

# Auckland Plan 2050 Evidence Report Update

Key challenges

September 2022



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Auckland Plan, Strategy and Research Department

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## Purpose of update

The Auckland Plan 2050 was adopted by the Auckland Council Planning Committee on 5 June 2018. It was accompanied by a set of evidence reports that provide foundational background information, including a report on the three key challenges identified in the Auckland Plan.

The purpose of this update is to provide additional information to the Auckland Plan 2050 Evidence Report: Key Challenges (June 2018) covering the period since the Plan's adoption to June 2022.

The Auckland Plan was created as a living plan that is able to reflect emerging or changing issues, as well as provide updated data and evidence.

An update to the digital Auckland Plan was completed in September 2022 on the basis of this evidence report update. This followed a memo to the Auckland Council Planning Committee setting out the key aspects to be updated.

Please refer to the Auckland Plan website [www.theaucklandplan.govt.nz](http://www.theaucklandplan.govt.nz) for the most up to date version of the full plan.

The following updates have been made to the Key Challenges section to reflect new data and evidence:

Section	Summary of changes
Introduction	<ul style="list-style-type: none"><li>Notes key challenges remain relevant and that new events and issues have contributed to greater uncertainty and cause us to look differently at the challenges and the outcomes we seek for Auckland.</li></ul>
Key Challenge 1 <i>Population growth and its implications</i>	<ul style="list-style-type: none"><li>Updates latest population data noting changes in internal and international migration patterns.</li><li>References the new Future Development Strategy in development.</li></ul>
Key Challenge 2 <i>Sharing prosperity with all Aucklanders</i>	<ul style="list-style-type: none"><li>Notes the COVID-19 pandemic has exacerbated existing inequities and the need to seek an equitable economic recovery.</li><li>References climate change impacts which will be felt differently depending on circumstances, and the importance of not leaving anyone behind.</li></ul>
Key Challenge 3 <i>Reducing environmental degradation</i>	<ul style="list-style-type: none"><li>References 2020 State of the Environment Report.</li><li>References Te Tāruke-ā-Tāwhiri: Auckland Climate Plan as the roadmap to a net zero-emissions, resilient and healthier region.</li></ul>

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# 1 Background

The purpose of this document is to provide a summary of the three key challenges identified in the Auckland Plan 2050 and to update the supporting information and data behind these.

The development of the Auckland Plan 2050 commenced with consideration of global and national trends that may have an impact on Auckland and New Zealand over the next 30 years. This provides an update of some key evidence and new strategic direction set by both Auckland Council and central government since the Auckland Plan was adopted.

The three major challenges originally identified remain:

- population growth and its implications
- sharing prosperity with all Aucklanders
- reducing environmental degradation.

There are strong connections between each of these challenges and they all centre on a story of growth.

Since 2018, new events (for example, the COVID-19 pandemic), growing awareness of the urgency of existing issues (for example, the climate emergency, inequity, mental health) and geopolitical tensions, have all contributed to greater uncertainty. This creates, at times, a different lens across these challenges and the outcomes we are seeking for Auckland.

Following the release of the report of the Independent Panel for Pandemic Preparedness & Response in September 2020, the former co-Chairs released a one-year assessment report in May 2022. The co-Chairs note that “COVID-19 remains a divisive pandemic of inequality and inequity. Weak health systems and market-drivers that limit access to vaccines, tests, and therapies have constrained responses. A lack of investment to foster healthy populations, ensure adequate social protection, correct the digital divide, build resilient supply chains, and end gender inequality, denial of human rights, and fractures in trust set the wider context ... solutions lie in multisectoral, whole of government and whole of society approaches...” (Independent Panel for Pandemic Preparedness & Response, 2022).

The International Science Council has picked up similar themes, noting that impacts of the COVID-19 pandemic go way beyond health, and that policy makers need to shift the evolution of the pandemic towards more positive and equitable outcomes across societies (International Science Council, 2022).

While focused across Aotearoa New Zealand, the annual state of the nation report from the Salvation Army notes concerns about lack of progress in areas that will constrain our ability to effectively address the plan’s challenges. This includes in areas of child poverty,

inequities in Māori and Pasifika communities, high and increasing house prices and rental costs, inadequate income levels, violence towards children, harm from addictions, and the mental health of youth. (The Salvation Army, 2022).

All reports speak to the importance of retaining our focus on the three key challenges.

## **2 Auckland in context**

Auckland has a world-wide reputation for its quality of life. In large part this is because of its outstandingly beautiful natural environment and the lifestyle opportunities it offers.

There has been sustained population growth in Tāmaki Makaurau over the long-term because it is a place of opportunity. Closed international borders as a result of the pandemic and increasing internal migration have resulted in a slowing of that growth and, in 2021, a decrease in Auckland's population for the first time.

Auckland is the largest commercial centre in New Zealand and, over the five years to March 2020, was the biggest contributor to the nation's gross domestic product (GDP), accounting for 38 per cent. It also accounted during that period for 42 per cent of GDP growth. (Ministry for Business, Innovation & Employment, 2021).

