



Our City
Tomorrow

Te Atakura First to Zero

Wellington's blueprint for
a Zero Carbon Capital

Absolutely Positively
Wellington City Council

Me Heke Ki Pōneke



Whakataka te hau ki te uru,
Whakataka te hau ki te tonga.
Kia mākinakina ki uta,
Kia mātaratara ki tai.
E hī ake ana te atakura he tio,
he huka, he hauhunga.
Tuturu whakamaua kia tina
Haumi e! Hui e! Tāiki e!

Get ready for the westerly
Be prepared for the southerly
It will be icy cold inland
And icy cold on shore
May dawn rise red-tipped
On ice, on snow, on frost
Behold, the essence of life!

“I’m part of this
extraordinary beauty.
I bind myself to this!”

- Justice Joe Williams

Our City Tomorrow – Zero Carbon Capital Programme

This is an exciting time for Wellington. Never before in the history of our city have we been presented with an opportunity of this scale for transformational change. How we grow our city, how we move around our city, and how we deal with seismic risk and the causes and impacts of climate change will impact generations to come and set the course for our city tomorrow.

The Our City Tomorrow programme of work identified five key principles. Wellingtonians told us that they wanted to live in a city that is:



We expect 50,000 to 80,000 more people to make Wellington their home over the next 30 years. This will impact not just where we live, but how we live. Where this growth occurs, and the transport systems that support that growth, will have major implications for the resilience and liveability of our city as well as our contribution to the global effort to reduce greenhouse gas emissions.

Our City Tomorrow Planning for Growth

Planning for growth

Our city is growing. The District Plan is up for review. The decisions we make now will shape the way we live for decades.

We live in one of the most liveable cities in the world. We cherish our edgy culture and beautiful heritage buildings. We love the blue harbour and green belt that frame our city. We are proud to have the lowest carbon emissions per capita in Australasia.

Planning for growth will set the rules for where that growth happens and how it happens. It will capitalise on the opportunities presented by Let's Get Wellington Moving by enabling growth around key transport corridors which contributes to our emission reduction targets. It sets the rule book for how we deliver a more sustainable, resilient, liveable city.



Let's Get Wellington Moving

Let's Get Wellington Moving (LGWM) is a partnership between Wellington City Council, Greater Wellington Regional Council, and NZTA. LGWM has been engaging with the people of Wellington to develop a transport system that supports Wellingtonians aspirations for how the city looks, feels, and functions to support Wellington's growth while making it safer and easier to get around.

LGWM is a once in a generation city-shaping opportunity, which has attracted significant central government investment. We started with the kind of city and region our community wants, and defined the transport system needed to enable that.

Core to the programme is the principle that to realise this vision we need to move more people with fewer private motor vehicles. This will require our city planning rules to prioritise growth around key transport corridors where there are more active and public transport options.

Zero Carbon Capital Taone matua, taone warokore

First to Zero

Wellington City is in a good position to make a positive difference in the national and global effort to mitigate the worst impacts of climate change.

We may be small but with 80% of people globally living in cities with a population under 1 million, small cities like Wellington have a huge role to play in demonstrating how we best reduce our carbon emissions.

In Wellington we start with a strong base of a highly educated populace, an already compact inner city, high use of public transport, and relatively low car ownership. But Wellingtonians still have some big decisions to make about how our city will grow. Where we enable growth, and how we capitalise on the opportunity presented by Let's Get Wellington Moving to provide quality transport options, will be key to reducing our carbon emissions and playing our part in keeping our planet in the 'climate safe' zone.

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A moment with the Mayor



By many standards, Wellington is doing well. We've been judged the most liveable city two years in a row, in large part thanks to our environment. Our climate is mild and we enjoy clean air and a wonderful natural environment.

But climate change is upon us and the risks to our way of life are real. We need to act now. If we want our mokopuna to inherit a great city, we must do our part in cutting our emissions.

Previous generations of New Zealanders have led the debate on social change around all manner of issues. New Zealand has managed to change attitudes on issues like smoking, nuclear power and burning coal. It is critical to act on carbon in the same way. Positive change never happens overnight but inaction is not an option.

This generation's most important issue is climate change and securing the future for those to come. We also have a responsibility to act to help the huge number of other species that will be affected by climate change.

Wellington has been a leader in the climate change area in the past. Now we are ready to move to the next step by being First to Zero. This means giving all Wellingtonians information and choices about how to reduce our individual and collective carbon footprint for future generations. It also means not leaving anyone behind. Lower income households will face specific challenges and we will be working on solutions to assist them reduce their carbon footprint.

We look forward to having big conversations with Wellingtonians over the next few years, in particular young people and children who will face the impacts of climate change first hand and mana whenua as Treaty partners.

Wellington is an ambitious city and this is an ambitious plan. Now it is your turn to tell us what we we have got right and what else we should be doing.

Justin Lester
Mayor



“Climate change
is upon us and the
risks to our way of
life are real.”



On June 20, 2019, Wellington City Council adopted the following declaration:

Te wero

Toitū te marae a Tāne
 Toitū te marae a Tangaroa
 Toitū te iwi
 Ngāi Tātou o Pōneke, me noho ngātahi
 Whāia te aratika

Our challenge

Protect and enhance the realms of the Land and the Waters, and they will sustain and strengthen the People.

People of Wellington, together we decide our way forward.

Wellington City Council joins hundreds of other cities around in the world in declaring a State of Climate and Ecological Emergency accepting local and international scientific evidence that there remains around a decade to take urgent action to reduce greenhouse gas emissions in order to avoid disastrous consequences.

The Council will ensure that we adopt and promote a just transition for vulnerable and low paid Wellingtonians by ensuring the burden of change is equitably shared.

We also recognise that the breakdown of the climate is already damaging fragile ecosystems with significant economic, social and environmental consequences including more severe storms, sea level rise, loss of biodiversity and negative impacts on human health.

Wellington City Council commits to the following:

1. Providing strong and effective leadership based on the best scientific knowledge in partnership with iwi and with ongoing collaboration and consultation with the scientific community, business, citizen groups, central government, government agencies, and communities on climate change;
2. Adopting and implementing *Te Atakura First to Zero* which aims to ensure that Wellington is a net zero emission city by 2050 with a commitment to making the most significant cuts in the first 10 years.
3. Significantly reducing fossil fuel use by 2030 as well as finding solutions to reduce or capture more methane;
4. Establishing a working group to implement the plan and agree to work with relevant agencies, local government authorities and central government to achieve the above aims;
5. Ensuring that the Council adopts and promotes a just transition for vulnerable and low paid Wellingtonians by ensuring the burden of change is equitably shared.
6. Developing an accountability framework to measure the impact of our actions to achieve net zero emissions and to halt the decline of our ecosystems, especially over the next decade.

The seven big moves for a Zero Carbon Wellington

1

Shaping our plan for a growing city

The community has some big decisions to make about how Wellington will grow. With up to 80,000 people wanting to make Wellington their home in the coming decades, there are two options. Grow up - apartments in the CBD, townhouses and low-rise apartments in the inner suburbs and town centres, and abundant transport choice and amenity. Or we can grow out - find new, undeveloped parts of the city to support that growth in. Places where vehicle transport is inevitable and amenity inconvenient to reach. Growing up, unlike growing out, will lead to a zero carbon future.

2

Getting us moving in all the right ways

The infrastructure that Let's Get Wellington Moving will put in place through its programmes between the railway station and the airport represent a chance for a generational improvement in public transport and active transport. Developing public and active transport infrastructure for all directions is an essential element of a zero carbon future. Once that infrastructure is in place, user charges to signal the true cost of driving and to alleviate congestion is the next necessary step to consider.

3

Becoming a leader in high performing buildings

Whether it's Council buildings or buildings for others, lifting the performance of buildings is essential. The benefits include potentially lower infrastructure costs, cheaper operating costs, healthier environments, and lower carbon impacts. Existing buildings are harder - supportive advice is a great starting point. The Council has already supported audits for nearly 2% of Wellington's homes through the Home Energy Saver advice service, and is looking to take that up a notch and replicate its' success for commercial buildings if possible.

4

Giving shared mobility options a lift

For the Council it started with one Cityhop car in 2008, now there are MEVO car share vehicles, scooters, Onzo bikes and who knows what's next. Vancouver has 3500 car sharing vehicles helping them get people out from under car ownership's costs. By population, Vancouver indicates Wellington could see 300 cars on the streets, each taking 10 or more cars off the road as people sell up to join up. All that before counting the shared bikes and scooters, which are bringing a new micro-mobility aspect to Wellington's transport system.

5

Building a Wellington climate lab

The Council has founded the Zero Carbon Challenge and Climathon with local entrepreneurs and universities, and has worked collaboratively with energy companies and mobility companies. In addition Wellington has used community panels to self-determine options to adapt in places like Makara. Wellington is knee deep in a number of small initiatives to make a difference, but it's time to look for scale and transformative change. We will build a climate lab collaborating with partners around the city and country on solutions to develop best practice on emission cuts and adaptation. Central government, research institutions, and business will all have a place, but like our smart city laboratories of the past, the focus will be place based.

6

Going for a zero emissions transport fleet

2050 is close. Even when accounting for the huge investments we're making in public and active transport, the car will still have a role, particularly for multiple stop and some longer trips. After all, our cities were designed for more than a century around vehicles. Electric vehicles reduce emissions by 80% compared to their fossil-burning counterparts, according to the Energy Efficiency and Conservation Authority. Given New Zealand's renewable energy assets, a priority is electrifying the fleet. If New Zealand is to convert the fleet quickly Government help is needed. The Council can also play a supporting role by supporting charging and looking at developments to ensure they are taking electric vehicles into account where vehicles are present. Additionally, user charges can be used as influences towards zero emissions vehicles.



And one big question

It's evident above that a lot of the key actions deal with the car. Living more compactly, adopting shared ownership models, and investing seriously in public and active transport of all kinds. All while electrifying as much of the fleet as possible. The question is this:

Have we reached the end of the love affair with the car?

7

Protecting and enhancing the domain of Tāne

Wellington does well when it comes to protecting our forests. The Wellington Town Belt and our Outer Green Belt support recreational activity, promote biodiversity, and supply numerous ecosystem services and co-benefits to the city - particularly around managing water.

Working with volunteer groups, we've planted more than 1.7 million trees since the 1990s and our native nursery provides 100,000 more per year for community planting initiatives. In terms of scale, eleven percent of carbon forests planted in New Zealand as part of the Permanent Forest Sinks Initiative are found on Wellington City Council land. But still, we need to do more.

Accelerating the planting of forests on our existing land is helpful, but seeking new land to plant out and help capture carbon from the atmosphere is going to be even more helpful to fulfilling the goals of Te Atakura.

One thing is certain, our natural environment will play a critical part.



Initiatives at a glance



Transport

- ▶ *Let's Get Welly Moving*
- ▶ *Car sharing*
- ▶ *Electric vehicle charging*
 - > Dynamic shuttles
- ▶ *Bike and scooter sharing*
 - > Travel behaviour change
- ▶ *Pedestrianisation*
 - > User charges
 - > Parking pricing
- ▶ *Cycleway network*



Building energy

- ▶ *Planning for Growth*
 - > Urban development agency
- ▶ *Home Energy Saver*
 - > High performance building incentives
- ▶ *Warmer Kiwi Homes*
 - > Allow borrowing against rates for sustainable investment
 - > Solar community buildings
 - > Zero carbon parks
 - > Neighbourhood grids
 - > Regulatory process influences



Advocacy

- ▶ *Mandatory energy use disclosure*
- ▶ *Improving the building code*
- ▶ *Mandate NABERSNZ*
- ▶ *Mandate Homestar*
- ▶ *Consider use of natural gas*
- ▶ *Public and active transport investment*
- ▶ *EV subsidies*
- ▶ *2030 fossil vehicle importation ban*
- ▶ *Reasonable bus fares*
- ▶ *Reliable buses*
- ▶ *Develop biofuels*
- ▶ *Develop Direct Air Capture*
- ▶ *Waste reduction*
- ▶ *Container deposit scheme*
- ▶ *Product stewardship*
- ▶ *Diet change*
- ▶ *Carbon considered in the RMA*
- ▶ *Renewables investment*
- ▶ *ETS improvements*
- ▶ *Procurement*



Other initiatives

- > Wellington Climate Lab
- > Zero Carbon Challenge
- > Climathon
- > FutureFit
- > GHG Inventory
- ▶ *Consumption Inventory*
- > Sustainable food network
- ▶ *Forestry opportunities*
- > Climate and inequality study



The Wellington City Council Plan

- ▶ *Sewage Sludge*
 - > Procurement changes
 - > Bylaw adjustments
- ▶ *Improve governance*
 - > CDP and CEMARS
 - > Landfill activities
 - > What might be needed?
 - > Climate resilience fund
 - > Climate certified bonds
 - > Private cycle lanes
- ▶ *Circular economy study*
 - > Water meters
 - > Green building mandate
 - > Green building refits
 - > Flexible, carbon neutral gas replacement 2035

- > EV first fleet
- > Sustainable food events
- ▶ *CCO statements of intent*
 - > CarbonZero council
 - > Energy management KPIs
 - > Climate budget
 - > Connecting digitally
 - > Energy saving investment
 - > Green infrastructure
 - > Assess embodied carbon
 - > More sustainable building engineering/construction
- ▶ *Measurement framework*

Key:

