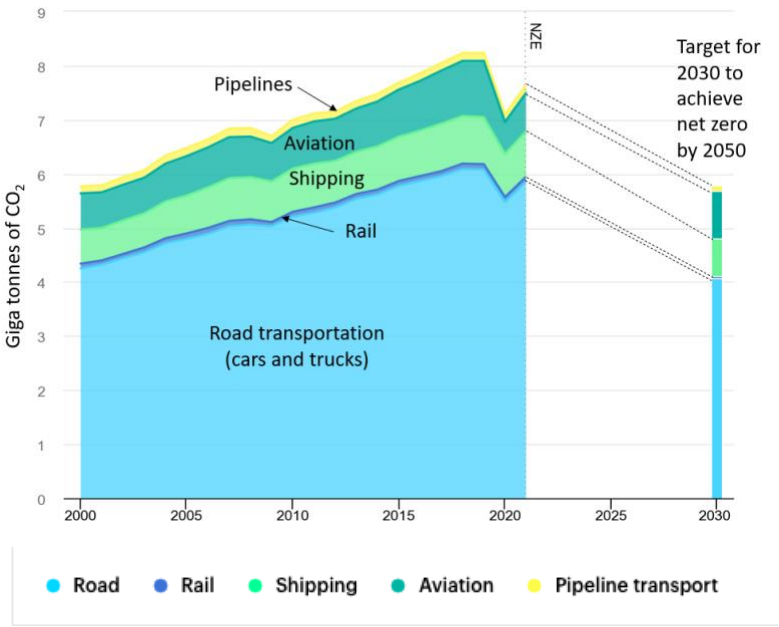
CLIMATE CHANGE & TRANSPORTATION

Global Context

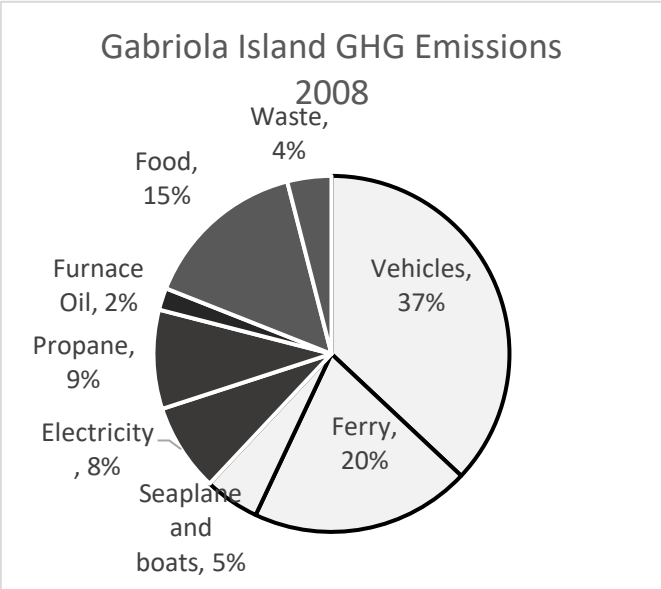
The International Energy Association states that transport has the highest reliance on fossil fuels of any sector and accounted for 37% of C02 emissions from end-use sectors in 2021. There was a decrease in emissions from transportation during COVID. However, emissions are rising back to their pre-Covid levels. Road transport is the largest contributor, with 5.8 6 Gt C02 in 2021, as seen in Figure 1. Shipping produced 0.84 Gt C02 and Aviation 0.71 Gt C02 in 2021. To achieve a Net Zero (NZ) emissions by 2050 goal there would need to be a 3% per year reduction from now to 2030 (NZ depicted in bar to right in Figure 1).

Figure 1: Global C02 Emissions from Transport by Sector



Twenty-five percent of global C02 emissions from transportation sector come from North America and the majority of those emissions come from road vehicles (IPCC). Strategies proposed by IPCC and IEA include a) increase electric vehicles, b) reduce kms travelled, and c) increase vehicle efficiency.

Gabriola and Transportation



A 2008 Gabriola report indicated that approximately 62% of GHG emissions on the island came from transportation, with 37% of those from passenger vehicles (the report did not include transportation of goods to Gabriola). In 2019 it was estimated that personal vehicles on Gabriola emitted approximately 7,260 tonnes, which is 1,513 tonnes higher than 2008.

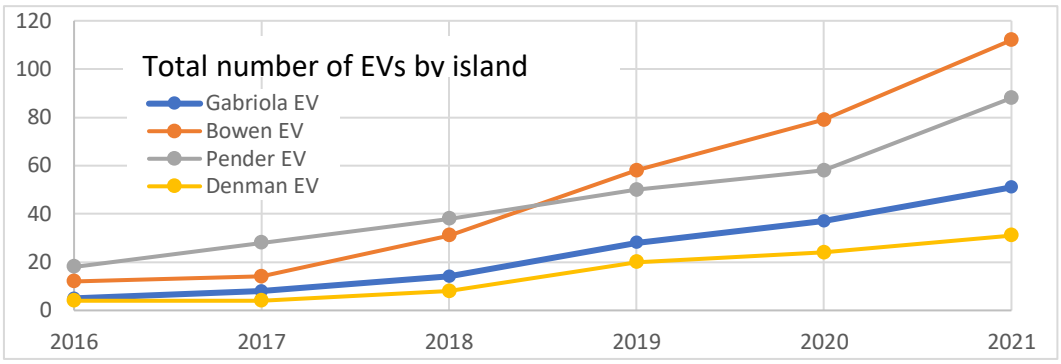
There are numerous strategies to reduce the emissions caused by fossil fuel passenger vehicles including:

Buses and trains: Gertie is perfect for Gabriola travel. Public transit in RDN takes passengers north as far as Qualicum and south as far as Duncan. There is also the IslandLink, which travels south to Victoria and north as far as Campbell River. Trains travel from Vancouver to Seattle for only $40/person.

