

Strathcona County Fleet Services Carbon Footprint

A municipality's carbon footprint is defined as the total greenhouse gases produced to support operations and deliver municipal services in a given year, usually expressed in equivalent tonnes of carbon dioxide (CO₂). Many activities such as driving buses, heating and powering facilities, and purchasing shipped goods, burn fuel which creates a certain amount of greenhouse gases.

Fleet is a significant and visible part of a municipality's carbon footprint. Considering that local governments have influence over approximately 50% of Canada's greenhouse gas emissions¹, it is critical to investigate cost-effective ways to reduce emissions.

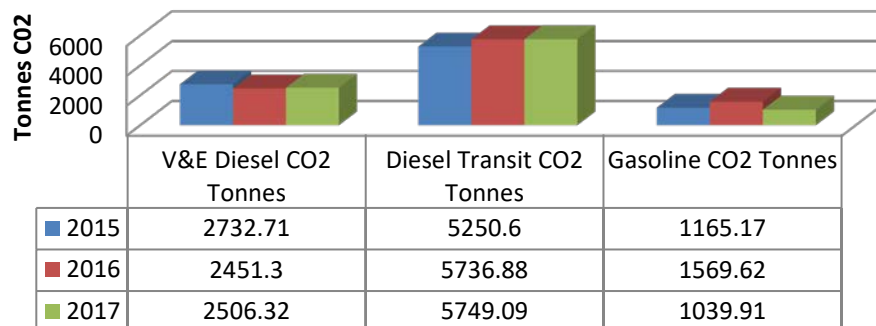
Strathcona County continues to work in this area and Fleet Services is engaged and excited to support the organization in its efforts to reduce its carbon footprint.

How is a carbon footprint calculated?

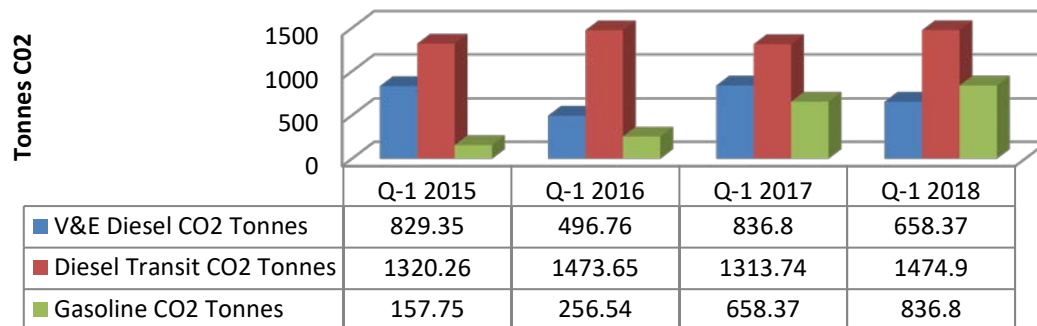
Currently, Fleet Services measures its impact on Strathcona County's carbon footprint by measuring total fuel consumed. This is a best practice that is followed within the Fleet Industry.

Different fuels, such as gasoline and diesel, emit different levels of CO₂ when burned. The attached charts illustrate the carbon footprint over a three-year history and with four years of Q-1 results.

