlighting progress made toward the actions identified in the *LEC Plan* and *Adaptation Strategy*. A comprehensive report, including a more robust assessment of actions as well as re-modelling of greenhouse gas emissions, will be completed at 5-year intervals with the next report scheduled for 2024.

Tables 1 and 2 list the near-term actions identified in the *LEC Plan* and *Adaptation Strategy*.





BACKGROUND

Climate mitigation includes the things we do to reduce the sources or enhance the sinks of greenhouse gases.

The *LEC Plan* is the guiding document that will help the City and the community realize a more prosperous, resilient, and low-carbon future. The success of the *LEC Plan* lies in the City's and the community's abilities to implement the 40 climate mitigation actions identified in the plan and to achieve the following greenhouse gas reduction targets set by City Council in 2017:

- Corporate (City of Saskatoon) emission reductions of 40% below 2014 levels by 2023 and 80% by 2050; and
- Community emission reductions of 15% below 2014 levels by 2023 and 80% by 2050.

Table 4 shows the Corporate and community baseline and targeted emissions for both the interim (2023) and final (2050) target dates.

Table 4. Baseline and target emissions for Saskatoon

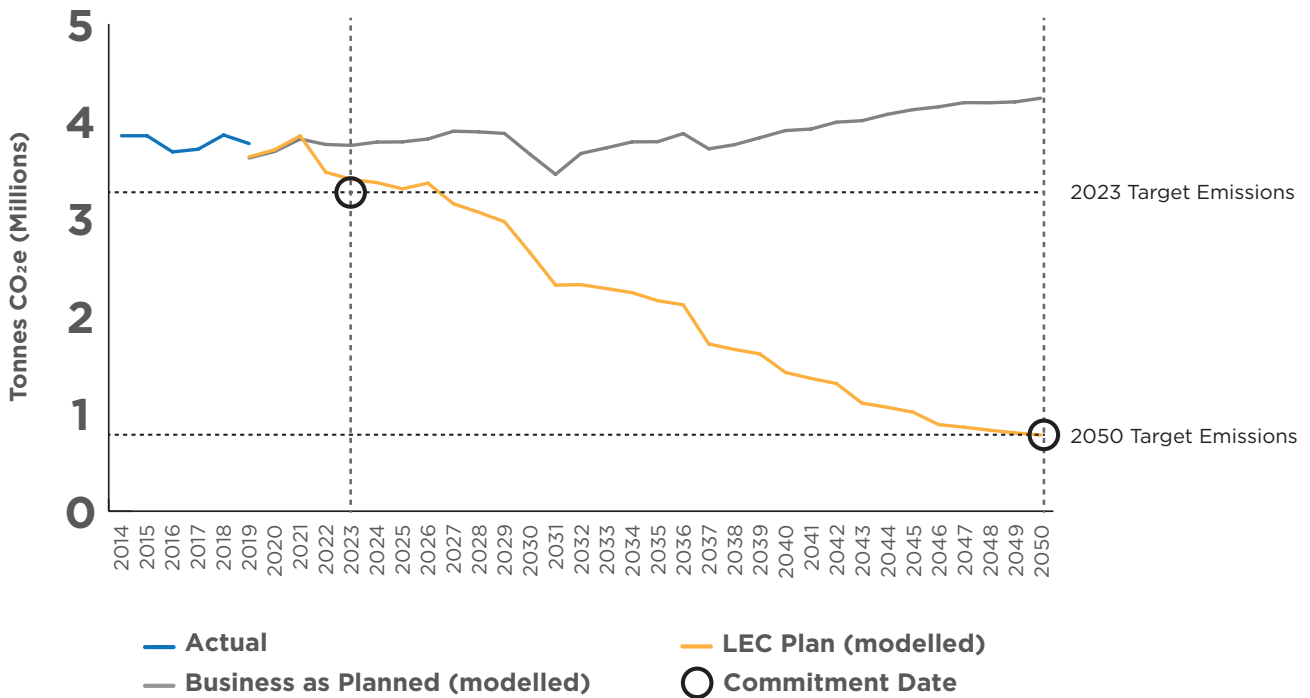
Item	City of Saskatoon	Community
2014 GHG Baseline Emissions (tonnes CO₂e)	106,500	3,852,200
2023 GHG Reduction Target (%)	40%	15%
2023 GHG Reduction Target (tonnes CO ₂ e)	42,600	577,800
2023 Target Emissions (tonnes CO₂e)	63,900	3,274,400
2050 GHG Reduction Target (%)	80%	80%
2050 GHG Reduction Target (tonnes CO ₂ e)	85,200	3,081,800
2050 Target Emissions (tonnes CO₂e)	21,300	770,400

Note: City of Saskatoon Corporate emissions are a sub-set of the Community emissions total. Values in the table have been rounded to the nearest hundred.

The *LEC Plan* was developed by Sustainability Solutions Groups using an integrated energy, emissions, and finance model. The list of 40 actions represents a viable approach to achieve the emissions reduction targets, while also leading to co-benefits such as improved health, increased quality of life, and lowered energy costs.

Figure 1 shows the modelled emissions for a Business as Planned approach (where only those actions already planned or underway during the development of the *LEC Plan* in 2019 are undertaken) compared to the modelled emissions if the *LEC Plan's* 40 actions are implemented. As shown, the community emissions target will not be achieved by 2023, instead it is projected to be met in 2027. If fully executed, the *LEC Plan* actions for both the community and the City as a corporation are projected to meet the 80% reduction target by 2050. Figure 1 also shows our actual emissions based on the 2014-2019 GHG emission inventories.

Figure 1. Actual and Modelled GHG emissions for Saskatoon



Climate adaptation includes the things we do to adjust to or prepare for actual or expected impacts of climate change.

The *Adaptation Strategy* provides an action plan to help the City of Saskatoon prepare for the impacts of climate change in order to limit disruptions and reduce negative impacts on civic staff, services, and assets. The *Adaptation Strategy* is specific to the City of Saskatoon’s operations, and does not include broader community actions.

PART 1: CLIMATE MITIGATION

- COMMUNITY

Vision: *Saskatoon is a connected community where every citizen and organization takes pride in prosperous, resilient, and low-carbon solutions to realize a clean and healthy city.*

Mission: *Our Mission is to enable a sustainable Saskatoon through an integrated and actionable climate change approach.*

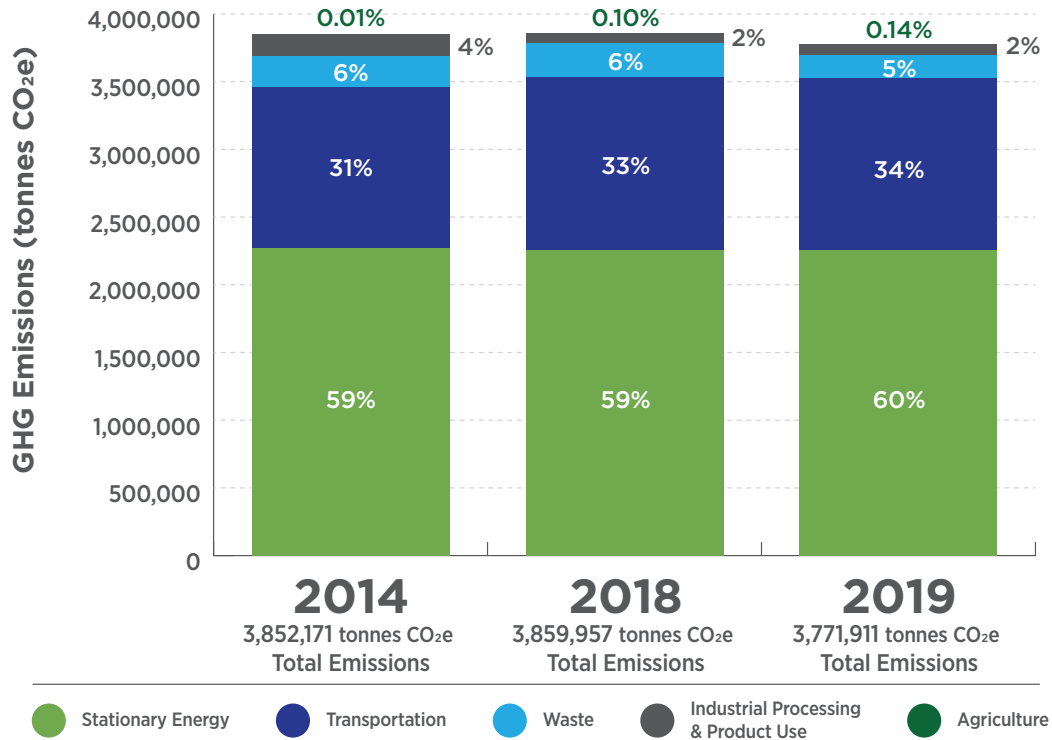
1.1 Community Greenhouse Gas Emissions

Planning for climate action begins with understanding the sources of the community's greenhouse gas (GHG) emissions. This is achieved through the completion of a GHG emission inventory, which assembles information about the emission sources and the corresponding magnitude of each source toward the emission total. Complete, accurate, and timely inventories are critical to monitoring progress toward GHG reduction targets.

The City of Saskatoon completes a GHG inventory for the community on an annual basis, following the *Global Protocol for Community-Scale Greenhouse Gas Emission Inventories: An Accounting and Reporting Standard for Cities (GPC)*. The GPC is an international standard for city-wide GHG accounting recognized by the Global Covenant of Mayors for Climate & Energy, as well as other environmental platforms the City reports to including CDP (formerly Carbon Disclosure Project) and International Council for Local Environmental Initiatives (ICLEI) Canada. The GPC framework requires cities to report their emissions by gas, scope, sector, and subsector, facilitating a transparent approach to identifying, verifying, and reporting emissions.

- **The GPC aligns its greenhouse gases with the United Nations Framework Convention on Climate Change and the Kyoto Protocol, and includes the following seven gases: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF₆), and nitrogen trifluoride (NF₃).**
- **Greenhouse gases are typically expressed as carbon dioxide equivalents (CO₂e) – the universal unit used to compare the global warming potentials of different gases. For example, 1 tonne of CH₄ has the same impact on climate change as 25 tonnes of CO₂, so the global warming potential of CH₄ is expressed as 25 tonnes CO₂e.**

Figure 2. Summary of Community GHG emissions for 2014, 2018, and 2019



Between 2014 and 2019, the community’s GHG emissions decreased by 2%, or approximately 80,000 tonnes CO₂e. While reductions in emissions were reported across most sectors including Stationary Energy, Waste, and Industrial Processing & Product Use, these decreases were not necessarily the result of actual reduced emissions but due to improved accuracy in the data reported. Increased emissions were reported in the Transportation and Agriculture sectors. It is important to note that per capita emissions decreased by 15% (i.e., emissions decreased despite an increase in population). This is encouraging as it shows that community actions are having an impact on the rate at which we generate emissions, even though absolute emissions remained relatively constant over the 5-year period.

	2014	2018	2019
Stationary Energy	2,268,112	2,259,497	2,256,342
Transportation	1,194,014	1,275,217	1,268,085
Waste	221,984	248,683	174,267
Agriculture	511	3,799	5,387
Industrial Processing & Product Use	167,550	72,761	67,830
Total Emissions (tonnes CO₂e)	3,852,171	3,859,957	3,771,911
Per Capita Emissions (tonnes CO₂e per person)	15.6	14.3	13.7

Figure 3. Total and per capita community GHG emissions for 2014 and 2019

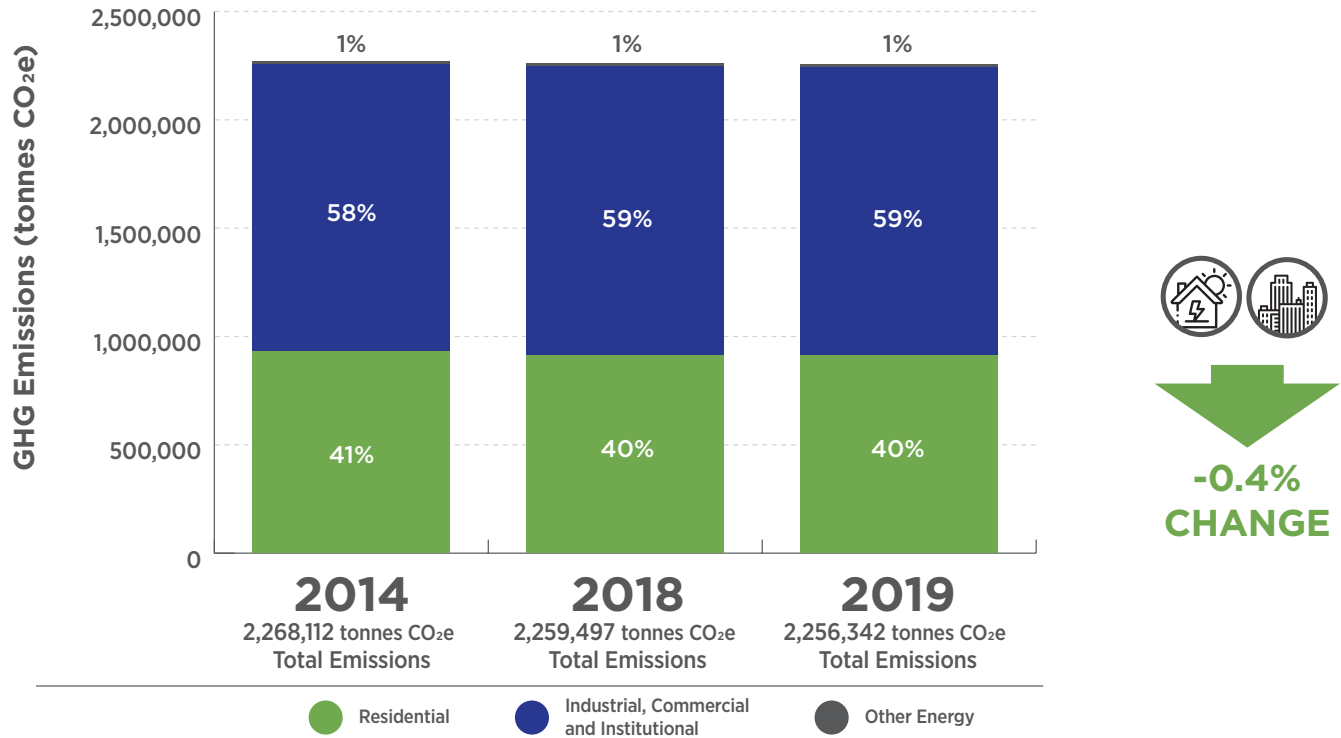


1.1.1 Stationary Energy

The Stationary Energy sector includes emissions resulting from the use of energy – natural gas, propane, and electricity – to primarily heat/cool and power our buildings. This sector includes the Residential and Industrial, Commercial, and Institutional (ICI) sub-sectors.

Emissions in the Stationary Energy sector decreased by less than 0.5% from 2014 to 2019, with the change driven mainly by decreased energy use in the Residential sector.

Figure 4. GHG emission breakdown for the Community Stationary Energy sector



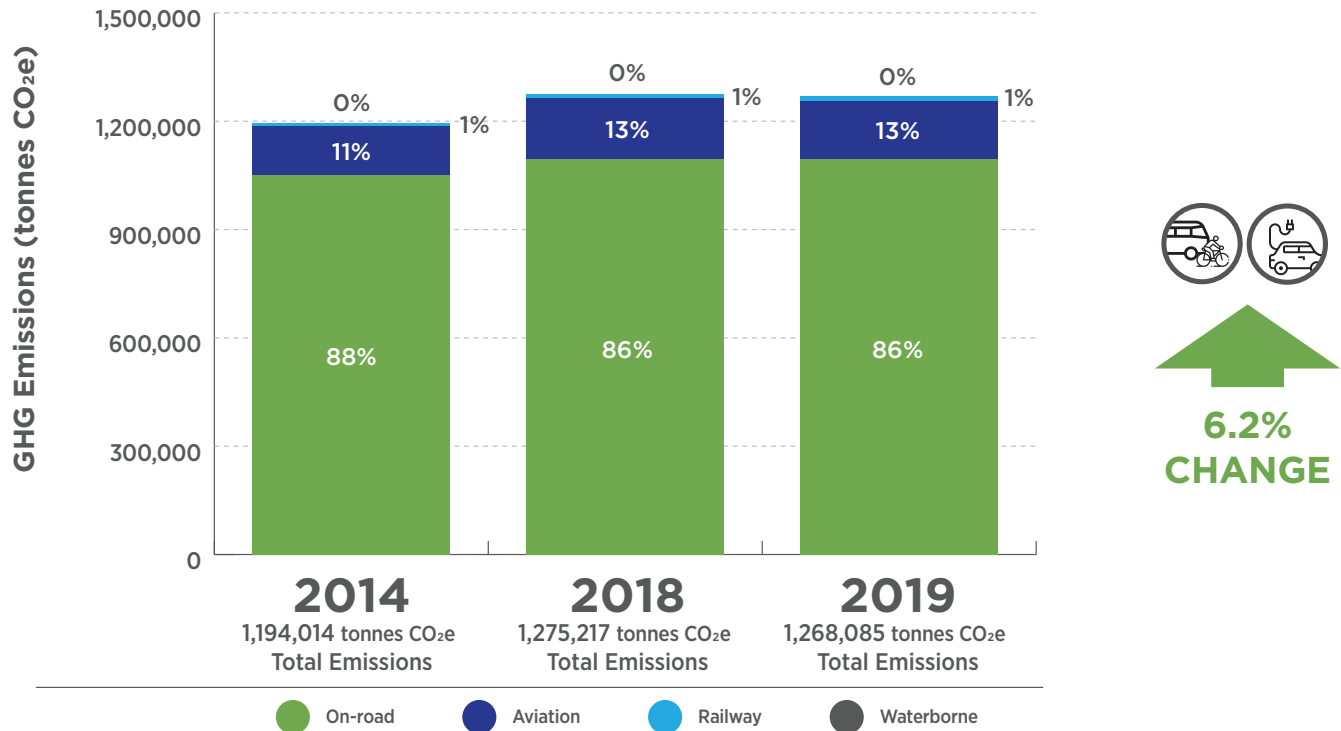
	2014	2018	2019
Residential	932,215	912,798	913,209
Industrial, Commercial, and Institutional	1,321,768	1,334,578	1,330,822
Other energy	14,129	12,121	12,311
Total Emissions (tonnes CO₂e)	2,268,112	2,259,497	2,256,342

1.1.2 Transportation

The Transportation sector includes emissions resulting from the combustion of fossil fuels – gasoline and diesel – to move people and products around the city. This sector includes emissions primarily from the on-road (including public transit), aviation, and rail sub-sectors.

