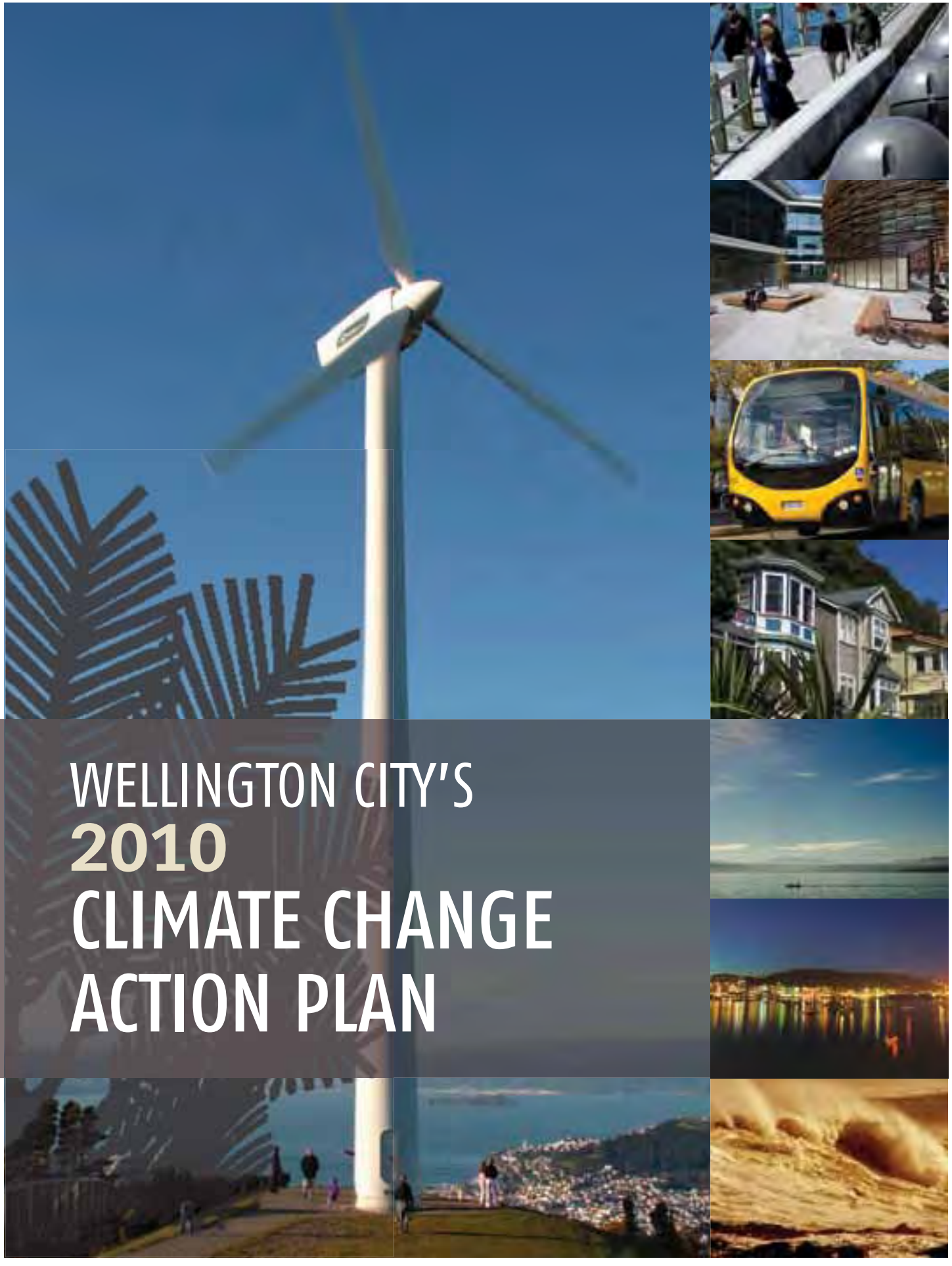

WELLINGTON CITY'S 2010 CLIMATE CHANGE ACTION PLAN

June 2010

Absolutely Positively Wellington
Me Heke ki Pōneke
Wellington City Council

Message from the Mayor

Wellington City Council recognises the importance of climate change and the need for a comprehensive and cohesive response. This action plan sets us on a path to becoming a leading city in responding to climate change. Importantly, it not only addresses reducing emissions, but it also focuses on preparing for the impacts of a changing climate.

I heard some clear messages when I attended the 2009 Climate Summit for Mayors in Copenhagen: we can't wait for national governments to take action and they can't solve the problem on their own – cities must act. Cities need to demonstrate strong leadership, based on cooperation between Councils, business and the community.

Wellington is well placed compared to cities internationally – we think we are focusing on the right areas and taking the right steps. The latest Mercer survey of over 220 cities worldwide has Wellington ranked fifth for 'eco-city' measures. This is fantastic recognition of what we have achieved and, as Wellingtonians, it is something we can all be justifiably proud of.

We have played to our strengths by using renewable energy resources; enhancing the compact nature of the city and developing an increasingly modern public transport system. We have made progress with fitting the city's cold, damp homes with modern insulation and heating technology. We have nurtured our close links to government agencies and partnerships with academic and research institutions, our community, entrepreneurs and business people. By building on these advantages, Wellington has real potential to be a leading world capital in reducing its environmental impact in response to climate change.

I am excited by the challenge of implementing the actions in this plan. Clearly it doesn't deliver everything – evolving technology and the further development of central government policy will play a key role. The Council's approach calls for strong local leadership and partnerships at all levels, recognising that it will take a collective effort to deliver benefits to the community and the economy, and to ensure a prosperous future. I look forward to working with all Wellingtonians to meet the climate change challenge.

Wellington Mayor Kerry Prendergast
June 2010

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Existing sustainably in harmony with our environment

Meeting the challenge

Climate change is real and will have an impact on all of us. Warming of the climate system is unequivocal, as evident from increases in global average air and ocean temperatures, widespread melting of snow and ice and rising sea levels. The world's leading climate scientists agree that it is very likely that human behaviour is accelerating climate change, and that the earth is already suffering the consequences.

Though they cover just 2 percent of the world's landmass, cities and urban areas are estimated to be responsible for 75 percent of all greenhouse gas emissions worldwide. Like other global challenges, no single country or city can do it alone.

As a Council we have a responsibility to protect our citizens from the effects of climate change, and we must do our share in reducing greenhouse gas emissions. As the capital city we also have a significant national leadership role to play.

For Wellington, climate change will create risks to public health, infrastructure, the economy and the environment. We have a role in managing risks from sea-level rise, increased heavy rain events and more severe storms, and managing water supply in dry conditions. These changes need to be recognised early to influence our planning responses and allow us to be well prepared.

We also have service responsibilities that can help reduce the city's emissions, such as urban planning and public space development; transport planning, transport networks and parking; and managing resource consent processes for developments as diverse as new housing, through to commercial-scale wind farms.

Since 2004, Wellington City Council has been committed to the reduction of greenhouse gas emissions and planning for the impacts of a changing climate. Over the past few years, we have focused on preparing the city for changes that may occur and the challenges we face. Our achievements include:

- aligning our development around public transport routes
- formulating policies to increase the use of public transport, walking and cycling, and encouraging the development of renewable energy
- developing accurate greenhouse gas inventories for our city and our organisation
- commencing emissions reduction programmes that target our day-to-day operations, such as energy-efficiency improvements
- assessing the vulnerability of parts of Wellington to sea-level rise.

