Christchurch Transport Strategic Plan

2012–2042

Christchurch City Council

Christchurch City Council

Christchurch Transport Strategic Plan

June 2012–2042

Christchurch City Council
PO Box 73012, Christchurch,
New Zealand.
Tel: +64 3 941 8999
Fax: +64 3 941 8984
Web: http://www.ccc.govt.nz

ISBN *978-0-9922462-0-4*

Foreword

Effective transport networks throughout Christchurch will not only be critical for our city to recover from the recent earthquakes but also to grow and attract new business, investment and people. The Christchurch City Council will take the lead to provide a world-class system which will support the recovery of our city.

Bob Parker
Mayor of Christchurch

The rebuild provides a rare opportunity for the city to transform the way it moves and how the transport system performs. This Plan has the vision to make Christchurch a city that is easy to access and move around. As our roads and communities are rebuilt, there will be opportunities to improve the effectiveness of our transport infrastructure; to improve travel choice by creating safe environments; easy pedestrian crossings and attractive public transport infrastructure, while strengthening regional connections to the Central City, building increased resilience into our infrastructure and delivering reliable freight connections to the ports and freight hubs.

We also have a unique opportunity to make a strong statement about the importance of cycling in our city as it is rebuilt and to enhance Christchurch's reputation as a cycle city. By creating a connected cycle network and making it easier for our residents to use bicycles we will also be investing in the health and wellbeing of our community.

Strong, reliable connections to the Christchurch International Airport and Lyttelton Port will help stimulate the recovery and growth of our economy, both providing vital links to our export markets. Christchurch's role as the economic hub of the South Island will be strengthened with improvements to Christchurch's state highway network.

The biggest challenge facing the city is funding the rebuild. Investment in the transport system must be planned now to maximise the long-term value and benefits from investment today.

Executive summary

The vision is to keep Christchurch moving forward by providing transport choices to connect people and places.

Christchurch's transport system will provide people and businesses with travel choices which will make it easy to move around the city, to do business and to live here. The 2010–2011 Canterbury earthquakes have had a severe impact on the effective functioning of the city's transport system. There will need to be significant investment during the next decade to repair and aid the recovery of the transport infrastructure, especially in relation to roads. This rebuild presents great opportunities to improve the transport system in line with the 30-year vision in this Christchurch Transport Strategic Plan. Creating a city that is easier to move around in will improve access, provide travel choice, support a vibrant economy, help create stronger communities and a healthier environment.

This non-statutory Plan updates Christchurch's local transport policy in relation to relevant statutory plans, in particular the Canterbury Regional Land Transport Strategy, Regional Policy Statement, Greater Christchurch Urban Development Strategy and Regional Public Transport Plan, placing a strong emphasis on travel choice by establishing strong networks for all transport options during the next 30 years. This Plan places the same emphasis on offering travel choice throughout the city.

There are many challenges facing the transport system in Christchurch:

- Congestion – levels of congestion on the road network continue to increase, with 40 per cent more traffic congestion expected by 2041;
- Travel patterns – the predominant travel choice for all trips is by private vehicle;
- Earthquake damage and recovery – about 45 per cent of our roads sustained significant damage during the 2010–2011 earthquakes and there is now the opportunity to improve the resilience of the network in the event of future natural disasters;
- Relocation and growth areas – land and property damage from the earthquakes has resulted in many households and businesses relocating to other areas across the city. Changes in the Regional Policy Statement have accelerated the release of new housing areas in the south-west and north of the city;
- Demographics – following the earthquakes, the population of Greater Christchurch is in a state of flux. While there was a 2.4 per cent decline in population during 2011, it is still expected to grow by 130,000 by 2041. The population is also ageing; by 2041 there is likely to be a 100 per cent increase in the number of people aged over 60;
- Safety – the highest proportion of road crashes and injuries involve crashes at intersections, young drivers, cyclists and motorcycles;
- Health and wellbeing – physical inactivity is growing with a huge cost to the public health system;
- Environment – transport is a significant contributor to poor air quality, water quality, adverse visual effects and noise disturbance;
- Climate change – one third of total greenhouse gas emissions in Christchurch are transport related; and
- Peak oil – the availability and price of fuel is increasing, reducing the affordability of using cars and trucks.

Photo courtesy of James Reader

To achieve the vision and address these challenges, the Christchurch Transport Strategic Plan focuses on four goals:

1. **Improve access and choice**
   Delivering resilient transport networks with an emphasis on efficient road use, public transport, walking and making Christchurch a cycle city. Introducing a new road classification which recognises both the road function and the environments each road passes through. Working with our transport partners to manage our existing road network more efficiently and cost effectively by adopting a "one network" approach.
2. **Create safe, healthy and liveable communities**
   Adopting a safer systems approach. Transport actions which support the recovery of the Central City, suburban centres and new growth areas. Strengthening the integration of land use and transport planning through District Plan changes.
3. **Support economic vitality**
   Developing local freight routes to improve access to Christchurch airport, Lyttelton Port and freight hubs. Parking and congestion management to support the growth of commercial centres.
4. **Create opportunities for environmental enhancements**
   building green infrastructure and adapting to climate change and peak oil by encouraging new technology and infrastructure enhancements.

To successfully deliver each of the four goals, the draft Plan identifies a range of actions. These will be phased in during the next 30 years, moving from recovery through transition to achieving the vision.

The rebuild and recovery phase will require investment to be focused on the recovery of the city with infrastructure replacement and infrastructure improvements to the new green and brownfield developments being established to accommodate households relocating as a consequence of the earthquakes. Investment in local roads will be required in the short term to support the completion of the New Zealand Transport Agency (NZTA) investment in the Roads of National Significance (RoNS).

There will be an emphasis to embrace the opportunity to develop a cycle network during the city's rebuild, which will make it easier to use bicycles. This will include creating opportunities for shared footpaths, developing dedicated major cycleways and creating key flagship cycleways to support Christchurch becoming a cycle city.

In the medium term, there will be a transition phase with a greater focus on network improvements along public transport, freight, walking and cycling corridors.

In the long term and vision phase, the focus is on improving the efficiency of the existing network. There will be an increased focus on parking management, transport information and education, energy efficiency and green infrastructure.

Implementation of the Christchurch Transport Strategic Plan will help the Council deliver its community outcomes, namely to create a liveable city, prosperous economy; strong communities; and healthy environment. A summary of the actions described in the Plan has been provided to begin the process of preparing the Council's Long Term Plan. These include:

- Development of a road classification to guide the rebuilding and future design of roads and road corridors.
- Continuation of road maintenance and renewals.
- Building local connections to link with the Christchurch Roads of National Significance and new growth areas, as well as network improvements to neighbouring districts.

Photo courtesy of Gehl Architects

- Working with Urban Development Strategy partners to investigate public transport, rapid transit and the protection of future public transport corridors, including investigations into potential 'park and ride' facilities.
- Investment in quality public transport infrastructure and priority measures to support the recovery and future development of the public transport system.
- The creation of a connected cycle network that includes shared pathways and cycleways across the city. This will also include the creation of key 'flagship cycleways' that will make a strong statement about Christchurch's cycle city status.
- Defined freight routes and protection of major freight hubs.
- Information and education services to support network efficiency.
- Targeted safety improvements.
- Parking management plans to support network improvements.
- Streetscape improvements in suburban recovery centres and the Central City.

Funding, affordability and a long-term commitment are fundamental to achieving the vision. To deliver all the actions identified in the Plan will require a long-term commitment from both the Council and its partner agencies. Funding is required to not only rebuild roads and provide new infrastructure but also to capitalise on the opportunities available through the rebuild to improve the transport system. The main sources of funding will be provided by the Council and Government, with some infrastructure provided by developers.

This Plan is being developed at a time when there are many worthwhile projects competing for the Council and Government's funding. The Council will work with the community and Government to develop an investment plan to deliver this Plan as part of the Council's next Long Term Plan.

Table of contents

The Plan

Introduction

Keep Christchurch moving forward by providing transport choices to connect people and places.

An efficient, integrated transport system offering a range of travel choices is fundamental for Christchurch to become a globally competitive city with an excellent quality of life.

A well-connected transport system is critical to our quality of life and to build stronger communities. It is also essential for a vibrant economy. Our choice of whether to walk, cycle, drive or take public transport is influenced by the urban form and functioning of the transport network, which in turn impacts on our environment. As our population has grown and the demographic composition has changed (that is an increasing number of older persons and smaller household sizes), so has car ownership and the desire for increased mobility. An added consideration for Christchurch is its role as it continues to be the major freight hub for the South Island.

Before the 2010-11 Canterbury earthquakes, Greater Christchurch's population was growing at a steady, albeit modest, rate. It was estimated the population would increase by more than 130,000 by 2041 (this increase being comparable to the current population of Dunedin). In the four-year period ended 30 June 2010, Christchurch city's population grew at an average annual rate of one per cent, with population gains from both natural increase (2200 per year on average) and net migration (1600 per year on average). Managing the effects of these changes on land use and transport activity is vital to achieving a successful and functional city.

The 2010-11 earthquakes have had a significant impact on Christchurch's population, land-use activity and transport system. The earthquakes have resulted in a population loss in Christchurch of about 13,500 since the September 2010 earthquake8. The geographic distribution of households within the Christchurch area has also been affected as a result of temporary household displacement and permanent household relocations. Short-term travel patterns have also changed with the necessary relocation of businesses, homes and services. This has created pressure points within the existing transport network, particularly on key road corridors to the west and north.

While it is expected that the city will start to grow again in 2013, although at a slower rate than pre-earthquake, there is a significant level of uncertainty underlying the planning and staging of the recovery and growth of the city, including the size and timing of the temporary workforce. Nonetheless, as the city transitions from recovery and damaged infrastructure and services are restored, there is a need to incrementally develop a transport system that supports a more compact city.

The community places a high value on transport and has asked for a significant change in the current transport system1, with the move towards a pedestrian and cycle-friendly city. There is strong public support for walking, cycling and public transport networks that are enjoyable, safe and feature high-quality facilities for all users. Recovery of the Central City and the suburban centres relies heavily on an effective city-wide transport system that links the city with its communities.

The Christchurch Transport Strategic Plan (the Plan) provides the direction for transport planning to enhance Christchurch's quality of life and economic vitality through the provision of a transport system that offers choice. It draws together a collection of existing transport elements into a comprehensive plan with a common direction, as illustrated in Figure 1.1.

The Plan also provides the mechanism to transition this policy planning into implementation on the ground. While being a non-statutory document, it establishes an important link between statutory plans and local transport policy, in particular the Regional Policy Statement, the Canterbury Regional Land Transport Strategy and the Greater Christchurch Recovery Strategy.

The Plan details the transport actions for Christchurch City, including rural areas of Banks Peninsula, that are required to create a transport system to support the city's growth and community aspirations during the next 30 years (2012–2041). The short term role is to support the rebuild and recovery of the city and the wider region, including the recovery priorities under the CERA Recovery Strategy and Christchurch Central Recovery Plan, balanced with the need to achieve the long-term objectives for the network.

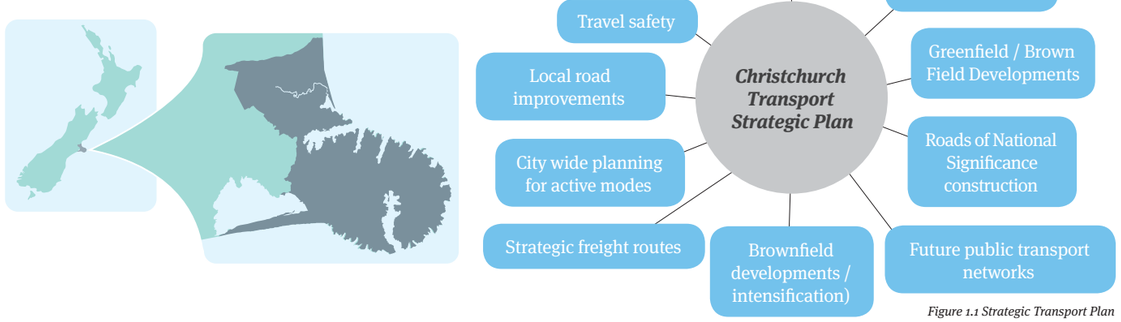


Figure 1.1 Strategic Transport Plan

Strategic context

The Plan is part of a collaborative, complex and evolving planning environment

The Plan has been developed through a process of stakeholder involvement and collaboration with the Urban Development Strategy partners, central government, technical experts and others as well as public consultation.

It sits within a complex framework of national, regional and local strategies and policies as illustrated in Figure 2.1, which detail both the influencers for the Plan and the policies that the Plan itself will influence. The longer term outcome of the Plan is to create an integrated transport and land-use system that aligns with, and helps deliver the Regional Policy Statement, Regional Land Transport Strategy and Greater Christchurch Urban Development Strategy. Together, these documents set a direction for transport in Christchurch which supports an accessible, affordable, integrated, safe, resilient and sustainable transport system. The Plan also integrates a number of existing Council transport strategies, including the Cycling Strategy, Pedestrian Strategy, Road Safety Strategy and Parking Strategy.

Greater Christchurch cross boundary activities have been integrated into the Plan to increase coordination while recognising that each activity is subject to planning and funding processes relevant to individual organisations. The following documents have contributed towards specific sections within this Plan:

- Greater Christchurch Travel Demand Management Strategy – a strategy for managing the increase in traffic growth, through encouraging making the most of the existing transport network and increasing the use of walking and cycling options, public transport and car pooling.
- Canterbury Regional Public Transport Plan – sets out the policy within which all public transport services operate and includes policies on fares, funding, vehicle and service standards, infrastructure and monitoring.
- Christchurch Rolleston and Environs Transportation Study– a programme of works to reduce traffic congestion to the west and south of Christchurch during the next 10 to 15 years.
- Draft Roads of National Significance Network Plan – identifies key supporting projects for the RoNS and the role NZTAcan play in the development and funding of transport improvements within Greater Christchurch.
- The Urban Development Strategy (UDS) partners are currently working on a passenger transport study for the Greater Christchurch area known as the Greater Christchurch Future Public Transport Study.
- CERA Recovery Strategy – sets out the way forward for the rebuilding and recovery of Greater Christchurch.
- Christchurch Central Recovery Plan – sets the framework to guide the redevelopment of the Central City.

All these joint strategies, plans and studies are subject to review as a result of the recent earthquakes. The Council is working with the UDS partners to continue to assess the impacts on the transport system as a result of the rapid development of new residential housing areas and communities to determine priorities for public transport and infrastructure development.

- The Council and the NZTA are signatories to the Urban Design Protocol (Ministry for the Environment) which provides a platform to make New Zealand cities more successful through quality urban design.

The Christchurch Transport Strategic Plan is designed to be a living document that is flexible enough to work with any new thinking in transport and land use that will occur during the life of the Plan.

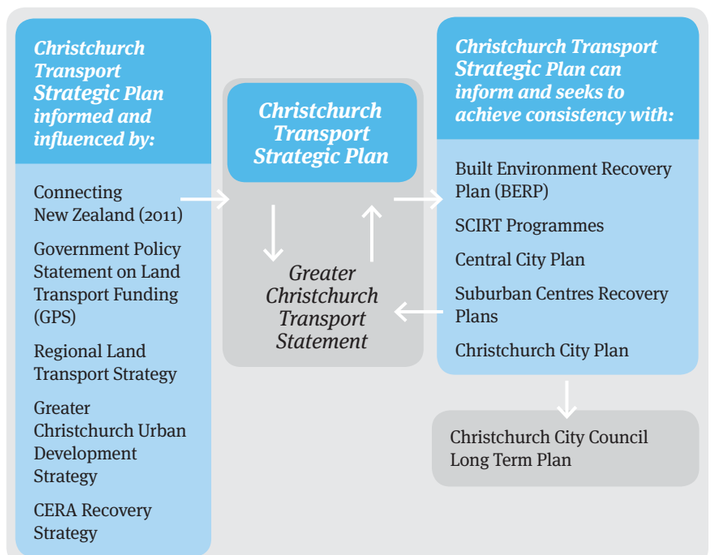


Figure 2.1 Strategic context

Vision, goals and outcomes

Vision

Keep Christchurch moving forward by providing transport choices to connect people and places.

Christchurch will have an efficient, integrated transport system offering accessible travel choices for everyone. The system will create vibrant commercial centres and thriving communities connected by a safe, resilient, affordable, healthy and sustainable transport network.

In the short term, investment will be prioritised on recovery and within that opportunities for improvements to the transport network. Improvements will aim for opportunities to connect and enhance cycleways, and smarter management of the road network. In the medium to long term, this investment will shift to deliver enhancements and changes to all networks; providing more attractive and safe transport choices for people of all ages and abilities. The Central City, commercial centres and residential areas will be well connected by public transport, walking and cycling routes and a network of roads.

Local, regional and national economies will be supported by attractive streetscapes, efficient public transport corridors, strategic road corridors and clearly defined freight routes and hubs. Active travel will become more attractive and a natural part of daily life. In the long term, with more choices the transport system will become more resilient and able to address global, economic and environmental factors. The Plan is a 30-year vision for integrated transport and land-use development and redevelopment. Improvements to all of the transport networks will allow easy movement between residential, employment, commercial, recreational and freight areas, as well as across the region.

Goals

To achieve the vision, the Plan focuses on four goals

Goal 1. Improve access and choice:

Delivering resilient transport networks with an emphasis on efficient road use, cycling, freight, public transport and walking. Introducing a new road classification system which recognises both the movement function and the place function of each section of road.

Create opportunities to develop a cycle network during the city's rebuild, to make it easier to use bicycles. This will include creating quiet streets, shared footpaths, developing dedicated major cycleways and key flagship cycleways that support Christchurch becoming a cycle city.

Goal 2. Create safe, healthy and liveable communities

Adopting a safer systems approach. Transport actions which support the recovery of the Central City, suburban centres and new growth areas. Strengthening the integration of land use and transport planning through District Plan changes.

Goal 3. Support economic vitality

All transport modes contribute to economic vitality, however this goal focuses on the contribution made by efficient freight movement and well-managed parking. Developing local freight routes to improve access to Christchurch Airport, Lyttelton Port and freight hubs. Parking management to support the growth of commercial centres.

Goal 4. Create opportunities for environmental enhancements

Building green infrastructure and adapting to climate change and peak oil by encouraging new technology and infrastructure enhancements.

Illustrative concept for the Christchurch Transport 30 year vision

The Plan

Outcomes

The Plan contributes to achieving a number of the draft 2013 Community Outcomes[2]. The relationship between the plan's vision, goals, objectives and outcomes is outlined in Appendix B.

Liveable City Community Outcomes

There are a range of travel options that meet the needs of people and businesses.

The transport system provides people with access to economic, social and cultural activities.

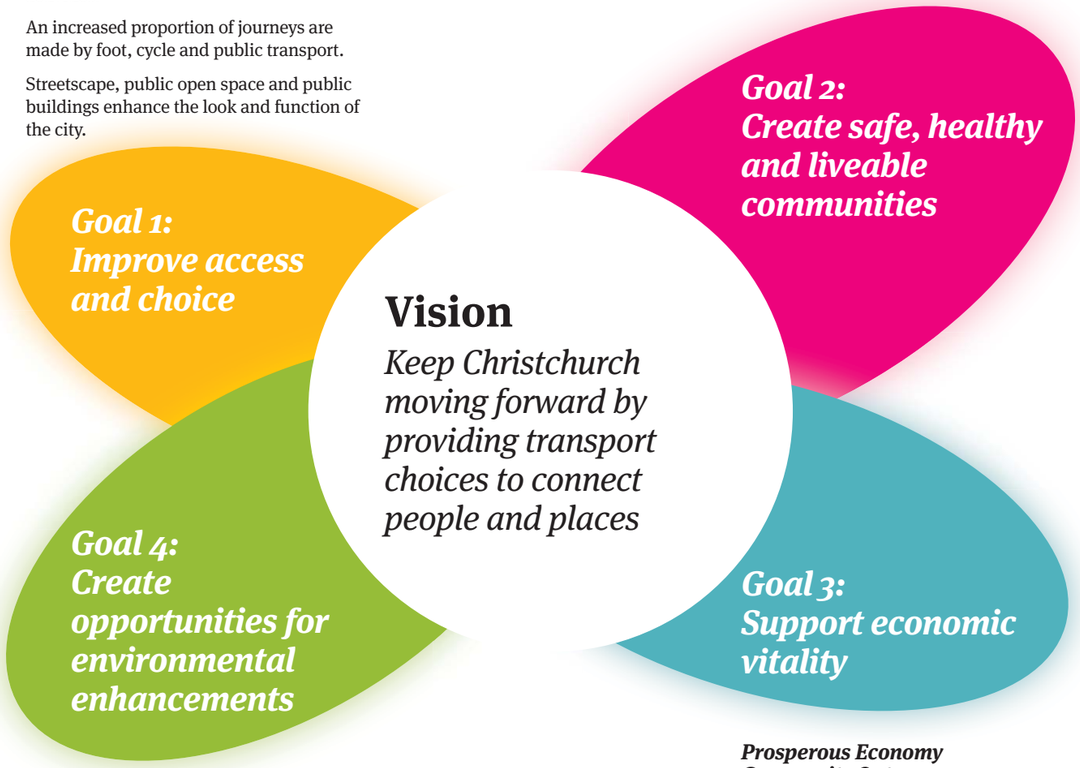
An increased proportion of journeys are made by foot, cycle and public transport.