Car sharing: Car-pooling, Car share apps, and Car share formal and informal co-operatives. Modo is a car share cooperative with vehicles in Nanaimo, Vancouver, Victoria and Kelowna. Members book cars when they need a vehicle

and pay for kms travelled. At the Economy Climate Café it was suggested that we create a transportation co-operative on Gabriola. If you're interested, please feel out the short survey (https://forms.gle/3EJMc4wPHDsdeUkw5).

Electric Vehicles (EVs): The number of EVs on Gabriola is rising but not as fast as on other islands. An initiative to increase the number of EVs to 50% by 2030 is underway on Gabriola. A key concern regarding EVs is the longevity and mining of minerals. The batteries last over 10 years and are recycled either as home batteries or the minerals are extracted and reused. The mineral concerns are addressed in the footnote below[1]. In BC we are fortunate to have very low emission electricity resulting in minimal emissions when driving an EV or and E-bike.

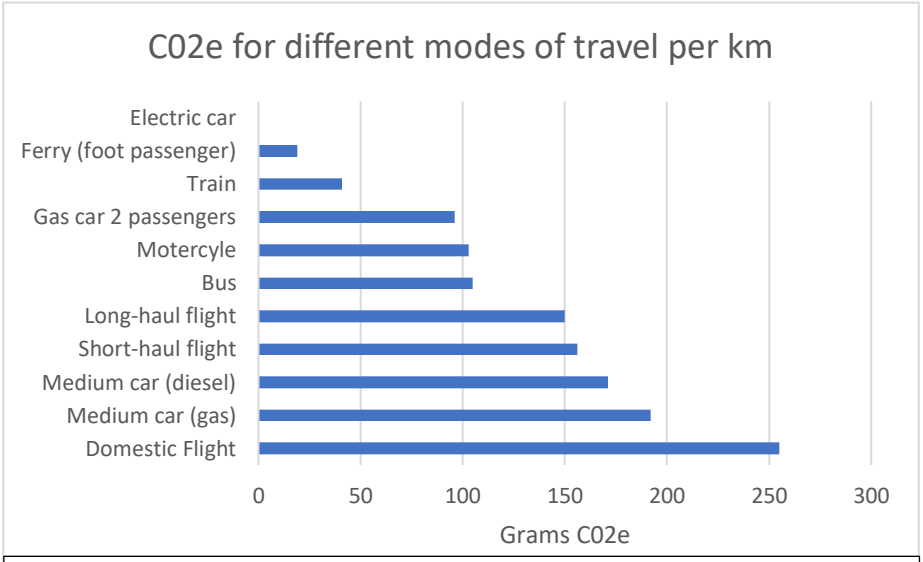


Walking, biking and E-bikes (non-emission travel modes): Fit your non-emission travel mode to your fitness level and your distance.

Reducing kilometres travelled: a) If using a fossil fuel vehicle combine errands and appointments into one trip where possible, b) buy local, c) local vacations, d) walk on the ferry rather than drive and use public transit, bike or Modo.

Alternative fuels: Biodiesel from waste vegetable oil was used on the Gertie buses and is now being used by GIFT (Gulf Island Food Transport) on Gabriola.

Carbon calculators provide us with information about how many C02 emissions we are creating through our various actions, including transportation. There are numerous calculators on the internet. Here is one that takes into account local factors and provides specific calculations for each component: https://www.carbonfootprint.com/calculator.aspx.



Source of data: UK Department for Business, Energy & Industrial Strategy. Greenhouse gas reporting: conversion factors 2019.

[1] Virtually all electric vehicles in use today use Li-ion batteries. That's because they can repeatedly charge and discharge without losing significant capacity. A Li-ion battery has many different metals in it, and some of those are in relatively scarce supply at present and also come with both social and environmental issues. The main materials are cobalt (~7%), lithium carbonate (~7%), nickel (~4%), manganese (~10%), aluminum (~14%), graphite (~16%), other materials (36%) – although variations on these exist. A Nissan Leaf has a battery that weighs just over 300 kg, so that's 21 kg cobalt, 21 kg lithium carbonate, 42 kg aluminum and so on. Cobalt mining is mostly done in the Dem. Rep. Congo and there are both environmental and social issues (e.g., child labour). Much of the lithium recovery is from salt lakes in South America and there are social issues (mostly around water supply).

An average fossil fuel car driven 10,000 km/y for 15 y consumes 15,000 L of fuel. That's about 75 large 45 gallon drums, and results in the emission of 35 T of CO_2 to the atmosphere plus particulate matter, nitrous oxides and heavy metals. Fossil fuel vehicles are the largest contributor to climate change. The social and environmental costs of EVs are tiny in comparison to the deaths and damage due to climate change.