

# Summary of FNDC Carbon Emissions Inventory Results 2018/19

Prepared August 2020

## Context - Reducing or preventing the emission of greenhouse gases

The Paris Agreement target is to limit global temperature increase this century to between 1.5 and 2°C above pre-industrial levels. Global temperatures are already between 0.8-1.0°C above this level, so the window to respond is narrowing rapidly.

In line with the Paris agreement, the Climate Change Response (Zero Carbon) Amendment Act 2019 (ZCA) sets targets for New Zealand:

To reduce emissions of greenhouse gases (except biogenic methane) to net zero by 2050 and to reduce emissions of biogenic methane to 24–47 per cent below 2017 levels by 2050, including to 10 per cent below 2017 levels by 2030 (ten years' time).

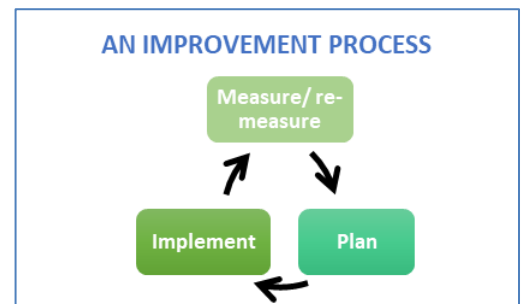
Under this legislation, Council will be required to reduce its own carbon emissions and report on progress to government.

## Our Climate Change Roadmap commitment

On 14 May 2020, the council resolved that we should reduce our own greenhouse gas emissions in line with the government's national emission reduction targets or better.

Steps in the process will be:

1. **Measuring our emissions** – the subject of this summary report
2. **Planning** – identifying and prioritising opportunities to improve, setting targets for greenhouse gas reduction
3. **Implementation** – putting in place plans to reduce our emissions
4. **Monitoring** – re-measuring every two years



## The Carbon Emissions Inventory 2018-19

We commissioned WSP to conduct an organisational or 'corporate' greenhouse gas (GHG) inventory for FNDC for the financial year 2018/2019.

This follows the guidelines in the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard, 2004 (GHG Protocol) and the Corporate Value Chain (Scope 3) Accounting and Reporting Standard, 2011.

The inventory reports on:

- **SCOPE ONE:** all direct emissions from operations which FNDC owns or controls, such as fuel for the fleet, landfill which we own, waste water treatment and refrigerants used in the facilities we use
- **SCOPE TWO:** indirect emissions from electricity used in our facilities and to process waste water and drinking water
- **SCOPE THREE:** other indirect emissions such as air travel, employee commuting and freight of recycling and solid waste out of the District

NB. There were a number of gaps in the data due to information not being available or likely to be very small as a contributor of GHG emissions e.g. taxi travel and office waste. Embodied carbon in capital projects e.g. for roading was not included in the inventory but could be included in subsequent measures.

## High-level results



# 6,241 tonnes CO<sub>2</sub>e

2018/19 financial year

CO<sub>2</sub>e stands for carbon dioxide equivalent – it includes carbon dioxide and other greenhouse gases such as methane and nitrous oxide etc



## Breakdown

Source	Tonnes CO <sub>2</sub> e	% of total	Rank
<b>Scope 1 - 4,707 tonnes CO<sub>2</sub>e</b>			
WWTP	3,212	51%	1 <sup>st</sup>
Russell landfill	999	16%	2 <sup>nd</sup>
Fleet fuel	442	7%	4 <sup>th</sup>
Facilities (refrigerants, diesel for standby generators etc)	55	1%	
<b>Scope 2 - 391 tonnes CO<sub>2</sub>e</b>			
Electricity for WWTP	147	2%	
Electricity for facilities (offices, service centres, libraries and street lighting etc)	127	2%	
Electricity for DWTP	116	2%	
<b>Scope 3 – 1,143 tonnes CO<sub>2</sub>e</b>			
Commuting – data from employee scheme via IRD which paid back 191 staff members who commuted 20 kms or more to work each day (round trip)	702	11%	3 <sup>rd</sup>
Waste Transfer	370	6%	5 <sup>th</sup>
Air Travel	71	1%	
<b>Total</b>	<b>6,241</b>	<b>100%</b>	

## Main carbon emissions reduction opportunities and recommendations from WSP

WSP noted that in many cases, there will be financial savings or other economic benefits associated with implementing these recommendations.

### Wastewater Treatment Plants

- plan to move away from anaerobic pond technology (for Paihia, Kaikohe and Rawene) when plants are upgraded
- establish monitoring programmes for methane and nitrous oxide emissions. In response to the monitoring results, workshop appropriate options for decreasing these emissions and include these in the long term plan and capital works programme
- collect influent flow data and routinely monitor incoming wastewater for BOD (organic matter) and for TKN (nitrogen) that provide key data in the assessment. Measures should be sufficiently frequent to determine the changes of emissions from visitors to the district that can substantially increase the population served.

## Landfill Emissions

Investigate the following options:

- divert methane generating waste (e.g. food waste) from the Russell landfill, and set up a composting scheme to capture the diverted waste
- at this landfill install gas capture to power a gas generator and/or install a flare to destroy methane
- upon closing the landfill at the end of its useful life, install a biocap which can increase oxidation rates of methane passing through it, converting it to CO<sub>2</sub>
- alternatively, close the landfill before it reaches capacity and truck waste to the Puwera landfill – this would save an estimated 990 tonnes of carbon.