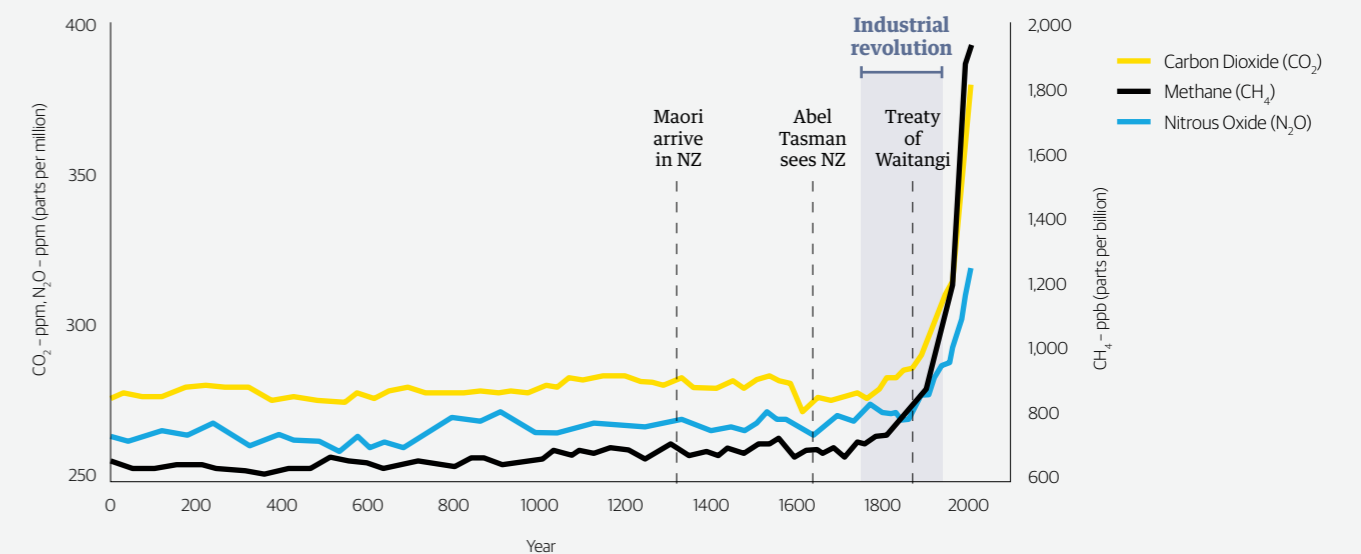
▶ *Early activity*

> Longer term initiatives

The context

The capital celebrates being judged the world's most liveable city, Lonely Planet's "coolest little capital" tagline, and being the capital of creativity, culture, cafes, coffee and craft beer. Wellington is also a leader in ongoing restoration of the natural environment - from beaches to hilltops. All are essential parts of Wellington's identity.

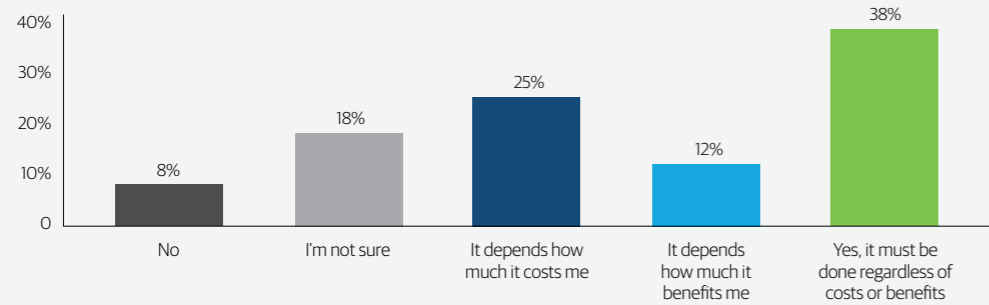
Global carbon dioxide concentration over time



Less known is the achievement of being the lowest carbon city - per person - in Australasia. That's thanks to being a compact city centre (helped by the far-sighted establishment of the Wellington Town Belt, and in recent decades the Outer Green Belt), the country's highest levels of active transport use, public transport use and electric vehicle ownership per person.

That said, there's a problem in a wider context. The most recent Inter-governmental Panel for Climate Change (IPCC) report has given the world 11 years to get serious about sorting out emissions or face serious climate impacts - we need to cut emissions in half by 2030.

Generally, are you personally prepared to help the country reduce its greenhouse gas emissions?



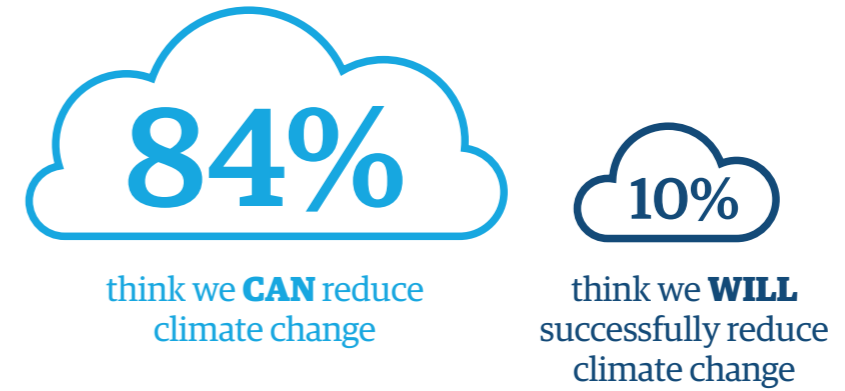
Luckily, there is a momentum for change. According to a HorizonPoll survey, 75 percent of New Zealanders are prepared to support greenhouse gas reductions through personal action if the costs and benefits are right. EECA recently released research that found much the same.

Support is important. A wholesale change in lives - the energy we use, transport options taken, how and what we eat, and how we connect - is a monumental task that can't be done alone.

This presents opportunities, but also challenges - the economy will have to change significantly and those who lead will benefit, not just from a future-proofed economy at home, but from trade that develops as the rest of the world figures out the climate crisis and looks for leaders.

The scale of this change is so huge that it is hard to grasp. That said, one of New Zealand's largest insurers, IAG, found in a survey that 84 percent of New Zealanders think we can reduce climate change. This contrasts with only 10 percent thinking we will successfully do so. The capability exists, but does the will?

Potential as opposed to expectation of mitigating climate change



What gives particular hope is the recent push for a potential Zero Carbon Act to be put in place. Recent national consultation that attracted 15,000 submissions saw a target of zero emissions by 2050 and a climate commission both have more than 90 percent support from submitters. Going by these numbers, there is wide agreement that New Zealand needs to set the right tone.

Wellington has a chance to step into a leadership role as a city with a plan for the future and a pragmatic approach. And we have a good idea of what to do already - lowering emissions is well understood. But there is much more to do in finding better settings for city development, cleaner fuels and climate-friendly approaches to existing buildings. Major behaviour changes will be necessary.

The year 2050 may seem like a long way off. But decisions made now define whether the world left to kiwi kids will be hurting a little - or in bad shape. That's why thousands of young people recently marched down Lambton Quay to demand action during the School Strike for Climate 2019.

Te Atakura - First to Zero sets out an ambitious series of challenges for us to address to make Wellington the first zero carbon city in Australasia, and to do so as quickly and realistically as possible.

This is an urgent global challenge with only a few years to deal with it. Everything from conversations around the BBQ to conversations at political tables need to account for the challenges to the way things have always been done.

This is an urgent global challenge with only a few years to deal with it.

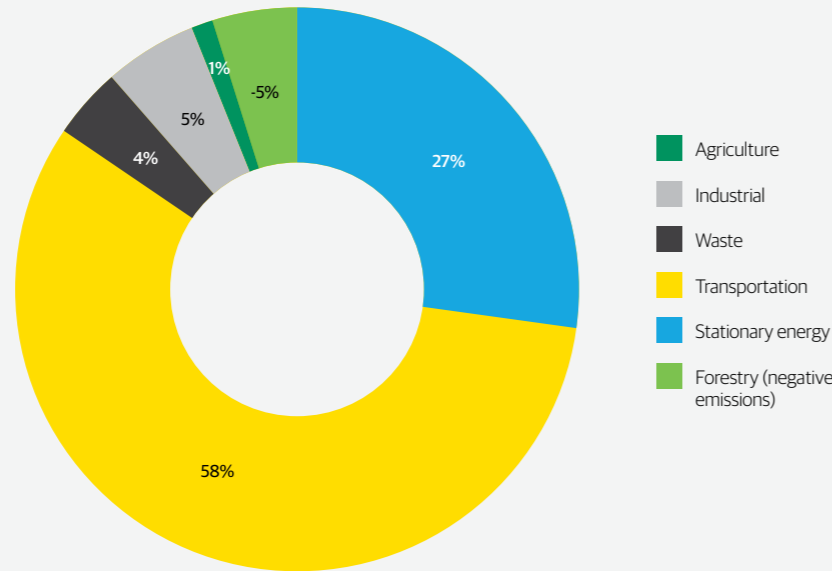
What do we mean by zero carbon?

Much of what makes a city move emits carbon. Moving around by car, turning up the heat, even having a bite to eat or throwing something in the rubbish. Currently, Wellington’s emissions are heavily weighted towards travel and energy use in buildings (also known as stationary energy).

our measurements exclude the emissions embodied in food and manufactured products created outside of Wellington. This is true of almost all cities and how they measure carbon, and someone living in Wellington is just as likely to want a burger as someone living in Westport. It is transport and land use that cities can primarily affect.

It is important that we understand that emissions are currently measured at the point of production. So

Wellington City’s 2014/15 emissions breakdown



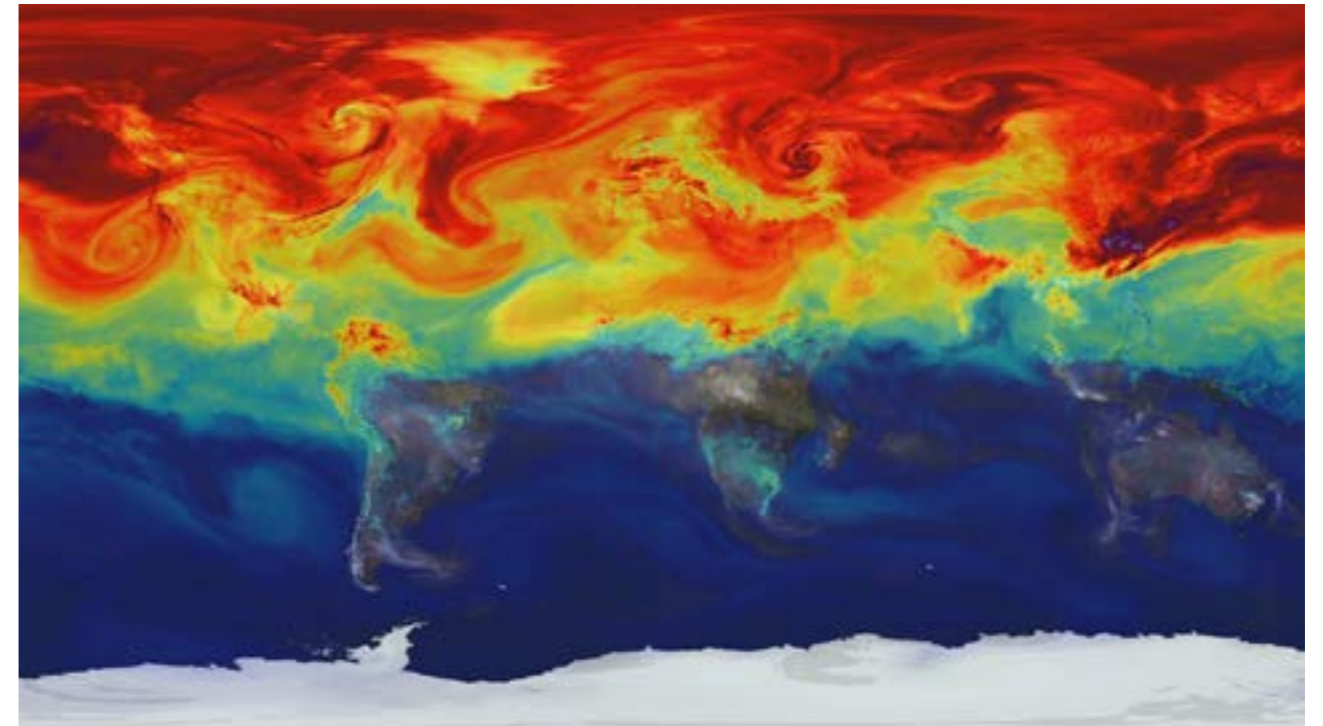
Taking into account Wellington’s emissions, zero carbon is quite simple. We need to support changes in the city that reduce the emissions we create. This means:

- Designing a city that is less focused on lots of travel and giving people real affordable choices around walking, cycling and public transport
- Supporting a more sustainable, compact, liveable city
- Providing varied, high-quality low-emission housing options
- Switching off fuels like petrol and natural gas
- Focusing the system on ways to avoid disposable products

- Dramatically reducing waste to landfill, and
- Having a look at individual issues like diet, travel, and emissions from goods and services we get from elsewhere.

Zero carbon can be achieved, but it will require enormous change from all of us. Planting trees to capture carbon from the atmosphere will be required. There isn’t enough land to offset Wellington’s current emissions, but with strong effort in the other areas, the city could achieve the goal with locally planted forests in the future.

Why the urgency?