## **3 Population growth and its implications**

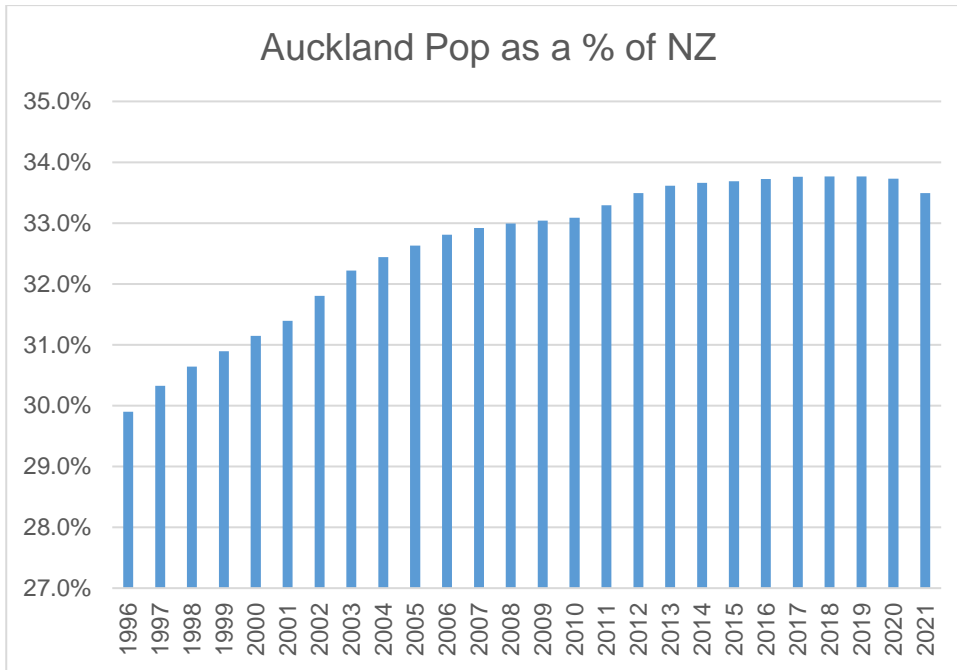
At 30 June 2021, the estimated population for the Auckland region was 1,715,600. This represented an increase of 90,500 from 2017 and an increase of 239,100 from 2012 when the Auckland Plan was first released (Stats NZ, 2021c).

In the year to June 2021, the Auckland region population decreased by 1,300 or 0.1 per cent. This was a significant change. The Auckland region has averaged population growth of 1.8 per cent a year over the previous 20 years, higher than the national average growth of 1.4 per cent a year (Stats NZ, 2021a).

Over the next 30 years Auckland's population could increase by more than 640,000 people to reach over 2.3 million (Stats NZ, 2021d).

The latest population estimate for Auckland represents over 33 per cent of the population of New Zealand. Auckland's share of the national population count had been steadily increasing over time up to around 2017. Comparative growth has slowed in the years to 2021 – see Figure 1. (Stats NZ, 2021d). Stats NZ population projections suggest that by 2048, Auckland could represent 37 per cent of the national population. (Stats NZ, 2021d)

Figure 1 Proportion of New Zealand population living in Auckland (1996 to 2021)



Auckland's population growth is driven by both natural growth, meaning more births than deaths, and migration from overseas and from other parts of New Zealand. Natural growth is more easily planned for over the long-term, while changes in immigration patterns often require a more immediate response. (Auckland Council, 2018a).

New Zealand and Auckland have historically relied on international migration for the majority of population growth. Border closures as a result of the COVID-19 pandemic have resulted in changes to international migration trends.

In 2021, only 14 per cent of New Zealand's growth came from international migration, whereas, in 2020, 76 per cent of the increase came from this source. In 2020, Auckland's net international migration totalled 33,800 and a negative 670 in 2021. Auckland lost the most international migrants compared with other parts of New Zealand. This was the main driver in Auckland experiencing a decrease in population of 1,300 in 2021 compared to an increase in total population change in 2020 of 35,600. (BERL, 2021)

In 2021, New Zealand's total natural increase in the population was 27,700. Auckland accounted for 47 per cent of this increase with a natural increase of 12,900. (BERL, 2021)

Internal migration can occur for a variety of reasons including family, work, or education. Main or major urban districts have tended to attract large numbers of New Zealanders from elsewhere. However, Auckland, along with Christchurch and Wellington cities, have all had decreases in net internal migration in 2021. Auckland had a net decrease of 13,500 people. This was not a one-off in 2021, with negative net internal migration coming close to outweighing the natural increase in 2019 and 2020. (BERL, 2021)