Wellington facts and figures

190,500 inhabitants (2007)

6.2 tonnes
emissions per person
(1,190,000 gross emissions
for Wellington City)

$21.372
billion GDP generated
in the Wellington region
($47,212 per capita)

30% TARGET TO REDUCE EMISSIONS BY 2020 (2001 BASE YEAR)

96% OF WELLINGTON'S EMISSIONS ARE FROM ENERGY CONSUMPTION

2/3 OF NEW ZEALAND'S ELECTRICITY USE IS GENERATED FROM RENEWABLE SOURCES

1000 HOUSEHOLDS CAN BE POWERED FROM WELLINGTON'S LANDFILL GAS-TO-ENERGY PLANT

17% OF WORKERS USE PUBLIC TRANSPORT FOR THEIR COMMUTING JOURNEY

17% OF WORKERS WALK, RUN OR CYCLE TO WORK

} THESE RATES ARE THE HIGHEST OF ANY CITY IN NEW ZEALAND

50,000 **tonnes** OF CARBON DIOXIDE IS REMOVED FROM THE ATMOSPHERE BY WELLINGTON'S PINE FORESTS EACH YEAR

5000 CARBON CREDITS ARE POTENTIALLY AVAILABLE BY PLACING CITY-OWNED FORESTS IN FOREST-SINK PROGRAMMES

Building on our strengths and achievements

Wellington is well placed to respond to climate change. However, there are several key areas where Wellington can further build on its strengths to meet this complex and difficult challenge.

Compact city: Wellington City is compact, which helps make it a 'walkable' city. Our urban growth strategy builds on this by encouraging the development of housing and commercial activities along key public transport routes within the central city and suburbs. We call this our 'growth spine'. The comparisons between the 1996, 2001 and 2006 census data has shown a steady decline in the use of cars for commuting (a drop of 9 percent from 1996 to 2006) and increases in public transport, walking and cycling (an increase of 6 percent collectively from 1996 to 2006). This is partly due to the increase in apartment living in the central city.

Green belts: Wellington has long recognised the benefits of preserving parts of the city for recreational purposes and, more recently, restoring the city's biodiversity and native ecology. Around 10 percent of the city (2500 hectares) is currently being managed as, or reverting back to, native forest. Council staff – assisted by about 60 volunteer groups – annually plant up to 100,000 trees and shrubs to help the city's reserves and green belts to regenerate.

Renewable resources: The Wellington region has some of the world's best potential for wind and marine energy generation. The Council has created planning policies that encourage renewable energy development. Project West Wind (140MW) has already been completed and two more wind farms are planned. Combined, existing and planned wind farms have the capacity to produce 222MW, or sufficient energy to power about 110,000 average homes. Wellington's first marine energy project is also under development in Cook Strait.

Public transport and active travel modes: Wellington has the highest rate of public transport use in New Zealand. The central location of our railway and bus stations help to create an integrated and convenient public transport network. Our compact city also results in the highest rates nationally for commuters choosing to walk or run to work.

Research institutions and clean technology: Wellington is home to several universities and research institutes with expertise in climate change, clean technology research and development and staff who have been involved in the Intergovernmental Panel on Climate Change (IPCC) processes. The centre of excellence for clean technology being developed by Grow Wellington is using the expertise of these research institutions and seeking to attract additional skilled professionals to Wellington to help build capacity in this area.

More efficient homes: We are providing ongoing partnership support for the insulation and heating retrofitting scheme that is funded by the Energy Efficiency and Conservation Authority. Initially the focus was on assisting low-income households but our support has recently expanded to include all households. We also provide a $300 grant to cover the building consent costs for households that install sustainable energy features such as solar hot water heaters.

Wellingtonians are committed to getting to work using alternatives to the private car as this table demonstrates.

Usual method of travel to work*

	Car, truck or van	Public bus	Train	Walked or jogged	Bicycle
Wellington	**45.1%**	**14%**	**3.1%**	**15.3%**	**2.1%**
Auckland	61.5%	7.3%	1%	6.6%	1.2%
Waitakere	70.9%	3.3%	1.5%	2.3%	0.8%
Christchurch	63.8%	4.1%	0%	4.5%	5.1%
Dunedin	64.6%	2.7%	0%	8.7%	1.5%

** Source: 2006 Census*

Doing it together

A joint effort from all of Wellington's communities is needed to meet the ambitious targets set out in this action plan. The Council will play a lead role in coordinating the various sectors and maintaining momentum on the 2010 Climate Change Action Plan.

Regionally and locally, we will look to strengthen our partnerships with local authorities, key community groups, universities, Wellington businesses, Government agencies and of course, Wellington households.

Nationally, it is important that we partner with other metropolitan cities, research institutes, leading New Zealand businesses and key government agencies.

Internationally, Wellington will look to create ongoing relationships with other cities as well as key organisations like the C40 Climate Leadership Group.

The New Zealand Emissions Trading Scheme (ETS)

The ETS is the country's primary mechanism to ensure that greenhouse gas producers take responsibility for their emissions. Forestry entered the ETS in 2008 and other industries will be phased in over the coming years. We will have direct liabilities associated with emissions from our landfill activities and indirect liabilities from increased energy costs. We will also have opportunities under the ETS to generate carbon credits from our forest areas. Both the liabilities and the opportunities will need to be managed effectively.

For the wider Wellington community – residents and businesses – costs from the ETS will raise the price of goods and services. Households, businesses, industries and communities that reduce their carbon consumption will become more resilient. Those that do not respond will be more exposed to rising prices and are likely to find it more challenging to meet their aspirations.

Engagement with the community

Education and community engagement are crucial in implementing the 2010 Climate Change Action Plan.

We plan to develop a comprehensive programme involving community groups, innovative engagement techniques and local champions and experts.

We want to raise the profile of climate change issues so that householders and businesses:

>> understand what actions to take to reduce emissions
>> make positive changes to reduce emissions
>> understand how climate change might affect them, including issues such as sea-level rise or increased temperatures
>> help determine community outcomes and priorities.

Working with Wellington schools will be an important part of the Council's engagement strategy for climate change. The Enviroschools programme is one way we can work with Wellington's youth on practical steps to reduce emissions at school and at home.

Fossil fuels and climate change

The world currently relies on affordable and plentiful supplies of fossil fuels (eg oil, coal and natural gas) to allow businesses, transport networks, government departments and households to operate effectively.

Global demand for fossil fuels has grown rapidly as developing economies like China and India expand.

The climate change challenge is directly linked with our use of fossil-fuel-based energy – powering our cars, trucks, homes and businesses results in greenhouse gas emissions.

As a finite resource, the long-term supply and price stability of fossil fuels will be under threat. Recent analysis indicates that global oil production could peak before 2030 and then decline. This scenario – referred to as 'peak oil' – may have impacts on the price and availability of oil and could negatively affect global economic growth, food production and security. These impacts may have downstream effects on New Zealand leading to disruptions to public services, transport networks and our wider economy, society and culture.

Economies around the world are increasingly recognising the need to separate economic growth from continued growth in emissions – a concept known as 'decoupling'. Actions that we take can provide resilience to oil supply constraints and price rises and also help reduce greenhouse gas emissions. Both issues rely on developing alternatives that reduce the dependence on fossil fuels such as:

- alternative transport technologies and fuels including electric vehicles, biofuels and biogas
- greater energy efficiency in our homes, offices and industry
- increasing the proportion of renewable electricity generated and reducing transmission losses
- considering converting essential services to alternative fuels to reduce emissions and increase resiliency
- increasing the proportion of people using public transport, walking and cycling for all types of trips
- planning our urban areas smartly (ie concentrating growth around public transport hubs and city/town centres).

Top: Our dependence on oil to fuel our transport networks is a risk if oil prices increase sharply and/or if there are disruptions to oil supply.

Middle: Developing alternatives to petrol and diesel vehicles – such as electric cars – will be a priority for limiting our vulnerability to oil prices and supply disruptions.

Above: Smart, compact growth concentrated around public transport routes will reduce our dependence on vehicle travel and make walking, cycling and public transport more convenient. The image is an artist's impression of a redeveloped Adelaide Road.

The 2010 Climate Change Action Plan

– how we intend to face the challenges of climate change

This plan has a dual focus:

Adaptation

preparing for the impacts of climate change so we can safeguard the community, the environment and the economy from likely risks

Mitigation

reducing greenhouse gas emissions, or storing (sequestering) carbon dioxide in forests

Actions have been selected against a range of factors including:

- building on the progress achieved to date on the 2007 Climate Change Action Plan
- the likely risks from climate change
- analysis of emissions and identification of priority sectors
- value for money
- proven levels of success elsewhere
- identification of co-benefits (such as job creation or improved health)
- advice from climate change experts and input from the Council's Environmental Reference Group (ERG)
- level of collaboration and interest from key partners locally, nationally and internationally
- identified gaps in current work
- ease of implementation.

