

EMISSION REDUCTION PLAN

2025-2035



NAPIER
CITY COUNCIL
Te Kaunihera o Ahuriri

Executive Summary

This document sets out our initial plan for how Napier City Council will reduce greenhouse gas (GHG) emissions at an organisational level and facilitate a reduction in community emissions working towards a net zero by 2050 target.

Achieving a target of net zero carbon emissions requires aspirational change, and the sooner we get started, the more time we have to make the fundamental behavioural and operational changes that are needed to achieve this goal.

Climate change requires all individuals, businesses, communities and government to take prompt action to do their part in limiting global warming. It requires era-scale change that cannot be achieved solely through local government action. For this reason, Napier City Council has joined forces with Hastings, Wairoa, Central Hawkes Bay, Hawkes Bay Regional councils' and mana whenua in the Climate Action Joint Committee. This committee is developing a climate action work programme for the region.

Our efforts to reduce council's own emissions are an important demonstration of our commitment to net zero and role models efforts that we hope other organisations will take to reduce their carbon footprints. Our first step is to get our house in order.

Napier City Council can also influence city-wide emissions through regulation and the construction and maintenance of infrastructure - such as roads and cycleways, by providing information and incentives, developing partnerships and leading by example.

This is an initial plan, while we set ourselves up for success. The plan will need to be revised over the coming years, as we improve our understanding of emissions associated with the services Napier City Council delivers and the infrastructure we invest in, take account of new government initiatives and new technologies and respond to priorities identified by the Climate Action Joint Committee.

Delivering action between now and 2035 aligns this plan with our current three-year plan 2024-2027, the next long-term plan 2028-2037, and our national emission reduction budget periods through to 2035. Our emission reduction actions sit under the financially sustainable strategic priority with actions spread across all areas of council operations.

We are ensuring the infrastructure we build like Te Aka and the refurbished Library Tower are designed and built with a focus of whole of life cycle impacts. Our infrastructure will use industry leading tools to review, quantify and measure low carbon options through the project lifecycle. We are collaborating with suppliers to trial and roll out lower carbon materials in our projects, delivering emission reduction across the supply chain.

We are working to reduce emissions from our own facilities, by replacing fossil fuel gas with alternative low-carbon energy sources and looking closely at energy efficiency and waste heat opportunities.

We are planning to transition Lagoon farm from agricultural activities to the Ahuriri Regional Park. This will reduce our agriculture emissions while improving stormwater treatment and water quality, providing flood resilience and enhancing long-term 'blue' carbon sequestration in coastal wetlands.

We're transitioning our fleet to hybrid and electric vehicles and partnering with others to provide more electric vehicle charging infrastructure in Napier. We've supported low carbon transport options by partnering with Beam Scooter and Locky Docks secure e-bike parking. Our future plans include offering staff other alternatives for commuting, developing a staff travel demand management plan and promotion of walking, cycling and active transport.

We are working with Hastings District Council on our next joint waste minimisation and management plan, which will include initiatives to reduce organic waste to landfill, in line with central government targets.

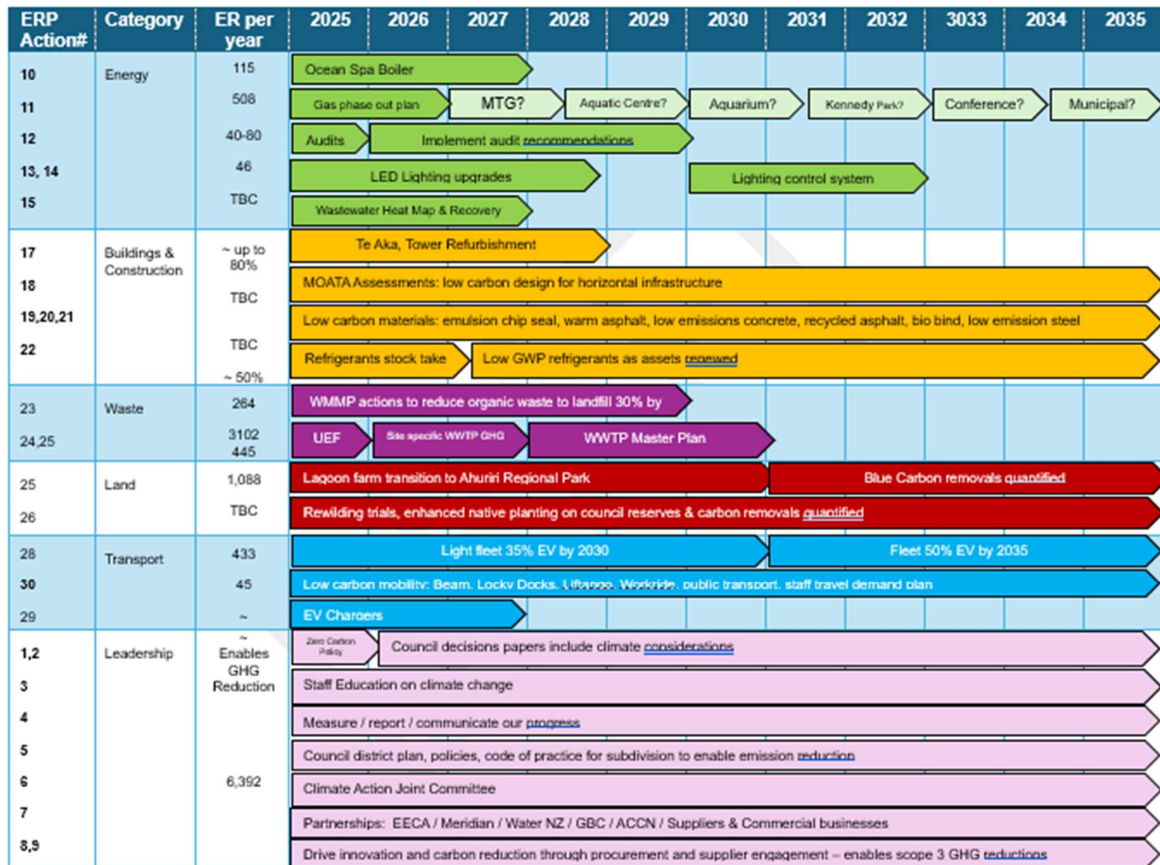
If we can achieve our aspirations as outlined in this plan, we will be on the right track to reduce our organisational emissions in line with what is required to achieve our net zero emissions target by 2050. Our efforts as a council will also support a reduction in Napier’s community emissions – particularly transport emissions, which at 57 percent of the city’s total emissions are the largest source of emissions.

Our actions will not only have carbon reduction and resilience benefits but broader positive outcomes: active transport not only reduces emissions but also promotes physical and mental wellbeing for our staff and community; planting trees and wetland restoration improves carbon sequestration and has biodiversity and recreational benefits.

Between now and 2035 we will be simultaneously reducing our carbon emissions and building our climate resilience so that our city can manage the effects of climate change and support our strategic priorities to be financially sustainable and for Napier to be a resilient city.

Timeline of key actions

Below is a timeline of key actions to reduce Napier City Council’s organisational greenhouse gas emissions.



OUR EMISSIONS

Council's GHG Emissions

Under the Financially Sustainable strategic priority a comprehensive organisational greenhouse gas (GHG) inventory was prepared using 2023 data and in alignment with the ISO14064 reporting standard. This inventory was independently verified, ensuring it was accurate and included all material emission sources, and now forms Napier City Council's baseline for reporting purposes.

Council's activities in 2023 resulted in 36,112 tonnes of greenhouse gas emissions. This includes the energy council uses in its facilities, buildings and streetlights, the petrol and diesel used by vehicles and equipment, wastewater treatment, farming at Lagoon Farm, waste going to landfill, emissions associated with building and maintaining infrastructure, delivering services like kerbside waste and recycling collections, and the procurement of goods and services.

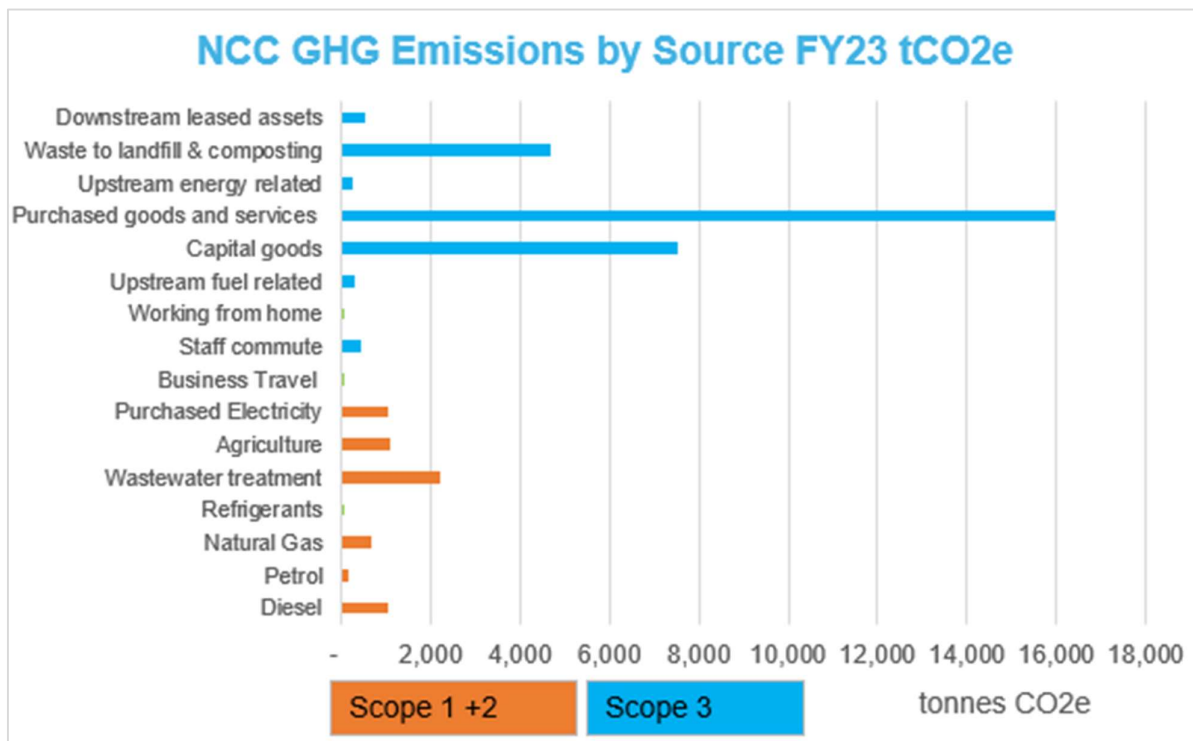


Figure 1: Sources of Napier City Council's corporate greenhouse gas emissions

Note: The council's procurement-related emissions are currently based on money spent multiplied by an industry-wide emissions factor. We will be looking to improve the accuracy of this information as one of our actions outlined in this plan.