## 4 Infrastructure and growth

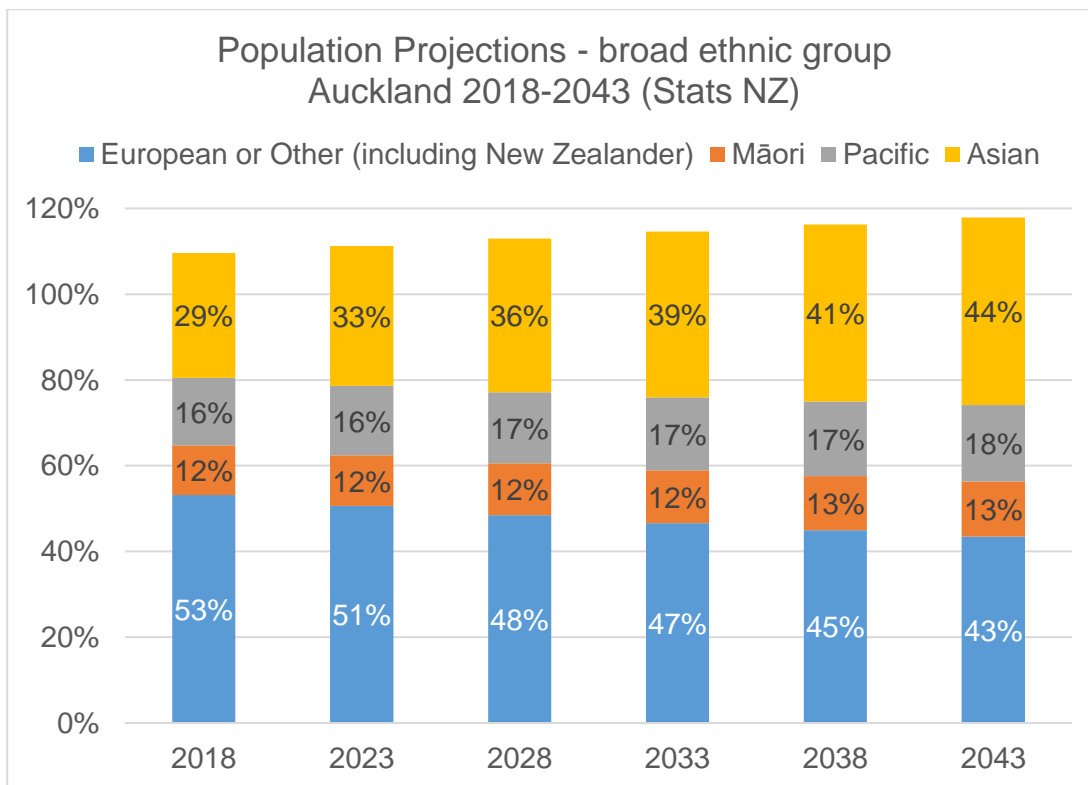
Demographic changes will affect the demand for, and the range of, services that need to be delivered by Auckland’s infrastructure.

Auckland’s population of children and young people continues to grow numerically, which is driven by the city’s generally youthful age structure, high fertility rates of some populations, and migration from overseas and other parts of New Zealand. However, Auckland is undergoing population ageing, meaning that there are declining proportions of our child and youth population relative to older people (Auckland Council Research and Evaluation Unit, 2022).

Over the next 20-25 years, there will be increasing numbers of older people and they will make up a greater proportion of Auckland’s population. By 2048, 19 per cent of Auckland’s population is projected to be 65 years and over compared with 12 per cent in 2018 (Stats NZ, 2021c).

Children and young people in Auckland are increasingly ethnically diverse (Auckland Council Research and Evaluation Unit, 2022). Figure 2 shows that the population overall is expected to continue to become more ethnically diverse, with an over 50 per cent projected increase in the proportion of Pacific people and a 100 per cent projected increase in the proportion of Asian people from 2018 to 2043. (Stats NZ, 2021b)

Figure 2 Population projections by ethnic group (2018 – 2043)





Aucklanders recognise the value of infrastructure in their daily lives and public feedback received on the 10-year Budget 2021-31 highlighted general community support for infrastructure investment. The infrastructure covered in Auckland Council's Infrastructure Strategy is much more than roads and pipes. It is a complex interconnected system of built assets, natural assets, and services. Thinking about infrastructure as a system and recognising connections and interdependencies is important. It allows us to understand how infrastructure can evolve, where its vulnerabilities lie, and what can make it resilient. (Auckland Council, 2021b)

There are five big issues facing Auckland's infrastructure (Auckland Council, 2021b):

- climate change – infrastructure has an important role to play in how we reduce our emissions (mitigation) and how we prepare for the effects of climate change (adaptation)
- natural hazards – Auckland's infrastructure needs to be prepared for adverse events
- growth – the strategic response to growth, how infrastructure enables development
- equity – how to target investment to our least well served communities and how to provide services differently
- funding infrastructure – the gap between the funding available through existing mechanisms and funding required to deal with the issues facing Auckland's infrastructure.

The scale of investment required to fund transport and the other infrastructure needed to support Auckland's growth is significant. Over the next 10 years, the planned investment in transport, three waters, community and solid waste infrastructure is \$27.1 billion capital expenditure and \$37.6 billion operating expenditure. (Auckland Council, 2021b)

The National Policy Statement on Urban Development 2020 requires high growth councils to develop a Future Development Strategy (FDS). (Ministry for the Environment, 2020).

The purpose of the FDS is to provide the basis for integrated, strategic and long-term planning. It should assist with the integration of planning with infrastructure planning and funding decisions. It will set out how Tāmaki Makaurau will achieve outcomes across the four well-beings, achieve a well-functioning urban environment, and provide sufficient development capacity to meet housing and business land demand over the short, medium, and long-term.

The updated FDS, which will be completed in time to inform Auckland Council's Long-term Plan 2024-34, will replace the existing Development Strategy in the Auckland Plan 2050 and will incorporate new requirements in the National Policy Statement on Urban Development. New information on environmental and social changes such as responses to climate change and the COVID-19 pandemic will be included.

## 5 Sharing prosperity with all Aucklanders

The Auckland Plan 2050 recognises widespread inequity and seeks to ensure that Auckland's success is shared fairly among all its people. It aims to focus investment to address disparities and serve communities of greatest need. (Belonging and Participation, Focus Area 6).

Looking at the spatial and non-spatial distribution of outcomes provides insights into where inequities exist and how to reduce disparity between different groups of communities. Since 2018, work has been carried out to define communities of greatest need.