We believe the actions identified in this plan are a pragmatic way to respond to climate change, with scope for ongoing development. They provide the foundation for a more ambitious programme when we next review the city's Long-Term Council Community Plan (LTCCP) in 2012. They have been developed by considering international best practice, internal analysis and discussion and input from other key organisations with an interest in climate change.

This plan aligns with a number of previous commitments that have associated climate change benefits. For example, $49 million is included in the current LTCCP (2009-19) to implement bus-priority projects, walking and cycling initiatives and the centre plans (where we are facilitating compact growth around key public transport corridors and hubs like Adelaide Road, Kilbirnie and Johnsonville). These actions are included in this plan because they are important components of our ongoing response to climate change.

Seven action areas

This action plan provides a summary of ***what we are doing*** and ***what we intend to do*** across seven action areas. It involves five new actions that required additional funding that has now been approved and a range of initiatives that can be achieved with existing budgets and resources.

The seven key action areas are:

1 Adaptation
2 Buildings and energy
3 Land transport
4 Waste
5 Council operations
6 Forestry
7 Aviation



Objectives

Underpinning the seven action areas are the following high-level objectives – developed from outcomes agreed as part of the city's 2009-19 LTCCP. We believe that it is essential to achieve these objectives in order to meet our emission reduction targets and safeguard the city.

- **Resilient communities:** Wellington – our communities, government agencies and businesses – will be well prepared for impacts from climate change.
- **Renewable energy capital:** Wellington's renewable energy generation sources produce more renewable electricity than we need, with the surplus exported to the rest of the country.
- **Growing sustainable transport:** Wellington builds on its compact form and high use of public transport by focusing development around existing centres. The percentage of trips made by walking, cycling and high quality, reliable public transport continues to increase while the percentage of trips made by car continues to decrease.
- **Early adopter of electric vehicles:** Wellington encourages electric vehicle use.
- **Centre of excellence for clean technology:** Wellington region becomes a centre of excellence for clean technology, which helps to create jobs and investment in fields of building retrofits, technology development, renewable energy applications and waste minimisation.
- **Green office hub:** Wellington's CBD is recognised as a hub for sustainable, energy-efficient commercial buildings and green building design innovation.
- **Warm, efficient homes:** Wellington's older housing stock is upgraded to create healthier living environments and more energy-efficient homes.
- **A city of forests:** Wellington continues to expand forest networks on public and private land through natural regeneration of reserves and rural land, plantation forestry, planting in road reserves and tree planting along main streets and boulevards.
- **Resources from waste:** Wellington and our regional partners develop approaches to waste management that produce commercially viable recovery systems to reduce the amount of waste going to the landfill and increase methane capture.
- **Carbon neutral vision:** Wellington aspires to become carbon neutral.

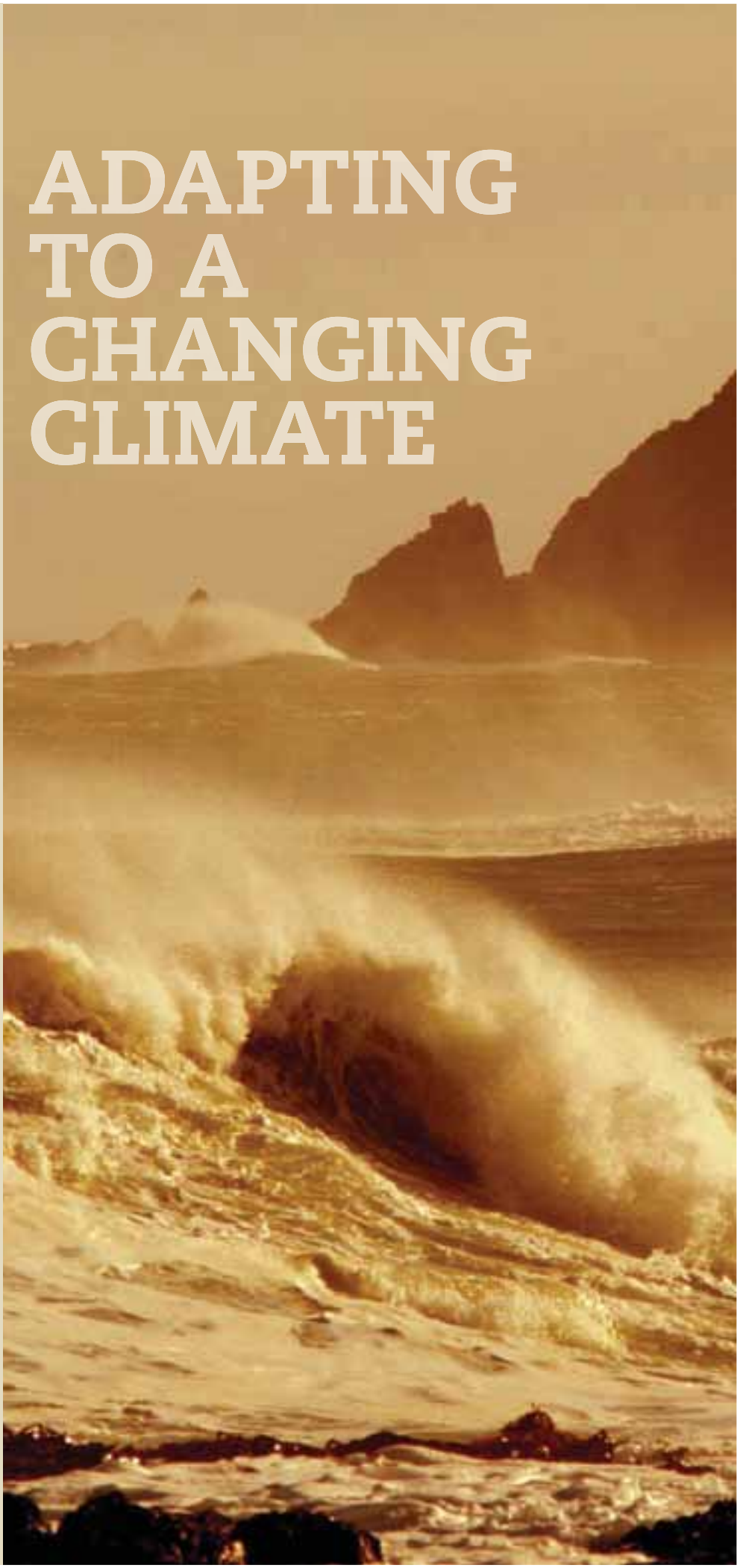


New actions

The following five new actions focus on cost-effective measures we will take to better prepare the city for the impacts of climate change and to reduce Wellington's emissions. These specific actions will help us to identify and address Wellington's vulnerabilities to climate impacts and achieve meaningful emissions reductions.

	Actions	Purpose
1	**Preparing for the impacts of climate change** Adaptation	To identify parts of the city vulnerable to climate impacts and begin to plan for these risks. See page 16 for further detail.
2	**Piloting electric vehicles** Land transport	To encourage greater use of electric vehicles and raise awareness of their benefits. See page 26 for further detail.
3	**Council energy-efficiency initiatives** Council operations	To reduce emissions from energy consumption in Council operations. See page 32 for further detail.
4	**Business energy-saver programme – *eMission*** Buildings and energy	To reduce emissions from energy consumption by businesses. See page 22 for further detail.
5	**Home energy-saver programme** Buildings and energy	To reduce emissions from household energy consumption. See page 21 for further detail.

ADAPTING TO A CHANGING CLIMATE



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A range of impacts resulting from climate change will affect Wellington including:

>> coastal hazards from sea-level rise and storm-surge events

>> difficulty in maintaining water supply in the summer months due to reduced rainfall, higher temperatures and increased demand

>> flooding, slips and high winds from extreme storms, resulting in damage and disruption (eg damage to roading and property).

The Council has a responsibility to protect residents, property and infrastructure from the impacts of climate change so it is essential those impacts and risks are recognised early and that they are properly planned for.

Our role in managing climate-related risks includes designing stormwater systems and coastal walls and defences that can withstand significant storms, and managing water supply networks to cope with the increasingly frequent dry years that are predicted. This means taking into account the likely impacts as we renew, upgrade or plan new developments and ensuring that costs and risks are equitably shared between present and future generations.