Simulation of carbon dioxide in the atmosphere

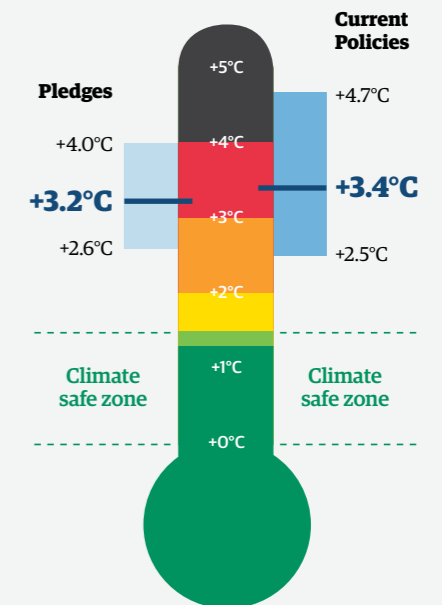
Credit: NASA/GSFC

Keeping in the “climate safe zone” of a 1.5°C world is very unlikely, according to the latest research. The IPCC’s 2018 report indicates what is ahead if the world cannot keep well below 2°C of warming: hundreds of millions suffering food and water shortages; mass migrations and resultant conflict; significant biodiversity loss, including 99% or more of the coral reefs across the planet dying; and disruption of natural processes like storms and rainfall across the planet. Other studies show permanent GDP reductions will be 3 or more times worse than the 2008 great recession.

Considering the world is on a pathway for a 3.4°C rise, the IPCC report issued a stark warning out of character for scientists - it noted the world is “well off track” to keep in the climate safe zone.

Letting the ‘unthinkable’ happen is not an option, and cities have a part given they are the source of more than 70% of emissions. Here in Wellington City, the same is true. Given the substantial human, financial and natural impacts of climate change, the responsible path is to act now, act strongly, and act for collective impact.

Predicted temperature increase by 2100 - pledged versus current policies



Source: Adapted from Climate Action Tracker

“Nations talk; cities act.”

- Michael Bloomberg, former Mayor of New York City

Why Wellington?

Wellington makes up a small proportion of emissions in the grand scheme of things, but 60% of global emissions come from small places outside of the U.S. and China, so we all have to do our part to reach our goals. In addition, being small doesn't avoid the challenges.

In Wellington, the effects of climate change are here: low lying areas and flood prone areas like Makara, Kilbirnie and Tawa face challenges now and Tangaroa is taking back some of the reclaimed land in the CBD, where basement pumps are beginning to be swamped by the water table. Our underground stormwater network is already badly stressed in some areas - struggling to drain even at the best of times. Insurers have told Council that they will not cover for climate change because it is not an unexpected or accidental event, which has serious implications. These early impacts are more motivation than ever to look towards a zero carbon future. They also serve as a warning. The impacts later in the century - particularly of sea level rise - will prove more real as water laps at our gumboots. But they will prove more real to our wallets as well.

The Council has not stood still and is investing many millions of dollars into seawalls, larger stormwater pipes, and better infrastructure to protect public

property. We are also starting to talk with communities about if and how we can protect them in the future. In some places pulling back from the coast might be necessary eventually. Acknowledging this, each time infrastructure is built or regulations change is an opportunity to design for the future and aim for zero carbon.

The Council has invested in technology like a 3D virtual reality simulator of how sea level rise could look here in Wellington, and has extensive mapping to show where and how areas of the city might be affected. Some of these climate impacts are already locked in based on past activity, but others can be avoided through the world adopting the challenge of reaching zero carbon.

The maps below are based on the Wellington sea level rise layers set at 1.4m of sea level rise - the “major new infrastructure” level for planning recommended in the latest Ministry for the Environment guidance for local government. This is an understandable scenario in under a century on current trends. While not a projection or a certainty, it is the current guidance. It tells a story of a return to the 1840s shoreline, before land was reclaimed or the Wairarapa earthquake pushed up the land.

Given 77% of GDP comes from within the central business area, there will be impacts on the economy. This creates another strong reason for change. Given Council's understanding of the property system, a good proxy is the impact on properties rather than business - in this respect Wellington will see three key localized impacts: approximately \$7 billion in property affected by sea level rise at 1.4m of rise - about 10% of the city's property value. Second, approximately \$1 billion of Council property would be affected. Finally, properties that pay around 25% of the Council's

yearly rates would be impacted. Not only will funding streams be needed to face the challenges posed by climate change, but the funding available to Council to do so will be compromised.

As a connected harbour city with a high income, highly-educated workforce, Wellington is also well-placed to develop a zero-carbon economy. There are expected to be significant economic benefits from carbon zero leadership according to Westpac and the Commission on the Economy and the Climate.



\$7bn
private
property

\$1bn
Council
property

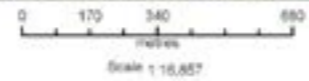
25%
of rates

all at risk from sea level rise



LEGEND
 — 1842 Shoreline (prior to EQ & Reclamation)
 ■ 1.4m Sea Level Rise

1.4m Sea Level Rise Inundation Potential



Property boundaries, 20m contours, road names, cell site, address & 90m points sourced from Land Information NZ. Crown Copyright reserved. Property boundaries accuracy: +/- 5m in urban areas, +/- 10m in rural areas. Census data sourced from Statistics NZ. Postcodes sourced from NZ Post. Assets, contours, water and drainage information shown is approximate and must not be used for detailed engineering design. Other data has been compiled from a variety of sources and its accuracy may vary but is generally +/- 5m.

MAP PRODUCED BY
Wellington City Council
101 Wakefield Street
WELLINGTON, NZ

ORIGINAL MAP SIZE: A4
AUTHOR: rpbw2a
DATE: 20/02/2019
REFERENCE:

**Absolutely Positively
Wellington City Council**
No Water to Wastewater



LEGEND
 ■ 1.4m Sea Level Rise

1.4m Sea Level Rise Inundation Potential



Property boundaries, 20m contours, road names, cell site, address & 90m points sourced from Land Information NZ. Crown Copyright reserved. Property boundaries accuracy: +/- 5m in urban areas, +/- 10m in rural areas. Census data sourced from Statistics NZ. Postcodes sourced from NZ Post. Assets, contours, water and drainage information shown is approximate and must not be used for detailed engineering design. Other data has been compiled from a variety of sources and its accuracy may vary but is generally +/- 5m.

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The Council's role

Climate change is everyone's responsibility. While this plan is aimed primarily at the city level, this cannot be in isolation from the commitments and aspirations of our nation or our citizens.



Climate Equity

Time is short, which means strong action is needed, and fast. That said, aside from its role in reducing emissions, the Council has a role ensuring the need to support disadvantaged communities is always considered. The Council has to work together with support and partner organisations to ensure

Wellington remains the world's most livable city - regardless of income - even on the journey to zero carbon. Separately, it will be key to support New Zealand's Pacific neighbours to remain where they want to be, though that possibility is becoming smaller by the day.

Making the targets official

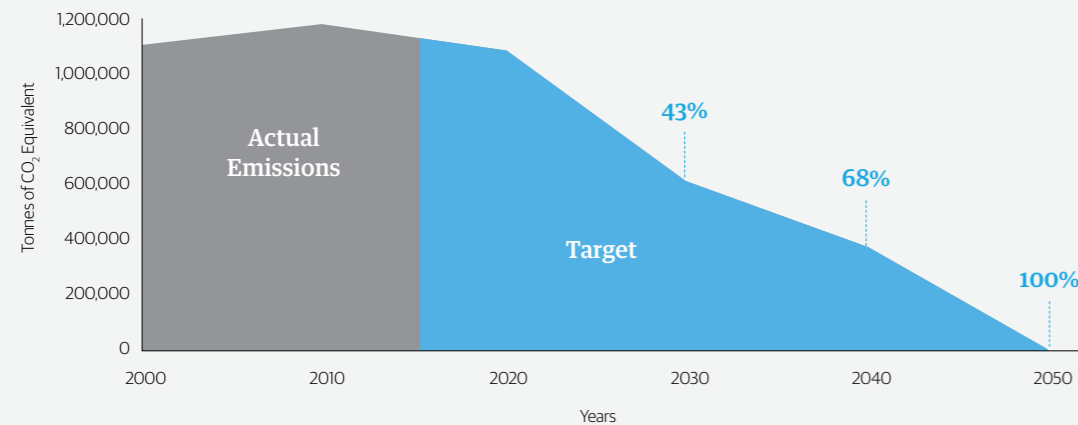
Year	Wellington City target	Wellington City Council target
2020	10%	-
2030	43%	-
2040	68%	-
2050	100%	100%

Wellington City has had targets of 80% emissions reductions by 2050 for both the city and the Council for a more than a decade. Those targets are no longer viable. The Council must go further, and in particular, it must go faster.

Traditionally targets are set for a target year. This can lead to some delaying action until the target year approaches. The Council needs transformational change that will deliver as much carbon reduction as soon as economically and practically possible.

Internationally the zero carbon standard has been set by leading capital cities like Oslo, Canberra, and Stockholm. Locally the Hutt as an organisation and Christchurch as an organisation and a city have followed suit. In addition to net zero by 2050 targets, the Council acknowledges a greater urgency. In line with the ethos of being First to Zero, the Council aims to act now - there is no time to delay. Both of the Council's new targets are to reach net zero emissions by 2050 with the most significant reductions in the first 10 years.

City targets



To achieve this goal the Council will have to reduce emissions across the city, while looking for opportunities to offset and capture carbon wherever possible - through forestry or otherwise.

As the city with the lowest per person carbon emissions in New Zealand, growth in the city's population can be good for the climate. When people are choosing to live here instead of elsewhere in the country or the region where their emissions impact is more severe, there is a carbon benefit.

An important addition to these broader targets is to develop a series of smaller targets for each area such as transport, and building energy. This will be done as part of an implementation plan.

“Zero emissions is an ambitious but achievable goal.”

– Former UN Secretary-General Ban Ki-moon

Action

Transforming our city

This action plan will focus on:

- 1. Transport**
- 2. Building Energy**
- 3. The Council itself**
- 4. Advocacy**

Given the urgency of the challenge, Wellington will attempt to make significant cuts to our emissions over the next 10 years. To do this, we will work in partnership with many stakeholders - mana whenua, iwi, young people and children, central government, other local authorities, business, non government organisations, institutions and individuals. We can not do this alone.

An implementation plan will be developed in time for the next Long Term Plan to show how we will achieve our aspiration of a zero carbon city. As part of the development of Te Atakura - First to Zero and the implementation plan, we intend to engage with the public in a city wide conversation. It is important that the whole city is on board with this vision of going zero carbon.

Building energy use and transportation make up the vast majority of the city's carbon emissions as measured by emission production - and are highly influenced by where and how we grow. It is also important to start conversations about the goods and services we consume, even though the emissions from these are attributed to the areas where those products are created.

We shape land use through planning rules and transport through investment and incentives. There are significant opportunities in both areas to see new and different ways of growing that transform Wellington as it is to Wellington as it could be.

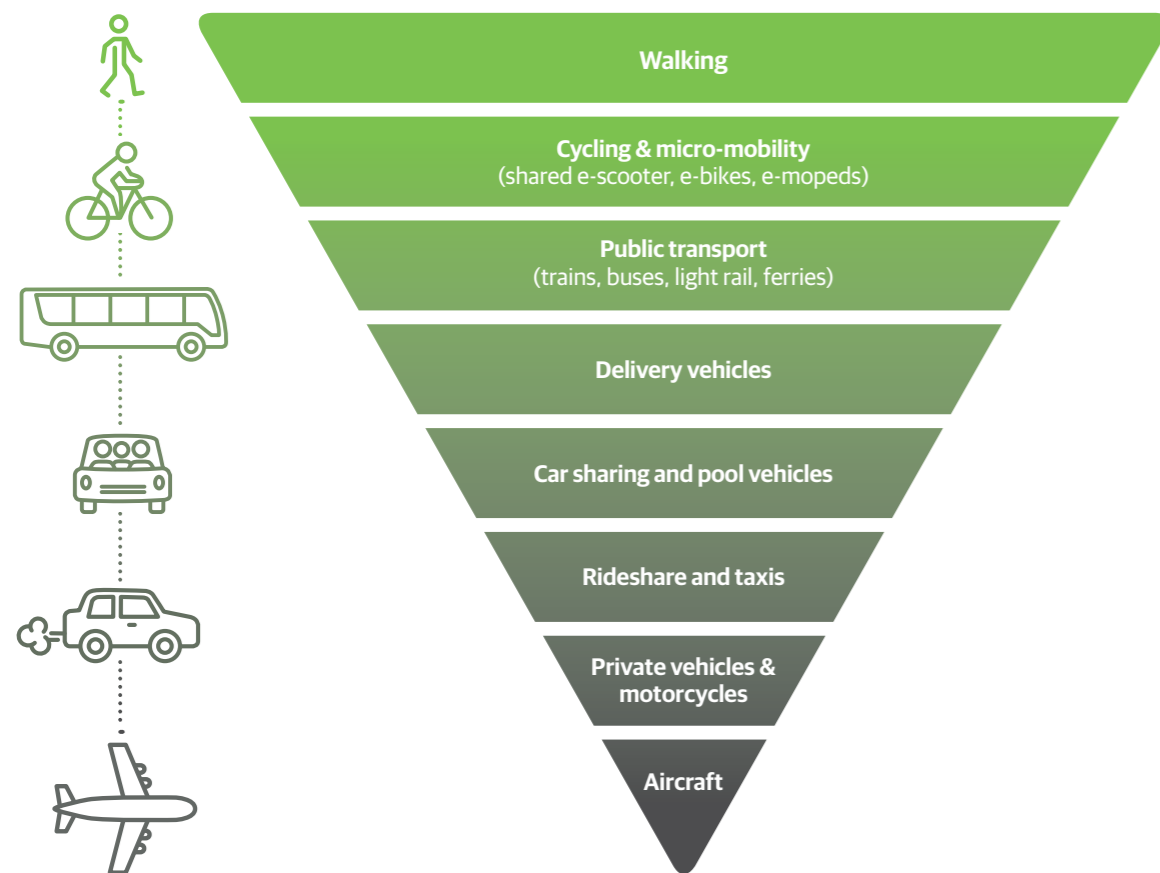
As a council, Wellington could be doing much better to align with other councils nationally in setting a standard and seeking to achieve a leadership position in leading to a zero carbon future.