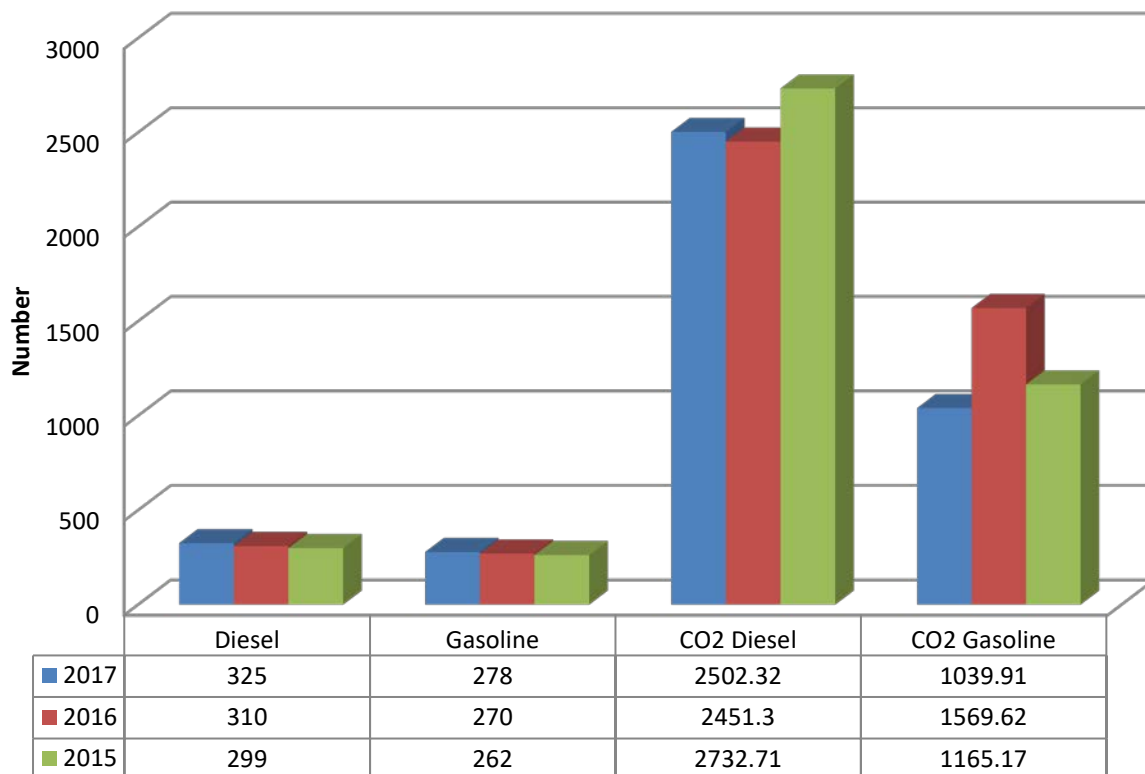
Strathcona County Fleet Carbon Footprint 3-Year Comparison