Adaptation – what we're doing

Climate change implications:
Research on the implications of climate change for Wellington City has been carried out, including:

>> the impacts of long-term climate change on weather and coastal hazards for Wellington City

>> the impacts of sea-level rise on our local highway and rail networks

>> the likely impacts of climate change on water security and slope stability.

Climate change activities: We will continue to assess the impact of climate change in all major Council policy work or projects.

Potential rise in sea level: We have introduced design standards so that the city's stormwater outflow pipes can accommodate future sea-level rise. Scenarios for possible sea-level rise are being used to identify how best to plan the future development of the city.

Kilbirnie case study: We undertook a hazard-mapping exercise in the Kilbirnie/Rongotai area for four sea-level-rise scenarios to understand the risks to infrastructure, community facilities and private property in the Kilbirnie area. This study has helped us understand risks and likely response options.

Developing resilient areas: We have developed areas such as Waitangi Park and coastal dune systems, which have environmental benefits and will help protect surrounding areas from some of the impacts of climate change.

Sea-level rise in the Kilbirnie-Rongotai area

The Council has examined possible sea-level-rise scenarios – from 0.5 to 2.5 metres – for the areas adjacent to Evans Bay and Lyall Bay. We have looked at how key infrastructure could be affected and what response options might be appropriate. Different responses will be appropriate for the more natural beach environment of Lyall Bay compared to the highly modified environment of Evans Bay.

Adaptation – what we will do with new funding

A1 – Preparing for the impacts of climate change

Summary of action

We want to continue to gather better information on Wellington's vulnerability to climate impacts and develop an approach for responding to these impacts across the city and region.

Benefits

This initiative is about safeguarding Wellington's future and ensuring that informed thinking goes into our District Plan processes and asset-management decisions. Through appropriate planning and design of new assets, or those scheduled for renewal or upgrade, we can reduce risks, and adaptation costs can be shared across present and future generations.

Timeframes and costs for this work

We will fund a coastal study in partnership with Greater Wellington Regional Council in 2010/11 at a cost of $30,000. We will carry out further detailed analysis across Wellington City, with particular focus on areas identified as most at risk. The specific risks and response options would be assessed with the assistance of appropriate expertise in the 2011/12 financial year at a cost of $100,000.

	2010/11 ($000)	2011/12 ($000)	Total ($000)
OPEX*	$30	$100	$130

* OPEX or operational expenses are the day-to-day expenses incurred through carrying out an activity, including staffing, administration, rental, utilities, consumables and maintenance costs.

Adaptation – what we will do within existing budgets

A2 – Improve preparation for more frequent extreme storms and other weather-related events: Assess how well prepared the city is for extreme weather.

A3 – Develop guidance for asset management on climate risks: Determine how best to consider climate change issues across a range of asset types.

A4 – Engage with Wellingtonians: Take a lead in explaining the likely impacts and develop options to respond in consultation with our communities.

A5 – Work with other local authorities on adaptation approaches: Promote a coordinated local government approach through sharing information, ensuring consistency in approach and promoting joint research projects and policy development.

A6 – Work with central government: Work with government agencies on local issues and lobby for national approaches to help protect key infrastructure, including state highways, rail, airports and schools.

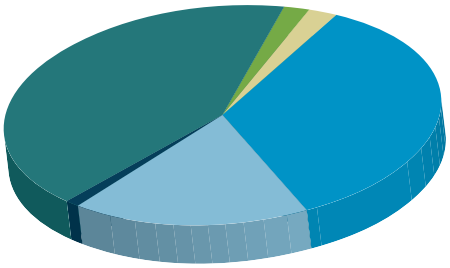
A7 – Investigate the use of green* roofs and more street planting to reduce stormwater run-off: Investigate opportunities when upgrading existing facilities and streetscapes as well as when constructing new buildings.

* Green roofs are roofs on buildings that are partially or completely covered with vegetation. Green roofs can provide multiple benefits – absorbing rainwater and reducing stormwater run-off, providing additional insulation from extreme temperatures (both hot and cold), helping to lower urban air temperatures (ie the urban heat island effect) and for aesthetic purposes.

Mitigation – reducing the city's greenhouse gas emissions

More than 96 percent of Wellington City's 1.19 million tonnes of greenhouse gas emissions are produced from energy used in **buildings and energy, land transport and aviation**.

Wellington City's greenhouse gas emissions in 2006/07 were as follows.



	% of city's emissions	Thousands of tonnes of CO2-e
Buildings and energy	42%	510.2
Land transport	35%	412.0
Aviation	18%	210.0
Industry emissions	2%	26.8
Landfill waste	2%	20.0
Agriculture	1%	12.2

Other significant sectors producing emissions are:

>> **Waste:** Though it only represents around 2 percent of the city's total emissions, the Council will have liabilities under the ETS to acquire emissions units to match our landfill emissions. For that reason, it makes environmental and financial sense to reduce these emissions.

>> **Council operations:** We want to continue to show leadership in the community by setting a good example and reducing our own emissions.

>> **Forestry:** Forests remove carbon dioxide from the atmosphere. Wellington's forested areas removed approximately 50,000* tonnes of CO_2 (4 percent of the city's emissions) in 2006/07. We own a large amount of land that is eligible for carbon credits and have begun to receive credits under the ETS. We can also play a key role in highlighting the importance of forestry to private landowners.

Forecasting of emissions for Wellington City has been carried out on the basis of various scenarios including:

>> **population growth**

>> **emissions pricing**

>> **oil prices**

>> **GDP growth**

>> **national inventory trends (projections for how the nation's emissions will grow)**

>> **targets for renewable energy production (aiming for between 78 percent and 90 percent of electricity supplied from renewable sources by 2020, which is up from the current proportion of 60 to 70 percent)**

>> **plans to double the number of passengers by 2030 (as part of the Wellington International Airport 2030 Master Plan).**

The scenarios give us some understanding of how emissions might trend under business-as-usual scenarios as well as under a range of policy options. Results from the various scenarios show a wide spread of possible emission trends, indicating that by 2020 emissions could:

>> **decrease by as much as 11 percent**

>> **increase by an average of 20 percent**

This is consistent with the forecasted trend for New Zealand's emissions, which is for a 21 percent increase by 2020.

* Note that this figure only includes pine forestry at this stage and work is under way to understand what native forests contribute as well.

The Council will continue to monitor the effects of current policies – such as the Emissions Trading Scheme – and trends in technology and policy development as well as impacts associated with oil price rises. These factors will influence the future shape and direction of the Council's climate change response.

Measurement methodology

In 2004, the Council joined the Communities for Climate Protection New Zealand (CCP-NZ) programme. The first step of CCP-NZ involved measuring greenhouse gas emissions for the community and for Council operations using CCP-NZ methodologies. The Council adopted 2001 as a base year for measuring community emissions and 2003 for measuring emissions from Council operations.

In 2008, the Council reviewed the methodologies for measuring emissions for both community and Council operations. The new community emissions inventory for Wellington City (completed for 2006/07) is based on actual data and is in line with best-practice international standards. The bullets below provide brief summaries on how emissions are calculated for the various sectors:

- **Energy used in buildings:** based on the total amount of electricity, natural gas and coal consumed in Wellington City (in some cases per-capita downscaling was necessary if only regional data was available)
- **Transport energy:** based on the total amount of petrol, diesel and LPG sold from pump stations in Wellington City (it is assumed that fuel sold in the city is equivalent to the total fuel consumed by activities within the city)
- **Aviation fuel:** based on the total amount of aviation fuel sold at Wellington Airport
- **Forestry:** based on commercial forestry data from the Ministry of Agriculture and Forestry
- **Landfill waste:** based on data from the methane collection system and estimated collection rates at the Southern Landfill, and actual disposal amounts at the Southern and Porirua landfills
- **Agriculture:** based on actual and estimated stock numbers and crop data from Statistics New Zealand
- **Industrial sector:** based on a per capita downscaling of national data on industrial emissions.