Transport

Keystone Project Let's Get Wellington Moving

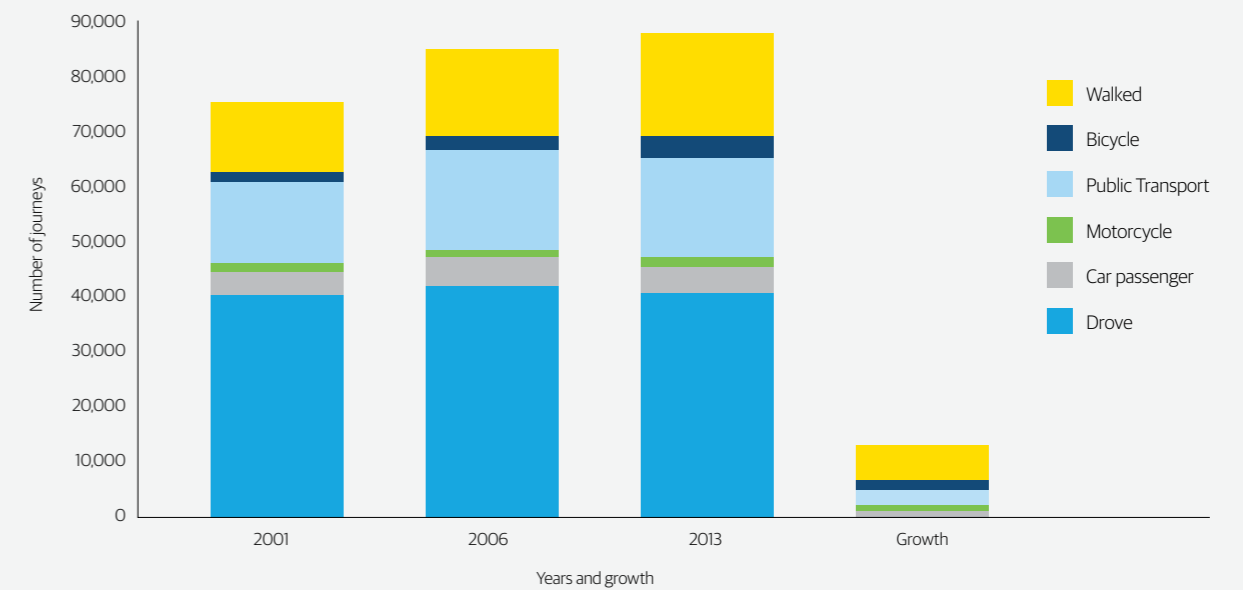
Let's Get Wellington Moving potentially provides some opportunities to be First to Zero. Densifying and decarbonising the inner city is a first step. Investing in infrastructure that supports sustainable transport and development in the south and east will help get us towards our goal. Our existing transport system needs

a tune-up to deliver a low carbon future - more public and active transport, as well as more shared modes of mobility wherever possible. Even the simple switching of fuels is a help and needs to be supported where possible.



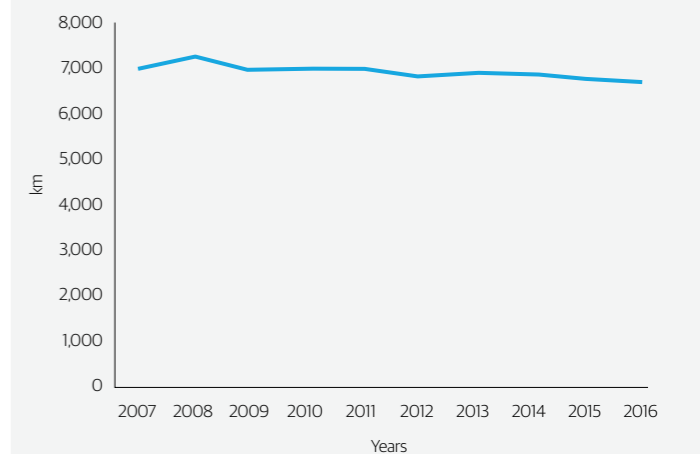
In Wellington, we can take great pride in the fact that in terms of new commutes, between the 2001 and 2013 Censuses almost all growth for travelling to work was sustainable modes - walking, biking or public transport.

Existing mode share - journey to work



That isn't the whole story. Since 2007 car travel in terms of km per person per year has stayed persistently high. So while the Council is supporting the right decisions for getting to work, for other purposes the system isn't there yet. There is much more to do.

Car travel per person per year



Let's Get Wellington Moving - a joint initiative between Wellington City Council, Greater Wellington Regional Council, and the New Zealand Transport Agency - offers a once in a generation chance to improve this particularly for the city centre, south and east. The project aims to integrate all modes of transport in a holistic way whilst improving amenity and liveability in the central city. The scale of investment for LGWM is unprecedented in Wellington - it presents a once in a generation opportunity to create the transport system needed to support a low carbon future.

The south and east are only part of the city. The north is where most carbon comes from, and the west has seen the most congestion growth since 1999. As a result, the Council will also need to focus on enhancing public transport and active modes in the north and west.

Key considerations:

- **Enhancing opportunities for active transport throughout Wellington**
 - Cycling improvements enhance opportunities for the 76% of Wellingtonians who've said they are willing to give biking a try in a safe environment. Additionally, walking facilities give the whole population a chance to have a more pleasant experience.
- **Raising the quality, capacity, and affordability of public transport across the city**
 - Let's Get Wellington Moving creates an opportunity to improve public transport service in the central city, south and east.
 - The north and west could be enhanced with bus lanes and other improvements tailored to address their daily congestion.

- **Develop targets to strongly increase public and active transport use by 2025**
 - The Council will develop strong targets in time for the next Long Term Plan to increase public and active transport use. There are many opportunities for more people to walk, bike and use public transport for work and play.
- **Sending signals about road use**
 - To limit congestion and signal the true cost of driving there is one powerful tool to put in place - user charges. This would help optimise road use between modes, and charges would help a city with no more room to build road capacity manage demand.
- **Enhancing development around public transport routes**
 - Transit oriented development presents opportunities to build more livable, connected, and vibrant town centres around mass transit stations.
- **Decarbonise the vehicle fleet**
 - There are multiple types of Zero-Emissions Vehicles (ZEVs): hydrogen, biofuel, but the most common is electric. There is still a great deal of driving in Wellington, and as we go to zero carbon those cars need to change to ZEVs, and soon. Kiwis keep their cars longer than any country in the developed world, so what we're buying now is critical.

Secondary initiatives:

Car Sharing - Car sharing has become more popular since the Low Carbon Capital Plan was passed and car share policy that set aside on-street space for the use of car sharing firms. Thousands of Wellingtonians now use car sharing services, with 38 cars circulating. We will further explore supporting this essential service, including removing restrictions to its growth such as removing the cap on the number of available car parks open to these schemes, and encouraging the use of such schemes in apartment complexes.

Electric Vehicle Charging - Demand for EV charging is growing quickly in Wellington. We've installed three slower chargers at Zealandia, three fast chargers in the CBD thanks to Contact Energy and ChargeNet New Zealand, one slower charger on Bond Street, and have fifty slow residential chargers in progress. In the end, the quarter of Wellingtonians without access to off-street charging should remain the focus as the lack of ability to charge at home is a barrier to owning an EV.

How shall we support people to buy electric vehicles?

Why support EVs?

- 38% of our city's emissions come from road vehicles.
- Going all-electric would slash these emissions by 80%, and will do so even more with 100% renewable electricity.
- The technology is proven and becoming more prevalent and affordable.

What should we do?

Incentives	Charging	Perks
Purchase Subsidy or Feebate - Central Government	Fast Chargers - Private sector	Free Parking - Local Government
No Road User Charges - Central Government	Charging at home - Homeowners (70%) - Local Gov't (30%)	User Charge / Fossil Free CBD - Local Government
Vehicle Import Standards - Central Government	Town Center / Destination Chargers - Businesses - Local Government	Carpool / Bus lane use - Local Government

Dynamic Shuttles - Shuttles that pick you up from home and are controlled by an app on your phone, integrating with the public transport system have been rising in popularity throughout the world. With our partners we will look to see point to point transport options included in the mix for development as we aim to enhance levels of convenience whilst not undermining public transport.

Bike sharing and scooter Sharing - The trials of bike and scooter sharing in Wellington present an opportunity to understand if these modes belong here. Tens of thousands of bikeshare rides later, the key outcome achieved has been introducing new people to biking, and generally shifting the conversation towards enjoyable modes of shared transport whilst being mindful of the need to protect pedestrians.

Support changing travel to work and school - We will establish a travel behaviour change programme for businesses much like the one for schools. In other New Zealand cities, advisors coming to the office helping staff on a one-to-one basis has been incredibly effective at shifting employees of local businesses from cars to sustainable transport. In addition to this, we will expand support for our schools travel programme.

Establish more vehicle-free precincts like Cuba Street, find more spaces to convert to shared use, and detune in town centres and CBD to traffic - In conjunction with communities that are interested, the Council will seek areas in the CBD and Town Centres where closing down streets or converting to shared spaces and implementing safer speeds will support the vitality and livability of those areas.



User charges and access - The prospect of user charges to decongest the road network could also permit incentives for zero emissions vehicles early on and control of other kinds of vehicles later on in the transition to zero carbon. Exempting zero emissions vehicles from paying the charge until they comprise a certain percentage of the fleet might be a sensible approach. We will consider options for getting the CBD free of fossil fuelled vehicles altogether by 2035. If a cordon charge is for some reason not introduced, the Council will explore methods of creating a fossil fuel free zone in the CBD.

Parking pricing adjustments - One of the key services council provides to the community is parking throughout the city. Whether for residential, coupon or short stay parking, we will explore a long term plan for tolling higher emissions vehicles via parking charges towards the end of the transition. This may require the assistance of Central Government.

Building a citywide cycleway network - Let's Get Wellington Moving will cover some of the city when it comes to cycleways, but ensuring access to safe cycling options across the city will be good for all road users. Taking cars off the road decongests the route for drivers, provides health benefits for new and existing riders, and enhances spend at local retailers.

Ensuring access
to safe cycling
options across the
city will be good for
all road users.

Building Energy

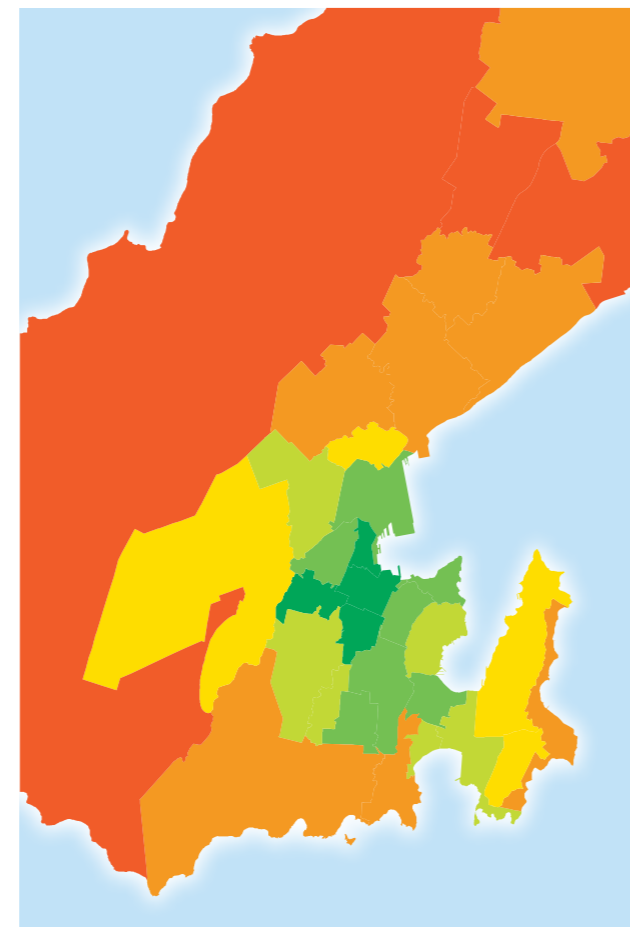
Keystone Project Planning for Growth

Planning for Growth is a multi-year project that involves the review of the Wellington Urban Growth Plan and a full review of the District Plan. The Urban Growth Plan guides where people will live, while the District Plan guides how we build in each area of the city. The fundamentals behind Planning for Growth are that we will have to welcome a growing number of people who recognize that Wellington is the world's most livable city and want to make it their home - about 50,000 to 80,000 more people by 2043. That's a big increase (up to almost 40%) for a city of 217,000.