EMISSION SOURCE		FY2023
SCOPE 1 CATEGORY 1: DIRECT GHG EMISSIONS	Category	t CO₂e
<i>Fuel Use in Mobile Combustion</i>		
Diesel	1	1,054
Petrol	1	182
<i>Fuel Use Stationery Combustion</i>		
Natural Gas	1	680
<i>Fugitive Gas</i>		
Refrigerants	1	30
<i>Biogenic emissions</i>		
Wastewater treatment	1	2,225
Agriculture	1	1,088
Category 1: Direct GHG Emissions		5,258
SCOPE 2 CATEGORY 2: INDIRECT GHG EMISSIONS IMPORTED ENERGY		
Purchased Electricity	2	1,068
Category 2: Indirect GHG Emissions Imported Energy		1,068
Total Category 1 + 2		6,326
SCOPE 3 CATEGORY 3: INDIRECT GHG EMISSIONS TRANSPORTATION		
<i>Category 3: Indirect GHG Emissions from Transportation</i>		784
Business Travel	3	47
Staff commute	3	445
Working from home	3	4
Upstream fuel related	3	289
SCOPE 3 CATEGORY 4: INDIRECT GHG EMISSIONS FROM PRODUCTS USED		
<i>Category 4: Indirect GHG Emissions from products and services used</i>		28,453
Capital goods	4	7,505
Purchased goods and services	4	15,979
Upstream energy related	4	270
Waste to landfill & composting	4	4,700
SCOPE 3 CATEGORY 5: INDIRECT GHG EMISSIONS FROM USE OF PRODUCTS		
<i>Category 5: Indirect GHG Emissions from use of products from organisation</i>		549
Downstream leased assets	5	549
Total Category 3 + 4 +5		29,786
TOTAL GHG Emissions (all Categories) TONNES CO₂e		36,112

Table 1: Napier City Council's corporate greenhouse gas emissions

Napier City's Community Greenhouse Gas Emissions

While this plan is predominantly about council getting its own house in order it also has a part to play in helping the community reduce emissions to reach net zero by 2050. In 2022 Napier City's community emissions were 443,000 tonnes or 10% of the total Hawkes Bay region's emissions. Napier City Council's organisational emissions at 36,112 tonnes make up about 8 percent of Napier's City's total emissions each year.

On a per capita basis this is 6.5 tonnes of CO₂e, or the equivalent of two return flights from Auckland to London for every single person in Napier. International recommendations are that per capita emissions need to reduce to around 3 tonnes per person, to be in alignment with the global targets and limits for a liveable planet.

The top three emission sources for Napier City are transport (57%), stationary energy (27%) and waste (7%). Fortunately, technology and consumer behaviour change solutions are available to address the majority of transport emissions and renewable energy resources are available to address many stationary energy needs.

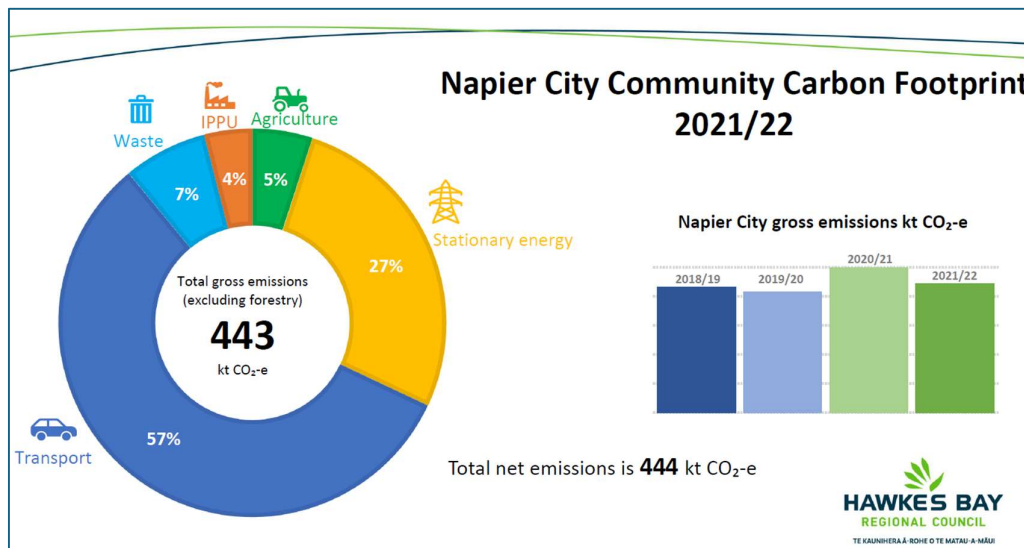


Figure 2: Sources of Napier City's community greenhouse gas emissions

OUR TARGETS

The approach to setting long term emission reduction targets for Napier City Council is aligned with the Science Based Targets Initiative (SBTi)¹ and the ISO Net Zero Guidelines². Science based targets must be measurable, actionable and time bound and set in line with the goals of the global Paris Climate Agreement limiting global warming to 1.5 degrees Celsius above pre-industrial levels.

A science-based target is also one of the key criteria for Local Government Funding Agency (LGFA) Climate Action Loans³. These loans offer better interest rates for council's that can demonstrate an emissions reduction plan, science-based targets and that they are actively reducing their greenhouse gas emissions. These incentive-based lending structures are designed to incentive councils to act on climate change and reduce greenhouse gas emissions.

While Napier City Council is in the early stages of adopting targets and this emission reduction plan it is logical to make sure these are aligned with this future funding opportunity. Key requirements for all climate action loans include:

A verified emission inventory including Scope 1, 2 and 3 emission sources prepared in accordance with the ISO14064 standard or the Greenhouse Gas Protocol

- Science aligned emission reduction targets
- An approved emission reduction plan
- Performance reporting demonstrating reductions
- Supporting information

What is Net Zero?

Net zero means that human caused greenhouse gases emitted to the atmosphere are balanced by human led removals of greenhouse gases absorbed out of the atmosphere via reforestation, ecosystem restoration, and other biological processes.

National Targets

In 2016 Aotearoa New Zealand ratified the Paris Climate Accord along with 189 other countries committing to keep global temperatures to 1.5 degrees of warming. In 2020, the Climate Change Response Act committed in legislation the following national emission reduction targets:

- net zero greenhouse gas emissions by 2050 (with the exception of biogenic methane)
- 24-47% reduction in biogenic methane by 2050 including a 10 per cent reduction below 2017 biogenic methane emissions by 2030.

In May 2022 the Government published New Zealand's first emissions reduction plan. This sets the direction for climate action for the next 15 years through to 2035, laying out targets and required actions for every sector of the economy. The Government is currently consulting on a its draft second emission reduction plan for the 2026-2030 period. The targets remain the same, however some of the policy settings enabling us to achieve the targets have changed.

¹ <https://sciencebasedtargets.org/>

² <https://www.iso.org/netzero>

³ <https://www.lgfa.co.nz/sustainability/sustainable-lending/climate-action-loans>

Long Term Target

1. Reduce Napier City Councils operational GHG emissions (Scope 1+2) to net zero by 2050
2. Facilitate a reduction in Napier City's community greenhouse gas emissions to achieve net zero by 2050

Interim Target

3. Reduce Napier City Councils operational emissions (Scope 1+2) by 63% by 2035
4. Facilitate a reduction in Napier City Councils (Scope 3) emissions by 63% by 2035

Emissions Targets	2023 Baseline	2035 Interim Target 63%	2050 Long Term 90% + 10% offset
Scope 1 tCO ₂ e	5,258	1,946	Net zero
Scope 2 tCO ₂ e	1,068	395	Net zero
Scope 1+ 2 tCO₂e	6,326	2,340	Net zero
Scope 3 t CO ₂ e	29,786	11,020	Net Zero

The proposed emission reduction targets for Napier City Council are set in alignment with the Science Based Target Initiative (SBTi) methodology with the following inputs:

- the cross sector absolute contraction approach (ACA)
- a trajectory that limits global warming to no greater than 1.5 degrees C above pre-industrial levels
- 2023 base year
- 2050 long-term net zero target
- 2035 interim target year

The interim target year of 2035 is recommended as it recognises council is only just starting out on its emission reduction journey and it will take time to become 'business as usual'. It also aligns with the government's emission reduction plan and first three budget periods. A 2035 target aligns with councils strategic planning time frames covering the current three-year long-term plan and the next long-term plan through to 2037.

Any credible long-term net zero target must also be complemented by an interim target with a clear plan of action on how to meet those targets. Reducing gross emissions this decade is critical if we are to avoid locking in the most catastrophic impact.

If Scope 3 (Category 3-5) emissions are 40% or more of the total emissions, they must be included in the interim science-based targets. Napier City Council's Scope 3 emissions were calculated at 82% of the total baseline emissions, so Scope 3 must be included.

In practical terms Scope 3 emissions will come from council specifying, designing and building low carbon infrastructure and collaborating with suppliers to deliver emission reduction through the procurement process and supply chain.

Achieving the long-term net zero target typically requires 90% reduction in emissions, with the remaining 10% of unavoidable emissions (for example diesel generator in some stormwater pump stations and emissions from wastewater treatment) cancelled out via removals or offsetting.

OUR EMISSION REDUCTION PLAN

This is a plan to 'get our house in order'. We will need to revise the plan over the coming years as we improve our understanding of emissions associated with the services council delivers and the infrastructure we invest in, take account of new government initiatives and new technologies and respond to community priorities set out in the development of a regional climate action plan.

Achieving our target of net zero carbon emissions requires aspirational change, and the sooner we get started, the more time we have to make the fundamental behavioural and operational changes that are needed to achieve this goal.