### Communities of Greatest Need

Communities of greatest need refers to communities which have limited capability to access social and economic resources and opportunities compared to the general population. This restricts their ability to fully participate in society and in activities that have meaning and value to them.

Communities such as these experience a combination of linked social, economic, and environmental problems including low educational achievement, low incomes, high unemployment, low value skills, social exclusion, poor housing, high crime environments, poor health and family breakdown. Communities also possess different capabilities to respond to these problems (e.g. supportive family and strong social networks that support individuals).

Identifying communities most in need is context-specific and may change in relation to the specific policy, initiative or service being delivered.

There are a range of different approaches to measuring and assessing need. Measures of inequality generally compare the differences between people (Auckland Council, unpublished).

### Ngā Hapori Momoho/Thriving Communities Strategy 2022-2032

Ngā Hapori Momoho/Thriving Communities Strategy 2022-2032 provides a platform for Auckland Council to “work together with Auckland's diverse communities in new and more sustainable ways.” This strategy has a 10-year focus on what we need to do to ensure all our communities can thrive, e.g. increasing financial security, improving health outcomes, increasing access and participation, growing community and intercultural connection, enabling local leadership and innovation, and increasing community resilience and sustainability (Auckland Council, 2022b).

### Prosperity Index

Tātaki Auckland Unlimited's (TAU) Prosperity Index measures prosperity in Auckland's local boards across indicators grouped into six domains: skills and labour force, connectedness, demography, business activity, economic quality, and household prosperity. Each area receives a score between zero and 10 that is compared with the

Auckland average. This provides an indication of the particular strengths or weaknesses of each area relative to the rest of the city.

The Prosperity Index helps to inform effective interventions, recognising that the distribution of the benefits from economic growth remain unequal across Auckland. This has informed TAU's focus on southern and western Auckland.

Low prosperity boards include Maungakiekie-Tāmaki, Māngere-Ōtāhuhu, Ōtara-Papatoetoe, Manurewa, and Papakura.

All local boards within the low prosperity grouping score well in either the business activity or economic quality domains, reflecting that job opportunities are available in the area if people have sufficient skills.

However, southern Auckland performed poorly when compared with the rest of the region, despite being home to a significant share of Auckland's employment. Similar issues were seen in western Auckland. Key features of both areas are the below average performance with regard to the skills acquisition of young people as well as limited opportunities to access skilled, well-paying employment locally. Unlike in the west, in the south there is no shortage of employment opportunities with several regionally significant employment precincts located there. However, the local labour force is not accessing these jobs to the extent one would expect which impacts on levels of household prosperity.

The first Prosperity Index was taken in 2018. Change has been limited but there have been some areas of improvement for low prosperity boards.

While lower prosperity areas have lower than average levels of access to the internet at home, the gap has narrowed.

There have been improvements in some, but not all, of the Skills and Labour Force indicators. The proportion of workers with NCEA Level 3 in the Southern boards has closed on the regional average and to a lesser extent NCEA Level 2 attainment.

However, the report notes that a significant skills challenge remains with a decline in transitions to tertiary education upon leaving school amongst lower prosperity local boards.

In addition, seven of the lowest eight areas for Household Prosperity are also in the bottom eight for the Skills and Labour Force domain. And despite the areas of improvement noted above, the same eight local boards make up the eight lowest ranked areas for Household Prosperity as they did in the 2018 report.

Central and northern local boards areas perform well across many of the domains in contrast to areas in the south and west. Reasons include being within easy access of the city centre and close to skilled employment and educational opportunities.

The full impacts of the COVID-19 pandemic were not known when this research was carried out.

## **Economic Development Action Plan**

The Auckland Council Group adopted an Economic Development Action Plan (EDAP) in 2021 to provide a clear and directive plan for economic development over the next three years. The overall purpose of EDAP is that “The Auckland Council Group’s contribution to economic development enables a regenerative and inclusive economy for the people and wellbeing of Tāmaki Makaurau”. One of its guiding principles is “responding to communities of greatest need”.

EDAP recognises that challenges to Auckland’s economic recovery include the risk of an uneven recovery from the COVID-19 pandemic based on rising wealth inequality and income disparity over the last 20 years. “Those with no work or insecure jobs, those already underutilised in labour force, small businesses, or those on reduced incomes may still struggle to get by” and this signals a need to balance a growth economy with a regenerative and inclusive one.

An equitable economic recovery will involve identifying and responding to communities that have been most impacted by COVID-19 as well as those that have less capability to access what they need to recover or improve their outcomes. Actions in EDAP that will contribute to this equitable recovery include a strong focus on Māori and Pasifika, young people at risk of poor economic outcomes, women, people trapped in low paid and insecure work and residents in south and west Auckland.

A further principle of EDAP is “supporting economic opportunities for Māori.” Pre- COVID-19, the economic-related indicators for Māori showed poorer outcomes than those for other ethnicities, including in areas of qualification attainment, skilled jobs, and earnings. The pandemic exacerbated these economic issues and tackling the root causes of the significant gap in income between Māori and non-Māori is a priority for Māori.

Actions in EDAP to assist include a focus on system changes to improve employment outcomes including through Māori and Pasifika Trades Training, a focus on increasing prosperity for Māori, including Māori-owned businesses through the work of Amotai<sup>1</sup> and Whāriki<sup>2</sup> and targeting Māori businesses and Māori staff through council procurement and employment strategies (Auckland Council, 2021a).