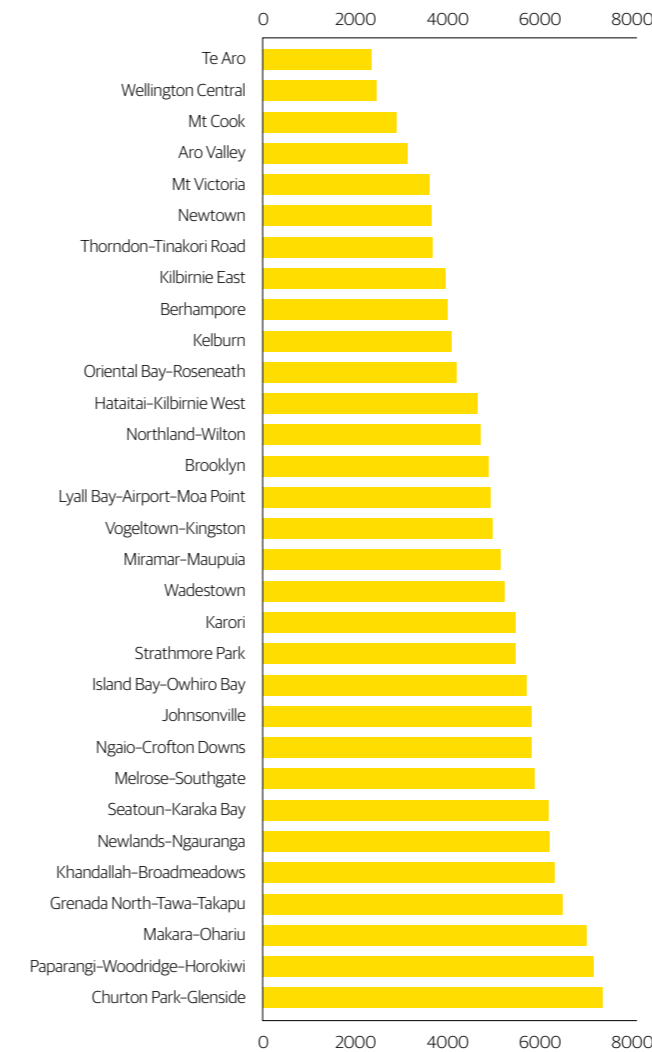
From a sustainability perspective, the more residents the better. Wellington is the lowest carbon city per person in New Zealand, so the more people choosing a low-carbon lifestyle here from elsewhere in the country or in the region, the better it is for overall greenhouse emissions. But there are some potential barriers to providing for this growth within our current plan settings.

The planning for growth process really represents a once in a lifetime chance to direct growth to the right places and set our planning rules to promote not just a compact Wellington City, but a compact Wellington Region by embracing those who wish to make the city their home.

Estimated vehicles km travelled per person based on census responses (Census and WCC)



Car travel per person per year (km)



Key considerations:

- Relationship to growth

- Inviting more people to live in Wellington has so many benefits socially, economically and culturally. It also has environmental benefits given our lower carbon lifestyle compared to many places. But it will remain true only if those newcomers live in the inner city, where travel distances are short and walking and cycling are easy ways to get around, or if they locate in more distant areas but use zero carbon transport. Whatever the case, growth in Wellington is more helpful from a carbon perspective than growth elsewhere in the region or elsewhere nationally.

- Maximizing compactness

- Compact, liveable urban forms result in lower carbon emissions. When shops, jobs and entertainment are nearby there is far less need to travel long distances using transport modes that are unsustainable - and living in denser housing forms uses less energy.

- Reducing the minimum parking requirement

- Currently the District Plan requires a minimum number of parking spaces for new dwellings except in the CBD and suburban centres. This can make houses more expensive, more difficult to build, occupies useful private land that could be dedicated to more housing or amenities, and encourages driving. The removal of the minimum parking requirement in the CBD has been hugely successful for developments there, and the Council will investigate means to further this concept, given it no longer aligns with the Council's strategic transport objectives.

- Character areas

- The character areas in the inner suburbs cover the lowest-carbon areas of the city to live in. These areas are close to many key services and employment opportunities, so sustainable transport is convenient. Many households in these areas don't own cars. But these areas are also subject to character rules in the District Plan which impede prospects for welcoming more neighbours. Re-evaluating these areas and understanding what definitively needs preservation and where there may be opportunities for more Wellingtonians to enjoy the low-carbon, liveable, walkable lifestyle these areas offer is a critical goal of Planning for Growth.

- District Plan Review

- As part of the Planning for Growth process, the Council will evaluate a number of potential enhancements to the District Plan to yield positive outcomes. High performance building requirements, minimum car share parking requirements, minimum bike parking requirements for work and home, and other aspects will all be evaluated for their potential to influence outcomes. The review is also an opportunity to better understand how the rules are performing in relation to creating a lower carbon,

higher amenity, and more liveable city. Rules such as height limits, controls on infill development, recession planes and site coverage requirements are among the rules in the District Plan that will be reviewed.

- **Minimum/maximum parking restriction per property study**

- To support planning for growth, the Council will explore in detail what areas of the city are suitable for minimum parking restrictions. In doing so it makes sense to explore which zones might benefit from a maximum parking restriction to preserve land availability and focus usage on easily available alternatives in such a zone.

Secondary initiatives:

Urban Development Agency - Since 2015 the Council has grappled with the prospect of an Urban Development Agency to address marginal development prospects in areas like Adelaide Road. A UDA would enable more brownfields development, at higher densities, with more liveability and zero carbon outcomes able to be integrated into its remit. A UDA could also deliver outcomes quicker than the district plan review. Such an initiative is also being considered by the Government.

Home Energy Saver - The Council's most popular programme for supporting community climate action for almost a decade has been the Home Energy Saver programme. Each year, 500 Wellington households invite Sustainability Trust auditors into their homes to learn about the key changes they can make to lower their energy use and save both money and cut emissions. Currently the Council is reviewing this programme to see how we can best help households understand what they can do to lower their impact. Council will investigate how to reach 50% of the City's households with this programme by 2029.

Enhanced high performance building incentives

- Currently council offers a 50% reduction in development contributions to some buildings that meet specific certification standards set by organizations like the New Zealand Green Building Council or LEED. We will review these incentives to ensure they align well with the outcomes sought, what level of certification is required, and what kind of payment could be needed to encourage all commercial buildings to perform as well as they can whether they are new or being retrofitted.

Warmer Kiwi Homes - Insulation is the most important element of an energy retrofit for older homes. Warmer Kiwi Homes is targeted at homeowners with a Community Services Card or living in high deprivation areas. EECA provides a two thirds subsidy with additional support from local stakeholders, such as the Council, to further reduce the costs to homeowners.

Explore borrowing against rates for sustainable household infrastructure - Household improvements related to energy efficiency deliver tremendous outcomes, ranging from the reduction in carbon to improvements in health. At scale, it could even save infrastructure costs. As Greater Wellington Regional Council already offers this for insulation, we will explore retrofit support options that allow ratepayers to realise their and WCC's low-carbon aspirations using rates as a financing mechanism.

Neighbourhood Grids - The Council continues to support the neighbourhood grids programme we are running with Contact Energy and Wellington Electricity. This programme saw 23 Wellington City households in areas with vulnerable substations outfitted with solar + battery power systems and a resilience package that included water tanks, LPG and an energy assessment. In an outage it also provides a base for neighbours to come charge phones and connect with friends, family and emergency services. With another year left on the trial we are monitoring the success of the programme, as well as other opportunities.

Solar on community facilities - Building on the positive early experiences of the Neighbourhood Grids project with Contact Energy and Wellington Electricity, the Council will aim to get involved in a number of solar installations in different community contexts - e.g. community centres, or council facilities. Solar, particularly with battery systems, offers the opportunity to create not just sustainability gains but also resilience benefits.

Zero Carbon Parks - The Council owns a variety of parks supporting our resident's desires to live an exciting and active lifestyle. Ranging from playgrounds to sports pitches and beaches - and hundreds of

buildings around the city - all have their own role to play in promoting zero carbon parks. We will explore the materials we can use when parks are rehabilitated to have the least emissions impact, and on an ongoing basis explore adjustments that can be made to existing buildings and materials.

Explore ways to provide sustainability information through regulatory process - The Council is significantly involved in every new building that goes up and major renovation in Wellington, and could use this opportunity to provide advice or enhancements to support better decisionmaking.

> Case Study of Community Carbon

Aorangi House on Molesworth Street is a refurbished office building in Wellington that won an award from the World Green Building Council and is one of New Zealand's most intelligent structures. As part of the Wellington Smart Buildings Challenge (which aimed to achieve 10% energy savings in just one year), WCC also contributed a small amount to energy optimisation of the building in 2016.

Rejuvenated from an obsolete 1970s office building, Aorangi House is an exemplar of up-cycling. The building was abandoned in 2005 because of issues with warming, cooling and ventilation. The Aorangi House's energy optimisation project demonstrates how existing buildings can be effectively revitalised to exceed modern day building standards.

Aorangi House achieved New Zealand's first 5.5 Star NABERSNZ energy rating for a refurbished office building, the second highest rated building to date. This represents 64% less energy and GHG emissions than a typical New Zealand office building.



Before



After

Other Citywide Activities

Greenhouse Gas Inventory - Every four years the Global Covenant of Mayors requires WCC to conduct an inventory of all greenhouse emissions emitted within the city boundaries according to an international standard. The Council has been a leader in this area, pioneering the global standard for GHG measurement, and will continue to lead in this area among Australasian Councils. The Council will continue to partner with other local authorities in our region whenever possible.

Consumption Inventory - The Council will produce a consumption based greenhouse gas inventory that indicates not just the level of emissions from producers in Wellington, but the emissions from products we consume.

FutureFit behaviour change app - The Council's FutureFit calculator stemmed from a commitment to staff behaviour change in the Low Carbon Capital Plan. It is a personal carbon calculator web app that includes the ability to choose actions to reduce your carbon - and be reminded by text to do them. We invited our partners at Auckland Council to contribute to a collaborative outcome. Getting the right information in individual's hands for them to make low-carbon decisions is an exciting opportunity.



Zero Carbon Challenge and Climathon - For four years now Council has supported both the Low Carbon Challenge and the Climathon. As founder and core funder of the Low Carbon Challenge, we have lifted idea stage businesses up to exciting opportunities year after year. As a co-host of the annual Climathon with Victoria University of Wellington, we have presented a fixed opportunity for the community to come together once a year and apply their minds to zero carbon problems.

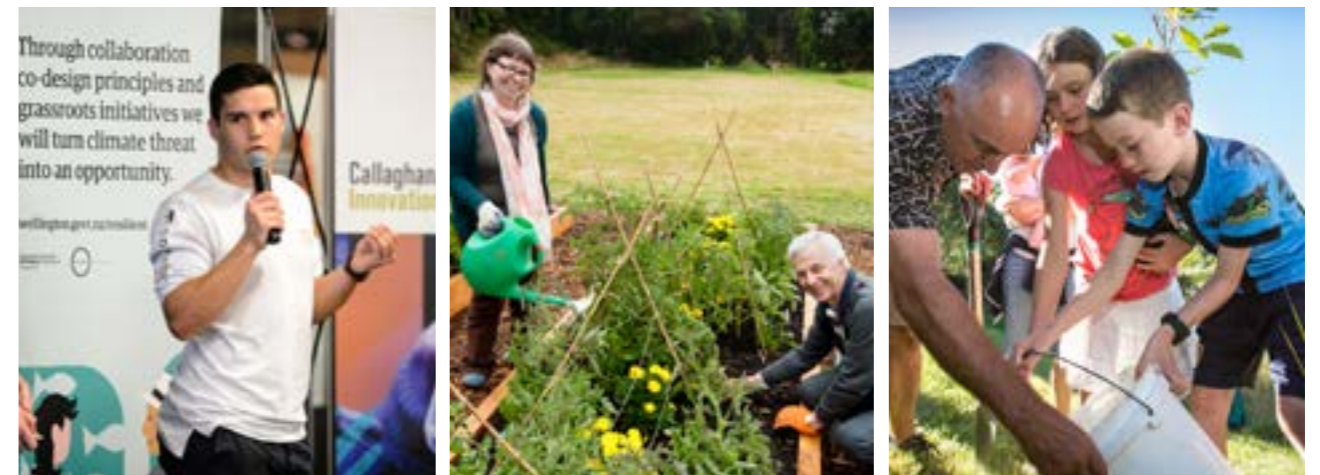
Schools Carbon Calculator - Inspired by FutureFit, a group of young innovators in Wellington's Smart Seeds program run by GHD developed the concept for Torokiki - a carbon calculator and reduction competition for schools. In partnership with the education and environment sector, we aim to make the competition a reality.

Sustainable Food Network - In the Wellington Resilience Strategy, the Council committed to developing an understanding of what a sustainable food network could deliver. A lower carbon culinary arena in Wellington benefits us not just from an environmental standpoint, but also delivers health and resilience co-benefits. What that network will look like

is currently being developed, starting with initiatives such as sustainable food forums to regularly bring together groups working towards sustainable food goals across Wellington.

Pursuing forestry opportunities - Wellington, despite its compact urban form, has substantial rural areas suitable for planting with trees to create carbon sinks. Determining the most appropriate way to incentivise planting privately held land serves as a sound companion to planting out our own significant land holdings where possible. It is also necessary to understand what balance between native and exotic tree species is most appropriate to promote biodiversity and conservation co-benefits while seriously seeking a lower carbon future - both for private and public lands. While natives are key for a lot of reasons, exotics sequester much more carbon - much faster - and can be planted alongside natives.

Understanding inequality - An investigation into how the city can support low income households to adopt environmentally sustainable practices to reduce inequalities between different communities as the city moves to the zero carbon model.



The Wellington City Council Plan



As with anything, leading starts by looking in. The Council needs a comprehensive plan to reduce the carbon we emit as an organisation to zero. Unlike other areas, the Council has much more control over what happens in our own facilities or through our own operations than in those that belong to or are managed by others.