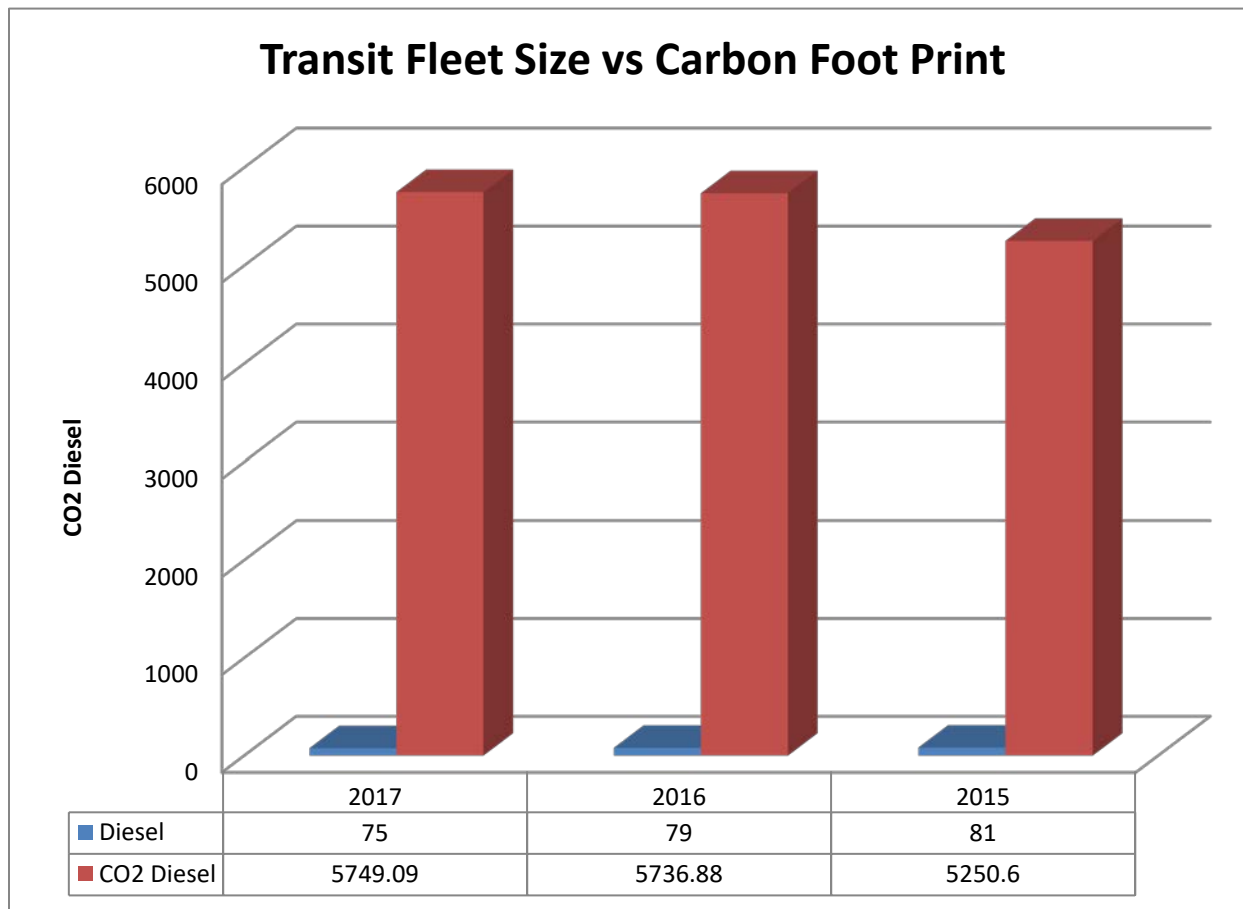


Strathcona County Fleet Carbon Footprint Q-1 Comparison



Fleet Size vs Carbon Footprint





What factors influence Fleet Services' carbon footprint?

Vehicle selection

Fleet Services considers a number of factors when selecting the most appropriate vehicles to support annual vehicle and equipment replacement programs. Each of these factors are considered and weighed against department business requirements:

- Size and type of vehicle to meet departmental work requirements
- Engine size
- Fuel economy
- Emissions / carbon foot print
- Maintenance programs

How does Fleet Services make the best procurement decisions?

Fleet Services follows a strategic approach that involves thorough research and assessment of all factors that could impact budget, capital expenditure decisions, leasing options and cost of ownership.

1. Use and operation

Examining the intended use for the vehicle, Fleet Services focuses on the required vehicle features and capabilities, and considers things such as size, style and carrying capacity –what types and amounts of supplies, products or equipment will the vehicle need to carry?

Councillor Request Inquiry

30-2018

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Downsizing the vehicle is advised if operations do not necessitate a larger vehicle. By reducing unnecessary vehicle weight, valuable fuel savings are realized. Additionally, vehicles that require service and flat deck bodies are manufactured from lightweight materials (aluminum) to reduce overall vehicle weight, which reduces fuel economy.

2. Standardizations and specifications

Fleet Services performs in-depth research and review of current North American standards and guidelines. Currently, this includes the Tier 3 standards phase-in from 2017–2025 which applies to vehicles up to 14,000 lbs gross vehicle weight. Once fully phased in, Tier 3 tailpipe Parts per Million (PM) and NOx+NMOG emission limits for light- and medium-duty passenger vehicles are the most stringent in the world.

Fleet Services identifies engine choices that improve fuel economy, curb emissions, comply with legislation, reduce costs and more. Where possible, it is recommended to downsize to smaller engines that tend to be more fuel-efficient. Fleet Services considers engine specifications that utilize the three types of fuels currently used by Strathcona County fleet:

Tier 3 fleet average NMOG+NOx SFTP standards

Emission	2017*	2018	2019	2020	2021	2022	2023	2024	2025
NMOG+NOx (mg/mi)	103	97	90	83	77	70	63	57	50
CO (g/mi)	4.2								

- Gasoline
- Diesel Fuel
- Diesel Efficient Fuel

Fleet Services has moved away from the use of diesel engines in light duty engines, due to improved fuel economy and lower emissions using gasoline power. When creating specifications for engines for heavy trucks and equipment, Fleet Services considers the most fuel-efficient engines that produce near zero emissions using ultra low sulfur diesel fuel.

There are many operational factors that affect the fuel consumption required to deliver municipal services in any given year, and total fuel consumption varies based on:

- Fleet size
- Weather
- Winter operations
- Transit ridership (showing an increasing trend)
- Size of vehicles (e.g., double decker bus vs. regular bus)

How does Fleet Services mitigate its impact on the County's carbon footprint?

1) Frequent and appropriate vehicle maintenance

A poorly-maintained vehicle burns up to 30 percent more gas than one that is regularly servicedⁱⁱ. Fleet Services follows a strict and efficient fleet maintenance program for Strathcona County's fleet. This in turn reduces overall fleet emissions.

2) Research on alternative fuel opportunities for Strathcona County's fleet

The department continues to research alternative fuel options:

- the benefits and disadvantages of alternative fuels,
- the potential to reduce fuel costs and emissions, and
- the capacity to improve air quality and resident quality of life.

This research will prepare the County to be a leader in the alternative fuel arena and provide the corporation the information necessary to make sound decisions in the future.