## **Disproportionate impacts on some communities from Covid-19**

The Independent Māori Statutory Board carried out a literature review in 2021 to get a sense of the impacts of COVID-19 on Māori in Tāmaki Makaurau. This found that Māori are significantly and disproportionately impacted by COVID-19 across a range of areas from financial hardship, social disconnection, employment losses or reductions, and welfare receipt. In some cases, the impacts in Tāmaki Makaurau were worse than elsewhere . COVID-19 exacerbated rather than caused the problem. The review was limited by the availability of data and emphasised the dearth of Maori-related data on

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<sup>1</sup> Amotai works with government, corporate and iwi organisations to unlock procurement opportunities and enable meaningful connections with Māori and Pasifika businesses.

<sup>2</sup> Whāriki is a Māori business network

Tāmaki Makaurau especially for businesses. Some opportunities presented themselves, mainly around the possibility of a reset of economic and social models and a focus on the role of kindness and Te Taiao in the 'new society' (Independent Māori Statutory Board, 2021).

COVID-19 exacerbated labour market disparities between NZ European and Pacific peoples, particularly for Pacific women, those under 30, and those living in Auckland. Pacific workers tend to work in industries hit the hardest in terms of lower wage growth during COVID-19, specifically manufacturing and construction for Pacific men, and manufacturing, healthcare and social assistance for Pacific women. While COVID-19 has amplified the prevalence of ethnic disparities in the workforce, it did not create those disparities in the first place. Therefore, policy needs to be long-term focused on addressing entrenched disparities before the pandemic hit (AUT New Zealand Work Research Institute, 2022).

Research was undertaken in 2021 to explore the impact of COVID-19 on the education and employment prospects of young people in Auckland. The research found that COVID-19 may have contributed to greater disengagement among youth, and that it had a negative effect on overall well-being. Learners generally felt well supported, but many reported facing difficulties and Auckland high school attendance seems to have been disproportionately affected. COVID-19 may have increased the casualisation of employment for young workers in particular, with sectors in which youth are over-represented particularly hard hit. The research found there was a need to monitor the impact on those most at risk of disengagement and to continue current efforts to improve connections between young people and employers. These were areas of focus before COVID-19 and addressing these areas may now need some refinement to take account of the pandemic (Martin, Jenkins and Associates Limited, 2021).

### **Communities impacted by climate change – supporting communities in transition**

There has been a range of work undertaken by Auckland Council and Central Government which recognises the need for supporting communities impacted by climate change.

Auckland is a founding signatory of the C40 Cities' Global Green New Deal, an initiative that reinforces the equity principles within the Auckland Plan 2050, and Auckland Council's Climate Emergency declaration. The core of this initiative is a commitment to create thriving and fair communities for everyone.

Climate change has significant implications for those who are most vulnerable. Different impacts have been determined by socio-economic differences, where people live, access people have to services and workplaces, differences in people's jobs (e.g. whether the job is indoors or outdoors), and differences in accessibility needs. If we do not act, climate change also creates intergenerational inequity through leaving a significantly different and less habitable world to future generations.

Te Tāruke-ā-Tāwhiri: Auckland's Climate Plan was adopted in 2021 and includes a goal to prepare communities and individuals for our changing climate and coastline. Climate

change will affect everyone differently, and our ability to adapt depends on local impacts and individual circumstances (Auckland Council, 2020).

This goal responds to the disproportionate impacts of climate change on some people through, for example, poverty and insecure housing or health conditions. Intergenerational equity, as well as cultural and socio-economic equity, is critical to a fair transition (Auckland Council, 2020).

Preparing for the impacts of climate change and reducing emissions requires major system changes. Aucklanders have identified lack of awareness of climate change and what can be done as the second-most important climate change issue facing their local area. Addressing impacts of climate change must be collaborative, working across levels of government, with mana whenua and affected communities. Local skills, knowledge and energy are needed to build community resilience to the impacts of climate change (Auckland Council, 2020).

The National Adaptation Plan states that our adaptation journey must be equitable. No two communities will experience climate change in the same way and some people are more vulnerable than others with the potential for disproportionate effects on:

- Māori as tangata whenua who are particularly sensitive to climate impacts on the natural environment and many Māori depend on primary industries for their livelihood
- older people who may be more reluctant to evacuate their homes due to income and accessibility and/or mobility issues, and may suffer from loss of cultural and social networks
- ethnic minorities due to language and integration barriers
- low-income groups who have less choice about where to relocate and less ability to move elsewhere
- mobility-compromised and disabled people who can be overlooked in the planning of new community locations and accessible housing
- young people and children who are more prone to psychological impacts from extreme events
- women who are more vulnerable to domestic and sexual violence which can increase in times of disaster
- farming and rural communities whose mental health can be affected by disruptions to livelihoods and loss of social cohesion
- those with poorer health outcomes, such as Māori and Pacific people, children and older people, who may physically suffer more from increased heat and disease (Ministry for the Environment, 2022c).

The Government has identified the following goals for the adaptation strategy:

- reduce vulnerability to the impacts of climate change
- enhance adaptive capacity and consider climate change in decisions at all levels
- strengthen resilience (Ministry for the Environment, 2022c).

