



Draft Infrastructure Strategy

Version 1: 30 June 2023

Content and use of this draft for the Joint Development Process with Elected Members

This is the first draft of the 2024 – 2054 Infrastructure Strategy for the Christchurch City Council. It is intended to assist and inform Elected Members’ discussions throughout the joint development of the Long Term Plan (LTP). Following Elected Member direction on service levels and investment through the process, subsequent versions of this Strategy will include indicative capital and operating spend (as required to meet the Local Government Act 2002).

An Infrastructure Strategy sets the scene for decisions relating to our infrastructure over the next 30 years. It defines the nature of the challenges we face; discusses our options for dealing with them and the implications of progressing with the options; and, ultimately, our approach for managing them to meet the needs of current and future generations. It must also consider projections and external influences. It is not a budget and by itself does not commit Council to any future project, cost or timing.

How to use the information in this draft

An Infrastructure Strategy should guide decision-makers to identify risks associated with infrastructure investment, to determine priorities and to assist with long-term thinking. As of 30 June 2023, this draft identifies key challenges facing our infrastructure planning, delivery and investment. These key challenges are summarised as four high-level ‘Significant Issues’. Alongside, there are ‘Options’ to address or mitigate these Significant Issues – with consideration of the implications (pros and cons) of progressing them. The preferred Options make up our ‘Most Likely Scenario’, and should be used to inform strategic thinking of activity plans and asset plans and guide subsequent investment decisions, both short and long term.

As an example, to help us address the Significant Issue that we *need to ensure our infrastructure is resilient to impacts of climate change and natural hazards*, we identify a preferred Option of *increasing knowledge, data and capability in understanding the effects of climate risks and emission reduction – including using pilot projects*. As you progress through the Joint Development process, you may wish to consider if there is an opportunity to test a new, lower emission, material in an infrastructure project. Or, invest in a programme that gathers data on the level of risk to our assets from coastal hazards.

This is an opportunity to consider immediate versus future priorities; to question the status quo and whether it remains fit-for-purpose; and, to consider current and future risks. The direction and decisions made in this LTP impact on the future of our city, our local economy, our workforce, and interactions with our stakeholders and partners.

As you decide how best to respond to the Significant Issues facing our infrastructure, consider:

1. The legislative unknowns

The recent changes to the Three Waters Services model being proposed by the Government, and ongoing amendments to legislation, create some difficulty for local councils’ to fully plan for the transition of those assets in long-term planning. We hope to have the final legislation in place in time to reflect the new model in a later iteration of this document.

We also await various climate change legislation, expected to be introduced in 2024. While this may change the scope of our roles and responsibilities, we must continue to consider how climate change will shape our decisions and investment.

The recently released Future for Local Government final report also indicates substantive recommendations on the future shape, and role, of local government. How the Government chooses to respond to these recommendations remains unclear. The upcoming election may further influence this legislative timetable and policy direction.

In summary, we need to be cognisant of the potential for changes to *what* and *how* we deliver infrastructure and services for our community throughout the duration of this Strategy.

2. Planning for the future

The LTP’s planning horizon is ten years, but the Infrastructure Strategy is required to take a much longer, 30 year view.

Mitigating natural hazards, adapting to climate change and considering our climate targets in decisions will underpin planning and investment in the short and long-term. We have some way to go to build community understanding and acceptance of areas vulnerable to natural hazards, so we need to ensure we take our residents along on the decision-making journey of the LTP.

Uncertainty remains around who pays. Recent precedent setting of financial contributions from central and local government in response to the cyclone has a wide range of implications we may need to consider. As always, the potential for adverse events that may change our priorities or investment pathway remains high.

We need a forward works programme to set rates projections, meet future growth and provide market certainty, whilst also allowing for flexibility to adapt for technological advances, new systems and processes that we may not be able to foresee.

3. Balancing trade-offs and competing priorities

Our Significant Issues are challenging. There is no ‘quick fix’, and our response must be tailored to our financial environment and maintaining preparedness for the unknowns. The risk landscape we are working in is complex and every decision we make will have a flow-on effect.

We acknowledge that the Significant Issues identified can be inherently contradictory in nature... *How can we maintain affordability, while also investing in our future? How can we prioritise renewals, yet provide new infrastructure for growth? How can we make important decisions before we have created systemic change in the way we collect, collate and use data? How can we best use technology to our advantage?*

The Infrastructure Strategy’s 30 year view requires finding an enduring balance - between sustainably managing limited capital and operating funding with responding to strategic, mana whenua and Community Boards’ priorities and the Strategic Framework’s Community Outcomes.

Summary of Strategy for the Joint Development Process

Significant Issues facing our infrastructure

We need to look after what we've got, and deliver what we say

How do we improve deliverability and affordability, whilst still prioritising our existing assets?

We need to ensure our infrastructure is resilient to impacts of climate change and natural hazards

What are the urgent actions we need to take to adapt and increase resilience of our infrastructure and community?

We need to plan and invest for growing and changing demand

What are the best ways for us to respond to growth and simultaneously become a low-emission city?

We need to improve understanding of our infrastructure so we make the best decisions for our community

How can we improve data collection and the way we use it in decision making to best address the Significant Issues?

Actions to address these issues

- ✓ Scale the size of our Capital Programme
- ✓ Prioritise capital and operating funding to the renewals and maintenance programme
- ✓ Make systemic process changes to the planning and delivery of capital projects
- ✓ Budget for whole-of-life operating costs of assets in all projects
- ✓ Consider divestment of under-utilised land/facilities

- ✓ Apply guiding principles to investment decisions
- ✓ Increase planning with climate-impacted communities, as well as engagement across the City
- ✓ Increase knowledge, data and capability in understanding climate risks and emission reduction
- ✓ Consider options for lower emissions and enhanced resilience at project initiation stage

- ✓ Prioritise integrated infrastructure planning
- ✓ Partner and collaborate with central government, developers, mana whenua and communities to identify and take opportunities
- ✓ Prioritise investment in infrastructure that promotes active travel, public transport usage and road safety
- ✓ Explore alternative funding options and models

- ✓ Improve processes for collecting, collating and using asset data for integrated information
- ✓ Partner to share and improve data processes and systems; identify/trial forward facing technologies; maximise external funding opportunities
- ✓ Improve capture and understanding of social and cultural data

How should this shape our LTP?

The implementation of the Actions form our Strategic Response (Most Likely Scenario)

Implementation may look different over the short and long term, but there are some things we must do now, to successfully address the Issues over the next 30 years.

First, we must address the reoccurring difficulties we are facing with deliverability and affordability. This will set us up to be better prepared for the future, by committing to whole-of-life costs at the time a decision is made; embedding long-term sustainability and affordability in planning and considering other options for our assets; enhancing processes to better align with best practice asset management standards; and, ultimately ensuring we can be realistic, up-front and transparent with our community.

Every single decision we make should include consideration of the climate crisis. Implementing these Actions will help reduce emissions and our asset exposure to climate change impacts. They will position us to make well-informed decisions about infrastructure in vulnerable areas, consider climate risks in all planning, avoid any further harm, and transform us to a low emission city.

We acknowledge the Actions identified to respond to deliverability, affordability and climate change can sometimes be at odds with the growth we are experiencing. We need to consider new ways to meet demands on our infrastructure caused by population and business growth, household density and changing needs and preferences. Implementing the identified Actions for growth will increase our ability to meet community needs *and* expectations.

The overarching Issue that most hinders our ability to respond strategically, is data. We crucially need to build up baseline data to guide prudent, timely investment decisions. Implementing these Actions will improve consistency and quality of data, which will help Elected Members make the best decisions for our community. This will ultimately be the most important Significant Issue to address over the next 30 years.

Consider when making decisions...

Trade offs?	Balancing needs?	Future focussed?
Addressing priorities?	Affordable?	Community expectations?
	Deliverable?	

Executive summary (Placeholder)

Version 1 compliance with legislative requirements of the LGA 2002

Section in legislation	Section in document
<i>Purpose and Scope</i>	
s101B(1) Scope of 30 years	Considered in all sections
s101B(2)(a) Significant infrastructure issues	Significant Issues tables
s101B(1)(b) Principal options and implications	Significant Issues tables
<i>Management of infrastructure assets</i>	
s101(3)(a) Renew/replace assets	What is our approach to managing infrastructure assets?
s101(3)(b) Respond to growth/decline in demand	What is our approach to managing infrastructure assets? Shaping our 2024-2054 Infrastructure Strategy
s101(3)(c) Increased/decreased Levels of Service	<i>Subject to Joint Development Phase</i>
s101(3)(d) Health/environmental outcomes	What is our approach to managing infrastructure assets? Shaping our 2024-2054 Infrastructure Strategy
s101(3)(e) Resilience of assets; management of natural hazards' risks	What is our approach to managing infrastructure assets? What's ahead for Ōtautahi Christchurch?
<i>Most Likely Scenario (MLS)</i>	
s101B(4)(a) Indicative estimates of expenditure	<i>Subject to Joint Development Phase</i>
s101B(4)(b) Significant decisions	<i>Partly subject to Joint Development Phase</i> How will we implement the Infrastructure Strategy?
s101B(4)(c)-(d) Assumptions of MLS	Appendix 1
s101B(5) Option of joint financial/infrastructure strategy	Introduction
s101B(6) infrastructure assets covered	Scope

Introduction

Background

The draft Infrastructure Strategy sets the scene for decisions relating to our infrastructure over the next 30 years. It defines the nature of the challenges we face, discusses our approach and options for dealing with those challenges and the associated implications, and the way we intend to manage them to meet the needs of current and future generations. While it provides an indicative estimate of Council's future infrastructure needs, it is not a budget and by itself does not commit Council to any future project, cost or timing.

The Council refreshed its Strategic Framework in advance of developing this Long Term Plan (LTP), to provide strong direction on what's important for our city and community over the next ten years. The Framework sets out the Council's Vision, Strategic Priorities, four Community Outcomes and a commitment to work in partnership with Ngāi Tahu. It has influenced the draft Infrastructure Strategy - from consideration of the key challenges (*Significant Issues*) that impact on the ability of the Council's infrastructure to support the Council's vision, to how the Community Outcomes shape our Strategic Response to the challenges through successive LTPs (our *Most Likely Scenario*). There has been a particular emphasis on two of the six Strategic Priorities:

- Reduce emissions as a Council and as a city, and invest in adaptation and resilience, leading to a city-wide response to climate change while protecting and enhancing indigenous biodiversity, water bodies and tree canopy
- Manage ratepayers' money wisely, delivering quality core services to the whole community and addressing the issues that are important to our residents.

The LTP 2024-34 Infrastructure Strategy and Financial Strategy need to align closely: infrastructure investment must be affordable and deliverable within sustainable and prudent financial parameters. Early strategic direction for the Financial Strategy signalled four key principles to drive LTP investment planning, which have been heeded in the draft Infrastructure Strategy's Strategic Response (*Most Likely Scenario*):

- Good stewardship of community assets and resources (looking after what we've got)
- Planning for investing for growth (looking to the future)
- Prudent and sustainable approach to financial management (long term focus)
- Value for money for ratepayers (affordability and deliverability).

Given infrastructure investment is long-term, and covers several LTPs, you may see similarities with the 2021-31 Infrastructure Strategy in this document. This is because we must take an enduring approach when considering how we address issues and ultimately make infrastructure decisions. We also acknowledge the landscape of uncertainty, increasing wellbeing challenges, the critical need to focus on resilience of our people, places and infrastructure, and a complex environment that continues to endure. The need to be responsive can sometimes be at odds with a 30 year strategy, and a balance between flexibility and long-term assurances for our people, and the market, must be struck.

Strategy scope

The Local Government Act 2002 (LGA) requires the Council to outline how it intends to manage its infrastructure assets, taking into account the need to:

- renew or replace existing assets
- respond to growth or decline in the demand for services reliant on those assets
- allow for planned increases or decreases in Levels of Service provided through those assets
- maintain or improve public health and environmental outcomes or mitigate adverse effects on them, and
- provide for the resilience of infrastructure assets by identifying and managing risks relating to natural hazards and by making appropriate financial provision for those risks.

Section [101B](#) of the LGA stipulates some asset areas that must be included in an Infrastructure Strategy, and provides discretion to the authority to decide whether to include additional asset classes. To ensure that the majority of the Council's capital programme is captured by this draft Infrastructure Strategy, we are including the following infrastructure assets:

- Transport – arterial, collector and local roads, kerbs and gutters, bridges, footpaths, cycle ways, bus priority lanes, bus stops, streetlights
- Facilities – Christchurch Art Gallery Te Puna o Waiwhetū, Akaroa Museum, libraries, recreation and leisure centres, outdoor aquatic centres, paddling pools, stadia, campgrounds, golf course, community halls and facilities, volunteer libraries, early learning centres, community housing
- Parks – trees, community parks, regional parks, Botanic Gardens, Hagley Park, cemeteries, foreshore, heritage
- Solid waste – Kate Valley landfill, transfer stations, composting facility, recycling facility.

Since the development of the previous Infrastructure Strategy, the Council now has fewer tangible digital assets, as we do not own our servers, use third party data centre infrastructure, and public cloud providers. We consider that the rapidly-changing technological environment means that strategic investment in Information Technology assets and services are better addressed through the Council's Digital Strategy.

Three Waters Assets

There remains some uncertainty around the impact of the Three Waters Reform on the Council's long term planning. As at 30 June 2023, the Government is progressing with new amendments to the delivery model for the Reform. Ten entities will now be created, and the start date delayed for up to two years (to July 2026). Councils are expected to include Three Waters assets for up to two years of their long-term planning, but not in the Infrastructure Strategy.

The integration between Council's remaining assets and the Three Waters assets will still be required when the new entity is in place. Stormwater infrastructure and management is intrinsically linked to land use planning and flood management (for example, wetlands, storage basins, roading network and overland flowpaths). In this draft, we have included information on the Three Waters assets of the Council for context, however this may be removed in subsequent drafts.

Our infrastructure – what assets do we have, what services do they provide?

Our current infrastructure assets enable the Council to provide a comprehensive range of activities and services – from travel ways, parks and open spaces which enable us to play, relax, compete, perform and protect biodiversity; through to the community places and spaces so that we can connect, foster community identity and cohesion, learn, access information and celebrate arts, culture and tāonga.

Collectively, *what*, *where* and *how* we provide infrastructure shapes all of our wellbeings – our individual and whanau health and safety, protection of our environment, nurturing our social connection, valuing our diverse cultures, and enabling our economy to grow and strengthen. Our infrastructure decisions are crucial to not only shape and strengthen our communities of today, but to make sure that our infrastructure is fit-for-purpose for our communities of the future.