Streetscape, public open space and public buildings enhance the look and function of the city.

Strong Communities Community Outcome

Transport safety is improved.

Risks to public health are minimised and injury are minimised.



Healthy Environments Community Outcome

Energy is used more efficiently.

Christchurch is prepared for the future challenges and opportunities of climate change.

Christchurch's landscapes and natural features are protected and enhanced

Water quality in rivers, streams, lakes and wetlands is maintained and improved

Existing ecosystems, indigenous vegetation and habitats are protected.

Prosperous Economy Community Outcome

Christchurch's infrastructure supports sustainable economic growth.

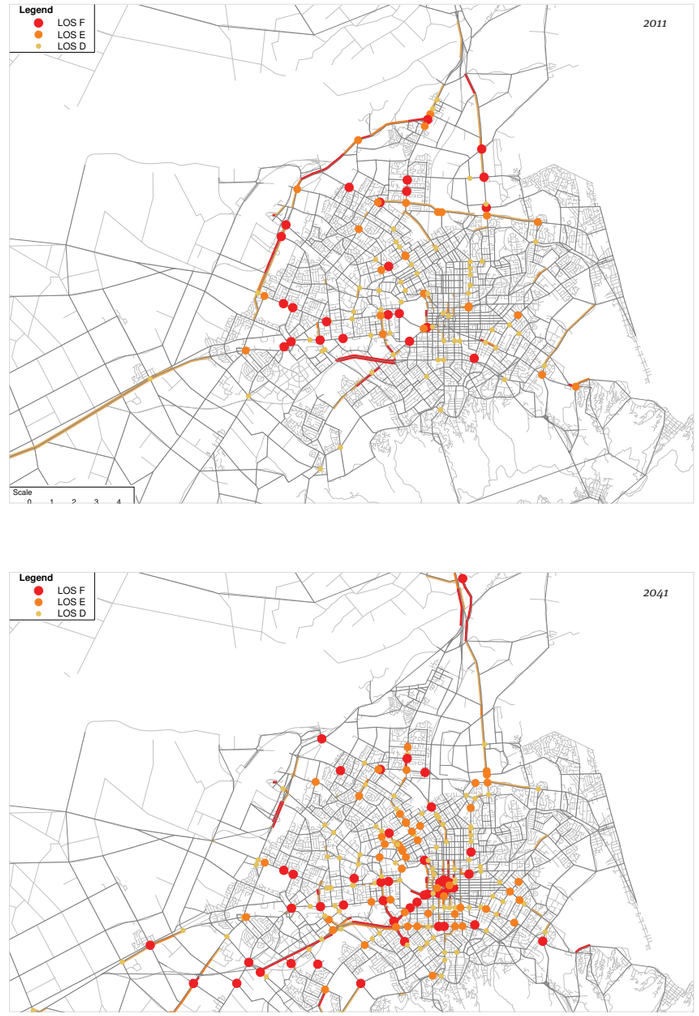
Challenges

There are many challenges to achieving the vision for Christchurch's transport system. The earthquakes and changing land use travel patterns have increased congestion and resulted in a greater reliance on movement by private vehicles and trucks. In the future, the transport system needs to respond to population change, increasing travel demand, economic growth and environmental challenges.

Congestion

Private vehicle trips are growing at one per cent a year and freight trips at twice this rate. If current trends continue, by 2041 there could be a 30 per cent growth in the volume of traffic compared with 2010 levels (this assumes that the Greater Christchurch population recovers quickly to pre-earthquake levels). This will put pressure on the same areas of the network and result in delays similar to or worse than those experienced after the February 2011 earthquake, Figure 4.1. As areas of the city are rebuilt and traffic is diverted, more congestion is expected. Reducing congestion can provide a range of benefits, in particular savings in travel times and a reduction in vehicle operating costs. This will assist the economy to recover and function more efficiently and help achieve economic growth and improved productivity[3].

The impacts of the earthquake have resulted in congestion challenges for the network. The relocation of businesses and homes has impacted on travel patterns and the disruption of public transport services and damage to infrastructure has increased individual car use. Trip distances in the east have extended, while those in the west have reduced. There has also been an increase in cross boundary trips to the Selwyn and Waimakariri districts with more people having chosen to live in these districts, particularly following the earthquakes. These changes have resulted in a level of congestion on the network similar to those predicted by 2041, especially in the west of the city. The loss of households in some areas will have implications on where and how roads are reinstated.



Predicted delay on roads 2041 compared to 2011 levels, afternoon peak (Christchurch Transport Model 2011)

Figure 4.1 Traffic Delay Maps

Legend

***Level of Service D**=Traffic is no longer free-flowing, with increasing delays*
***Level of Service E**=Traffic flow is nearly at capacity and conditions unstable – potential for large delays*
***Level of Service F**=Traffic demand exceeds capacity, very large delays*

Travel patterns

Christchurch has developed as a lower density, radial city with many communities having only 10 households per hectare. This type and form of land use development has significant impacts on the transport system. The Greater Christchurch Urban Development Strategy recognises this and supports a move towards a more compact urban form. Dispersed land use patterns are typically linked with high levels of vehicle ownership/use or vehicle dependence, while compact land use is more commonly linked with lower levels of car ownership/use and higher levels of active transport and public transport patronage[4]. The use of the private vehicles is the dominant travel option in Christchurch (72 per cent of all trips in 2009)[5] for the majority of people and businesses. Walking and cycling make up 24 per cent of all trips with public transport three per cent of all trips.

The purpose of trips influences the travel choice made. Of all the trips being made by residents, the majority are for shopping or personal trips (32 per cent), and for social trips (31 per cent)[6]. The car is the main travel choice for these trips (85 per cent choose to drive). When the purpose of the trip is for work (18 per cent of journeys), 64 per cent drove or were a passenger in a car to work[7].

For the future wellbeing of the city, it is important that a range of attractive and efficient travel options are easily accessible to give people and business choice in the way they travel. Of all the trips made by residents, 40 per cent are less than 2km in length, making these journeys ideal for walking and journeys of 1km to 10km ideal for cycling. There are areas of the community, especially rural, for which the private vehicle is the only viable option.

Earthquake damage, recovery and resilience

A total of 1019km (45 per cent) of the city's street network (carriageways, kerbs and channels, footpaths and cycle paths) has sustained significant damage; 42km of these are severely damaged. In addition, about six bridges are beyond economic repair, 15 require major refurbishment and another 50 medium to minor repair to make them serviceable. Load and speed restrictions are in place and some road bridges and foot bridges are closed. The most severe damage is generally located in the Central City, and eastern and southern suburbs. The repair or replacement of infrastructure is a priority for recovery. There are unique opportunities through the rebuild to learn from the earthquakes and improve the future resilience of the transport network.

Household and business relocation and growth

The earthquakes have affected the suitability of some existing urban areas to continue to be used for residential, community and business purposes within the short to medium term. The residential Red Zone includes land that is so badly damaged by the earthquakes it is unlikely it will be rebuilt on. About 13,500 residents have left the Christchurch City area since the September 2010 earthquake[8]. Damage and closure of the Central City has affected the 6000 businesses which were based there[9]. Affected residents and business have either moved to other parts of Christchurch, Selwyn and Waimakariri or have left the Christchurch area completely.

In addition many people and businesses have moved, or will be moving temporarily while their buildings are repaired or rebuilt during the next 10 years. They may have rented or bought properties depending on their financial circumstances and the length of time involved. The size and timing of the temporary workforce needed for the rebuild is unknown at this stage, as is the method by which they will be housed, but it could have a significant impact on transport systems.

As a result, the transport system needs to be flexible enough to deal with constantly changing travel patterns and volumes in the short to medium term, without committing the Council to significant expenditure on assets that will only have a short life span. Greenfield sites have been released for development earlier than expected pre-earthquake, bringing forward the need for new transport infrastructure in these areas. In the short term, providing a transport system to support a more dispersed city will be a challenge, but one that needs to be managed without losing sight of the longer term vision for the transport system.

Managing growth – long term land use

The Greater Christchurch Urban Development Strategy sets the long-term land use pattern for growth during the next 35 years in the Greater Christchurch area. There is a focus on intensification around centres, including the Central City, to reduce the impact of sprawl on the Canterbury Plains and the cost of infrastructure. Proposed Change 1 to the Regional Policy Statement (PC1) also includes the identification of new areas, called greenfield areas, for residential and business development into the future. While the earthquakes have resulted in some of these development areas being fast-tracked and new greenfield areas introduced, the PC1 long-term, land use pattern for Greater Christchurch remains unchanged by the 2010 and 2011 earthquakes. Figure 4.2.

Population figures dropped dramatically in 2011 and the city continued to lose residents in 2012. However, it is expected that the city will start to grow again in 2013, but at a slower rate than pre-earthquake (excluding the temporary workforce). At some stage in the future, after the rebuild phase, it is expected that Christchurch will return to a more settled growth pattern. The challenge for the transport system is to ensure that investment in the short to medium term does not contradict the long term plans for intensification in Christchurch and also that provision is made to set land aside for any identified future transport corridors during the acceleration of greenfield development in the short term.

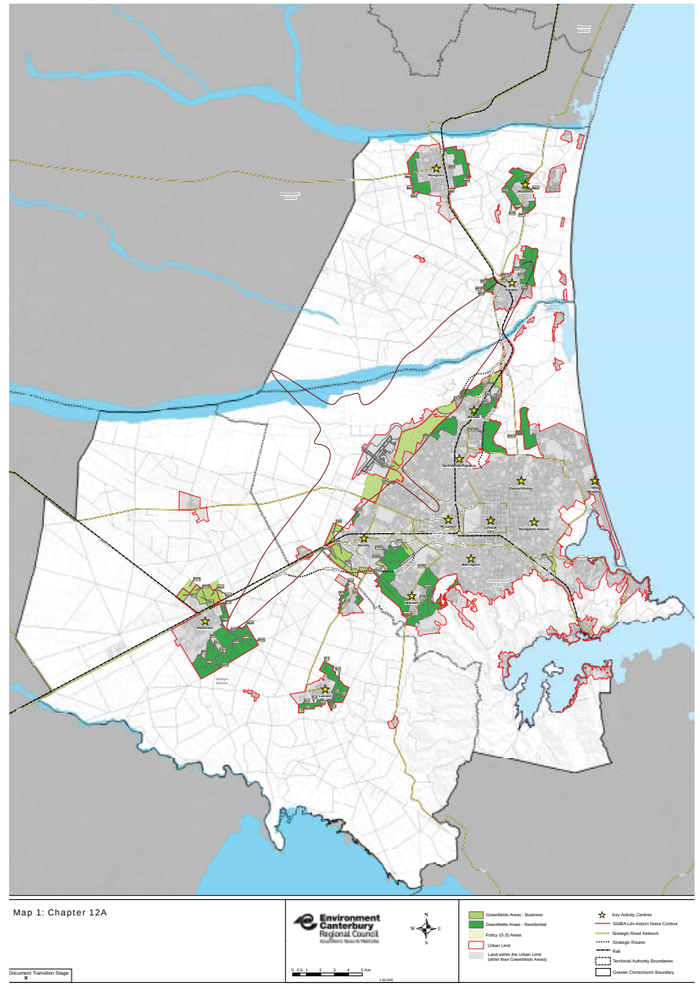


Figure 4.2 Growth areas, Regional Policy Statement Chapter 12A, October 2011

Changing demographics

Christchurch's demographic composition is projected to change significantly during the next 30 years, which will present challenges to the transport system.

Understanding that the city's population is ageing is important for the Council to plan for the services that will be required by the community. Christchurch's population is ageing and by 2041 more than 31 per cent of the population is expected to be aged over 60[10] (a 100 per cent increase). This will require changes to how the transport infrastructure and services are designed and provided, as with an ageing population the number of people with disabilities is also likely to increase[11].

Christchurch also has a diversifying population – culturally, economically and socially. Integrating new arrivals into the city, shifting settlement patterns and quality of life are some of the areas on which transport has an impact.

Māori are the second largest ethnic group in Christchurch (7.2 per cent) and are often over-represented in low income and the most deprived areas. There are currently 161 other ethnic groups in Christchurch of which the Chinese, Samoan, and Korean communities are the largest, with a growing refugee community. These groups often have high rates of unemployment and are transport disadvantaged in comparison to the rest of the population. Population growth, ageing and growing cultural diversity will place increasing demand on the transport system in terms of providing accessible new infrastructure and desirable services.

Safety for all road users

People in the community regard improving road safety as a priority[12]. The number of fatal and serious crashes in Christchurch has fluctuated between a low of 159 in 2001 to a high of 222 in 2010. There are similar fluctuating trends in minor injury crashes[13]. In Canterbury, Māori (14 per cent) are more likely to be involved in road fatalities than non-Māori (9.7 per cent)[14]. In New Zealand, fatalities and injuries are also disproportionately borne by those in lower socio-economic circumstances[15].

In 2010 there were 855 reported injury crashes on local roads in Christchurch City, of which 222 were fatal or serious. In addition, on state highways there were 212 reported injury crashes of which 23 were fatal or serious. The number of urban injury crashes is significantly higher than those that occurred on rural roads. More than 80 per cent of all fatal crashes, 90 per cent of all serious injuries and 94 per cent of minor injuries, were the result of crashes in urban areas of the city. The social cost of all crashes in 2010 was $285.03 million.

Christchurch has several road safety issues which are of national priority[16]:

- Intersection crashes: During the five-year period 2005 to 2009, there were a total of 2643 fatal and injury crashes at intersections. In 2009 there were 105 intersection sites which had more than five crashes resulting in injury during the last five years, including 30 sites with 10 or more injury crashes in the past five years[17].
- Young drivers: Those aged from 15 to 24 years represented 36 per cent of injury crashes between 2005 and 2009. These resulted in 22 deaths, 375 serious injuries and 2290 minor injuries. Although alcohol and speed are recognisable issues with young drivers, the main issues involved crashes at intersection where young drivers were at fault (35 per cent of crashes involving young drivers).
- Cyclists: Although cyclist injuries do not feature highly in the overall crash numbers at 12 per cent of all casualties, they made up 16 per cent of fatal and serious casualties in the last five years. The crash rate rose to a high of 174 in 2007 but has since reduced. A total of 96 per cent of cyclist crashes were on urban roads.
- Motorcyclists: Motorcylce casualties do not feature highly in the overall statistics being only 10 per cent of all casualties. However, they make up 20 per cent of fatal and serious casualties. The current trend of increasing levels of motorbike ownership is also likely to increase exposure to risk.

Growth in freight demand

A challenge for the Canterbury region is managing the significant future growth in freight movement that is forecast. Canterbury is the fastest growing region for freight in New Zealand, with most of this freight passing through Christchurch on trucks and trains, often connecting to ships at Lyttelton Port or being air freighted out of Christchurch Airport. The challenge for the city is to protect this vital freight movement while still providing an appropriate transport network for Christchurch residents. During the rebuild there is likely to be a peak in construction movements which will be managed on existing infrastructure but this is expected to be smaller than the long-term freight demand on the city.

Projections for freight movement in 2041 indicate significant growth in many sectors, particularly containerised freight, with the potential increase of several times the volumes being carried in some sectors. Although these projections are aspirational, they do signal the significance challenge that exists for the transport system. The Council is working with its regional and national partners to gain a greater understanding through further analysis and agency studies[18] and will continue to work with these partners to further define the freight picture for the Canterbury region and what initiatives will be required to ensure freight efficiency for Lyttelton Port, Christchurch Airport and KiwiRail.

Health and wellbeing

A Health and Sustainability Impact Assessment conducted for the Draft Christchurch Transport Plan, Appendix A, identified that the most significant issue for transport is physical inactivity. Active travel, such as cycling and walking, has great health benefits by increasing physical activity. In Christchurch, only 39 per cent of residents are active every day[19]. Physical inactivity accounts for almost 10 per cent of New Zealand's 20 leading causes of death. Physical inactivity also increases the risk of many chronic diseases, especially type 2 diabetes, cardiovascular disease, colon cancer and depression. Together, obesity and type 2 diabetes cost the health system more than $500 million per year. A five per cent increase in physical activity can net a reduction of $25 million annually for health care costs (NZ Ministry of Health). Air and noise pollution from vehicles also have significant health impacts when people are exposed to them for long periods[20].

Environment

The use of vehicles and the development of transport infrastructure impact on the natural environment through air pollution, dust, stormwater runoff, loss of productive land (soils), loss of flora and fauna, and visual, noise and vibration intrusion. Vehicles emit the largest volumes of carbon monoxide and nitrogen oxides. They also emit sulphur oxides, benzene and particulate matter, Figure 4.3. Given recent improvements in air quality as a result of reducing pollutants from home heating, there is likely to be a greater proportion of particulate matter from vehicle emissions affecting air quality, especially during times of congestion and when vehicles are idling. High concentrations of transport-related heavy metals (which are toxic at low levels) have been found in the Heathcote, Avon and Styx rivers[21] after stormwater-run off. Stormwater run off from roads can also increase sedimentation in the rivers and Lyttelton Harbour. Transport-related noise is highest in the urban areas, prolonged noise exposure can impact on amenity values and health[22]. There are opportunities for transport to enhance the environment, for example to increase biodiversity, transport corridors can be designed to act as ecological corridors.

Climate change

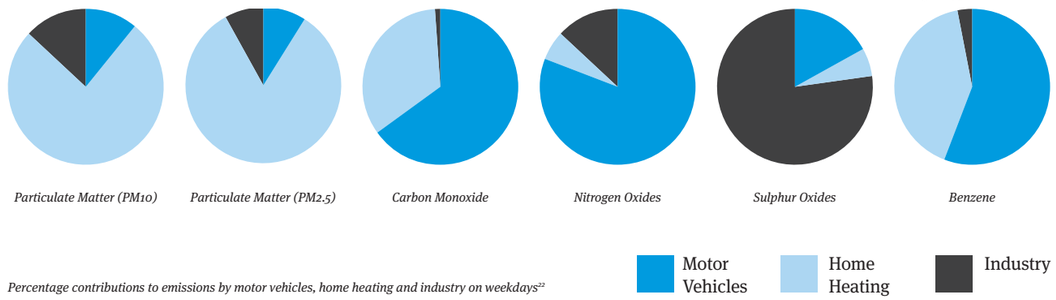
New Zealand is one of the country's that emits the largest volume per capita of greenhouse gases, only just behind the United States and Australia. In 2008, about 3.6 million tonnes of greenhouse gases were emitted from Christchurch. This is about 10 tonnes per person per year. Transport fuels make up around 67 per cent of these emissions. Changing the way we move around can make a significant contribution to reducing Christchurch's total greenhouse gas emissions[24]. The Council has already adopted a goal for "a 50 per cent reduction of greenhouse gas emissions from domestic transport by 2040 from a 2008 baseline"[25]. The effects of climate change include rising temperatures, increased rainfall, sea level rise and storm events which in turn affect the resilience of transport infrastructure.

Peak oil

Transport is highly reliant on oil. New Zealand relies on imported oil which is vulnerable to fuel price volatility. Oil is a finite resource, as international oil supplies are limited, and in the long term as supply reduces, oil prices will rise.

This will have a dramatic impact on the affordability of oil-based transport options in the future, especially for private transport. The current cost to a household of owning and operating motor vehicles costs the region around $1.3 billion each year[26]. Oil price volatility is predicted to effect future traffic and freight growth. Alternative energy sources have a role in managing our dependence on oil and vulnerability to future price changes.

Figure 4.3 Air emmissions



Percentage contributions to emissions by motor vehicles, home heating and industry on weekdays[22]

The Plan

Achieving goals

A transition from infrastructure repair and recovery to a more balanced system providing good transport choices to keep Christchurch moving forward.

To achieve the Plan's goals there must be a strategy for transition. The current focus, which supports the Regional Land Transport Strategy is to support earthquake recovery and complete projects that have already been started to improve the efficiency of our strategic road network and support the Road of National Significance.

Over time, the Council will lead the way with strong investment in public and active transport networks. To create vibrant, healthy and liveable communities a new road classification will be introduced that recognises the environment surrounding a road. Network improvements will be promoted to reshape travel demand.

Providing a balanced transport system will leave a positive impact on the environment and enable communities to respond to future changes in the economy, climate, oil prices and demographics. By investing in a broad range of transport options over time, the system can become more efficient and resilient. The illustrative concept below, demonstrates how the move from rebuild and recovery to transition and then the long-term vision may occur. The goals will be achieved through delivering on the following objectives.