Emissions in the Transportation sector increased by 6% from 2014 to 2019, with the majority of the increase in the on-road sub-sector (i.e., people buying more fuel for their vehicles).

Figure 5. GHG emission breakdown for the Community Transportation sector



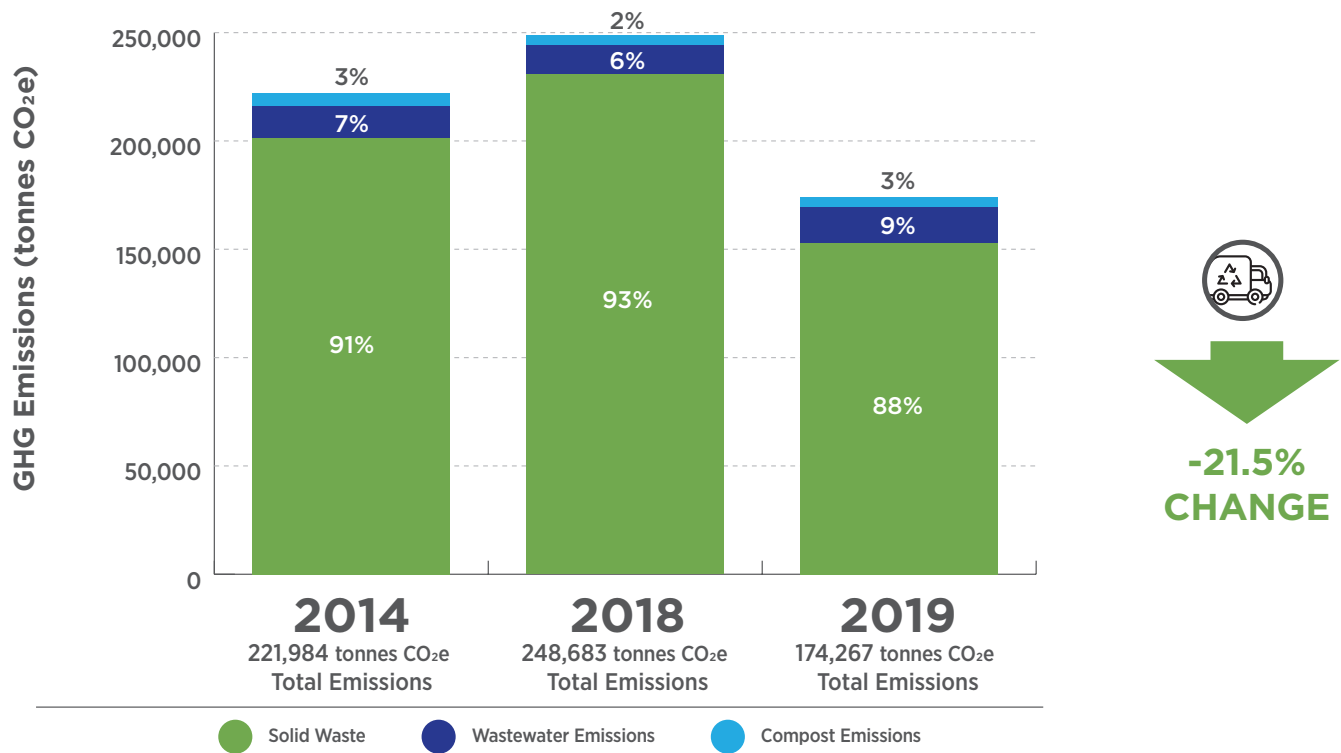
	2014	2018	2019
On-road	1,049,973	1,095,750	1,094,534
Aviation	135,073	168,845	161,720
Railway	8,953	10,608	11,819
Waterborne	15	14	12
Total Emissions (tonnes CO₂e)	1,194,014	1,275,217	1,268,085

1.1.3 Waste

The Waste sector includes emissions resulting from how we manage the various types of waste we generate in the community. This sector includes emissions associated with solid waste disposal (landfills), biological treatment of waste (compost depots), and wastewater treatment.

Emissions in the Waste sector decreased by 21% from 2014 to 2019. The decrease was primarily due to more accurate reporting of emissions from regional landfills servicing the city of Saskatoon, although gradual increases to the City’s waste diversion rate (i.e., increase in materials diverted from landfilling) and continuous improvements in the capture of landfill gas at the City’s landfill also contributed to the overall decrease in emissions in this sector.

Figure 6. GHG emission breakdown for the Community Waste sector



	2014	2018	2019
Solid Waste	201,357	230,671	152,976
Wastewater Emissions	14,495	13,734	16,264
Compost Emissions	6,132	4,278	5,027
Total Emissions (tonnes CO₂e)	221,984	248,683	174,267

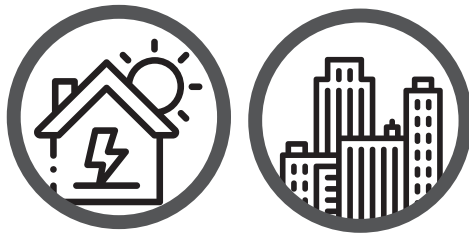
1.1.4 Industrial Processing and Product Use (IPPU)

The IPPU sector includes emissions from a wide variety of non-energy related industrial activities and product uses. Emissions associated with this sector are challenging to estimate and rely on the availability of factory-specific production data. Industrial processors that emit 10,000 tonnes or more of carbon dioxide equivalents (CO₂e) annually are required to report their emissions to Environment and Climate Change Canada's Greenhouse Gas Reporting Program. The contribution of emissions from this sector to the Community total is expected to increase as reporting compliance improves.

1.1.5 Agriculture, Forestry and Other Land Uses (AFOLU)

The AFOLU sector includes emissions from a variety of pathways associated with how we use our land. Emissions from this sector are amongst the most complex categories for GHG accounting. The Community inventory currently includes AFOLU emissions associated with livestock management at the Saskatoon Zoo and the University of Saskatchewan.





1.2 Buildings and Energy Efficiency

Buildings account for approximately 2.25 million tonnes of carbon dioxide equivalents (CO₂e) or 60% of the community's GHG emissions. The Buildings and Energy Efficiency category of the *LEC Plan* includes 16 actions, that together represent 16% of the total emissions reductions identified in the plan.

In the residential sector, over half of Saskatoon's homes were built before 1980, which results in highly inefficient buildings which can be costly to operate. 24% of Saskatoon's GHG emissions come from single family homes. Approximately 16% of the households in Saskatoon suffer from energy poverty, which is when a household spends more than 6% of their net income on energy bills.

Some of the actions listed in the Buildings and Energy Efficiency category include increasing electrification of our buildings such as switching from natural gas heat to ground or air source heat pumps. This switch requires that buildings are more energy efficient and that our electricity energy mix is cleaner. The City is prioritizing actions that will incentivize the community to invest in energy efficiency and will also continue to encourage renewable power generation within the municipality and in the community. SaskPower's targets include 50% renewable energy generation by 2030 and transitioning off coal by 2050.

Benefits of energy efficiencies in buildings include:

- Greater comfort for occupants
- Operational efficiencies for property owners
- Local economic benefits to the construction and renovation sector
- Healthier indoor environments
- Lower incidences of energy poverty
- Increased resiliency to climate change and extreme weather events
- Reduced GHG emissions

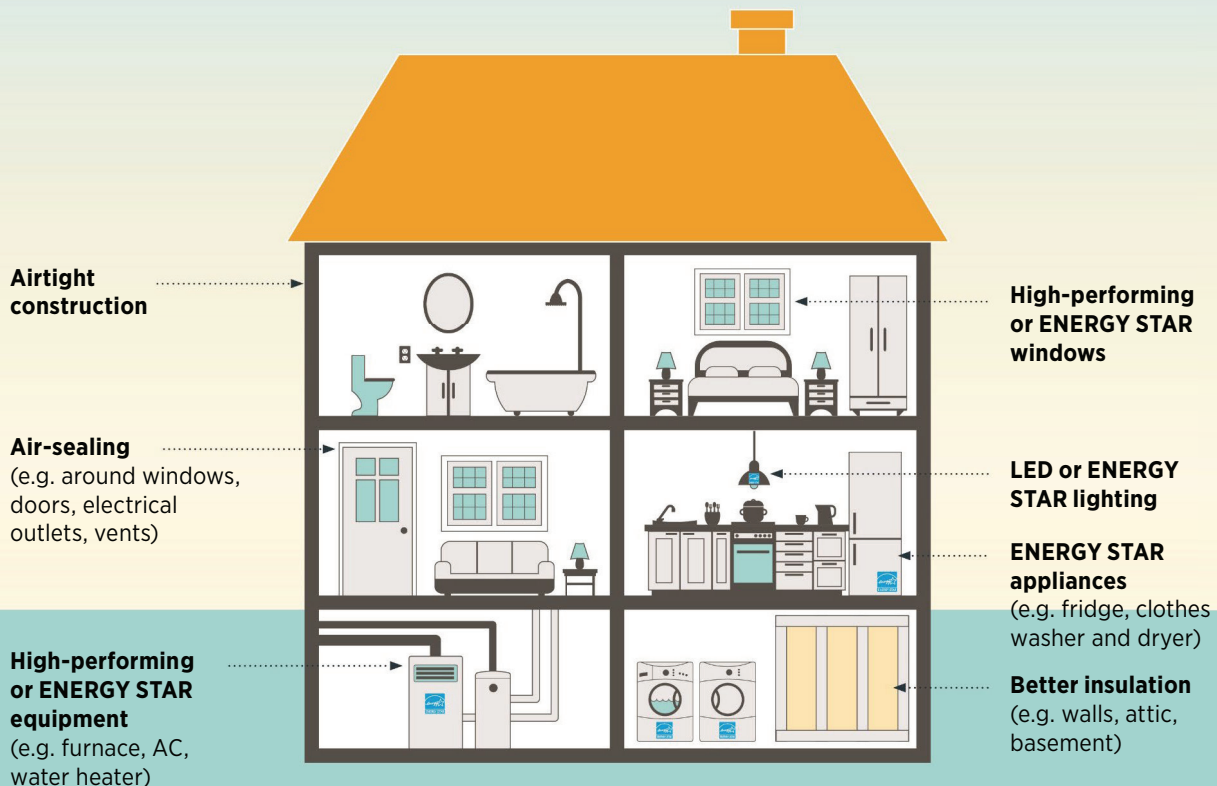


HIGHLIGHTS

- In 2021, City Council approved the implementation of the Home Energy Loan Program (HELP), that will provide loans of up to \$60,000 to residents for energy efficiency and energy generation projects. The program is aimed to launch by fall of 2021, targeting 100 homes in the first two years.
- Saskatoon Land is offering the sale of 12 reserved lots within the Aspen Ridge Phase 4 development area (or alternative approved lot) to eligible contractors interested in committing to and participating in the Net Zero Energy Demonstration Project. Agreements for sale are currently being structured and executed on 6 lots – 5 within the Aspen Ridge neighbourhood, and 1 within the Evergreen neighbourhood.
- A partnership between the City and SaskPower is providing funding to income-qualified households to save energy and water. The Energy Assistance Program¹ launched in late-2020 and builds on SaskPower's 2019 pilot program to address energy poverty and barriers in investing in efficiency upgrades to homes. Funding for the program is provided by the City, SaskPower, and the Government of Canada's Low Carbon Economy Fund.

A house that uses energy more efficiently is a happy home.

What makes a home energy-efficient?



¹ <https://www.saskpower.com/Efficiency-Programs-and-Tips/Saving-Power-at-Home/Saving-Tips-and-Programs/Energy-Assistance-Program>

1.2.1 Going Net Zero with Energy Efficient New Homes

Housing starts in Saskatchewan increased by 38% over 2019², the majority of which would have been built, at a minimum, to the 2015 National Energy Code for Buildings (NECB 2015). Since building homes to higher energy standards is more easily achieved than retrofitting older homes, the *LEC Plan* recommends that Saskatoon implement a municipal step code that targets net zero by 2036 for new construction. However, in 2019, the building industry and other stakeholders suggested the City should not be getting ahead of the National Building Code. The onset of COVID-19 resulted in a delay in the printing of the 2020 National Building Code and created uncertainty within segments of the building sector. An updated building code is expected in 2021 with adoption by the Province following in 2022.

As a result, the City has not made progress on Actions 6 and 7 that involve development of a municipal step code, or the components of Actions 12 or 13 that require or mandate improvements. Further engagement, training, and incentives to encourage builders to build above minimum standards will be important first steps; encouraging examples include Saskatoon Land's Net Zero Energy Parade of Homes³ and the Canadian Home Builders Association Net Zero Home Labelling Program.⁴

Instead, the City has focused on incentivizing and enabling energy efficiencies and renewable energy generation in the residential sector, which is represented in the development of the Home Energy Loan Program (HELP) and is important to meeting Action 10. The program will provide low-interest loans of \$1,000 to \$60,000 to residential homeowners for energy efficiency and energy generation projects, and is targeting up to 100 households in the first two years with the potential of reaching 600 households with additional funding. At the point where revenue equals cost (355 participants per year), GHG emission reductions are estimated at 4,500 tonnes CO_{2e} per year. HELP is expected to be implemented in 2021 and further funding will be requested (depending on its performance) in 2026. Actions 12 and 13 will begin to be met through a partnership with SaskPower to provide the Energy Assistance Program which encourages energy efficient upgrades and behaviour changes to income-qualified households. Additional work is needed on all of these actions, some of which will be accomplished through energy efficiency education planned over the next 2 years and through the water conservation strategy.

Appendix A has a full list of business cases being prepared by Administration that outline funding requirements for meeting the *LEC Plan* milestone targets. Business cases related to Buildings and Energy Efficiency in the residential sector include:

- Energy Assistance Program – extending the partnership with SaskPower for 2022 and 2023
- Residential Energy Efficiency Incentives – feasibility study, program development, and pilot program that include education and rebates for energy audits and solar photovoltaics
- Water Conservation Programs

² <https://dashboard.saskatchewan.ca/business-economy/housing-construction/housing-starts>

³ <https://saskatoonhomebuilders.com/net-zero-energy-demonstration-project/>

⁴ https://www.chba.ca/CHBA/HousingCanada/Net_Zero_Energy_Program/CHBA/Housing_in_Canada/Net_Zero_Energy_Program/NZE_Program_Landing_Page.aspx

Table 5. Going Net Zero with Energy Efficient New Homes and Retrofits: Actions

Action	Action Phase	Target Date	Progress
GOING NET ZERO WITH ENERGY EFFICIENT NEW HOMES			
Action 6: Create an electric and thermal energy consumption cap for new home construction by utilizing a municipal step code.			●●●●
Milestone Target: Improve energy use intensity (EUI) and thermal energy demand intensity (TEDI) for new residential buildings, targeting net-zero ready by 2036. Emission Reductions by 2050 = 1,130,000 tonnes CO ₂ e			
6.1 Complete research and engagement for step code design. Develop step code in consultation with stakeholders.	2	2021	●●●●
6.2 Step 1 of step code comes into effect and is implemented in new builds.	2	2025	●●●●
6.3 Step 2 of step code comes into effect and is implemented in new builds.	2	2030	●●●●
6.4 Step 3 of step code comes into effect and is implemented in new builds.	2	2035	●●●●
6.5 Step 4 of step code comes into effect and is implemented in new builds.	2	2036+	●●●●
Action 7: Require new homes to include roof solar Photovoltaic (PV) installations in the final year of a municipal step code.			●●●●
Milestone Target: All new homes constructed in 2036 onwards will maximize their roof solar PV coverage, with electricity generation tied into the electricity grid. Emission Reductions by 2050 = 5,049,000 tonnes CO ₂ e			
7.1 Corresponds with next steps for Action #6, final step of municipal step code.	4	2036+	●●●●
7.2 New homes require solar PV.	4	2036+	●●●●
Action 10: Incentivize and later mandate homeowners to perform deep energy retrofits.			●●●●
Milestone Target: Through envelope and mechanical system retrofits and renovations, 50% of existing buildings are 50% more energy efficient by 2030, 90% by 2050. Emission Reductions by 2050 = 2,013,000 tonnes CO ₂ e			
10.1 Research, engagement, and development of a Property Assessed Clean Energy (PACE) program to be utilized by homeowners for energy efficiency and Solar photovoltaic retrofits; request funding and approval from Council on program implementation.	2	2021	●●●●
10.2 Launch and operate PACE program.	2	2022+	●●●●
Action 12: Require energy efficiency improvements in residential and ICI building lighting systems.			●●●●
Milestone Target: 90% of residential and commercial buildings are retrofitted for 5% increased lighting efficiency in addition to regular market-induced lighting efficiency improvements by 2030, 100% by 2050. All existing luminaires are replaced or updated with energy efficient LED bulbs and systems. Emission Reductions by 2050 = 147,000 tonnes CO ₂ e			
12.1 Program/bylaw development.	3	2025	●●●●
12.2 Program/bylaw comes into effect.	3	2030	●●●●
Action 13: Incentivize and later mandate homeowners to upgrade household appliances to energy and water efficient models.			●●●●
Milestone Target: Upgraded appliances are 30% more energy efficient and current water heaters are replaced with electric on-demand models in 50% of residential buildings by 2050. Emission Reductions by 2050 = 582,000 tonnes CO ₂ e			
13.1 Detailed design of program to incentivize appliance upgrades.	4	2040	●●●●
Action 14: Retrofit home heating and cooling systems with ground-source or air source heat pumps.			●●●●
Milestone Target: 30% of residential buildings are retrofitted with heat pumps by 2030, 80% by 2050. Emission Reductions: by 2050 = 2, 120,000 tonnes CO ₂ e			
14.1 Feasibility study to determine scope of program & assess appetite for program.	3	2025	●●●●

Not Started ○○○○ Initiated ●○○○ Moderate Progress ●●○○ Significant Progress ●●●○ Complete ●●●●

1.2.2 Getting to Net Zero through Energy Efficiency in Industrial, Commercial, and Institutional Buildings

The *LEC Plan* recommends implementing a municipal step code for Industrial, Commercial, and Institutional (ICI) buildings that targets net zero by 2036; for similar reasons outlined in section 1.2.1, no progress has been made on research or development of a step code led by the municipality.