EMISSION REDUCTION ACTIONS

This plan includes 30 concrete and measurable actions that will start us on the journey to reduce Napier City Council's corporate emissions to net zero by 2050 and facilitate a reduction in Napier's community GHG emissions to net zero by 2050. Many of these actions will also support our climate resilience.

A number of these projects are already underway and committed via our three-year plan as they support our strategic priorities. They will also deliver emission reduction benefits. Several initiatives are about understanding our baseline, scoping potential opportunities and developing transition plans. For these projects capital costs are yet to be confirmed and may need to be phased with our next long-term plan. Other initiatives are about changing the culture and embedding emission reduction across all of council activities, demonstrating commitment and leadership.

Council's leadership

1. Developing a net zero policy to provide commitment and direction
2. Add climate considerations to council decision papers
3. Educate staff on climate change to inspire behaviour change
4. Communicate council's progress
5. Use NCC Plans, Policies, Code of Practice to encourage emission reduction
6. Contribute to Hawkes Bay's Climate Action Joint Committee work programme
7. Develop partnerships with government, private sector and other councils
8. Drive innovation and carbon reductions through procurement tender process
9. Improve measurement of procurement-related carbon by supplier engagement

Energy

10. Replace the fossil fuel boiler at Ocean Spa – Scope 1
11. Plan to phase out fossil fuel gas from 6 other council facilities – Scope 1
12. Energy efficiency audits at facilities with >\$100K energy spend – Scope 2
13. 100% LED street and amenity lighting – Scope 2
14. Automated street light control system (CMS) – Scope 2
15. Heat recovery from wastewater – Scope 2
16. Divestment of social housing – Scope 3

Buildings and construction

17. Civic Precinct: Te Aka and refurbished Tower – Scope 2 & 3
18. Moata carbon portal software to design low carbon infrastructure – Scope 3
19. Emulsified bitumen chip seal – Scope 3
20. Warm asphalt – Scope 3
21. Low emission concrete – Scope 3
22. Optimising refrigerant use – Scope 1

Waste

- 23. Reduce organic waste to landfill – Scope 3
- 24. Improve measurement of emissions from Ōmarunui Landfill – Scope 3
- 25. Improve measurement of emissions from wastewater treatment – Scope 1

Land

- 26. Transition Lagoon Farm to Ahuriri Regional Park – Scope 1
- 27. Rewilding and native planting on council parks and reserves – Scope 3

Transport

- 28. Fleet transition to hybrid and electric vehicles – Scope 1
- 29. Electric vehicle chargers – Scope 3
- 30. Low carbon transport – Scope 3

COUNCIL LEADERSHIP

Why council's leadership is a priority area

As local government, we play an important role in leading the change we want to see throughout our community. Our leadership starts by getting our own house in order. This plan outlines how we will reduce our organisational emissions to net zero by 2050, through measurable and concrete actions. It is an important demonstration of our commitment to net zero, and role models action that we hope other organisations will adopt to reduce their carbon footprints.

We need to prioritise and deliver emission reduction actions, so it becomes something that we take for granted as being simply 'the way we do things'. To achieve this, we need to start by setting an overarching policy direction that clearly sets out our commitment, direction to act and responsibilities.

We need to add climate and emission consideration into council reports, business cases and decision making so that those making decisions can make informed choices. This will require us to build awareness, educate our staff and provide training on how to evaluate carbon emission and wider climate impacts.

As an organisation, we can draw on our different roles, skills and tools to influence change – whether as an investor making decisions on what we buy and build, a planner involved in district plan or building consents, as we bring events or services to our community, or working alongside our other regional local government partners.

Additionally, as one of Napier's largest employers, our people can have a real impact through their individual actions. Our staff are not just council employees but also members of community, and they can act as climate change ambassadors within their own whānau and communities. We can partner with other and help to enable actions to reduce emissions and build climate resilience across the wider community.

What we're already doing

Under the Resource Management Act 1991 (RMA), local government is required to incorporate climate change into existing frameworks, plans, projects and decision-making procedures. Activities such as flood management, water resources, planning, building regulations and transport must now integrate a climate change perspective. Council must also have regard to the National Emission Reduction Plan⁴ (2022) which highlights the themes of an equitable transition, empowering Māori, working with nature, and a productive, sustainable, inclusive economy.

Our proposed actions

Our initial focus as a council is on reducing emissions from our own operations, facilities, and assets, while supporting wider community and regional emission reductions. Sustainability will be important in the design and construction of major projects such as Te Aka and the refurbishment of council tower for officers' accommodation. We will look to roll out initiatives to raise awareness and provide information to our staff on climate change.

As council's procurement of goods and services (capex + opex) are estimated to produce 82 percent of our carbon emissions. Going forward we will need to have a strong focus on improving our procurement processes so we can measure this impact more accurately and then reduce it.

⁴ <https://environment.govt.nz/publications/aotearoa-new-zealands-first-emissions-reduction-plan/>

LEADERSHIP

1. *Developing a zero-carbon policy*

We need to set an overarching net zero policy direction that clearly sets out our targets, commitment, direction to act and responsibilities. This will give council officers a clear mandate that reducing greenhouse gas emissions is a priority for Napier City Council and has been endorsed at the highest level.

Zero Carbon Policy Statement	
Cost	No external cost
Timing	2024
Lead Directorate	Corporate Services
Emission Reduction	No reduction, sets policy direction

2. *Add climate considerations to Council decision papers*

Council should add climate considerations to internal governance processes and council reports, as several other councils have already done. This will ensure council officers assess the greenhouse gas emission implications of their projects and that decisions makers can then make informed decisions. A first step would be to review how other councils have approached this including the guidance and training that is available for council staff and elected members.

Climate considerations added to council decision papers	
Cost	No external cost
Timing	By 2025
Lead Directorate	Corporate Services
Emission Reduction	No reduction, enables informed decision making

3. *Educating staff on climate change*

While general awareness of climate change, emission reduction and climate adaptation actions are growing we will need to educate our staff to encourage and inspire behaviour change.

This could include education sessions (voluntary workshops, online training modules), developing an intranet webpage with useful information for staff (such as examples of best practice and motivational stories) and creating visual documents, posters on ways staff can reduce their carbon footprints. There are lots of resource and case studies on the EECA GenLess platform⁵.

The LGNZ Ākona⁶ learning programme for elected members has a new online climate change module that we have recommended to NCC's councillors in preparation for robust discussion on targets and the actions in this plan. We are also exploring with other councils how a similar module could be made available for staff.

⁵ <https://genless.govt.nz/>

⁶ <https://www.lgnz.co.nz/learning-support/akona-our-learning-programme/>

Climate Fresk⁷ is a facilitated half day workshop programme that Hawkes Bay Regional, Hastings District, Hamilton City Council and several other councils have used. Napier City Council along with the other Hawkes Bay councils rolled out a web-based app called Future Fit⁸ in early 2023. This focused on individual behaviour change actions. We should review the uptake and effectiveness, and our plans to continue to promote this tool.

Education about climate change builds on the excellent work on waste minimisation education, where Council has offered a variety of workshops and activated campaigns e.g. “Love Food, Hate Waste”, “Unwasted Lunch” and Plastic Free July. These initiatives inspire and inform staff, helping people understand their impact, dispel common myths and understand the changes that they can make to be personally more responsible for their consumption.

Educating staff on climate change	
Cost	Future Fit app – no cost to council ~ \$4000 for a facilitated Climate Fresk workshop 30 people ~ \$1000 to train an in-house Climate Fresk facilitator Also exploring online training options similar to the Ākōna module
Timing	Ongoing
Lead Directorate	Corporate Services and People and Capabilities
Emission Reduction	Enabler of emission reduction

4. Measure and communicate council's progress

Measuring our baseline to understand council's impact was the first step. Adopting science aligned emission reduction targets and developing this emission reduction plan outlining how we plan to get there is the next step. Implementing the actions and measuring how we progress towards the targets is the third step. All these steps should be supported by a communications plan.

Communicating our progress as we reduce our emissions step by step, one initiative at a time is important. It shares the knowledge from one team to another, driving behaviour change and empowering everyone to feel like they can make change in their own areas of council. We should use our digital platforms like Te Puna, Chatterbox newsletter, all of council Teams meetings, and the quarterly values champion nominations to recognise and celebrate staff taking action.

At a minimum Council should continue to

- Measure and report its greenhouse gas inventory annually
- have this externally verified at least every 3rd year
- report emissions publicly on the council's website or annual report
- report progress against targets

Council already has a licence to E-bench which is software for monitoring, measuring and reporting energy use. This data is the basis for energy related emissions and the software has additional functionality that NCC is not currently using that could bring in additional data sources. There are also other software options available to automate the GHG reporting process and provide more proactive monitoring of progress, rather than annual retrospective reporting. This could be considered once council is more mature in its GHG measurement and has resource to undertake a project including the procurement, implementation, and ongoing management of the software.

⁷ <https://climatefresk.org/world/>

⁸ <https://www.futurefit.nz/>

Measure & communicating our progress	
Cost	No capital cost \$25K opex for E-bench licence \$25K for staff to prepare annual GHG report and external verification
Timing	Ongoing
Lead Directorate	Corporate Services
Emission Reduction	Enables emission reduction, can only manage what you measure

5. Use NCC Plans, Policies and Guidelines to encourage emission reduction

Council can use its regulatory plans and policies such as the District Plan and Code of Practice for Subdivisions and Infrastructure to support emission reductions at the community level.

NCC's Code of Practice⁹ for Land Development and Subdivision Infrastructure is updated annually and could include requirements for developers to use low emission products such as concrete, asphalt and bitumen for roading, footpaths and other infrastructure. This would align with NCC's own infrastructure projects (see Actions 18-21).

The District Plan's focus on low emissions urban form – the shape, size, density and configuration of settlements – through more mixed-use, medium- and high-density development close to urban centres creates more accessible, healthy, resilient and vibrant towns and cities. This also encourages active and low carbon transport like cycling and walking.