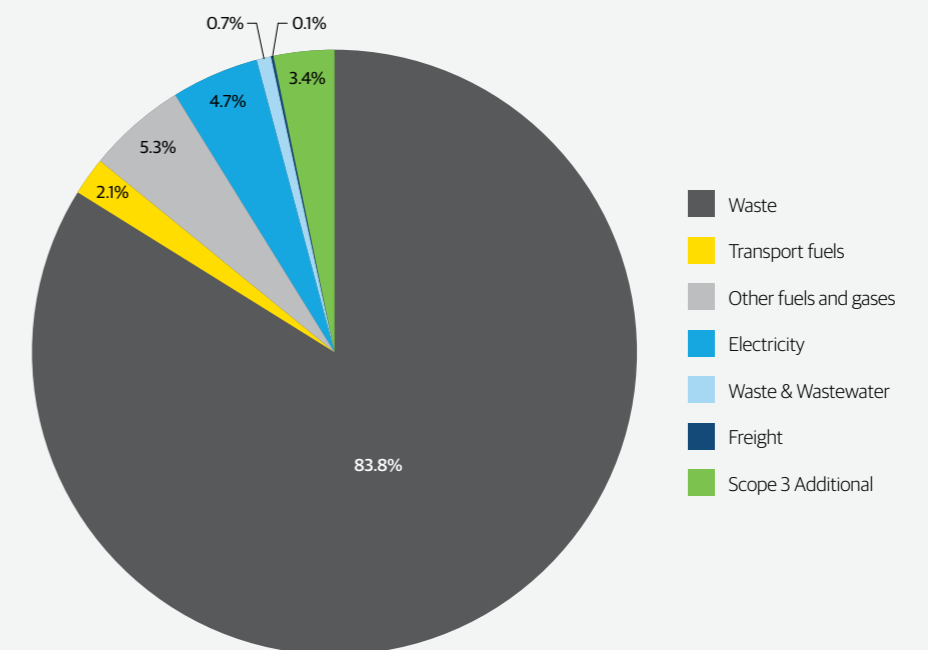
Adding on to this, we need to view our status as a leader as an opportunity to bring our contractors, the Council Controlled Organisations and partners along with us on the decarbonization journey - finding advantages where they may be and finding mutually acceptable ways through challenges.

Wellington City Council's Emissions

The Council measures corporate emissions, including activities Council owns and operates like the landfill. Also included are Council Controlled Organizations like the Wellington Zoo and Zealandia, both of which are already CarbonZero certified. The Council

participates in the Certified Emissions Management and Reduction Scheme (CEMARS) to measure and audit emissions, which is the measurement tool all CarbonZero organisations use.

Council operations 2017/18
tCO₂e (incl. landfills)



What is remarkable about the corporate inventory is how it is dominated by waste. Landfilled waste makes up more than 80% of Council emissions due to the ownership of two Council landfills. That said, the Council is the manager of that waste for the community, not the producer, so it is a challenge to influence. That ownership also indicates a risk - as carbon prices rise, they will be directly reflected in landfill costs. All told, the Council has a goal to reduce

Existing projects:

Sewage sludge - The Council has already committed to funding a sewage sludge processing solution at the Southern Landfill. In exploring solutions we will also look at the potential for digesters or co-processing of other waste streams than sludge to see if further maximised benefit can be achieved.

Procurement - Sustainability is more and more of an evaluative component of large procurements for other councils and entities, and Wellington would benefit from similar focus. A procurement strategy and procurement policy that place requirements on emissions output, social values like living wage, and Maori issues is essential to bring product and service providers along on a journey that delivers for those outcomes.

Governance - Wellington City Council currently assesses every Council paper, investment, policy and proposal for its relationship and impacts on climate change, but the assessment currently does not involve in-depth analysis. Re-evaluating how the Council takes account of climate change in each Council paper to ensure robustness and enhanced consideration for key issues will empower officers across the business to better support Councillors.

Bylaw considerations - We will look to ensure that bylaws align with supporting a liveable, low carbon city. Issues ranging from parking, trading in public places, water services and waste management all interact with carbon in significant ways and as they are revised, bylaws need to account for the Council's ambitions.

waste by a third by 2026 and an aspiration to be a waste free region in conjunction with other councils. We will investigate whether the Council's remaining emissions can be offset by entering into reforestation agreements with private landowners. Other areas beyond waste are critical as well, particularly when viewed in the context of leadership. Electricity and natural gas are the largest known quantities, while emissions from contractors are largely unknown.

CDP / Global Covenant of Mayors for Climate and Energy - The Council continues to report through the CDP Programme (formerly the Carbon Disclosure Project) for both voluntary city and corporate carbon disclosure and benchmarking against other cities. It also serves as mandatory accountability for the Global Covenant of Mayors for Climate & Energy. The Covenant of Mayors is fast becoming the foremost global accountability regime for cities aiming to reduce their carbon impact, with thousands of cities reporting each year.

In 2018, over 7,000 companies, representing over 50% of global market capitalization, and over 750 cities, states and region disclosed their environmental data through our online platform. That's an 11% jump on 2017.

- Paul Simpson, CEO of CDP

CEMARS (Certified Emissions Measurement And Reduction Scheme) - Council continues to use the CEMARS programme to measure and audit emissions as an organization.

Activities at the Southern Landfill - So far, drilling more methane collection wells, upgrading the generator that converts that methane to energy, and even adjustments to our collection regime have been employed to reduce our largest source of carbon. Through our Regional Waste Management and Minimization Plan, the Council has committed to reducing our waste by one third before 2026 and to becoming a waste free region long term.

New Commitments:

What might be needed? - This is an enormous change programme to shift the carbon outcomes of the city and the Council. As a matter of priority the Council needs a piece of work to understand how far this plan will get us - and what we will need to do in the future on top of it. The information is essential to ensure our targets remain closely linked with the actions in our plans - and this piece of work may feed into additional projects for the implementation plan.

Investigate and develop a significant Climate Resilience Fund - A fund to support engagement with communities, building of infrastructure, development of solutions that will reduce emissions and assist with adaptation

Investigate Climate Certified bonds - Some debt that the Council would issue would have certification programmes attached to them that require alignment with various sustainability concepts or the 2°C target. The Council will investigate the use of these instruments.

Investigate private contributions towards separated traffic lanes - Some shared mobility companies have come to the table potentially ready to pay for the necessary street modifications to make their business

viable. The Council will explore how to incorporate this into our funding framework and if this is viable with the partners we are working with.

Understanding the Circular Economy - The circular economy attempts to get rid of waste in our economic system instead focusing on reusing precious natural resources. The Council will undertake an investigation of the inclusion of the idea of the circular economy into the Council's policy framework.

Water measurement and management - Council's water system is far and away its largest source of electricity emissions. But to improve our systems we need to better understand them, and the best way to accomplish this is through water meters. This has the added benefit of reducing water demand through severe leak identification, which may prevent the sunk carbon cost of building additional reservoirs for supply.

As of 2024 LTP all buildings, housing and refits must achieve the green star maximum rating for Council funded, planned, facilitated or supported buildings including via Urban Development Agency - When the Council builds, part-funds, or refits a new building for any purpose, regardless of owner, from the 2024 LTP



all buildings must achieve the highest possible green star standards. Establishing such a standard creates lower long-term operating costs and higher overall benefits to the community and council through lower necessary infrastructure expenditure.

Council buildings refitted to meet maximum possible green star rating - The vast majority of buildings are those that exist already. When refits occur, the Council will seek to refit to the maximum possible Green Star standard. For the same reasons that new buildings can contribute to zero carbon outcomes, existing buildings can as well.

Transition buildings to flexible carbon neutral energy supply by 2035 - The single biggest challenge with buildings from a carbon perspective is the use of natural gas, and it represents a large portion of WCC's emissions output. In addition to the carbon implications, the move ensures stable access to energy in the long term given the oil and gas exploration ban.

Flipping the fleet - Our fleet policy will shift to electric-first. In addition, car sharing will be emphasised across pool vehicles to support modes of transport that increase vehicle utilisation and remove asset challenges from the Council's responsibility to third party organisations. This will all happen while supporting businesses that enhance vehicle utilisation rates. Electric priority will extend to contracts as a key procurement factor e.g. for rubbish trucks.

Support sustainable food events - The Council has a number of relationships with key culinary events and institutions e.g. we provide the land for the Sunday market. We will use those relationships to deliver sustainable food outcomes by promoting integrating principles of the sustainable food network into these activities.

Statements of Intent / Letters of Expectation - All entities that the Council has a stake in will from 2020 be required to introduce carbon emissions as a performance measure and carbon measurement and planning as a requirement to deliver on the 2050 goal. Some entities will have customized expectations, e.g. for Wellington Water embodied carbon of new facilities and infrastructure.

CarbonZero Council - The Council will explore the prospect of making ourselves a CarbonZero certified council in the first 10 years using offsets.

KPIs for energy management - All facility controllers whether managers, property managers or budget holders over facilities which use energy will have KPIs integrated into their contracts relating to energy management and emissions reduction.

Climate budget - WCC will develop a "Climate Budget" to account for all carbon emitted and provide a three-yearly pathway of reductions to achieve the 2050 target.

Connecting digitally - WCC will ensure all key worksites have teleconference equipment and actively promote their usage.

Invest in energy savings across the business - The Council has built up a menu of energy saving projects to invest in, but to date has not progressed to unlocking their potential. The Council will devote more attention to investments that could result in significant financial savings in conjunction with emissions savings.

Embodied Carbon Assessments - The Council is involved in a number of areas that emit substantial carbon. Construction, infrastructure management, and building operations have significant impacts, including at the early stage. All three can benefit from embodied carbon assessments and full life-cycle cost analysis of implementation - which can lead to cost reduction as well.

Green Infrastructure plan - Traditional methods of managing stormwater include pipes and water treatment systems to minimise flooding. Green infrastructure on the other hand uses investments like green roofs to manage stormwater. The Council will develop a green infrastructure plan for Wellington which will not only manage stormwater but increase food security and amenity throughout the city.

Encouraging more sustainable building, engineering and construction practices - Through our regulatory role we may have powers to enhance the building industry's practices and support better outcomes.

Development of a measurement framework to keep track of our emission cuts - The Council will attempt to work in partnership with relevant organisations to develop a framework for measuring our emissions to keep us on track for our goal and to be accountable for our work.

Advocacy

As a council we have an opportunity to support strong action by others - other levels of government, the community or even with industry to better achieve our shared goals. Whether through submissions, gathering support, or collaborative investment, our influence as a partner is just as valuable as our own activity.

Going forward it will be essential to feed back to all levels of government and work closely with the community and industry to deliver the zero carbon growth we need to sustain our economy and employment while shifting the future from one that compromises the environment to one that enhances it.

Our partners, government or otherwise, often hold far more power as they have a national footprint, meaning it is only through them that the vision of Te Atakura can be a reality.

Mandatory energy use disclosure

One key problem we currently face is that building energy is poorly understood. An energy use disclosure mandate integrated with existing property information would provide the opportunity to support building owners in informing themselves, regulating building performance, incentivising good performance, or at least just supporting good decision making with salient advice. This low-cost policy option is used in other cities across the 100 Resilient Cities network like New York and New Orleans.

An opportunity to enhance the building code

The building code currently falls short in terms of carbon sensitivity relative to energy efficiency. Enhancements to the building code are the single most important action that can be taken to ensure that future buildings are contributing to our zero carbon goals. An easy way to achieve this may be to require certification of a certain standard. But perhaps most importantly of all, this is a tremendous opportunity to enhance health, combat energy poverty, reduce emissions, and fundamentally create better homes and commercial buildings for Wellingtonians (and all New Zealanders).

.....
"If we build warm, dry, homes then we're going to reduce health costs for both the individual and the Government, so it's about being smarter, investing at the beginning and getting the benefit of good design."

- Andrew Eagles,
Chief Executive of NZGBC

Extend NABERSNZ to all commercial buildings

NABERSNZ is a certification system for rating the energy efficiency of office buildings. Adapted from Australia, where it is mandatory for large office buildings, the same mandatory system should be implemented here. This is because commercial buildings use 21% of New Zealand's electricity, costing business \$800 million per year with an average assessment of a 20-25% scope for improvement on building energy performance. This would help tenants understand the performance of the building they wish to occupy.

.....
A 2015 Australian report, "Commercial Building Disclosure", calculated AUD\$44 million savings due to increased energy performance between 2010-2014 and AUD\$168m in productivity gains from NABERS.

- Commercial Building Disclosure,
PROGRAM REVIEW, ACIL
Allen Consulting

Extend Homestar to all residential homes

Similar to NABERSNZ, a mandatory residential energy efficiency rating system is a tool that should be employed. As it stands currently, New Zealand has a voluntary energy efficiency rating system in the independent Homestar program administered by the New Zealand Green Building Council (NZGBC). This should be mandatory for all new-built homes.

.....
 "The future is about measurement and reducing."

- **Andrew Eagles, Chief Executive of NZGBC**

Implications for natural gas

Following the ban on offshore oil and gas exploration permits, a serious signal has been sent that the transition to a zero carbon economy is underway. The replacement of natural gas with alternative fuels - including and particularly hydrogen - has great potential as a viable source of energy but also as potential opportunities in the zero carbon economy.

.....
 London, Aberdeen, Hamburg and Milan are just some of the European centres with hydrogen-powered buses

- **H2 Aberdeen**

Sustained public and active transport investment

Council strongly endorses central government to continue investment in public transport on the back of their latest Government Policy Statement; and invite them to support initiatives that encourage the uptake of active transport such as walking and cycling.