SaskPower currently offers free walk-through energy assessments and energy management training to eligible customers, to help them find ways to reduce energy consumption (power and natural gas) and reduce operational costs.⁵

The City prioritized a residential energy loan program over ICI, as such, no actions in this section have been progressed. Administration is developing a business case for the development of a commercial incentive program such as an energy loan program and/or other incentives as well as education programs. Business cases being developed to further work related to ICI energy efficiency include:

- Green Business Network YXE – develop and implement education programs, benchmarking, and tools (e.g. Edmonton’s Corporate Climate Leaders Program)
- ICI Energy Efficiency and Renewable Energy – feasibility study and program development for financial and non-financial incentives for multi-unit residential and ICI building energy retrofits

Table 6. Getting to Net Zero through Energy Efficiency in ICI Buildings: Actions

Action	Action Phase	Target Date	Progress
GETTING TO NET ZERO THROUGH ENERGY EFFICIENCY IN NEW ICI BUILDINGS			
Action 8: Create an electric and thermal energy consumption cap for new Industrial, Commercial and Institutional (ICI) construction by utilizing a municipal step code.			●●●●
Milestone Target: Improve energy use intensity (EUI) and thermal energy demand intensity (TEDI) for new ICI buildings, targeting net-zero ready by 2036. Emission Reductions by 2050 = 6,660,000 tonnes CO ₂ e			
8.1 Complete research and engagement for step code design. Develop step code in consultation with stakeholders.	2	2021	●●●●
8.2 Step 1 of step code comes into effect and is implemented in new builds.	2	2025	●●●●
8.3 Step 2 of step code comes into effect and is implemented in new builds.	2	2030	●●●●
8.4 Step 3 of step code comes into effect and is implemented in new builds.	2	2035	●●●●
8.5 Step 4 of step code comes into effect and is implemented in new builds.	2	2036+	●●●●
Action 9: Require new ICI buildings to include roof solar Photovoltaic (PV) installations in the final year of a municipal step code.			●●●●
Milestone Target: All new ICI buildings constructed in 2036 onwards will maximize their roof solar PV coverage, with electricity generation tied into the electricity grid. Emission Reductions by 2050 = 28,000 tonnes CO ₂ e			
9.1 Corresponds with next steps for Action #6, final step of municipal step code.	4	2036+	●●●●
9.2 New ICI buildings require solar PV.	4	2036+	●●●●
Action 11: Incentivize and later mandate ICI owners and operators to perform deep energy retrofits.			●●●●
Milestone Target: Through envelope and mechanical system retrofits and renovations, 50% of existing buildings are 50% more energy efficient by 2030, 90% by 2050. Emission Reductions by 2050 = 2,013,000 tonnes CO ₂ e			
11.1 Research, engagement, and development of a PACE program to be utilized by the Industrial, Commercial, and Institutional (ICI) sector for energy efficiency and Solar photovoltaic retrofits; request funding and approval from Council on program implementation.	2	2021	●●●●
11.2 Launch and operate PACE program.	2	2022+	●●●●

⁵ <https://www.saskpower.com/Efficiency-Programs-and-Tips/Saving-Power-At-Work/Analyze-Your-Use/Walk-through-Energy-Assessment>

Not Started ○○○○ Initiated ●○○○ Moderate Progress ●●○○ Significant Progress ●●●○ Complete ●●●●

Action	Action Phase	Target Date	Progress
Action 15: Retrofit ICI heating and cooling systems with ground-source or air source heat pumps.			●●●●
Milestone Target: 30% of commercial building floorspace is retrofit with heat pumps by 2030, 80% by 2050. Emission Reductions by 2050 = 658,000 tonnes CO ₂ e			
15.1 Feasibility study to determine scope of program & assess appetite for program.	3	2025	●●●●
Action 16: Increase the efficiency of industrial processes.			●●●●
Milestone Target: Update and retrofit industrial machinery and processes to more efficient models and switch to renewable energy sources to achieve 50% energy savings by 2050. Emission Reductions by 2050 = 232,000 tonnes CO ₂ e			
16.1 Detailed design of program engagement to determine scope of programming.	4	2040	●●●●

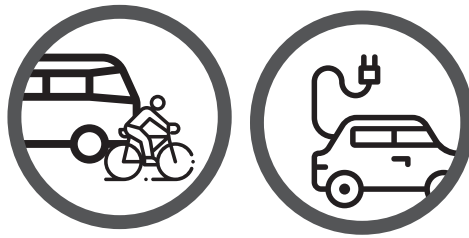
Not Started ○○○○

Initiated ●○○○

Moderate Progress ●●○○

Significant Progress ●●●○

Complete ●●●●



1.3 Transportation

Transportation accounts for approximately 1.27 million tonnes CO₂e or 34% of the community's GHG emissions. The Transportation category of the *LEC Plan* includes 7 actions that together represent 8% of the total emissions reductions identified in the plan.

A shift toward active modes of transportation is necessary to achieve the transportation-related targets set out in the *LEC Plan*. The two key City documents that are guiding this transition are the City's *Active Transportation Plan* and the *Saskatoon Transportation Master Plan*. The *Active Transportation Plan* was approved by City Council in June 2016, and guides improvements specifically to the accessibility, comfort, convenience, and safety of active transportation initiatives. The *Saskatoon Transportation Master Plan* is the overarching document that unites all existing City transportation-related policies and plans – including the *Official Community Plan*, *Growth Plan*, and *Strategic Plan 2018-2021* – and guides the implementation of all transportation-related projects and programs for the City.

The electrification of vehicles is also a key component to reducing overall emissions within the Transportation category and achieving our GHG reduction targets.

HIGHLIGHTS

- **The Bus Rapid Transit project is on-track, with public engagement on BRT platforms scheduled for 2021 and construction scheduled for 2022.**
- **There are currently 38 EV charging stations (level 2 and above) distributed across 23 locations in Saskatoon. Visit www.plugshare.com for more info.**
- **Bylaw No. 9075, The Bicycle Bylaw was updated in 2020, bringing Saskatoon's cycling rules and regulations in-line with national best practices. The update includes allowing children 13 years and under to ride legally on sidewalks.**
- **Other note-worthy initiatives in 2020 include the completion of functional plans for 7.5 km of new all-ages-and-abilities cycling facilities, the development of new sidewalk prioritization criteria for missing sidewalk locations, the completion of functional plans for 30 km of infill sidewalk locations, \$3 million in additional funding for the construction of sidewalks in existing neighbourhoods, and updates to the pedestrian ramp design standards which includes texturing for low-vision users.**

1.3.1 Expand Transit

Final routing for the City's Bus Rapid Transit (BRT) system was approved by City Council in April 2019 and is a cornerstone of the City's Plan for Growth. The success of the BRT project is supported by the City's Corridor Planning Program, which will establish plans along the BRT routes that guide future development. Sub-actions 20.1 and 20.2 are on-track to be completed on schedule.

Routing and frequency of public transit are also guided by Saskatoon Transit's Service Standards, a comprehensive document containing all levels of public transit-related service. The document provides a consistent and effective approach for continuous improvement, ensures service is introduced in a timely and equitable manner, and fulfills the guidance for transit contained in the revised *Official Community Plan (OCP)*. Service Standards are influenced by population growth, neighbourhood development, and transit ridership statistics. In Saskatoon, Service Standards are used in conjunction with the OCP, Strategic Plan, and sector and concept plans to ensure transit service in new neighbourhoods follows appropriate street routing, supports the neighbourhood, and connects with existing service which now includes High Frequency Corridors. Service Standards also consider the future BRT network and provide adequate space for stops, shelters, and stations to meet accessibility standards.

The Statistics Canada's *Census of Population, 2016* shows that approximately 4% of Saskatoon commuters choose public transit to get around.⁶

6 <https://www12.statcan.gc.ca/census-recensement/2016/as-sa/98-200-x/2016029/98-200-x2016029-eng.pdf>

Table 7. Expand Transit: Actions

Action	Action Phase	Target Date	Progress
EXPAND TRANSIT			
Action 20: Increase transit routes and frequency through future updates to the Transit Plan.			●○○○
Milestone Target: Shift 5% of personal vehicle trips to transit by 2030, 10% by 2050. The existing goal in Bus Rapid Transit Planning is an 8% mode shift by 2043. Emission Reductions by 2050 = 942,000 tonnes CO ₂ e			
20.1 Federal Funding Received for BRT system construction.	1	2022	●●○○
20.2 Construction of BRT network and further engagement.	1	2025	●○○○

1.3.2 Electrify Commercial and Personal Vehicles

The successful uptake of electric vehicles (EVs) in the community will require a combination of accessibility and price. While adoption of EVs has started with personal vehicles, it is expected that the commercial EV market will outpace personal EVs once commercial EVs are more widely available.

Common barriers to the uptake of EVs include lack of EV options in the marketplace, perception that EVs are more expensive than conventional vehicles due to the higher purchase price, lack of access to charging infrastructure that is convenient and adequate to meet community demand, and lack of awareness and/or understanding regarding total cost of ownership, vehicle operating range, performance in cold climates, and incentives either for the upfront cost of the vehicle or for installation of charging stations. The phasing of EVs is expected to start with personal vehicles, followed by the availability of larger vehicles and equipment.

The City is completing an EV Charging Station Pilot to install at least 4 public-facing chargers by the end of 2021, more if external funding is received. However, to achieve further progress on Actions 21 and 22, a business case is being developed for a Community EV Adoption Strategy which will help to guide the City in addressing barriers and encouraging wide-spread adoption.

Table 8. Electrify Commercial and Personal Vehicles: Actions

Action	Action Phase	Target Date	Progress
ELECTRIFY COMMERCIAL AND PERSONAL VEHICLES			
Action 21: Electrify personal vehicles through incentive programs, education, and automotive dealer partnerships.			●●●●
Milestone Target: 30% of all new vehicle sales are electric by 2030, 90% by 2050. Emission Reductions by 2050 = 2,756,000 tonnes CO ₂ e			
21.1 Develop a detailed strategy to increase private EV sales - this will include an EV charging network and education or incentive programs. Request funding and approval for programs and EV chargers.	2	2021	●●●●
21.2 Procure and install EV charging infrastructure network, implement education and communication campaigns.	2	2030	●●●●
Action 22: Electrify commercial vehicles through incentive programs, education, and automotive dealer partnerships.			●●●●
Milestone Target: 50% of all new heavy trucks are zero emissions by 2030, 100% by 2040. Emission Reductions by 2050 = 6,860,000 tonnes CO ₂ e			
22.1 Detailed strategy development including engagement and education campaign, begin policy or bylaw development.	3	2025	●●●●
22.2 Develop EV charging infrastructure network, policy or bylaw, continued education, and communication campaigns.	3	2030	●●●●

1.3.3 Improve Cycling and Walking Infrastructure

The City is committed to providing mobility options for all users, no matter their age or ability, by improving and expanding our walking and cycling infrastructure. While progress toward funding and implementing active transportation has been made in the last three years, much work remains to be completed.

Accomplishments in 2020 include:

- Major revisions to Bylaw No. 9075, The Bicycle Bylaw, to align cycling regulations with current best practices
- Updates to Bylaw No. 7200, The Traffic Bylaw, to include a provision for motorists to provide a minimum 1.0 m buffer when passing people cycling on streets with only one driving lane in the direction of travel
- The completion of functional plans for approximately 7.5 kilometres of new all-ages-and-abilities cycling facilities
- The development of a new sidewalk prioritization criteria to prioritize missing sidewalk locations
- The completion of functional plans for approximately 30 kilometres of infill sidewalk locations
- \$3 million dollars in additional funding for the construction of sidewalks in existing neighborhoods
- Updates to the pedestrian ramp design standards which includes texturing for low vision users
- The delivery of an educational campaign to encourage safe interactions among all road users
- The introduction of a new active transportation grant to support community initiatives that promote active modes of transportation

Despite the many documented benefits associated with access to walking and cycling infrastructure, there can be significant barriers to infrastructure projects due to reasons ranging from physical constraints (such as limited space in the right-of-way) that require trade-offs to lack

Not Started ○○○○ Initiated ●○○○ Moderate Progress ●●○○ Significant Progress ●●●○ Complete ●●●●

of support from residents. A common barrier is Not in My Backyard (NIMBY), where residents may be supportive of a project's goals in principle, but not in the proposed location (e.g., cycling retrofit projects). Having sufficient funding available is also required to implement walking and cycling improvements.

Statistics Canada's *Census of Population, 2021* report will provide an indication of progress toward the 20% mode shift target.

Table 9. *Improve Cycling and Walking Infrastructure: Actions*

Action	Action Phase	Target Date	Progress
IMPROVE CYCLING AND WALKING INFRASTRUCTURE			
Action 23: Fund and implement improved cycling and walking infrastructure to encourage active transportation.			●○○○
Milestone Target: Achieve a 20% mode shift to active transportation by 2030, 30% by 2050. The existing goal in the <i>Active Transportation Plan</i> is 24% mode shift by 2045. Emission Reductions by 2050 = 287,000 tonnes CO ₂ e			
23.1.1 Downtown AAA cycling network implementation & construction, city-wide cycling network projects implementation and construction, cycling network improvements (enhanced crossings, pavement parking and signage improvements).	1	2030	●○○○
23.1.2 Sidewalk program (sidewalk infill projects, curb ramp program).			
23.1.3 Education and promotion program implementation.			
23.1.4 Bylaw and policy project implementation.			

1.3.4 Vehicle Pollution Pricing Program

Vehicle pollution pricing programs are intended to provide a disincentive to vehicle use in high-traffic areas that are easily accessed by other modes of transportation including public transit. Goals of these programs include alleviating traffic pressures and encouraging active modes of transportation. The development of a vehicle pollution pricing program is complex and will require the collaboration of multiple stakeholders. No progress has been made on this action.

Table 10. *Vehicle Pollution Pricing Program: Actions*

Action	Action Phase	Target Date	Progress
VEHICLE POLLUTION PRICING PROGRAM			
Action 19: Implement a vehicle pollution pricing program in high traffic areas.			○○○○
Milestone Target: Achieve a 5% emissions reduction from decreased high traffic area vehicle travel through a pollution charge starting in 2026. Emission Reductions by 2050 = 698,000 tonnes CO ₂ e			
19.1 Begin public engagement and policy or bylaw development, draft and receive approval on new policy. Develop education and enforcement plan and request funding.	3	2025	○○○○
19.2 Policy or bylaw enacted with associated education and enforcement.	3	2026	○○○○

Not Started ○○○○ Initiated ●○○○ Moderate Progress ●●○○ Significant Progress ●●●○ Complete ●●●●



1.4 Land Use

The Agriculture, Forestry & Other Land Use sector of the GHG emissions inventory accounts for less than 1% of the community's GHG emissions. However, this sector is crucial to the community's emissions total going forward, as the way we design, build, and move around our neighbourhoods have direct impacts on energy use and GHG emissions. The Land Use category of the *LEC Plan* includes 2 actions, that together represent 2% of the total emissions reductions identified in the plan. The planning and implementation of both actions are longer-term and fall outside of the current budget cycle.

The City has set a goal of achieving 50% infill growth⁷, which will require the coordinated planning of land use and transportation. The City's *Official Community Plan (OCP)* and *Saskatoon's Transportation Master Plan (STMP)* are important components of growth and are symbiotic in nature. The STMP includes direction to meet the City's transportation demands; the OCP includes direction on creating and enhancing communities with a variety of housing choices, a high-quality public realm, and overall vibrancy. The development of infill residential, commercial, and employment opportunities is encouraged to reduce the need for new transportation infrastructure and to support all modes of transportation. *The Corridor Transformation Plan*⁸, endorsed by City Council in January 2020, outlines principles and guidelines that support the Growth Plan's goals in the corridors to be developed by the *Corridor Planning Program*.

HIGHLIGHT

- **In June 2020, Bylaw No. 9700, The Official Community Plan Bylaw, 2020, was adopted by City Council. This was followed by ministerial approval from the Province of Saskatchewan in August, resulting in a new *Official Community Plan* for Saskatoon.**

⁷ <https://www.saskatoon.ca/sites/default/files/documents/city-clerk/bylaws/9700.pdf>

⁸ https://www.saskatoon.ca/sites/default/files/documents/community-services/planning-development/integrated-growth-plan/growing-fwd/append_1_-_corridor_transformation_plan.pdf

Not Started ○○○○

Initiated ●○○○

Moderate Progress ●●○○

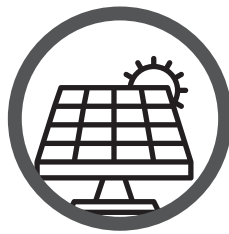
Significant Progress ●●●○

Complete ●●●●

Table 11. Land Use: Actions

Action	Action Phase	Target Date	Progress
LAND USE			
Action 27: Build complete, compact communities through infill development, mixed-use buildings, and compact housing.			●○○○
Milestone Target: Achieve residential energy use reductions with energy efficient, mixed-use multi-family buildings in complete, compact neighbourhoods to achieve 5% less floor area than the current average by 2035 and 25% by 2050. Emission Reductions by 2050 = 3,353,000 tonnes CO ₂ e			
27.1 Official Community Plan update presented to City Council including variety of policies and plans related to infill development, corridor growth and long-term planning.	4	2020	●●●●
27.2 Corridor Plan implementation - segment-specific corridor plans targeting land use designation, rezoning and public realm design as well as necessary transportation and infrastructure plans and improvements to support growth.	4	2020 -ongoing	●○○○
27.3 Policy and programming pertaining to Growth Plan implemented on an ongoing basis.	4	2045	●○○○
Action 28: Focus development on densification in previously developed areas, increasing the number of multi-family buildings.			●○○○
Milestone Target: Increase the housing stock share of multi-family homes by 25% by 2050 for new builds only. Emission Reductions by 2050 = emissions included in Action #27			
Next steps for this action coincide with Action #27			

Not Started ○○○○ Initiated ●○○○ Moderate Progress ●●○○ Significant Progress ●●●○ Complete ●●●●



1.5 Energy

Saskatchewan has one of the highest emission intensities of grid-supplied electricity in the nation, making energy efficiency and the switch to renewable energy generation key factors in reducing the community's emissions. The Energy Generation category of the *LEC Plan* includes 5 actions, that together represent 73% of the total emissions reductions identified in the plan.