Evidence is already available¹⁰ showing electrified homes (space heating, water heating, cooking, electric vehicles) are the most cost effective and lowest carbon options for new builds. Council could encourage uptake and support for households to electrify, delivering costs savings, emission reduction and resilience benefits by sharing this information with communities. Council could also ensure its retirement housing portfolio

District Plan, Code of Practice, Guidelines	
Cost	Staff cost only
Timing	Code of Practice for Land Development & Subdivision review 2024 District Plan
Lead Directorate	City Strategy (District Plan) Infrastructure (Code of Practice)
Emission Reduction	Enables community emission reduction

6. Hawkes Bay's Climate Action Joint Committee

⁹ <https://www.napier.govt.nz/our-council/plans-strategies-reports/napiers-district-plan/code-of-practice/>

¹⁰ <https://www.rewiring.nz/electric-homes-report>

Napier City Council is a member of the Climate Action Joint Committee (CAJC) established in mid-2023 along with Hasting, Wairoa, Central Hawke’s Bay and Hawke’s Bay Regional councils, and mana whenua, supported by a technical advisory group of council staff.

The six domains agreed by the Committee are: Biodiversity, Transport, Primary Industry, Waste, Urban, Freshwater. This committee is working together to develop a climate action work programme for how the region should tackle climate action together.

Climate Action Joint Committee	
Cost	\$240K in 3-year plan contribution to Committee (including regional climate risk assessment)
Timing	Established 2023, ongoing
Lead Directorate	City Strategy
Emission Reduction	Support community wide climate action

7. Develop partnerships with EECA, private sector and other councils

Council should continue to develop partnerships with central government agencies (Energy Efficiency Conservation Authority EECA), industry bodies (Ara Ake, Water New Zealand, Green Building Council, Infrastructure Sustainability Council, Rewiring Aotearoa), and other councils (via Aotearoa Council Climate Action Network, LGNZ) and commercial businesses (Meridian, Manawa Energy, Genesis Energy, Locky Dock, Beam etc). These businesses provide solutions that can help Napier transition to a low emissions future. Council can act as an enabler and connector, ensuring funding that is available is accessed and deliver benefits for our community in a financially sustainable way.

Examples include the partnering with Meridian, one of Napier City Councils electricity retailers to install electric vehicle chargers at council car parks, at zero cost to council. Another example is partnering with the EECA to access 40% co-funding that is available for energy audits and technology demonstration projects.

Partnerships with EECA, private sector and other councils	
Cost	No cost, staff time
Timing	Ongoing
Lead Directorate	Corporate Services
Emission Reduction	Enables emission reduction and access to funding

8. Driving innovation carbon reductions through procurement

There is support in principle for council to use procurement to drive emission reductions in collaboration with suppliers. This could be achieved in various ways, including via the design and specification stage of infrastructure projects and via the tender and evaluation phase for all procurement.

Driving carbon reduction more widely through procurement will require addressing some organisational wide challenges to procurement processes, systems and resourcing. Ideally all tender

documents put out to market will outline our expectations on suppliers to join our carbon reduction efforts.

Wherever practicable, evaluation criteria will incorporate broader outcomes in alignment with government guidelines¹¹ (such as carbon reduction initiatives), with a weighting that is appropriate for the goods and services being produced. As an example, the tender process could be used to incentivise kerbside waste and recycling service providers to transition to electric or hybrid trucks, as other councils have done.

We will also need robust and mature procurement practices that give us the ability to measure and manage our supplier’s key performance indicators, including emission reduction objectives.

Driving procurement-related carbon reductions	
Cost	No capital costs, operational cost to be confirmed
Timing	Next LTP
Lead Directorate	Infrastructure / Corporate Services
Emission Reduction	~ 3,196 tCO ₂ e annually if 20% reduction in emissions from purchased goods and services (opex) by 2035

9. Measuring procurement-related carbon reductions

Our baseline carbon footprint estimated over 44% of council's emissions came from our purchased goods and services. These are currently measured using the amount of money spent multiplied by an industry-wide emissions factor. This only provides an indication of emissions rather than an accurate assessment for specific activities.

We need to improve our understanding of the carbon footprint of the goods and services supplied which will help us determine how we can influence emission reductions. To achieve more certainty about the carbon footprint of goods and services that council procures, we need to obtain more information for each specific product or service (for example, through contractors doing their own detailed carbon footprints and reporting those emissions to us).

We propose prioritising our top twenty emission intensive suppliers in the purchased goods and services category and engage with them to understand whether more accurate data is available. This will enable us to improve the way that we measure emissions associated with purchased goods and services, which can then be used to drive change.

Improve measurement of procurement-related carbon reductions	
Cost	Staff cost only
Timing	Supplier surveys completed by 2026
Lead Directorate	Corporate Services
Emission Reduction	Enables more accurate GHG reporting

What else could we do?

¹¹ <https://www.procurement.govt.nz/broader-outcomes/reducing-emissions-and-waste/>

In every part of council, we can identify actions in the activities that staff do, that could help reduce their work-related carbon footprints. This could include commuting to work using low carbon modes of transport, enabling working from home, and minimising energy use and waste created in their daily activities.

We also need to ensure our broader strategy including investments and any council-controlled trading entities are aligned with our net zero commitments.

ENERGY

Why energy is a priority area

A total of 47 percent of organisational emissions are associated with Napier City Council's energy use. Stationary energy also accounts for around one-third of Napier's total city-wide emissions. Reducing energy emissions needs to be a key focus of council's approach in achieving a net zero future.

Our proposed approach is aligned with the National Emission Reduction Plan¹² recommendation of phasing out existing fossil fuel gas use in buildings. Around 39% of all emissions at our facilities are produced from fossil fuel gas, and the largest reductions will come from replacing fossil fuel gas heating with alternative low carbon energy sources.

However, a significant proportion of our energy emissions comes from our electricity consumption. As a result, our energy emissions are affected to a certain extent by the level of renewable electricity sources (for example, hydro, wind, solar) in New Zealand's electricity generation. A higher level of renewables will support a reduction in energy emissions. New Zealand's electricity grid is currently around 80 percent renewable energy, and the Government's aspirational goal is to reach 100% renewable electricity generation by 2030.

Improving energy efficiency through efficient building design, insulation and water heating will not only help to reduce carbon emissions but also has broader health and financial benefits. Actions to ensure our facilities are healthy and energy efficient support broader health outcomes for our staff and communities. Reducing energy costs by harnessing renewable energy where practical can also reduce costs.

Our proposed actions?

We're proposing to transition out of fossil fuel gas at our facilities, primarily by changing our heating systems to run on electricity and looking at energy efficiency. We're also planning to upgrade the city's street and amenity lights to LEDs, which has several benefits over traditional incandescent light bulbs, including lasting longer and being more energy efficient.

A significant share of any further emission reductions will depend on New Zealand's electricity grid – moving from about 80 percent renewable energy currently to as close to 100 percent as soon as possible.

10. Ocean Spa gas boiler replacement

Ocean Spa is an important facility for Napier residents and tourists alike. The pools are heated to temperatures of up to 40 degrees Celsius by a boiler which burns fossil fuel gas. This boiler is more than twenty years old and nearing the end of its asset life. Gas prices are continuing to increase due to constraints in supply also escalating operational costs for the facility. Due to the age of the boiler operational maintenance costs are also increasing, as is the risk of the boiler failing. Ocean Spa uses over 750,000 kWh of fossil fuel gas every year contributing 145 tonnes of carbon emissions to council's organisational carbon footprint and costing around \$250,000.

We have already completed an energy audit identifying some quick wins such as installing pool covers. These are in the process of being procured and installed. The audit also recommended several options for replacing the boiler with low carbon technologies such as a saltwater heat pump, air source heat pumps or a biomass boiler. These technologies can be up to four times more energy efficient than the current fossil fuel gas boiler.

The next stage will be a feasibility assessment of these technologies to understand the costs and benefits and decide on a preferred solution. Following this will be the procurement and installation

¹² <https://environment.govt.nz/publications/aotearoa-new-zealands-first-emissions-reduction-plan/>

phase of the project. There is already a project in Cycle with a sponsor and owner, but this will require scope specification, planning, budget confirmation, resourcing and may need other projects to be re-prioritised.

Ocean Spa's fossil fuel boiler replacement	
Cost	To be confirmed via feasibility study. \$2.42M in capital plan for Ocean Spa upgrade phase 2
Timing	Boiler replacement by 2027
Lead Directorate	Community Services & Infrastructure
Emission Reduction	Scope 1: 115 tonnes CO _{2e} per year

11. Plan to phase out all fossil fuel gas from council facilities

Napier City Council has six other facilities which use fossil fuel gas: The MTG, The Aquatic Centre, The National Aquarium, Municipal Theatre, Kennedy Park Resort and The Napier Conference Centre.

We will undertake a stocktake and condition assessment of boilers and heating equipment at these facilities. This will include estimates of remaining asset life, expected dates for renewal, future reimagination or redevelopment plans for these facilities, so we can develop a phased plan and priorities. This project will require a sponsor, owner, scope definition, procurement and project management.

Like Ocean Spa, for each facility we will need to undertake a feasibility study to identify the most suitable low carbon technology options and understand the capital costs to fully transition from fossil fuel energy sources.

Plan to phase out fossil fuel gas	
Cost	Plan phase \$30-\$50K. Capital cost to be confirmed for each facility as part of the plan
Timing	Plan completed by 2028 Phase out complete by 2035
Lead Directorate	Community Services & Infrastructure
Emission Reduction	Scope 1: 508 tonnes CO _{2e} per year once all completed

12. Energy audits for facilities with > \$100,000 annual energy cost

Napier City Council has five facilities with energy bills of more than \$100,000 annually: The wastewater treatment plant, the National Aquarium, MTG Hawkes Bay, the Napier Aquatic Centre and McLean Park. Electricity costs have increased by 25% this year and are expected to continue to rise as all sectors, in particular transport and process heat, look to decarbonise using our renewable electricity.

An energy audit involves a comprehensive review and analysis of equipment systems, and operational characteristics of the whole facility, and makes quantified energy savings recommendations. Government co-funding is available from Energy Efficiency Conservation Authority

(EECA) for these audits. In some circumstances funding is also available to support implementation projects.

These will identify energy efficiency opportunities, lowering councils' operational costs and reduce emissions. However, as electricity is already from 87% renewable generation sources the emission reduction potential from energy efficiency, is not as high as from reducing fossil fuel use.

This project will also require a sponsor, owner, budget, scope definition, procurement and project management.