"Transportation is not an ideology...It's about taking a look at the capital asset we have and using it in the most effective way possible."

- **Janette Sadik-Khan, former NYC transportation commissioner**

The need for EV subsidies from Central Government

There are significant barriers to the uptake of electric vehicles (EVs) that need to be urgently addressed so that the majority of Wellingtonians choose electric when purchasing a car. Barriers include the upfront cost of purchasing, which only Central Government can fix. To address this, the Productivity Commission has recommended, and WCC has endorsed the introduction of a feebate scheme.

.....
 "Transitioning our fossil-fuelled transport fleet to run on clean, renewable electricity is one of the most effective ways for New Zealand to reduce greenhouse gas emissions and meet our climate change commitments,"

- **Andrew Caseley, Chief Executive of EECA, 2018**

A proposed 2030 fossil vehicle importation ban

Road transport is responsible for roughly 38% of Wellington City's emissions, significantly more than the national proportion. It is clear that rapid EV uptake is required if we are to meet our 2030 and 2050 targets - uptake that even subsidies will not generate. Given that New Zealanders hold on to their vehicles for longer than any other developed country, a reasonable import ban - aligned with vehicle lifetimes - in 2030 would fit well with the goal of reaching a zero carbon fleet by 2050.

.....
 Denmark, France, India, Ireland, Israel, Netherlands, Norway, Sweden and the United Kingdom have already legislated for the ban of the importation of internal combustion engine vehicles for new vehicles sales to be enacted for 2030. China has enacted a ban for 2040.

The issue of fares in Wellington city

The aim of public transport should not be to maximize revenue but rather a plethora of outcomes such as: to be part of an array of excellent transport choices; remove cars from the road; reduce the need for maintenance and roading projects; enhance liveability and lower our overall emissions. But in Wellington we have a problem. The fares are higher on buses than trains, higher than other centres in the region, higher than elsewhere in the nation, and even higher than elsewhere abroad. Council considers that Wellington needs an equitable farebox recovery scheme. The goal should be no matter where you come from, a couple and a child should be able to get in to town on the bus cheaper than by private transport, when parking costs are considered.

Affordable and convenient bus services

Council already works closely with Greater Wellington on issues like bus priority and Let's Get Wellington Moving. However, it is important to emphasize that while the Council will continue this good work, it strongly advocates for more affordable and convenient bus services for all Wellington communities as a matter of priority.

Commercial scale production of biofuels

The development of biofuels addresses several gaps. Electrification for heavy transport and the aviation and shipping industry requires technology that is unlikely to be available to reach a zero by 2050 target. The large-scale production of biofuels presents an attractive alternative. Scion Research found that drop-in fuels from non-food feedstocks, particularly forestry grown on non-arable land, are the most attractive option.

.....
The development of a wood-based biofuel industry will open up new income opportunities for farm foresters and other forest owners.

- **The Bioenergy Association**

Direct Air Capture to synthetic fuel feasibility

The idea of Direct Air Capture (DAC) where CO₂ is 'captured' from the atmosphere and either stored underground as rock or converted into synthetic fuel is admittedly new, but potentially exciting. Central government should explore the possibility of funding research and development into this technology or look for opportunities to invest. Such a tool will complement the 1 Billion Trees afforestation initiative well.

.....
"Our clean fuel is fully compatible with existing engines, so it provides the transportation sector with a solution for significantly reducing emissions, either through blending or direct use. Our technology is scalable, flexible and demonstrated."

- **Steve Oldham, CEO of Carbon Engineering (A DAC fuel company).**

Actions for the continued reduction of emissions within the waste sector

Emissions from municipal solid waste in Wellington City still comprised 4% of Wellington city's gross emissions in 2014/15. Further reductions can and must be achieved toward Wellington becoming a zero carbon city. Significant increases in the price of the Waste Disposal Levy and extension to other landfills will support this.

Container-deposit scheme

Already allowed for under the Waste Minimisation Act 2008, a container deposit scheme provides for the collection of a monetary deposit on beverage containers at the point of sale. Upon the return of the container to an authorized location or retailer the redeemer is refunded the deposit. Such schemes are widespread and highly effective at increasing recycling rates.

.....
The opening of the Queensland Container Refund Scheme on November 1 2018 collected \$1 million of refunds issued by November 12 through the collection of 10 million bottles and cans.

- **Container Exchange, 2018**

Product stewardship

Product stewardship places the onus for waste management not just on the manufacturers but extends this to include all parties in the life of a product including producers, retailers and consumers

.....

New Zealand sends around 2.5 million tonnes of waste to landfill, or over a tonne of rubbish per household. The majority of this waste is not reprocessed or recycled, and doesn't break down over time.

- **Ministry for the Environment, 2018**

Education initiatives surrounding diet change

Diet is a major portion of climate impact, but realistic expectations need to be applied to managing a transition to a low-carbon future. Diverse options ranging from local vegetable co-ops, plant-based to lab-grown meat replacements, and aquaculture are all needed to average down carbon emissions on the journey to zero carbon. The continued education and promotion of alternatives needs to occur.

.....
 The Better Futures report released in February showed a 3% increase in meat-free diets in 2018 now totalling 10% of New Zealanders who are meat-free.

- Colmar Brunton's Better Futures report, 2019

The Resource Management Act needs consideration of GHGs

Upon its conception in 1991, the RMA was undoubtedly revolutionary. However, the RMA does not consider the effect of greenhouse gas emissions on climate change. As our primary piece of legislation pertaining to land use, the omission of the effect of GHGs needs to be urgently addressed.

New Zealand's key environmental statute is disabled from considering what is a critical issue relating to climate change.

- Sir Geoffrey Palmer, 2015

Sustained investment in renewables within the electricity mix

Renewables currently comprise approximately 80% of the electricity mix, amongst the highest in the OECD. If that moves to 100% or near it, it will improve emissions from both buildings and transport as the fleet electrifies.

Options for the Emissions Trading Scheme

The ETS is the Government's primary policy tool to reduce greenhouse gas emissions in New Zealand. To date, it has been severely underperforming and has not provided either a disincentive to emit carbon, nor an incentive to plant forests to remove it. This must change - and fast.

An all-of-government shift to carbon sensitive procurement strategies

New Zealand's all of government procurement system should be both comprehensive and overarching in having a set of social procurement policies.





Case Study of another Critical Actor **Wellington Airport**

Wellington Airport is a recognized contributor to the City’s carbon emissions. Though the contribution largely comes from the aircraft themselves, rather than the airport’s operations, much of the pushback on projects like the potential runway extension centers on the fact that about 20% of the city’s carbon emissions are attributable to air travel. That said, the carbon intensity of travel per dollar spent on travel decreased by more than 50% between 2006 and 2013 - as aircraft got more efficient, passenger loadings increased and the industry became more aware of the challenges it will face in the carbon space.

But it is important to remember that the airport is a lifeline to the world. It supports our thriving economy not just of business and technology, but also of tourism. The airport is a cornerstone of Wellington as the capital city of an island nation - not just business people and tourists, but diplomats and dignitaries pass through it. We can’t do without it, and to contemplate

otherwise requires one to contemplate the broader impacts of restraining it. In fairness, the Council owns 33% of the Wellington Airport, but we acknowledge its importance not because of that stake, but because of the essential necessity of support it provides.

The airport is already working hard to make its operations much more sustainable. Recently it has done the following:

- Added bike racks, parking bays for car share vehicles, and EV chargers for taxis
- Built a parking garage that is fully EV ready, and installed some chargers
- Conducting a flight path optimization trial collaboratively with other partners to help aircraft use less fuel and make less noise, bringing down emissions too

- Minimizing embedded carbon in the new terminal construction
- Using recycled asphalt pavement for taxiways and other repaving

And in the future they see the opportunity for things like:

- Ground electrification
- Opportunities around public transport arriving at the airport

Ultimately with the airport, though, there are two enormous opportunities. One deals with travel on the ground - getting to the airport - which is (rightfully) not captured by the airport’s emissions inventory. What high quality public transport link to the airport could be possible. What could be more convenient?

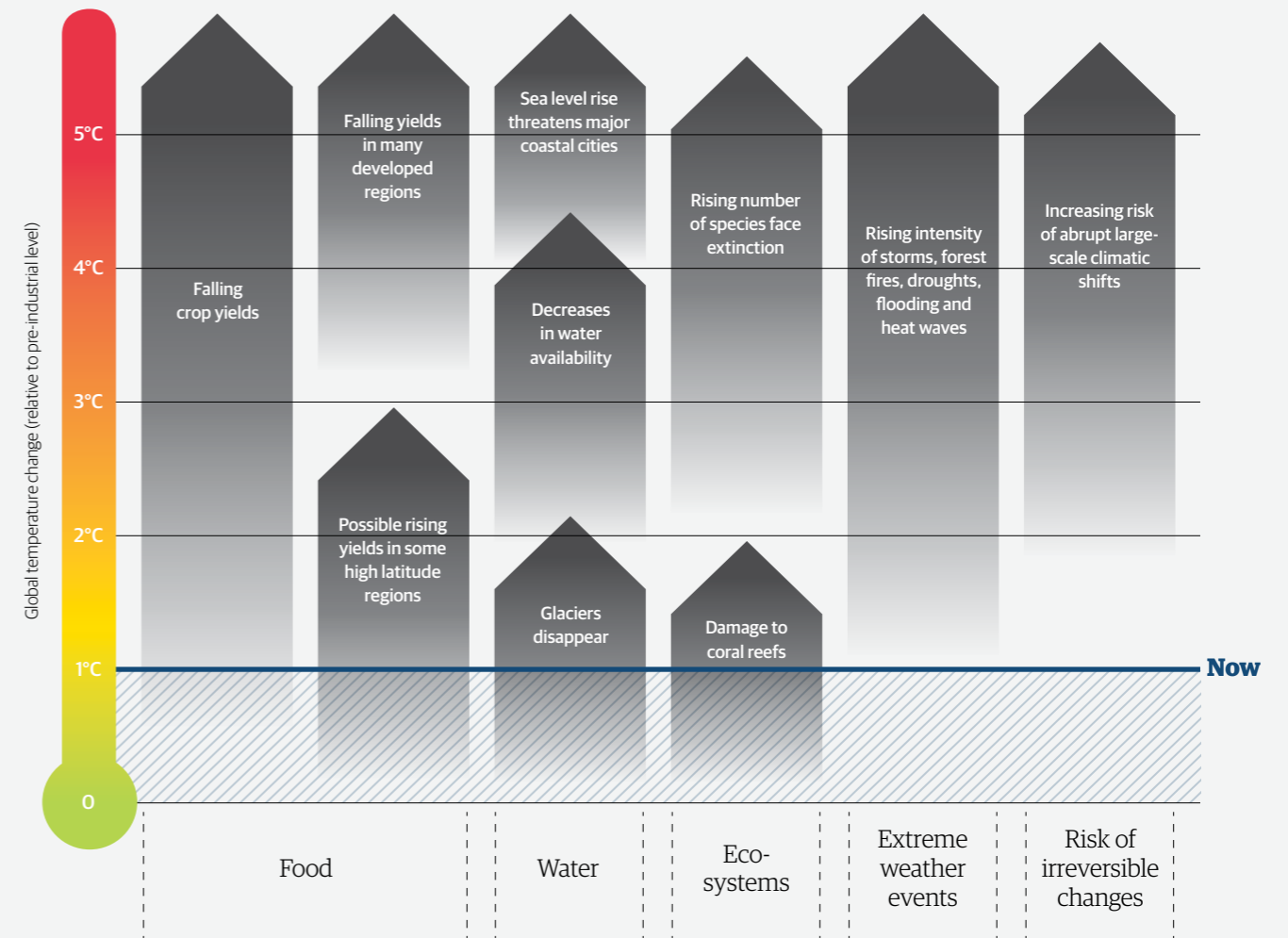
But the second, and the most serious and important issue to solve our air travel emissions issues, is alternative fuelled aircraft. Domestic aircraft may someday be able to operate either on a hybrid or even full electric basis. But to fly international biofuels, hydrogen or direct air capture fuel creation will be required. Given how essential air travel is to New Zealand - as it is the aforementioned small trading nation - a huge central government push for a solution to this issue should be part of the ongoing equation. One can switch a diet overnight. Or start cycling to work. Or even put curtains on the windows. But the international air travel system has high fixed capital costs and long term contracts. Strong investment is needed now in potential solutions so they will be ready when the time comes.



Adaptation

The most essential element that isn't covered by having strong emissions reduction action, nor setting ambitious targets, is the aspect of what we do with the changes that are already locked in.

Projected impacts of climate change



Source: Adapted from the Stern Review on the Economics of Climate Change.

Each community will have different challenges as the impacts of climate change become more evident. How do we support an area that is largely commercial, and houses a significant proportion of our GDP as a city? Conversely, if it is largely residential what is the approach? The big questions are how do we make decisions, what solutions are needed, when and how will they be implemented, and who will pay through what vehicle. But making those decisions is something that needs to be done as a community, with the right information and full understanding of what's ahead.

The Council will also develop a separate adaptation strategy in time for the 2020 reporting cycle for the Global Covenant of Mayors in line with our commitment to international accountability.

In the mean time we will focus on the two following actions:

Adopt Ministry for the Environment guidance levels for sea level rise - The Council will adopt the Ministry of the Environment's sea level rise guidance for planning and operations purposes. At the time of adoption, the latest science will be considered alongside.