SaskPower is targeting 50% renewable energy generation by 2030 and a transition off coal by 2050. However, even with the projected phase-out of coal-fired electricity generation, the province's electrical grid cannot be relied on for reaching the City's emission reduction target. The ability to harness and the commitment to embrace sources of renewable energy are critical to achieving the actions in this category.

HIGHLIGHTS

- **The City's landfill gas collection facility recently added 12 vertical wells to the existing 29 wells. The additional wells expand the landfill gas wellfield contribution to 41 wells, which increases generator uptime and the overall capacity of the system to capture landfill gas.**
- **Saskatoon Light & Power (SL&P) recently completed a study to assess the feasibility of installing a utility-scale solar PV system on municipal land known as Parcel M. The completion of the Parcel M Project is an important first step to expanding the City's generation of renewable energy. Community engagement on the proposed project is expected to start in Q2 of 2021, followed by an update report to City Council in Q3 2021.**
- **CNH Industrial partnered with the SES Solar Co-operative to install the largest urban solar installation in the province. The 1,000 solar PV installation reduces CNH Industrial's carbon footprint by approximately 289 tonnes CO₂e per year. The project is the latest addition to SES Solar Co-operative's list of successful installations including: The Two Twenty Co-working Space, Haskamp Street Site, Radiance Cohousing for Renewable Rides, Wolf Willow Cohousing, Ness Creek Festival Site, and the Solar Power Demonstration Site adjacent to the City's landfill.**

1.5.1 Landfill Gas Expansion

The landfill gas collection system at the Saskatoon Regional Waste Management Centre (Saskatoon Landfill) is continuously being monitored to optimize the overall performance of the facility, and ultimately the overall reduction of greenhouse gas emissions. Recent upgrades to the system include the construction of 12 additional vertical wells that will increase the overall uptime of the generator. Future expansion plans are required to complete the perimeter header and connect the existing horizontal collectors to the landfill gas collection facility.

In 2020, the Landfill Gas Collection and Power Generation Facility extracted a total of 200,000,000 standard cubic feet of landfill gas. Of this total, 95% was utilized for electricity generation and 5% was destroyed within the facility's enclosed flare. Ideally all gas captured by the system would be utilized for electricity generation. The non-utilized portion resulted from a combination of things including poor gas quality, generator maintenance, and grid interconnection limitations. The City will need to identify opportunities to utilize the gas differently in order to increase the proportion of gas utilized (i.e., not flared). Approximately 10,600 MWh of electricity was produced in 2020 as a result of power generation from landfill gas.

Table 12. Landfill Gas Expansion: Actions

Action	Action Phase	Target Date	Progress
LANDFILL GAS EXPANSION			
Action 31: Increase Landfill Gas Capture from the Saskatoon Landfill.			●○○○
Milestone Target: Increase methane capture and destruction from the landfill to 50%, by 2026. Emission Reductions by 2050 = 1,891,000 tonnes CO _{2e}			
31.1 Feasibility study and detailed engineering design for additional vertical wells and completion of the perimeter Landfill Gas (LFG) header for tying into the existing horizontal loop.	2	2020	●○○○
31.2 Construction of additional vertical wells and tie into the collection facility.	2	2022	●●●○
31.3 Construction of the perimeter LFG header and tie into the existing horizontal loop on the active cell.	2	2026	○○○○

1.5.2 Solar Energy: Residential, Industrial/Commercial/Institutional, and Utility Scale

Saskatoon receives, on average, over 2,300 hours of sunshine annually which presents a huge opportunity for solar power generation. Many households, businesses, and cooperatives have recognized this opportunity and installed solar photovoltaic (PV) systems on buildings and parcels of land.

In 2020, the City funded a feasibility study for the Parcel M Utility-Scale Solar Project, an important first step for completing Action 30. Results of the feasibility study and community engagement will be reported to City Council in 2021. A virtual net metering policy requires further review and will be considered through a renewable energy strategy.

Actions 32 and 33 are both enabled by SaskPower and SL&P allowing property owners to generate power through net metering and small power producer programs. In 2019, SaskPower reduced the rate they credit power in their net metering program from 14 cents per kWh to 7.5 cents per kWh, or roughly half the price a customer pays⁹. At the same time, the rebate of 20% for the cost of the solar system was also removed. SL&P has maintained their net metering rate at 1:1 (i.e., residents are credited at the same rate they pay).

Solar installs saw a slow down because of these changes; however, there was still approximately 785 kW of solar generation capacity added within the city in 2020, bringing the total generating capacity to 3,360 kW. Both utilities cap the small power producer programs at 100kW, which can be a limitation for larger properties or buildings wanting to generate more power without looking at larger power purchase agreements or battery storage. Further exploration of the costs and benefits of net metering and a comparison with other renewable energy options and incentives will be included in a renewable energy strategy, which is planned for delivery to Committee in Q4 2021.

The Home Energy Loan Program is targeting 100 households in the first two years and is an important first step to enable Action 32. The program will promote local employment and business opportunities in the construction and renewable energy sectors, increase property values, lower operating costs, improve housing resilience to extreme weather, and reduce overall GHG emissions.

Additional understanding of the feasibility of utility-scale PV and ability to meet the targets for utility solar generation outlined in Action 34 are needed and a business case for this work is being developed. SaskPower is in the process of reviewing and implementing a new Power Class Capacity Reservation Service (CRS) Rate Structure¹⁰ to accommodate customers who want to self-generate most of their required power on site. This could affect the rate that SL&P pays if we meet the *LEC Plan's* renewable energy generation targets for utility-scale power.

⁹ <https://www.saskpower.com/Our-Power-Future/Powering-2030/Generating-Power-as-an-Individual/Using-the-Power-You-Make/Net-Metering>

¹⁰ <https://www.saskpower.com/Accounts/Power-Rates/2019-20-Capacity-Reservation-Service-Rate-Review>

Not Started ○○○○ Initiated ●○○○ Moderate Progress ●●○○ Significant Progress ●●●○ Complete ●●●●

A renewable energy strategy will be completed in 2021 to identify and prioritize renewable energy opportunities for the community and corporation in order to implement actions from the *LEC Plan*. Business cases being developed to further work related to community solar energy include:

- Utility Scale Solar Program – feasibility, planning, and prioritization
- Solar Administrative Review – identify barriers in the administrative and permitting process for solar PV installations in the commercial and residential sectors
- Residential Energy Efficiency Incentives – feasibility study, program development, and pilot program that includes education and rebates for energy audits and solar photovoltaics

Table 13. Solar Energy: Actions

Action	Action Phase	Target Date	Progress
SOLAR ENERGY: RESIDENTIAL, INDUSTRIAL/COMMERCIAL/INSTITUTIONAL, AND UTILITY SCALE			
Action 30: Install solar PV systems on municipal lands (Parcel M Project).			●○○○
Milestone Target: Install a 1MW capacity solar system on Parcel M or similar land area by 2022. Emission Reductions by 2050 = emissions included in Action #34			
30.1 Virtual Net Metering Policy presented to Council for approval.	2	2019	●○○○
30.2 Community engagement, feasibility, and detailed design for project.	2	2021	●○○○
30.3 Build-out of site, pending study results.	2	2022	○○○○
Action 32: Encourage existing residential building owners and mandate new buildings to install solar PV systems.			●○○○
Milestone Target: Install 10 MW of residential solar capacity by 2030, 50 MW by 2050. Emission Reductions by 2050 = 195,000 tonnes CO ₂ e			
32.1 Research, engagement, and development of a PACE program to be utilized by homeowners for energy efficiency and Solar photovoltaic retrofits; request funding and approval from Council on program implementation.	2	2021	●●●○
32.2 Launch and operate PACE program.	2	2022+	●●○○
Action 33: Encourage existing ICI building owners and mandate new buildings to install solar PV systems.			○○○○
Milestone Target: Install 20MW of ICI solar capacity by 2030, 200MW by 2050. Emission Reductions by 2050 = 1,147,000 tonnes CO ₂ e			
33.1 Expand/update PACE program to be used by ICI facilities.	3	2025	○○○○
33.2 PACE available for ICI buildings.	3	2030	○○○○
Action 34: Install new solar PV utility-scale facilities within or adjacent to city boundaries.			○○○○
Milestone Target: Install 20MW of solar capacity by 2030, 300MW by 2050. Emission Reductions: by 2050 = 1,626,000 tonnes CO ₂ e			
34.1 Analyze results of 1MW utility scale solar project completed in year prior.	2	2023	○○○○
34.2 Feasibility study and consultations to determine capacity of land within and adjacent to the city.	2	2024	○○○○
34.3 Begin build-out of further utility scale sites pending study and engagement results.	2	2030	○○○○

Not Started ○○○○ Initiated ●○○○ Moderate Progress ●●○○ Significant Progress ●●●○ Complete ●●●●

1.5.3 Other Energy Systems and Storage

Combined heat and power (CHP), hydropower, and district energy are examples of other types of systems to efficiently produce and/or distribute energy. The CHP project proposed at St. Paul's Hospital (Action 35) was cancelled by the Saskatoon Health Region for risk and reliability reasons; the proposed hydropower project (Action 37) stalled following the pre-feasibility stage due to economic uncertainties of the project; and district energy within the downtown faces barriers relating to privately owned land (Action 36).

Action 38, renewable energy storage, is not currently included in SL&P's strategic plan. The results of the Parcel M Project's feasibility study will provide a clearer picture of the financial and electricity grid impacts for utility-scale solar projects. Preliminary analysis suggests that utility-scale battery storage systems are currently not financially viable and offer few benefits to the project. Improvements in battery storage system technology, reliability, and affordability are anticipated over the coming years and will be reevaluated at the appropriate time. Further study is needed to understand how renewable energy storage might be utilized in our future renewable energy systems.

The City's renewable energy strategy will consider these renewable energy systems and storage opportunities, including incentives to overcome barriers to greater market penetration. The strategy is scheduled to be completed by the end of 2021. Business cases, including a renewable energy storage feasibility study, are being developed to further actions related to other energy systems and storage.

Table 14. Other Energy Systems and Storage: Actions

Action	Action Phase	Target Date	Progress
OTHER ENERGY SYSTEMS AND STORAGE			
Action 35: Install a CHP facility at St. Paul's Hospital.			●●●●
Milestone Target: Install two 540kW CHP units at St. Paul's Hospital. Emission Reductions by 2050 = 40,000 tonnes CO ₂ e			
Project cancelled by Saskatoon Health Region, citing risk and reliability issues. No other Combined Heat and Power opportunities are being considered by the City at this time.			
Action 36: Implement district energy systems in the downtown and north downtown areas.			●●●●
Milestone Target: Create district energy systems to serve the downtown and north downtown areas. Emission Reductions by 2050 = 1,079,000 tonnes CO ₂ e			
36.1 Detailed design completed, review of previous completed feasibility study and included with detailed design plans for North Downtown.	4	2025	●●●●
36.2 Addition/construction of RNG Boiler.	4	2033	●●●●
36.3 Addition/construction of one CHP unit.	4	2041	●●●●
36.4 Addition/construction of second CHP unit.	4	2042	●●●●
Action 37: Construct a hydropower plant at the weir.			●●●●
Milestone Target: Install a 6MW hydropower project at the weir, with an operational efficiency of 55% or greater by 2027. Emission Reductions by 2050 = 218,000 tonnes CO ₂ e			
37.1 Feasibility and environmental impact assessment; obtain Council and other approvals, secure funding.	3	2022	●●●●
37.2 Pending study results, detailed design and construction of the plant.	3	2027	●●●●

Not Started ○○○○

Initiated ●○○○

Moderate Progress ●●○○

Significant Progress ●●●○

Complete ●●●●

Action	Action Phase	Target Date	Progress
Action 38: Install renewable energy storage over time.			●●●●
Milestone Target: 50MW of grid-tied electricity storage is added gradually between 2025 and 2050. Emission Reductions by 2050 = 3,435,000 tonnes CO ₂ e			
38.1 Analysis of technology to date, completion of feasibility study, and phased strategy developed. Funding and approval requested from Council.	2	2024	●●●●
38.2 Procure storage supplier.	2	2025	●●●●
38.3 Phased construction of storage as outlined in strategy.	2	2050	●●●●

1.5.4 Renewable Energy Procurement

The City's target of reducing emissions by 80% by 2050 is impossible without a significant percentage of our electricity generated by renewable energy sources. SaskPower's current energy generating capacity includes 18% hydro, 5% wind, and <1% solar¹¹; their targets include 50% renewable energy generation by 2030 and transitioning off coal by 2050.

No progress has been made on the renewable energy procurement actions.

Table 15. Renewable Energy Procurement: Actions

Action	Action Phase	Target Date	Progress
RENEWABLE ENERGY PROCUREMENT			
Action 39: Procure renewable electricity from third party producers.			●●●●
Milestone Target: Procure electricity from 1600 MW of renewable capacity installed outside of Saskatoon. Emission Reductions by 2050 = 54,119,000 tonnes CO ₂ e			
39.1 Detailed design and feasibility study.	4	2041	●●●●
39.2 Tender and purchase of imported renewable energy.	4	2050	●●●●
Action 40: Procure renewable natural gas from third party producers.			●●●●
Milestone Target: Import RNG to displace 50% of natural gas demand. Emission Reductions by 2050 = 40,607,000 tonnes CO ₂ e			
40.1 Detailed design and feasibility study.	4	2041	●●●●

¹¹ <https://www.saskpower.com/-/media/SaskPower/About-Us/Reports/Report-AnnualReport-2019-20.ashx>



1.6 Water Conservation

Saskatoon residents, businesses, and institutions use about 40 billion litres of water each year – an average of 1,300 litres per second. Treating and pumping that much water requires a lot of energy and that creates a lot of greenhouse gas emissions. Water conservation can help us meet our emission reduction targets. The Water Conservation category of the *LEC Plan* includes 2 actions, that together represent <0.5% of the total emissions reductions identified in the plan.

HIGHLIGHTS

- **The City’s Advanced Metering Infrastructure (AMI) program is scheduled for completion by the end of Q1 2022 and will provide benefits to participating customers and the City.**
- **The City is developing a long-term water conservation strategy that will provide an action plan of water reduction initiatives for indoor and outdoor use in all sectors. The prioritized initiatives will be carried out over the next 30 years, and are aligned with the Low Emissions Community Plan, the Local Actions Plan, and the Water Treatment Long Term Capital Development and Expansion Plan.**

Conserving water has many benefits beyond simply ‘saving’ water. A responsible approach to water use reduces costs and GHG emissions associated with water treatment, storage, and distribution, as well as increases our water and wastewater systems’ resilience to a changing climate by reducing demand and maximizing capacity.

Action 25 has been enabled by the continued deployment and development of AMI, which was activated in 2016. The new meters allow customers to more accurately track their electricity and water usage, as well as provide early detection for electrical connection or water leakage issues. The program provides operational efficiencies to the City, including environmental benefits associated with automated remote meter reading. It also provides benefits associated with the system’s ‘smart grid’ integration, including the ability to identify outages and response times, as well as the improved ability to forecast electrical and water consumption for infrastructure planning. Web presentment software is currently being developed, and in conjunction with water and energy conservation education, can help residents understand their water and energy bills to save water, energy, and money.

A water conservation strategy is being developed to meet the milestone targets for Actions 25 and 26. Recommended initiatives of the water conservation strategy will be based on proven track records of other cities, feasibility of implementing, reducing demand on our water system, cost effectiveness, and what we hear from the public. The strategy will lead to improvements in how City operations and buildings use water as well as provide incentives and education for the community. A business case is being developed specific to water conservation programs, and includes the phased implementation of the water conservation strategy’s feasibility, program development, and some implementation.

Table 16. Water Conservation: Actions

Action	Action Phase	Target Date	Progress
WATER CONSERVATION			
Action 25: Decrease water use through efficiency, monitoring, and leak reduction.			●●○○
Milestone Target: Utilize AMI system to track city wide consumption, identify and repair leaks, and support conservation and efficiency to enable a 5% reduction in volume pumped by 2026. Emission Reductions by 2050 = 25,000 tonnes CO ₂ e			
25.1 Full deployment of city-wide AMI system completed.	2	2022	●●●○
25.2 Identify and repair leaks and reduce system losses.	2	2026	●○○○
Action 26: Reduce residential and ICI water use through education programming and water efficiency incentive programs.			●○○○
Milestone Target: Reduce outside water use by 20% and reduce inside water use by 30% in 100% of new builds and retrofits. Emission Reductions by 2050 = 147,000 tonnes CO ₂ e			
26.1 Water Conservation Strategy presented to City Council for approval.	2	2020	●○○○
26.2 Education program development and deployment.	2	2030	○○○○

Not Started ○○○○ Initiated ●○○○ Moderate Progress ●●○○ Significant Progress ●●●○ Complete ●●●●





1.7 Waste Management

Waste treatment and disposal accounts for approximately 175,000 tonnes CO₂e or 5% of the community's GHG emissions. Waste diversion programs are contributing to emissions reductions, but substantial efforts are required to reach the City's target of 70% diversion. The Waste category of the *LEC Plan* includes 1 action, that represents 1% of the total emissions reductions identified in the plan.