These goals are intended to enable communities to achieve a high level of adaptive capacity and resilience to impacts of climate change, noting the human domain risks in the National Climate Change Risk Assessment (NCCRA), in particular:

- risks to social cohesion and community wellbeing from the displacement of individuals, families and communities due to climate change impacts
- risks of exacerbating existing inequities and creating new and additional inequities due to differential distribution of climate change impacts (Ministry for the Environment, 2022c).

In 2022, the Government began preliminary consultation on managed retreat and flood insurance to inform initial stages of policy development for the proposed Climate Adaptation Act. This Act is one of the key actions included within the draft National Adaptation Plan and is one of the three pieces of legislation proposed under the Resource Management reforms.

Managed retreat raises complex governance, policy and funding issues. There are currently no dedicated tools or processes to guide how individual households or communities might permanently shift away from areas of intolerable risk. The proposed Climate Adaptation Act is intended to provide these tools and processes to plan and implement managed retreats.

Auckland Council's Annual Budget for 2022-23 takes the next step on climate action with the introduction of a Climate Action Targeted Rate. The package will reduce carbon emissions and result in one million people living within 500m of bus routes undergoing improvement, safer streets to walk and cycle on, and greener neighbourhoods with more natural shade protection. (Auckland Council, 2022d)

## **6 Reducing environmental degradation**

### **State of the Environment reporting**

Since the Auckland Plan 2050 was adopted in 2018, a new report on Auckland's State of the Environment has been developed. The 2020 report (published in 2021) describes continual degradation of soils, forest ecosystems, biodiversity and freshwater quality. Air quality is generally good, with some exceptions including in the city centre.

While there are beginning to be some minor improvements in water quality in some places, these improvements are mostly small, slow and are not occurring region-wide.

There are improvements in native forest and birds where we put in substantial investment and management. (Auckland Council, 2021b).

Environmental impacts identified in this report can be summarised into three regional pressures:

- **How urban areas are changing and growing** - decisions on where and how Auckland grows and develops add to the intensity and severity of pressure on the existing degraded environment. Growth is also an opportunity to protect and enhance the natural environment.
- **How we manage our land and water** - how we manage land and water use can impact the health of the natural environment. Impacts include releasing sediment and nutrients into waterways, removing native vegetation or compacting soil. Predators, pests and diseases are a major impact on our biodiversity that require ongoing management.
- **Our changing climate** - climate change will create new stresses and exacerbate existing stresses on our natural environment. Some impacts are already occurring. Other impacts are not yet known. (Auckland Council, 2021b).

## 6.1 Decline in Land Environments

### Key findings from State of the Environment Report:

- Indigenous land cover has increased (+ 656ha) across the region since 1996.
- Productive rural soils are over-fertilised and compacted.
- Several forest ecosystem types are severely depleted and many of our remaining forests are small and fragmented.
- Large forest areas support higher plant and ecosystem diversity and have fewer weeds, while smaller forests in rural and urban landscapes have more weeds and fewer native plant species.
- Tāmaki Makaurau forests are dominated by native plant species. Only 5 per cent of all plant species regionally are weeds.
- Most birds counted in forests (70 per cent) and wetlands (55 per cent) were native species.
- Our island sanctuaries and mainland managed sites are bird strongholds containing the highest ratios of native birds to introduced species.
- Problematic weeds and pests are only absent where intensive weed and pest control takes place (Auckland Council 2021b).

Tāmaki Makaurau has a diverse range of ecosystems and land forms, extending across the mainland and the islands. This diversity supports a variety of native plants, animals and micro-organisms on land.



The way we use land, and how we grow, places pressure on our biodiversity, land cover and soil resources.

Land cover is an important determinant of the health of the environment. Native forest has been replaced over time with exotic grassland and urban development. This has resulted in loss of ecosystems and the diversity it supports. Many species are now threatened and our changing climate will make it even harder for some species to survive.

Rural production continues to be a valuable and important part of the region and a functioning soil ecosystem is essential to support these land use activities. Monitoring over the last five years shows several soil quality indicators fell outside recommended guideline ranges. Soil compaction reduces soil quality and productivity and increases surface run-off of nutrients and suspended sediments which can enter our waterways.

Restoring habitats and protecting biodiversity requires effort and investment over the long-term. We will continue a focus on eradicating pests and weeds (Auckland Council 2021b).

## 6.2 Degraded Marine Environments

### Key findings from State of the Environment Report

- There was a trend toward fewer river low flow days in summer and higher groundwater levels over the period 2010-2019.
- Groundwater quality showed minor improvements.
- Stream water quality improved at more sites than degraded. However, streams continue to be nutrient enriched, have declining visual clarity and generally high levels of E. coli.
- Streams with native forest catchments generally have the best ecological health, whilst urban streams have the worst.
- Health of monitored lakes continues to decline, with elevated nutrients and declining water quality particularly for nitrogen, water clarity and sediment.
- Coastal water quality is mostly improving but slowly.
- Ecological impacts from increased sedimentation have been detected in all harbours and estuaries.
- Levels of contaminants (copper, lead and zinc) in marine sediments are generally low. Hot spots of higher levels occur in muddy estuaries/tidal creeks with older intensively developed catchments. (Auckland Council 2021b)

Aucklanders have strong connections to the water across Tāmaki Makaurau. Water is highly valued, providing us with drinking water, food, recreation such as swimming, amazing views, and habitat for a diverse range of plants and animals. Our freshwater and marine environments hold immense significance for Māori.