Energy Audits	
Cost	\$10-\$30K per facility, with 40% EECA co-funding available
Timing	Audits completed by end 2025 Quick wins implemented by end 2026
Lead Directorate	Community Services for MTG, Aquarium, Aquatic Centre, McLean Park Infrastructure for WWTP
Emission Reduction	~ 40-80 tCO ₂ e per year after recommendations implemented

13. Upgrade to 100% LED street and amenity lights

Already more than 70% of councils almost 10,000 streetlights are light emitting diodes (LEDs). Council still has around 2,900 lights that are yet to be upgraded. These are split between high pressure sodium streetlights, mercury vapour, and metal halide lamp technologies. Even with this relatively high level of energy efficient lights, street lighting uses over 2 million kWh of electricity annually. Council spent more than \$800,000 last year on road lighting, almost 30% of council's total electricity spend.

Council already has a policy to replace lamps with new LED technology as they fail, which gives incremental reductions in energy use and carbon every month. There are some areas such as Napier Hill and Mission View where straight forward replacements are not possible, due to the light poles also needing replacement or modules not being suitable to accommodate LEDs. Upgrading these lights to LEDs will cost council more.

There are also case studies which show wider benefits from replacing HP sodium streetlights with LEDs including traffic safety and improved crime prevention. Alongside the energy saving and emission reduction potential the transition to 100% LEDs across councils lighting assets should be a priority.

New Zealand is a signatory to the international Minamata Convention on Mercury which is seeking to phase out toxic mercury-added fluorescent lighting from 2026. Mercury-free, super-efficient and safe LED lighting is already widely available and can replace fluorescents in virtually all applications. Once this treaty is ratified production of replacement lamps will be phased out. Council has around 900 mercury vapour lamps in its network that will eventually need to be upgraded as replacement will no longer be available.

Bringing forward additional lighting asset renewals is likely to be a new project that will need approval, sponsor, owner, defined scope, budget, planning and a project manager. This could also include bringing forward plans to upgrade lighting at McLean Park, which is currently scheduled in the capital plan for 2038.

Upgrade to 100% LED lights	
Cost	LEDs already have lower total life costs
Timing	By 2035
Lead Directorate	Infrastructure
Emission Reduction	46 tCO ₂ e annually

14. Automated lighting control system (CMS)

A central management system capable of remote-control the streetlights will give additional energy savings. This system will allow lights to be dimmed when there is a reducing lighting need, between midnight and 4:00am when there is less traffic. All new LED lamps are already specified with the correct NEMA 7 pin plug required for this type of control system.

A small trial has recently begun with 25 fittings and the supplier providing free access to their CMS platform. The aim is to collect data, demonstrate benefits and a proof of concept. The supplier indicates other councils have achieved 50% reduction in street lighting energy use via their intelligent dimming system plus additional savings in maintenance costs.

The payback for this technology is likely to be longer than the switch to LEDs. Depending on the trial results, a wider roll could be implemented on the 70% of streetlights that are already LEDs. This would be a new project that will need approval, sponsor, owner, defined scope, budget, planning and a project manager assigned.

Automated lighting controls system for streetlights	
Cost	Trial underway with Felicity Smart Infrastructure (\$6K) Previous business case estimated \$217K (assumes LEDs already have current plugs)
Timing	By 2035
Lead Directorate	Infrastructure
Emission Reduction	~ 51 tCO ₂ e if 50% reduction in street lighting energy use after 100% LEDs roll out

15. Assess potential for thermal energy recovery from wastewater

Studies show that wastewater is typically between five degrees and nine degrees warmer than groundwater. Right now, hot water is now going down drains all over the city, into council's wastewater network to the treatment plant and then pumped out to sea.

This is a waste of heat energy which can be harnessed using proven heat exchanger technology to transfer the heat from wastewater into water supply. Council could harvest this energy for its own use at facilities with water heating demand, for example Ocean Spa, Napier Aquatic Centre, The National Aquarium or Kennedy Park Resort.

Or alternatively sell the thermal energy to other industrial facilities that have a significant water heating demand. For example, the industrial facilities located in Awatoto near the wastewater plant. This could potentially be a revenue generating opportunity for council.

A first step would be to undertake a heat mapping exercise to determine areas where waste heat potential and demand exist in close proximity and a review of case studies. There are several councils implementing this technology including Christchurch, Queenstown and Nelson. On average these cities found 25% of large heat demand sites (> 500kW) would be able to utilise wastewater heat as part of their transition off fossil fuels, enabling city wide emission reduction.

Similar technology exists to implement this at a household level, where water heating typically accounts for 40% of the household's electricity bill. A simple heat exchanger device transfers waste heat from the shower waste to preheat the water coming into the hot water cylinder. Council could encourage households and new developments to utilise this technology, reducing electricity demand for water heating, and saving the residents money. This will reduce emissions from stationary energy, which is Napier City's second largest source of emissions.

This scoping assessment is a new project that will need approval, sponsor, owner, defined scope, budget, planning and a project manager assigned.

Thermal heat recovery from wastewater	
Cost	Initial assessment \$5K, City wide heat mapping \$20-50K
Timing	Heat mapping completed by 2027
Lead Directorate	Infrastructure
Emission Reduction	Scope 1 reductions if used at council facilities. Supports wider community emission reduction if implemented at commercial and residential scale.

16. Divestment of social housing assets

The three-year plan includes provision to divest 73 units from council's social housing portfolio and to focus activities on providing retirement villages. The 2023 baseline greenhouse inventory includes energy use in downstream leased assets such as the housing portfolio, as a Scope 3 emission source. If council reduces the number of housing units in its portfolio, this will have a flow on emission reduction benefit.

Divestment of social housing assets	
Cost	No capital cost, staff time
Timing	Delivered by 2027
Lead Directorate	Community Services & Corporate Services
Emission Reduction	Scope 3 reductions from downstream leased assets

	~38 tCO ₂ e per annum estimated emissions from energy use in the 73 social housing units (7000 kWh per year).
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What else could we do?

In addition to phasing out fossil fuel gas, upgrading lighting, improving energy efficiency at our facilities and harvesting waste heat energy, two other areas to consider are renewable energy generation and water supply metering.

Renewable Energy

Napier has some of the highest solar generation potential in the country with our ample sunshine and clear blue sky days during winter.

All new council buildings should include photovoltaic solar panels to generate onsite electricity to support daytime energy needs. Council should consider all building types including three water assets, covered sports grounds, and community facilities, especially those with daytime energy demands.

Photovoltaic solar panels are reliable, established technologies that have guaranteed generation output lifespans of 25-30 years. Commercial sized projects typically have payback periods between 5-10 years depending on the daytime energy demand and electricity prices. For the remaining 15-25 years the electricity generated by the solar panels is free, reducing the demand on the grid, a facilities energy cost and council's carbon emissions.

Installations on existing council facilities need to be on roof structures in good condition that will last as long as the solar panels. The Taradale Town Hall and the Creative Arts Centre are budgeted to be re-roofed in the three year plan. Once these building maintenance projects are completed we can investigate solar on these facilities. We could also review any buildings or structures built or reroofed in the last 10 years to identify any opportunities to add solar retrospectively.

There are various ways to fund solar projects apart from capital investment that can be explored. Options include lease to own agreements, with council leasing roof space to a solar developer who owns, installs and maintains the equipment, and council purchasing electricity via a power purchase agreement and owning the equipment at the end of the lease. Council has recently renewed its 4-year electricity contracts so would need to review the terms and conditions to see what is possible.

There is also potential for council to facilitate a community owned solar network, harnessing Napier's excellent solar generation potential and un-utilised roof real estate in commercial and industrial areas. A community solar network (Te Rehe¹³) is already operating in Hawkes Bay, benefitting those with excess solar to sell and those who want to purchase locally generated renewable electricity at cheaper rates than traditional electricity retailers.

There is also potential for council to incentivise uptake of solar on households and businesses. Case studies show an electrified home (with electric water and space heating, cooking and an electric vehicle) supported by solar is the lowest carbon and energy cost¹⁴. This is easiest to deliver in new developments and will deliver community wide emission reductions and save households money.

We can investigate reducing costs for new developments that meet established sustainability certification schemes, such as the Green Star and Homestar building rating tools. Incentivising the move to lower impact developments will ultimately help businesses and residents reduce their carbon footprints which will reduce our city wide and regional emissions.

Water Efficiency

¹³ <https://www.terehesolar.co.nz/>

¹⁴ <https://www.rewiring.nz/electric-homes-report>

We all know what gets measured gets managed and water consumption is no different. Demand side management tools such as smart metering and consumption-based pricing along with water recycling and harvesting rainwater for non-potable use are all concepts that should be explored as part of our transition to a more resilient, decentralised, and low carbon city¹⁵.

Napier residents' average consumption per day was 361 litres per person in 2023¹⁶. This is significantly more than the comparable water use in cities such as Auckland (241L) and Tauranga (169L) where they have residential water metering. Case studies show when Auckland introduced water meters, 25% water use was saved from that day on. Then, when water charging began, another 25% was saved. MBIE's framework¹⁷ for transforming operational efficiency of buildings has proposed a target of 75 litres per person per day for all new builds, to be achieved by 2030.

The energy cost associated with water supply is significant, with council spending over \$650,000 annually on electricity associated with water supply. This activity is the second highest electricity cost for council after street lighting. This is only the energy cost to supply water and doesn't consider the treatment chemicals or the embodied emissions in the infrastructure. There is already provision in the capital plan to install water supply metering in years 6-14, which falls within the time frame of this emission reduction plan.

Smart technology¹⁸ already exists that can reduce household water by recycling grey water for non-potable uses, reducing demand by up to 45%. Council could encourage this technology or rainwater harvesting tanks in new developments via the Subdivision Design Guide. This would be a win-win for council by reducing water supply demand, correspondingly reducing wastewater volumes, and making households more resilient.

¹⁵ https://motu-www.motu.org.nz/wpapers/23_11.pdf

¹⁶ <https://www.napier.govt.nz/assets/Document-Library/Reports/Annual-Reports/NCC-Annual-Report-2022-23-Spread-Version.pdf>

¹⁷ www.mbie.govt.nz/dmsdocument/11793-transforming-operational-efficiency

¹⁸ <https://watersmart.co.nz/products/hydra-loop/>

BUILDING & CONSTRUCTION

Why is building and construction a priority area?