Our emissions reduction targets

It is important that Wellington's reduction targets realistically reflect both the scientific consensus views on reducing emissions as well as what the Council, its key partners and the community have agreed on and are able to implement and achieve.

In 2007, Wellington City Council agreed to the following emissions reduction targets:

>> stabilise the city's emissions by 2010 (at 2001 levels)

>> reduce the city's emissions by 30 percent by 2020 (below 2001 levels)

>> reduce the city's emissions by 80 percent by 2050 (below 2001 levels).

We will be undertaking emissions measurements in 2011 to identify whether emissions stabilised in 2010. The plan proposes an interim target to:

>> reduce the city's emissions by 3 percent by June 2013 (below 2001 levels).

Our forecasting analysis shows that with growth in population and GDP (and under potential oil and carbon-price scenarios), Wellington will need to achieve emissions reductions for existing activities and for future growth. This makes the challenge of reducing emissions even greater. Growth of the city – new homes and commercial buildings, more cars and freight, more air travel – has to be taken into consideration when considering emissions reductions. This means that policies and initiatives will need to be put in place at national, regional and local levels to reduce emissions.

BUILDINGS AND ENERGY

02

42% OF WELLINGTON'S EMISSIONS ARE PRODUCED FROM ENERGY USED IN BUILDINGS

1,549,000 mega watt hours
(8.1 MWH PER PERSON) OF ELECTRICITY WAS CONSUMED IN WELLINGTON CITY IN 2007

60% OF ENERGY IN NEW ZEALAND HOMES IS USED FOR SPACE HEATING OR WATER HEATING

63% OF NEW ZEALAND HOMES BUILT BEFORE 2000 HAVE INADEQUATE INSULATION AND HEATING

The energy we consume in buildings is used for heating air and water, cooking, lighting and appliances, as well as powering industrial and manufacturing processes. There are three primary ways to reduce emissions from the buildings and energy sector:

1. Reducing energy consumption in existing buildings and increasing the use of renewable energy.
2. Reducing energy consumption in new buildings by using smart building design and more modern and efficient technology.
3. Reducing total emissions from electricity supply through greater use of renewable energy and improving the efficiency of New Zealand's coal and gas generation plants.

Wellington's older housing stock helps give the city its identity and character, but unfortunately these homes were built before proper insulation or heating became standard. The Council is working alongside the Government's Warm Up New Zealand programme – which gives grants to homeowners to retrofit older homes with insulation and heating – to ensure Wellington homes are brought up to modern heating standards as quickly as possible.

Buildings and energy – what we're doing

Renewable energy sources: We are encouraging new renewable energy initiatives, such as the recent development of Project West Wind in Makara (7km from the city centre) that can generate enough power for up to 70,000 average homes. Two more wind farms are planned that, together, will add enough power to supply 40,000 more homes. To put this in perspective, there are 74,000 residential properties in Wellington.

Home energy use: The Council is providing additional funding to encourage uptake of the Government's Warm Up New Zealand scheme by Wellington households. The Government has boosted funding in the next four years for the scheme to fit around 180,000 houses across the country with modern insulation and heating. This equates to about 2000 housing refits a year for Wellington City.

Home energy grants: We provide grants of up to $300 towards building consent costs to homeowners who install energy-efficient features on their property (including solar hot water heating).

Home energy advice: We support the Home Energy Advice Centre, which provides free phone and online energy advice to Wellingtonians.

Subdivision design guidance: We provide design guidance for new subdivisions to encourage more use of energy-efficient building designs.

Solar energy: We've made it easy to install solar systems on rooftops through changes to our building regulations.

Green buildings: We've assisted the development of sustainable, energy-efficient buildings by recycling construction waste and assisting with the building design process. Some recent projects include the new BNZ and Meridian buildings on the waterfront, which have both achieved Level 5 Greenstar certification.

Clean technology centre of excellence: The Wellington region is aiming to develop a leading clean technology centre of excellence. Initial opportunities include:

>> establishing a marine energy research and development site to trial technologies (in partnership with the European Marine Energy Centre)

>> investigating electric vehicle technology for the city's bus network

>> developing waste-to-energy technologies for sewage sludge and plastics.

Buildings and energy – what we will do with new funding

BE1 – Home Energy-Saver Programme

Summary of initiative

This initiative aims to reduce emissions associated with household energy consumption by establishing a programme to provide incentives (through subsidies and promotion) to households for low-cost energy retrofits, such as energy-efficient lighting, low-flow showerheads and hot water cylinder wraps. Initially, we're aiming to have between 1000 and 1500 homes a year take up at least one of the options identified above. This project provides a cost-effective way to help households:

>> reduce energy consumption

>> reduce greenhouse gases associated with energy consumption

>> reduce their energy costs

>> take action on climate change in their own homes.

A low-flow showerhead. Photo courtesy of ECCA

To help with the development of the Home Energy-Saver programme, the Council is participating in the Commonwealth Climate Challenge project. The project – run by the Royal Commonwealth Society – involves 12 households in 12 cities in 12 Commonwealth countries monitoring and reducing energy and greenhouse gas emissions (a total of 144 households). The 12 Wellington households will compete with households from other Commonwealth countries to see who can reduce household emissions the most. Partnership opportunities will be identified with media outlets, research institutions, Government agencies, schools, businesses and community groups to ensure the reach of the project extends beyond 12 Wellington households.

The Home Energy-Saver programme will also seek to link to and enhance refits occurring through existing programmes such as the Government's *Warm Up New Zealand: Heat Smart programme*.

Timeframes and costs for this work

The funding for this initiative will be used for subsidising and promoting energy retrofits in households. We will establish partnerships with providers that can deliver the retrofits to households. The costs of this scheme will be:

	2010/11 ($000)	2011/12 ($000)	Total ($000)
OPEX	——	$100	$100

The Meridian building on Wellington's waterfront was New Zealand's first five star green building. The building is designed to use 60 percent less energy and 70 percent less water than comparable office buildings. Energy-saving features include a double-skin facade for insulation, solar water heating and the use of natural light for passive heating and lighting. Installing energy-efficient features in commercial buildings is one of the most cost-effective measures to reduce greenhouse gas emissions.

Buildings and energy – what we will do with new funding (continued)

BE2 – Business Energy-Saver Programme

Summary of action

This action involves a two-year commitment to the *eMission* programme, which helps Wellington businesses reduce their carbon footprint, reduce waste and attain a recognised certification of environmental performance. Many businesses struggle to make progress on sustainability issues due to a lack of guidance, information and tools, while others simply do not have the resources to prioritise initiatives to minimise environmental impacts.

Timeframes and costs for this work

The funding for this action will subsidise and promote workshops, audits and incentives for businesses involved in the programme.

By providing support to *eMission*, the Council will:

>> help Wellington businesses to reduce emissions and resource use

>> demonstrate leadership by helping to support a more sustainable business community

>> help to create 'business leaders' in the city who can help influence their respective sectors to adopt more sustainable practices.

The cost of this initiative is:

	2010/11 ($000)	2011/12 ($000)	Total ($000)
OPEX	$25	$25	$50

Buildings and energy – what we will do within existing budgets

BE3 – Business partnerships: We will work with commercial building owners, property managers, government departments and the hotel industry to develop a programme of voluntary energy savings. The programme will start with 'quick wins', such as policies to turn off appliances overnight, commitments to upgrade office lighting and simple 'building tuning' changes to reduce energy consumption.

BE4 – Energy-efficiency standards and incentives: We will investigate regulatory (eg through specific rules in the District Plan) and non-regulatory approaches (eg incentives) to improve energy efficiency in new buildings and homes and those being upgraded or retrofitted.

We will also lobby for:

>> **BE5 – a 90 percent renewable energy target:** A New Zealand target for total national electricity supply by 2025. Given Wellington's renewable resources, this is likely to lead to investment and job creation.

>> **BE6 – higher energy-efficiency standards in the Building Code:** To help ensure that all new buildings are highly energy-efficient but also cost-effective.

>> **BE7 – home energy ratings:** A national energy-efficiency rating scheme for housing for both homeowners and landlords, allowing prospective purchasers or renters to make informed decisions.

