

STRATEGIC INITIATIVE AND UPDATE**Reducing our Carbon Footprint****Report Purpose**

To provide the Priorities Committee with information on current and planned actions that will reduce Strathcona County's carbon footprint.

Our Prioritized Strategic Goals

Goal 4 - Ensure effective stewardship of water, land, air and energy resources

Goal 2 - Manage, invest and plan for sustainable municipal infrastructure

Goal 7 - Provide opportunities for public engagement and communication

Report

A **carbon footprint** is defined as the amount of carbon dioxide (CO₂) emissions associated with all the activities of a person or other entity (e.g., building, corporation, country, etc.). It includes direct emissions, such as those that result from fossil-fuel combustion in manufacturing, heating, and transportation, as well as emissions required to produce the electricity associated with goods and services consumed. In addition, the carbon footprint concept also often includes the emissions of other greenhouse gases, such as methane, nitrous oxide, or chlorofluorocarbons.

The carbon footprint concept is related to the original idea of ecological footprint, a concept invented in the early 1990s by Canadian ecologist William Rees and Swiss regional planner Mathis Wackernagel at the University of British Columbia. An ecological footprint is expressed as the total area of land required to sustain an activity or population. In contrast, a carbon footprint is usually expressed as a measure of weight, as in tons of CO₂ or CO₂ equivalent per year.

In developed countries, transportation and household energy use make up the largest component of an individual's carbon footprint. Such emissions are included as part of an individual's "primary" carbon footprint, representing the emissions over which an individual has direct control. The remainder of an individual's carbon footprint is called the "secondary" carbon footprint, representing carbon emissions associated with the consumption of goods and services. The manufacturing and transportation of consumer goods are additional contributors to the secondary carbon footprint. A variety of different tools exist for calculating the carbon footprints for individuals, businesses, and other organizations.

Carbon footprints can be reduced through improving energy efficiency and changing lifestyles and purchasing habits. Switching one's energy and transportation use can have an impact on primary carbon footprints. For example, using public transit, walking or biking, reduces an individual's carbon footprint when compared with driving. Individuals and corporations can reduce their respective carbon footprints by installing energy-efficient lighting, adding insulation in buildings, reducing potable water use, or using renewable energy sources to generate the electricity they require. Additional lifestyle choices that can lower an individual's secondary carbon footprint include reducing food waste, reusing materials, and switching one's purchasing habits to products that require fewer carbon emissions to produce and transport.

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The carbon footprint of a municipal organization can be reduced through a wide diversity of activities, offering a broader suite of options with direct and indirect applications. Direct actions include actively reducing greenhouse gas emissions, decreasing energy consumption, appropriate land use and planning, habitat conservation and restoration, decreasing waste and consumption, and transitioning to renewable and alternative energy sources. Indirect actions focus on educating and engaging with citizens to increase stewardship behaviours by facilitating opportunities to make better choices in building operations, transportation, land use and development, food securement, waste, consumption, and energy efficiency.

Current and planned actions

It has been 10 years since approval of the Environmental Sustainability Framework (2009). Throughout 2020, we have reflected upon and re-examined our environmental priorities. With the foundation of the previous framework and ensuring relevance with current issues and trends, several new priorities have been incorporated into the updated Environmental Framework (2021). Topic areas have been expanded from five to six and include air, water, land, biological diversity, waste, and energy. Each topic area has clear outcomes and specific objectives identified. Each objective is then manifested by Innovative Practices, Supportive Tools, and Strategic Initiatives.

Innovative practices - what we have been doing since 2009 to achieve the outcomes. These are processes and programs that involve multiple activities across the organization to realize new ways of operating and governing.

Supportive tools - what we have been doing since 2009 to achieve the outcomes. These are plans, policies, bylaws and standards that serve as a foundation for, and substantiate, innovative practices and strategic initiatives.

Strategic initiatives – what we can do moving forward to achieve the outcomes. These are plans, processes, programs, policies, bylaws, or standards that focus on change, spur discussion and garner commitment. They are opportunities that may require an investment of resources dedicated to accomplishing an outcome or objective, and include a scope, budget and timeline.