HIGHLIGHTS

- **58% of what we throw out can be composted. A city-wide curbside organics program is being planned for a spring 2023 roll-out, representing an increase in service from the current subscription-based program.**
- **The *Solid Waste Reduction & Diversion Plan* was presented to City Council in January 2021, providing a detailed picture of the City's progress on waste diversion and laying out a roadmap of actions needed to achieve the 70% waste diversion target from the Saskatoon Landfill.**

The *Solid Waste Reduction & Diversion Plan* presents actions, such as multi-unit organics, construction & demolition waste diversion, landfill and single-use items bans, and food waste reduction, which could position Saskatoon to achieve a 51-79% diversion rate. Implementation of the plan would bring waste management in Saskatoon in line with comparable Canadian municipalities and make Saskatoon a leader in the prairie provinces.

The City is currently developing three major Council-approved initiatives estimated to improve Saskatoon's diversion rate to 41-54%. These include a curbside organics program, regulation of waste diversion in the Industrial, Commercial, and Institutional sector, and Recovery Park at the Saskatoon Landfill. More details about these programs, including an update to The Waste Bylaw, will be presented to City Council in 2021.

Collaboration between the community, businesses and organizations, and all levels of governments is required to achieve a 70% waste diversion target. The City needs to provide sufficient waste management services to make diversion possible. The community impacts these services through consumer and disposal behaviour, and policy and regulation at the provincial and federal level influence which materials end up as waste. Each role is important and creates a potential barrier to reducing GHG emissions through waste management.

Business cases being developed to further Action 24 include:

- Implementing Green Teams and Leading by Example waste diversion/reduction programs
- Feasibility studies to increase waste diversion by 3.5-7% for construction and demolition programs (City options), recycling market development for Recovery Park, and landfill bans
- Multi-unit organics pilot and program design

Table 17. Waste Management: Actions

Action	Action Phase	Target Date	Progress
WASTE MANAGEMENT			
Action 24: Improve and expand waste management programs and services to increase reduction and diversion.			●○○○
Milestone Target: By 2050, achieve reduction and diversion rates of: 90% for organics, 95% for plastics, and 90% for paper. The existing goal is to divert 70% of waste from the Saskatoon Landfill by 2023. Emission Reductions by 2050 = 1,303,000 tonnes CO ₂ e			
24.1 Develop strategy for implementation of multi-unit and ICI (including Civic facilities) organics programs and education programs/partnerships on food waste reclamation and reduction. Request Council approval and funding for ICI and Multi-unit programs.	2	2021	●○○○
24.2 Implement curbside organics program for single-family residential (as approved) and bylaws/programs for multi-unit and ICI (pending approval).	2	2024	○○○○
24.3 Study and implement organics/recyclables bans at civic owned landfill, single use reduction policies & programs, circular economy policies and programs.	2	2050	○○○○

Not Started ○○○○ Initiated ●○○○ Moderate Progress ●●○○ Significant Progress ●●●○ Complete ●●●●





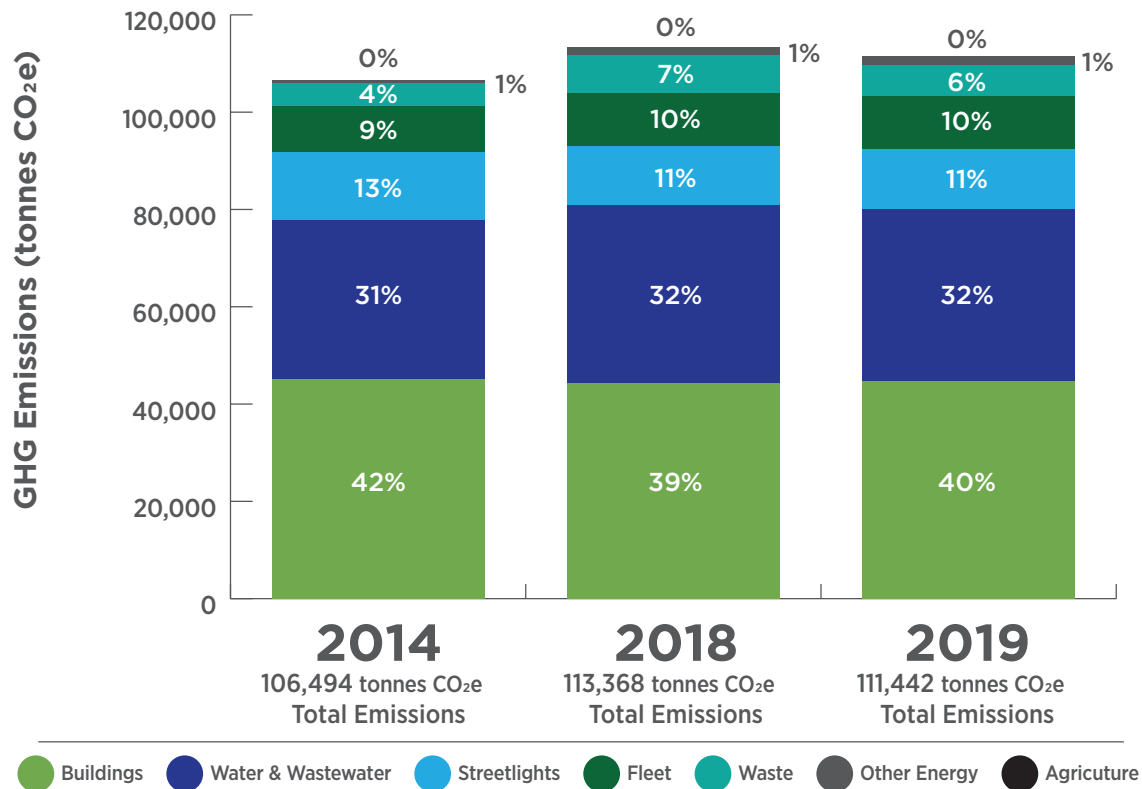
PART 2: CLIMATE MITIGATION

- CORPORATE

2.1 Corporate Greenhouse Gas Emissions

The City of Saskatoon also completes a GHG emission inventory for its own operations on an annual basis, using a modified version of the *Global Protocol for Community-Scale Greenhouse Gas Emission Inventories: An Accounting and Reporting Standard for Cities*. The City's GHG emissions increased by 5% between 2014 and 2019, equating to an increase of approximately 5,000 tonnes CO₂e. Emission reductions were realized in the Buildings and Streetlight sectors; however, emissions in all other sectors increased relative to the 2014 baseline.

Figure 7. Summary of Corporate GHG emissions for 2014, 2018, and 2019



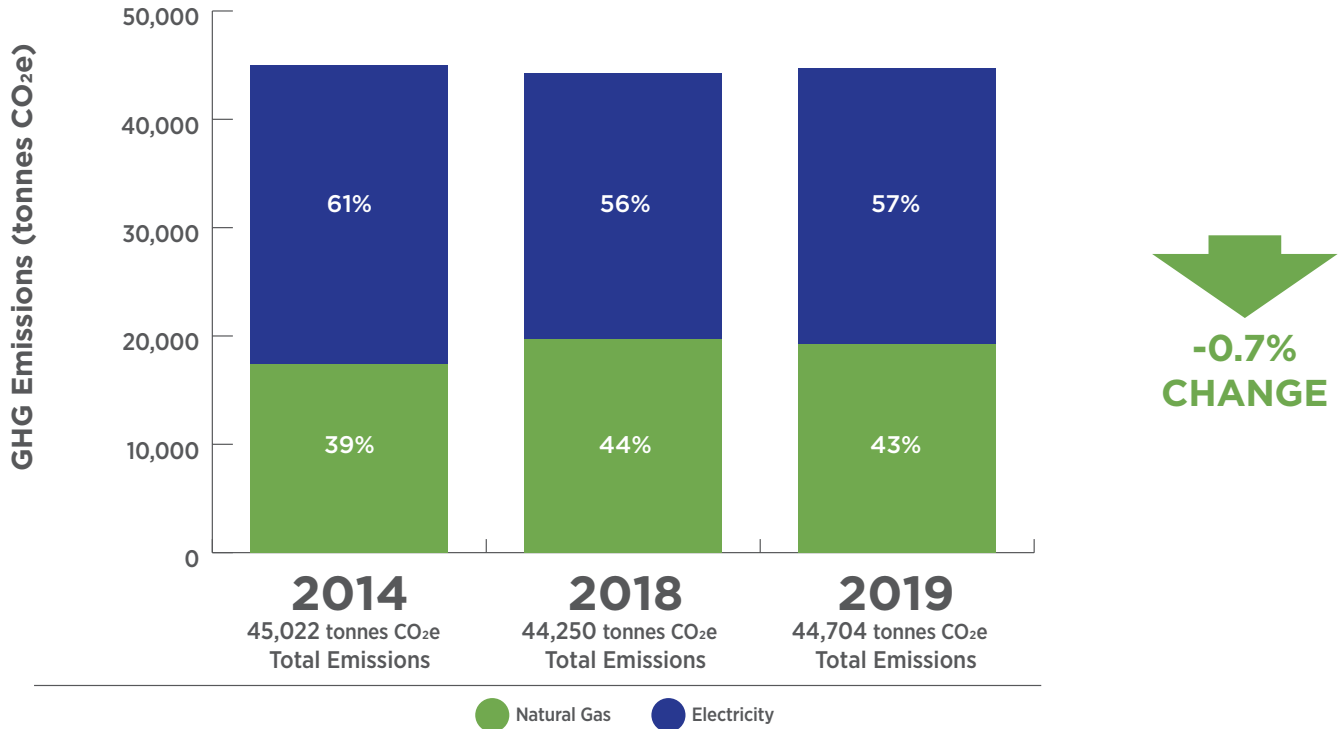
	2014	2018	2019
Buildings	45,022	44,250	44,704
Water & Wastewater	32,700	36,610	35,419
Streetlighting	14,129	12,121	12,311
Fleet	9,391	10,960	10,728
Waste	4,576	7,766	6,575
Other Energy	655	1,628	1,670
Agriculture	21	33	35
Total Emissions (tonnes CO₂e)	106,494	113,368	111,442

2.1.1 Buildings

The Buildings sector includes emissions resulting from the use of energy – natural gas, propane, and electricity – to heat/cool and power municipal buildings, apart from those associated with the Water & Wastewater sector.

Emissions in the Buildings sector decreased slightly overall from 2014 to 2019, with increases in natural gas consumption offset by decreases in electricity consumption. Emissions associated with electricity consumption decreased despite an increase in the emission factor for electricity generation (i.e., emissions generated per unit of electricity consumed). Further analysis is required to fully understand the drivers behind the changes observed in this sector.

Figure 8. GHG emission breakdown for the Corporate Buildings sector



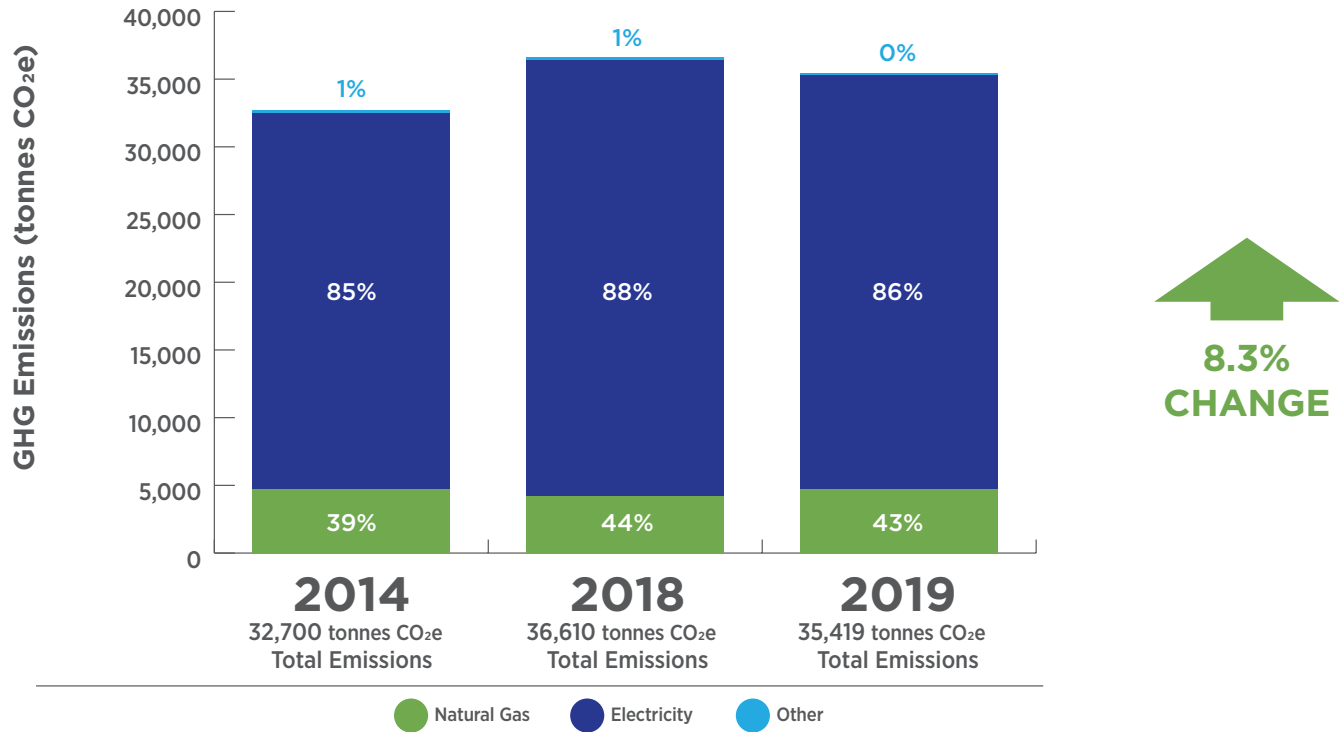
	2014	2018	2019
Natural Gas	17,389	19,668	19,231
Electricity	27,633	24,582	25,473
Total Emissions (tonnes CO₂e)	45,022	44,250	44,704

2.1.2 Water & Wastewater

The Water & Wastewater sector includes emissions resulting from the use of energy – natural gas, propane, and electricity – to heat/cool and power buildings associated with the City’s water and wastewater treatment and distribution systems.

Emissions in the Water & Wastewater sector increased by 8% from 2014 to 2019, reflecting the expansion of water and wastewater related operations to accommodate a growing city.

Figure 9. GHG emission breakdown for the Corporate Water & Wastewater sector



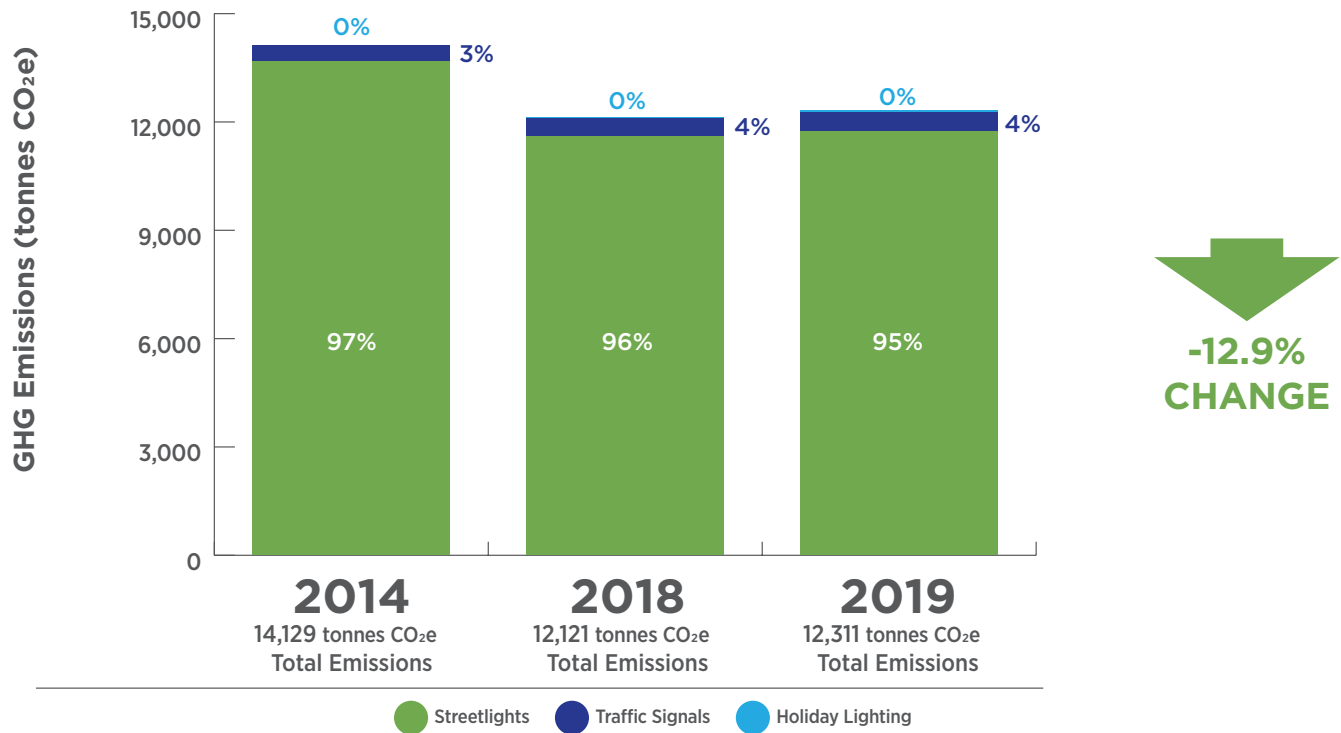
	2014	2018	2019
Natural Gas	4,675	4,163	4,686
Electricity	27,793	32,254	30,606
Other (Diesel, Propane)	232	193	127
Total Emissions (tonnes CO₂e)	32,700	36,610	35,419

2.1.3 Streetlighting

The Streetlighting sector includes emissions resulting from the use of electricity for streetlights, traffic signals, and holiday lighting in the SaskPower and SL&P distribution areas.