Since the Canterbury earthquake sequence of 2010-11, we have been through a vast programme of repairs, rebuild and delivery of new infrastructure. With this nearly complete, we have some fantastic facilities and spaces which attract residents, domestic and overseas visitors – such as Ngā Puna Wai sports hub, He Puna Taimoana hot pools, Christchurch Town Hall, Hagley Oval, Tūranga, Ōtākaro Avon River Corridor and Te Pae convention centre. We also have Matatiki Hornby Centre, Parakiore Recreation and Sports Centre and Te Kaha Stadium coming on board in the near future.

We have a unique opportunity over the next decade and beyond as we leave the ‘rebuild era’ behind. We must ensure that we maximise the benefits of the last 12 years’ recovery and regeneration, look after these state-of-the art facilities, optimise their use, and benefit from the economic, social, environmental and recreational value they offer. As a Council, we have a responsibility to our community to strengthen the connection between people and place – to promote wellbeing through smart decisions on assets and place-shaping, and to take a future-focussed approach to all that we do. We need to make the most of what is new or rebuilt, but also maintain and replace or renew older infrastructure, so there is a consistent level of quality and services across all our assets, for the whole community.

Detailed information on assets is available in the [Asset Management Plans](#) and, where relevant, the [Activity Plans](#) being prepared through the LTP process that describe the assets supporting Council activities and services.

Transport

We own, plan, and manage the 2,500km local roading network and supporting assets that support all transport activities (of which 300km is unsealed roads on Banks Peninsula).

Network assets include roads; kerbs and channels; catchpits; footpaths; road and foot bridges; retaining walls; streetlights; signalised intersections and signage; street trees and adjacent landscaped areas; cycling/shared pathways and separated cycleways; bus shelters; tram line; parking meters; the bus interchange; and one parking building.



Parks

The Parks Unit manages around 1,250 sites, covering over 9,378 hectares of park land and improvements.

Assets include community and local neighbourhood parks; garden and heritage parks and the Botanic Gardens; sports parks, Hagley Park and Ngā Puna Wai; regional parks; parks foreshore; Ōtakaro Avon River Corridor; and heritage/tāonga items.



Facilities

Community assets comprise a network of 82 community facilities – halls, centres and community board facilities and volunteer libraries. Some of the facilities are managed and/or leased by community groups and service providers, and 12 facilities have heritage status.

The network of 20 libraries across the City and Banks Peninsula are in good condition and have benefitted from substantial repairs and rebuild post-earthquake.

The recreation and sports network offers a wide range of indoor and outdoor facilities – from pools to gymnasias and courts.

Other facilities include the Christchurch City Art Gallery Te Puna o Waiwhetū and Akaroa Museum.



Water supply

The Council supplies drinkable water through approximately 160,000 residential and business customer connections, using seven urban water supply schemes and six rural water supply schemes. Assets include 1,700km each of mains and sub-mains, reservoirs and tanks, pump stations, wells, stream intakes and water treatment plants.



Solid waste and resource recovery

These assets are largely managed through operations and maintenance contracts, which include individual asset management processes and a return of assets at the end of the contract.

This includes transfer stations and community collection points, a material recovery facility, an organic processing plant, the regional landfill, the Burwood landfill (gas collection and treatment plant), and 50 closed landfills owned by the Council (further 80 across the district).



Wastewater

The Council collects, treats, and disposes of wastewater from approximately 160,000 customers in the Canterbury region. This is achieved through 945km of laterals, nearly 2,000km of wastewater mains, and a network of pump stations, lift stations, and odour control sites. Treatment is undertaken at eight wastewater treatment plants and disposal through one outfall pump station, six ocean/harbour outfalls, and two land integration schemes.



Surface water and waterways

Surface water and waterways cover the Council activities of stormwater drainage, flood protection, and control works. Key physical assets include underground conveyance networks (915km of pipes, manholes, sumps, inlets and outlets), open channels and overland flow path (natural waterways such as rivers, streams, creeks, constructed drainage channels, in-channel structures, lining and retaining walls), 45 pump stations and water flow control devices and structures such as valve stations, 12km of stop banks, tide gates and basins, water quality treatment devices such as basins (710), wetlands, tree pits, raingardens, filtration devices, and hydrometric monitoring devices, measuring rainfall along with surface water, sea and groundwater levels.



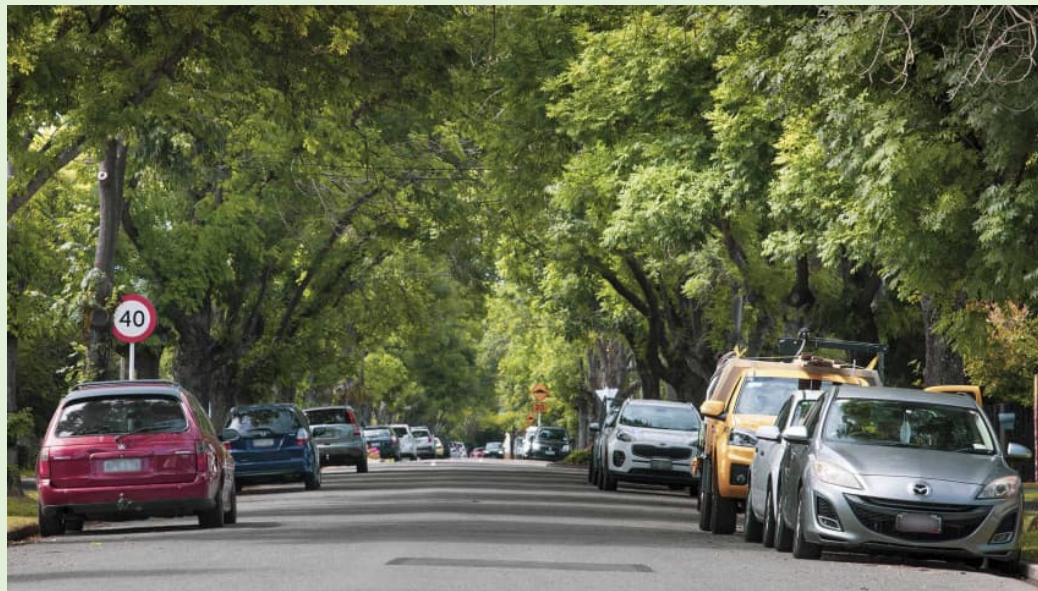
Are trees critical infrastructure?

Trees are a vital, healthy part of our community infrastructure – they define our parks, streets and neighbourhoods and provide shade and space for us to relax and play. They are a home for bird and other wildlife, a source of food, help with stormwater management and filter air pollutants, and protect us from extreme temperatures.

Growing, protecting and looking after more trees in our urban area is a high priority for residents and the Council, and critical for our future wellbeing. [Our Urban Forest Plan](#) (2023) sets out how we can increase the tree canopy across the city, and sustain a thriving urban forest of healthy, diverse trees that suit our landscape and conditions. They make an important contribution to our city's response to climate change: a tree can absorb up to 15kg of CO₂ per year and sequester carbon; their strategic placement can cool the air by between 2°C and 8°C, and when properly placed around buildings can reduce air conditioning needs by 30% and save energy used for heating by 20-50%. Economically, landscaping - especially with trees - increases property values by 20%. As housing becomes more intensified, trees will not only improve liveability of neighbourhoods, but of our own sense of wellbeing.

We have a goal to distribute the tree canopy equitably across the city, so that no ward has less than 15% total canopy cover over 50 years - with most planting occurring in the first 30 years. A further early step is developing appropriate targets for rurally-zoned land on Banks Peninsula.

The principle of “Right location, right tree, right function” will guide our tree infrastructure planning, to make sure our urban forest is sustainable and benefits people and environment.



What is our approach to managing infrastructure assets?

Our total infrastructure assets are worth \$18.2 billion. In the financial year 2021-22, the Council spent \$436 million investing in infrastructure, including Three Waters (water supply, stormwater drainage and wastewater, flood protection and control works), libraries, community, recreation and sports facilities, parks, heritage and coastal environment, roads, footpaths and cycleways, and refuse disposal.¹

Given the quantum of this annual expenditure, we need robust approaches to understand and monitor asset condition so that we can manage infrastructure throughout its lifecycle – from how we plan, acquire, operate, maintain, and renew assets, through to disposal of them (where appropriate).

Knowing about an asset's condition helps us understand how well it is performing and meeting relevant Levels of Service, where it is in its lifecycle, condition risks, and what investment is anticipated to optimise lifespan. Whilst performance drives renewals and replacements in most instances, for some assets a driver is also the need to retain high aesthetics and suitability to meet changing uses or expectations. Assessment of data and condition helps us establish how our infrastructure should be built, maintained efficiently and cost-effectively, and be adapted to meet climate change challenges (e.g. materials, location, performance).

What do our Asset Management Plans tell us?

There are 11 Asset Management Plans each covering a type of infrastructure asset owned by the Council. They set out:

- detailed portfolio information
- quantum, location, value and condition (including any adverse effects on public health and environment caused by asset condition)
- age and lifecycle stage
- criticality and identification of asset condition risks and their management (including impacts of climate change)
- identified data and asset management improvements required to support continuous improvement of asset management practices.

What do our Activity Plans tell us?

Forty Activity Plans describe all the activities and services that the Council provides for the community, and (where relevant) the assets that support their delivery.

Importantly, Activity Plans define agreed Levels of Service – that is, *what* and *how much* of a particular activity or service we commit budget to, to meet statutory requirements, needs and expectations of our community. For those activities and services that rely on infrastructure assets to deliver, the Levels of Service are a crucial indicator of what investment will be required year-on-year to achieve what we have committed to in the LTP.

¹ <https://ccc.govt.nz/assets/Documents/The-Council/Reporting-Monitoring/Annual-Report/2022-Annual-Report-Summary.pdf>

Any increases or decreases in Levels of Service, and actual or anticipated changes in demand for them, are also identified in Activity Plans. In addition, the Activity Plans identify any significant negative impacts on social, economic, environmental or cultural wellbeing outcomes, including public health outcomes.

The Infrastructure Strategy will take into account all these factors identified in Asset Management and Activity Plans, when forming the final Strategic Response (Most Likely Scenario) for infrastructure investment, and 30-year indicative asset budgets.

How do we measure our assets' condition?

Through an infrastructure asset's lifecycle we keep asking, "Is this asset's condition getting better, worse, or staying the same?" We take into account its reliability, capacity, whether it is a critical asset², and if it continues to meet customer and growth demands and needs. We also need to consider if there are technical advances that could improve or replace the asset; whether it continues to comply with relevant regulations or standards; and whether the costs of continuing to operate it deem it uneconomic and warrant replacement. Levels of usage and surveys of residents' satisfaction are also considered.

A range of programmes and methodologies are used across the Council to assess asset condition – these are often based on specific industry sector guidelines. The expected lifecycle and performance levels for specific asset classes are set out in detail in Appendix 1.

Given an overarching Significant Issue for our infrastructure identified in this Strategy is the need for us to collate and optimise use of consistent, quality data to inform our infrastructure decisions and work programmes, it is worth noting the important benefits of robust assessment of current condition and performance level.

² Critical assets are those whose failure would likely result in a significant disruption in service and financial, environment and/or social cost, and therefore warrant a higher level of asset management and sustained investment.

What have we achieved since the last Infrastructure Strategy?

Since our last Infrastructure Strategy was adopted as part of the LTP 2021-31, there has been some notable progress in maintaining, enhancing, replacing and building above and below-ground infrastructure assets, including:

- Te Pou Toetoe Recreation and Sport Centre (Linwood) opened in October 2021 and work continued on construction of Parakiore Recreation and Sport Centre (central city) and Matatiki Hornby Centre (Recreation and Library). In mid-2022, the Council committed to a design and construction contract for construction of Te Kaha multi-use arena (completion expected in 2026).
- Completion of the relocation of the Citizens War Memorial in Cathedral Square and reopening Lancaster Park as a community sports park.
- In response to the Government's COVID-19 policy framework, our facilities provided some innovative remote service options.
- The Tree Policy and Urban Forest Plan were adopted, enabling greater protection and increase of the city's trees' infrastructure. A co-governance entity for the Ōtākaro Avon River Corridor area was established with implementation work underway, along with the joint development with Ōnuku Rūnanga of the first phase of the Takapūneke Reserve (Akaroa).
- Major works in the Three Waters portfolio included deferred maintenance on 78 water supply pump stations (enabled through the Water Reform 'stimulus funding' programme), completion of the Lyttelton wastewater scheme and work underway on the Okains Bay and Duvauchelle water supply schemes. Excess water charging was introduced to encourage reasonable water use and reduce wastage.
- Significant safety improvements were made on the transport network and work continued on building the Major Cycle Routes network.
- The Council helped finance the development of two new complexes, adding 70 new homes to the Ōtautahi Community Housing Trust portfolio with a further six in construction and 80 in planning.

Unfortunately, the Council and community suffered a serious setback in November 2021 when a fire at the Christchurch Wastewater Treatment Plant caused major damage to the trickling filters, requiring urgent alternative treatment processes to be put in place.

During the last three years, several of the significant infrastructure decisions identified in the LTP 2021-31 Infrastructure Strategy have been progressed:

- *Drinking water safety* (decision required on how drinking water services could meet newly-introduced national drinking water standards). In May 2023, the Government water regulator Taumata Arowai advised the Council that its first chlorine exemption application had been declined, requiring all the district's water supply to be chlorinated.
- *Mass Rapid Transit* (consideration required of a business case for MRT). In May 2023, the Council, as a member of the Greater Christchurch Partnership, endorsed development of the indicative business case for MRT by Waka Kotahi – the so-called 'turn up and go' investigation.
- *Duvauchelle Wastewater* (decision required on preferred option for removal of Duvauchelle's treated wastewater to Akaroa Harbour). In September 2022, the Council decided that new wastewater system will provide treated wastewater for irrigating the Akaroa Golf Course.
- *Ōtākaro Avon River Corridor* (decision on implementation of the regeneration plan). In June 2022, the Council approved through the Annual Plan, a new Activity Plan that sets out cross-Council implementation actions and levels of service for the development of the area, which is co-governed by the Ōtākaro Avon River Corridor Co-governance Establishment Committee. Subsequent implementation decisions will be considered in future LTPs.

Shaping our 2024-2054 Infrastructure Strategy

What growth do we need to consider?

Ōtautahi Christchurch is the second largest city in New Zealand and home to 392,100 people (2021 figures). This is projected to grow by 89,340 to 473,140 people by 2054 (medium projection figures), making it one of the top five growth areas in New Zealand. We also support our local economy with the largest port and international airport in the South Island - Ōtautahi Christchurch is the gateway for visitors and goods to and from the South Island.