Goal 1: Improve access and choice

Objective 1.1: Balancing the network

Objective 1.2: Use the existing road network more efficiently

Objective 1.3: Managing the demand network by encouraging people to use a wider range of travel options

Goal 2: Create safe, healthy and liveable communities

Objective 2.1: Support recovery

Objective 2.2: Effective and integrated land-use policy and plans

Objective 2.3: Safer systems and safer speeds

Objective 2.4: Rural roads

Goal 3: Support economic vitality

Objective 3.1: Easy movement of and access to goods and services

Goal 4: Create opportunities for environmental enhancement

Objective 4.1: Reduce emissions and invest in green infrastructure and environmental enhancements

Short Term: Rebuild and recovery

The short term phase is about replacing damaged infrastructure, realising opportunities for enhancements, improving resilience, planning for and providing new infrastructure to connect growth areas and protecting future corridors. Short-term investments will support both recovery and the move towards achieving the Plan's vision. Planning and investigation will be undertaken for medium to long-term projects to enable implementation at the appropriate time.

- Replacing damaged infrastructure
- Opportunities to increase network resilience
- Prioritising essential connections
- Opportunities for network enhancement, including opportunities to implement cycling and walking improvements
- Focus on network operation efficiency
- Supporting the recovery of the public transport network
- Ensuring planning and investment support the long-term vision
- Embrace the opportunities to develop the first major cycleways
- Establishing a one network relationship with other transport agencies to consider the overall network efficiency

Medium Term: Transition

In this phase, there will be a stronger focus on improving the safety, functioning and efficiency of the existing networks, while increasing investment in a broad range of travel options. Coupled with network efficiency services there will be an increase in parking management, the encouragement of more efficient and sustainable energy use and green infrastructure.

- Protect future corridors
- Focus on network efficiency
- Strong investment in walking and cycling infrastructure and facilities
- Continued support and enhancement of the public transport network
- Stronger parking management
- Encourage network efficiency and efficient vehicle use
- Improved level of resilient infrastructure

Long Term: Vision

The long-term vision is to implement improvements to public transport, walking and cycling, by building on the foundations set in the medium term. The efficiency of the existing network will be improved for the reliable movement of goods and people. There will also be an increased focus on parking management, transport information and education, energy efficiency and green infrastructure.

- Strong focus on investment to improve public and active transport
- Encouraging smarter travel choice
- Increased focus on management of parking and travel demand
- Energy efficiency and green infrastructure
- Increasing network resilience

The phasing of this transition reflects the priorities identified in the Regional Land Transport Strategy and supports the current Government Policy Statement on Land Transport Funding. The timing of actions for each phase and their estimated cost will be developed every three years through the Council's Long Term Plan process, taking into account the amount of funding available locally, regionally and nationally. Opportunities to work collaboratively with our transport partners in the Greater Christchurch area will be actively pursued to improve the integration of the wider transport network through this transition and to increase the return on transport investment. Reviews of the progress in implementing the Plan will be scheduled to coincide with each Long Term Plan.

Illustrative concept for achieving goals

Goal 1. Improve access and choice

Introduction

Goal 1: Improve access and choice

Increasing the availability of transport choices, while carefully targeting improvements to strategic freight and road networks will improve the efficiency and safety of the entire transport system.

The transport network has been challenged with the changes in travel patterns and demand following the 2010 and 2011 earthquakes. To improve and maintain connectivity and access across Christchurch, all of the networks (freight, road, walking, cycling, and public transport) need to respond to consequential changes in population and employment, potential retreat areas, new development, rising energy prices and limited road capacity.

While some of these changes may be short term, these need to take place without compromising the long-term transport objectives. The approach in this Plan is to move towards one fully integrated transport network shared by the transport agencies which provides optimum connectivity, good access to land and services and significantly increased transport choice within the constraints of available budgets.

The challenge is to gain optimum value from these budgets for existing and new transport networks and assets. These approaches in turn will improve the resilience of the network to future local and global events.

An integrated one network approach will help improve co-ordination across transport agencies within and adjacent to Christchurch, including NZTA, Environment Canterbury (ECan), KiwiRail, the Lyttelton Port Company, Christchurch International Airport Ltd, Selwyn District Council and Waimakariri District Council. The one network approach also better integrates the different transport choices through shared planning, design, operation and maintenance of existing and future networks. This Plan provides strategic guidance for this process by establishing:

- A new road classification system that combines the different road link types (highway, arterial, slow street) with the different place types along these roads (whether they are rural or urban, industrial or residential) to ensure that the road design is sympathetic to the surrounding areas.
- A set of networks that link places together through different transport choices, such as cycle, bus, walking, freight and cars. These also include those parts of the transport network that are off road.

These will be combined into one Network Operating Plan for the city, a key action from this Plan which will be developed in consultation with other transport agencies but especially NZTA (as funder and state highways manager) and ECan (as public transport operator). The Network Operating Plan will be developed using the principle to use existing infrastructure to its maximum potential before building costly new infrastructure for any transport choice. Consideration will be given to solutions such as maximising the operation of traffic signals to increase reliability of journey times, improved driver information systems, reallocating road space to provide facilities, such as bus priority or safer cycling and improved coordination between the agencies where there are clear cost benefits in doing so. Tools, such as detailed corridor studies and corridor operating plans, will be used to provide analytical support for the city-wide Network Operating Plan.

Using a one network approach will directly help to improve access and choice. Smarter use of our existing network by clearly prioritising transport choices on certain routes and corridors will allow the creation of additional strategic network capacity for traffic and freight by focussing first on providing operational improvements rather than building new roads.

This approach will allow for the improvement of the public transport, cycling and walking networks in other areas by removing through-traffic and heavy vehicles from less suitable parts of the network. Some of these initiatives will happen on the state highway network, while many will take place on the Council-controlled local roads. To achieve all the changes will take time, but this Plan sets out a clear vision for how those networks will be managed and enhanced.

Goal 1 has the following objectives and actions:

Objective 1.1 Balancing the network

Action 1.1.1 Strategic road network

Action 1.1.2 Freight network

Action 1.1.3 Cycle network

Action 1.1.4 Public transport network

Action 1.1.5 Walking network

Action 1.1.6 Addressing inequality through universal design

Objective 1.2 Use the existing road network more efficiently

Action 1.2.1 Network integration

Action 1.2.2 Network operating plan

Action 1.2.3 Protect and enhance the road network

Objective 1.3 Encouraging people to use a wider range of travel options

Action 1.3.1 Integration of land use

Action 1.3.2 Parking management

Action 1.3.3 Influencing travel choice

Action 1.3.4 Influencing freight demand

Balancing the network

Objective 1.2: Balancing the network

Creating one network with investment in strategic roads, cycling, public transport and walking.

The first step towards a balanced network is to understand the different components of the network and how these need to be integrated. A new road classification system is being developed to replace the existing road classification by combining and adapting a number of existing approaches. The most significant change is that it will present a more balanced view of the 'place' (land use) function of streets alongside their 'link' (movement) function.

The six categories that are used to reflect the different 'place' requirements are Rural, Semi-Rural, Industrial, Residential, Centres and Central City. figure 5.1 The eight key road form types that are used to reflect the link function are State Highway Routes, District Arterial Routes, Minor Arterial Routes, Main Distributor Streets, Local Distributor Streets, Typical Streets, Slow Streets and Ways, figure 5.2

When the six place types are combined with the eight levels of link function, a two-dimensional array or 'matrix' with 48 potential cells is created, helping define for each section of road not only the type of traffic that is using it but also the type of neighbourhood it is passing through. This process is described in more detail in Appendix C.

During the 30-year implementation of this Plan, the aim is to create a more balanced network that offers improved travel choices and a greater efficiency for the movement of goods and services. To achieve this, a final layer of detail must be added to the road classification that describes how people move from one place to another by different modes. This recognises that the network is used by people and goods making journeys from one place to another and allows better management of the network to improve journey times, reliability, amenity and safety across all transport choices.

For example freight connections will be made more reliable between Christchurch Airport, Lyttelton Port and the state highways. The Christchurch City Council will work with its partners, especially Environment Canterbury, to establish a high-quality, reliable, accessible and affordable public transport network. Christchurch will become a top cycling city offering a transport choice which is attractive, safe, accessible and resilient to world-wide fuel price and availability. A culture of walking will develop with integrated, safe, and well-connected infrastructure, and the Council will deliver better connectivity and accessibility for people with mobility impairments. It is recognised that a good transport system supports tourism, making it easy for visitors to move around the city.

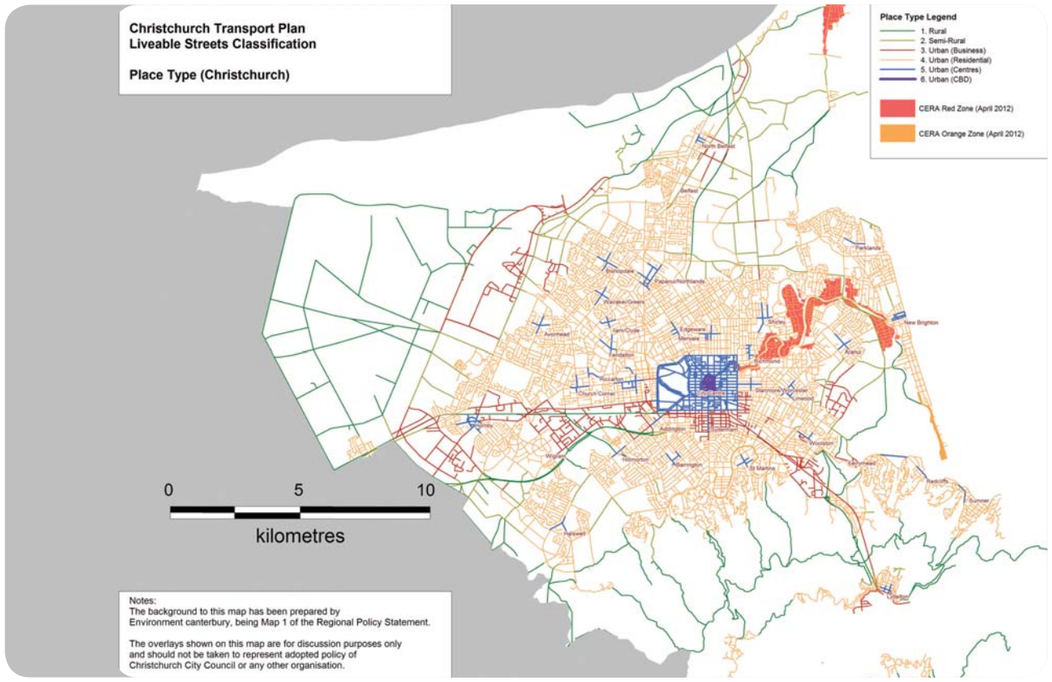


Figure 5.1 Examples of new road classification, map of place type classification

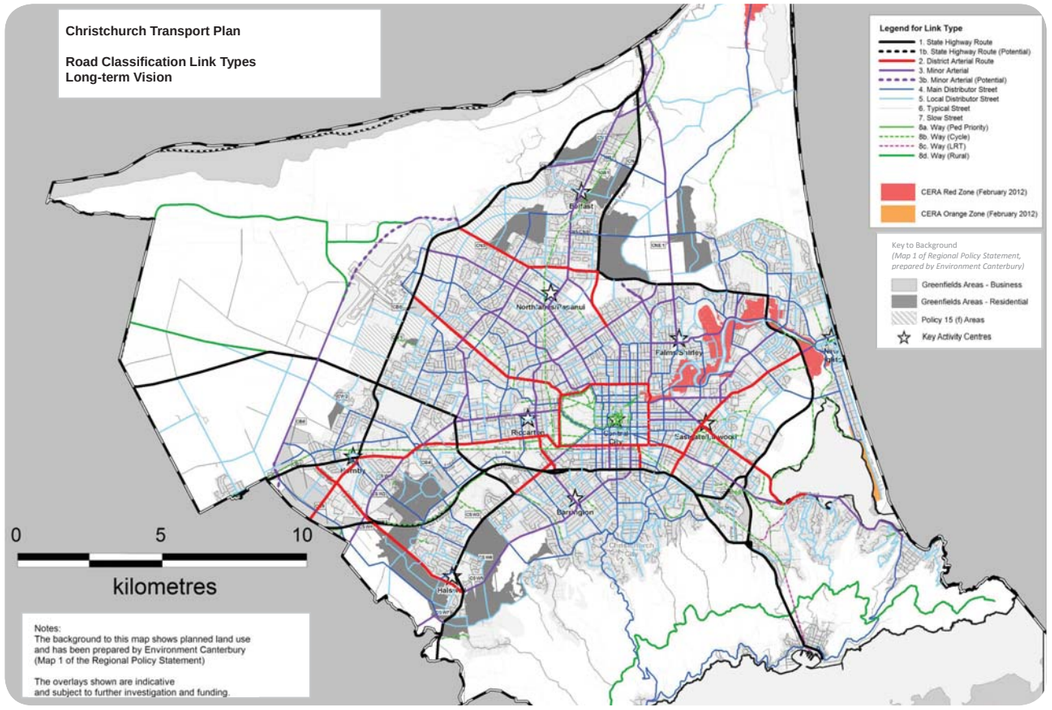


Figure 5.2 Examples of new road classification, map of link type classification

The principals for the road classification are:

Journey reliability on strategic roads, reducing conflict between adjacent land uses and other modes

Attractive streetscapes for walking, improving safety and reducing conflict with all other modes

Freight journey reliability on designated freight routes reducing conflict with adjacent land uses and other modes

An attractive cycling network, improving safety, connectivity, visibility and reducing conflict with all other modes

Attractive and efficient public transport corridors to ensure journey reliability and provide good connectivity with other modes

Attractive commercial centres for people and business with good connections by all modes

The five transport networks in this Plan are listed below and are shown in Figures 5.3 to 5.9. These indicate the long-term vision for the transport network. The routes illustrated are indicative and the exact location, street design and delivery of these will be part of further detailed design.

- **The strategic road network:** A vehicle network for medium and long-distance trips into and around the city.
- The freight network: A dedicated freight network to access Lyttelton Port, Christchurch Airport and key freight hubs.
- **The cycle network:** A network of major, local and recreational cycleways.
- **The public transport network:** Infrastructure to support the core public transport routes in the Regional Public Transport Plan
- **The walking network:** Centres that are attractive and safe to walk around and recreational walking routes, with an emphasis on providing an accessible environment for mobility and visually impaired users

The actions to achieve a balanced network, within the framework of the new road classification, are to:

Action 1.1.1 Strategic road network

Action 1.1.2 Freight network

Action 1.1.3 Cycle network

Action 1.1.4 Public transport network

Action 1.1.5 Walking network

Action 1.1.6 Addressing inequality through universal design

Details of how each network will be established are included in the following sections.

Strategic road network and freight network

Action 1.1.1 Strategic road network

Identified strategic roads will improve journey reliability and efficiency; and reduce conflict with adjacent land use.

Christchurch has a strong strategic road network that serves an important role for inter-regional and longer distance trips. The network provides both access to key destinations across the city and connectivity for freight to the port, airport and commercial centres for the distribution and delivery of goods by air, sea and rail. The network of major arterial routes will be planned, designed and managed to maximise journey efficiency and reliability while supporting the land uses that surround the network.

A core part of the strategic road network, Figure 5.3, is the state highways, which during the life of this Plan, are expected to undergo expansion and enhancement to the south, north and west of the city. To support the state highways, there will need to be accompanying enhancements to local roads. Significant efficiency improvements through managing the network will be needed to these strategic networks to mitigate growing network congestion and journey reliability problems, some of which have been exacerbated by changes in travel patterns as a result of the Christchurch earthquakes.

Action 1.1.2 Freight Network

Identified routes will allow freight from around the Canterbury region to access the port, airport and freight hubs reliably and efficiently

The strategic road network and the state highway network also have a focus on providing national and regional access to Lyttelton Port and Christchurch International Airport. The freight network is shown in Figure 5.4 (the western route still requires further investigation) and includes defined set roads to prioritise freight movement to access the port, airport and freight hubs. The strategic freight network will be supported by dedicated local access to the freight hubs, and through local freight management plans which will focus on access to local centre access for smaller goods and services and managing the conflicts with communities.

The Government is investing in improvements to the state highways through the RoNS programme. This will improve the reliability of journey times by increasing the capacity and safety of State Highway 1, extending the southern motorway to the south west and building a new northern arterial road, offering relief to the busy Main North Road through Belfast. The Council is committed to enhancing the arterial connections to the state highways to complete the overall strategic network.

There will be a seamless planning, management and operation of the strategic road network between the Council, NZTA and UDS Partners through a one-network approach to network management.

A set of principles provide guidance for the Council to plan, fund and implement strategic road projects. In summary these are:

- Land use and transport planning will be integrated wherever possible to achieve optimum integration with the RoNS, ensuring these offer maximum value for money and support for the Christchurch economy. A Freight Management Package will be developed to ensure that strategic freight movements to the port, airport and key freight hubs maximise use of the available strategic network, minimising wherever possible the effects of unnecessary and undesirable freight traffic on the most unsuitable local road networks;
- Travel demand will be managed on and near the RoNS. A Travel Demand Management Programme will be implemented jointly between the Council, NZTA and UDS partners to ensure maximum effectiveness and efficiency is gained from the planned programme of strategic network capacity enhancements.
- The RoNS will be designed and managed as safe multi-modal corridors. The completion of the current package of proposed improvements is an early priority for this Plan; and RoNS will exemplify best practice environmental planning and context sensitive urban design.

To deliver the strategic road network, activities will focus on:

Local connections

Local road and intersection improvements to provide reliable connections to the motorways and key activity centres. While the main function of the strategic network is efficient movement of vehicles and freight, it is also important that these are well integrated with local walking, cycling and public transport connections to avoid community severance and promote wherever possible, improved modal choice. Careful management of the local connections to the arterial road networks will help to ensure that the downstream effects of strategic road improvements are minimised and/or mitigated.

Local freight management plans

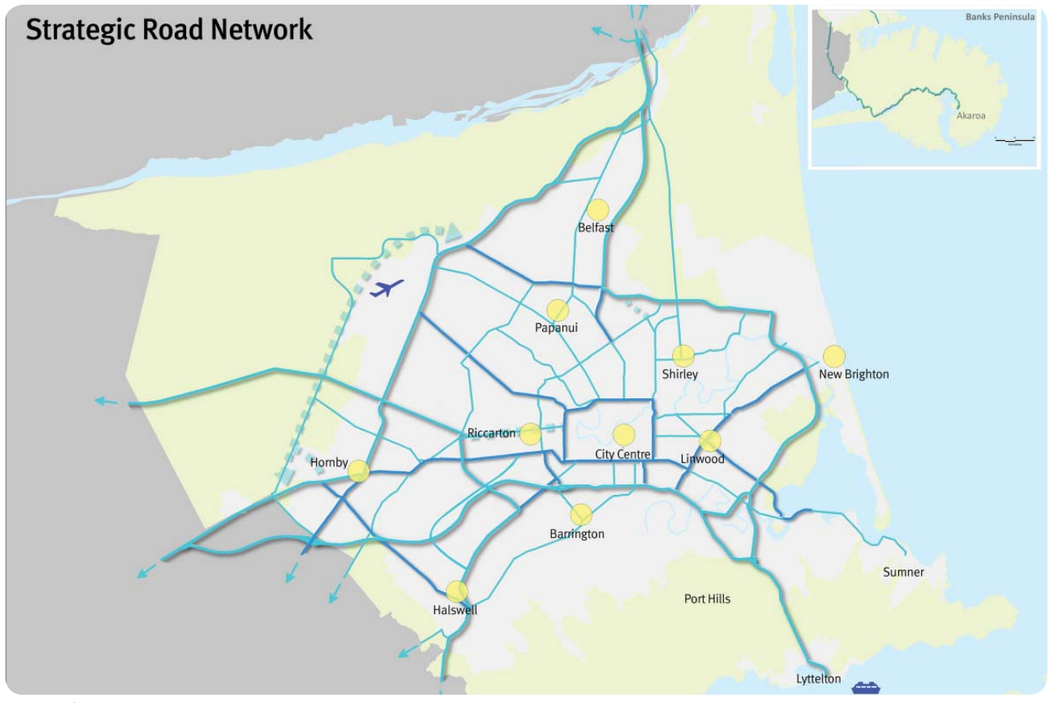
A planned approach to managing access for goods and services at the local level. The aim is to ensure reliable access to freight hubs and efficient local goods distribution whilst reducing potential conflicts between freight movement, local communities and safety. Further discussion on this is found in Goal 3 of the Plan.

Cross boundary connections

Work with UDS partners to ensure a one network approach and efficient connections are maintained and enhanced between Christchurch and its adjoining neighbours (Selwyn and Waimakariri districts) that supports the Greater Christchurch area and its economy. This includes strategic connections by road, walking, cycling and public transport and review and progress of appropriate projects in the Christchurch Rolleston and Environs Transportation Study.