Emissions in the Streetlighting sector decreased overall by 13% from 2014 to 2019, despite the expansion of street lighting and traffic signal infrastructure in new neighbourhoods. The decrease in emissions was primarily due to the conversion of lighting to LED bulbs in the SL&P distribution area.

Figure 10. GHG emission breakdown for the Corporate Streetlighting sector



	2014	2018	2019
Streetlights	13,675	11,599	11,738
Traffic Signals	442	513	545
Holiday Lighting	13	8	28
Total Emissions (tonnes CO₂e)	14,129	12,121	12,311

2.1.4 Other Energy

The Other Energy sector includes emissions resulting from the use of electricity for non-building and roadway related purposes such as parks, substations, and weigh scales.

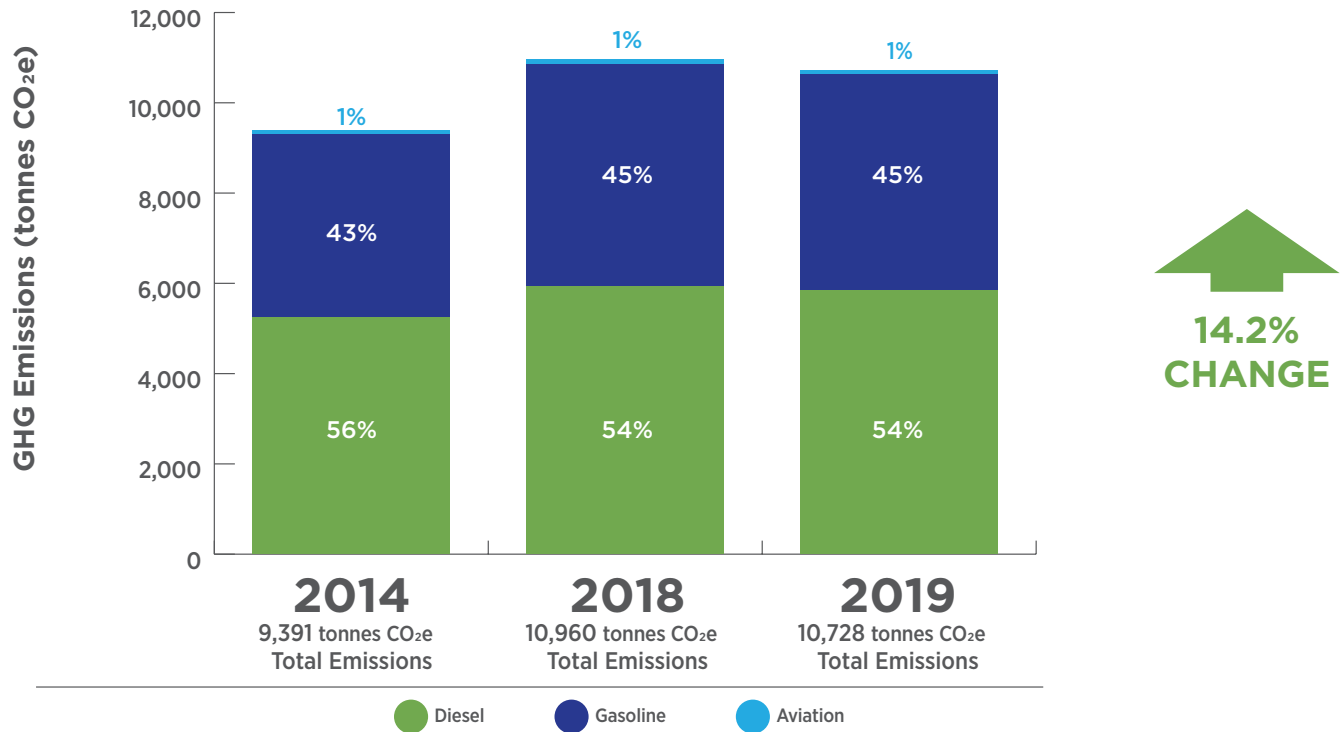
Emissions in the Other Energy sector increased by 155% or by approximately 1,000 tonnes CO₂e between 2014 and 2019, primarily due to the expansion of City services to new neighbourhoods, as well as more accurate identification of electricity accounts.

2.1.5 Fleet

The Fleet sector includes emissions resulting from the combustion of fossil fuels – gasoline and diesel – to power the City’s fleet of vehicles and mobile equipment.

Emissions in the Fleet sector increased by 14% from 2014 to 2019, resulting directly from an increase in the volume of fuel used to provide various services to the community.

Figure 11. GHG emission breakdown for the Corporate Fleet sector



	2014	2018	2019
Diesel	5,239	5,928	5,843
Gasoline	4,067	4,935	4,788
Aviation	85	97	97
Total Emissions (tonnes CO₂e)	9,391	10,960	10,728

2.1.6 Waste

The Waste sector includes emissions resulting from the landfilling of solid waste generated by City operations.

Corporate waste emissions are estimated as a proportion of total waste emissions from waste buried at the Saskatoon Regional Waste Management Centre. The amount of Corporate waste generated increased from 5% in 2014 to 7% in 2019, even though the actual tonnage of waste generated was relatively constant (approximately 6,000 tonnes). As a result of this relative increase in waste generated, the corresponding emissions in the Waste sector increased by 44% over the same period. Further analysis is required to improve the accuracy of emissions reported for this sector.

2.1.7 Agriculture

The Agriculture sector includes emissions exclusively associated with livestock management at the Saskatoon Zoo.

Emissions in the Agriculture sector increased by 67% from 2014 to 2019, mainly resulting from improvements to the methodology used to calculate emissions from livestock.



2.2 Buildings and Energy Efficiency

The Buildings and Water and Wastewater sectors represent the largest categories of City of Saskatoon GHG emissions at 40% and 32%, respectively. The *LEC Plan* includes 5 actions that relate specifically to the use of energy in municipal buildings and facilities.

HIGHLIGHTS

- **The City is developing a High Performance Civic Building Policy that will ensure occupant safety, comfort, productivity, energy efficiency, indoor air quality, and other environmental impacts are considered in the construction and renovation of City-owned facilities. The Policy will be ready for City Council's consideration in 2021.**
- **SL&P has begun a project to replace street light fixtures with LED technology. In 2020, approximately 5,000 LED fixtures were installed resulting in estimated savings of 275,000 kWh or 179 tonnes CO_{2e}. The completed project is estimated to result in GHG emissions savings of 5,500 tonnes CO_{2e} annually.**
- **Several energy-saving initiatives have recently been implemented by the Information Technology Department, including a Print Optimization project that was realizing significant operating cost reductions before the pandemic hit. In its first year, the project resulted in savings of over 3.5 million sheets of paper, 39% reduction in energy consumption, and 52% reduction in GHG emissions.**

The City has been managing the progress of a program that involves renovating civic facilities to improve energy performance and operational efficiencies. The Facility Improvement Program uses an energy performance contract (EPC), to help reduce utility costs and GHG emissions, all while maintaining – and in many cases, improving – indoor environment quality, as well as staff and customer experiences in City facilities. As of December 2020, lighting improvement measures (Action 4) have been completed in 7 facilities, and mechanical and/or controls improvement measures (not related to a specific action) have been completed or are in progress in 4 facilities. Similar upgrades are planned in 19 additional buildings and are currently in the feasibility or design phases. The achievement of the actions in this category will depend on the integration of smart controls/technologies along with a shift in the behaviours of building operators and occupants to implement energy efficiency measures. Action 1 is being worked on through the City's development of a High Performance Civic Building Policy. Actions 2 and 5 are more complex and will require both additional funding and a cleaner electrical grid if the targets are to be achieved. Business cases being developed to further these actions include:

- High Performance Civic Building Policy – green standards for existing buildings, including procedure and implementation guide development (BOMA Best)
- Deep energy civic building retrofit strategy (phased) and funding request
- Energy conservation for civic buildings strategy to include:
 - appliance inventory
 - appliance upgrade funding plan and request
 - energy conservation strategy plan and funding request

The City's Controlled Corporations and Statutory Boards are also taking steps to lower the overall environmental footprint of their buildings. Initiatives range from appliance upgrades to lighting retrofits to smart technologies that optimize operations. A current example is the new central library, which is in the design phase, with completion scheduled for 2026. In addition to delivering on the vision of changing lives through community connections, engagement and inclusivity, the new library is targeting LEED® Gold certification for green building design and occupant health.

Table 18. Corporate Buildings and Energy Efficiency: Actions

Action	Action Phase	Target Date	Progress
INCREASE EFFICIENCY IN MUNICIPAL BUILDINGS			
Action 1: Apply energy efficiency standards (build to Passive House) to all new municipal buildings.			●○○○
Milestone Target: All new buildings are designed to target Passive House energy use standards starting immediately. Emission Reductions by 2050 = 28,000 tonnes CO _{2e}			
1.1 A new High Performance Civic Building Policy presented to Council (no requirement for Passive House); a new fire hall (currently being designed) could be built to Passive House Standard.	2	2020	●○○○
1.2 Study of Passive House and policy update to incorporate Passive House standard if funding approved.	2	2022	○○○○
Action 2: Perform deep energy retrofits on municipal buildings.			○○○○
Milestone Target: 60% of existing municipal buildings are retrofitted to target Passive House standards by 2031, and 100% of existing buildings by 2050. Emission Reductions by 2050 = 175,000 tonnes CO _{2e}			
2.1 Develop phasing strategy and detailed design for retrofits.	2	2022	○○○○
2.2 Design and strategy complete, request funding and approval from Council on retrofits.	2	2023	○○○○
2.3 60% of municipal building retrofits completed.	2	2031	○○○○
2.4 Remaining 40% of building retrofits completed.	2	2050	○○○○
Action 3: Upgrade plugged appliances and improve energy conservation behaviours in municipal buildings.			○○○○
Milestone Target: Achieve 5% plug load energy savings in 100% of buildings by 2023. Emission Reductions by 2050 = 4,000 tonnes CO _{2e}			
3.1 Develop phasing strategy and detailed design for appliance upgrades in municipal buildings.	2	2020	○○○○
3.2 Request funding and approval from Council on appliance replacement (as per strategy).	2	2021	○○○○
3.3 Replace all municipally owned building appliances.	2	2023	○○○○
Action 4: Update all municipal building lighting systems.			●○○○
Milestone Target: Achieve 20% savings in lighting energy use in municipal office buildings by 2026, and 100% of remaining buildings by 2051. Emission Reductions by 2050 = 5,000 tonnes CO _{2e}			
4.1 Energy Performance Contracting Project Phase 1-4 Scoping Complete by 2019.	1	2019	●●●●
4.2 Buildings that are part of the existing Energy Performance contract will have lighting retrofits completed.	1	2021	●○○○
4.3 Request funding and approval to complete retrofits in remaining buildings.	1	2026	○○○○
Action 5: Retrofit municipal heating and cooling systems with ground-source or air source heat pumps.			○○○○
Milestone Target: Retrofit all municipal buildings with heat pumps and ensure all new municipal buildings have heat pumps, achieving retrofits of 100% of existing municipal buildings by 2026. Emission Reductions: by 2050 = 204,000 tonnes CO _{2e}			
5.1 Secure funding for feasibility study for heat pump retrofits.	2	2021	○○○○
5.2 Pending study results detailed design for retrofitting phasing.	2	2022	○○○○
5.3 Retrofit implementation.	2	2026	○○○○

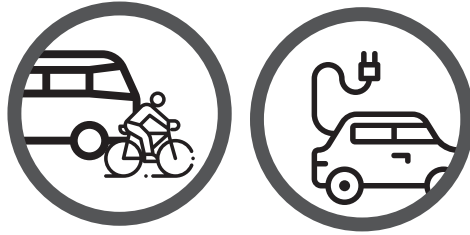
Not Started ○○○○

Initiated ●○○○

Moderate Progress ●●○○

Significant Progress ●●●○

Complete ●●●●



2.3 Transportation

The City's fleet of vehicles and equipment accounts for 10% of the City's GHG emissions. The *LEC Plan* includes 2 actions that relate specifically to the Transportation sector.

HIGHLIGHTS

- **Electrifying the City's fleet represents a significant opportunity to reduce the corporation's GHG emissions. The City added 4 plug-in electric vehicles to the fleet in 2021, to complement the 7 full hybrid electric vehicles currently in operation in the City's light-duty fleet.**
- **Saskatoon Transit started piloting an electric bus in July 2020. The bus will operate daily to assess its performance on various routes and under various conditions. While it is too early to quantify performance, the pilot bus is estimated to save \$30,000/yr in operating costs and 50 tonnes/yr in GHG emissions. There is currently no funding identified to expand the number of electric buses in the City's fleet.**
- **The City's entire vehicle fleet was recently fitted with GPS units. A strategy will need to be developed to effectively use the GPS data to optimize use and reduce fuel consumption.**

The electrification of the City's fleet (Action 17) continued with a pilot project for 4 battery plug-in electric vehicles. The EV pilot (Sub-action 17.2) preceded the development of an EV strategy (Sub-action 17.1). Meeting Action 17 is possible by the target date but will require a commitment by the City to include electric vehicles (EVs) in their vehicle replacement strategy and continued implementation of charging infrastructure, especially since EVs are not currently at cost-parity with conventional internal combustion vehicles. There are currently 4 charging stations installed on City property being used exclusively to charge 4 recently purchased electric vehicles. Additional charging ports are expected to be installed by the end of 2021 that will be accessible for public use. The City's current vehicle replacement strategy is to consider EV options as vehicles become due for replacement. A business case is being developed for an EV adoption strategy that will also consider how to phase-in EVs to the Corporate vehicle fleet.

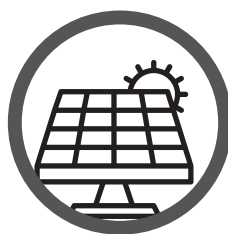
At a cost of \$1 million per unit, the target of electrifying the transit fleet by 2030 (Action 18) is not achievable without additional funding. The federal government recently announced its plan to invest \$14.9 billion on public transportation projects. It is unknown what Saskatoon's share of the funding will be, but the announcement is potentially encouraging for the City's BRT, EV bus, and active transportation initiatives. Additional opportunities will be further explored through the EV adoption strategy. It is anticipated that CUTA (Canadian Urban Transit Association) will mandate zero-emission vehicles by 2050.

Table 19. Corporate Transportation: Actions

Action	Action Phase	Target Date	Progress
ELECTRIFY MUNICIPAL FLEET			
Action 17: Electrify the municipal fleet over the near-term.			●○○○
Milestone Target: 100% of the municipal fleet is electrified by 2030. Emission Reductions by 2050 = 77,000 tonnes CO ₂ e			
17.1 Develop strategy for electric vehicle (EV) and charging station phase in for fleet. Request funding and council approval.	1	2021	●●●●
17.2 Develop RFP for EVs and pilot EV models.	1	2022	●●○○
17.3 Phase in EVs to fleet starting with light duty vehicles and progressing to larger equipment as models become more available.	1	2030	●●●●
Action 18: Electrify the Municipal transit fleet.			●○○○
Milestone Target: 100% of transit fleet are electric by 2030. Emission Reductions by 2050 = 55,000 tonnes CO ₂ e			
18.1 Pilot leased EV bus (if funding secured), develop EV bus phase-in strategy and request funding and approval from Council. Develop RFP for EV buses and select supplier.	2	2021	●○○○
18.2 Phase in electric fleet and charging station.	2	2030	●●○○

Not Started ○○○○ Initiated ●○○○ Moderate Progress ●●○○ Significant Progress ●●●○ Complete ●●●●





2.4 Energy

Alternative sources of energy will play an increasingly important role in the City's and community's GHG emissions inventory.

HIGHLIGHT

- **The City is planning a comprehensive solar assessment of up to eight civic facilities, that will inform the development of a phased approach to install solar PV systems on those buildings. Additional funding, including exploring external grants, will be required and a funding request for installment of approximately 500 kW of solar capacity on City buildings is being prepared.**

The installation of solar PV systems will complement other alternative energy projects currently operating in City facilities. These projects include combined heat and power (CHP) systems at Lakewood Civic Centre and Shaw Centre, and solar hot water systems at Harry Bailey Aquatic Centre and Lawson Civic Centre.

Action 29 will be furthered by the solar assessment scheduled to be completed in 2021 as part of a renewable energy strategy. Business cases for next steps on this action include:

- Site-scale municipal solar construction at primary municipal buildings
- Site-scale municipal solar assessment of secondary municipal buildings and municipal sites analysis

Table 20. Corporate Energy: Actions

Action	Action Phase	Target Date	Progress
SOLAR ENERGY: MUNICIPAL			
Action 29: Install solar PV systems on municipal buildings.			●●●●
Milestone Target: Install 24 MW of solar capacity by 2026 on municipal buildings. Emission Reductions by 2050 = 236,000 tonnes CO ₂ e			
29.1 Complete a detailed strategy and feasibility study to determine which buildings are capable of handling solar.	2	2022	●○○○
29.2 Pending funding and approval, install solar systems according to results of study.	2	2026	●●●●

Not Started ○○○○

Initiated ●○○○

Moderate Progress ●●○○

Significant Progress ●●●○

Complete ●●●●

PART 3: CLIMATE ADAPTATION

Vision: The City of Saskatoon is a climate ready and resilient organization.