We build and maintain infrastructure for people, and we can expect more people to need and use the services associated with our infrastructure assets as our population increases. At the same time, we need to consider that growth patterns and the way our infrastructure is needed and used, may change in the years ahead. The size of families is getting smaller, and our population is ageing. We need to anticipate how this could affect the infrastructure we provide – for today's residents and for future generations. For example, changes in housing preferences (smaller homes, greater intensified neighbourhoods) will mean we need to provide infrastructure to support appropriate housing and commercial centres, convenient access to services, public transport networks and community facilities and spaces for wellbeing. We must consider how we can do all this whilst ensuring affordability and reaching our goal of being a low emission city.

What are the legislative and strategic influences?

Given the long-term nature of infrastructure planning, this draft Infrastructure Strategy has been heavily influenced by our previous strategies, to ensure an enduring approach to asset management and investment. We also draw on a range of national, regional and local plans and strategies that are relevant to infrastructure planning, to address the requirements of the LGA and to strategically plan for the next 30 years in a coordinated way.

In addition to the strategies and plans named throughout this document, a full list of influencing documents is provided in Appendix 2. This includes regional and national strategic directions on wellbeing, environmental and urban development matters.

It is reassuring to see that the recently released Government's [National Infrastructure Strategy Action Plan](#) includes similar issues to those we have identified in this document. It identifies the areas of focus to be:

- Ensuring that infrastructure rebuild and new build is resilient in the face of climate change, natural disasters, and increasing extreme weather events
- Strengthening infrastructure investment decision making and governance
- Strengthening partnerships with, and opportunities for, Māori, local government, and the private sector.

These suggest we are not alone with the challenges we face, and that partnership and collaboration will be crucial to successfully addressing the issues facing our infrastructure.

As a Council, partnership and collaboration is not a new concept for us. At a sub-regional level, Ōtautahi Christchurch has been part of coordinated urban planning and transport investment in Greater Christchurch since 2007 as a member of the Greater Christchurch Partnership.

In 2022, the newly established Whakawhanake Kāinga Komiti, of Government and Greater Christchurch partners, set as one of its first priorities the development of a [Greater Christchurch Spatial Plan](#), which is a key influence and driver of infrastructure planning. Community feedback on the draft Spatial Plan was being sought in mid-2023, proposing two key directions for growth:

- targeting intensification in urban and town and along public transport corridors
- enabling prosperous development of kāinga on Māori land and within urban areas.

For Ōtautahi Christchurch, the Greater Christchurch Spatial Plan will be city-shaping and will guide future Council and Government investment. Together with proposed MRT corridors, the city and districts will benefit from integrated land use planning that will support and accommodate our expected population growth, Government-enabled household intensification and increased economic activity in decades ahead.

At a city level, ongoing spatial and transport planning work reinforces the Greater Christchurch Spatial Plan - focussing on local area planning for safe and liveable neighbourhoods, and fostering greater uptake of active travel and public transport. Our spatial planning takes a regenerative approach, using development as an opportunity to replenish and restore natural processes, respond to climate change and build community health and resilience.

Collectively, these sub-regional, city and local area plans are gamechangers for our city's future. They will provide opportunities to progress us to a low emission city, respond to climate change impacts, protect and enhance our indigenous biodiversity, and help ensure that fit-for-purpose plans support our health, wellbeing, economic prosperity and sustainable use of land and water. Banks Peninsula makes up 70% of the land area of the Council's district, so planning needs to consider that a 'one-size fits all' approach is not realistic, even within a district.

Refer to Appendix 2 for a full list of strategies and plans used to inform this draft.

What do our residents say?

Community views about infrastructure

We all use infrastructure daily - whether it is travelling on our roads, footpaths or cycleways, putting rubbish and recycling bins out for collection, or simply turning on the tap. The Council regularly surveys residents, to hear their views on services we provide.

Some services are consistently identified by residents as what we deliver best:

- Waste management (kerbside waste collection) - considered to be the best delivered service for 25% of people surveyed in 2023 ((28% in 2022; 29% in 2021)
- Parks and reserves - 15% of people surveyed in 2023 considered to be the second-best service (16% in 2022; 16% in 2021).

Local community centres, recreation and sports centres, libraries and service centres are valued as spaces where people can come together, share experiences, and engage with others and access Council information – residents say these facilities and spaces help build a sense of belonging and connection.

There are, however, some services that residents repeatedly indicate higher levels of dissatisfaction – in particular the condition of footpaths, transport interchange and suburban hubs, and sports surfaces at Council sports facilities³.

Transport has a large impact on residents' day-to-day lives. Residents continue to be unhappy with the condition and repair of our roads, with 17% of people saying it is their number one dissatisfaction – particularly ongoing patch repairs, uneven road surfaces, potholes and unsatisfactory repairs. Residents in Banks Peninsula and Eastern suburban communities are particularly concerned about the condition of roading in their areas. People who use the cycleways find them safe to use and incentivise regular cycling.

Our residents want to see more consideration given to our existing assets, especially protecting our green spaces, trees, and areas for growing food. Most residents expect parks, nature and gardens to be within a walkable distance, bike ride, or scoot of their home.

Dissatisfaction with aspects of water services provision is influenced by current events and decisions – e.g. the addition of chlorine and other additives to drinking water supply, performance of infrastructure following flooding events, and the need to fix leaks (perhaps promoted by the introduction of excess water charges).

³ See *Residents Survey Results* [here](#) for more detail

The most-commonly expressed concerns from residents about Council funding decisions (relating to infrastructure) are to avoid spending money on unnecessary projects, the need for clear, long-term plans and budgets, and wanting more consultation on planned new spending and upcoming decisions.

When people living and working in Greater Christchurch (the city and surrounding towns in Waimakariri and Selwyn districts) were recently asked about issues we need to tackle as our region grows, they talked about climate change, building our resilience to natural disasters, and make housing more affordable. In particular:

- there is strong support for focussing growth around key urban and town centres and along public transport routes
- people are open to consider higher density living, when it is planned and designed to meet people's different needs and provide quality of life
- having access to frequent, more reliable and more direct public transport is important so that people can use their cars less
- protecting our natural environment and particularly the health of our waterways is vital.⁴

Financially, people are feeling the pressure from the increased cost of living. Our asset planning needs to find a careful balance between maintaining and providing infrastructure for our growing population, whilst also ensuring the cost of our infrastructure does not add to the financial burden many of our residents are experiencing.⁵

What are mana whenua priorities for this LTP?

The Council is committed to partnering with Nga Papatipu Rūnanga to achieve meaningful outcomes that benefit our whole community. There are six Rūnanga whose takiwā in part fall within the Christchurch City Council district: Ngāi Tūāhuriri Rūnanga, Te Hapū o Ngāti Wheke, Te Rūnanga o Koukourārata, Ōnuku Rūnanga, Wairewa Rūnanga, and Te Taumutu Rūnanga. Since 2015, the Te Hononga Council – Papatipu Rūnanga Committee has provided a formal governance and strategic relationship between the Council and the six Papatipu Rūnanga.

The mana whenua values of Ngāi Tahu and Papatipu Rūnanga are an important aspect of our planning for future infrastructure, and we have related statutory responsibilities, under the LGA and the Resource Management Act 1991, in particular. The values and policies of the [Mahaanui Iwi Management Plan](#) and other Rūnanga guidance and views inform our infrastructure planning.

During early 2023, Nga Papatipu Rūnanga provided initial input into early development of the LTP by identifying key priorities they wish to be considered. Most of these priorities relate to infrastructure and contribute to achieving positive outcomes for social, health, environmental and economic wellbeing. These included:

- Enabling and providing affordable housing

⁴ [Huihui Mai](#) engagement, April 2023, undertaken to inform development of the draft Greater Christchurch Spatial Plan

⁵ This summary of community views of our infrastructure uses results from the [Residents Survey 2022/2023](#) and [Life in Christchurch](#) surveys

- Access to safe drinking water supply and sources, protection of water sources; water quality monitoring
- Management of stormwater systems to protect land and property, waterways and mahinga kai; sediment reduction.
- Protection and enhancement of reserves and native biodiversity
- Adaptation planning by and with local communities and marae at risk of coastal hazards
- Fit-for-purpose infrastructure, such as roads, footpaths and wharves, that enables access to local areas, sites of significance, waterways and coastal waters
- Exploration of potential transfer of Council-owned land of importance to mana whenua

These priorities, along with others, will be raised as part of the ongoing partnership commitment and korero between the Council and Nga Papatipu Rūnanga and will help shape our investment in infrastructure for today and our future generations of guardians of our wai and whenua⁶.

What are Community Boards' infrastructure priorities?

Our six [Community Boards' local plans](#) have set out their communities' priorities for the 2022-2025 electoral term. Though each plan is distinctive in identifying local issues and opportunities, they share similar priorities, particularly relating to infrastructure:

- more funding for infrastructure repairs and improvements (roads, footpaths, stormwater systems and flood mitigation)
- enhancing existing, and providing new, infrastructure to respond to community need, increasing household/population and diversity; supporting community-led facilities management or ownership; responding to impacts of increased household density, providing additional activities and public spaces for youth
- taking opportunities to increase social connection and cohesion, and promote safe neighbourhoods, through public space design and amenities
- increasing our resilience to climate change impacts by supporting use of public transport and active travel routes
- improving safety on roads and footpaths and especially around residential areas and schools by promoting the likes of slow neighbourhoods and schools' travel planning
- preserving, protecting and enhancing biodiversity and the natural environment in local areas.

Priorities relating to specific infrastructure include concerns about the ongoing impacts of the Organics Processing Plant and the damaged wastewater treatment plant in the Bromley area, and the importance of rebuilding South Library (Beckenham) as a much-valued community hub.

⁶ This summary was approved by the Principal Advisor, Treaty Relationships team in June 2023. It will be updated following further engagement with Papatipu Runanga during ensuing months.

What's ahead for Ōtautahi Christchurch?

Ōtautahi Christchurch may be a very different place three decades from now, and our decisions in this LTP will have a big impact on how liveable our city is for future generations. In other words, our future infrastructure needs are likely to be different to today. The Infrastructure Strategy's 30-year, enduring view challenges us to find a balance - ensuring we sustainably prioritise our limited capital and operating funding, alongside consideration of mana whenua priorities, Community Boards' priorities, our Strategic Framework and Community Outcomes. Throughout all of this, we must also consider how we are mitigating and managing the impacts of climate change.

Climate change, especially sea level rise and increased storm frequency, will increase the risk of natural hazards such as flooding, coastal inundation and tsunami above current levels – although we cannot predict exactly the magnitude and timeframes of when the natural hazards may occur. Mitigating natural hazards and adapting to climate change is likely to come at a large cost, and uncertainty remains around who pays. We still have some way to go to build community understanding and acceptance of areas associated with multiple hazards, especially in areas people have called home for a long time.

Despite this uncertainty, we know that the shape of our city must change over coming decades as we transition development away from the areas most at risk from climate impacts, and focus on intensifying development in centres and along transport corridors. This will help our city achieve our targets of:

- the Council being carbon neutral for its operations by 2030
- our district's greenhouse gas emissions (excluding methane) being halved by 2030 and being carbon zero by 2045 (Follow how we're going [here](#), using our greenhouse gas emission tracker.)

We need to ensure we invest in the right types of infrastructure, that not only is built with low carbon materials and designed to minimise whole of life emissions, but also enables our residents to reduce their own greenhouse gas emissions footprint. Further investment in infrastructure which supports low carbon transport options will provide people with the opportunity to safely move around the city using low emission modes.

"The Auckland floods and Cyclone Gabrielle highlighted the importance of local leadership. Local government must adapt and change to meet the complex challenges of the future. The series of compounding crises we are experiencing are unlikely to abate – climate change, the ongoing fallout from COVID-19, disruptive technological advances, and the economic and geopolitical impacts of global conflict. Extreme weather events, persistent inequity, and low social cohesion are already affecting communities here. All of these challenges are felt at place and will only intensify over the next 30 years"
(He piki tūranga, he piki kōtuku The Future for local government (final report from the Review, June 2023))

What is resilience, and why is it so important?

Following the earthquakes in 2010-11, people in Ōtautahi Christchurch became familiar with 'resilience'. It was used to describe our stoicism, hope of recovering well, leaving no one behind, and reducing our vulnerability to future shocks and stressors we might face. A decade on, and we have faced more challenges from natural and human-caused events that have required our resilience – the Port Hills' fires, terrorist shooting, pandemic, ongoing and extreme weather event flooding, the aftermath of the wastewater treatment plant fire. Resilience can refer to people, to places, to infrastructure, to systems.

In this context, we need to consider how resilient our assets are, and will be, in the face of the longer-term challenge that climate change brings. Through adaptation planning we need to prepare now for the effects of coastal hazards on our communities, infrastructure and environment so that we are ready for what may happen in the future. Our 30-year asset planning needs to embed design, location and materials that are fit-for-purpose for changing environmental conditions. Our critical infrastructure needs to be able to absorb shock, recover from disruptions, adapt to changing conditions, and retain essentially the same level of function, as is appropriate.

At the same time, we must consider the concept of resilience holistically, supporting our community, our organisation, and our partners and businesses to be resilient in the face of future shocks and stressors. As the recent Government paper challenges us, "Resilience is not just the physical characteristics of the asset – it also requires organisations to have the right kind of leadership and culture, networks and relationships, and organisational processes in place before an event, so that they can adapt, recover, and thrive afterwards." ([Department of Prime Minister and Cabinet Discussion document, June 2023](#))

How will we plan for the future with so much uncertainty?

We are operating in a highly ambiguous environment. National legislation on adaptation and managed retreat is not yet in place (the Climate Adaptation Act is due to be introduced later in 2023), which means we do not have clarity on the roles and funding arrangements for the future response to climate change and coastal hazards that we know will be required. The recent response to Cyclone Gabrielle in the North Island may give some indication to the shared liability likely to be identified through upcoming legislation, however it will be difficult to accurately forecast or plan for this in our LTP without legislation in place. Councils have been directed to have regard to the National Adaptation Plan under the Resource Management Act, which encourages acting now to drive climate resilient development in the right locations and following national guidance on the use of climate change scenarios to inform planning. However, in some cases we must also continue investment, maintenance and renewals in at-risk areas to meet our legal obligations.

It is not just the absence of adaptation legislation hindering our ability to accurately plan long-term. Global trends will continue to impact on our city and influence the types of modern infrastructure our communities will expect in Ōtautahi Christchurch. New standards for greener buildings, infrastructure, transport networks and digital services are constantly being introduced, so the Council will require a degree of flexibility when planning for the future to ensure we can adopt new technologies.

Further, resourcing issues and labour shortages are hindering our ability to deliver; international events such as the war in Ukraine can disrupt our supply chains, causing construction delays and increasing costs. Likewise, COVID-19 caused similar disruption, and aside from the health impacts, there was also significant economic damage inflicted on some sectors. This period of economic uncertainty and inflation is expected to continue, with long term effects likely to be felt. How all this could impact on the demand and deliverability of the district's infrastructure is not yet clear.