Although water exists in different forms in the region, it is a connected system flowing from the mountains to the sea (Ki uta ki tai). Our actions in one part of the system, such as on land, will affect other parts of the system, such as coastal water.

Over time, our freshwater and marine environments have been degraded from the pressures of our growing urban areas and how we use our land and freshwater. Cleaning up our rivers, lakes, streams and harbours is a priority for Tāmaki Makaurau.

There are some positive signs that water quality is improving in different parts of the region. These improvements are small and there is still more to do before we see improved water quality in more places at more times across Tāmaki Makaurau.

An important piece of work to increase gains in water quality region-wide is implementing the National Policy Statement for Freshwater Management 2020. In addition, Auckland Council continues to work to better understand the state of and pressures on our water resources through the development of new monitoring programmes, modelling and research collaboration with government agencies, mana whenua, other councils and research institutions (Auckland Council 2021b).

### **State of our Gulf report**

The State of our Gulf report, shows that in the over 20 years since the marine park was created, most of the issues that existed in 2000 remain unresolved. Mass mortality and algal blooms events have become more frequent, kina barrens have expanded, more seabirds and shorebirds are threatened and more marine pests affect habitats and species. (Hauraki Gulf Forum, 2020).

## **6.3 Air quality**

### **Key findings from State of the Environment Report**

- Overall air quality in Tāmaki Makaurau is good and improving.
- Exceedances of the National Environmental Standards for Air Quality (NESAQ) do occur sometimes.
- Key pollution sources are transport throughout the year and home heating in winter.
- Pollution levels have increased slightly in the city centre.
- Greenhouse gas emissions are dominated by the transport and energy sectors.
- Gross and net emissions in 2018 had increased from the 2016 levels due to increased emissions from energy, transport and industrial processes and product use (IPPU) sectors.
- Emissions have not increased as fast as population and economic growth (Auckland Council 2021b).

Breathing clean air is critical to protecting our health. Air pollution also reduces visibility, creating a brown haze sometimes. Air pollution comes from everyday activities including how we heat our homes, driving vehicles and carrying out industrial activities.

Despite Auckland's growing urban population, the long-term trends have seen improvements in air quality thanks to cleaner fuels, improved vehicle technology and declining use of solid fuels (coal and wood) for home heating. However, air quality in Queen Street has been declining over several years. Declining air quality in this area is likely to be the result of diesel cars, diesel delivery vehicles, buses, construction vehicles and construction work at the lower end of Queen Street reducing ventilation.

Gross and net greenhouse gas emissions are continuing to increase. This is driven by increased emissions from energy, transport and industrial processes and product use sectors.

Air quality and greenhouse gases and their mitigations are closely linked.

Auckland Council has set the Ambient Air Quality Targets within the Auckland Unitary Plan for a wider range of air pollutants and at differing exposure periods. This will help to ensure Aucklanders continue to enjoy clean air across the region.

Reducing our greenhouse gas emissions is part of an ambitious work programme in Te Tāruke-ā-Tāwhiri: Auckland's Climate Plan.

## 6.4 The effects of climate change

### Auckland Council action on climate change

Auckland Council declared a climate emergency in June 2019.

In July 2020, Auckland Council adopted Te Tāruke-ā-Tāwhiri: Auckland's Climate Plan with two core goals:

- to reduce our greenhouse gas emissions by 50 per cent by 2030 and achieve net zero emissions by 2050
- to adapt to the impacts of climate change by ensuring we plan for the changes we face under our current emissions pathway.

The plan sets out the strategic direction for the next 30 years across eight key priorities for action:

- Natural environment
- Built environment
- Transport
- Economy
- Communities and coast
- Food
- Te Puāwaitanga o te Tātai – *a principles-based priority that is interwoven throughout other priorities*
- Energy and industry

There is strong alignment between Te Tāruke-ā-Tāwhiri: Auckland's Climate Plan and the Auckland Plan 2050.

The plan contains 58 action areas and 179 actions (including specific actions for and with Māori) where Council has different levels of responsibility and control, reflecting the regional focus of the plan (Auckland Council, 2020).

Reducing greenhouse gas emissions and avoiding locations impacted by climate change will be a key consideration in the development of the Future Development Strategy required under the National Policy Statement on Urban Development 2020.

Auckland Council's Annual Budget for 2022-23 takes the next step on climate action with the introduction of a Climate Action Targeted Rate. The package will reduce carbon emissions and result in one million people living within 500m of bus routes undergoing improvement, safer streets to walk and cycle on, and greener neighbourhoods with more natural shade protection (Auckland Council, 2022a).

The Transport Emissions Reduction Pathway was adopted by Auckland Council in August 2022. It was developed by Auckland Council and Auckland Transport in response to Te Tāruke-ā-Tāwhiri: Auckland's Climate Plan, and sets out what will need to happen for the region to reduce its transport emissions by 64 per cent by 2030, what that will look like and what the barriers are to achieving it.

It also recognises that tackling climate change requires transformational rather than incremental change, and that all sectors have a role to play, including central and local government, business and industry, agriculture, NGOs, local communities, and individuals.

Actions required to achieve the transport emissions targets by 2030 include:

- making the majority of our local trips (under 6km) by sustainable modes
- converting 30 per cent of the city's vehicles to electric, especially commercial vehicles
- a 10-fold increase in active travel (walking and cycling)
- a five-fold increase in the number of public transport trips taken – aided by a three-fold increase in the number of services on offer (Auckland Council, 2022c).