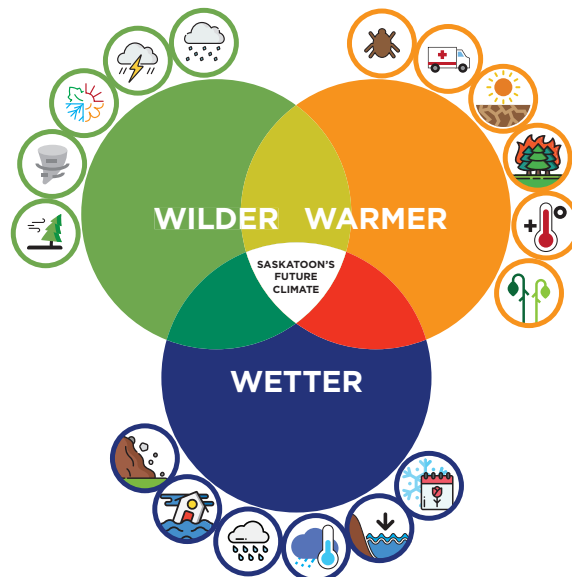
Mission: We implement climate change adaptation actions as planned and on purpose in order to limit disruptions and negative impacts on our staff, services, and assets, allowing us to continue to deliver high quality services to the residents of Saskatoon

3.1 Corporate Climate Adaptation

Corporate Climate Adaptation Strategy, Local Actions: Saskatoon's Adaptation Strategy (Part Two) provides an action plan to help the City of Saskatoon prepare for the impacts of climate change to limit disruptions and reduce negative impacts on civic staff, services, and assets.

The *Corporate Climate Adaptation Strategy (Adaptation Strategy)* has three components:

- Expected Climatic Impacts – The *Adaptation Strategy* presents climate modelling data for three emissions scenarios: status quo, moderate reductions, and major reductions. Under all three scenarios, the modelling suggests that Saskatoon can expect warmer, wetter, and wilder weather over the next 80 years;
- Risk Analysis – The projected climatic impacts were used to identify risks and potential impacts to civic (City of Saskatoon) operations, resulting in a ranked list based on their likelihood of occurrence over the next 25 years and the potential severity of the consequences if no corrective actions or interventions were taken; and
- Action Plan – Resiliency is the capacity to survive, adapt, and thrive no matter what kinds of chronic stresses and acute shocks are experienced. The *Adaptation Strategy* addresses the identified risks and their potential impacts to improve decision making, improve resiliency for staff, improve resiliency for services, and improve resiliency for assets. These were prioritized into near term (1-2 years), mid-term (3-6 years), and long term (7-10 years).



The *Adaptation Strategy* was presented to City Council in 2019 and received no specific funding in the 2020/2021 budget; however, actions are being worked on through other initiatives such as *Triple Bottom Line Policy*, the *Asset Management Strategy*, and the *Green Infrastructure Strategy*. These strategic items, together with responses to the COVID-19 pandemic and regular operational planning, meant that some actions have progressed. A thorough review of the climate projections and risk analysis completed in the *Adaptation Strategy* is expected after five years with a subsequent update to the actions. Business cases are being developed to request funding in the 2022/2023 Budget and Business Plan deliberations and are listed in Appendix B.

3.2 Actions to Improve Decision-Making

Improving resiliency and preparedness for the impacts of climate change starts by making decisions that consider climate change projections during project initiation, continuous improvement, and ongoing operations. In 2020, the *Triple Bottom Line Policy* and the updated *Official Community Plan* helped embed climate adaptation considerations into the City's decision-making.

3.2.1 Adaptation Lens

Actions A.1 and A.2 were primarily completed through Council Policy No. C08-001, the *Triple Bottom Line (TBL) Policy*, which came into effect on January 1, 2020. The policy aims to transform the way decisions are made in the City, requiring City staff and City Council to evaluate new initiatives by considering the initiatives' impacts on environmental health and integrity; social equity and cultural well being; economic prosperity; and good governance. The desired outcome is more balanced decisions that include, amongst other things, a project's resilience to a changing climate. Training and procedures were developed in 2020 to support staff in applying TBL. As of December 2020, 34 projects applied to the TBL to their initiatives. The training program launched in October and over 20 people have viewed the full set of videos, over 200 have accessed the training materials and resources, and approximately 120 attended a live (virtual) event.

Policy changes to improve decision making are an important first step, but more work is needed to build organizational capacity and improve data gathering and understanding to help influence outcomes of decisions to improve resiliency. The City is in the process of updating its Environmental Dashboard (Action A.3) to include indicators that link to aspects of climate adaptation. Other tools to improve decision making, such as incorporating life cycle costing into asset management planning and development of a sustainable purchasing program, still need to be developed.

In 2018, risk management and action implementation tracking for climate adaptation was done through a manual process. Due to a lack of resources, this was not updated in 2019 or 2020. A business case is being developed for staff support and adoption of ICLEI's BARC¹² program to help build Corporate capacity and integrate up-to-date information on the changing climate into decision-making and planning.

¹² Building Adaptive and Resilient Communities (BARC). <https://icleicanada.org/barc-program/>

Table 21. Adaptation Lens: Actions

Action and Initiative	Priority (1,2,3)	Start by Date	Progress
Action A: Document a process to support the consideration of adaptation for all new projects, programs and assets in a reliable and consistent manner.			
A.1 Create Administrative Procedure and Standard Work documents to support the consideration of climate change projections, positive and negative risk to operations, and resiliency options creation as part of the implementation of the Triple Bottom Line Policy.	1	2021	●●●○
A.2 Create internal training sessions that can be delivered on demand to support workgroups as they build climate change impact understanding and adaptation innovation capacity.	1	2021	●○○○
A.3 Create internal processes and dashboard for climate adaptation strategy key performance indicator tracking. Create a digital historical and future climate data hub to support reliable internal use and updating.	1	2021	○○○○

3.2.2 External Funding

Administration did not look for specific funding opportunities related to climate adaptation (Action B.4). This would be included in the workplan of a dedicated staff person (e.g., as being requested through a business case in Appendix B).

Table 22. External Funding: Actions

Action and Initiative	Priority (1,2,3)	Start by Date	Progress
Action B: Explore and document existing municipal, provincial, federal, and international mechanisms for financing resiliency building that look beyond mill-rate increases and capital expenditure.			
B.4 Create and maintain a list of existing programs that fund resiliency building projects (include application process and requirements).	1	2021	○○○○

3.2.3 Corporate Alignment

The *Official Community Plan (OCP)* provides the policy framework to define, direct and evaluate development in Saskatoon to a population of 500,000. In June of 2020, City Council unanimously approved Bylaw No. 9700, The Official Community Plan Bylaw, 2020 which furthers progress on Action C.6. This was followed by ministerial approval from the Province of Saskatchewan in August, resulting in a new (OCP) for Saskatoon. The OCP is a statutory plan created under the authority of *The Planning and Development Act, 2007*. It is the collective long-term civic vision for Saskatoon, helping guide the physical, environmental, economic, social, and cultural development of the community. It provides both inspiration and direction through a comprehensive policy framework to ensure the community’s vision for Saskatoon is integrated into all aspects of planning, decision-making, and priority-setting for the City of Saskatoon. It is used in conjunction with the City’s *Strategic Plan* and Business Plan and Budgeting process. The OCP provides the long-term vision, while the *Strategic Plan* identifies the short-term (four-year) priorities for achieving that vision. The Business Plan and Budgeting process is used to operationalize and provide the necessary funding for these priorities.

By applying a sustainability lens as required by the *TBL Policy* and the OCP, all major projects such as those mentioned in Action C.6 are expected to consider climate change considerations throughout the project life cycle; however, more work is needed to fully embed this level of decision-making across the corporation.

Not Started ○○○○ Initiated ●○○○ Moderate Progress ●●○○ Significant Progress ●●●○ Complete ●●●●

Table 23. Corporate Alignment: Actions

Action and Initiative	Priority (1,2,3)	Start by Date	Progress
Action C: Look to partners across departments to support and integrate resilience planning into current and future work.			
C.5 Review major upcoming projects (such as Bus Rapid Transit, Saskatoon Forestry Farm Park & Zoo Master Plan, <i>Winter City Strategy</i> , the new central library, and downtown arena) that may be good candidates for piloting resiliency building options.	1	2021	●●○○
C.6 Continue to work with Planning & Development to review current land use, zoning, and urban/regional design practices to ensure current requirements provide adequate flexibility to support resiliency building.	1	2021	●●○○

3.2.4 External Relationships

While partnerships and knowledge sharing exist between the City, the University of Saskatchewan, and other external partners, they are not focused on climate projections. With no dedicated resources allocated to finding or documenting the data needed for planning, no progress was made on Action D.7.

Table 24. External Relationships: Actions

Action and Initiative	Priority (1,2,3)	Start by Date	Progress
Action D: Continue to develop relationships with external organizations that produce high quality historical and future climate data for use in data-driven decision-making.			
D.7 Work with external partners to define ways to visualize climate change projection data to improve corporate impact and risk assessment discussions, inform user-driven science, and aid in public education campaigns	1	2021	○○○○

3.3 Actions to Improve Resiliency for Staff

Safety is part of everything we do at the City. The City’s Health and Safety Management System (HSMS) aligns with the Saskatchewan Occupational Health and Safety (OHS) regulations, to protect staff and improve safety performance relative to extreme weather events and changing climate conditions, and the maturation of internal emergency response and service continuity planning.

3.3.1 Review Anticipated Work Impacts

Response to COVID-19 has been the focus of safety-related actions over the past year. It is anticipated that climate-related planning will be prioritized higher as we begin to come out of pandemic planning.

Occupational Health and Safety Management System protocols are being followed to keep staff safe during extreme weather. No planning has been initiated to look specifically at potential future impacts of increases in extreme weather.

Not Started ○○○○ Initiated ●○○○ Moderate Progress ●●○○ Significant Progress ●●●○ Complete ●●●●

Table 25. Review Anticipated Work Impacts: Actions

Action and Initiative	Priority (1,2,3)	Start by Date	Progress
Action E: Begin proactive discussions with outdoor staff, labour units, and leadership on climate change impacts, risk to current operations, and potential adaptive strategies.			
E.8 Review and inventory all job descriptions and collective bargaining agreements of workgroups with outdoor staff to identify existing language and requirements regarding work in hot/cold conditions.	2	2025	●●●●
E.9 Conduct a staff safety and productivity assessment of outdoor activities under extreme heat and extreme cold in order to define potential thresholds where non-essential services are stopped until favourable climate conditions return.	3	2029	●○○○
E.10 Create internal processes and dashboard for climate adaptation strategy key performance indicator tracking. Create a digital historical and future climate data hub to support reliable internal use and updating.	3	2029	●●●●
E.11 Ensure pest preparedness and extreme heat/cold internal safety training and processes consider the diversity of the City's workforce.	3	2029	●○○○
E.12 Explore and define alternative scheduling options to reduce the exposure of outdoor staff to the "hottest hours of the day" based on learnings and practices in other municipalities where extreme heat is prevalent.	3	2029	●○○○
E.13 Discuss current seasonal hiring practices with outdoor staff to meet the needs of more variable seasonal transitions and a potentially longer summer season.	3	2029	●○○○

3.3.2 Pilot Initiatives to Mitigate Staff Exposure

The City's Health & Safety Department works closely with the other departments to assess hazards associated with job tasks and determine appropriate solutions to mitigate those hazards for employees. This work includes assessing potential hazards associated with a variety of outdoor conditions and tasks, including extreme temperatures and exposure to pests.

Table 26. Pilot Initiatives to Mitigate Staff Exposure: Actions

Action and Initiative	Priority (1,2,3)	Start by Date	Progress
Action F: Define pilot project opportunities for extreme heat/cold management and pest preparedness through new equipment procurement.			
F.14 Work with outdoor staff to explore potential pilot projects for extreme heat and cold management and pest preparedness equipment. Examples could include lawn mower canopies, pop-up shade tents, and mosquito netting.	3	2029	●○○○

Not Started ○○○○ Initiated ●○○○ Moderate Progress ●●○○ Significant Progress ●●●○ Complete ●●●●

3.4 Actions to Improve Resiliency for Services

Changing climate conditions impact outdoor staff, residents, the environment, and ecosystems in Saskatoon. The importance of putting people first to ensure staff can stay safe while still providing services to Saskatoon residents has been demonstrated already during the COVID-19 pandemic. 2020 tested the City's resiliency to provide services throughout the pandemic and extreme weather events. These learnings will be used to better prepare the future.

3.4.1 Services and Emergencies

Civic operations have business continuity plans in place that include expected levels of service during a loss event (e.g., fuel availability during a storm) which is part of responding to future climate emergencies. Both extreme weather events and the COVID-19 pandemic tested these plans and showed ability to adapt in times of crises. While these plans are continuously improved with the availability of new information, additional climate-specific data gathering, risk analysis, and response planning is needed to meet Action G.15.

Examples of resiliency for services in 2020 includes:

- Saskatoon Transit had to demonstrate resiliency to changes and uncertainty when responding to COVID 19. Like most civic operations, transit service was forced to evaluate it's operations in March 2020. Safety protocols starting with rear-door loading and increased cleaning progressed to include operator barriers and mandatory masking on buses, allowing this essential service to continue.
- The City formally activated its internal Emergency Coordination Centre (ECC), in response to COVID-19, on March 14, 2020. The ECC comprises of a virtual or physical location from which centralized emergency management support and coordination can be performed. The City's Emergency Measures Organization virtually activated regular Emergency Operations Centre (EOC) meetings with representatives from the Saskatchewan Health Authority, critical infrastructure partners, and internal stakeholders in January 2020. The City's EOC process was also activated to support the *Saskatoon Cold and Hot Weather Strategy*, water restrictions on December 24th, several emergency services activations, and the November 2020 snowstorm. These are all complex events that involved multiple departments or divisions and can include external critical infrastructure partners or subject matter experts to collaborate on the response and recovery processes.
- Crisis communications (Action G.16) were also needed and utilized in the winter of 2020, when the COVID-19 pandemic, the November 8th snow storm, and the civic election all coincided creating a 'perfect storm'. Communications & Public Engagement will be updating relevant plans based on lessons learned from the challenges of 2020, in combination with best practice research.

Further, incidents in 2020 showed us that the City needs capacity to respond to an emergency during a concurrent emergency. For example, watermain break during snow storms and, with emergency responses already focused on the primary emergency, responses to these secondary emergencies may be delayed. The projected impacts of climate change include more extreme and frequent weather events which will test the City's capacity to respond.

Table 27. Services and Emergencies: Actions

Action and Initiative	Priority (1,2,3)	Start by Date	Progress
Action G: Continue discussions to define points that trigger a change in service level and/or require public communication.			
G.15 Define worst-case climate change scenarios and graduated administrative responses with core service providers, including water, electricity, waste management, transit, parks management, recreation, and mobility management.	2	2025	●●○○
G.16 Proactively define communication tools, key messaging, and delivery mechanisms to rapidly inform residents, businesses, and organizations of service level changes required due to administrative responses to extreme heat/cold/wind, intense summer/winter storms, prolonged drought, increasing pest populations, and intense precipitation events.	2	2025	●●○○
G.17 Define options to increase flexibility in seasonal equipment turnover practices to improve readiness for highly variable weather and emergencies.	3	2029	●●○○
G.18 Explore opportunities to use cross-training and/or temporary staff reassignments, mutual aid agreements and/or private-sector contractors, when appropriate, to add capacity to post-weather event administrative responses as part of emergency management and service continuity.	2	2025	●○○○
G.19 Engage with the Water Security Agency to better understand Gardiner Dam operating procedures in order to clearly define resiliency needs. Identify and analyze other water security risks.	2	2025	●○○○

3.4.2 Evacuation Planning

The City continuously works with external partners and stakeholders to ensure appropriate evacuation procedures are in place to respond to external evacuation events (e.g., floods, forest fires, etc.) EMO plays a major coordination role in these evacuations, in collaboration with local, regional, and provincial agencies. Designated evacuee locations in the city include the Saskatoon Kinsmen/Henk Ruys Soccer Centre and the Cosmopolitan Civic Centre, with a total capacity of 1,000 evacuees. Further review of evacuation capacity is needed in the context of climate projections.

Plans for evacuations of Saskatoon residents and surrounding communities are in draft form, and will be further developed as we make our way out of the COVID-19 pandemic.

Table 28. Evacuation Planning: Actions

Action and Initiative	Priority (1,2,3)	Start by Date	Progress
Action H: Continue work with internal staff and external partners to improve evacuation processes.			
H.20 Continue to work with the Provincial Emergency Social Services Committee, City stakeholders, external partners, and at-risk communities to define efficient, culturally appropriate evacuation processes and suitable temporary housing locations that balance the needs of those in unsafe situations with the needs of Saskatoon residents.	1	2021	●●●●

Not Started ○○○○

Initiated ●○○○

Moderate Progress ●●○○

Significant Progress ●●●○

Complete ●●●●

3.4.3 Social Impacts of Climate Change

Affordability is an important consideration to setting utility rates, balancing costs for consumers, covering operating and asset replacement costs, and incentivizing conservation. There are already some tools in place to mitigate this, for example, water rates are structured on an inclining-block whereby low volumes for basic water needs are charged at a low rate and higher volumes are charged at a higher rate to encourage conservation. The inclining-block rates are reviewed periodically. Other tools such as time-of-day pricing will be explored with the completion of the Advanced Metering Infrastructure system.

Table 29. Social Impacts of Climate Change: Actions

Action and Initiative	Priority (1,2,3)	Start by Date	Progress
Action I: Engage with internal staff to better understand how community needs may be impacted by climate change.			
I.21 Analyze the affordability of corporate utilities from a social-equity lens and define options to improve affordability.	3	2029	●○○○
I.22 Identify potential new services or changing service levels required due to exacerbated social inequities.	2	2025	●○○○
I.23 Analyze the impacts of “climate refugee” migration to Saskatoon on population growth and service demand.	2	2025	○○○○

3.5 Actions to Improve Asset Resiliency

Climate change poses risks to our assets and infrastructure. Continuing to design and build using only historical or current climate information is likely to result in, at best, faster deterioration and higher insurance premiums; at worst, asset failure causing destruction of property, the environment, and lives. The actions in the *Adaptation Strategy* call for integrating climate risk considerations into the design and management of assets by updating/creating asset management plans and construction and design standards to improve resiliency. The *Adaptation Strategy* also highlights the value of our natural assets and includes actions that support the development, maintenance, and improvement of green infrastructure as part of building a resilient city.