As always, we will need to be responsive to legislative changes as they are introduced. Concurrent reforms of the Resource Management Act, Three Waters, and Future for Local Government will all impact the future roles and responsibilities for local government– as well as the funding streams available to invest in public infrastructure – yet these are not clearly aligned. While some reforms are moving at a fast pace, others such as Future for Local Government have spanned many years, and the implementation of the recent findings of the Panel is uncertain. This constantly changing regulatory and political environment is difficult to predict, and we must ensure our community understands the changes that are occurring. We will need to be flexible and responsive in our long-term planning, whilst simultaneously providing the reassurance that our community, and the market, need.

How are we progressing with climate action in the meantime?

To support good decision making on Council investments while national legislation is being developed, the Council will apply a 'climate framework' to guide the LTP 2024-34's development. This will guide and inform infrastructure decision-making and subsequent Levels of Service considerations for what we provide for our community, to help minimise economic, social and environmental harm from climate change (whilst still meeting our legal obligations).

All managers of services are tasked with understanding how climate change will affect their assets and the services they deliver. They are also asked to identify their activity's main sources of greenhouse gas emissions (both operational emissions from energy sources and embodied construction emissions, such as steel, concrete), and options for reducing them. A key message to our organisation has been that the earlier we start to think about climate risks and emissions in our planning, the more options we have, and the greater potential impact we can have.

We also have a number of assessment tools to support our understanding of risk associated with climate change, such as the [Christchurch District Risk Screening](#). This identifies significant risks in coastal and inland local districts and highlights priority areas that need deeper assessment based on urgency and scale of consequence – which will aid with prioritising projects in the LTP. Another tool is BraveGen, which is being used to record and measure operational emissions, so that activities can better understand the impact of the energy sources they use and start to look for more sustainable alternatives where possible.

We also have ongoing work programmes to support our target to be a low-emission economy, which will be strengthened and supplemented by the Actions identified in this Infrastructure Strategy (refer to page 22-23 for more information on how we propose to address this Significant Issue). Current work includes:

- Gaining a better understanding of the risks of climate change through the Climate Risk Screening, Coastal Hazards 2021 Assessment and through updates to Land Information Memoranda
- Working with communities and Rūnanga to plan dynamic adaptive pathways to respond to climate change through [Coastal Hazards Adaptation Planning](#). This is all about preparing now for the effects of coastal hazards on communities, infrastructure and environment. With close local community engagement at the heart of the programme, all aspects of community wellbeing and readiness for climate change impacted are considered
- Amending the Christchurch District Plan to address known climate risks, including through housing and business choice and coastal hazards plan changes - and through the Greater Christchurch Spatial Plan which seeks to support a more resilient intensified urban form.

Through such work programmes, the Council is focussing on minimising and avoiding harm. In this LTP, we are proposing a principles-based approach to inform decisions during the transition period while national legislation is developed and local adaptation planning is undertaken. This is one of the Actions identified in our *Most Likely Scenario* (see page 27).

What are the Significant Issues facing our infrastructure?

In consideration of the context in which we are working, we have identified four Significant Issues facing our infrastructure. These Significant Issues are detailed in the tables on pages 20-26, alongside Options and Implications for addressing each Issue. They are:

- Look after what we've got, and deliver what we say
- Ensure our infrastructure is resilient to impacts of climate change and natural hazards
- Plan and invest for growing and changing demand
- Improve our understanding of our infrastructure so we can make the best decisions for our community.

The final Issue overarches the others - without improving our data collection and collation, as well as prioritising the technology that enables us to do so, we will face real challenges in responding to the other three Significant Issues. For example, we need to be able to rely on accurate asset condition information so that we can forward plan our renewals programme, and associated funding. Data helps us decide our priorities, identify what is most critical, and directs us how and when to respond.

These challenges are complex and multi-faceted, so it is understandable that some have endured throughout the three previous infrastructure strategies. There is no 'quick fix', and our response will still need to be tailored to our financial environment and maintaining preparedness for the unknown. Perhaps the biggest challenge we face is the inherent trade-offs of trying to prioritise addressing multiple (at times, contradictory) challenges within financial constraints, and equitably across the district. In determining how to respond to these Significant Issues, we tried to ask questions such as:

- How can we maintain affordability, while also investing in our future?
- How can we prioritise renewals, yet provide new infrastructure for growth?
- How can we make important decisions before we have created systemic change in the way we collect, collate and use data?
- Do these options best support the climate action we need to take?
- Do these options still ensure that we meet our regulatory obligations?

The following tables step through the strategic approach that has been taken to develop a Most Likely Scenario for infrastructure investment over 30 years:

- Tables 1-4: Describe the strategic Significant Issues facing our infrastructure and identify Options to address each Significant Issue (note, no one option will 'fix' the issue), and some of the Implications of each Option
- Table 5: Proposes a Most Likely Scenario aka our Strategic Response – a combination of the 16 preferred Options for implementation to address the Issues facing our infrastructure
- Table 6: Proposes a Timeline for implementation of the Strategic Response for the lifecycle of this draft Infrastructure Strategy

Significant Issue: We need to look after what we've got, and deliver what we say

Our infrastructure investment has four main drivers:

1. Asset renewals – replacing infrastructure to ensure it remains fit for purpose
2. Growth – providing additional capacity in our networks for new development to utilise
3. Meeting Levels of Service – providing infrastructure that enables us to maintain quality of service
4. Backlog – providing assets that enable us to provide the Levels of Service we have already committed to provide

We commit significant investment to our Capital Programme (our plan for replacing assets at the end of their economic life, and our investment in new infrastructure) to deliver the assets needed for our district to function safely, efficiently, and effectively. We also have an ongoing maintenance programme for all our assets. However, in an environment where everything is costing more, and our regulatory requirements continue to change, we find ourselves increasingly needing to make hard decisions about resourcing and spending on infrastructure to provide an overall Plan for our community that keeps affordability and deliverability at the forefront of decision making.

Due to internal and external factors (e.g. escalating costs and availability of materials, staff resourcing and contracted services), we are struggling to fully resource and deliver the Capital Programme we commit to in our LTP. This forces us to push projects out, which can create flow-on problems, such as increased costs to subsequently fund deferred projects, greater need for reactive 'just in time' maintenance where preventative works have been deferred, and compounding deliverability issues as projects are pushed out year-on-year.

This impacts on a significant issue identified in all our Infrastructure Strategies to-date - we already have a historic legacy of underspending on maintenance, which is exacerbated the more we defer renewals and therefore require increased maintenance. Unplanned maintenance (which can be up to 50% more costly than planned) is currently 66.4 percent of works order spend), so deferring renewals in our Capital Programme due to deliverability constraints can further impact long-term affordability.

We need to have honest and robust conversations with our community about the struggle of balancing priorities with the increasing costs of building, operating, managing and maintaining assets for their lifespan – as well as funding any new infrastructure, and the impact these could have on Levels of Service. We need planning processes in place which allow us to be responsive to the changing (and growing) needs of our community, but also enable us to prioritise the basics. Our challenge is to make the right decisions to prioritise and invest our limited resources, based on a data-driven approach to decision-making – to work smarter, more efficiently and effectively for our community.

How do we improve deliverability and affordability, while still prioritising our existing assets?

Table 1: Significant Issue: We need to look after what we've got, and deliver what we say

Options		Implications (Pros and Cons)	Progress?	Strategic Response
1	Scale the size of our Capital Programme as and when required, recognising inflation and the potential need for flexibility, to ensure it is deliverable	<ul style="list-style-type: none"> • Should increase the percentage of the Capital Programme to be successfully delivered annually against what was planned • Increase confidence in ability to deliver agreed capital projects successfully • Reduction in projects within the Capital Programme may not result in a reduced spend in capital due to cost increases • Provides less flexibility to deliver additional capital projects within budgets • May require changes to Levels of Service • May place pressure on asset-owning units to amend work plans to fit within scaled Capital Programme • Provides more flexibility to account for changing economic and market conditions, procurement processes and legislative environment • If reduced, could impact on renewals targets and require higher operating investment to maintain failing assets • Additional flexibility could provide uncertainty for local contractor market • Not possible in some areas to reduce Capital Programme if triggered by the need to comply to consents and/or legislation • May result in decreased community satisfaction if choosing to deliver less through the Capital Programme 	Yes	Our proposed Strategic Response of progressing options 1-5 will address the critical issues we are facing regarding deliverability and affordability. This is because we will be better prepared for future costs by committing to whole-of-life costs at time a decision is made;
2	Prioritise capital and operating funding to the renewals and maintenance programme so we can sustainably look after our existing assets	<ul style="list-style-type: none"> • Potentially less funding available for new (higher) Levels of Service/new assets • Would reduce risk of unforeseen costs coming up for reactive maintenance (50% more expensive than proactive maintenance) • Programme would better reflect current cost estimates and asset condition • Reduce the backlog in deferred maintenance of assets – could lead to better provision of infrastructure for the community 	Yes	embedding long-term sustainability and affordability in planning and implementation;
3	Make systemic process changes to the planning and delivery of capital projects to reduce risks, enable better financial projections, manage contingency, and allow for smart and efficient project delivery	<ul style="list-style-type: none"> • Increase in operating funding requirements for up-front planning of projects • More information available (e.g. through life costs, emissions, risks and vulnerabilities) at the time a decision is made • Decisions on projects made closer to the time of project delivery (reducing uncertainties) • Increase the accuracy of project forecasting – reducing contingency requirements • Higher success rate for delivery of projects within budget • Potential to align to Treasury's Business Case process for best practice • Opportunity to identify contingency management efficiencies 	Yes	enhancing processes to better align with best practice asset management and accounting standards, and ultimately ensuring we can be realistic, up-

4	Budget for whole-of-life (including divestment) operating costs of assets in all projects (as is possible) – including fully funding depreciation	<ul style="list-style-type: none"> • LTP forecasting likely to increase in outyears • Reduce cost shortfalls in the long term • Fewer change requests due to more accurate allocation of whole-of-life operating funding • Greater ability to accurately plan for and fully fund maintenance and renewals • Provide for more transparent decisions • Could delay project decisions until information is available • Likely to improve resilience of assets and avoid costly amendments to design at later project stages • Accurate allocation of depreciation to an asset 	Yes	front and transparent with our community.
5	Consider divestment of under-utilised land and facilities including exploring partnerships and locally-led initiatives as a means to strengthen communities	<ul style="list-style-type: none"> • Releases capital for re-investment • Provides opportunities to achieve cultural, economic and social outcomes • Reduce operating costs of maintaining under-utilised assets • Would require changes to Levels of Service • Could result in community dissatisfaction • Potential for inequitable spread of assets across Christchurch • Incurs up-front handover costs 	Yes	
6	<i>Take a blanket approach to reducing current levels of investment in infrastructure</i>	<ul style="list-style-type: none"> • <i>Would decrease spending</i> • <i>Decrease what is delivered, potentially impacting on Levels of Service</i> • <i>Impact on maintenance and renewals programme of work</i> • <i>Potential Health and Safety risks</i> • <i>Unlikely to be sustainable long term and result in a bow wave of capital works and increased operational spending</i> • <i>Would exacerbate other significant issues identified for infrastructure</i> • <i>Unlikely to support delivery of Council's strategic priorities including climate action</i> 	No	
7	<i>Reprioritise 1% of all infrastructure projects contingency funding to new investment</i>	<ul style="list-style-type: none"> • <i>Less transparency over where allocated funding is going</i> • <i>Would increase the amount of projects within the Capital Programme – making it even more undeliverable</i> • <i>Would exacerbate other significant issues identified for infrastructure</i> • <i>Higher risk of funding being allocated to projects without going through proper processes</i> 	No	

Significant Issue: We need to ensure our infrastructure is resilient to impacts of climate change and natural hazards

We need to improve the Council's ability to anticipate and plan for future climate impacts. Strategic decisions need to be made about the location, maintenance and renewal of infrastructure so that communities can live safely. By prioritising maintenance and renewals that are fit-for-purpose in the future we can contribute to us being a low emission city and making sure growth occurs in low-risk areas.

Right across Council activities and infrastructure we need to reduce our emissions and reduce our coastal city and district's vulnerability to the impacts of climate change. We need to be proactive, take opportunities, meet challenges and manage risks that climate change brings. This will only be achieved fairly if we do it in partnership with local communities, mana whenua and businesses. At the same time we must rapidly reduce emissions to avoid even more harmful impacts to us and future generations, as we are not currently on track to meet our Council and district's greenhouse gas emissions reduction targets.

Some assets are already suffering accelerated deterioration due to increasing adverse weather events and other climate change impacts. Changes to weather patterns and other climate change impacts are, and increasingly will, prevent existing assets from performing to meet current Levels of Service. In recent times we have seen elsewhere in New Zealand the enormous damage caused by extreme weather events, and the subsequent high costs (financial, environmental and social) of responding, repairing and adapting affected infrastructure: in coming years we will need to build in resilience to our financial planning so we can deal with similar aftermath.

Systemic changes to asset management practices and our ways of working are underway and must continue (see separate Significant issue), because we lack consistent data about greenhouse gas emissions for some of our infrastructure and their vulnerability to hazards and risks. This compromises our ability to make well-informed decisions that will future-proof infrastructure, and risks maladaptation. Delays in anticipated Government climate legislation, as well as our subsequent ability to put policies and decision-making processes in place accordingly, hinder our clarity about future roles and funding to support infrastructure in the community.

What are the urgent actions we need to take to adapt and increase resilience of our infrastructure and community?