The following is a summary of the six topic areas, outcomes and objectives, with an emphasis on those current and future actions that relate to our carbon footprint.

Our **airshed** sustains healthy ecosystems and healthy citizens. Objectives – monitor and manage air quality; educate and engage to encourage stewardship behaviours; and reduce green house gas emissions by decreasing energy use, conserving energy, developing and using energy from renewable low-carbon sources. Innovative Practices and Supportive Tools – Fleet anti-idling procedures; Clean Air Responsible Schools Program; Integrated Transportation Master Plan; Trails Strategy; and Dark Sky Preserves. Strategic Initiatives – Purple Air sensor deployment; Safe Shelters; Drive Clean Program; and Corporate Green House Gas Inventory.

Our **watershed** sustains healthy ecosystems and healthy citizens. Objectives – monitor and manage water quality and quantity; educate and engage to encourage stewardship behaviours; ensure water supply meets future needs; and protect the North Saskatchewan River and its tributaries from pollution. Innovative Practices and Supportive Tools – Watershed partnerships; Stormwater Quality Monitoring Program; Wetland Conservation

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Directive; Water Conservation, Efficiency and Productivity Plan; Wetland Replacement Program; and engagement events. Strategic Initiatives – State of the Watershed Report (Beaver Hills Subwatershed Plan); instream flow monitoring; aquatic invasive species management; and Eco-tours.

Land planning, use and management sustains healthy ecosystems and healthy citizens. Objectives – focus on environmental community design, wise use and development of land and buildings; build ecosystem resilience; remediate degraded land; prevent pollution; and engage and educate to encourage stewardship behaviours. Innovative Practices and Supportive Tools – Beaver Hills Biosphere; Sustainable Urban Neighborhood Design; Municipal Development Plan; Land Use Bylaw; Integrated Transportation Master Plan; Transit Master Plan; Municipal Land Framework; Design and Construction Standards; and Recreation and Culture Strategy. Strategic Initiatives – Conservation Reserve Policy; Reserve Network Plan; Light Pollution Policy; and habitat restoration plans.

Biological diversity sustains healthy ecosystems and healthy citizens. Objectives – plan, protect, manage healthy connected ecological network; restore degraded habitats; and educate and engage to encourage stewardship behaviours. Innovative Practices and Supportive Tools – partnerships with wildlife monitoring and management organizations; Beaver Hills Biosphere; Nature Hot Spots; WildTrax; Bioblitz; Conservation of Biological Diversity Policy; and Wetland Replacement Program. Strategic Initiatives – Biodiversity Conservation Plan; native species restoration; land acquisition; Quiet Places; Home Place Parks; and Clean and Green Program.

Waste management sustains healthy ecosystems and healthy citizens. Objectives – monitor and manage waste; and encourage consumption behaviours that reduce waste. Innovative Practices and Supportive Tools – Green Routine 2.0; Broadview Enviroservice Station; waste audits; Hodge Podge Lodge; TRASHfest; Waste Management Bylaw; and Municipal Sustainable Buildings Policy. Strategic Initiatives – Waste Management Roadmap (2021); Textile Strategy; Circular Cities; and Circular Economy.

Reducing energy use, committing to energy efficiency, and embracing renewable energy sources sustains healthy ecosystems and healthy citizens. Objectives – reduce energy use within municipal buildings and operations; increase energy efficiency via land use and transportation decisions; increase renewable and alternative energy sources; evaluate procurement of goods and services; and encourage energy conservation and transition behaviours. Innovative Practices and Supportive Tools – Municipal Sustainable Building Protocol; Green House Gas Emissions Inventory; Energy Efficiency Audits; smart meters; Fleet Telematics GPR System, Fleet Alternative Fuel, Municipal Development Plan, Land Use Bylaw; Facility Master Plan; Space Management Program; and Integrated Transportation Master Plan. Strategic Initiatives – Strategic Energy Master Plan (2022); Circular Cities; Partners for Climate Protection; Urban CO₂ Reduction Plan; EV charging stations; microgeneration technology; green renovation program; and adaptive lighting technology.