Directional signage

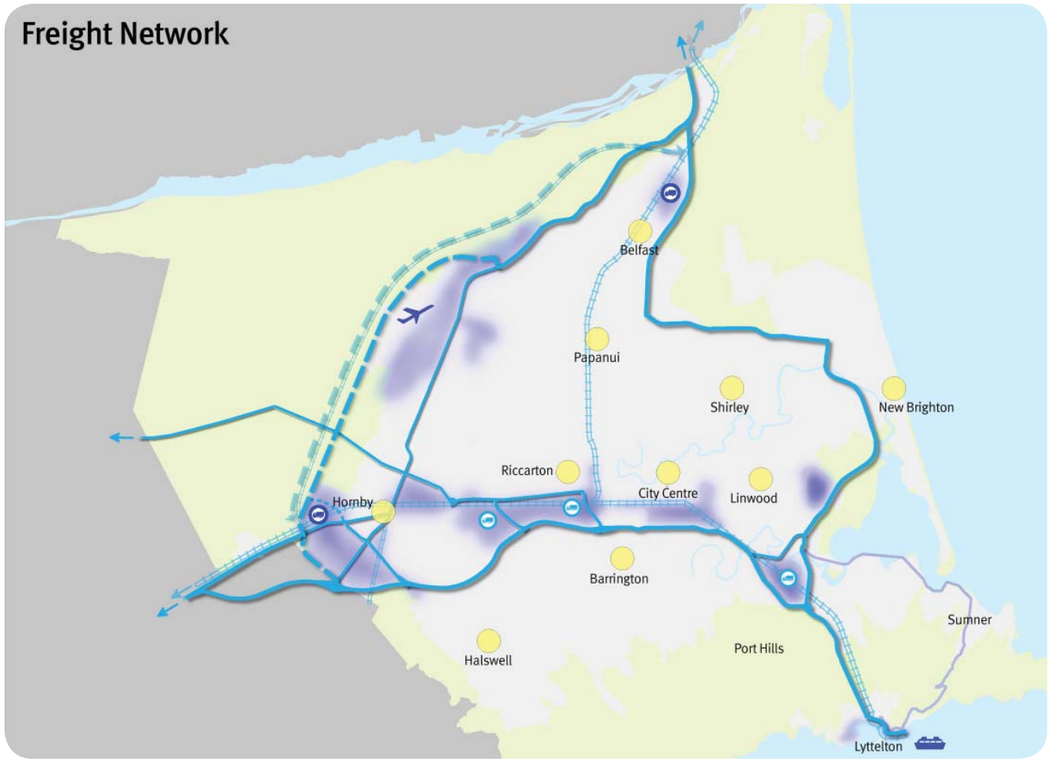
Standardise the hierarchy and placement of transport signage to improve the legibility of the strategic transport network for freight and inter-regional movements, as well as for major events. This is discussed further in Goal 3.



Legend

- State Highways
- District Arterial routes
- Minor Arterial routes
- Key activity areas
- Neighbouring Districts
- Future Christchurch urban limits
- Future route to be investigated

Figure 5.3



Legend

- Strategic Freight route
- Potential Strategic Freight route
- Local Freight route
- Potential Strategic Freight route
- Freight-supporting route for further investigation
- Existing rail
- Potential Future Freight route (rail)
- Existing/Future industrial area
- Existing freight hub
- Future freight hub
- Key activity areas
- Neighbouring Districts
- Future Christchurch urban limits

Figure 5.4

Making Christchurch a cycle city

Action 1.1.3 Cycle network

The Council has a unique opportunity to foster a cycling culture in the city and to develop a connected cycle network following the earthquakes.

Christchurch is an ideal city for cycling. It is flat and its grid network is a key feature. After the February 2011 earthquake in particular many Christchurch people found cycling was a convenient way to get around the city. The Council now has a chance to build on this shift in attitude by making some fundamental changes to the city's cycling infrastructure as the city is rebuilt. Ensuring the city is more cycle-friendly is also a positive way the Council can make a difference to the health and wellbeing of its residents.

The Te Rewa Rewa bridge on the New Plymouth award winning coastal pathway.

Christchurch is an ideal city for cycling. It is flat and its grid network is a key feature. After the February 2011 earthquake, in particular, many Christchurch people found cycling was a convenient way to get around the city. The Council now has a chance to build on this shift in attitude by making some fundamental changes to the city's cycling infrastructure as the city is rebuilt. By ensuring the city is more cycle-friendly, the Council can make a difference to the health and wellbeing of its residents.

The Council's priority will be to develop initiatives to ensure cycling is seen as a more attractive, safer and accessible transport option for residents. The focus of this Plan is to encourage more people to cycle for trips less than 10kms, to encourage more people to begin cycling and to make it easier for people who already cycle to continue to do so.

This will include:

- Creating safe cycleways that will encourage new users.
- Embracing the opportunity to develop a cycle network during the city's rebuild, making it easy for people to use their bikes.
- Creating opportunities across the city for shared footpaths. These could be shared by a number of users, for example people cycling and walking, and will provide improved access for cycling to key community facilities, such as schools.
- Developing a cycle network with different types of cycleways to cater for all cycling abilities.
  - Developing dedicated major cycleways across the city, which cater for all abilities and provide a link to popular destinations.

Park to Pier cycling event Christchurch

  - Developing dedicated major cycleways across the city, the first of these will be 'flagship cycleways' that make a strong statement about Christchurch's cycle city status and encourage people to return to cycling. The major cycleways will cater for all abilities and provide a link to popular destinations.
  - Improving local cycleways across the city so they are continuous and people cycling are more visible among other traffic, increasing their safety.
  - Providing recreational cycleways for people of all abilities.
- Supporting a cycling culture by providing cycle parking facilities, cycle hire schemes and a targeted education and promotion programme.

Goal 1. Improve access and choice

Encouraging Christchurch residents to cycle

The importance of cycling during the rebuild of Christchurch was a strong theme raised during public consultation on the draft Central City Plan.

As a transport choice, people cycling can travel faster and further than walking. Cycling offers more reliable journey times than motorised transport for short journeys[27]. Fifty per cent of all car journeys in Christchurch are under five kilometres[28].

There are many reasons why Christchurch residents should be encouraged to cycle for short trips and for recreation. These include improved health and wellbeing through increased physical activity; reduced congestion and energy dependence; a reduced need to build new roads; reduced parking problems and costs; greater and more equitable transport choice; increased social interaction; and community resilience. The health benefits of active travel are well recognised and documented in the Health Impact Assessment in Appendix A.

Around 2.2 per cent of all household trips in Christchurch are by bicycle[29]. Figures show that 15 per cent of people regularly cycle, and a further 32 per cent are seriously thinking about cycling[30]. In a nationwide study, potential cyclists strongly stated that they wanted to travel separately from motor vehicles and to be able to cross safely at intersections[31]. Improving the visibility of cycling and providing good cycling infrastructure is needed to achieve high levels of cycling.

Development of a safe cycle network will be prioritised throughout the 30-year implementation of the Plan illustrated in figure 5.7. The Council will work with the community to develop more detailed options for the networks. Funding for preferred options will be part of the Council's next Long Term Plan.

The activities for making Christchurch a cycle city are:

Major cycleways - separated and off road cycleways

Major cycleways will be designed at a standard to suit the ability of children 10 years and over, offering a safe, enjoyable experience that will encourage people to continue to cycle. These cycleways will ensure people cycling are separated from high volumes of traffic, increasing their safety and showcasing the city's many attractive green spaces. A number of these cycleways will be 'flagship cycleways' that make a strong statement about Christchurch's commitment to cycling.

Photo courtesy of Tim Church

The major cycleways will offer direct links between popular destinations, including the University of Canterbury and key activity centres, such as Papanui. The major cycleways are illustrated in Figure 5.5. There will be early planning and protection of these routes.

The major cycleways will include attractive off-road routes, separated cycle paths, cycle boulevards and safe crossing points.

- Attractive off-road routes will follow the river edges, parks, coast or rail corridors. These routes will have wide, sealed paths, providing plenty of space between pedestrians and cycles. The North Railway to City Route and Avon river route are examples of this type of major cycleway.
- Separated cycle paths will provide safe routes on road, with physical separation from vehicles and pedestrians. Where cycleways cross busy roads, safe crossing facilities will be provided.
- Cycle boulevards will create a safe environment on quiet local streets where walking and cycling will have priority.

Residents will be encouraged to use major cycleways through targeted education, promotion and good signage. People using the cycleways will also have access to cycle parking facilities at all destinations. Some routes may undergo transitional treatments before more permanent improvements to increase the visibility of cycling on popular routes.

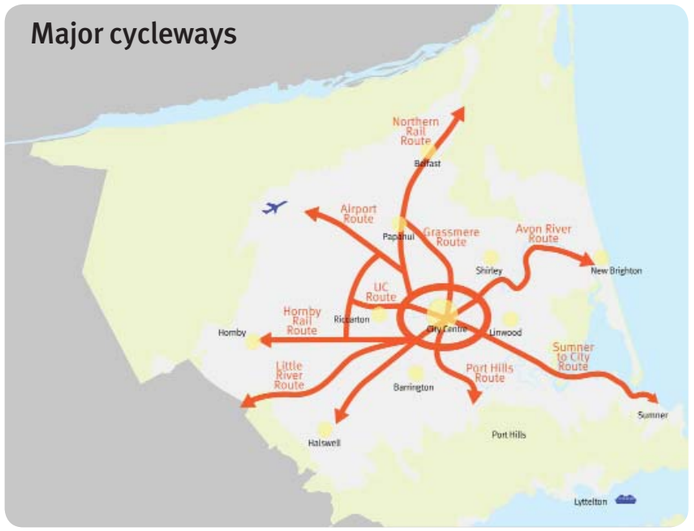


Figure 5.5

Photo courtesy of Melbourne City Council.

Photo courtesy of Melbourne City Council.

Separated Cycle lanes in Melbourne, Australia

Local cycleways - shared paths and cycle lanes

Local cycleways will provide safe connections for people who want to access the major cycle routes and will offer most school pupils in Christchurch a safe environment in which to cycle.

Routes will be either off-road shared walking and cycling paths, on-road cycle lanes or follow quiet local streets. Greater consideration will be given to international best practice standards to make them safer.

- Shared paths will make the best use of the road space, providing safe connections off the road, making it easy for children to cycle to school and to other destinations around the city.
- Cycle lanes: work will focus on completing existing cycle lanes and filling in the gaps in the network, safety improvements at pinch points and upgrading sections using international safety and design standards. To improve the connectivity of growth areas, cycle lanes will be encouraged in new subdivisions to link to local commercial areas and community facilities.

In the future, new cycle lanes could be located between footpaths and parked cars rather than between parked cars and carriageways; cycle lanes will be more visible and in some places there will be intermittent rumble strips between cycle lanes and traffic to stop vehicle encroachment.

- Quiet Streets: some cyclists who are confident cycling on the road will prefer the quiet local streets to reach their location.
- Crossings: to reduce dangers to cyclists at intersections, appropriate safety measures will be introduced at crossing points. The local cycle network will allow people to cycle more safely with clear signage to make moving around easy.

Figure 5.6 illustrates how local cycleways will fit into the transport network. The exact location of these routes is indicative and will be further investigated through the implementation of this Plan.

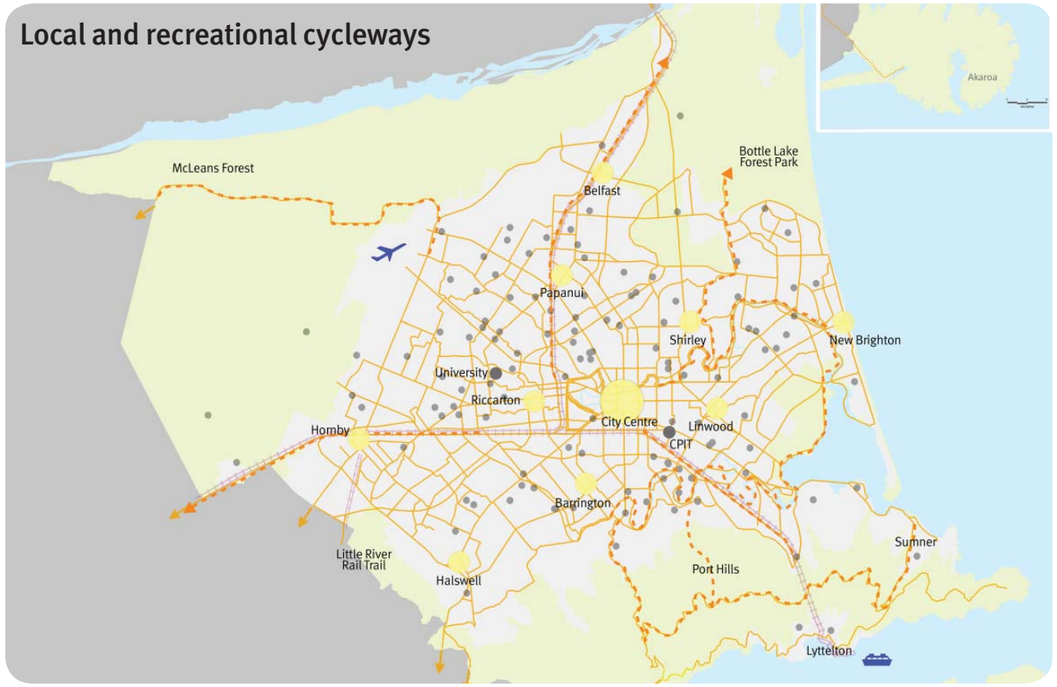


Figure 5.6

Key recreational cycleways - off-road paths

Recreational cycleways (shown in Figure 5.6) will be visually attractive, mostly off-road routes that will take cyclists through parks and along the coast. Recreational cycleways will cater for both those who cycle for sport and those who cycle for leisure.

- Leisure routes will connect some of the city's recreational areas and be wide enough to ensure they are safe and will encourage new people to cycle and others to return to cycling. Many of these routes will also be major cycleways.
- Sport routes will be some on-road recreational cycleways which offer safe routes for sports cyclists, for example Summit Road and the Halswell to Tai Tapu route. Safety improvements will be made to these cycleways and bicycle user needs will be considered in all future changes.

Supporting the cycling network

The development of the new cycle network will be supported by providing facilities, education and promotion, the provision of cycle parking, cycle hire schemes and other cycle facilities will support the network development. A targeted education and promotion programme will complement infrastructure improvements to raise awareness about cycle safety and the benefits of cycling.

Cycling Design Guidelines

Guidelines will be developed to identify the range of tools and infrastructure standards to guide the development of the cycle networks in this Plan. These guidelines will help to guide rebuild opportunities as appropriate and influence the review of the existing Infrastructure Design Standards and policies in the District Plan.

Cycling and walking business case

A business case for cycling and walking will be developed in the short term to recognise the wider benefits of active transport and to support future funding applications.

Auckland City bike hire

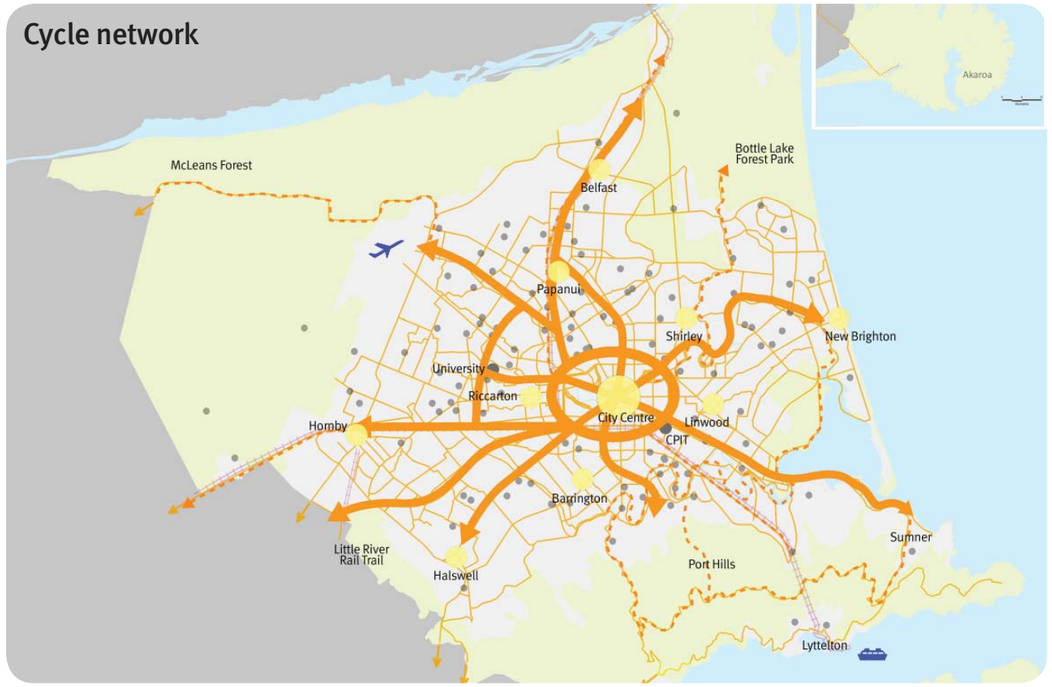


Figure 5.7

Public transport network

Action 1.1.4 Public transport network

Attractive and efficient public transport system to ensure journey reliability and provide good connectivity with other modes.

Making public transport more attractive to people will enhance the efficiency of the road network and reduce the number of commuter trips by car. The earthquakes severely affected public transport routes, services and patronage in 2011, and the effect of this on the road network was evident in the severe congestion across the city as more people used their cars. The public transport system is recovering but further investment is needed to attract more people to use public transport, this in turn will help to improve the efficiency of our roads.

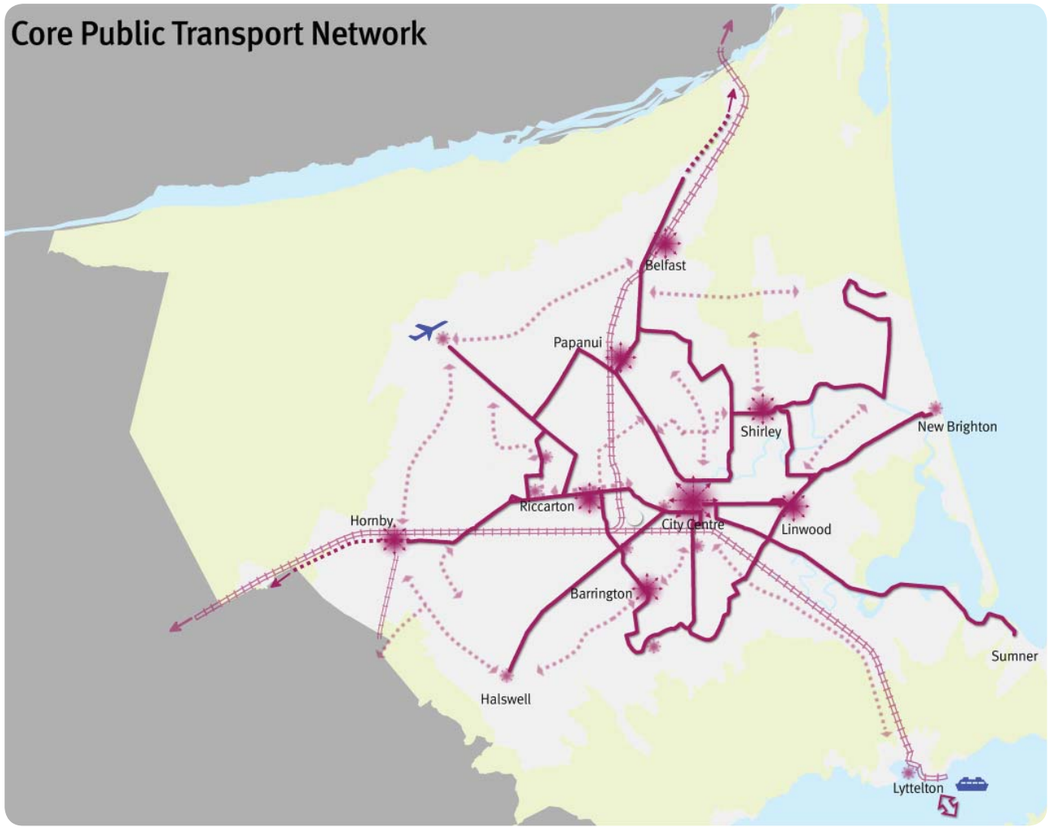
Photo courtesy of Gehl Architects

To provide attractive and efficient public transport system with good connections to key activity centres, investment is needed in quality infrastructure which improves the priority and reliability of services and to enable more reliable scheduling and easier transfers to change services.

The Regional Land Transport Strategy (2012-2042) and the Regional Public Transport Plan set a clear direction for public transport within Greater Christchurch. These recognise that public transport services play a significant, and increasingly important, role in the transport system. Focusing services and investment to develop quality infrastructure and priority measures along core corridors and strengthen cross boundary connections, will make public transport an increasingly attractive option. These core services will be supported by local services through the provision of good interchange facilities

Increasing the reliability and attractiveness of public transport and integrating public transport and land use planning decisions can transform the development potential of cities by boosting patronage, assisting urban regeneration and helping to manage future congestion. Further analysis into these potential benefits in the Christchurch context is essential. Within the scope of the Plan, investigation into rapid transit will be undertaken to determine the feasibility and form of future rapid transit for the region, looking both at the suitable types of rapid transport and any potential for contribution to economic and urban revitalisation. While it is difficult to measure the these types of benefits from investment in rapid transit (passenger rail or light rail or dedicated bus ways), research has shown that every dollar of investment could return two to three dollars in property investment[32].