Table 2: Significant Issue: We need to ensure our infrastructure is resilient to impacts of climate change and natural hazards

Options		Implications (Pros and Cons)	Progress?	Strategic Response
1	While awaiting national legislation and further policy development that will direct our approach to responding to climate change, apply guiding principles to investment decisions: <ul style="list-style-type: none"> - continue to meet legal obligations - take a 'first do no harm' approach in renewing/ investing in new infrastructure - consider deferring renewals/replacements of non-critical assets in medium-high risk areas - including determining if assets should be renewed, replaced, or "sweated" for a specific timeframe - prioritise sustainable risk reduction approaches - prioritise nature-based solutions to adapt 	<ul style="list-style-type: none"> • Spending and carbon is optimised towards climate-resilient infrastructure where possible • We avoid harmful short-term or maladaptive responses that may increase risk to our community • Potential to avoid costly reactive maintenance and upgrade costs in the wake of adverse weather events • Investment which provides environmental co-benefits is prioritised • Potential changes to costs – project-dependent • Collaboration between adaptation and infrastructure planning • Not a definitive decision – potential for inconsistent application • Could delay decisions on when critical infrastructure is no longer sustainable nor safe to continue in some vulnerable areas, and incur additional costs in interim 	Yes	Our proposed Strategic Response of progressing options 1-4 will put us on the right path to reduce emissions and exposure to climate change impacts, by making sure we are positioned to make well-informed decisions about infrastructure in vulnerable areas, build climate risks in all planning and make decisions that reduce emissions, avoid harm to wellbeings, and ultimately transform us to a low emission city.
2	Increase planning with climate-impacted communities to find local adaptation pathways as well as engagement across the city about the challenges ahead for the city and district, in responding to climate change impacts	<ul style="list-style-type: none"> • Communities in vulnerable areas start to become more aware of, and prepared for, climate impacts on their infrastructure • Adaptation plans help inform decisions on current and future Levels of Services for infrastructure provision in affected areas • Increased adaptation programme costs • Upcoming climate adaptation legislation may alter parameters or render some planning redundant • Timing of consultation processes can delay short-term decision making on climate risks • Increased engagement activities and costs, to carry out effective, deep community-wide conversations • Community-wide understanding about the challenges we face in addressing and paying for the response to climate change impacts 	Yes	
3	Increase Council knowledge, data and capability in understanding the effects of climate risks and emission reduction (including using pilot projects) to inform future decisions, including district planning	<ul style="list-style-type: none"> • Potential for reduced emissions • Development of a detailed baseline of existing emissions will allow for better informed decision-making going forward • Increased data will be available to inform fit-for-future investment decisions • Will enable projects that provide new considerations such as emissions related to material selection, construction method, maintenance over whole-of-life, and disposal, to be trialled • Eventual reduction in natural hazard risk to public assets and avoidance of maladaptation strategies or misdirected investment • May position Council proactively in relation to expected national policy direction • May result in reduced Levels of Service, where appropriate 	Yes	
4	Consider options for lower emissions and enhanced resilience for new and renewed infrastructure at project initiation phase	<ul style="list-style-type: none"> • Infrastructure design takes into account options for reducing embodied and operational carbon and considers current and future use • Reduced emissions • Changes to project whole-of-life costs – could be more or less, depending on the project 	Yes	

5	<i>Immediately change all Levels of Service in medium-high risk areas</i>	<ul style="list-style-type: none"> • <i>Inequitable approach</i> • <i>Pre-empts Government direction</i> • <i>Community dissatisfaction</i> • <i>Unlikely to be sufficient time for adequate investigation into the impact of reducing Levels of Service</i> • <i>Constraints on ability to withdraw services under existing legislation</i> 	No	
6	<i>Increase contingencies on all projects in high risk areas/assets</i>	<ul style="list-style-type: none"> • <i>Costly and blunt way to manage project risks</i> • <i>More funding required for projects so less available for other priorities</i> • <i>Would likely result in inaccurate forecasting meaning funding movements subsequently required through annual plans</i> • <i>Does not address climate risks or vulnerabilities</i> 	No	

Significant Issue: We need to plan and invest for growing and changing demand

We need to future-proof our infrastructure to serve our growing and changing population, so that we can foster liveable, safe, low-emission neighbourhoods and travel.

Over the next 30 years, we need to invest in infrastructure in ways, and places, that meet the changing needs of our growing population. We must be able to serve the increasing amount of higher-density living across the city, and meet changing lifestyle preferences and housing supply demands over time. At the same time we need to stimulate a reduction in vehicle usage to aid our district’s transition to being carbon zero by 2045, and encourage ready use of public transport and greater active travel.

We predict that our city’s population will increase by around 66,000 people (or 37,000 households) by 2054. Following changes to planning rules, there will be opportunity for more people to live in neighbourhoods that are closer to the central city or suburban centres. The Government’s National Policy Statement on Urban Development and introduction of the Medium Density Residential Standards require us to significantly increase the amount of land available for intensive residential development, with few restrictions. This makes it more difficult for the Council to anticipate where and when developer-led housing will occur: we need to harness development contributions, access available Government funding and ensure our infrastructure planning will meet growth demand in a timely way. Also, increased intensified developments put pressure on the Council’s resourcing of operations associated with consequential processes such as subdivision and building consenting.

Looking forward, we will see more intensified living (e.g. compact multi-unit housing, smaller outdoor space for households, limited or no off-street parking, greater need for shared public places for connection/recreation) combined with changing lifestyles and technologies (e.g. working from home, increased home delivery of services and goods). These changes present opportunities for Council’s infrastructure planning to be bold: we need to lead a regenerative approach to development and regeneration of our city and neighbourhoods. Integration of what’s most important is us is vital: looking after our waters, protecting our identity, tāonga and heritage; greening our city; and creating connected, liveable and prosperous places.

We need to ensure our infrastructure supports economic development, through provision and maintenance of quality, accessible roads, lifeline routes, water services, public transport networks – all vital for productive business operations, movement of goods and people, and supporting the national and international airport and port hubs that the city are home to. Our network of community, recreation and sport facilities, libraries and galleries, multi-purpose arena, parks and open spaces need to continue to contribute to economic and social wellbeing by enhancing the city as a good place to live and work – they add to the city’s attractiveness for talent, visitors and residents and help showcase the city.

Over the next 30 years, how we maintain and plan our infrastructure will shape our response to climate change, ensure we preserve and improve our environment, and can safeguard community resilience to natural disasters and weather events. Our infrastructure planning needs to consider local and sub-regional land use and transport planning and Rūnanga priorities - in particular, increased housing and papakāinga/Kāinga Nohoanga development. We need to continue to plan for, deliver and operate and maintain fit-for-purpose and resilient facilities, roads and footpath, parks and open spaces, and waste management systems that meet or can be adapted to reflect these changes – greater diversity, an ageing population, changing lifestyles, and high community expectations and preferences – but in a smart and future-focussed way that is affordable for residents and businesses.

What are the best ways for us to respond to growth and simultaneously become a low-emission city?

Table 3: Significant Issue: We need to plan and invest for growing and changing demand

Options		Implications (Pros and Cons)	Progress?	Strategic Response
1	Prioritise integrated infrastructure planning that stimulates regeneration in prioritised local areas, supports liveable neighbourhoods and business growth	<ul style="list-style-type: none">• Supports investment in priority local areas and along transport corridors, and aligns with direction of Greater Christchurch Partnership Spatial Plan• Infrastructure decisions that have been made with consideration of future projections as well as current state• Encourage sufficient and suitable infrastructure in place, in time, to meet growth needs• Potential increased costs to operate enhanced facilities and networks• Upfront costs placed on developers now for future demands• Opportunity to incorporate low emission attributes• Optimise development contributions to pay for sufficient, timely provision of infrastructure• Government funding priorities could fast-track work• Enables planning for public realm improvements crucial to supporting compact urban form• Community dissatisfaction in non-priority areas due to deferred maintenance	Yes	Our proposed Strategic Response of progressing identified options 1-4 will help us to meet demands on our infrastructure caused by population and business growth, household density and changing needs and preferences, balanced with transitioning to a low emission city. This Strategic Response will increase utilisation of facilities, spaces and Council-owned land by partnering/collaborating
2	Partner and collaborate with central government, developers, mana whenua and communities to identify and take opportunities to deliver, adapt, enhance or divest infrastructure	<ul style="list-style-type: none">• Increase opportunities to protect and enhance the environment, biodiversity in parks and open space through partnership projects• Better utilisation of community places and spaces and under-used Council sites incorporating non-Council owned places and spaces• Potential for reduced expenditure through harnessing partnership and collaboration models for delivery and operation of community infrastructure	Yes	
3	Support transition to a low emission city by prioritising investment in infrastructure that promotes active travel, public transport usage	<ul style="list-style-type: none">• More liveable neighbourhoods, increased active and public travel options, and road user safety• Potential for shared operating and maintenance costs	Yes	

	and improved road safety, including identifying opportunities to integrate and 'hub' community-based facilities and services	<ul style="list-style-type: none"> • Reduced emissions from travel and can foster easier access to community facilities (and support government priority to reduce Vehicle Kilometres Travelled) • Reduced investment in areas with higher risk and decrease demand for infrastructure in these areas • Is not viable for some sectors to use active travel or public transport – consideration will still need to be given as to how support sectors such as logistics and construction to transition to low emission • Provides ability to consider innovative and eco-friendly approaches to building and operating facilities • Requires availability of suitably-sized land parcels to develop 		and divesting if necessary – so that we can meet community needs and expectations.
4	Leverage off central government funding opportunities and explore alternative funding options and models, such as user pays, as a means to deliver the level of infrastructure and services our community wants	<ul style="list-style-type: none"> • Rates and development contributions will not be sufficient to meet future demand for infrastructure • May need to investigate alternative funding options for community asset transfers to ensure long-term viability • Aligns with direction of national Infrastructure Strategy and Government priorities for funding to support local government infrastructure • Potentially unaffordable spread of costs among vulnerable communities • Still requires up-front funding 	Yes	
5	<i>Pause investment in infrastructure potentially affected by government reforms relating to resource management and climate adaptation until final details are known</i>	<ul style="list-style-type: none"> • <i>Likely community dissatisfaction with reduced standard of provision in interim</i> • <i>Failure to address population growth and changes in needs/preferences</i> • <i>Statutory requirement to provide services</i> • <i>Development contributions will not be aligned to the growth profile</i> • <i>Does not address need to improve data from modelling and monitoring of high-risk areas that will likely be subject to future development constraints</i> 	No	
6	<i>Reduce levels of infrastructure investment in areas outside those where increased housing density is being enabled, access to public transport corridors enhanced and/or where prioritised local areas planning is to be undertaken</i>	<ul style="list-style-type: none"> • <i>Potentially enable lower levels of rates' increases</i> • <i>Inequitable provision and Levels of Service in some areas</i> • <i>Would not provide fit-for-purpose community facilities</i> • <i>Potential health and safety risks due to inadequate maintenance</i> 	No	
7	<i>Cut operating costs of existing community infrastructure by applying a blanket reduction of Levels of Service (such as operating hours) and deferring renewals and replacements, to prioritise funding to new infrastructure in areas of new growth</i>	<ul style="list-style-type: none"> • <i>Enable possible reduction in rates increases short-term</i> • <i>Community dissatisfaction</i> • <i>Potential health and safety risks due to inadequate maintenance</i> • <i>Increased need for costly, reactive maintenance</i> • <i>Still same amount of infrastructure to operate overall</i> 	No	

Overarching Significant Issue: We need to improve our understanding of our infrastructure so we can make the best decisions for our community

We need to advance how we collect and use data about all our infrastructure, especially relating to condition and demand, so that decisions are based on accurate information that can guide timely investment in maintenance, renewals and new assets – for now and for future generations.

Like other councils in New Zealand, we face the ongoing challenge of managing a diverse portfolio of infrastructure that is essential to delivering quality services for our community. Both central and local government find it difficult to “know” assets– that is to gather and maintain consistent information across assets about condition, whole-of-life costs, maintenance requirements, emissions data, and vulnerabilities. The recent proposals from the Future for Local Government report proposes Government intergenerational climate change response funding - it will be vital for us to have sufficient, robust information about current and future asset needs in order to apply for such funding. Data is key to strategic long-term planning, which is not only important to our community, but to the market and investors who need an accurate picture of what lies ahead. We must also acknowledge our reliance on technology to help us identify important data, manage critical infrastructure issues, and provide us with easy-to-use data. If we don't also advance the technology that supports data collection and collation and combats issues such as cyber-security, we will not be able to address this overarching Significant Issue. We need to take a future-focussed approach to decision making – by prioritising not only data, but the technology available to enable it⁷.

Gaps in asset information impact on our ability to make informed and prioritised decisions on infrastructure and planning of our urban spaces – which will be fundamental in responding to the other Significant Issues identified. For example, crucial to addressing our Significant Issue relating to deliverability and affordability, is the need to be able to plan proactively and determine criticality of maintenance and renewals, and schedule renewals and replacements to optimise limited funding. Using complete and consistent data across our assets will enable us to plan better long term, and reduce the likelihood of unforeseen costs throughout the life of an asset.

We want to perform, plan and spend the best we can for our community and be an ever-improving organisation. Understanding our infrastructure (from planning stages, through whole-of-life, to disposal) alongside our growth projections, climate vulnerabilities and resourcing, will enable us to do this, and ultimately improve value for money, enhance long term planning and facilitate evidence-based conversations. We need to get the basics right with the systems and data we have now, as well as look to opportunities for collaboration across local and central government and the private sector, and follow international best practices to improve our systems and processes going forward.

How can we improve data collection and the way we use it in decision making to best address the Significant Issues?

Table 4: Overarching Significant Issue: We need to improve our understanding of our infrastructure so we can make the best decisions for our community

Options		Implications (Pros and Cons)	Progress?	Strategic Response
1	Improve processes for collecting, collating and using asset data for integrated information across our systems, which can better inform our Elected Members in making investment decisions	<ul style="list-style-type: none"> • Systemic change to processes can take time to embed in an organisation and may require a tiered approach • May need to invest in new resources, tools and systems • As we learn more about our assets, we may need to reprioritise/deprioritise planned capital projects to address critical maintenance • Reduction in potential Health and Safety risks of lesser-understood assets • Better information on the degree of exposure and vulnerability to climate induced hazards • Easier access to information and therefore efficiencies • More/increased coordination and collaboration between different units and external contractors • Provide a coherent picture of assets; and reduce the potential of unnecessary maintenance spending • Provide more consistent information to prioritise planned and reactive investment across the renewals and replacement programme • Reduce the disconnect between external contractor systems and internal systems – enhancing the ability to information share • Costs associated with upgrading systems, collecting data and training 	Yes	Our proposed Strategic Response to progress options 1-3 will improve staff access to consistent, quality data, and help Elected Members make the best decisions for our community, based on comprehensive data. It will build up baseline data to guide prudent, timely investment decisions; identify and realise efficiencies; streamline processes to achieve greater data consistency. At the same time, we will be able to take a future-focussed, flexible approach to technology innovation, piloting new platforms and programmes as they emerge, and ensuring we continue to become more efficient and effective in how we collect and collate data.
2	Partner with other councils, central government and the private sector to share and improve data processes and systems; identify and trial forward-facing technologies; and maximise any external funding opportunities	<ul style="list-style-type: none"> • Keep up-to-date with international/national trends and create efficiencies • Continue to find ways to improve how we collect, categorise, and use data; May require out-sourced expertise • Maximise Council's ability to respond and govern future needs of our data • May require changes to internal policies to allow further flexibility • Facilitate proactive planning in our capital work programme • Ensure that we can keep up with international best practice • Better align to external funding provider requirements • Would help to optimise the use of our data and identify where we could improve 	Yes	
3	Improve capture and understanding of social and cultural data to inform how we respond to climate change events, growth patterns and infrastructure demand	<ul style="list-style-type: none"> • Better data to make decisions based on the potential impact of different cohorts within our community – more equitable approach • Will help improve our response to Significant Issues identified for our infrastructure 	Yes	
4	<i>Continue with status quo - maintain multiple data systems and rely on manually coordinating data when it is required</i>	<ul style="list-style-type: none"> • <i>Cost less than options involving systemic change - Acceptable in short term, but not a long-term response</i> • <i>Require less investment as no systemic change or new technology</i> • <i>Without up-to-date and accurate asset data we cannot effectively plan long-term capital or maintenance activities</i> • <i>Difficult to share and rely on data from contractors with different systems</i> • <i>Perpetuates waiting for reactive maintenance requirements to appear rather than proactive planning</i> • <i>Health and Safety risks</i> 	No	

⁷ While this draft Infrastructure Strategy does not detail our digital footprint, it will be important to consider this, and all that it supports, as we respond to our Significant Issues.