Grant opportunities

A comprehensive review of available grants was completed. Over 30 grants were identified that pertained to the one or many of the six topic areas. The grants are available through the provincial and federal governments, non-profits, financial institutions, and industry.

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The inventory of grants, while relevant for 2020, will be tracked and maintained in alignment with the Environmental Framework implementation to ensure opportunities are realized and timely applications planned for in 2021 and beyond.

Incentives

Municipal incentives have been documented via Innovative Practices, specifically those related to energy efficiency and water conservation. These include, but are not limited to, water efficient rebates (WaterSense® toilets) and environmentally friendly built homes (Green Building Rebate Program). Under Strategic Initiatives, further incentives related to the topic areas will be assessed and evaluated for integration into the Environmental Framework implementation in 2021 and beyond.

Annual Targets

On July 7, 2020 Council approved a greenhouse gas reduction target of 15% from 2018 levels by 2030. As the County's Energy Management program is in its infancy, annual targets to reach the above-stated goal are being developed through County facilities and fleet energy consumption. Annual targets along with a comprehensive plan will be set out in a five-year Strategic Energy Management Plan, to be completed by May 2022.

Task Force

A Communication and Public Engagement Plan for the Environmental Framework has been developed. While a Task Force specific to reducing our carbon footprint has not been considered at this point due to the ongoing challenges with COVID-19 safety measures, it is the intent of the Communication and Public Engagement Plan and implementation of the Environmental Framework to identify opportunities for citizen engagement targeted to the six topic areas.

Council and Committee History

Dec. 10, 2019	THAT administration prepare a report for the end of the second quarter of 2020 on the following: <ul style="list-style-type: none">• Current or planned actions that will reduce Strathcona County's carbon footprint;• Granting opportunities in conjunction with all levels of government that would assist in reduction initiatives;• Possible incentives that would encourage Strathcona County residents to take action to reduce water and energy consumption;• Annual targets for reduction; and THAT administration establish a Task Force to provide community input as action plans are developed.
June 23, 2020	THAT the due date for the Council report reducing our carbon footprint, be revised from the end of Q2 2020 to the end of Q4 2020 (2020/250).
July 7, 2020	THAT a GHG target of achieving a 15% decrease from 2018 levels by 2030 for municipal buildings be approved (2020/263).

Other Impacts

Policy: Existing policies are referenced within the Environmental Framework and potential policies are identified to meet the outcomes and objectives.

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Legislative/Legal: Existing policies and bylaws are referenced within the Environmental Framework and potential policies are identified to meet the outcomes and objectives.

Interdepartmental: Plans, processes, programs, policies, bylaws and standards documentation involved all County departments.

Master Plan/Framework: The Environmental Sustainability Framework (2009) is currently being updated as the Environmental Framework (2021).

Communication Plan

A Communication and Public Engagement Plan for the Environmental Framework has been developed. The outcomes are to:

- shape stakeholder understanding of regional environmental considerations and improve knowledge of and collaboration in plans/policies/programs and actions
- provide a platform for identifying plans/policies/programs that focus on change, spur discussion and garner commitment

The 2009 Environmental Framework and the update is intended for the organization; therefore, the primary audience is internal (administration and elected officials). With that being said, there is a strong outreach component in each of the topic areas, recommending task forces focussing on specific outcomes (air, water, land, biodiversity, waste, and energy).

An initial component of the Communications and Public Engagement Plan was the October 2020 mixed topic survey offered through the Strathcona County Online Opinion Panel. A number of questions related to the Environmental Framework outcomes were presented. 546 people responded (76% urban, 21% rural, 3% work here live elsewhere), of those, 50% were not aware of the 2009 Environmental Sustainability Framework. The top three environmental concerns were air quality and emissions, loss of green space and urban sprawl, and waste and plastics.