The aim of this plan is to move the current public transport system into one that changes the current balance of travel choice from predominantly car-based travel towards a greater proportion of public transport use.



Legend

Figure 5.8

- Core Public Transport routes
  These are the routes that provide higher-frequency services (not all public transport routes have been shown, for clarity)
- Possible Future routes
  (subject to investigation)
- Connections to neighbours
- Existing rail
- Ferry connection
- Regional services
- Neighbouring Districts
- Future Christchurch urban limits
- Connection points

To transform public transport the activities are:

Rapid Transit

The Council will work with its UDS partners on a public transport network study, known as the Greater Christchurch Future Public Transport Study, looking into the future role of rapid transit for the region. The partners will engage in investigations into the future of public transport for Greater Christchurch, including consideration of heavy rail, light rail, bus ways and the appropriate locations for Park and Ride sites. The study will consider alternative land use scenarios, such as increased density, to support the greater uptake of public transport, as well as the economic benefits of different forms of public transport. The study will consider if public transport has a role to support the regeneration and economic development of the Central City and recovery of Greater Christchurch. The investigations will take into consideration all previous UDS studies.

Protect future rapid transit corridors

The Greater Christchurch Future Public Transport Study may identify future corridors for new rapid transit routes that will need to be protected against development. The Council will work with its partners to identify and prioritise corridors to be designated and protected to ensure direct connection to the Central City, growth areas, commercial centres and to surrounding districts. The core public transport corridors are indicated in Figure 5.9. Once the rapid transit investigation has progressed, the next priority is to identify and protect the future corridors. The planning and development of new growth areas should integrate the corridors into their design. Future growth will influence the phasing of infrastructure so public transport services can be provided as new demand areas grow.

Quality public transport infrastructure and priority

The introduction of public transport priority will improve travel time reliability for public transport, increasing its attractiveness relative to private vehicle travel. (Public transport priority measures are techniques used to give priority over general traffic.) The Council will work with Environment Canterbury (Regional Public Transport Plan) to develop a programme of delivery for investment in public transport priority measures, improve connections to the Central City, commercial centres and cross boundary connections. Priority measures are the collective term used for a range of traffic management measures where the delays and unreliability of public transport caused by physical constraints and other vehicles are removed or reduced. A variety of such internationally tested measures include bus lanes, bus borders, bus gates, bus signals and bus stop improvements. Priority measures could precede the transition from bus transit to rapid transit.

Connection points (super stops, interchanges and bus stops)

All public transport trips are part of a journey that involves walking or cycling to a connection point on the public transport network. This concept is often referred to as “active transport” encompassing the whole journey whether by bus, walking or cycling and can also apply to the integration of the three networks (public transport, walking and cycling) into an active transport network. Connection points and their access are therefore critical to the success of the public transport network. A network of connecting points, such as super stops (on-street stops where you can transfer between services) and interchanges (larger, off-street, high-quality transfer points) will be established where shuttle services meet with core services. The location of connection points are indicated in Figure 5.8. In the short term, super stops will be implemented to support the recovering bus system. The location of interchange sites will be reviewed before interchanges are developed in the medium to long term. The interchanges will ensure easy transition between bus services. High demand bus stops (on-street stops) will be gradually upgraded with real-time information (talking and visual), quality shelters and seating. Accessibility will be an integral component of public transport with improved walking and cycling access to stops and cycle parking facilities at stops.

Park and ride, parking and taxis

Strategically located park and ride sites will be identified and established. The Council will work with its UDS partners and neighbouring districts to provide sites in the Greater Christchurch area which support core public transport routes. Parking management will be used, where appropriate, to support the implementation of public transport corridors (parking actions are covered in Goal 2). Taxi priority parking space will be provided for taxi stands at key destinations around the city, including the airport, hospitals, public transport interchanges, commercial centres and at large community facilities.

Walking network

Action 1.1.5 Walking network

Attractive streetscapes for walking, improving safety and reducing conflict with all other modes

The Council will take leadership to build a culture of walking with a focus on creating vibrant commercial centres which are attractive and where people want to spend time. Twenty-two percent of all trips in Christchurch already involve walking5. In the future, walking will become the easiest and most attractive choice for short trips (less than 2km), especially for walking to and around the commercial centres. The walking network is illustrated in Figure 5.9 and includes links to the recreational walking networks which can provide important walking (and cycling) links to activity centres. The walking network supports both the cycling and public transport networks for longer journeys, where people wish to use a range of active modes rather than a car.

All trips start or end with walking, whether it is from the car or bus stop. Walking is a healthy and affordable choice for everyone. Safe, attractive and connected walking facilities will make walking a more inviting choice. Walking facilities need to be legible, accessible and well integrated with street environments. Connectivity with commercial centres, neighbourhoods, public transport and parking facilities is important to enable door-to-door journeys. There will be an increased focus on building and maintaining partnerships with leaders in pedestrian design, disability access, safety, planning and programming. Priority will be given to improving connections between communities and schools, safe access to public transport, and safer crossings within centres.

To build a culture of walking the activities will focus on:

Walkable centres

The Council will seek opportunities to lead innovative walking initiatives to create vibrant commercial centres. Commercial centres will be designed for people, ensuring streetscapes have attractive footpaths, crossings are accessible for all users, traffic is slowed and people are encouraged to linger and relax. Infrastructure improvements will be implemented within a one to two kilometre radius of commercial centres to improve the walking environment, as indicated in Figure 5.9. The walking links radiating from these centres can then be improved based on walking demands, other transport functions and purpose.

Core walking routes:

A programme will be developed to improve connectivity and implement core walking routes which will be separated from cycle facilities. The first step will be to focus on network planning, taking opportunities to link in with recreational routes and established facilities. A map of existing core routes and quality information will inform the improvements and development of future connections. The programme will include a network of routes connecting commercial centres, greenspaces, parks and urban spaces. All routes will be attractive, appropriately signposted, well lit and incorporate accessible parking to ensure pedestrian safety.

Local safety improvements and non-motorised user audits

Local safety improvements will focus on the needs of vulnerable road users. The use of a non-motorised road user review will be applied to identify key issues and implement improvements. The review would include a context assessment, consultation and use of audit tools. A key priority will be to focus on improving local connectivity to bus stops, places of work and shops within key suburban centres and growing employment areas to the west of the city. The safe routes to school programme also places emphasis on provision of safe, convenient walking routes and road crossings within school catchments to support a walking culture.

Photo courtesy of Gehl Architects

Action 1.1.6 Addressing inequality through universal design

A transport system able to be used by everyone

Transport is an important component of social inclusion and requires fair and equal access. Street designs need to incorporate cultural values and reduce inequality. A key finding of the Health and Sustainability Assessment is that affordability, availability and accessibility are key issues in planning. The diverse needs within the population need greater consideration in transport planning including older people or Kaumātua; lower socio-economic groups; people with disabilities; ethnic groups and refugees; and children.

The concept of universal design suggests that the built environment is designed to be used by everyone, regardless of their age, ability or status in life. To address inequality, this action focuses on access for all, with application of adaptive and assistive technology, where appropriate, to facilitate access for those with lower levels of mobility.

The Council's Access and Mobility Policy will inform project design and implementation. Ensuring best practise design in land use and transport planning, as well as building standards, by integrating universal design principles will facilitate a truly accessible Christchurch, addressing the future needs of a diverse and ageing population.

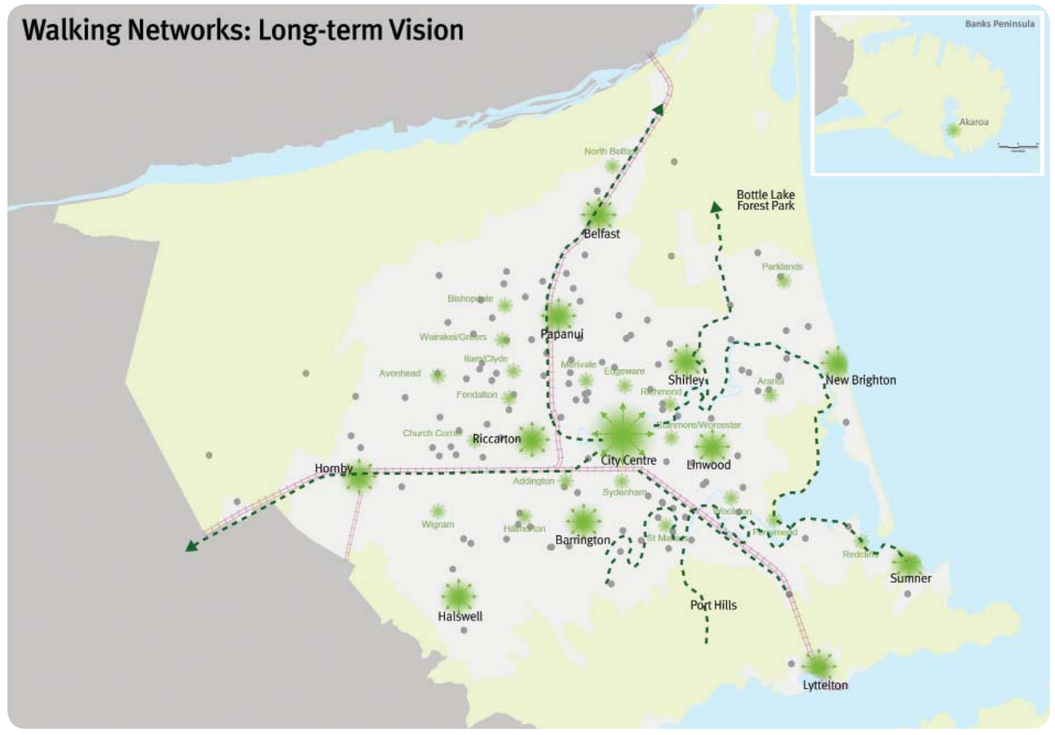


Figure 5.9

Use the existing road network more efficiently

Objective 1.2: Use the existing road network more efficiently

Working with other transport agencies to manage our existing road network more efficiently and cost effectively

Christchurch currently has road assets consisting of 2283km of roads, 413 bridges and 118 foot bridges[33]. This is a huge public resource which needs to be managed effectively. The challenge is to gain optimum value from available budgets for existing and new transportation networks and assets, while moving towards the goals and objectives detailed in this Plan. This in turn will improve the resilience of the network to future local and global events by creating a flexible integrated network supporting a choice of travel modes.

A key focus for the Plan is to use the existing road space more efficiently to improve connectivity, access, choice and to support economic vitality. Road space is a scarce public resource and one of the most valuable assets owned by the Council. This Plan recognises that road space needs to continue to support car travel and goods movements, while also more effectively accommodating public transport, cycling, walking and reflecting adjacent land uses. In these ways, more effective use of road space can positively contribute to the recovery of centres and communities to help make Christchurch a better place to live.

Christchurch's existing road space[34] has a limited capacity for growing car-based travel in the future, as seen with growing congestion and increasing journey time uncertainties before the earthquakes. The earthquakes further highlighted these problems. There are opportunities to begin to make more of the existing road space by changing the way we think about and manage our roads and transport networks.

The actions to achieve greater efficiency on the road network are:

Action 1.2.1 Network integration

Action 1.2.2 Network operating plan

Action 1.2.3 Protect and enhance the road network

Action 1.2.1 Network Intergration

One integrated network - a new approach to network management

The new road classification system has been used to develop the network plans for strategic roads, freight, public transport, cycling and walking in Objective 1.1 of this Plan, which identifies priority corridors for each mode. Combining these modal networks into one integrated network requires a new approach to the way the transport system is managed. In partnership with our key stakeholders, a new approach to the way the Council uses and operates its road network will be developed to make the best use of the existing roads and ensure Christchurch's roads continue to operate effectively now, and into the future.

On some sections of the road network, both corridors and sections of corridors, there are competing demands for road use – for movement (by trucks, cars, buses, cycles or by foot) and for place (frontage business, recreation and play). These competing demands can create capacity tensions and even potential safety conflicts within the road space. The corridors with the greatest pressures for competing space are often on the busiest arterial routes, especially where they approach and pass through key commercial activity centres or residential areas.

A new approach for network planning will look to manage competing interests for limited road space by assigning where possible a clear priority to one type of movement (freight, public transport, general vehicles or active transport) while recognising the importance of creating attractive street environments. Certain routes/corridors will be managed to work better for specific movements, such as freight or strategic traffic, while others will be managed for public transport, cycling and pedestrians, figure 5.10. Where a greater priority has been given to one type of movement, good alternative routes will be identified for other modes. In some cases, a mix of priorities might be identified; in these instances further detailed corridor planning in association with the one network partner agencies will determine the best design for these roads.

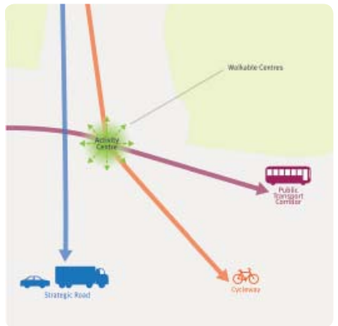


Figure 5.10.

Action 1.2.2 Network Operating Plan

Delivering strategic objectives in the day-to-day management of the transport network

A Network Operating Plan takes the road classification and the modal networks that have been developed through this Plan and describes how the network should be operated to deliver the objectives of the road classification and the modal networks. Service levels at both a system-wide level and a corridor level will be developed based on the road classification and modal networks. Changes to the way the network is operated that achieves these service levels will be proposed. A new approach to network integration will be used to assess what changes are most appropriate. This Plan will ensure that the overall network is managed as one network and operates efficiently through prioritising and managing the individual networks for walking, cycling, public transport, freight and vehicles.

Corridor Studies will be undertaken on those routes where there are multiple modal priorities within the same corridor. The Corridor Studies will determine how a street should function to arrive at an optimum balance of all the users – public transport, cycling, people and vehicle movements – and provide an analytical basis for the Network Operating Plan. The Network Operating Plan will be regularly reviewed and updated as the networks are developed and corridor plans are completed to ensure the network is being operated and continually refined to deliver the objectives of the road classification system principles and the associated five modal networks.

Action 1.2.3 Protect and enhance the road network

Maintaining our infrastructure improves safety and efficiency for all road users

Maintenance and operational management of the road network in Christchurch is essential for all users to make it safe and easy to move around, to maintain efficiency and connectivity and to improve resilience. A well maintained and operated network reduces cost in the long term.

Activities to protect and enhance the existing road network efficiency, safety and effectiveness will continue to focus on:

Road maintenance, operations and renewals

Maintenance and the operation of existing transport assets plays a critical role in the safety, efficiency and amenity of road, bus, cycling and walking networks. This covers roads, footpaths and cycleways, including repairs, sweeping, road markings, signs, traffic signal operations, driver information systems, lighting and drainage maintenance. More efficient use of our existing assets can delay or remove the need for new costly infrastructure by ensuring maximum use is made of the current network. Once an asset can no longer be repaired cost effectively, it becomes a renewal project and is typically rebuilt to current standards. The major rebuild of damaged infrastructure following the 2010 and 2011 earthquakes has brought forward many renewal projects and offers an opportunity to rebuild these assets to current standards while also including, where possible, cost neutral improvements, such as revised road markings to reallocate road space in line with the new road classification system.

Parking management

As the new road classification system is applied to the network, it will progressively change the way road space is managed and used for movement. On-street parking plays a key part of network management and is essential for the economic vitality of our commercial centres; however it does need to be better balanced in the future against the vital movement efficiency needs of the strategic road and freight networks. Taxi priority parking space will be provided by taxi stands at key destinations around the city, including the airport, hospitals, public transport interchanges, commercial centres and at large community facilities. In some commercial centres, on-street parking may need to be better managed to ensure that short-term visitor parking is easily available but that commuter parking and expensive use of vital arterial corridor space is better controlled. In some cases this may be achieved by the provision of off-street parking availability. Mobility parking will be provided with appropriate time limits.

Road upgrades

To keep Christchurch moving, more efficient operation of the network will not always be enough and some new infrastructure will be essential to improve access to Christchurch Airport and Lyttelton Port, cross boundary connections and to connect new commercial and residential growth areas in the city. Many of the strategic improvements will be through state highway network improvements, but there will be complementary measures on local arterial networks to ensure optimum value and efficiency gains are achieved through the state highway programme. Upgrading road infrastructure with some long-awaited improvements to key strategic routes will be needed early in the Plan's implementation to relieve communities of through-traffic and improve access to commercial centres.

There is also the need for new infrastructure to support the number of greenfield areas that have opened to support recovery. These areas have opened up sooner than was planned in the Greater Christchurch Urban Development Strategy and the Council is working with its partners to undertake analysis and identification of the transport impacts and network improvement needs.

Long-term growth is recognised within the UDS, Christchurch Rolleston and Environs Transportation Study, the South-West Area Plan and Belfast Area Plan and is reflected in the NZTA's RoNS programme. The Council will continue to work with its partners through the new one network arrangements to review these plans and ensure future network upgrades support both the vision of this Plan and the long-term land use patterns.

Improving resilience and reducing risk

The 2010 and 2011 earthquakes demonstrated a clear need for greater resilience in our transport network, both in its ability to respond to emergency events and the increase in international volatility of fossil fuel availability and prices.

Following the earthquakes, in some places the physical infrastructure was damaged and connections to some areas were lost. In other areas, people who relied on one mode of transport did not have the flexibility to choose an alternative, whereas people who already cycled or walked as part of their daily routine were able to move reasonably freely.

To address the first issue, a programme of natural hazard mitigation and improvements to the transport infrastructure will improve the future resilience of the physical network. The programme will identify the vulnerabilities of infrastructure and develop strategies for reducing risk, improving readiness, response and recovery.

The second issue will be addressed by offering a range of transport mode choices and then encouraging people to be flexible in the way they move around the city, so residents are better prepared to deal with any future disruptions to the network.

Deliver programmes and services to influence travel choice

Objective 1.3 Encouraging people to use a wider range of travel options.

Providing infrastructure, information and education to help travellers choose more efficient and healthier ways to travel

A key direction of this Plan is for more efficient use of the network. This Plan includes the long-term direction to provide attractive services and facilities for public transport and active travel. Providing this range of attractive travel options is the first stage of establishing an effective transport system. Equally important is enabling people to make good transport choices by providing them with information on options for how and when to travel. By encouraging people to travel by using a variety of modes, travelling at different times, and shortening or combining trips, network efficiency gains can be made.

Travel Demand Management (TDM) is the term used to represent a broad range of policies and programmes to encourage people to walk, cycle, use public transport and car-share. Attractive transport options must be in place in order to make TDM policies and programmes effective. In support of the Plan's goal for a more effective network, TDM strategies can be expected to influence travel behaviour to achieve the following goals, thereby reducing the costs of maintaining and expanding transportation facilities:

- A reduction in the amount of travel by encouraging trip-makers to combine two or more purposes into a single trip, by avoiding commute trips and by reducing the length of trips.
- Change the mode of travel by increasing the proportion of trips by walking, cycling, public transport and carpooling.
- Change the time of travel to reduce the growth in peak period travel by encouraging a shift in the time in which people travel to outside peak periods.

Most TDM programmes focus on influencing these commuting trips to work and to school, because these trips are a significant component of peak period travel that are typically made every day from the same origin to the same destination and around the same time. TDM programmes for these trip purposes can be targeted through resident groups, employers and educational institutions.

Greater Christchurch Travel Demand Management Strategy

Although there are several opportunities for TDM programmes to be developed in Christchurch City, the effectiveness of local programmes will be limited unless they are complemented by regional TDM initiatives. The Greater Christchurch Travel Demand Management Strategy has been adopted by the UDS partners as a commitment to TDM initiatives across the UDS area. While a review of the Strategy post-earthquake is required, the underlying rational and guiding principles are important as the city and Greater Christchurch area moves through the recovery period.

The city can play a key leading role in managing existing transportation infrastructure and changing travel behaviour by developing its own programmes and policies as well as supporting external initiatives.

The actions for managing the network by encouraging people to use a range of travel options include:

Action 1.3.1 Integration of land use

Action 1.3.2 Parking management

Action 1.3.3 Influencing travel choice

Action 1.3.4 Influencing freight demand

Action 1.3.1 Integration of land use

A transport network in harmony with the surrounding land use

Land use policies and decisions can have the greatest influence on travel demand and mode choice. Land use policies for intensification, greater land use and transport integration and the creation of attractive and accessible places for people to live, work, shop and play are likely to have the most impact on travel choice. Action 2.2.1 Right location, right design, right function, right time in this Plan outlines the key actions within land use policy that will aid in reducing the need to travel by car, supporting Action 5.2 of the Greater Christchurch Travel Demand Management Strategy.

Goal 1. Improve access and choice

Action 1.3.2 Parking management

Proactive management of parking as part of an integrated transport network

An effective way of influencing travel demand and mode choice is through parking policy, management and supply. Parking measures can initiate rapid changes in travel behaviour, but wider effects are complex and must be carefully considered. The parking actions supported within this Plan are outlined in Action 3.1.3 Parking and within Action 1.2.3 Protect and enhance the road network.