What future opportunities exist to reduce the carbon footprint of Strathcona County's fleet?

Fleet Services continues to support our plan to reduce and improve the County's foot print Fleet is currently using the following best practices:

- **Right size vehicles and overall fleet size.**
 - Control Fleet growth by utilizing vehicles that have multi use
 - Pooled and shared vehicles necessary to the fleet
 - Purchase the right sized engines to meet requirements
 - Added Hybrid vehicles to the Fleet
- **Set purchasing rules.**
 - Revised replacement life cycles
 - Review alternative-fuel options
 - Purchase units that offer greater fuel efficiency
- **Utilize the use of telematics data.**
 - Telematics help to identify ways to create fuel conservation measures and reduce emissions
 - Measure vehicle idle time
 - Aggressive acceleration, and braking
- **Track fuel usage and create Carbon Foot Print measures**
 - Utilize industry approved calculations
 - Provide vehicle idle reports quarterly

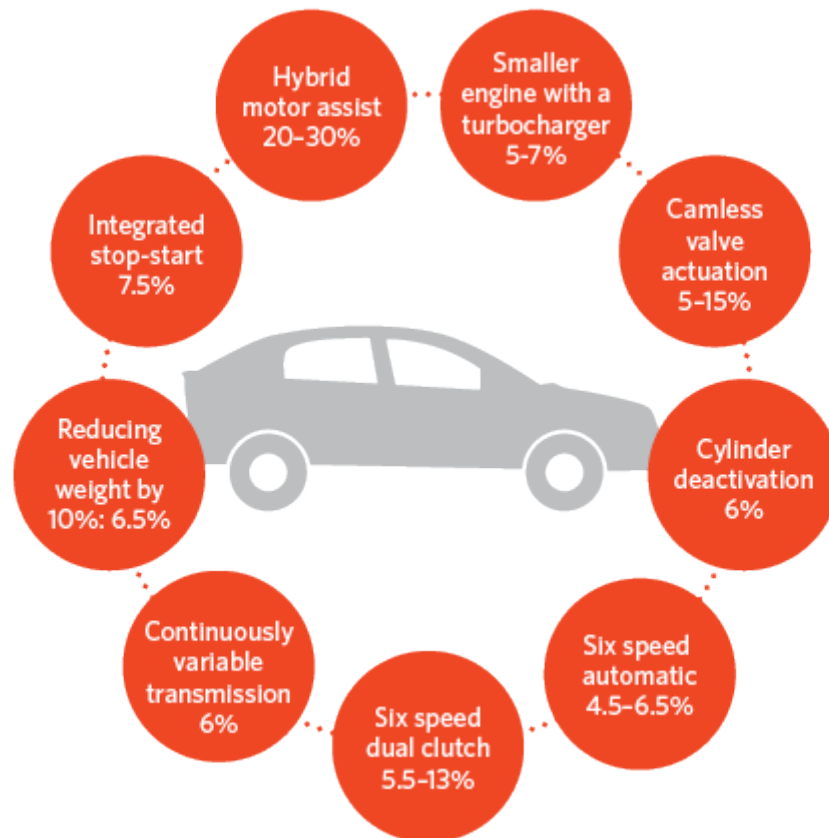
Research shows that organizations that have developed emission reduction policy must invest time to create a well-thought-out policy that will serve Strathcona County for years to come.

1) Maximizing FMS capabilities

The Fleet Management Software (FMS) system utilized by Fleet Services is a highly sophisticated software system capable of providing a wide variety of functions to enhance the efficiency and effectiveness of operations. Fleet Services continues to make progress in how to use the system to track and manage a variety of factors.

2) Investing in more efficient vehicles and technologies

Perhaps the most effective approach to reducing a municipality's fleet greenhouse gas emissions is the investment in more efficient vehicles and technologies. Research on alternative fuel sources conducted by the department will prepare the County for sound future decision-making and support fleet user departments in business decisions related to fuel sources and vehicle procurement. The figure below shows a variety of emissions reducing opportunities that could be capitalized on.



3) Continue to enhance measurement tools

Fleet Services will continue to develop tools to measure Strathcona County's carbon footprint resulting from vehicle and equipment selection. This will support opportunities to make real, measurable, and cost-effective reductions to the greenhouse gas emissions from the corporate fleet.

***Strathcona County Fleet Services is committed to a greener future—
making cost-effective environmental choices for safe and efficient operations.***

ⁱ www.fcm.ca

ⁱⁱ www.transportation.alberta.ca