The building and construction sector currently produces around 20% of New Zealand's emissions. The Government is looking to reduce the sector's emissions by decreasing the carbon emitted in the manufacture, transport, construction, maintenance and deconstruction and disposal of buildings (also known as whole-of-life embodied carbon), by requiring the sector to report on, and eventually placing a cap on, whole-of-life embodied carbon¹⁹.

A total of 20% percent of Council's corporate emissions in 2023 were associated capital projects. This includes buildings, three waters infrastructure, roading and transport related infrastructure. These emissions come from embodied emissions in materials and fossil fuels used during construction of these assets. While these sources are not under councils' direct control, we do have the ability to influence emissions in the way we design, specify, construct, and maintain these assets.

Buildings and infrastructure are long lived assets. The decisions we make now set emission patterns for the future. Decisions about investment in infrastructure need to take account of the whole of-life costs and benefits of that investment, including the cost of emissions. Our approach is aligned with the National Emission Reduction Plan recommendation which has two objectives:

- reduce the embodied carbon of buildings and infrastructure
- reduce operational emissions

17. Civic Precinct

Te Aka is a flagship NCC project that will result in a new library, governance and community space for Ahuriri/Napier. It contributes to our vision of enabling spaces and places where everybody wants to be. The new building and outdoor space will be in the block bound by Hastings, Station and Dalton Streets. We have set aside \$58 million for the development with a goal to start construction in 2025.

Te Aka has been designed to meet the stringent New Zealand Green Building Council Green Star criteria and will also be certified as Green Star 5 construction. This represents excellence for a New Zealand construction project and will demonstrate that the building meets best practice sustainable design and build benchmarks. This includes achieving net zero operational energy requirements. This will be achieved by a combination of design considerations, zero fossil fuel use, energy efficiency, thermal performance and supported by supported by a 30kW solar array on the roof.

Currently council officers are spread over three different leased buildings with varying levels of operational energy performance and emissions. Council uses over 350,000 kWh of electricity annually across these buildings, costing around \$75,000.

Alongside Te Aka, council plans to refurbish the existing library tower for officer accommodation. This will reduce waste compared to a new building, save considerable embodied carbon emissions, and improve energy performance compared to the current leased buildings. Improved energy performance will lead to savings in energy costs and reduced operational carbon emissions.

It is estimated that construction and demolition waste make up to 50 percent of New Zealand's total waste going to landfill. Renovating and upgrading the existing council tower using sustainable design principles will avoid significant embodied carbon emissions associated with new construction.

Embodied carbon emissions – result from the manufacture and use of the materials and products in buildings across their lifespan, from construction to deconstruction. It is estimated that over 60 per cent of embodied carbon emissions are associated with the sub structure, frame, upper floors and roof of a building. A refurbishment that retains these elements, can result in the carbon footprint of the

¹⁹ www.mbie.govt.nz/dmsdocument/11794-whole-of-life-embodied-carbon-emissions-reduction-framework

refurbished building being half that of a newly built replacement²⁰. A deep refurbishment can also cut operational carbon emissions — and avoid the embodied emissions associated with building new. This is a win-win for carbon reduction.

Civic Precinct	
Cost	\$58 million Te Aka, \$48.5M Tower refurbishment
Timing	Construction completed by 2028
Lead Directorate	City Strategy
Emission Reduction	~ 25 tCO ₂ e operational emission reductions ~ 22,623 tCO ₂ e potential capital carbon emission increase

IMPORTANT: These construction projects will result in significant increases in NCC’s capital carbon emissions during construction **compared to the 2023 baseline year**. There is no avoiding this with any construction involving large quantities of emission intensive materials such as concrete and steel.

A full building life cycle analysis would demonstrate the capital and operational carbon costs and savings. We appreciate there are many other valid and important reasons why council wants to build the new civic precinct, but need to clearly signal the impact of this project will have on the council’s scope 3 carbon footprint.

18. Moata Carbon Portal

Council already has an annual subscription to the Moata Carbon Portal²¹ software developed by Mott Macdonald. This is an infrastructure carbon calculator aligned to the PAS 2080 certification. This tool gives council or its appointed consultant engineers the power to assess and reduce the carbon impact of infrastructure at any stage of a project, but it is especially valuable when used in early concept design stages. It integrates with existing project processes, such as BIM and BOQ. It is especially useful for all types of horizontal infrastructure including three waters and transport projects.

Many other councils and infrastructure owners such as Watercare and Wellington Water are using this tool and achieving significant embodied emission saving in their projects, driving Scope 3 emission reductions from capital carbon.

A pilot project using the Petane Domain Carpark project is underway. This will allow us to understand what is involved in using the tool and quantify the benefits that can be achieved. NCC could require Moata carbon assessments on all infrastructure projects over an agreed threshold. The Moata assessment would support requirements to add a carbon assessment to council decision papers.

MOATA carbon portal	
Cost	License \$30K annually, training and support included
Timing	Pilot project Petane Domain Carpark in 2024 Wider roll out for all infrastructure projects ongoing

²⁰ www.buildmagazine.org.nz/assets/PDF/Build-182-54-Feature-Net-Zero-Carbon-Buildings-Refurbishing-For-Net-Zero-Carbon.pdf

²¹ <https://www.mottmac.com/digital/moata-carbon-portal>

Lead Directorate	Infrastructure
Emission Reduction	Scope 3: Project specific – up to 80% saving in capital carbon and will vary year to year. ~938 tCO ₂ e annual reductions assumed 20% reduction via design

19. Emulsion Based Chip Seal

Maintaining councils' network of roads, car parks and pavements requires ongoing maintenance activities including regular chip sealing. Prior to this year, the maintenance contracts specified use of cutback bitumen which includes kerosene and anti-foaming agents and is produced at high temperatures (170-180 degrees).

In 2023 after research and discussion with suppliers', council learned that emulsion-based chip seal was now available locally an alternative product option for chip sealing. This is produced at a lower temperature (50-90) degrees and is water based. It also has additional benefits of improved health and safety for workers due to lower temperatures, better adhesion, and up to 50% GHG emissions reduction.

NZTA are making this change mandatory from 1 July 2024 on all State Highway work. Council has already changed its specification to an emulsion-based chip seal. It's a win-win-win solution, with minimal cost difference.

Emulsified bitumen chip seal	
Cost	Negligible
Timing	Emulsified bitumen chip seal in use from late 2023
Lead Directorate	Infrastructure
Emission Reduction	Scope 3: 50% reduction over previous specification of standard cut back bitumen

20. Warm Asphalt

Similar to the chip seal example, council typically specifies hot asphalt mixes (170-180 degrees) for its asphalt roading projectst.

The new Higgins and Russell Asphalts plants have advised council they will soon be able to offer a low emissions "warm asphalt" product. This is made at a much lower temperature at 105 degrees and has many benefits including improved health and safety, better longevity, performance and 50% fewer greenhouse gas emissions.

Council plans to trial warm asphalt on a suitable project once it is available. If successful we anticipate a switch to specify warm asphalt for all projects. This is an example of a procurement approach to driving emission reductions.

Warm asphalt	
Cost	Negligible

Timing	Available Sept / Oct 2024
Lead Directorate	Infrastructure
Emission Reduction	Scope 3: 50% reduction over hot asphalt

21. Low Emission Concrete

Concrete is an important building material that is vital for building a more sustainable future. It plays an integral role in creating and maintaining our city by delivering strong and durable infrastructure, and by providing a more resilient built environment. It is the second-most consumed commodity in the world after water.

Despite all the benefits of concrete, it is a carbon emission intensive material to manufacture. Most of the GHG emissions stem from the energy needed for making cement and through the chemical reaction involved. The New Zealand concrete industry has recognised that it must contribute to New Zealand's net zero targets and developed a roadmap outlining their transition plans.

Options for lower emission concrete with the same performance and strength exist by using cement made from more energy efficient plants or adding supplementary cementitious materials (SCMs) to partially replace the cement in concrete. SCMs are often mineral by-products of industrial processes with lower embodied carbon than cement. Examples of SCM's include granulated blast furnace slag (GGBS) from steelmaking, fly ash from coalfired power stations, and silica fume. There are also plans to develop New Zealand specific SCMs from volcanic ash and pumice.

Council can support the concrete industries transition to lower carbon concrete as a client, specifying lower emission concrete mixes and working with suppliers of lower carbon concrete products such as precast manhole covers and pipes.

We have already trialed low emission concrete mix in kerb and channel applications at West Quay with negligible cost difference. We are now looking at options to specify lower emission concrete pipes and other products.

Low emission concrete	
Cost	Negligible
Timing	Underway in FY2025
Lead Directorate	Infrastructure
Emission Reduction	Scope 3: Up to 25% less than standard concrete

22. Optimise refrigerant use

Refrigerants are potent greenhouse gases that can leak into the atmosphere over time if chiller and heating equipment is not properly maintained. One kilogram of refrigerant R410a lost is the equivalent releasing 2,088 kilograms of carbon dioxide or burning more than 1000 litres of diesel.

In our baseline emission inventory refrigerant gas contributed 30 tonnes of GHG emissions. This relates to the 18 facilities which are required to have building warrants of fitness, and therefore have data available for refrigerant gas top ups. Council has many more facilities with equipment like heat pumps, chillers and refrigerators that will include refrigerant gas, from which we do not have any data.

A first step is for council to undertake a stocktake of installed refrigerant gas in equipment to understand the type of refrigerant, age and condition of equipment, potential greenhouse gas liability and corresponding emission reduction potential.

When council, or its contracted service providers need to replace equipment that uses refrigerants, we will prefer products that contain refrigerants with the lowest available global warming potential (GWP). Like the roading examples above this is a specification and procurement approach to reducing emissions.

This scoping exercise is a new project that will need approval, sponsor, owner, defined scope, budget, planning and a project manager assigned.

Optimise refrigerant use	
Cost	Dependent on equipment, but likely to be some increased costs compared to conventional technologies.
Timing	Stocktake completed by 2025 Specification & phase out policy from 2025 High GWP refrigerants replaced by 2032 in alignment with government policy
Lead Directorate	Infrastructure
Emission Reduction	~ 15 tCO ₂ e annual reduction if 50% phase out of high GWP refrigerants

What else could we do to reduce building and construction emissions?

There are already further transformational changes on the horizon that will lead to even lower emissions from roading. These include the use of recycled asphalt and new bio-based binders.