Action 1.3.3. Influencing travel choice

Helping people to make informed decisions about available travel choices

Information and Educational Services

People need to know what travel options are available, their benefits and costs in order to make well-informed decisions about the way they travel. The delivery of information and educational services is closely linked to the availability of travel choices and needs to leverage off and enhance network and service improvements.

Through the more immediate short-term rebuild and recovery period, the primary focus for information and educational services is to help travellers select the most efficient travel routes (avoiding road closures and construction zones), travel modes (driving, car pooling, cycling, walking or taking the bus) and times of travel.

Over time, as network and service enhancements take place and new infrastructure in established, information and educational services will play a greater role in encouraging people to think about the way and when they travel. As the city evolves, there will be a continuous shift in the focus of these services to meet changing needs and look for opportunities to leverage existing programmes, tools and expand funding opportunities. The aim of these services will move to support the broader strategic objectives of this Plan and the Greater Christchurch Travel Demand Management Strategy, such as reducing dependence on private car travel and adapting to meet new priorities as regional land use patterns change.

The information and educational activities delivered through this plan include:

Travel information and journey planning system

The Transport for Christchurch website has been developed as a response to challenges facing travellers through the reconstruction of the sewer, water and roads during the next few years of the rebuild. This web-based information tool includes a range of road user information and supporting applications that are responsive to the existing construction disruptions.

The next phase of this tool will include expanding its functionality and purpose to provide improved information and services (such as journey planning and multi-modal navigation tools) that will assist users in making choices about how and when to travel using a wider range of travel choices.

Promotion of new services and infrastructure

Programmes of marketing and information will be developed in line with improvements to services and the development of new infrastructure, such as public transport service enhancements, cycle routes and walking routes and other network management initiatives

Programmes involving a mix of initiatives, such as travel planning information, education and promotion will be implemented on key transport corridors to improve network efficiency. This will involve targeting households, workplaces and schools along the corridor.

Wayfinding plan

Consistent signage, mapping and publications will enable easy wayfinding around the city for all transport options. The wayfinding plan will be consistent with the Christchurch Central Recovery Plan and will be used as a template to establish protocols for a city-wide wayfinding project. Signage will be implemented in association with the development of public and active transport corridors and commercial centres. The wayfinding plan will consider the use of Te Reo and recognise places significant to Māori.

Action 1.3.4 Influencing freight demand

More efficient freight movements to support the regional economy

Regional freight movements are growing significantly. Christchurch is increasingly becoming a major freight centre with an increasingly expanding activity for the Lyttelton Port, KiwiRail and the Christchurch International Airport. Improving the ongoing efficiency of moving freight requires sectors to work together to look at smarter ways of moving freight, encouraging a larger role for air and rail freight, greater integration of rail, road, air and sea and more effective management of the network. The Council will continue to work with national and regional partners and implement initiatives outlined in Objective 3.1 of the Plan.

Goal 2. Create safe, healthy, liveable communities

Goal 2. Create safe healthy liveable communities

Goal 2: Create safe, healthy, liveable communities

Transport can shape communities by providing safe, attractive streets, healthy travel options and accessible networks.

The planning and building of new communities and the recovery and revitalisation of existing communities needs to be well-connected and integrated into the transport system to reduce the reliance on private vehicles and improve safety. There is significant opportunity to improve safety on our local roads; this is essential to providing real transport choices. Transport is also an important component of social inclusion and requires fair and equal access. Good design can reinforce a sense of place, streetscapes reflecting the diverse communities in which they are located. To encourage more local walking and cycling trips (trips less than 2km for walking and 10km for cycling), land use and transport planning needs to be integrated to reduce trip lengths and enable healthier travel choices. A connected and healthy population is the key to a productive economy. A five per cent increase in physical activity levels can net a reduction of $25 million annually for health care costs[35].

Photo courtesy of Gehl Architects

Goal 2 has the following objectives and actions:

Objective 2.1: Support recovery

- Action 2.1.1 Connecting the Central City
- Action 2.1.2 Rebuilding suburban centres
- Action 2.1.3 Supporting new growth and intensification areas

Objective 2.2: Effective and integrated land-use policy and plans

- Action 2.2.1 Right location, right design, right function, right time
- Action 2.2.2 Transit oriented development

Objective 2.3: Safer systems and safer speeds

- Action 2.3.1 Safer system
- Action 2.3.2 Rural roads

Support recovery

Objective 2.1: Support recovery

The transport system will support the recovery of Christchurch. Transport improvements will be prioritised in recovery and growth areas of the city.

Transport can support the recovery of the communities which have been significantly impacted by the earthquakes through the replacement and enhancement of infrastructure. As streets are repaired, improvements can make an area more attractive and resilient. In growth areas, new streets can help to define communities. Transport improvements will support the recovery programmes for the Central City and suburban centres and new growth areas in the short to medium term.

The actions for transport to support recovery are:

Action 2.1.1 Connecting the Central City

Action 2.1.2 Rebuilding suburban centres

Action 2.1.3 Supporting new growth areas and intensification areas

Action 2.1.1 Connecting the Central City

Linking to the transport component of the Central City transport strategy

The Christchurch Central Recovery Plan (CERA, 2012) sets out how the Central City will be rebuilt following the 2010 and 2011 earthquakes. The Plan gives the Central City a new look, vibrancy and confidence for increasing investment in the heart of Christchurch.

At the time of adoption, by the Council, of this Plan, the Central Christchurch Development Unit of the Canterbury Earthquake Recovery Authority is developing the transport component of the Christchurch Central Recovery Plan. This is being developed in collaboration with the Council, NZTA and Environment Canterbury. The aim is to ensure that there are appropriate links between the proposed Central City transport network and the wider transport goals, objectives and networks in this Plan. The main connection points are illustrated in Figure 5.11.

The specific transport network within the Central City will be determined by the Christchurch Central Recovery Plan, and will be subject to public consultation in late 2012/early 2013 before adoption.

The activity for transport in central City is to deliver one net work:

To improve access to the Central City, a coordinated programme of city-wide network improvements (as outlined in Goal 1) is required. The programming of these will seek optimum alignment with the implementation of transport projects in the Central City.

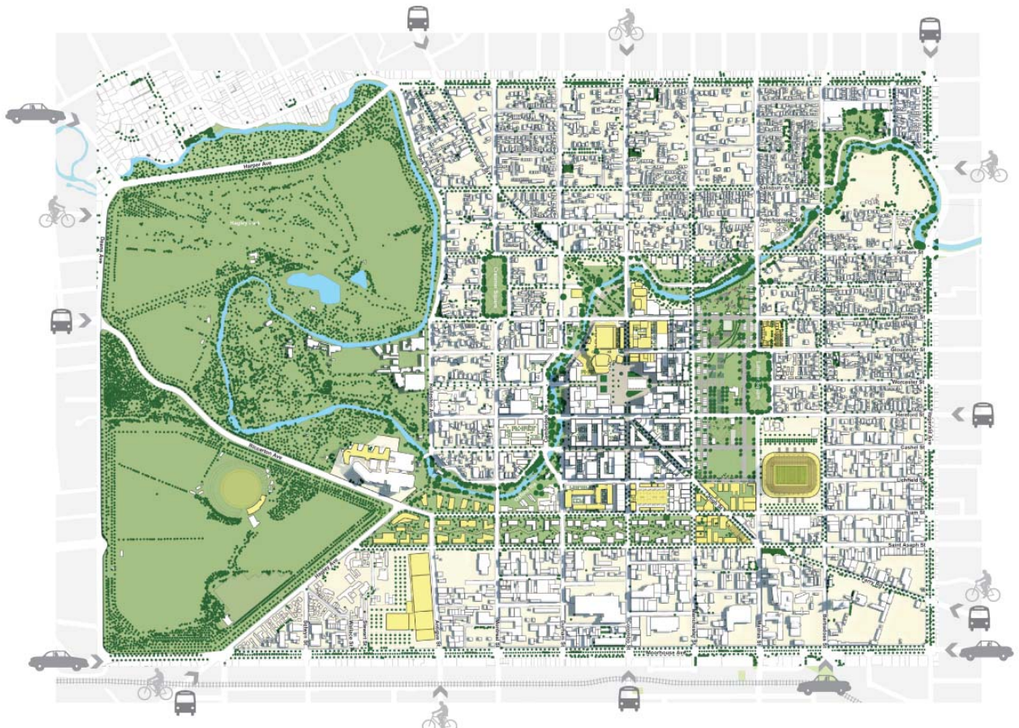


Figure 5.11

Goal 2. Create safe healthy liveable communities

Action 2.1.2 Rebuilding suburban centres

Supporting local businesses and communities by rebuilding suburban centres

The recovery of the most damaged suburban centres is being supported by the Suburban Master Plan Recovery Programme. Recovery Master Plans are being developed with the community for Sydenham, Lyttelton, Ferry Road, Linwood, Sumner, Selwyn Street and New Brighton. The Master Plans consider transport improvements alongside other aspects, such as the urban form, natural environment, heritage and economics to develop a future vision for the centre to aid recovery and improve future resilience of the centre.

The activity for transport in suburban recovery centres is to support recovery

Through streetscape improvements on damaged streets. The implementation of the Master Plans will help to coordinate actions for all agencies involved including NZTA, ECan and the Canterbury Earthquake Recovery Authority (CERA).

Action 2.1.3 Supporting new growth and intensification areas

A transport system that is flexible in the short term but provides for long-term development

There is an opportunity to shape new communities by providing safe, attractive streets, healthy travel options and accessible networks as developments occur. As discussed in the challenges, there will be accelerated growth in some areas to cope with short to medium term housing needs but long term the focus is on intensification of brownfield sites. The transport system can support the recovery by providing infrastructure and services for growth areas in the short term that are designed to fit into the longer term vision for each area. This will give people transport choices at an early stage and remove the need for costly retro-fitting at a later date to support intensification.

Recovery of the transport system will be undertaken in an informed manner that first identifies changes to short, medium and long-term travel demands created by changes in land-use patterns through ongoing analysis and modelling in line with the opening up of new greenfields and brownfield intensification. This understanding of travel demands will inform the short and medium term infrastructure rebuild so that greenfield and brownfield development during that time is appropriately supported.

It will also recognise long term needs so that enhancement and future-proofing opportunities can be taken, provided that they are affordable, offer good transport outcomes and are cost effective. In so doing, the way in which short, medium and long term needs are met shall recognise the long-term strategic goals for transport in Greater Christchurch, as those detailed in the Regional Land Transport Strategy, which includes more balanced modal use that improves the safety, efficiency, effectiveness and resilience of transport networks. This work will support the Built Environment Recovery Integration Programme within the CERA Recovery Strategy, focusing on integrated land use and infrastructure planning.

Through the Land Use Recovery Plan, the Council and the Government are working together to ensure suitable land supply is available to for the reestablishment of residential and commercial development, as well as future growth.

Construction of the Southern Motorway

Effective and integrated land-use policy and plans

Objective 2.2: Effective and integrated land-use policy and plans

At all stages, planning and development decisions have a crucial role in providing a variety of transport choices and managing network efficiency and resilience.

Planning can open up opportunities to increase the use of active transport, lessening the need to travel and shortening trip distances. Higher density urban development reduces car dependence by providing access to affordable travel choices. This will improve the efficiency and reduce the environmental effects of the transport system. Effective, consistent and integrated decision-making is required at all stages of the land and infrastructure development process. This principle can also be applied to the short-term focus on new growth areas to support the recovery by ensuring that all new developments are designed and built to provide transport choices for residents and to fit in with the longer term vision for the local area.

Investing in infrastructure for new greenfield growth areas must also be balanced against investment that supports intensification of the existing urban area. In the short term, there are opportunities to develop brownfield sites where buildings are being demolished in areas already marked for intensification. The Central City is the most prominent example of this approach.

The actions for effective and integrated land-use policy and plans are:

Action 2.2.1 Right location, right design, right function, right time

Action 2.2.2 Transit oriented development (mixed used development along core public transport corridors)

Action 2.2.1 Right location, right design, right function, right time

Building developments right the first time to avoid costly retrofitting of transport infrastructure

Businesses and services should be in the right location to best support transport choice and increase opportunities for multi-purpose trips, reducing travel demand and distances travelled, especially by car. Vibrant, accessible, mixed-use centres, such as transit-oriented development, are associated with public and active transport networks. The right design and right function of buildings, subdivisions and streets is also important to improve access to housing, jobs and services by walking, cycling and public transport; reduce dependence on cars; support the efficient and viable operation of public transport services; and provide for the efficient movement of freight. Right time requires that land development and infrastructure is sequenced and timed appropriately to ensure integrated planning occurs and the true costs of growth are recovered equitably.

New residential areas provide an opportunity to get it right from the start. They can be designed to promote viable public and active transport options to maximise access to the transport system and reduce car dependence. This approach must cascade through higher level planning and policy documents to actual physical works and activities. The Council's Area Plans already reflect this approach which provide the framework for managing urban and business growth during the next 35 years. These documents integrate land-use development with key transport infrastructure projects, such as state highways, cycleways and arterials.

Transport polices will be integrated into the next full review of the District Plan. Changes should encourage the design of new urban development which promotes local trip making through the provision of high-quality walking, cycling, public transport infrastructure and less space for private parking. Changes will promote mixed use development to achieve pedestrian-friendly environments and connected growth areas.

Activities to support land use integration are:

Outline Development Plans

Outline Development Plans (ODPs) are prepared as part of greenfield land developments, either through a designation (Resource Management Act) process or as part of a District Plan change. These consider the proposed land use, how people, goods and services can move around and identify connections to the surrounding transport networks. ODPs also discuss how the development is the "right location, right design, right function, right time" and are an effective mechanism to promote and achieve a wider choice and use of transport modes at an early stage planning for the development.

Integrated Transport Assessments

Integrated Transport Assessments are typically at a more detailed level than an ODP and look specifically at the transport issues related to a development, including travel demand and how it could be managed. The NZTA Report 422 will be integrated into the District Plan changes to ensure all resource consents and plan changes review trip generation and access to all travel options. To manage demand, large developments may require travel plans as an outcome of the assessment process.

Action 2.2.2 Transit oriented development

Development that supports a range of travel options

Integrating transport and higher-density developments can help to boost public transport patronage and reduce the reliance on private vehicles, as well as move the city towards a more compact urban form. The public transport network (Goal 1) can help to have a transformational effect on a city's image, helping to generate business growth and confidence.

Public transport-focused development activities will focus on:

Development guidelines

Developer guidelines will be produced to guide transport design and ensure better integration of active travel and public transport connections and infrastructure into developments.

Land value capture, incentives and promotion of development near public transport

Protecting corridors, developing incentives and making appropriate changes to the District Plan will encourage higher density development around public and active transport corridors. Investment in transport networks can also increase adjacent land values and add value for private developers and property owners along the networks. Land value capture may involve the investment in corridors for rapid transit before the infrastructure is built to provide certainty to developers around investment.

Safer systems

Objective 2.3: Safer systems and safer speeds

A safer system that contributes to network efficiency, saves lives and reduces injuries.

Safety has been, and will continue to be, an essential component of the transport system in line with the National Road Safety Strategy. Safety is integrated across all the Council's activities requiring the coordination of a large cross section of people, including urban designers, engineers, educators, communicators, planners, academics and the community. Christchurch has a range of priority safety issues that need to be addressed. The key issues which support the national priorities include: intersection safety, young drivers, cycling and motorcycle crashes. Christchurch also has some unique priority issues of safety on rural roads. While these are issues today, the city's priorities will change over time and be adjusted accordingly.

The actions to create a culture of safety are:

Action 2.3.1 Safer system

Action 2.3.2 Rural roads

Action 2.3.1 Safer system

Implementing the national Safer Journeys Strategy

The framework for safety is set nationally by the Safer Journeys Strategy. The vision is for a safer system. For Christchurch, a safer systems approach involves addressing:

Safer road use

Safety is integrated into all information and communication relating to travel, travel planning and demand management initiatives. A robust programme of targeted road-user education will aim to improve skills and the understanding of all road users.

Safer speeds

Ensuring appropriate speed limits which support the design, function and expected level of safety of the road network. The new road classification will assist in creating safer road environments as the design of the roads and streets will reflect the local environment. Neighbourhood streets will be slower with good walking and cycling design and traffic calming initiatives. Local arterials, rural roads and freight routes will be designed for journey time reliability and resilience.

Safer roads and roadsides

Provide roads that by their design, reflect function and place to make them safer, particularly for pedestrians and cyclists. Safety improvements are targeted at hot spots, especially intersections where significant safety issues exist, as well as in new growth areas. Crime Prevention Through Environmental Design principles will be considered as part of all major infrastructure projects. To support safer systems, the Council will be working to improve policing, enforcement and penalties to support road safety objectives.

The Council will work with other transport agencies, where appropriate, to cover the safety of the wider transport infrastructure. For example, safety at rail level crossings should be considered when developments or changes in travel patterns increase traffic volumes on roads crossing the railway. This may require a higher level of protection to be provided at the crossing such as bells and lights.

Goal 2. Create safe healthy liveable communities

Safer vehicles

Improving the safety of the New Zealand vehicle fleet (by warrant of fitness improvements) is a central Government initiative which will have benefits for safer vehicle movements in Christchurch.

Action 2.3.2 Rural Roads

Improving safety in our rural areas

Rural roads show a low collective crash risk, but an increased personal crash risk. This means that these roads will be unlikely to reach the thresholds to receive infrastructure transformation investment, so will need to have safety improvements that are low-cost, innovative and supported by the communities that the roads serve.

Rural roads will reflect a slower safe-speed environment where "rural meets urban". Rural roads passing through rural communities with active local business will be designed to create an environment where the road users are slowed to speeds that provide safe stopping, parking and rejoining of traffic flows. Dynamic rural communities will be supported as destinations along the journey.

Initiatives will ensure closer safe connectivity between road users and community.

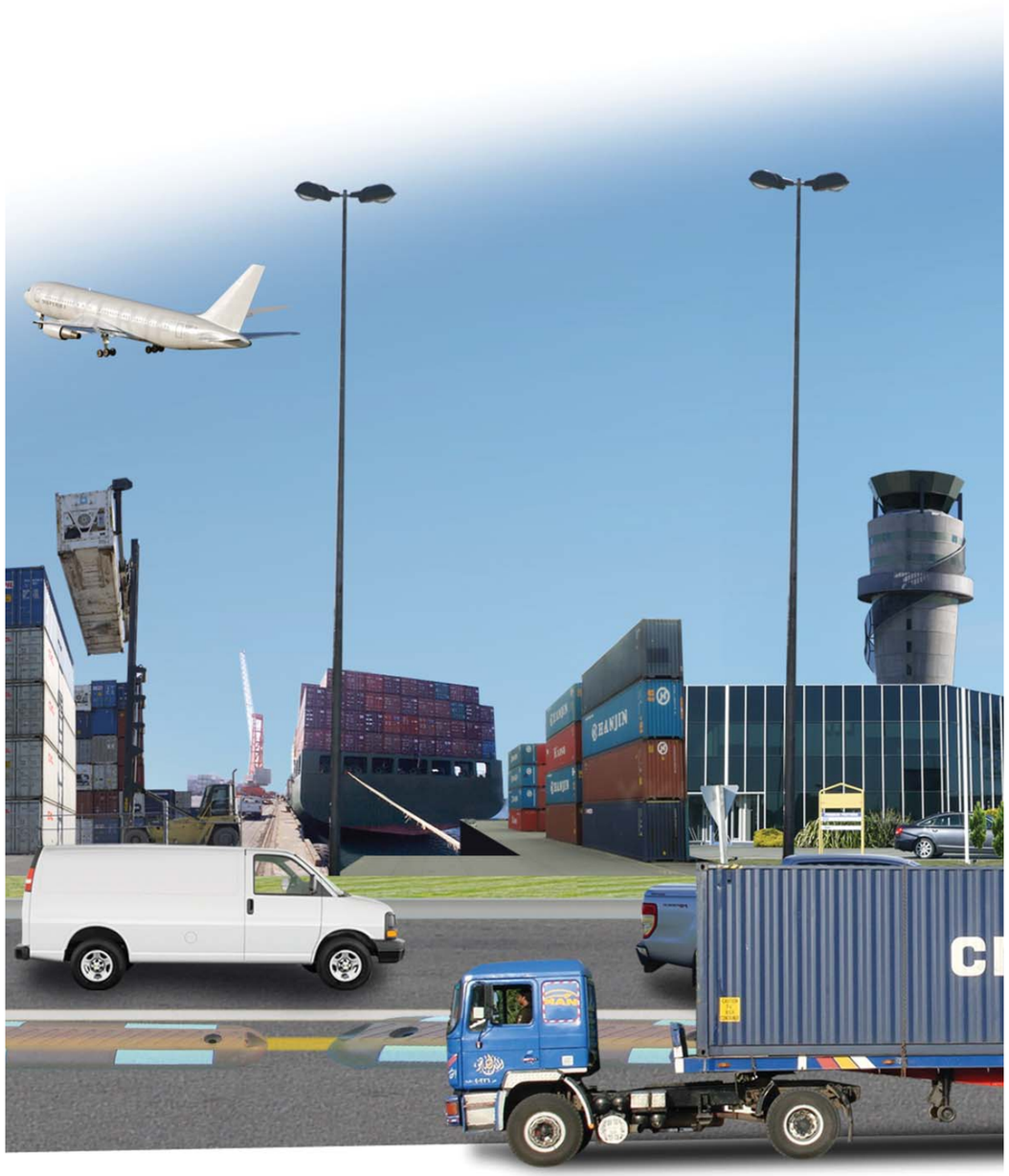
Safer speed initiatives include:

- Variable speed limits e.g. day/night, weekday/weekend.
- Holiday speed limits to reflect requirements of travellers on holiday and mixed used, including cycle tourism, recreational motorcycling and cycling.
- Self-explaining roads, where different road designs are used to reduce speeds without the necessity for regulatory signage.
- Safer roads and road-side initiatives will include:
- Separation of through-routes from community, e.g. use of median separated slow speed shared space.