>> **BE8 – feed-in tariffs:** Encouraging more investment in small-scale renewable energy by increasing the financial return households and businesses receive when they feed any surplus renewably generated electricity back into the national grid from applications such as solar energy or small-scale wind power.

LAND TRANSPORT

03

35% OF WELLINGTON'S EMISSIONS ARE FROM LAND TRANSPORT

70% OF WELLINGTON'S WORKFORCE IS LOCATED IN THE CENTRAL CITY

34% OF COMMUTING TRIPS ARE MADE BY PUBLIC TRANSPORT, WALKING OR CYCLING

45% OF COMMUTING TRIPS ARE MADE BY CAR, TRUCK OR VAN

Emissions are created from all forms of land-based transport, including cars, trucks, buses, trains and motorcycles. The sources include diesel, petrol and LPG. Actions for reducing emissions in the transport sector relate to two broad areas:

1. Reducing road travel
2. Improving vehicle fuel efficiency and adopting new fuel technologies.

The strategic direction of the city

Some aspects of the Council's work on climate change will be considered in more detail as part of the Council's wider strategic planning for the city. For instance, any decisions about new funding for walking, cycling and public transport projects will be made as part of the Long-Term Council Community Plan 2012/22.

Our overall aim is to make Wellington a better place to live, work and do business – something we hope will boost the number of quality jobs and investment in the city. Our wider long-term planning will include looking at new ideas and approaches to urban planning, public transport and the role of cycling and walking.

Among other things, the Council will be:

- developing a framework for growth and enhancement of the city centre for the next 30 years
- ensuring that investment and resources are aligned with the city's long-term priorities.

Public transport, walking and cycling

A common theme during consultation on the draft 2010 Climate Change Action Plan was the need for a focus on investment on alternatives to the private car, such as public transport, walking and cycling. This theme was also reiterated as a way to reduce risk for Wellington's economy and services from future oil-supply disruptions.

The Council is already planning to invest millions of dollars over the next 10 years in alternatives to the private car (see page 25 Land transport – what we are doing), funded through the 2009/19 long-term plan. The 2010 Climate Change Action Plan has not promoted further funding in these areas, with many projects currently in their establishment phase. For example, programmes for improved walking and cycling infrastructure were initiated in July 2009 and bus-lane projects like Manners Mall have recently been agreed (December 2009).

The role of new transport fuels

Private vehicles are likely to remain a reality for the foreseeable future. Encouraging electric vehicles provides a way to reduce greenhouse gas emissions – but only if the electricity to power the vehicles does not come from fossil fuels. This is where New Zealand has an advantage compared to many other countries as a high proportion – typically two-thirds – of our electricity is produced from renewable sources such as hydro, geothermal and wind.

Electric vehicles would be compatible with 'smart grids', which enable energy use to be monitored and controlled by network companies, generators, businesses and individuals. Smart grids are forecast to deliver energy savings, reduced costs, increased reliability and security to the entire network. Current indications are they will be a reality across New Zealand within 20 years.

Land transport – what we're doing

Compact city growth: We are consolidating growth within our existing suburban and city centres and along public transport routes – what we call our 'growth spine'. Around $14.3 million* has been allocated to plans for Adelaide Road and Johnsonville over the next 10 years. The funding is for improving infrastructure, redesigning roads and implementing policies that encourage mixed-use development.

Bus services: We are spending $11.4 million* to open Manners Mall to buses and create a new shared space for pedestrians, cyclists and cars in lower Cuba Street by mid to late 2011. We are spending an additional $9.3 million* to expand the city's bus-lane network through the central city and on other key routes from 2012-2019. We are also spending $1.2 million from 2010-2019 on new bus shelters to make bus travel more attractive.

Travel planning: We're working with local schools and businesses to encourage a further shift from private vehicle trips to public transport, walking, cycling and carpooling.

Walking and cycling: We are spending $12.8* million over the next 10 years on improvements that will make it safer and more enjoyable to walk or cycle. We want to encourage more people to use these modes of transport, particularly to get in and out of the central city.

Electric vehicles: We're preparing policies that could assist the development of infrastructure, such as battery-charging facilities in public spaces.

Travel demand: We're developing the city's broadband infrastructure in partnership with the Government and the private sector, allowing more people to work from home.

* Cost includes subsidies from the New Zealand Transport Agency.

Land transport – what we will do with new funding

T1 – Electric vehicle pilot

Summary of action

We'll be developing a pilot for electric vehicles in Wellington with a focus on:

>> featuring electric vehicles in selected company fleets

>> making electric vehicles visible in prominent tourist localities, such as Wellington Airport and cruise ship terminals (in season).

Timeframes and costs for this work

$100,000 has been approved over the next two years for this project. The funding will go towards the lease of electric vehicles and promoting them as a transport solution in Wellington. While the focus of the programme is electric cars, work in this area may include electric bikes and bus charging technologies. The Council will aim to use a small number of electric vehicles in our fleet and evaluate savings in fuel and running and charging costs. In addition to the funding, the Council has a key role as facilitator, regulator (eg road control authority) and project coordinator. Key city funding partners will be sought to support this project and prominently use electric vehicles in their own fleets.

The most significant emission reductions from the transport sector will come through changing vehicle technology, either through more efficient engines or new fuels. The primary objectives of the pilot are to:

>> **encourage** electric vehicle use in Wellington to help achieve greater medium to long-term reductions of greenhouse gas emissions from the transport sector

>> **gather** information and data about benefits, issues and risks relating to electric vehicles

>> **raise** awareness and improve perceptions of electric vehicles

>> **provide** a welcoming environment and market for electric vehicles

>> **support** businesses taking a lead in environmental issues.

	2010/11 ($000)	2011/12 ($000)	Total ($000)
OPEX	$50	$50	$100

Land transport – what we will do within existing budgets

T2 – Road-pricing instruments: We will work across the region to investigate the potential of road-pricing instruments (where motorists pay road charges).

T3 – Fuel efficiency: We will urge the Government to introduce higher fuel-efficiency standards for new vehicles and used-vehicle imports.

T4 – Advocacy for new transport fuels: We will urge the Government to support electric vehicles and second generation biofuels to accelerate their rate of entry into the marketplace.

T5 – Quality public transport: We will support continued development and investment in public transport networks and advocate for the Government to do likewise.

WASTE

04

2% OF WELLINGTON'S EMISSIONS ARE FROM WASTE

73,200 tonnes OF WASTE WAS LANDFILLED IN 2007 (0.4 TONNES PER PERSON)

33,500 tonnes OF WASTE MATERIAL WAS RECYCLED IN 2007

31% OF ALL WASTE HANDLED BY THE COUNCIL IS RECYCLED

When organic waste breaks down in a landfill it produces methane, which has an impact 21 times greater than carbon dioxide in terms of greenhouse effects. Though emissions from waste are only a small proportion of Wellington's emissions, the Council has direct liabilities under the ETS because of our ownership in both the Southern Landfill in Brooklyn (100 percent) and Spicer Landfill in Porirua (22 percent). The liability requires the Council to surrender emissions units to the Government for all emissions from waste disposed of at our landfills. In addition, we have obligations to reduce waste under the Waste Minimisation Act (2008).

When organic waste breaks down in a landfill it produces methane, which has an impact 21 times greater than carbon dioxide in terms of greenhouse effects.

Kai to Compost is a food-waste collection service for restaurants, supermarkets, hotels, cafés and workplaces in Wellington City. The service aims to minimise the environmental problems caused by food waste in landfills. Around 800 tonnes of food waste is collected annually from Wellington businesses and turned into compost.

Waste – what we're doing

Renewable electricity generation: We've partnered with Todd Energy to help establish a landfill gas-to-electricity plant that collects methane and runs it through a 1MW generator, producing enough power to supply about 1000 households.

Composting service: We run a garden-waste composting operation for the city's organic waste. We also provide the Kai to Compost food-waste collection service to supermarkets, restaurants and cafés in the central city.

Recycling service: We provide a household recycling programme where kerbside bins are collected weekly. This is used by 81 percent of Wellington residents. We have also recently provided public recycling bins in the central city.

Waste – what we will do within existing budgets

W1 – Electricity generation: We're examining the potential of using new technology to convert sewage sludge into energy. If successful, this could reduce total landfill waste at a low cost.