## Vehicle and Fuel Usage

Explore the following options to reduce fuel consumption:

- transition the fleet to electrical vehicles (EVs) or other fuel or transport alternatives to reduce fossil fuel use
- whilst transitioning to an EV fleet, encourage the use of petrol fleet vehicles rather than diesel as petrol vehicles are generally less carbon intensive
- investigate the feasibility of transitioning diesel vehicles to a biodiesel blend to reduce the carbon intensity of the diesel fleet
- encourage and / or create an incentives scheme to support commuting staff to transition their private vehicles from carbon intensive options (diesel and petrol) to low carbon alternatives
- consider opportunities for driver efficiency through training and behavioural programmes.

## Electricity Consumption

- investigate efficiency measures separately for the operation wastewater and drinking water treatment sites and FNDC's facilities including buildings and streetlighting,

## Creating Great Workplaces

As the Creating Great Workspaces programme develops and behaviour change is embedded, the following emission sources may be reduced or altered:

- fuel usage for the commercial fleet may alter depending on the proximity of staff at the required work within the district. Digitisation of work records is already reducing the need for field staff to come into the offices.
- reduction in Scope 3 employee commute emissions as more staff work from home.

Consider the following actions:

- establish an employee commute emissions baseline through an employee survey (suggested survey questions were included in the report)
- calculate employees' personal carbon emissions and embed behaviour change e.g. through the FutureFit programme developed by Auckland Council
- launch an employee e-bike purchase support programme by following the NZTA scheme guide. Other councils have followed this approach such as Tauranga City Council where this scheme has enabled 50 staff to purchase e-bikes for their work commute
- monitor employee commuting patterns annually to enable carbon emissions to be calculated.

## Strategic Planning

WSP noted that where the culture of an organisation and its supply chain has been engaged to decarbonise its operations programme, the result can be astounding. To begin this work, the following actions were recommended:

- ensure any investment in new assets and capital equipment mandates energy efficiency and low carbon options as key considerations in decision making and procurement processes
- use the GHG inventory to set carbon reduction targets for the Council and its departments including KPIs to assess progress against these targets
- establish a long-list of interventions to reduce emissions and then refine and rank these based on: carbon reduction potential, cost to implement, payback period and managerial, technical, commercial and procurement implementation processes (with focus on WWTPs)

- conduct a rapid review of FNDC policies, development guidelines, procurement systems and standards to identify how these can be revised to facilitate and encourage Council’s decarbonisation pathway.

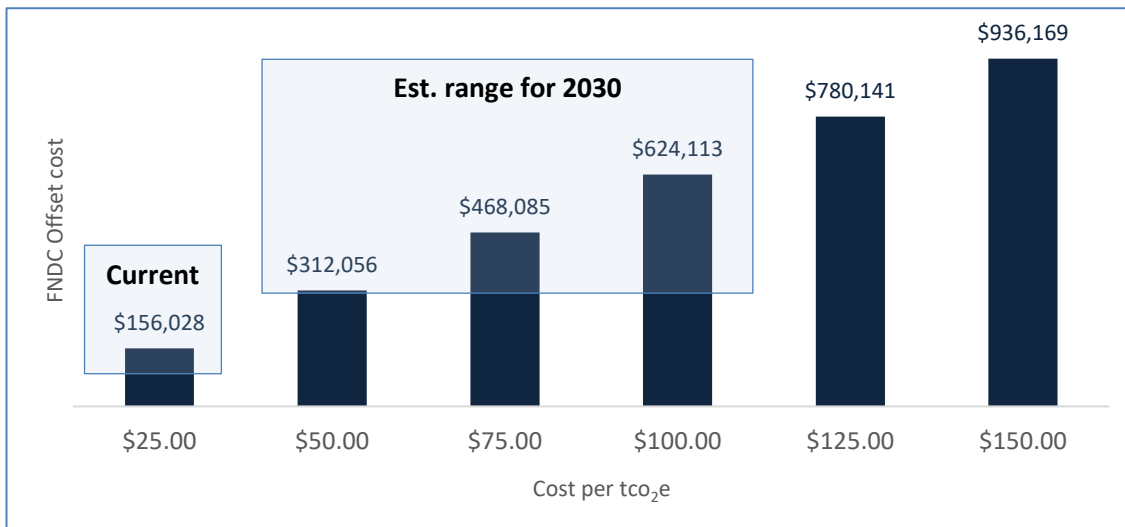
The cost of offsetting FNDC’s carbon emissions to achieve ‘net zero’ status

**"Treat carbon like cash"**

Rick Lomax, Beca Group

As 5-year carbon budgets are set by the government and changes to the Emissions Trading Scheme (ETS) are implemented, the cost of carbon will increase. As of July 2020, the cost of a carbon credit was about \$26 (NZU). This is estimated to increase to about \$50 - \$100 by 2030 (only 9 years away).

Based on FNDC’s total emissions in 2018/19, WSP provided the following cost of carbon offsets for FNDC. This indicates, if no change to carbon emissions is made, the annual cost to offset carbon will be between \$312,056 and \$624,113 by 2030 depending on the level of increase in carbon credit pricing:



Forest carbon sequestration is another approach to reducing FNDC’s carbon footprint

WSP noted that offsetting GHG emissions through forest carbon sequestration can be a helpful approach, with considerable biodiversity, water, social and cultural co-benefits.

Earning NZ Units (NZUs), or ‘carbon offsets’ from forest carbon sequestration could have a number of benefits:

- an additional value stream from forest planting and conservation activities
- a readily available supply of NZUs to offset emissions
- the self-supply of NZUs would reduce FNDC’s exposure to price fluctuations on the open NZU market, especially as prices are expected to steadily increase in coming years.

Next steps

The inventory report will be used to inform draft proposals and initiatives for the Long Term Plan for 2021-31. This is consistent with the Climate Change Roadmap that was adopted by the council. The initial list of initiatives will come in the form of a high level programme of work and/or long list of proposed projects as part of a carbon reduction programme.