Remote rural roads will be designed to ensure users are made aware of the more hazardous and difficult driving environment, allowing them to choose to proceed based on information provided. Initiatives include:

- Road entry threshold treatments, e.g. designed space to stop/park/turnaround, map advisory board showing travel times, destinations, road surface, e.g. gravel, and photos of parts of route. The threshold might be something like a cattle stop with side friction vertical elements, e.g. local art, sculpture, carving - narrow one-way entry/exit.
- Shared use and Safe speed initiatives for local users, rural freight and tourists. Consistent messaging to alert users of sections of the road where risk is elevated. Art, rather than regulatory, signage to reflect community ownership of the issues (not to include advertising).

Goal 3. Support economic vitality



Easy movement of and access to goods and services

Objective 3.1: Easy movement of and access to goods and services

Easy movement of and access to goods and services will support the economic recovery and growth of the city.

Christchurch's transport infrastructure must be fit to grow the economy. The Canterbury Economic Development Strategy[36] sets a goal to double the growth rate of gross domestic product (GDP in 2020 to be $25.1 billion rather than the current prediction of $19.5 billion) and to double the value of exports from $3.5 to $7 billion. The movement of freight to, from and through Christchurch is fundamental to the economy of the city, region and New Zealand. Currently, about 20 million tonnes of freight passes through Canterbury each year (2006/07). Freight volumes in Canterbury are expected to increase significantly by 2031.

The rebuild presents a unique opportunity for the city to strengthen the roles of the airport and port; both have the potential to help drive the recovery of Christchurch's economy, becoming economic generators by providing vital international connections to export markets. International cruise liners and international flights will play an increasing role in boosting visitor numbers and growing the tourist industry in Christchurch. Christchurch's role as the economic hub and tourist gateway to the South Island will be strengthened by reliable transport connections.

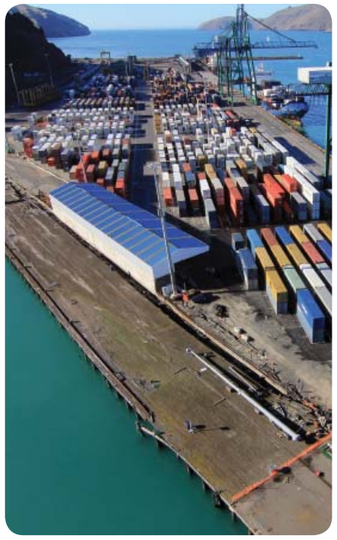
Transport can support economic growth by making it easier for people, visitors and organisations to be connected with each other. While all transport options support economic vitality, this goal focuses on the role of freight movement, parking and congestion management. The challenge for Christchurch is to establish and manage a network that will help to improve access to goods and services, increase the reliability of journey times for regional and national freight travel and protect the network for future growth, at the same time balancing this with the need for safe and attractive communities and neighbourhoods. Managing congestion is important to ensure both reliable journey times and reduced transport operation costs; it also contributes to productivity gains from a reduction in time and costs involved with transport. Investment in network operational management will assist the economy to recover and function more efficiently and help achieve economic growth and improved productivity[37].

The actions to deliver easy movement of and access to goods and services are:

Action 3.1.1 Freight reliability

Action 3.1.2 Freight hubs

Action 3.1.3 Parking



Container Terminal, photo courtesy Lyttelton Port of Christchurch

Action 3.1.1 Freight reliability

Freight journey reliability on designated freight routes reducing conflict with adjacent land uses.

Christchurch is increasingly becoming the major freight centre for most of the freight movements within the South Island. For many products, Christchurch acts as a distribution centre for the South Island. This puts pressure on Christchurch's transport network. With the Government's investment in the RoNS Programme, Christchurch will have an increasingly reliable state highway network, which will improve the journey time reliability for national and regional freight trips (Goal 1), especially freight travelling to the Christchurch International Airport and Lyttelton Port.

The airport and port contribute significantly to economic vitality by providing vital international connections for goods and visitors and driving our export business. Lyttelton plays an essential role, not only in international exports but also coastal shipping and hosting cruise liners. Coastal shipping is used for the movement of bulk commodities, primarily cement and petroleum products, and also general manufactured and retail goods, typically between Christchurch and Auckland. Coastal shipping is vital for the rebuild with the sustainable movement of construction material to the city.

Freight traffic is predicted to increase significantly over the life of this Plan. The growth in freight movements will increase the flow of goods through both the port and through the key warehousing and distribution centres. Canterbury has been identified as one of the fastest growing regions in New Zealand in terms of freight growth. This, along with the potential for port rationalisation, will significantly increase the amount of freight transported through Lyttelton Port. Likewise, Christchurch International Airport has plans for expansion.

The activities for improving freight reliability are:

South Island freight picture

The Council is currently working with NZTA, KiwiRail, Lyttelton Port Company and Christchurch International Airport to establish a better understanding of the future freight picture for Canterbury and the South Island. This work will link into other agency work, such as the Ministry of Transport's National Freight Demand Study and the South Island Freight Strategy that are currently underway.

Define and protect routes

A dedicated freight network, as indicated in Figure 5.4, will be designed to encourage freight to travel through industrial, rather than residential, areas. This will include the RoNS, as well as other sections of the state highway and local road network that connect the port, airport, freight hubs and the key routes to the rest of the Canterbury region-South Island. The freight network will also include the rail network. The Council will work with NZTA, KiwiRail, Christchurch International Airport and Lyttelton Port Company and freight organisations to ensure that local roads forming the freight network are clearly defined and protected to improve access. This will include resilient route provisions for over-dimension, overweight loads and hazardous goods. District Plan provisions will be introduced to protect freight routes from the effects of unsuitable surrounding development.

Signed routes

The provision of well-signposted local and strategic freight routes will help secure the safe and reliable movement of road freight.

Management of freight in local neighbourhoods

With the provision of a reliable, defined and protected freight network, freight will be encouraged to use the freight network rather than other streets, unless they are specifically serving those areas. This will help control and avoid the movement of heavy vehicles in sensitive residential areas and streets.

Local Freight Management Plans

The development of Local Freight Management Plans will improve access for freight vehicles servicing commercial and industrial areas, including freight hubs. Each management plan will be specific to the local area and will cover issues like connection to the freight network, delivery of goods to shops and design standards of infrastructure to allow for longer or heavier vehicles as appropriate. Queuing and turning space for freight vehicles must be adequate for efficient movement of freight but also to address safety and amenity concerns of other road users. Similarly, the timing of freight movements has significant impacts on other activities in commercial centres and could be addressed through a management plan.

Encouraging best practice

The Council will work with freight organisations to update and distribute guidance material on ideal development layouts for handling freight. The Council will also promote best practice in freight management.

Encouraging sustainable freight choices

It is important to ensure the transfer of goods to rail is easy and cleaner fuels for freight vehicles are encouraged. The consolidation and rationalisation of freight movement in the city should also assist in this area, as well as driving efficiency. Rail enables more sustainable long distance movement of bulk goods, while options such as cycles and small electric vans can be used to distribute small volumes of goods within a local area. These options will be encouraged and promoted by the Council to reduce the reliance on trucks in the long term, in particular the Council will work with KiwiRail and the Christchurch International Airport to scope out a potential regional freight route west of the airport.

Goal 3. Support economic vitality

Action 3.1.2 Freight hubs

Supporting inter-modal freight hubs to improve efficiency of freight movement

Freight hubs are an area where a variety of goods are transported in and out by multiple vehicle types (both road and rail) and operators for a variety of suppliers or producers. Freight hubs typically generate more than 100 heavy vehicle equivalent movements per day[39]. Freight hubs play a key role in the regional and local freight network and have the potential to enable better freight management. Accessible freight hubs are important for the efficient transfer of goods. The current key freight hubs[40] in Christchurch are: Lyttelton Port, Christchurch International Airport, Middleton Rail Yard, and the Sockburn and Woolston freight areas (Figure 5.4).

Activity for freight hubs will focus on:

Protecting hubs

Hubs and infrastructure require protection from encroachment of urban development and other land uses that could compromise an efficient operation. The location, number and efficient operation of freight hubs will be reviewed with freight groups to ensure the optimum locations are protected. While the District Plan has policies to protect the operation of these hubs, achieving adequate protection is long, complicated and constantly challengeable through planning processes, for example resource consent applications, the Environment Court and High Court. A stronger District Plan is needed to protect our freight hubs.

Establishing new freight hubs

The Council is working with freight organisations, NZTA, ECan, Lyttelton Port, KiwiRail, UDS partners, and the Ministry of Transport to assess the need for future freight hubs, either inland port facilities or multi-modal hubs. Inland ports are locations where goods are off-loaded and then transferred to/from the port (usually by rail), reducing heavy vehicle movements on the Christchurch roading network and improving freight reliability by enabling freight to bypass road traffic and congestion.

Action 3.1.3 Parking

Parking that supports the city's economy

Parking is a valuable asset to the network. The provision of parking is a key part of the overall transport network. A good supply of convenient, secure, well placed and easy to find parking will support economic recovery and the future prosperity of the city. Conversely, the management of parking is essential for network efficiency and maximising the use of parking assets.

Network efficiency

Re-allocating some on-street parking to convenient off-street locations will enable the network to work more efficiently and cater for more travel choices. This will be undertaken in a way that recognises parking is important for the economic vitality of business centres. It is about balancing the need for more efficient road space with the need to support the land use along the network.

Maximise the usage of parking assets and get a return on the investment. Providing parking can be costly. However, a flexible approach to parking management can enable the Council to respond to changes in supply and demand, thereby making the most efficient use of the city's parking assets.

Parking management activities will focus on:

Re-allocating on-street parking

Where a shared priority corridor is identified through the new road classification system, there may be a need to reprioritise road space for public transport and active transport on priority corridors or landscaping where road space is limited. Where there remains a need for parking in the area, parking will be reallocated to convenient off-street locations.

Process changes

There is the need for a more flexible process to enable the Council to respond to the change in supply and demand from the marketplace for parking facilities. The Council will continue to monitor parking supply and demand to ensure an appropriate level of parking is provided.

Parking management plans

There is the need to introduce localised planning and monitoring schemes for commercial centres and residential areas to manage the efficiency of parking in and around commercial centres, to support the vitality of business and reduce the associated impacts on surrounding communities. Management plans will also consider appropriate levels of mobility parking with time limits that take into account the longer times needed for mobility-impaired pedestrians to access commercial centres. Each management plan will be specific to the local area and will consider the type of surrounding activity and the provision of alternative means of transport.

Technology

The Council will endeavour to install the latest parking technology, to ensure parking is as customer friendly, energy efficient, cost effective and sustainable as possible.

Pricing

Flexible pricing mechanisms can be used to encourage more efficient use of short-term parking spaces and reduce demand for commuter parking. In the long term, charges will reflect the true cost of providing land and its lost productive potential. New pricing regimes supported by increased parking enforcement, will over time through mechanisms, such as ticketing, gradually be introduced to match infrastructure improvements which offer better travel choices. In some places, time limits rather than pricing may be considered to offer free parking to support the recovery of the city and the economy.

District Plan

Greater flexibility will be incorporated into off-street parking requirements for private developments to make better use of parking spaces through encouraging shared use. The new requirements will encourage a more efficient use of land, better urban design and mitigate the negative effects of an oversupply of parking.

Park and Ride

The Council will consider the development of Park and Ride sites in locations to support high-quality public transport services. Potential Park and Ride sites will be protected and developed when required.

Goal 4. Create opportunities for environmental enhancement

Objective 4.1: Reduce emissions and invest in green infrastructure and environmental enhancement

The design and rebuild of transport networks and infrastructure presents real opportunities for the transport system to enhance the environment

Investing in green transport infrastructure and energy efficiency can reduce emissions (to air, noise and water) while enhancing water quality, biodiversity, landscapes, heritage and public health. Transport corridors (roads, rail and streets) can create unique opportunities to conserve and restore Christchurch's and Banks Peninsula's indigenous biodiversity[41], especially by creating green corridors. The transport system not only provides access to public open space and recreation but also contributes to public and environmental health, amenity and district identity[42].

This goal specifically focuses on creating opportunities for environmental enhancements through the transport system by reducing emissions, investing in green infrastructure and planning for future changes in our climate.

The actions to create opportunities for environmental enhancement are to:

Action 4.1.1 Reshape travel demand to reduce emissions and oil dependence

Action 4.1.2 Invest in green infrastructure and enhancements

Action 4.1.1 Reshape travel demand to reduce emissions and oil dependence

Increasing resilience and improving air quality by reducing our dependency on oil

The Council has already adopted a goal for "a 50 per cent reduction of greenhouse gas emissions from domestic transport by 2040 from a 2008 baseline[43]" through the Climate Smart Strategy. To meet this commitment, a significant shift is needed in the way people travel. To achieve this, there will be an increasing emphasis on improving energy efficiency, encouraging renewable energy use, increasing vehicle occupancy, developing intelligent transport systems, and investing in attractive networks to increase the numbers of people walking, cycling and using public transport (Goal 1). In addition, overall greenhouse gas emissions can also be reduced by increasing the movement of freight by rail (Goal 3).

Photo courtesy of Tim Church

To reduce emissions, activities will focus on:

Energy innovation

Oil price volatility will increase uncertainty of fuel costs and future vehicle and freight growth. This directly impacts both businesses and the city's overall economic resilience. In the long term, this Plan supports investment in infrastructure to increase the uptake of new technologies, encourage use of renewable energy sources and more efficient use of fossil fuels for transport.

There are opportunities to improve energy efficiency and increase the use of alternative energy sources within the transport system. New and existing businesses offering low-carbon transport options in Christchurch, such as hybrid taxis, bio-diesel or electric buses, electric vehicles and inner-city bicycle hire, will be encouraged. Electric vehicle charging stations throughout the city will be investigated.

Invest in technology

Information technology will become an important part of the city's future network by incorporating new technology into new infrastructure designs. Technology will continue to evolve during the 30 years of this Plan. Many of the emerging technologies are not yet available or known and cannot reasonably be included in this Plan at this time. The Council will be forward looking and progressive by considering how new technologies can be accommodated, where possible, in the existing network and new infrastructure projects.

Photo courtesy of Tim Church

Encourage increased vehicle occupancy

More people sharing private vehicles will be encouraged by working directly with organisations and major employers. This can be achieved through initiatives, such as travel plans and supported by tools, such as a car pooling travel information and priority parking for car pooling. Priority actions for this will be delivered under Action 1.3.3 Influencing travel choice (Goal 1).

Travel planning

A travel plan is a package of measures tailored to a particular site or location to enable and encourage active travel and use of a wider range of travel choices. Travel plans are carried out with employers through workplace travel planning initiatives, with schools through school safety programmes, and within residential areas and business parks with the aim of raising awareness and increasing knowledge of the range of travel choices offered within the geographical location(s). Effective travel plans involve infrastructure and service improvement.

Action 4.1.2 Invest in green infrastructure and enhancements

Reducing the impact of our transport network on the natural environment

Green infrastructure is the network of green spaces, water and environmental systems in, around and beyond urban areas (CABE January 2011). Achieving the most value from green infrastructure comes from having connected and complementary systems. This means streets are comprehensively designed for people, as well as the environment through using street trees and/or gardens and environmentally sensitive stormwater management. Overall, better connections for people between open spaces, along streets and to rivers and parks are vital to achieve an attractive and liveable city. The repair and future replacement of streets provides an opportunity to implement new green infrastructure. Green infrastructure in our streets will improve water and environmental quality through the planting of trees, the installation of permeable surfaces, swales and rain gardens.

Green infrastructure activities will focus on:

Rain gardens, swales and permeable surfaces

These treatments intercept stormwater runoff, slowing it temporarily or reducing its volume and filtering pollutants through soil and plants. Increasing permeable surfaces and adding native vegetation also helps to manage stormwater. Green infrastructure will be introduced through new road designs, road renewals and replacement. The Infrastructure Design Standards will be updated to recognise the importance of such mechanisms.

Green corridors

Transport corridors (roads, rail and streets) can create unique opportunities to conserve and restore Christchurch's and Banks Peninsula's indigenous biodiversity[44], especially by creating green, ecological corridors. There are significant opportunities for enhancing green corridors as an integral part of the implementation of the transport networks as identified in Goal 1.

Photo courtesy of Gehl Architects

Resilient infrastructure

Christchurch is vulnerable to the physical impacts of climate change, such as sea-level rise, drought and floods. The resilience of the transport system and economy are vulnerable to these changes. Along with prioritising investment in more sustainable travel choices, new transport infrastructure should also be designed to adapt to likely future effects of climate change.

Waste management

The construction, renewal and maintenance of assets should use reused or recycled materials where possible.

Effects on Papatūānuku (Earth) and recognition of the Treaty of Waitangi

Central to the principles of the Treaty is that Māori have a special relationship with their lands and other natural taonga[45]. Decisions about transport effect the sustainable use of natural resources and the inter-connection between the natural environment and people. This is one of the key tenets of kaitiakitanga, a concept of deep spiritual significance for Māori by which the mauri (or life force) of a resource is nurtured, managed and protected. The intensification of urban areas has contributed to decreased access for Māori to Papatūānuku. This situation was exacerbated by ongoing development of roads, highways and other transport infrastructure. The transport system should recognise Papatūānuku and improve access to these areas. To achieve this there is a need to continue to build and foster relationships, develop Māori capacity to contribute to land transport processes and involvement with iwi in planning, implementation and monitoring of transport interventions[46].

Implementation

Working with the community and our transport partners, the actions in this Plan will be used to guide future investment in the Council's transport network

This Plan sets out the direction for Christchurch City's transport network during the next 30 years. It is a living document and will be periodically reviewed to ensure the goals and objectives are being met and the proposed actions delivered. The Plan will also be used to inform the Council's investment programme (the Long Term Plan) in conjunction with other transport agencies, particularly funders and service providers. As actions become specific projects over time, the Council will continue to engage with the public at a project level to identify local issues and deliver the best results for each project.

The activities that will assist the Council to deliver the actions within this Plan are:

Partnership with other organisations

The Council cannot deliver this Plan in isolation, as it requires funding from other sources and also support from transport agencies that provide complementary services and infrastructure. These organisations include other local authorities (ECan, Selwyn District Council, Waimakariri District Council), NZTA (both as state highway manager and funding provider), KiwiRail, Lyttelton Port Company, Christchurch International Airport, private developers; and in the short term CERA. There are several existing formal structures, such as the UDS partnership, that fulfils some but not all of this requirement.

The current constrained financial environment requires the Council to work more efficiently and effectively than ever before, and this can best be achieved through strong collaborative partnerships with other organisations. This Plan places a high priority on managing the transport network within the city boundary as an integrated network with well-defined links to neighbouring communities. Value for money requirements will lead to a higher emphasis on managing traffic more efficiently with improved signal coordination, more appropriate allocation of road space and less reliance on building new infrastructure. Where existing governance structures or partnerships are not sufficient, the Council will consider establishing working parties related to specific issues over a specified time period, with relevant organisations involved. This will allow a faster response to the challenges facing the city by building strong working relationships with partners.

Investment Plan

The purpose of the Plan is to lay out the priorities for transport investment in the Council's area during the next 30 years. The earthquakes have interrupted "business as usual" but also provided opportunities that did not exist before to accelerate the delivery of some long-term goals. However, the global financial crisis followed by the significant cost of the earthquake recovery programme has led to a constrained investment environment in New Zealand. It is critical that an integrated financial plan for the next few years is developed to ensure that local, regional and national investment in Christchurch is co-ordinated and returns the best value for money possible under the circumstances. The priorities identified in this Plan will inform the preparation of the Council's 2013 Long Term Plan, but there are other considerations that must be taken into account.