Road Science, Downers and New Plymouth District Council²² are researching and trialling Bio Bind a plant-based alternative derived from pine trees that eliminates the need for petroleum-based materials. Bio Bind is a direct replacement for bitumen and is already available in various products that meet Waka Kotahi standards matching the performance of traditional bitumen.

We will continue to look for alternative low carbon products and materials that we can switch out and deliver emission reductions in partnership with suppliers. Ensuring that we can measure and report on these initiatives will be important and can be achieved using the Moata carbon portal.

We can also update NCC’s Development Code for Land Development and Subdivision so that it reflects the changes we are making internally.

²² <https://www.roadscience.co.nz/news/bio-bind-bitumen-binder-alternative>

WASTE

Why is waste important?

The way we produce, manage and dispose of things also results in greenhouse and other gas emissions. When organic material like food scraps, plant matter or paper goes to a landfill or wastewater treatment plant, it produces methane as it breaks down. Although methane is not the main greenhouse gas, its warming effect is 28 times greater than carbon dioxide. In 2019, waste caused around 4 per cent of New Zealand's greenhouse gas emissions and around 9 per cent of its biogenic methane emissions. Reducing waste reduces the depletion of limited resources and greenhouse gas emissions.

The Government's Emission Reduction plan recommends diverting organic waste from landfills and improving and extending landfill gas capture methods. The National Waste Strategy has a target to reduce biogenic methane emissions from waste by at least 30 per cent by 2030.

The emissions from waste make up 7 percent of Napier's total community GHG emissions each year. The solid waste assessment found that 55% of Napier's domestic kerbside waste is organic. The waste from council's own operations, public bins, and household kerbside collections contributes 4,700 tonnes of emissions or 13% to council's carbon footprint in 2023. This doesn't include the transport of this waste, only the emissions resulting from the landfill. Emissions from the wastewater treatment plant were an additional 6% or 2,225 tonnes of carbon.

Napier City and Hastings District Councils' jointly own the Ōmarunui municipal landfill, operated by Hastings District Council. Organic waste deposited in landfills breaks releasing greenhouse gases including methane. The Ōmarunui landfill has a methane gas capture system, turning methane, a by-product of burying rubbish in a landfill, into electricity. The resulting electricity is sold back into the grid. The biogas to electricity initiative, which has been operating since 2015 has an installed capacity of 0.9 MW, which is enough to power about 1,000 homes for a year.

Napier's wastewater treatment plant at Awatoto consists of a milliscreen, two biological trickling filters (BTF) and rock filled Rakahore channels. The treatment of wastewater through these processes and subsequent discharge to sea generates greenhouse gas emissions through biological processes. Nitrous oxide emissions are estimated using a population-based methodology and methane emissions are calculated based on site specific measurement of biological loads in the wastewater.

What we're already doing

Napier City Council and Hastings District Council jointly develop a waste plan because of our close proximity and links. By law, our plan must be updated every six years. We are currently asking for input, so our plan reflects our community's goals and priorities. This feedback includes input from households and businesses, e.g., actions to reduce biogenic methane emissions, such as household and business food scrap collections that aligns with the National Waste Strategy targets. Everyone has the opportunity to provide feedback on the draft plan which will be out for consultation in March 2025, and after this process it will be adopted by July 2025.

We are also in the process of scoping a wastewater treatment master plan to improve the plant performance, so we will ensure that emission reductions are considered as part of this process.

Napier is also fortunate to have Biorich, a commercial composting operation at Awatoto. This facility accepts many types of organic material including green waste, sawdust, animal waste and food processing waste. Composting provides a solution to divert this material from landfill and use a natural biological process to turn the waste into a valuable organic compost putting nutrients back into the soil. The composting process does not produce methane, as it has air pumped through the compost piles to aerate the process. There are also plans for a commercial worm farm operation to establish in the region providing an alternative option for organic material streams, not just food waste.

23. Reduce organic waste to landfill

Actions to reduce organic waste to landfill will be recommended through the joint WMMP currently under development.

Reduce organic waste to landfill	
Cost	Will depend on activities in WMMP
Timing	WMMP plan adopted July 2025 Urban food scrap collections by 2030, government target
Lead Directorate	Infrastructure
Emission Reduction	Scope 3: ~ 264 tCO ₂ e per annum if 30% reduction organic waste to landfill achieved by 2030

24. Improve accuracy of GHG calculations for landfill emissions

Currently the calculation of greenhouse gas emissions from waste to landfill is based on national average emission factors for a class A landfill with methane gas capture. These emission factors are provided by the Ministry for the Environment and updated annually.

A unique emission factor (UEF) was calculated for Ōmarunui Landfill in 2024, which is possible under the Emissions Trading Scheme regulations²³. We can request this unique emission factor from Hastings District Council and use this to improve the accuracy of our emission reporting for waste going into landfill.

Unique Emission Factor for Omarunui Landfill	
Cost	No cost to council
Timing	Use in 2024 GHG inventory
Lead Directorate	Corporate Services
Emission Reduction	Improves accuracy of GHG reporting, 66% reduction compared to current emission factor ~ 3,102 tCO ₂ e per annum due to more accurate reporting

25. Improve GHG measurement from wastewater

There are limitations with the current population-based methodology for estimating nitrous dioxide emissions from wastewater treatment and disposal, which assumes all plants have similar performance. Water New Zealand is soon to release additional guidance on site specific plant monitoring which is possible and should be investigated.

There was capital budget for a online monitoring project at the WWTP in 2024, however the project was not delivered. Once the new guidance is available we can review and recommend the best sensors and monitoring equipment for NCC's wastewater treatment plan, and plan to deliver the project.

²³ https://hastings.infocouncil.biz/Open/2024/06/ORL_21062024_AGN_5931_AT.htm

Site specific WWTP monitoring of GHG emissions	
Cost	\$158K 2024 capex budget
Timing	Project scoped and sensors recommended 2025
Lead Directorate	Infrastructure
Emission Reduction	~ 445 tCO ₂ e per annum if 20% reduction achieved via more accurate site specific emission measurement Would support council and wider community emission reductions

What else could we do?

Emissions from wastewater treatment and discharge are a significant contributor to council's overall carbon footprint. Reducing emissions with the existing plant will be a challenge. As population grows so will the biological load on the wastewater treatment plant and along with it the greenhouse gas emissions.

Recent developments in the UK are using sewage sludge as a resource and converting it via hydrothermal liquefaction technology into two useful materials: biochar, a fertiliser for the agricultural industry and bio-crude which can be refined into sustainable aviation fuel (SAF). There is considerable demand for SAF, which is a drop in fuel for aviation and critical to airlines decarbonisation strategies, including Air New Zealand. Napier's WWTP plant with its biological trickling filters and aerobic process does not produce sewage sludge however information online suggests the SAF process can work with any wet biogenic material. This could be explored further and would likely meet EECA's technology demonstration requirements.

We could also consider waste audits for key council facilities to identify immediate opportunities to divert organic waste, recycle more, or identify other reuse or recovery options. We can also review the waste and recycling contracts across all council facilities to ensure there is consistency with services and recycling is being maximised.

Council could also require waste management plans for any council infrastructure projects. This is especially important as building and construction waste is one of the largest sectors contributing to waste going to landfill. Council should lead by example and ensure its projects are embracing the move towards a circular economy. Waste Management plans are set to become mandatory as part of MBIE's Building for Climate Change amendments to the building code.

We could incentivise the contractors who provide kerbside waste and recycling collections to transition their fleets to hybrid and electric trucks which are available. We are currently at year 4 of a 5+1+1 contract and should add this to the tender process next time these contracts are renewed. Hutt City Council achieved a 50% EV fleet rubbish and recycling trucks by 2021 with plans for 100% by 2024²⁴, This was achieved via a tender process with Waste Management their contracted service provider.

Council can also continue to support community circular economy initiatives such as food rescue, repair cafes, clothing re-use, and consider making sure council run events are zero waste.

²⁴ <https://pools.huttcity.govt.nz/Your-Council/News-and-notice/media-releases/new-era-for-council-rubbish-and-recycling-service/>

LAND

Why is land use important?

Council owns a sheep grazing farming operation at Lagoon farm which contributes 1,088 tonnes of CO₂e or 3% of the council's total carbon footprint. Emissions from agriculture also make up about 5% percent of Napier's total community GHG emissions each year.

Council also owns and manages many parks, reserves, beaches, walkways, tracks, sports and playgrounds and around 6,000 street trees. The way that we use this land can support biodiversity, carbon sequestration and recreation.

What we're already doing

We are already developing our plans to transition Lagoon Farm from a sheep farm to a regional park that will improve the quality of stormwater entering the estuary and enhance biodiversity. This project is being delivered in partnership with Hawkes Bay Regional Council and Mana Ahuriri with the design phase currently in progress. While the projects main objectives are to improve the environment and provide climate resilience, an added benefit will be the reduction in council's agriculture emissions.

We've already got plans to trial rewilding areas instead of mowing. These are areas which are often tricky to maintain, and rewilding will improve wildlife habitats and biodiversity outcomes as well as lead to reductions in mowing and fuel use. One area suggested is beside the drain between Tamatea Drive and the Taipo Stream along Prebensen Drive. This is often too wet to mow and is a popular feeding spot for herons.

Our planned actions:

26. Develop Lagoon Farm into Ahuriri Regional Park

The proposed Ahuriri Regional Park project will see the land developed into stormwater retention and restoration of wetlands. The priorities are to filter the urban stormwater from Napier before it enters the culturally and environmentally sensitive Te Whanganui a Orotū. Alongside these positive environmental benefits transitioning away from grazing sheep at Lagoon Farm will directly reduce councils' agriculture related GHG emissions. These result from ruminant enteric fermentation, manure management and biological soil processes.

Ahuriri Regional Park	
Cost	\$26.6M for Lagoon farm stormwater diversion and storage \$13.2M NCC's contribution to the ARP in conjunction with HBRC
Timing	Sheep grazing phased out by 2030
Lead Directorate	City Strategy
Emission Reduction	Scope 1: ~ 1,088 tCO ₂ e annual reduction

27. Re-wilding trials and native planting on council reserves

Napier has many parks, reserves and gardens ranging from small neighbourhood parks through to green belt reserves and well-manicured public gardens. Extensive tree-planting is undertaken on many reserves to improve the aesthetic appeal, protect hillside slopes or provide shade and shelter to park users. Council already has a native planting program and is looking to increase the extent of indigenous vegetation cover to 10%. We will continue to support tree planting and reforestation of council reserves.