What is our Most Likely Scenario?

How we respond to the Issues we have identified is critical to our success in providing infrastructure for our community. In the above tables, we have identified 16 preferred Options for actioning. When implemented together, these form our Most Likely Scenario, set out below in Table 5.

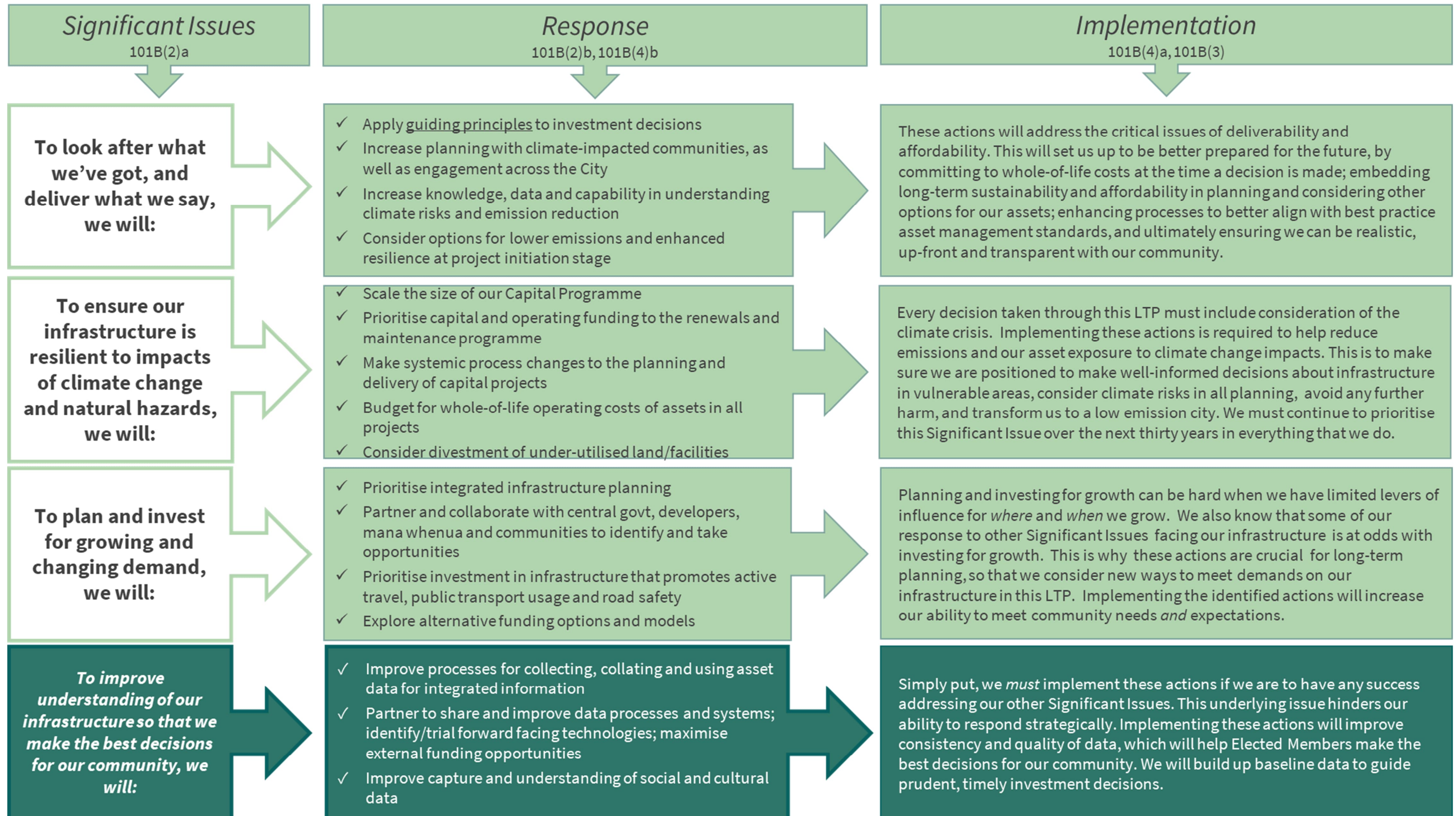


Table 6: Timeline (draft, indicative) of how we will implement our Strategic Response over the lifecycle of the Infrastructure Strategy

<div><div>\$</div><div>Look after what we've got, and deliver what we say</div></div>			
	Short term (years 1 -3 of the LTP)	Medium term (years 4-10 of the LTP)	Long term (years 11-30 of the LTP)
\$	Scale the size of our capital programme to ensure it is deliverable		Continue to right-size the capital programme through subsequent LTPs
\$	Prioritise capital and operating funding to the renewals and maintenance programme so we can sustainably look after our existing assets		Continue to prioritise the renewals and maintenance programme long-term
\$	Investigate systemic process change to planning and delivery of capital projects	Implement systemic process change to planning and delivery of capital projects	Review and adjust processes if required, so they support smart project delivery
\$	Require whole-of-life operating costs be provided for consideration of all projects	Update budgets as required to account for whole-of-life operating costs in all projects	Ensure whole-of-life operating costs are consistently identified and budgeted in projects
\$	Consider opportunities for divestment of under-utilised land and facilities	Continually investigate opportunities for divestment, including exploring partnership and locally-driven initiatives, through Annual Plans and LTPs	
<div><div></div><div>Ensure our infrastructure is resilient to impacts of climate change and natural hazards</div></div>			
	Short term (years 1 -3 of the LTP)	Medium term (years 4-10 of the LTP)	Long term (years 11-30 of the LTP)
	Apply guiding principles to investment decisions: continue to meet legal obligations; take a 'first do no harm' approach; consider deferring renewals/replacements of non-critical assets in medium-high risk areas; prioritise sustainable risk reduction approaches, and nature-based solutions	Apply national directives, relevant legislation and Council asset and adaptation response policies developed in the first three years of the LTP, to decisions relating to coastal and natural hazards' adaptation, that will increase community and infrastructure climate resilience	
	Increase planning with climate-impacted communities for local adaptation pathways	Prioritise engagement across the city on the challenges ahead in responding to climate change impacts, while continuing community-based adaptation planning	Allocate adequate funding in subsequent LTPs to address the findings of community engagement and local adaptation pathways, to avoid intergenerational inequity
	Increase Council knowledge, data and capability in understanding the effects of climate risks and emissions' reduction, particularly through piloting key projects	Use increased knowledge and data to make decisions based on the effects of climate risks and emissions' reduction	Expand pilot projects that show effectiveness and provide further funding for key systems and processes that embed knowledge, data and capability in Council
	Develop assessment tools and guidance material so that options for low emission impact and enhanced resilience for new and renewed infrastructure can be included at project initiation phase	Require information on/assessment of options for low emission impact and enhanced resilience for new and renewed infrastructure to be included at project initiation phase	Make decisions on infrastructure projects based on the potential for low emission impact and enhanced resilience
<div><div></div><div>Plan and invest for growing and changing demand</div></div>			
	Short term (years 1 -3 of the LTP)	Medium term (years 4-10 of the LTP)	Long term (years 11-30 of the LTP)
	Identify and prioritise integrated infrastructure planning that stimulates regeneration in prioritised local areas - supporting liveable neighbourhoods and business growth		Extend and continue local regeneration programmes
	Partner and collaborate with central government, developers, mana whenua and communities to identify and take opportunities to deliver, adapt, enhance or divest infrastructure		
	Identify opportunities for investment in infrastructure that promote active travel, public transport usage and improved road safety, and to 'hub' facilities and services	Prioritise funding to projects that support our transition to a low emission city	
	Identify and prioritise projects that attract central government funding	Continue to prioritise external funding opportunities, while also exploring alternative funding models, such as user pays, as a means to deliver infrastructure	
<div><div></div><div>Improve our understanding of our infrastructure so we can make the best investment decisions for our community</div></div>			
	Short term (years 1 -3 of the LTP)	Medium term (years 4-10 of the LTP)	Long term (years 11-30 of the LTP)
	Identify and implement improvements for how we collect, collate and use data	Review and maintain process and systems improvements	Maintain consistent and integrated data across Council to inform decision-making
	Partner with other councils, central government and the private sector to share and improve data processes and systems; identify and trial forward-facing technologies; and maximise any external funding opportunities		
	Improve our capture and understanding of social and cultural data	Use improved social and cultural data to inform planning and decisions relating to climate change, city growth and demand on our infrastructure	

How will we implement the Infrastructure Strategy?

A sustained, long term approach is needed to implement our Most Likely Scenario. Our ability to respond will always be tempered by our current financial position (which in turn is often strongly impacted by external economic conditions); our need to manage competing priorities; and, unforeseen events.

How can we set ourselves up for success?

To be most effective, the Most Likely Scenario requires the Council to undertake a range of supporting operational 'ground' work, such as:

- Developing a monitoring and evaluation framework for actions identified in the Infrastructure Strategy
- Reviewing the Infrastructure Design Standards, as appropriate, to ensure design practices support climate adaptive infrastructure
- Developing clear policy to guide materials, timing and location of infrastructure renewals and replacements in areas vulnerable to coastal hazards and climate change impacts – noting the importance of concurrent work with impacted communities throughout on adaptation pathways
- Continuing to anticipate and proactively mitigate and manage increased risks associated with insurability of assets and likely transfer of risk
- Ensuring any changes to Levels of Service (increases or decreases) that are agreed to in the LTP 2024-34, are embedded in programme planning, agreed budgets and service performance
- Continuing to monitor completion of the scheduled capital programme and adjust it accordingly, to ensure that each year we deliver on what we have budgeted for, and committed to the community
- Considering new ways of doing things, such as pilot projects
- Allowing flexibility to embrace technological advances such as digital twin technology (which creates a virtual, real-time replica of a piece of infrastructure) to improve our ability to understand and manage our infrastructure assets' condition, and – for example - inform timely and best value renewals and replacement programming.

How can we ensure data is an overarching priority?

Taking immediate, positive steps forward in our data collection, collation and use is fundamental to implementing our Most Likely Scenario successfully. This might look like:

- A stocktake of all existing data sets to assess the validity and consistency of asset data throughout the Council
- A robust risk assessment of any gaps in data, and identifying opportunities to mitigate these
- Creating data "champions" within operational units to foster greater rigour and oversight of data practices
- With a view to possible future structural reforms, establishing a cross- agency, collaborative governance group to have oversight of respective data collection practices and data sets
- Drawing on funding opportunities from Government and private partnerships to accelerate our use and understanding of technology and data.

What significant decisions can we anticipate?

As we look ahead to the next 30 years, it is highly probable that the Council will need to make significant decisions relating to:

- a) Giving effect to Government policy direction, structural reforms and legislative changes that impact on delivery of services and activities
- b) Adapting our infrastructure provision and Levels of Service to mitigate and manage the impacts of climate change on vulnerable communities, including responding to potential severe weather events, natural disasters and civil emergencies.

It is not easy to anticipate the nature and significance of decisions that may be required, as they will likely be driven and/or heavily influenced by Government policy and sector responses (such as insurance). However, where possible, asset-specific significant decisions anticipated over the lifespan of this LTP 2024-34 will be identified through the upcoming Joint Development Process with Elected Members.

Programmes, projects and expenditure for each asset area [Placeholder]

Projected capital and operational expenditure [Placeholder]

Tables setting out projected capital and operational expenditure for each asset category will be provided, as the LTP co-development process progresses, and indicative budget information becomes available. For each asset class, the following information will be included.

Example: [Asset class]

Timing of expenditure		FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	FY35-39	FY40-44	FY45-49	FY50-54
Opex		\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
Capex	Renewal	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
	Meeting current LoS	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
	New service	\$	\$	\$											
Capex TOTAL		\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$

Appendices

Appendix 1: Assumptions that underpin the Most Likely Scenario

Assumption	Level of uncertainty and reason/s for this and implications/risks
<p>Growth/population</p> <p><i>The growth/population statistics are based on the 2018 Census and the Environmental Scan 2022. These statistics are a placeholder until the 2023 Environmental Scan is updated (due late June 2023).</i></p>	
<p>The population of Christchurch City will continue to grow, reaching around 453,000 by 2051.⁸</p> <p>The population of Christchurch City will continue to grow, reaching around 458,000 (medium projection) by 2054.</p> <p><i>The purpose of the Greater Christchurch Spatial Plan is to set a desired urban form for a projected population of 700,000 (to 2051) and beyond that to 1 million people to ensure our urban form is future-proofed in the context of population growth and climate change. (placeholder)</i></p>	<p>There is a low level of uncertainty regarding this assumption for years 1-10, and a medium level of uncertainty regarding this assumption for years 11-30.</p> <p>Achieving these levels of population and household growth is reliant on cooperation between Christchurch City and neighbouring district councils (Waimakariri and Selwyn), to achieve the agreed policy direction for settlement. It is also reliant on other external factors, such as immigration policies and trends, and economic opportunities.</p> <p>The Council must plan for growth and provide the right infrastructure at the right time to service growth demand.</p> <p>Planning and delivery of infrastructure to service growth development is under constant review and adjusted through the LTP and Annual Plans where required.</p> <p>The sub-national population projections released in December 2022 indicate that growth in Christchurch is likely to be slower than previously projected.</p>
<p>The population of the Selwyn district is projected to grow by 42,000 to reach 110,000; Waimakariri district is projected to grow by 23,500 to reach 89,000 – both by 2051. (placeholder)</p>	<p>There is a low level of uncertainty regarding this assumption for years 1-10, and a medium level of uncertainty regarding this assumption for years 11-30.</p> <p>Many residents from neighbouring districts work in Christchurch, which adds to demand on our infrastructure and particularly our road network, as well as our community infrastructure such as sports facilities, pools etc.</p>
<p>The number of households in Christchurch City will continue to grow, reaching around 197,000 by 2051.</p>	<p>There is a low level of uncertainty regarding this assumption for years 1-10, and a medium level of uncertainty regarding this assumption for years 11-30.</p>