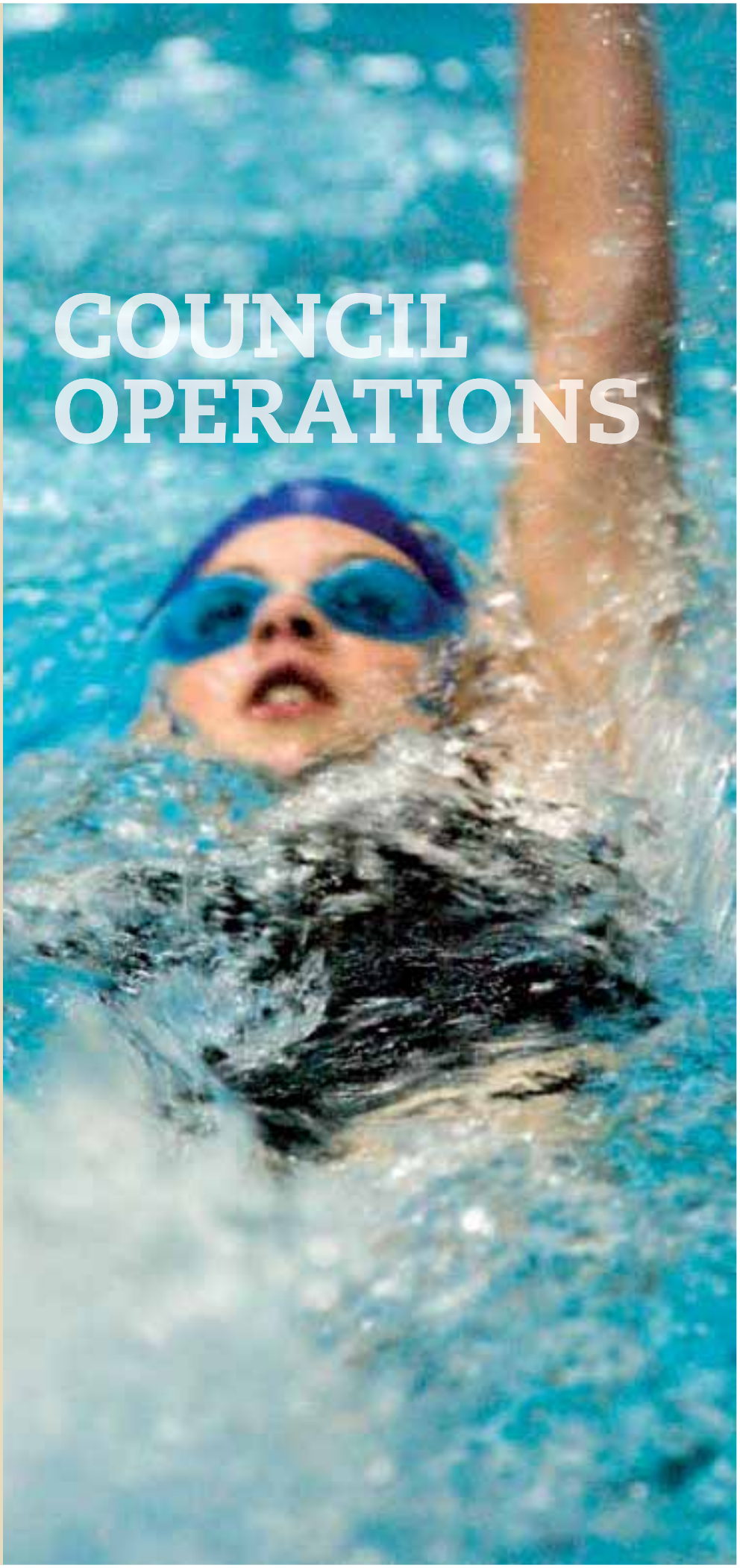
W2 – Product stewardship: We will be advocating for product stewardship schemes for priority waste products, whereby producers and consumers take on more of the burden for managing waste.

W3 – Waste reduction: The Council will be working under national legislation – the 2008 Waste Minimisation Act – to develop new and innovative projects that reduce waste going into the landfill through a collaborative regional approach.

We are examining the potential of using new technology to convert sewage sludge into energy.

05

COUNCIL OPERATIONS



43,000 tonnes of C02-e
EMISSIONS ASSOCIATED WITH COUNCIL OPERATIONS IN 2008

46% OF COUNCIL EMISSIONS ARE FROM LANDFILL OPERATIONS

43% OF COUNCIL EMISSIONS ARE FROM ENERGY AND FUELS FOR FACILITIES, STREET LIGHTING, WATER SYSTEMS AND VEHICLES

$6.6 million
IS SPENT ON ENERGY FOR COUNCIL OPERATIONS (THIS INCLUDES SOME ENERGY CONSUMED IN COUNCIL CONTROLLED ORGANISATIONS)

The Council owns, manages and delivers a range of services to the community. Many of these activities directly or indirectly produce greenhouse gas emissions. The major sources of emissions for Council operations are the landfill and the energy used to run our services such as the Council offices, pools, water treatment and pumping, street lights and our vehicle fleet.

The Council is working towards the following emissions reductions targets for its own operations to:

- stabilise emissions at 2003 levels by 2010 (to be measured at the end of 2010)
- reduce emissions by 40 percent below 2003 levels by 2020
- reduce emissions by 80 percent below 2003 levels by 2050.

Council operations – what we're doing

Energy efficiency: We are investing in energy-saving opportunities across all of our activities. Recent projects include installing solar hot water heating, energy-efficient internal lighting and new street-lighting technology.

Vehicle fleet: We are completing a review of our vehicle fleet to increase fuel efficiency and reduce the number of vehicles the Council owns.

Staff travel: A Council-wide travel planning programme is being developed to reduce the number of single passenger vehicle trips made by staff and to investigate transport alternatives.

Waitangi Park turbine: We partnered with Vector Ltd (now Wellington Electricity) to install a micro wind turbine in Waitangi Park to test the performance of small-scale wind energy in urban settings.

Leak-detection programme: We invest in leak detection for the Council's water network, which helps reduce energy used for unnecessary pumping and treatment of water.

The micro wind turbine in Waitangi Park was installed to test the performance of small-scale wind energy in urban settings.

Council operations – what we will do with new funding

C1 – Council energy-efficiency initiatives

Summary of action

We intend to invest more in energy-efficiency initiatives to reduce energy consumption and greenhouse gas emissions associated with Council buildings and assets. Effective energy-management planning will help the Council reduce the costs associated with Council activities and demonstrate Council leadership in tackling climate change by addressing our own emissions.

Timeframes and costs for this work

This initiative will involve additional capital expenditure of $50,000 in 2010/11 and $150,000 in 2011/12. It also increases the operational expenditure by an additional $25,000 a year, allowing us to carry out further energy assessments, audits and design work. The initiatives will pay for themselves with operational energy savings over time.

	2010/11 ($000)	2011/12 ($000)	Total ($000)
OPEX	$25	$25	$50
CAPEX*	$50	$150	$200

* CAPEX or capital expenditure is used to purchase fixed assets, such as plant, property or equipment.

Council operations – what we will do within existing budgets

C2 – **Vehicle fleet:** We will pilot GPS technology to improve fleet management and reduce fuel consumption and investigate new fuel and vehicle technologies as opportunities emerge, such as electric vehicles and biofuels

C3 – **Investigate options for renewable energy projects:** We will identify opportunities for further renewable energy projects on Council land and in our facilities.

C4 – **Carbon Management Policy:** We will develop a policy to manage our liabilities under the ETS for the landfill as well as how we manage carbon credits from our forest assets.

C5 – **Development tools:** We will investigate further ways to ensure property developments in the city incorporate quality urban design, architecture and energy-efficiency features.

C6 – **Engage with our communities:** We will work with communities – through a programme of meetings, e-newsletters, events and workshops to encourage and support people to become more energy efficient, use sustainable forms of transport and reduce household waste.

C7 – **Water conservation:** The electricity used to treat and pump water for Wellington City accounted for around 6 percent of the Council's organisational emissions. Reducing water demand will therefore reduce the Council's carbon footprint.