We plan to trial rewilding some areas which will have biodiversity benefits and also lead to reductions in mowing and fuel use. We can also review the parks and reserves maintenance operations to ensure that sustainability, biodiversity, emission reduction and innovation are considered. This could include no-mow areas, changes to spraying and mowing processes, using zero emission mowers, tractors and garden maintenance equipment, increasing plantings of drought tolerant and native plants.

We can also investigate the potential to register for native forestry carbon credits or biodiversity credits via the voluntary carbon market that could offset council’s corporate emissions.

Rewilding trials and native plantings programme	
Cost	TBC
Timing	Trial completed in 2025
Lead Directorate	City Services and Infrastructure
Emission Reduction	Not yet quantified

What else we could do

We could also investigate the opportunity for blue carbon sequestration through coastal wetland restoration. This is the removal of carbon dioxide by coastal ecosystem and wetlands rather than forestry. Internationally coastal environments have been proven to sequester vast quantities of carbon, up to four times more carbon than forestry.

Despite coastal and wetland restoration’s recognised importance as a nature-based solution there is little known about the carbon storage potential of New Zealand’s coastal wetlands. Restoration activities can be passive or involve minimal soft engineering. Coastal salt marshes only take a couple of years to re-establish, much quicker than regenerating native forest.

This opportunity should be investigated to understand how the restoration of Ahuriri Regional Park and Te Whanganui-a-Orotū could offset council’s corporate emissions or provide income opportunities through the voluntary carbon offset markets. Auckland Council’s Healthy Waters programme is leading similar work with projects in the Kaipara and Manukau harbours.

In a similar way council could also consider enabling local land-based carbon sequestration projects, either on council, community or iwi land. This could be facilitated by agreeing to purchase locally generated offsets for its unavoidable corporate emissions. This will be necessary in the future to meet the net zero by 2050 target and it would be preferably to support local regeneration projects.

TRANSPORT

Why transport is a priority area

Transport is the fastest growing source of GHG emissions in New Zealand and the main source of Napier's community GHG emissions. Transportation accounts for 57 percent of Napier's total GHG emissions but only 2 percent of Napier City Council's corporate GHG emissions.

To reduce transport emissions, we need to make fundamental shifts in how we travel – including changing to low-emissions vehicles, using public transport more, reducing vehicle trips, using active travel modes, such as biking, walking, scootering or avoiding travel through remote working and meetings. Napier's flat terrain, moderate climate and existing network of cycle trails and paths make active transport options accessible.

The previous Government introduced initiatives such as the clean car package giving rebates on electric and plug-in hybrids driving uptake of low-emissions vehicles. While the current Government has repealed this, they have committed funding to increase the network of electric vehicle chargers across the country, with plans for 10,000 new charging stations by 2030.

There are currently 2,026²⁵ electric vehicles in Hawkes Bay, however, this number is projected to increase significantly in the future. By 2030 it is expected 35% of the light fleet will be electric, which will mean around 40,000 vehicles in Hawkes Bay.

What we're already doing

Napier's District Plan, due for adoption later in 2024 supports the building of medium-density residential areas close to transport, shops and schools, which enables people to travel shorter distances on foot, cycle or scooter to access services, including public transport.

Planning that supports low-emissions urban form – the shape, size, density and configuration of settlements – through more mixed-use, medium- and high-density development close to urban centres creates more accessible, healthy, resilient and vibrant towns and cities.

Napier City Council is part of the Regional Transport Committee (RTC) along with other councils, Waka Kotahi, and specialist advisers. This group is responsible for the Regional Transport Plan (RTP 2024-2034)²⁶ and Regional Public Transport Plan (2022-2032)²⁷. One of the five objectives of the RTP is to drive a low emissions transport system that reduces risk associated with global warming.

The Regional Public Transport Plan adopted in 2022 signals a 'step change' in public transport services across the region, making public transport an attractive and user-friendly option for commuting to places of work, education, retail, and recreation alike. From 2025 the frequency and running times of buses on our main bus routes will increase significantly, with routes optimised to integrate with active transport. From 2025 all public urban buses will be 100% zero-emission.

Over the last five years Council has invested over \$9 million in developing a safe and integrated network of walking and cycling paths across the city. We've also made improvements to the West Quay area shared by vehicles, cyclists, pedestrians and businesses. We are in the process of improving Carlyle Street after feedback from the community to make it safer for cyclists, pedestrians and vehicles.

Beam electric scooters have been available in Napier since 2022, providing the community and visitors with a low carbon micro mobility option. We are also partnering with Locky Docks to provide secure parking for e-bikes at various council sites.

Our proposed actions

²⁵ <https://baybuzz.co.nz/hb-drivers-own-2026-evs/>

²⁶ <https://www.consultations.nz/assets/Consultations/HBRC-RLTP-24-34/Draft-RLTP-24-27-V10-web.pdf>

²⁷ www.hbrc.govt.nz/assets/Uploads/Hawkes-Bay-Regional-Public-Transport-Plan-FINAL.pdf

We've already begun rolling out the E-Road fleet management software to councils' fleet of vehicles. This software will give us data to better understand vehicle utilisation across the council's own fleet of vehicles. This data can be used to optimise the fleet and identify which are best suited to hybrid or electric.

Council's vehicle policy was reviewed earlier this year and already provides a commitment to transition our fleet to hybrid and electric vehicles in alignment with central government objectives and lowest total cost of operation. In 2023 NCC had 27 hybrid vehicles making up 18% of the council's fleet by numbers and zero fully electric vehicles.

The national target is for 35% of the light vehicle fleet to be electric by 2030. Central government agencies are required to have an electric vehicle first policy, with exemptions and justification for procurement of petrol or diesel vehicles signed off by the chief executive.

We're also planning to accelerate our community's uptake of low emissions vehicles by partnering with others to deliver low carbon transport options like Beam Scooters, Locky Docks secure e-bike parking and rolling out electric vehicle charging stations at some council facilities.

28. Fleet transition plan to hybrid and electric

Once we have data from E-Road this can feed into to a fleet optimisation and transition plan with the aim of reducing council's fossil fuel from the fleet by 35% by 2030. Guidance is available via the Carbon Neutral Government Programme, EECA or through consultants who can assist with fleet transition plans. This is a new project that will need approval, sponsor, owner, defined scope, budget, planning and a project manager assigned.

Fleet transition plan	
Cost	Reducing fuel costs will reduce Council's costs Total life costs for electric vehicles are already lower than ICE vehicles. TCO data is available to compare in the AoG Vehicle Catalogue
Timing	Fleet transition 35% reduction in fossil fuels by 2030
Lead Directorate	City Services
Emission Reduction	~433 tCO ₂ e annual reduction

29. Electric vehicle charging stations

We've already signed a memorandum of understanding with Meridian Energy to allow us to work together to install electric vehicle chargers at some council facilities, at no cost to council. Initial sites identified are The National Aquarium and the Napier Aquatic Centre / Flanders Avenue car park. Once funding is confirmed by Meridian the next steps will include legal review of the licence agreements, confirming sites, and other project details. This is a new project that will need approval, sponsor, owner, defined scope, planning and a project manager assigned.

EV Charging Stations	
Cost	No capital cost to council, project management required
Timing	MoU signed and funding approved 2024 Projects delivered in 2025

Lead Directorate	Infrastructure
Emission Reduction	Will support community wide emission reductions

30. Low carbon transport choices

As a council we can support the promotion of walking, cycling and active transport along with low carbon transport modes which have wider benefits for community well-being as well as emission reduction.

We've already partnered with Beam Scooters a leader in micro mobility who have been providing e-scooters across our city since November 2022. These provide new transport choices, reduce car dependency for shorter trips and provide a fun low carbon transport option for visitors and residents alike.

Our next partnership is with Locky Docks who are helping urban mobility by providing free, secure parking, charging and way finding solutions for cyclists. This helps to reduce congestion, reduce emissions, and provides healthier outcomes by encouraging more e-bike use.

Hawkes Bay Regional Council is currently trialling Liftango²⁸ a 'Uber style' car-pooling app that facilitates ride sharing for staff. Approximately 10% of HBRC staff have signed up already and there is the option for NCC to join the trial. We can co-brand, share costs and adding NCC staff will increase the ride share pool and likely increase success.

Another new initiative is Work ride²⁹, an employee benefit scheme designed to get more people riding and living healthier lives. Employees can choose a temporary salary sacrifice which is deducted pre-tax in exchange for a bike, e-bike or scooter of their choice. This saves 32-63% on the cost of their new ride achieved via tax benefits. Auckland, Wellington, and Christchurch Councils have already rolled this programme out to their staff. The programme is IRD approved, exempt from fringe benefit tax, ensuring full tax and legal compliance and eliminating business risk. It's designed to be cost neutral for employers, although there will be some administration necessary. This is also a new project that will need approval, sponsor, owner, defined scope, budget, planning and a project manager assigned.

Low Carbon Transport Options	
Cost	Liftango \$10K (50% of costs for 1 year trial) Work Ride – no cost but staff admin time Staff travel demand management plan – no cost, staff time Promotion of walking, cycling & active transport – costs to be confirmed
Timing	Beam Scooters 2022, Locky Docks 2024 New initiative: Liftango Ride Share App 2025, \$10K New initiative: Work Ride Employee Benefits scheme
Lead Directorate	City Strategy / Transport
Emission Reduction	Will support Scope 3 and community wide emission reductions

²⁸ <https://www.liftango.com/>

²⁹ <https://www.workride.co.nz/>

	~ 45 tCO ₂ e per year if 10% staff uptake
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What else could we do?

There are many other transport related opportunities that could deliver emission reductions across the region. Council can support and enable these in partnership with others:

- hydrogen infrastructure for freight and heavy transport
- incentivising electric waste and recycling trucks via contracts with service providers
- decarbonisation of shipping by upgraded ground power supply at Napier Port
- enabling a supply of biofuel alternatives for the region as a replacement for diesel
- trialling battery electric options for council mowers and other off-road equipment
- developing more cycleways and walking paths
- consider subsidised public transport for council staff
- consider dedicated car parks for people car pooling