Resiliency is built on aspects such as response and recovery planning, financial capacity, and crisis leadership. Our current measure of resilience includes the type of threats and hazards, adaptation strategy, resilience assessment, and identified improvements and/or interventions.

3.5.1 Asset Management for Climate Change

In 2019, the City adopted an *Asset Management Policy* and is currently in the process of implementing a Corporate Asset Management System including an *Asset Management Strategy* and asset management plans. The resilience of our critical infrastructure is vital to our customers and the services we provide. To adapt to changing conditions and grow over time we need to understand our capacity to respond to disruptions and be positioned to absorb disturbance and act effectively in a crisis to ensure continuity of service. This integrated approach expects all City Divisions to plan for and maintain new and existing assets such as natural ecosystems (e.g., wetlands and aquifers), the constructed environment (e.g., roads, buildings, and playgrounds), and equipment. Through the asset management process, we can start integrating climate risk considerations and resiliency into our new and upgraded Corporate assets.

Natural assets provide a range of ecosystem services, including storm water management, water purification, habitat, recreation, community building, and carbon sequestration. In 2020, City Council received the results of a pilot project which valued two natural assets, the Small Swale and the northwest section of Chappell Marsh, providing a framework for how future assets can be valued. Integrating natural assets into the City Asset Management System will provide a more holistic understanding of both built and natural assets, so that we can prepare for an uncertain future.

Not Started ○○○○ Initiated ●○○○ Moderate Progress ●●○○ Significant Progress ●●●○ Complete ●●●●

Table 30. Asset Management for Climate Change: Actions

Action and Initiative	Priority (1,2,3)	Start by Date	Progress
Action K: Integrate climate risk consideration and resiliency building options in the development of the Corporate Asset Management Program.			
K.24 Develop and document processes that allow future climate projections to be considered in the design of new and upgraded corporate assets.	1	2021	●●●●
K.25 Review all corporate design/construction standards and building code requirements against projected climate change in order to identify and inventory areas where future conditions could surpass current thresholds.	2	2025	●●●●
K.26 Network and share information with other municipalities that will likely experience Saskatoon's projected climate conditions.	1	2021	●●●●
K27 Continue to participate in Saskatoon Water's design curve update project to inform climate projection and risk management through asset design.	1	2021	●●○○

3.5.2 Consider Green Infrastructure on Par with Grey Infrastructure

The *Green Infrastructure Strategy* was received by City Council in 2020, and lays out a vision for a green network that provides sustainable habitat for people and nature. The holistic green network considers natural, enhanced, and engineered green infrastructure, which as a system provides far more effective services when considered together than when apart.

A water conservation strategy is currently under development and will help build resiliency to our water systems and green space network by reducing peak summer use in order to ease demands on capacity-limited infrastructure and by meeting our community's many goals including water conservation, emission reduction, water affordability, and capital-cost management.

As well, the *Urban Forestry Management Plan* represents a key document to regulating the management of the City's urban forest. The urban forest – which includes trees on public and private land – sequesters over 700,000 tonnes of carbon annually and contributes greatly to our quality of life. The plan's recommendations focus on planning for trees and growing, managing, and protecting the urban forest. The plan is expected to be completed in 2021.

Table 31. Consider Green Infrastructure on Par with Grey Infrastructure: Actions

Action and Initiative	Priority (1,2,3)	Target Date	Progress
Action L: Support increased integration of green infrastructure into all available aspects of urban development and through implementation of the <i>Green Infrastructure Strategy</i> and <i>Urban Forestry Management Plan</i>.			
L.28 Support increased use of drought and pest-resistant and native plant species to reduce watering requirements, pest impact and improve biodiversity.	2	2025	●○○○
L.29 Support increased soil and mulch/compost cover in planted areas to improve storm water retention and enhance plant viability.	2	2025	●●○○
L.30 Define opportunities to expand and diversity local food production to improve biodiversity and reduce reliance on distant food producing areas also facing significant climate risk.	2	2025	●●●●

Not Started ○○○○

Initiated ●○○○

Moderate Progress ●●○○

Significant Progress ●●●○

Complete ●●●●

3.6 Community Adaptation

Municipal adaptation plans often include Corporate (internal) and community preparation elements. Ongoing adaptation implementation includes a need to educate, inform, and empower citizens and residents to take personal climate adaptation actions. Understanding what personal adaptation actions are possible can contribute to reductions in feelings of stress, powerlessness, and worry related to climate change often referred to as “eco-anxiety,” which some academic studies are reporting are ever more common especially in young people. A community adaptation strategy would include education and training to increase community resiliency, which would be available to the whole community.

Showing leadership on adapting to climate change regarding civic decisions, staff, services, and assets, starts to pave the way for Saskatoon residents, businesses, and organizations as they also anticipate a changing climate. The next step will be a climate adaptation strategy for the entire community.



4.1 Net-Zero Emissions and Climate Emergency Declarations

According to the Intergovernmental Panel on Climate Change (IPCC), we need to reduce our global carbon emissions by 45% from 2010 levels by 2030 and become net zero by 2050 to meet the 1.5°C scenario of the Paris Agreement¹³. Jurisdictions committed to taking actions to reduce carbon emissions to zero are declaring climate emergencies.

1,870 jurisdictions in 33 countries have declared climate emergencies, representing 820 million citizens. The Government of Canada has declared a climate emergency along with 507 governments in Canada¹⁴. At least five Canadian cities, including Toronto, Vancouver, Halifax, Edmonton, and Hamilton have set zero emission or carbon neutral targets by 2050. Saskatoon's emissions reduction targets of 80% by 2050, fall short of the IPCC recommended targets.

In 2020, the Government of Canada considered a bill called the *Canadian Net-Zero Emissions Accountability Act*¹⁵.

This bill, if passed, legally commits the government to their previously committed target of net-zero emissions by 2050. Given that a state in France was recently found a guilty of “non-respect of its engagements” aimed at combating global warming¹⁶, the implications of writing climate targets into law could be impactful.

4.2 Climate Equity

There exists a growing body of research that highlights the disproportionate uptake of sustainability initiatives by higher-income households as compared to lower-income households in Canadian and American municipalities. This is due, in part, to low- and moderate-income households lacking access to these initiatives because of a variety of barriers, including energy poverty, access to credit, split incentives between property owners and tenants, participation requirements, insufficient outreach and awareness, disparities in neighbourhood amenities, infrastructure and design, colonial and political attitudes around sustainability and natural resources, and other systemic barriers. These barriers are exacerbated by additional factors beyond income including, for example: culture, citizenship, ability, age, gender, and fluency with the dominant language. These factors raise concerns of a growing divide, where differing abilities to adopt and benefit from sustainable solutions could further disadvantage certain communities.

Throughout 2020, we have seen in our own community, and across the globe, the disproportionate impacts of the COVID-19 pandemic on vulnerable populations. According to *Canada in a Changing Climate: Regional Perspective*¹⁷, “the impacts of climate change may exacerbate existing societal inequities, especially among Indigenous peoples, women, people of low socio-economic status, youth and the elderly.”

As the City continues to respond to the causes and effects of climate change, it is crucial that our programs, policies, and services “consider the unique vulnerabilities and strengths of these social groups, and also the means by which race, age, gender and poverty amplify vulnerability or resilience to climate hazards.”

¹³ <https://www.ipcc.ch/sr15/>

¹⁴ <https://climateemergencydeclaration.org/climate-emergency-declarations-cover-15-million-citizens/>

¹⁵ Environment and Climate Change Canada, “Government of Canada charts course for clean growth by introducing bill to legislate net-zero emissions by 2050”, November 19, 2020, Government of Canada charts course for clean growth – Net Zero Emissions by 2050 [News Release]. Accessed at: <https://www.canada.ca/en/environment-climate-change/news/2020/11/government-of-canada-charts-course-for-clean-growth-by-introducing-bill-to-legislate-net-zero-emissions-by-2050.html>

¹⁶ <https://www.theguardian.com/environment/2021/feb/03/court-convicts-french-state-for-failure-to-address-climate-crisis>

¹⁷ <https://www.nrcan.gc.ca/sites/nrcan/files/earthsciences/Prairie%20Provinces%20Chapter%20%E2%80%93%20Regional%20Perspectives%20Report.pdf>

To make significant environmental progress while also upholding a just transition to a low emissions community, initiatives must be planned and resourced to achieve broad uptake by the community. Therefore, addressing constraints and intentionally applying an equity lens to how initiatives are designed, planned, and implemented is required.

4.3 United Nations Sustainable Development Goals

In 2015, a set of Sustainable Development Goals (SDGs) was adopted by all United Nations Member States as a universal call to action to meet the urgent environmental, political, and economic challenges facing the planet¹⁸. The development of the SDGs coincided with another historic agreement reached at the COP21 Paris Climate Conference, and together with the Sendai Framework for Disaster Risk Reduction these agreements provide a set of common standards and achievable targets to reduce carbon emissions, manage the risks of climate change and natural disasters, and to build back better after a crisis.

The 17 SDGs are interconnected, meaning that action in one area will affect outcomes in others. The SDGs recognize the importance of balancing social, economic, and environmental sustainability – consistent with the City’s Triple Bottom Line approach to decision making. Adopting the SDGs is something the City could consider in the future. Administration refers to the SDGs in its sustainability planning, but has not formally incorporated them as a framework.

4.4 Carbon Budgeting

Using carbon budgets to track emissions is an emerging trend in climate action planning for governments around the world. The City of Oslo started using this approach in 2017 and since then Canadian cities, including Edmonton and Halifax, have followed suit.

The principle of a carbon budget is relatively simple as it mimics a financial budget. A carbon budget is the total amount of carbon dioxide equivalent emissions permitted over a period of time to stay within a temperature threshold. Edmonton has set a cumulative carbon budget of 155 megatonnes between 2020 and 2050 to keep warming below 1.5 degrees Celsius¹⁹. Annual amounts are also set, and if they go over-budget in one year, then they must plan to be under-budget in subsequent years. Once a carbon budget is set, it is no longer necessary to compare emissions against a baseline year, instead emissions are compared against the budget.

Edmonton has developed a framework and guidebook that other municipalities could learn from to set, measure, and meet carbon budgets, if directed.

4.5 Climate Change in the Prairies

Climate data and projections are always being updated, including a recent analysis published in *Canada in a Changing Climate: Regional Perspective*²⁰, which provides an update on climate projections in the Prairie Provinces and reiterates the importance of climate adaptation planning.

¹⁸ <https://www.undp.org/content/undp/en/home/sustainable-development-goals.html>

¹⁹ https://www.edmonton.ca/city_government/documents/PDF/CarbonBudgetandAccountingInformation-PolicyBrief-2019-11.pdf

²⁰ [https://www.nrcan.gc.ca/sites/nrcan/files/earthsciences/Prairie Provinces Chapter %E2%80%93 Regional Perspectives Report.pdf](https://www.nrcan.gc.ca/sites/nrcan/files/earthsciences/Prairie%20Provinces%20Chapter%20-%20Regional%20Perspectives%20Report.pdf)

CONCLUSION

This document provides a progress update on the City's Climate Action Plan. The report highlights progress made toward the actions identified in the *Low Emissions Community Plan* and *Corporate Climate Adaptation Strategy*. It is an interim report, expected annually, with a comprehensive assessment of the Climate Action Plan scheduled for 2025.

Support for the implementation of the actions in the Climate Action Plan is critical to meeting the City's climate mitigation and adaptation targets and commitments. It is important to recognize that many of the actions identified in the plan will take years to bear fruit, meaning the window to implement these actions, if the long-term targets are to be met, is narrow. The progress and shortfalls related to the targets have been communicated in this report, showing where more attention is needed. The business cases presented in the Appendix further outline how Administration proposes to continue implementation in alignment with the plan.

Reporting will be repeated through subsequent Climate Action progress reports, as well as through other reporting mechanisms that respond directly to aspects of climate mitigation and adaptation (e.g., *Green Infrastructure Strategy*; *Urban Forestry Management Plan*; *Report on Service, Savings and Sustainability*; etc.). Progress toward targets and actions that are easily measured will also be communicated through the City's Environmental Dashboard.





ACKNOWLEDGEMENTS

Achieving the City of Saskatoon's ambitious climate mitigation and adaptation goals will require the participation of the entire community, as well as support from all levels of government. The City would like to acknowledge and thank the following civic departments for their expertise, insight, and feedback toward the completion of *Climate Action Plan: Progress Report 2020*.

Building Standards

Communications and Public Engagement

Corporate Risk

Emergency Management

Facilities Management

Health and Safety

Information Technology

Parks

Planning and Development

Remai Modern

Roadways, Fleet and Support

Saskatoon Light and Power

Saskatoon Land

Saskatoon Police Service

Saskatoon Public Library

Saskatoon Transit

Saskatoon Water

SaskTel Centre

Sustainability

Transportation

Water and Waste Operations

APPENDIX A

Low Emissions Community Plan: Business Cases in Development

Business Case	LEC Category	LEC Action
COMMUNITY ACTIONS		
Automated GHG Tracking and Monitoring	NA	All
Community Energy Assistance Program (SaskPower partnership)	Buildings and Energy Efficiency	10
Residential Energy Efficiency Incentives – feasibility study, program development, and pilot program that includes education and rebates for energy audits and solar photovoltaics	Buildings and Energy Efficiency	10, 32
Green Business Network YXE – develop and implement education programs, benchmarking, and tools (e.g., Edmonton’s Corporate Climate Leaders Program)	Buildings and Energy Efficiency	11, 12, 15, 16
Industrial, Commercial, and Institutional (ICI) Energy Efficiency and Renewable Energy – feasibility study and program development for financial and non-financial incentives for multi-unit residential and ICI building energy retrofits (e.g., property assessed financing)	Buildings and Energy Efficiency	11
Electric Vehicle Adoption Strategy – includes EV charging network, education or incentive programs for commercial and residential and automotive dealer partnerships, and phase-in and funding requirements for Saskatoon Transit and City fleet	Transportation	21, 22
Solar Administrative Review – identify barriers in the administrative and permitting processes for solar PV installations, for commercial and residential sectors	Energy	32, 33
Utility Scale Solar Program: feasibility, planning and prioritization	Energy	34
Renewable Energy Storage Feasibility Study	Energy	38
Water conservation programs – phased implementation of <i>Water Conservation Strategy</i> including feasibility, program development, and some implementation	Water Conservation	25, 26
Implementing Green Teams and Leading by Example waste diversion/reduction	Waste Management	24
Feasibility Studies to Increase Diversion by 3.5-7% 1. Construction and demolition program (City options) 2. Recycling market development for Recovery Park 3. Landfill ban	Waste Management	24
Multi-Unit Organics Pilot and Program Design Deliverables: 1. Multi-unit organics pilot 2. Eco-ambassador program pilot 3. Phase 2 engagement 4. Implementation and funding plan	Waste Management	24
CORPORATE ACTIONS		
High Performance Civic Building Policy Phase 3 – Green Standards for Existing Buildings – Procedure and Implementation Guide developed (BOMA Best)	Buildings and Energy Efficiency	1
Deep Energy Civic Building Retrofit Phase 1 – strategy (phased) developed and funding request	Buildings and Energy Efficiency	2
Energy Conservation for Civic Buildings – Phase 1: Strategy Development: 1. Appliance inventory 2. Appliance upgrade funding plan and request 3. Energy conservation strategy plan and funding request	Buildings and Energy Efficiency	3
Site-Scale Municipal Solar Assessments and phased Construction	Energy	29

APPENDIX B

Climate Adaptation Strategy: Business Cases in Development

Business Case	Local Actions Category	Local Actions - Action
CORPORATE ACTIONS		
Triple Bottom Line Sustainment Phase – support for continued use of TBL policy and framework across the corporation	Decision Making	A.1
Environmental Management System – Management System Development and Pilot	Decision Making	A.1
Climate Adaptation – program development and sustainment – full time staff support	Decision Making	All
Green Network Program – establish a Natural Areas Management Plan template and long-term capital and operating plan to complete and sustain Natural Area Management Plans for all identified priority sites. The deliverables for this phase include: 1. Finalize the template for Natural Areas Management Plans 2. Pilot the template in one natural area (Small Swale) and one naturalized area (RSBBAA) 3. A capital and operating program plan to complete outstanding and sustain existing natural area management plans 4. Complete a Traditional Land Use and Knowledge Assessment to align all future Natural Area Management Plans with Truth and Reconciliation recommendations	Asset Resiliency	L
From Grey to Green Program Establishment – this program will support integration of green infrastructure principles, green asset management, and climate resiliency in all engineered assets and initiatives in a reliable and consistent manner. Deliverables for Phase 1 are: 1. Inventory and prioritization of Grey to Green opportunities 2. Feasibility studies/funding applications/implementation of Grey to Green priority projects 3. Corporate Education and Training Program 4. Feasibility Study - Financing Green Infrastructure 5. Community Development Standards - feasibility study and design	Asset Resiliency	L
Green Infrastructure Strategy Operating – full time staff support	Asset Resiliency	L
Naturalized parks – Phase 1: Feasibility Study	Asset Resiliency	L.29
Sustainable Food Program – Part 1: Food Pilot Projects: 1. Traditional food and medicines program 2. Food forests 3. Food waste reclamation program 4. Zero waste schools program 5. Residential food waste reduction 6. Preparation of Business Case for Phase 2 Saskatoon's Food Strategy	Asset Resiliency	L.30
Community Climate Adaptation - Develop Plan	Community	NEW
Growing Community Program – Phase 2: Education and Stewardship Program: 1. Implement Growing Community Education and Awareness Program 2. Implement expanded grant and incentive program 3. Implement a Growing Community School Program 4. Implement a Natural Areas Education Program (in partnership with Meewasin) 5. Update and streamline community stewardship agreements 6. Expand community stewardship program	Community	NEW



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