Assumption	Level of uncertainty and reason/s for this and implications/risks
<p>Derived household projections indicate that while we may see a similar level of overall growth, we will likely be starting from a lower base (around 150,900), and as a result the total number of households in the city in 2054 is likely to be around 4,000 less than previously projected (around 183,400). (placeholder)</p> <p>While we have not yet had an adjusted set of household projections, it is reasonable to assume that household growth will occur at a slower rate than previously projected.</p>	<p>The Council must plan for growth and provide the right infrastructure at the right time to service growth demand.</p> <p>Planning and delivery of infrastructure to service growth development is under constant review and adjusted through the LTP and Annual Plans where required.</p>
<p>The average household size will decrease over time, resulting in a decrease from 2.6 to 2.5 persons per household between 2043 and 2048. Eighty per cent of household growth will be in one and two-person households. (placeholder)</p> <p>Applying the average household size (2.6 people per household) to the 2022 population estimate (389,300), it is likely that in June 2022 there were around 149,000 households in the city. (placeholder)</p>	<p>There is a low level of uncertainty regarding this assumption; it is based on 2017 household projections (StatsNZ) and reflects trends that occur with an ageing population.</p> <p>This will result in changes in average household demand on infrastructure and for services. Planning and delivery of infrastructure to service growth development is under constant review and adjusted through the LTP and Annual Plans where required.</p>
<p>The population will age. The number of people aged over 80 years will be around 45,000 by 2051 (almost tripling the current number of people). (placeholder)</p> <p>In Ōtautahi Christchurch, the only age group where we have experienced population growth in the past 12 months is the 65+ group. The biggest decrease has been in the 0 – 14 years group followed by the 15 – 39 years group. (placeholder)</p>	<p>There is a low level of uncertainty regarding this assumption; it is based on StatsNZ December 2016 population figures and Our Space 2018-48 settlement pattern projections.</p> <p>An ageing population is likely to mean some levels of service will need to evolve to meet specific requirements of older residents. Levels of service are under constant review and can be adjusted through the LTP or Annual Plan as required.</p> <p>Older residents are more likely to be on fixed incomes and be more sensitive than other residents/ households to increased Council costs including rates.</p>
Financial	
<p>Inflation will be as forecast in the BERL local government cost adjusters 2020. The assumed inflation rates by year for the 2021-31 period are:</p>	<p>There is a low-medium level of uncertainty regarding this assumption. The level of inflation is managed through 3-yearly LTP adjustments.</p>

Assumption						Level of uncertainty and reason/s for this and implications/risks
	Opex	Capex		Opex	Capex	
2021/22			2026/27	2.4	2.6	
2022/23	2.10	2.30	2027/28	2.5	2.7	
2023/24	2.20	2.40	2028/29	2.7	2.8	
2024/25	2.30	2.50	2029/30	2.7	2.9	
2025/26	2.4	2.5	2030/31	2.6	2.7	
Inflation following this period is assumed to be: Opex annual: 2.2 Capex annual: 2.3						
The Current Funding Assistance Rate (FAR) of 51% on qualifying expenditure will not change. We will receive the total amount of subsidy that we have assumed we will receive.						There is a moderate level of uncertainty regarding this assumption. Changes to government funding priorities and Waka Kotahi funding decisions are outside Council control and the risk varies from project to project. The maximum financial impact would be the elimination of the subsidy, which is extremely unlikely. Decisions on what projects will be funded through the National Land Transport Fund will not likely be confirmed until after 30 June 2021, and this means there is some uncertainty around funding for some projects.
The Council will retain access to, at the least, the level of insurance cover it currently has on its infrastructure and facilities. The Council will have the ability to increase cover if it deems this to be financially prudent.						There is a low-medium level of uncertainty regarding this assumption – the Council has no control over external factors that may affect access to insurance.
The Council will receive funding from central government towards 'shovel-ready' infrastructure projects, as part of the Government's stimulus package response to the economic effects of COVID-19. Funding confirmed to date (November 2020) is for the completion of six cycle routes, resulting in \$90.8 million included in the capital programme over the first three years of the LTP.						There is a low level of uncertainty regarding the assumption that the Council will receive funding for the six cycleways the Government has already committed to. However, there is a medium-high level of uncertainty regarding any assumed funding for the remainder of the \$818 million of projects submitted by the Council, as decisions have not yet been made regarding them. Any further funding confirmed will be included in Council LTP or AP documents as appropriate.
This is still a work in progress with money being received as spent. It is claimed periodically up to Dec 22 we had claimed a total of \$38 million out of a total approved of \$87 million.						The latter creates uncertainties in planning and prioritising projects: delivery of some other infrastructure projects may need to be pushed back, to enable earlier than planned completion of 'shovel ready' ones. Also, increased demand on contractors to deliver projects may impact on pricing, and labour force or materials availability.

Assumption	Level of uncertainty and reason/s for this and implications/risks
<p>The Council will receive funding from central government for infrastructure projects from the Christchurch Regeneration Acceleration Fund, as follows:</p> <ul style="list-style-type: none"> - \$40 million for developing the Green Spine through the Ōtākaro Avon River Corridor red zone. - \$40 million for improving roads and footpaths, safety initiatives, and bus priority measures on key public transport routes. - \$220 million for the Canterbury Multi-Use Arena. 	<p>There is a low level of uncertainty regarding the assumption that the Council will receive funding, as the Government has committed to this.</p> <p>We have received all this except for the unspent portion of the CMUA which will be received in FY24 (approx. \$32m)</p>
<p>The Council will receive funding from central government (around \$20 million + a share of a regional grant) to spend on Three Waters infrastructure and service delivery, as part of stage one of the Government's Three Waters reforms.</p>	<p>There is a low level of uncertainty regarding this assumption. The Council has signed an MOU with the Government to enter into discussions as part of stage one (this was a condition of receiving this funding).</p> <p>The reform change, without currently having legislation to reflect the change gives a medium level of uncertainty around funding for this strategy. Transition to the water entities will also not be until July 2026. Tranche 2 is not proceeding as a result.</p>
Environmental/natural hazards	
<p>Climate change occurs following the IPCC scenario, representative concentration pathway (RCP) 8.5, as per <i>MfE recommendations</i>⁹, <i>National Climate Change Risk Assessment methodology</i>¹⁰ and <i>NIWA projections</i>^{11,12}: increased frequency and intensity of storm events; more intense and frequent extreme rainfall events; increased number of landslides and worsening erosion; more severe droughts.</p>	<p>There is a low-medium level of uncertainty regarding this assumption in the first 30 years, a medium level of uncertainty for 50 years, and a medium-high level of uncertainty for 100 years.</p> <p>This is due to flat early exponential trend and similarity of different scenarios in short to medium term (and steepening/diverging trends in longer term). If the changes are different from what is predicted, this will be assessed as it becomes evident.</p>

⁹ <https://www.mfe.govt.nz/sites/default/files/media/Climate%20Change/coastal-hazards-guide-final.pdf>

¹⁰ <https://www.mfe.govt.nz/sites/default/files/media/Climate%20Change/national-climate-change-risk-assessment-main-report.pdf>

¹¹ NIWA Client Report 2016160AK, *Climate Change and Variability*- Ngāi Tahu, Pearce, P.R, Tait, A., Bell, R.G., Mullan, A.B., Paul, V., Law, c., Collins, D., Zammit, C, Sood,A.

¹² NIWA client report 2019339WN, *Climate Change Projections for the Canterbury Region*, February 2020, Macara, G., Woolley, J-M., Pearce, P., Wadhwa, S., Zammit, C., Sood, A., Stephens, S.

Assumption	Level of uncertainty and reason/s for this and implications/risks
<p>Average temperature rise of 0.5°C to 1.5°C by 2040, and 3.0°C hotter by 2090 (average maximum temperatures up to 3-4°C hotter by 2090 and average minimum temperatures 1-2°C hotter by 2090); more very hot days (>25°C); more fire hazard days; more frequent and extreme high winds; fewer frosts; annual rainfall similar to current, but seasonally shifted and concentrated into extreme events.</p>	
<p>Projected sea level rise of 0.3m by 2050, 0.5m by 2075 and 1m by 2115; shallow groundwater also expected to rise in coastal areas and near tidal reaches of rivers. <i>(MfE recommendations and 2017 Coastal Hazard Assessment for Christchurch and Banks Peninsula, Tonkin and Taylor based on IPCC RCP 8.5, as used in National Climate Change Risk Assessment)</i></p> <p>For sea level rise, when looking at SSP5-8.5M (updated version of RCP8.5) from a baseline of 2020, it is predicted that we will experience 20cm of sea level rise by 2050, 38cm by 2070, 77cm by 2100 and 1.02m by 2120.</p> <p><i>*Between 2005 and 2020 we experienced around 10cm of sea level rise, so these increments are in addition to that.</i></p>	<p>There is a low-medium level of uncertainty regarding this assumption in the first 30 years, a medium level of uncertainty for 50 years, and a medium-high level of uncertainty for 100 years.</p> <p>The further into the future we look, the more there is uncertainty in the IPCC scenarios. Continuing to monitor and adapt to the impacts of natural hazards on our infrastructure and communities, will need to be a priority for the Council. Ōtautahi Christchurch is the most at-risk city in New Zealand from the effects of sea level rise. We have significant infrastructure that will be affected by the assumed sea level rise. The Council's approach to how it will respond to rising sea level will evolve as it gains increased understanding of the threat and of options available to adapt to that threat.</p>
<p>There is a 30% chance of a rupture on the Alpine Fault of magnitude 8.0 in the next 50 years.</p> <p>Based on our post-earthquake experiences, in the future there will be additional capital and operational costs to adapt our infrastructure to climate impacts. Once further planning is completed, and government direction is made clear these costs will need to be considered in future LTPs.</p>	<p>There is a medium level of uncertainty regarding this assumption. This is based on scientific modelling - GNS Science, Alpine Fault, https://www.gns.cri.nz/Home/Learning/Science-Topics/Earthquakes/Major-Faults-in-New-Zealand/Alpine-Fault</p> <p>What is <i>not</i> known is the extent and degree of the impacts of an AF earthquake - therefore the risk in this sense is not well understood. Other, local earthquakes may be more damaging. However, building infrastructure to seismic design standards recommended by seismic engineers <i>should</i> cover what is needed to mitigate the risk.</p>

Assumption	Level of uncertainty and reason/s for this and implications/risks
<p>The Council's current Coastal Adaptation Framework assumes that retreat of infrastructure would be funded through rates.</p> <p>It is assumed that Council infrastructure will be affected by sea level rise and consequential ground water rise approximately in line with that described in the 2017 Coastal Hazard Assessment for Christchurch and Banks Peninsula, Tonkin and Taylor (based on IPCC RCP 8.5, as used in National Climate Change Risk Assessment)¹³.</p>	<p>We have a low level of uncertainty around this as it is reflective of the approach taken by Council when bound by frameworks such as our adaptation planning programme (Coastal Adaptation Framework) which sets out Council's role and responsibilities and our guiding principles.</p> <p>There is a medium level of uncertainty around financing and funding of retreat. The Council is unable to accurately assess the time and extent of damage to its infrastructure from these risks and has therefore assumed, for the purpose of budgeting for this LTP, that there will be to Council. If information becomes available that enables the Council to accurately budget for the impacts of sea level and water table rise, then these costs will be made available at the earliest opportunity in a future Annual Plan or LTP.</p>
Assets and services	
<p>Demand for services will grow in line with a growing city.</p>	<p>There is a low level of uncertainty regarding this assumption. In the past, we have indeed considered growth as low risk as the upgrade of infrastructure was planned in line with our growth models. The risk is potentially now significant because we are uncertain how Plan Change 14 (housing intensification) will change the growth profile.</p> <p>Growth uncertainty is a significant risk – because our plans and capital projects put forward into the LTP are still based on the 2018 growth model and spatial development assumptions.</p> <p>An updated growth model will not be timely enough to allow us to change our master plans/capital projects. There is therefore a high risk that our development contribution policy will 'under-recover' or wrongly recover development contributions for funding of growth infrastructure.</p> <p>Despite an updated growth model, Plan Change 14 may trigger growth where not expected and where capacity is not available.</p>
<p>The Council will continue to own Three Waters assets, and deliver these services, only for the first two years of the LTP.</p>	<p>There is a low level of uncertainty regarding this assumption. Central government announcements and funding indicate that the service delivery model and funding for Three Waters will be required to reform. In April 2023, the government announced a reprioritisation of Three Waters with a name change to affordable water reform. This</p>

¹³ <https://ccc.govt.nz/assets/Documents/Environment/Coast/CHA/Coastal-Hazards-Assessment-2021-Summary-Report.pdf>

Assumption	Level of uncertainty and reason/s for this and implications/risks
	expanded the initial four water entities to ten region entities. The transition to water entities has been moved to July 2026.
We will retain ownership of our assets.	<p>There is a medium level of uncertainty regarding this assumption. Significant decisions within the 30 year period of the Infrastructure Strategy may see the Council divest and/or gain assets and/or ownership and responsibility for assets, particularly in light of Three Waters reforms (above). Change in ownership of infrastructure assets could affect revenue, expenditure and debt levels, asset planning and investment decisions and levels of service.</p> <p>Most Council assets of any significance are listed as strategic assets in the Council's Significance and Engagement Policy, which means the Council needs to include any proposal to sell or dispose of these assets in its draft LTP and therefore undertake a special consultative procedure on any such proposal.</p>
Legislative	
Changes to legislation and policy during the development of the Infrastructure Strategy will impact on the management of our assets and delivery of services.	There is a low level of uncertainty regarding this assumption. We know there will be changes to legislation and national policy, including wide-scale reform of resource management legislation.
Future for Local Government may impact the change frequency of policy and legislation; however, we assume we will continue to provide the services we already provide other than Three Waters.	<p>Council considers it unlikely that any recommendations could take effect before 1 July 2024 – particularly for changes to roles or functions. Any changes that are made will be incorporated in the 2024-34 long-term plan.</p> <p>Unless specifically stated otherwise, council has prepared the plan on the assumption its existing role and functions will continue for the life of the plan.</p>

Assumptions about asset lifecycle

Only transportation and parks have been updated at this stage due to facility constraints, the remaining areas still have the 2021 updates. These will be updated once the remain information is received

Water supply			
Asset type	Theoretical useful life	Where does the asset sit in its lifecycle	Level of uncertainty (if applicable)
Reticulation	Cast iron – 120 years Steel – 100-120 years	13% < 5% TUL remaining (condition grade 5)	Low level of uncertainty

	Asbestos cement – 60-80 years Blue PVC pipe – 30-60 years	All materials are heading towards a renewals peak at the same time.	
Stations	Civil and structural – long asset life Mechanical, electrical and IAC – shorter asset life	Nearly 30% < 5% TUL 44% > 50% remaining TUL (condition grade 1)	There is a medium level of uncertainty associated with this assumption – a large number of start-up dates are missing
Treatment assets	Water supply treatment plants		There is a medium level of uncertainty associated with this assumption – the majority don't have start-up dates.