## **Central government policy**

### Resource management reform

A comprehensive review of the resource management system is underway. The Government has proposed that the Resource Management Act (1991) be repealed and replaced with three new pieces of legislation. This includes a Climate Adaptation Act to support the response to climate change by addressing complex legal and technical issues associated with managed retreat, funding, and financing adaptation. The Climate Adaptation Bill will be introduced to Parliament in 2023.

### He Pou a Rangi Climate Change Commission

In 2021, the New Zealand Climate Change Commission released its advice to the Government on its first three emissions budgets over five year periods to 2035, direction on the policies and strategies needed in the Government's emissions reduction plan 2021-2024, and advice on the Nationally Determined Contribution and the eventual reduction in biogenic methane. Each budget will see progressively deeper emissions reductions. Transformational change takes time.

The Commission stated that, for the budgets to be affordable, they must be met in a way that is fair, equitable and inclusive. Transition must be well-paced, well-signalled and co-designed. This means designing it alongside iwi/Māori as the Crown's Treaty partner, and involving local government, regional economic development agencies, businesses, workers, unions the disability community and community groups. However, some groups of society will be more impacted than others. (He Pou a Rangi Climate Change Commission, 2021).

### National Emissions Reduction Plan

Aotearoa New Zealand's first emissions reduction plan sets the direction for climate action for the next 15 years. It contains strategies, policies and actions for achieving the first emissions budget and contributing to global efforts to limit global temperature rise to 1.5 degrees Celsius above pre-industrial levels. (Ministry for the Environment, 2022b)

The plan sets the following emissions reduction targets – by 2050:

- Long-lived greenhouse gas emissions are net zero
- Biogenic methane emissions are 24-47 per cent below 2017 levels.

There is strong alignment to Te Tāruke-ā-Tāwhiri's goal to reduce our greenhouse gas emissions by 50 per cent by 2030 and achieve net zero emissions by 2050.

Actions include:

- Improving access to affordable, sustainable transport options.
- Supporting sustainable, healthy and affordable homes.
- Making it easier to reduce organic waste and manage it responsibly.
- Building our brand as one of the most sustainable producers of food and fibre in the world.
- Improving productivity and giving businesses greater control over their energy use and costs.
- Embracing innovation and technology to lower emissions and improve living standards.
- Enhancing nature in all aspects of our economy and landscapes.
- Enabling an equitable transition for Māori, led by Māori (Ministry for the Environment, 2022b).

## National Adaptation Plan

Aotearoa New Zealand's first national adaptation plan was finalised in August 2022. The National Adaptation Plan (NAP) recognises that all New Zealanders have a role to play in creating a climate-resilient New Zealand. The NAP is a central government-led plan to enable all New Zealanders to prepare for and adapt to the impacts of climate change.

### Goals

1. Reduce vulnerability to the impacts of climate change.
2. Enhance adaptive capacity and consider climate change in decisions at all levels.
3. Strengthen resilience.

### Priorities

1. Enable better risk-informed decisions.
2. Drive climate-resilient development in the right places.
3. Lay the foundations for a range of adaptation options including managed retreat.
4. Embed climate resilience across government policy.

### Outcome areas

1. Natural environment
2. Homes, buildings and places
3. Infrastructure
4. Communities
5. Economy and financial systems.

(Ministry for the Environment, 2022c).

There is strong alignment to Te Tāruke-ā-Tāwhiri's goal to adapt to the impacts of climate change, including its Communities and Coasts priority area. This priority identifies the risks when people are in areas more exposed to the impacts of climate change, for example flooding, sea level rise or heat. Dynamic adaptation policy pathways are an approach to make sure the decisions being made are planned with the community over time.

However, a stronger plan may be required that demonstrates a cohesive approach to transformation. There is an urgent need for national rules and directions to empower councils to prevent further development in areas with increasing hazard risk due to climate change.

## **International research**

### IPCC report

On an international level, the Working Group II report is the second instalment of the IPCC's Sixth Assessment Report which will be completed in 2022. The report declares the

scientific evidence is unequivocal: climate change is a grave and mounting threat to human wellbeing and the health of our planet. People's health, lives and livelihoods, as well as property and critical infrastructure, including energy and transportation systems, are being increasingly adversely affected by hazards from heat waves, storms, drought, and flooding as well as slow-onset changes including sea level rise.

The report states that the world faces unavoidable multiple climate hazards over the next two decades with global warming of 1.5 degrees Celsius. Even temporarily exceeding this warming level will result in additional severe impacts, some of which will be irreversible. Risks for society will increase, including to infrastructure and low-lying coastal settlements.

Cities are described as "hotspots of impacts and risks, but also a crucial part of the solution". The Chair of the IPCC said that our actions today will shape how people adapt and nature responds to increasing climate risk. (IPCC, 2022)

### Paris Agreement

The Paris Agreement took effect in 2020. This means Aotearoa New Zealand's commitments to reduced greenhouse gas emissions, our Nationally Determined Contribution (NDC), applied from 2020. New Zealand's NDC is to reduce greenhouse gas emissions by 30 per cent below 2005 levels by 2030. New Zealand's first NDC was submitted in October 2015. An updated NDC was announced on 31 October 2021 on the eve of the 26<sup>th</sup> Conference of Parties (COP26). (Ministry for the Environment, 2022a).

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