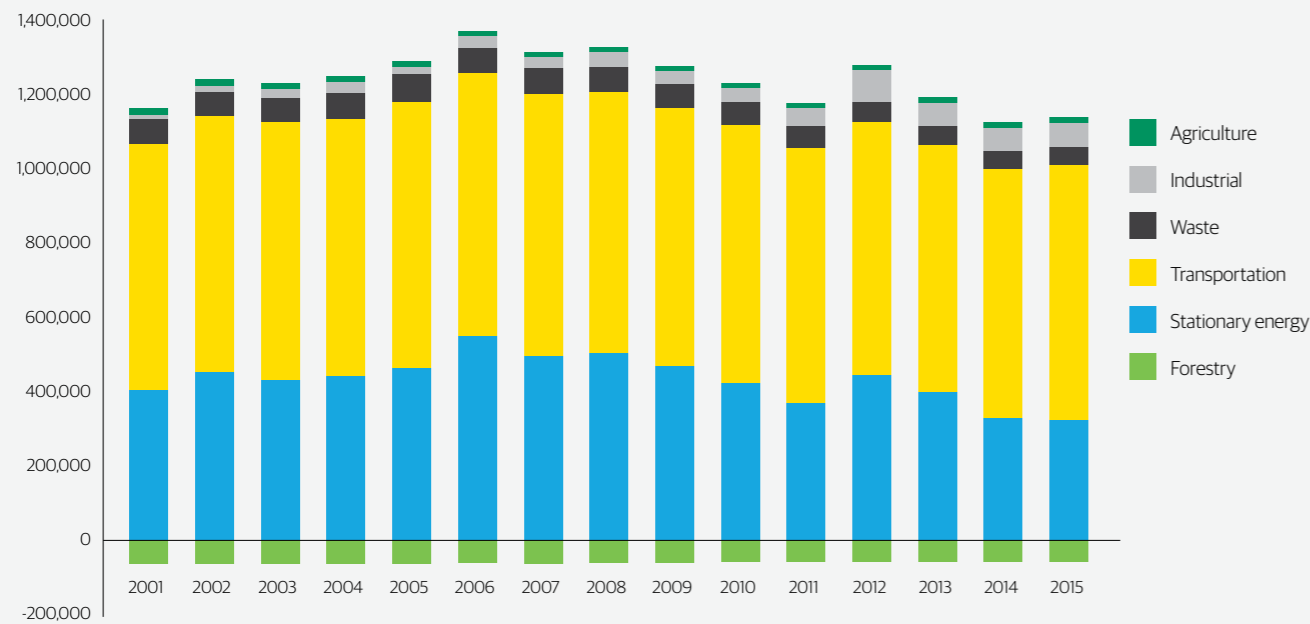
Extend community based consultation processes where possible - The Council will explore further use of community decisionmaking processes like those deployed in Makara once the outcomes of that process are better understood.

Appendix

I. Wellington's Full Emissions

Here is our profile in full:

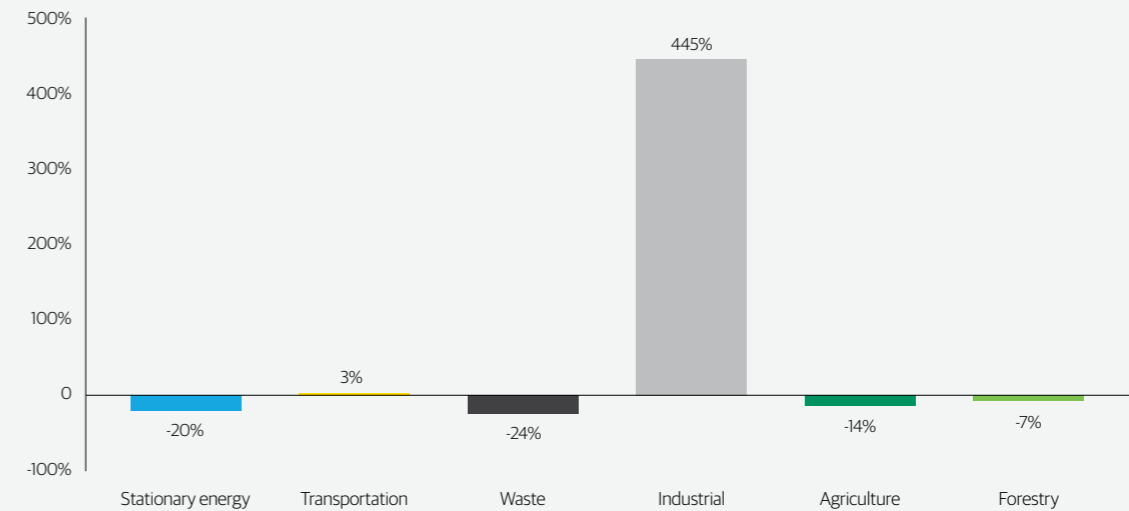
CO₂e emissions city by year (tonnes CO₂e)



Wellington has been measuring carbon emissions for more than a decade. When broken down, our emissions inventory shows six main sectors have an impact in Wellington. The majority of our emissions come from transportation, with the bulk of the rest coming from energy use in homes and workplaces. That said, the consumption of goods and services that are produced outside our city is not currently

accounted for, even though they are a large contributor to global emissions. For example, if the inventory included the associated emissions related to producing and transporting the food, appliances, or electronics purchased within the city, Wellington emissions would be much greater than is accounted for from the six primary categories. This would be true of most urban areas, though.

Wellington's sectoral emissions % changes between 2001 and 2015



Between 2000/01 and 2014/15, the GHG emissions produced in Wellington City reduced by about 2%. That's slow, but it isn't hopeless. The level of emissions peaked in 2005/06, and has since reduced almost 18% - which bodes well for the potential to create a zero emissions pathway. The long-term reduction in emissions from electricity consumption (-29%), solid waste disposal (-24%) and agriculture (-14%) tells an

encouraging story. However, an increase (+445%) in emissions from industrial product use (e.g. refrigerants and air conditioning), as well as an increase in aviation fuel (+11%), diesel (+23%) and a decrease in net carbon stored in forests (-7%) have counteracted most of these reductions. The total emissions for the city (2014/15) was 1.14 million tonnes of CO₂e.

II. Accountability - 2013 and 2016 Low Carbon Capital Plan

In terms of completing activity - the Sustainability programme has been successful for some time. Over the last six years, Council has completed 52 of 58 activities outlined in the two Climate Change Action Plans.

But is just doing what is in these plans enough? The Council has set ambitious goals - goals worthy of the challenge ahead of us. In the past, the Council has even been a leading city on climate issues. But

there is a disconnect between our stated goals and the substantial change needed to become a zero carbon capital. Leading up to the 2016 Low Carbon Capital Plan, the Council invested significantly in the information we needed to make the best possible decisions. The Council started the process of shifting towards a more ambitious footing. Te Atakura - First to Zero continues that, acknowledging the power the Council has through setting the standard as a leading Capital city and promoting change.

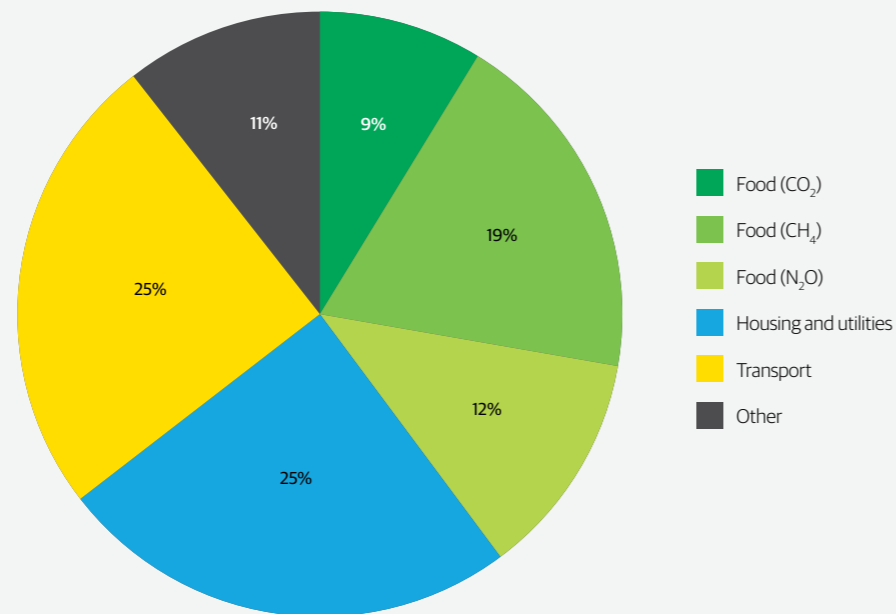
III: Consumption based emissions of households

Understanding what is needed to bring about our zero carbon future first requires that we all understand our footprint - and how we extend it through the actions we take every day. The best way to understand it is through consumption-based emissions measurement: which is used to track individual emissions as compared to the production based measurement we use for cities. Under consumption based measurement, the largest day to day contributors to greenhouse emissions as a household are transport, food and utilities, which each account for close to

a third of household emissions. This is remarkably similar to production based measurement for Wellington, with the exception of food.

What it serves to illustrate for individuals, though, is that the choices that we make in our lives, especially what we eat, how we move around, where we live, and what kind of home we live in all have huge influence in our transition to a zero-carbon future. Together, better choices can lead to a zero-carbon and vibrant life.

Composition of average household emissions



Glossary

Adaptation - Adaptation to climate change is engineering or devising ways of adapting to the serious challenges it poses to each individual community, ranging from Sea Level Rise, drought, severe rainfall, heat waves, and more.

carbonZero and CEMARS - The carbonZero programme and CEMARS programme are the world's first internationally accredited greenhouse gas (GHG) certification schemes under ISO 14065. They provide tools for organisations, products, services and events to measure and reduce their greenhouse gas emissions (otherwise known as carbon footprint), and optionally offset it. The programmes are owned and operated by Enviro-Mark Solutions Limited.

CDP - CDP, formerly the Carbon Disclosure Project, runs the global disclosure system that enables companies, cities, states and regions to measure and manage their environmental impacts. It provides a disclosure system that allows Wellington to report on our corporate and community emissions, our plans of action, the risks we face, and our adaptation plan.

Circular Economy - A circular economy is an alternative to a traditional linear economy (make, use, dispose) in which we keep resources in use for as long as possible, extract the maximum value from them whilst in use, then recover and regenerate products and materials at the end of each service life.

Climate Certified Bonds - Bond debt independently certified for projects that will contribute to keeping the planet within a 2°C warming boundary.

Cordon Charge - A cordon charge creates a cordon around the city which when a vehicle passes it to enter the city it is charged a certain price. It helps to manage congestion and limit vehicles in areas that have limited capacity or are being prioritized for other modes.

ETS - The New Zealand Emissions Trading Scheme (NZ ETS) is the Government's main tool for reducing greenhouse gas emissions. The NZ ETS puts a price on greenhouse gas emissions. This price on emissions is intended to create a financial incentive for businesses who emit greenhouse gases to invest in technologies and practices that reduce emissions. It also encourages forest planting by allowing eligible foresters to earn New Zealand emission units (NZUs) as their trees grow and absorb carbon dioxide.

Feebate - A feebate system is one that charges a fee based on emissions levels on each vehicle entering New Zealand, and that fee is then turned around and used for a rebate on Zero Emissions Vehicles.

GHG emissions - Greenhouse Gas emissions are climate-warming gases released by our daily activities. Everything from driving to work, to flicking on the heater, to having a steak contributes a degree of warming, and becoming zero carbon is all about managing that.

Green Infrastructure - Infrastructure designed into the city that maximizes natural elements to manage water instead of traditional pipes and pumps. This can include rain gardens, green roofs, permeable pavements and much more.

HomeStar - Homestar is a comprehensive, independent national rating tool that measures the health, warmth and efficiency of New Zealand houses. A home is rated on a scale from 6 to 10. Homestar assesses a house, apartment or multi unit development against several categories including energy, health and comfort; water waste and materials.

IPCC - The Intergovernmental Panel on Climate Change is an intergovernmental body of the United Nations, dedicated to providing the world with an objective, scientific view of climate change, its natural, political and economic impacts and risks, and possible response options.

Mitigation - Mitigation to climate change is reducing impacts on climate change by limiting CO₂ output in the first place in order to limit overall impact on warming.

NABERSNZ - NABERSNZ is an adaptation of the National Australian Built Environment Rating System (NABERS). Launched in 1999, NABERS is widely considered to be a world-leading energy rating tool for commercial buildings. It is mandatory for large office buildings in Australia. NABERSNZ is licensed to the Energy Efficiency and Conservation Authority (EECA) and is administered by the New Zealand Green Building Council (NZGBC).

PPB - Parts Per Billion

PPM - Parts Per Million

RMA - The RMA is New Zealand's main piece of legislation that sets out how we should manage our environment. The RMA is based on the principle of sustainable management which involves considering effects of activities on the environment now and in the future when making resource management decisions. As well as managing air, soil, fresh water and coastal marine areas, the RMA regulates land use and the provision of infrastructure which are integral components of New Zealand's planning system.

User Charges - User charges help to manage congestion and limit vehicles in areas that have limited capacity or are being prioritized for other modes. In addition, they help to signal the high costs of driving and create a balanced transport market.

Toitū te marae a Tāne

Toitū te marae a Tangaroa

Toitū te iwi

Tū kōtuitui, tū kaha mō āpōpō

If the domain of Tane survives to give sustenance,
and the domain of Tangaroa likewise remains,
so too will the people.

Stand united, stand strong for the future.

J008785

Absolutely Positively
Wellington City Council

Me Heke Ki Pōneke