Wastewater			
Asset type	Theoretical useful life	Where does the asset sit in its lifecycle	Level of uncertainty (if applicable)
Reticulation	Concrete – RCRR – PVC – 30-60 years Asbestos cement – 60-80 years EW/VC -	14% < 5% TUL A significant proportion of the network was renewed after the Earthquakes, so the renewal peak is less pronounced. RCRR (reinforced concrete with rubber ring joints) pipes make up a large proportion of the remaining poor condition pipes	
Stations	Civil and structural – long asset life Electrical and IAC assets – shorter asset life	13% < 5% TUL. High proportion, leading to renewals forecast spike in 2021	There is a medium level of uncertainty associated with this assumption, as the condition data is sparse
Treatment assets	Bromley WWTP Banks Peninsula WWTPs		There is a medium level of uncertainty associated with this assumption – many treatment assets don't have start-up dates.

Surface water and waterways			
Asset type	Theoretical useful life	Where does the asset sit in its lifecycle	Level of uncertainty (if applicable)

Reticulation	Concrete – RCRR -	6.8% < 5% TUL. High proportion of these are RCRR pipes with EQ damage still, as well as brick and rock and earthenware	Low level of uncertainty
Waterway lining	Timber – 40 years Concrete – 100 years Rock -	Timber lining reaching the end of its useful life in peaks in 6-10 years, and 16-20 years 10% of network between < 5% and < 15% TUL	Low level of uncertainty (due to LDRP inspections)
Pump station assets	Pumps - 40 years Civil and structural – long asset life	Range from 1-51 years. Nearly 60% at condition grade 5. Remaining useful life of actual pump stations cannot be provided due to number of asset groups and components within a pump station	
Flood protection structures	Stopbanks - Valves – 100 years		Low level of uncertainty
Treatment and storage facilities	Lining Soakpit Basins	Approx 45% lining and 62% soakpits are condition grade 3-5	

Transportation			
<i>Asset type</i>	<i>Theoretical useful life</i>	<i>Where does the asset sit in its lifecycle</i>	<i>Level of uncertainty (if applicable)</i>
Carriageways	At least 80 years 'economic life'	23% of pavement layers (by number) beyond expected life	
Drainage (kerb and channel)	Concrete – 80 years	Approx 174 km (of total 3,512 km) beyond expected life – or 5%	
Footpaths	Asphaltic concrete – 25 years Concrete – 80 years	Approx 8 km (of total 2,682 km) of asphaltic concrete beyond expected life – or 0.3%	

		Approx 0.8 km (of total 55 km) of concrete beyond expected life – or 1.5%	
Bridges Culverts	Concrete - 100 years Steel - 80-95 years Timber - 70-75 years Concrete – 90 years Steel – 50 years	Bridges and culverts due for full replacement now or overdue for replacement – 1% Bridges and culverts due for full replacement in 1-25 years – 23%	Medium level of uncertainty around year of construction – especially for older, masonry culverts
Retaining walls	Timber/earth - 50 years Concrete/steel/stone – 100 years	Walls due for full replacement now or overdue for replacement – 3% Walls due for full replacement in 1-25 years – 42%	Medium level of uncertainty around year of construction – especially for older, non-structural walls
Cycleways	80 years approx	Majority of off-road cycleways are less than 30 years old and in good condition	

Resource Recovery			
<i>Asset type</i>	<i>Theoretical useful life</i>	<i>Where does the asset sit in its lifecycle</i>	<i>Level of uncertainty (if applicable)</i>
Transfer station – plants	Depends on future requirements and cost of refurbishment vs new options		
Transfer station – buildings	50-100 years, depending on future requirements and cost of refurbishment vs new	30-40 years old (Parkhouse, Styx Mill, Metro)	
Material Recovery Facility		Developed since 2000 (currently owned and operated by EcoCentral)	
Organics Processing Plant	Building - 50-100 years Aeration and biofiltration system – 25-30 years	Building commissioned in 2009	

Burwood Landfill; other closed landfills			
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Parks			
Asset type	Theoretical useful life	Where does the asset sit in its lifecycle	Level of uncertainty (if applicable)
Parks furniture	15-40 years	Varied Approximately 10,000 of 22,000 are unassessed or are due for assessment (less critical)	Low level of uncertainty as based on industry literature, performance observations and staff knowledge. However, there is a high level of uncertainty regarding the age of many of the assets due to start up dates being largely unknown.
Sports equipment, Dog Exercise Equipment, Play Modular Unit, drinking fountains, play surfaces, exercise area, backflow	15-25 years	Majority in good condition	
Hedge, tree planter, garden, turf	20-35 years	Varied	
Boat ramp, car park, stairs, track, shelter	35 years	20% average 70% good	
Boardwalk, gate, flagpole, bollard, viewing platform, cattle stop Fence, bridge, jetty, retaining wall, water tower, terraces, culvert	40-80 years	Approximately 13,000 fences (less critical) are unassessed Varied	
Buildings - toilets, information centres, depots, houses, sheds, pavilions	20-90 years	Varied	High level of uncertainty as age of many assets is unknown

Heritage assets	Scheduled heritage - perpetuity Artworks 10 years for murals, 20 - 50 years for sculptures Monuments - perpetuity	Varied	The standard renewals lifecycle approach is not applicable to scheduled heritage. Low level of uncertainty as creation dates are recorded
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Facilities			
<i>Asset type</i>	<i>Theoretical useful life</i>	<i>Where does the asset sit in its lifecycle</i>	<i>Level of uncertainty (if applicable)</i>
Libraries	60-70 years	A number were built in the mid-90s – will be nearing end of life by 2050	Low level of uncertainty
Community housing	90 years	Almost half of stock was developed during the 1970s; a quarter during 1960s; these are due for mid-life refurbishments in the next few years	Low level of uncertainty
Christchurch Art Gallery Te Puna o Waiwhetū		Opened 2003	Low level of uncertainty
Community facilities	70 years	60% > 50 years of age	Low level of uncertainty
Early learning centres	70 years	Acquired or developed in 1990s	Low level of uncertainty
Volunteer libraries	70 years		

Appendix 2: Infrastructure-relevant strategies and plans

Key strategies and plans that direct or influence infrastructure planning

Listed below are key documents – local, regional and national - that influence our strategic planning for infrastructure investment. There are numerous other Council strategies and management plans that may influence or need to be taken into account in infrastructure planning – the full list can be found here: <https://ccc.govt.nz/the-council/plans-strategies-policies-and-bylaws/find-a-plan-strategy-policy-or-bylaw>

Central government direction, iwi and regional documents

<u>Canterbury Regional Land Transport Plan 2021-31</u> , <i>Environment Canterbury Regional Land Transport Committee</i>	Published every three years as the Canterbury region's bid for the National Land Transport Programme funding. This enables the Council to receive funding from Waka Kotahi. The document outlines the agreed priorities for the regional transportation network, and the challenges we face now and in the future.
<u>Canterbury Regional Policy Statement</u> (<i>Environment Canterbury, 2013, republished 2020</i>)	Supports the city's intensification targets, providing higher density developments (including mixed use) and a greater range of housing types, particularly in and around the Central City, Key Activity Centres, and larger neighbourhood centres, and in greenfield priority areas and brownfield sites. Directs that intensification development within the Central City achieves an average of 50 households per hectare.
<u>Canterbury Regional Public Transport Plan 2018-2028</u> (<i>Environment Canterbury, 2018</i>)	Describes future services proposed to meet the needs of new and existing customers and the policies which those services will operate by, and the partnership model in place with operators and local territorial authorities.
<u>Government Policy Statement on Land Transport</u> (<i>Ministry of Transport, 2020</i>)	Sets the Government's priorities for land transport investment over a 10-year period, and how money from the National Land Transport Fund (NLTF) is spent on activities such as public transport, state highway improvements, local roads, and road safety. Local authorities need to ensure spend on transport reflects Government priorities outlined by the GPS.
<u>Greater Christchurch Spatial Plan – Draft</u> (<i>Greater Christchurch Partnership, 2023</i>)	Considers how Greater Christchurch can cater for future projected population and business growth and future-proof our urban areas should this growth exceed projections. Provides a shared view of the key urban issues facing Greater Christchurch and the priorities to progress to address them.
<u>He Ara Waiora</u>	The Treasury framework to understand a Māori perspective on wellbeing.
<u>Living Standards Framework</u>	The Treasury's framework, that sets out the Four Capitals (natural, human, social, and financial and physical) that are assets that generate wellbeing now and into the future
<u>Mahaanui Iwi Management Plan</u> (<i>Ngāi Tahu, 2013</i>)	Guides councils and other agencies' decisions about the environment and protection of resources, and infrastructure provision, by providing valuable insight to Ngāi Tahu values, issues and aspirations for the recognition, protection and management of taonga (treasures) and cultural interests.

<u>National Policy Statement on Freshwater Management</u> (<i>Ministry for the Environment, 2020</i>)	Sets quality and quantity targets for freshwater - raising standards for infrastructure such as stormwater assets, in particular.
<u>National Policy Statement on Urban Development</u> (<i>Ministry for the Environment, 2020</i>)	Requirement for infrastructure to service anticipated growth (medium and long-term) by supporting the provision of sufficient development capacity to meet expected demand for housing and business land.
<u>Ngāi Tahu Rangatiratanga over Freshwater</u> (<i>Te Rūnanga of Ngāi Tahu, 2019</i>)	Sets out strategic intent of: establishing Ngāi Tahu title over freshwater in the takiwā ; establishing a regulatory authority; and securing Ngāi Tahu fiscal authority over freshwater in the takiwā.
<u>New Zealand Coastal Policy Statement (NZCPS)</u> (<i>Department of Conservation, 2010</i>)	Statutory framework, which directs Councils to give effect to policies specific to the identification, avoidance and management of coastal hazards; including ensuring that coastal hazard and climate change risks are managed by locating new development away from vulnerable areas prone to such risks, considering responses including manage retreat for existing development; and protecting or restoring natural defences to coastal hazards. The <u>Canterbury Regional Policy Statement</u> (2013) gives effect to the NZCPS and sets out objectives, policies and methods for district plans. This will be reviewed by Environment Canterbury in 2023, alongside the <u>Regional Coastal Environment Plan</u> (2005).
<u>Our space 2018-2048: Greater Christchurch Settlement Pattern Update</u> (<i>Greater Christchurch Partnership, 2018</i>)	Outlines land use and development proposals to ensure there is sufficient development capacity for housing and business growth across Greater Christchurch to 2048, and thereby influences the location, timing, provision of infrastructure to support land use and development.
<u>Te tāhū o te whāriki</u> ; Anchoring the foundation, <i>Te Rūnanga o Ngāi Tahu Climate Change Strategy</i> (2018)	Provides direction on climate response and action across the whole spectrum of Ngāi Tahu interests, assets and activities, taking an inter-generational perspective.

Christchurch City Council strategies and plans, relating to infrastructure

<u>Central City Action Plan</u> (Christchurch City Council, 2018)	Aims to encourage people back to the central city, through bringing together a range of regeneration projections and activities.
<u>Christchurch District Plan</u> (Christchurch City Council, operative from 19 December 2017)	Regulates spatial planning across the district and thus influences infrastructure location, provision and requirements to support development.
<u>Citizen Hub Strategy</u> (Christchurch City Council, 2015)	Sets out direction for how and where we enable citizens' interaction with the Council regarding services, including whether it is digital or facility-based.
<u>Community Facilities Network Plan</u> (2020)	Maps out Council-owned and community-owned facilities across the city so that we can work with the community to make the most of each facility in the network, and identify and support opportunities for the community to activate, operate or own facilities. The Plan does not identify any closures and recognises future consideration should be given to the effects of any further population increases to the south west and north of the city.
<u>Community Housing Strategy 2020-2030</u> (Christchurch City Council, 2021)	Identifies the strategic roles and actions for the Council so we can help ensure sufficient community housing is provided for in Christchurch.
<u>Kia tūroa te Ao Climate Change Strategy</u> (Christchurch City Council, 2021-31)	Identifies goals and action programmes to guide the Council's response, along with its communities, to addressing the impacts of climate change, including a first step of identifying infrastructure that is vulnerable to sea level rise and other impacts, to inform community discussions and asset planning.
<u>Ōtakaro Avon River Corridor Regeneration Plan</u> (Regenerate Christchurch, 2019)	Sets our vision and objectives for future use of the 602 hectares of red zone in east Christchurch: implementation requires key infrastructure provision of stormwater management areas, stopbanks, open spaces and amenity, and transport links.
<u>Our Heritage, Our Taonga – Heritage Strategy 2019-2029</u> (Christchurch City Council, 2019)	Sets out how we intend to work in ongoing partnership with Ngāi Tahu and in collaboration with our communities to identify, protect and celebrate heritage - including the built and natural environment, tangible and intangible heritage, including stories, memories and traditions, and movable heritage.

<u>Our Urban Forest Plan</u> (<i>Christchurch City Council, 2023</i>)	Sets out how we will grow our tree canopy and sustain a thriving urban forest of healthy, diverse and resilient trees.
<u>Physical Recreation and Sport Strategy</u> (<i>Christchurch City Council, 2002</i>)	Aims to help organisations involved in physical recreation and sport to move in a common direction. Though 20 years' old, it is still providing guidance and direction.
<u>Port Hills Recreation Strategy</u> (<i>Christchurch City Council, 2004</i>)	A common vision for recreation assets on the hills and to guide their improved management for the future.
<u>Public Open Space Strategy</u> (<i>Christchurch City Council, 2010</i>)	Provides a framework to guide provision and development of public open space within Christchurch and Banks Peninsula, taking into account the protection of outstanding (natural and cultural) features and landscapes the demands and pressures of increasing urban density, demographic and lifestyle changes, environmental costs and effects.
<u>Sports Facilities Network Plan</u> (<i>under development, Christchurch City Council</i>)	Considers current and future residents' needs for next 30 years with regard to quantity, style, size, quality and location of sports facilities to ensure they are fit-for-purpose for changing expectations and financially, environmental and socially sustainable.
<u>Strengthening Communities Together Strategy</u> (<i>Christchurch City Council 2022</i>)	Aims to better meet community needs and aspirations - by nurturing strong communities, which give people a sense of belonging and encourage them to take part in social, cultural, economic and political life.
<u>Te wai ora o tāne Integrated Water Strategy</u> (<i>Christchurch City Council, 2019</i>)	Tasks the Council with taking all possible action to minimise nitrate incursion and other contaminants into groundwater sources; managing and adapting to flooding risk and sea-level rise; and managing assets in an integrated manner including stormwater networks.
<u>Waste Management and Minimisation Plan</u> (<i>Christchurch City Council, 2020</i>)	Delivering on five key groups of actions will impact on infrastructure capacity and capability: maximising composting of organics; maximising recycling of recyclable materials; safe management of hazardous substances; show leadership and innovation across the sector; and deliver effective resource recover education and communications.