A sustainable Rugby World Cup: *One of the components of Wellington's hosting agreement for Rugby World Cup 2011 is to put in place an environmental management system for the World Cup venues and events. As a way of addressing this component, the Council and its partners are looking to target energy efficiency upgrades to facilities linked to the World Cup such as the Stadium, training fields and aquatic facilities.*

06 FORESTRY

50,000 tonnes of C02,
SEQUESTERED BY FORESTS IN WELLINGTON

4% OF WELLINGTON'S EMISSIONS ARE OFFSET BY FORESTRY

5000 POTENTIAL CARBON CREDITS ARE AVAILABLE TO THE COUNCIL THROUGH GOVERNMENT PROGRAMMES

3 tonnes/ha
OF CO_2 ARE SEQUESTERED IN NATIVE FORESTS

34 tonnes/ha
OF CO_2 ARE SEQUESTERED IN PINE PLANTATIONS

Forests actively remove carbon dioxide from the atmosphere through the process of photosynthesis. The activity of such a forest sink is sometimes referred to as sequestration. The Government has established the Emissions Trading Scheme (ETS) and Permanent Forest Sink Initiative (PFSI) that provides carbon credits to eligible forest owners that match the amount of carbon dioxide sequestered (one carbon credit for every tonne of carbon dioxide removed from the atmosphere). Though all trees and forests sequester carbon dioxide, only forests larger than 1ha that were established after 31 December 1989 are eligible for carbon credits from the Government.

A key consideration for the Council's planting programme is ensuring that the Council is also meeting its agreed objectives of biodiversity protection and restoration, and a significant kaitiakitanga or guardianship role. While exotic pine plantations tend to absorb carbon dioxide at much faster rates than native forests, the Council also has long-term objectives to return key parts of the city back to native forests. Planting new pine forests may be inappropriate in parts of the city where biodiversity objectives are paramount.

Makara Peak Forest Sink: Makara Peak is a popular spot for mountain biking, and local volunteers have spent thousands of hours restoring the area with native plants. The Council now has complementary plans for Makara Peak and is in the final stages of making the area a 'Government-approved' forest sink. The Council will receive around 800 carbon credits annually from the Government.

Forestry – what we're doing

Forest sinks: We have begun the process of placing Council reserves and pine forests into Government forest-sink schemes. We have the potential to receive around 5000 carbon credits annually from our forest areas.

Reserve planting: We plant around 100,000 trees and shrubs annually in our reserves and green-belt areas, on stream banks, coastal areas and alongside roads.

Forestry – what we will do within existing budgets

F1 – **Forest sinks:** We will be working with our rural communities to promote forest sinks on private land. We will also investigate the development of additional Kyoto-compliant forest sinks as a cost-effective tool to meet our ETS liabilities.

F2 – **Pest management:** We will identify whether carbon sequestration would be increased if efforts were bolstered to control introduced pests such as goats.

F3 – **Local government partnerships**: We will investigate opportunities to develop forest sinks with other councils to meet respective ETS obligations.

We plant around 100,000 trees and shrubs annually in our reserves and green-belt areas.

AVIATION

07

18% OF WELLINGTON'S EMISSIONS ARE FROM THE AVIATION SECTOR

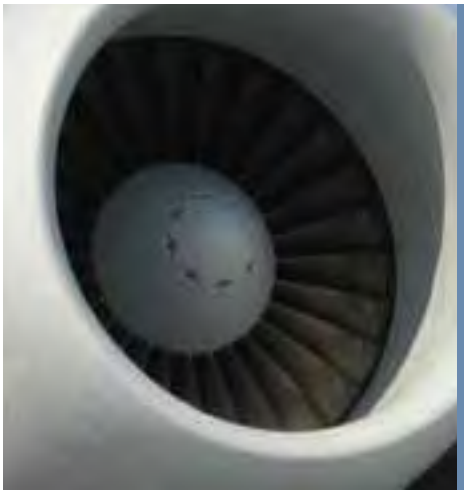
Wellington International Airport plays a vital role in Wellington's success as a modern economy and vibrant and cosmopolitan city. It is an important gateway to the region for residents, visitors and businesses and connects Wellington City to the rest of the country, Australia and the world. Technology development will be the primary mechanism to reduce emissions in this sector, in line with other sectors such as transport (eg electric vehicles) and buildings and energy (eg energy-efficiency measures and renewable energy development).

The aviation industry has acknowledged the contribution of the sector to global emissions and is taking steps to address the problem. Members of the International Air Transport Association (IATA) have recently agreed to ambitious targets for the sector, which include: carbon-neutral growth by 2020, 50 percent reduction in emissions by 2050, and 1.5 percent annual average efficiency improvement from 2009–2020. Air New Zealand has been at the forefront of trialling new approaches to reduce emissions in its aircraft fleet.

Though significant growth in passenger numbers and aircraft activity is forecast for Wellington International Airport, aircraft and aviation-fuel technologies will help to mitigate growth in Wellington's aviation emissions (especially if fuel prices rise significantly). Several airlines are trialling biofuel mixes with plans to use them on commercial flights. The European Union is also introducing aviation fuel into its emissions trading scheme, which should drive further investment into low-carbon aviation technology.

It should be noted that the greenhouse gas inventory for Wellington attributes all aviation emissions to the city rather than the region because the fuel is pumped within the city limits. Clearly Wellington Airport is not only a valuable city facility but one that is used by the entire region and central New Zealand. If analysed on a regional level, aviation emissions represent 9 percent of the region's total emissions.

Several airlines are trialling biofuel mixes with plans to use them on commercial flights.



Aviation – what we will do within existing budgets

AV1 – Memorandum of Understanding: As a first step, we will establish a Memorandum of Understanding with Wellington International Airport Ltd regarding managing aviation emissions and identifying emissions-reduction opportunities within airport operations.

AV 2 – Airline advocacy: We will urge airlines to increase their use of fuel-efficient airline technology, sustainable alternative fuels and more efficient flight plans.

Additional information

Wellington City covers a land area of 28,990 hectares.

Almost all Wellington residents live within three kilometres of the sea.

LOCATION

Wellington is located in the centre of New Zealand, at the southern end of the North Island.

The flying time from Beijing to Auckland is about 13 hours, and it takes another hour to fly from Auckland to Wellington. It takes about three and-a-half hours to fly directly from Melbourne to Wellington.

- Latitude: 41° 17′ south
- Longitude: 174° 47′ east
- Time zone: GMT/UTC +12
- Population: Wellington City: 195,500
- Population: Wellington region: 478,600

POPULATION

20 percent of Wellington's residents live witin 2km of the city. The city's overall population is expected to reach 238,700 by 2031.

ETHNIC GROUPS

- European 70.1%
- Asian 13.2%
- Maori 7.7%
- Pacific peoples 5.2%

More than a quarter (28.2 percent) of Wellington residents were born overseas. That compares with a national average of 22.9 percent.

CLIMATE

- Warmest month: February (average high 20.6°C, average low 13.6°C)
- Coldest month: July (average high 11.4°C, average low 6.3°C)
- Average annual sunshine hours: 2065 hours
- Average annual rainfall: 1250mm (161 days on which rain fell)

WORKING WELLINGTON

Wellingtonians are highly educated, and that is reflected in the work they do.

More than 30 percent of the city's residents have a tertiary (or equivalent) qualification, compared with 15 percent of other New Zealanders. The number of Wellingtonians who work in professional jobs is almost twice as high as the rest of New Zealand.

Wellington residents are more than three times as likely to work in information and communication technology (ICT) than people in other cities.

MOVEMENT

The average number of motor vehicles per household in Wellington is 1.3 – the lowest compared to other cities in New Zealand.

The average kilometres travelled from home to work and back within Wellington City is 12.2 kilometres.

Contact information

If you would like more information about Wellington City Council's 2010 Climate Change Action Plan, please send an email to **info@wcc.govt.nz** or contact us at:

Freepost 2199, Climate Change Action Plan
Wellington City Council, Wellington 6140

Phone: 00 64 4 803 8373 Fax: 00 64 4 801 3231

If you want more general information on Wellington or the Wellington City Council, go to our website at **Wellington.govt.nz**

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