Figure 6.1 Historical funding proportions

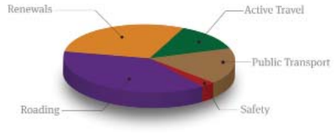
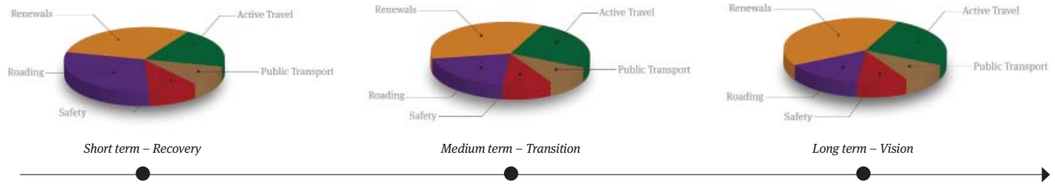


Figure 6.2 Proposed funding proportion to achieve the vision



The Long Term Plan offers the chance for the Council to work with ECan, NZTA, other Government departments, private investors and ratepayers to consider how much money should be invested in the city and who should pay. Affordability is not a well defined concept as it relies on the circumstances of each individual or organisation, their willingness to support certain activities as a priority and their ability to pay a set sum within a specified timeframe. Across the city there are many different ideas about what an affordable programme of activities would be and so the Council needs to engage with the residents and ratepayers of Christchurch and other organisations that provide funding or supporting programmes, such as ECan and NZTA, to agree an investment programme for the next two years.

The following graph shows, in an ideal world, how the priorities for transport investment would change over time away from roading infrastructure towards more active and public transport investment. Budget constraints may require this shift to take place over a longer period than indicated, and this will be more certain after the Long Term Plan has been finalised.

Ongoing public participation

Once the LTP has been adopted (by 30 June 2013), the Council will begin to implement the agreed activities. As each individual project moves through the planning, design and construction phases there will be further opportunities for specific public engagement on issues, such as the detailed design. This will give an opportunity for public input on the many detailed aspects of implementing this Plan, which cannot be covered in a strategic document.

This approach allows the public to be involved throughout the lifecycle of each project as follows:

- Share an Idea (2011) - overall vision for the rebuild of Christchurch's Central City, provided through extensive public consultation.
- Christchurch Transport Strategic Plan (2012) – after the Share an Idea campaign, targeted consultation and engagement was undertaken with the Council's key transport partners and stakeholders to inform the draft Christchurch Transport Plan, which then went through a public consultation process to produce this document (the Christchurch Transport Strategic Plan)
- The Council's Long Term Plan (2013) – an integrated investment plan showing how the Council and its funding partners, such as NZTA will fund the prioritised programmes from the different areas of the Council (parks, transport, water services, etc) in a way that maximises return on investment but is also realistic about the financial burden that ratepayers and other investors can sustain.
- Detailed project engagement (2013 onwards) – specific engagement on the detailed implementation of named projects within the LTP. This covers design details, alignment with strategic direction and specific local requirements to deliver good outcomes for local communities within the context of the overall Christchurch vision.

Action Summary

Action No.	Action	Activities	Rough Cost $= < 1 million $$ = < 20 million $$$= > 20 million	Recovery project or relationship to other Plans
1.1.1 1.1.2	Strategic road network Freight network	**Local connections to the Roads of National Significance (RONS) programme and key activity centres;** planning and construction of connections to the strategic road network to maximise the benefits of the state highway investment programme in the north, south- west and south of the city. **Local freight management:** Better management of access for goods and services at the local level **Cross boundary connections;** plan and align strategic network cross boundary connections in line with recovery plans and the Christchurch Rolleston and Environs Transportation Study. **Directional signage;** Standardise the hierarchy of transport signage.	$$$	Recovery Plans and Programmes Roads of National Significance: Northern Arterial package, Western Corridor, Southern Motorway. Christchurch Rolleston and Environs Transportation Study
1.1.3	Cycle network	**Planning, development and management of:** · **Major cycleways;** develop a programme for the implementation of major cycleways, including flagship projects. For priority routes, complete detailed design through to implementation. · **Local cycleways;** complete planned local cycle improvements, path maintenance and renewals to enhance safety and local connectivity · **Key recreational routes;** off- road paths which can be either leisure routes or sport routes. · **Supporting the cycling network;** the cycle network is supported by end of journey facilities. Targeted education and promotion to encourage new users. · **Cycling Design Guidelines;** new guidelines will be developed for the design and construction of the various facilities that form the cycle network · **Cycling and walking business case;** a business case will be developed to support future funding applications	$$$	Christchurch Central Recovery Plan Built Environment Recovery Programme Stronger Christchurch Infrastructure Rebuild Programme

Action No.	Action	Activities	Rough Cost $= < 1 million $$ = < 20 million $$$= > 20 million	Recovery project or relationship to other Plans
1.1.4	Public transport network	**Development and management of public transport by:** · **Rapid transit;** the Urban Development Strategy partners will undertake a Greater Christchurch Future Public Transport Study, options will consider all forms of public transport, including heavy rail, light rail, bus ways and bus priority. The study will inform network and corridor protection options. · **Protect future rapid transit corridors;** where justified, and as identified through the Greater Christchurch Future Public Transport Study, designate and protect future strategic public transport corridors and infrastructure. · **Park and Ride, parking and taxis;** investigate and plan necessary Park and Ride facilities connected to the core public transport network. Parking management will be used to support the implementation of public transport corridors. Take account of the needs of taxis at key destinations, **Quality public transport infrastructure and priority:** · **Priority;** plan, design and implement infrastructure and corridor priority measures to support the core public transport services. · **Super stops and interchanges;** provided to support the Regional Public Transport Plan (2012). Review location of future transport interchange sites and protect. · **Bus stop;** improvements, renewals and replacements prioritised on core corridors (high frequency service routes). · **Information;** improve and extend real time passenger information services (talking and visual).	$$ $$$	Christchurch Central Recovery Plan ECan Regional Public Transport Plan (2012)

Action No.	Action	Activities	Rough Cost $= < 1 million $$ = < 20 million $$$= > 20 million	Recovery project or relationship to other Plans
1.1.5	Walking network	***Plan, develop and manage an improved walking environment by:*** · **Walkable centres;** prioritising walking improvements in centres (commercial and retail) with investment in quality streetscapes incorporating pedestrian facilities. · **Core walking routes;** develop a network of core walking routes that are attractive and safe to provide connections to commercial centres, green spaces, parks and urban spaces. · **Local safety improvements and non motorised user audits;** safety improvements prioritised to focus on safety and ease of walking, especially at busy intersections and associated with routes to schools, bus stops and commercial centres. Audits will be used to identify key issues and guide improvements.	$$	Christchurch Central Recovery Plan Suburban Centres Programme
1.1.6	Addressing inequality through universal design	**Implementing Council's Access and Mobility Policy;** the Policy will inform all design and implementation of transport infrastructure, delivering a transport network that is useable by everyone regardless of their age, ability or status in life.	$$	Christchurch Central Recovery Plan Suburban Centres Programme
2.1.1	Network Integration	**Development of a One Network Management Approach;** combine the new road classification and networks from Objective 1.1 to create a single transport network for the city. Work with the New Zealand Transport Agency and Urban Development Strategy partners to agree a One Network approach to strategic network management (integrating motorways and local roads by all modes). This will include detailed network investigations and modelling analysis of the future networks identified in this Plan	$$$	Built Environment Recovery Programme Greater Christchurch Transport Statement Christchurch Central Recovery Plan Suburban Centres Programme Stronger Christchurch Infrastructure Rebuild Programme

Action No.	Action	Activities	Rough Cost $= < 1 million $$ = < 20 million $$$= > 20 million	Recovery project or relationship to other Plans
2.2.2	Network Operating Plan	**Preparation of a One Network Plan;** prepare the first draft of a Network Operating Plan covering the whole transport network within the Council's boundary. Work with one network transport partners to identify where more detailed corridor studies are required and undertake these studies. Review and refine Network Operating Plan as corridor studies are completed	$	Greater Christchurch Transport Statement Greater Christchurch Future Public Transport Study
2.2.3	Protect and Enhance the Road Network	**Road maintenance, operations and renewals;** ensure maximum use is made of current assets by optimising maintenance and operations. Renewal programmes should look for opportunities to include cost neutral improvements to deliver the objectives of this Plan. **Parking management;** review traffic control and parking management systems to support the Plan's vision, goals and objectives. Increased emphasis on enhancing the efficiency of existing transport network asset for all road users. **Road upgrade programmes;** will be informed by this Plan, particularly the new road classification and the Network Operating Plan. **Improving resilience and reducing risk;** seek to improve network resilience to both emergency events and any future fuel supply shortages by a programme of natural hazard mitigation and encouraging people to use a range of travel choices.	$$$	Greater Christchurch Transport Statement Built Environment Recovery Programme Area Plans Stronger Christchurch Infrastructure Rebuild Programme
2.3.1 2.3.2 2.3.3	Integration of land use Parking management Influencing travel choice	**Develop and implement network efficiency services:** · **Travel information and journey planning system;** expand the functionality and purpose of the Transport for Christchurch regional information centre and website to provide improved information and services. · **Promotion of new services and infrastructure;** programmes of marketing and information to support improvements to services and infrastructure. · **Wayfinding plan;** develop a wayfinding plan for the city covering all transport options.	$$	Greater Christchurch Travel Demand Management Strategy
2.3.4	Influencing freight demand	**Improving the efficiency of the freight network;** by working with our freight partners to identify smarter ways to move freight, including better integration of rail, road, sea and air freight.	$$	

Action No.	Action	Activities	Rough Cost $= < 1 million $$ = < 20 million $$$= > 20 million	Recovery project or relationship to other Plans
2.1.1	Connecting the Central City	One transport system; to improve access to the Central City, a coordinated programme of city-wide network improvements (as outlined in Goal 1) is required. The programming of these will align with the implementation of transport projects in the Central City.	$$	Christchurch Central Recovery Plan
2.1.2	Rebuilding Suburban centres	**Suburban recovery;** support recovery through streetscape improvements on damaged streets as set out in the Suburban Centre Master Plans.	$	Suburban Centres Programme
2.1.3	Supporting new growth and intensification areas	**Support changes in land use;** shape new communities by providing safe, attractive streets, healthy travel options, and accessible networks as developments occur. Keep the focus on the planned long term intensified land use when extending existing networks to service new developments in the short to medium term.	$	Built Environment Recovery Plan
2.2.1 2.2.2	Right location, right design, right function, right time Transit Oriented Development	**District Plan review;** include a stronger emphasis on Outline Development Plans and Integrated Transport Assessments to design new services and infrastructure that contribute to the objectives of this Plan.. **Transit Oriented Development** · **Development guidelines;** develop design guidelines to ensure better integration of public and active transport into developments · **Land value capture, incentives and promotion of development near public transport;** encouraging higher density devlopment around public and active transport corridors.	$	District Plan Christchurch Central Recovery Plan Built Environment Recovery Plan
2.3.1	Safer system	**Create a safer transport system by increasing investment in:** **Safer road use;** information and education to improve skills of all road users **Safer speeds;** ensuring speeds match the design and function identified in the new road classification. **Safer roads and roadsides;** targeted safety improvements on black spots and known issues. Build safe developments, addressing potential safety issues at the design stage. Safer vehicles; encourage Government initiatives to improve the safety of our vehicle fleet	$$$	Safer Journeys
2.3.2	Rural roads	**Implement safer speed initiatives on rural roads, including Banks Peninsula;** implement low-cost and innovative safety improvements that are supported by the community	$$	Safer Journeys

Action No.	Action	Activities	Rough Cost $= < 1 million $$ = < 20 million $$$= > 20 million	Recovery project or relationship to other Plans
3.1.1	Freight reliability	· Development and management of freight routes for journey reliability by: · **South Island freight picture;** assist New Zealand Transport Agency to understand and meet the impacts of increasing freight volumes on Christchurch's strategic freight and road networks, what improvements are required to strengthen the roles of the port and airport, and to improve the movement of freight within a South Island context. · **Define and protect freight routes;** through network signage and improved engagement with the freight sector. · **Signed routes;** the provision of well-signposted local and strategic freight routes · **Management of freight in local neighbourhoods;** through measures to encourage freight to use the defined network. Undertake Local Freight Management Plans to improve access of freight servicing commercial centres. · **Encouraging best practice;** update and distribute guidance on development layouts for handling freight. · **Encouraging sustainable freight choice;** freight fleet and product managemen systems are promoted to support efficient goods movement. Promote and identify measures to enable business to make the more sustainable and efficient choices for freight movement.	$$	South Island Freight Picture (NZTA) Regional Land Transport Strategy
3.1.2	Freight hubs	· **Protecting hubs;** protection from encroachment of urban development and other land uses that could compromise their efficient operation. More effective District Plan policy. · **Establishing new freight hubs;** assess the feasibility of an inland port with freight organisations, New Zealand Transport Agency, Environment Canterbury, Lyttelton Port and KiwiRail.	$$	South Island Freight Picture (NZTA) Regional Land Transport Strategy

Action No.	Action	Activities	Rough Cost $= < 1 million $$ = < 20 million $$$= > 20 million	Recovery project or relationship to other Plans
3.1.3	Parking	· **Parking management to enable access to business while supporting the development of strategic roads, freight routes, public transport, walking and cycling streets through:** · **Re-allocating on-street parking:** on some core corridors, especially walking and cycling streets, there may be the need to reprioritise road space in favour of that corridor's priority function. · **Process changes:** more flexibility to respond to changing demand and supply of parking · **Parking management plans;** localised planning and monitoring schemes for commercial centres and residential areas. · **Technology improvements:** will be applied to maximise the efficiency of both on and off-street car parking infrastructure · **Pricing:** flexible pricing mechanisms introduced to encourage more efficient use of short-term car parking spaces and reduce demand for commuter parking. · **District Plan:** changes to encourage greater flexibility and use of off-street parking requirements for private developments through measures, such as encouraging sharing of parking between developments. · **Park and Ride;** consider the development of Park and Ride sites in locations of high-quality public transport services. Potential Park and Ride sites will be protected and developed when they are required.	$$	Suburban Centre Programme Christchurch Central Recovery Plan

Action No.	Action	Activities	Rough Cost $= < 1 million $$ = < 20 million $$$= > 20 million	Recovery project or relationship to other Plans
4.1.1	Reshape travel demand to reduce emissions and oil dependence	· **Energy innovation**; promote and encourage the uptake of new technologies, encourage the use of renewable energy sources and more efficient use of fossil fuels for transport. Support investment in infrastructure where appropriate. · **Invest in technology;** investigate how new technologies can be accommodated (where possible) in the existing network and within new infrastructure projects. · **Encourage increased vehicle occupancy;** through schemes, such as car pooling. See actions under Action 1.3.3 · **Travel Planning;** promote travel planning as a way to encourage active travel and use of a wider range of travel choices.	$	Climate Change Strategy
4.1.2	Invest in green infrastructure and enhancements	**Rain gardens, swales and permeable surfaces;** update Infrastructure Design Standards on green infrastructure. Introduce green infrastructure in road upgrades and renewals **Green corridors;** enhance transport corridors by creating green, ecological corridors. **Resilient infrastructure;** design new infrastructure to adapt to the likely future effects of climate change. **Waste management;** the construction, renewal and maintenance of assets should use reused or recycled materials. **Effects on Papatūānuku (Earth) and recognition of the Treaty of Waitangi;** recognise that decisions about transport affect the sustainable use of natural resources and the inter-connection between the natural environment and people.	$	Christchurch Central Recovery Plan

Monitoring and review

The monitoring and review process will provide an understanding of what has been achieved through the successful implementation of the Plan. Monitoring will also identify what actions have been completed and how these have helped achieve the Council's Community Outcomes (Chapter 3). This will determine if changes are needed in the priorities and actions to ensure that the city is on track to meeting the desired outcomes in the Long Term Plan.

The monitoring process consists of two key actions:

1. Outcomes monitoring – how are we progressing towards our vision; and
2. Tracking, reporting, and review

1. Outcomes monitoring

The outcomes and indicators represent the desired end result of implementing the Plan. The Plan's monitoring programme will focus on the outcomes and indicators for transport. The outcomes and indicators are listed in the table. Many of these indicators directly relate to the Draft Regional Land Transport Strategy 2012 to enable regional monitoring. This monitoring will also be complemented by the Council's Community Outcomes Monitoring Programme and the Big Cities Quality of Life Report. Public reporting will cover primary indicators only.

Outcomes, targets and measures

CTP Goals	Draft 2013 Community Outcomes	RLTS outcome	Example Performance Indicator
1. Improve access and choice	Liveable Cities There are a range of travel options that meet the needs of people and businesses	Connectedness is enhanced	Percentage of households within a 10-minute walk of key activity centres. Accessibility modelling.
		Improved transport and land use integration.	Average trip lengths for all trips.
		Improved mobility for the transport disadvantaged.	Number of people reporting that they experienced transport disadvantage due to disability or mobility.
			Number of people that do not have access to at least one mode of transport on a regular basis – residents' survey.
	The transport system provides people with access to economic, social and cultural activities.	Increased travel choices for households to access Key Activity Centres.	Percentage of households within 30-minute public transport trip or 10 min walk or cycle to Key Activity Centres.
	Streetscape, public open space and public buildings enhance the look and function of the city.	Improved streetscapes in Commercial centres (local outcome).	Satisfaction with the appearance, quality and function of the Central City's and suburban commercial centres public places and buildings (local indicator).
	An increased proportion of journeys are made by foot, cycle and public transport.	Increased use of walking, cycling and public transport for trips to and within the City.	Pedestrian, cycle counts and public transport patronage figures.

CTP Goals	Draft 2013 Community Outcomes	RLTS outcome	Example Performance Indicator
2. Create safe, healthy and liveable communities	Liveable Communities Transport safety is improved.	Reduction in fatal and serious injuries for all modes.	Deaths per annum on roads. Casualties per annum for car, truck, bus (deaths plus serious injuries). Casualties per annum for cycles (deaths plus serious injuries). Casualties per annum for motorcycles (deaths plus serious injuries). Casualties per annum for pedestrian (deaths plus serious injuries).
		Improved personal safety and reduce security risks to all transport users.	Perception of safety by all transport modes (How safe do you feel people are when travelling by car/ public transport/walking cycle or motorcycle?).
		Improved resilience of the transport network to infrastructure damage, emergencies and external changes.	Projects completed per annum that increases network resilience, e.g. life lines. Percentage of Greater Christchurch population who can reach work or education by active modes.
	Risks to public health and injury are minimised.	Increased time spent travelling actively.	Time spent walking and cycling (hours per capita per annum). Number of residents who walk/cycle for 30 minutes or more each day.
		Reduced community exposure to vehicle pollutants, noise and vibration (CCC outcome).	Proportion of transport emissions in air quality monitoring.
3. Support economic vitality	Economic Prosperity Christchurch's infrastructure support sustainable economic growth	Improved journey time reliability on strategic transport network.	Travel time variability on strategic road network within Greater Christchurch (AM Peak, inter peak and PM peak).
4. Create opportunities for environmental enhancements	Healthy Environments Energy is used more efficiently.	Increased energy efficiency per trip.	Total petrol sales per capita. Total diesel sales per regional GDP. Number of alternative fuel supply sites (e.g. retail sites offering low biofuel blends or wholesale sites with high biofuel blends). Number of vehicles which can use high biofuel blends. Number of electric vehicles. Percentage of single occupancy vehicle trips in Greater Christchurch.
	Christchurch is prepared for the future challenges and opportunities for climate change.	Reduced greenhouse gas emissions from use of domestic transport system.	Tonnes of CO_2 from domestic land transport per capita.

2. Tracking, reporting and review

Projects identified in this Plan will be tracked to enable reporting on the progress of the Plan's implementation. Reporting will be undertaken on progress towards achieving the draft 2013 Community Outcomes and indicators in this Plan, along with progress on project delivery. The priority projects within this Plan will be reviewed every three years, before each Council Long-term Plan, as required.

Footnotes

[1]Indicated through the Share an Idea consultation on the Central City Plan, and submissions to the Council's Long Term Plan 2009–2019.

[2]Draft 2013 Community Outcomes currently adopted in principle by the Council and will be formally adopted in the next Long Term Plan.

[3]New Zealand Transport Agency (2010) Frequently Asked Question Roads of National Significance online resource

[4]Land Transport New Zealand (2007) Research Report: Integrating Land Use and Transport Planning.

[5]Ministry of Transport (2009/10) Household Travel Survey

[6]Ministry of Transport (2009/10) Household Travel Survey

[7]Statistics New Zealand (2006) Census Data

[8]Standards New Zealand Data at: www.stats.govt.nz/browse_for_stats/population/estimates_and_projections/SubnationalPopulationEstimates_HOTPYe30Jun12.aspx

[9]Christchurch City Council (2011) Central City Plan

[10]Greater Christchurch Urban Development Strategy (2009) Demographic Update

[11]Christchurch City Council (2010) Health Impact Assessment: Christchurch Transport Plan

[12]Environment Canterbury (2010) Market Research Report for the RLTS

[13]New Zealand Transport Agency (2011) Briefing Note Crash Analysis Canterbury Region 2010

[14]Christchurch City Council (2010) Health Impact Assessment

[15]Christchurch City Council (2010) Health Impact Assessment

[16]New Zealand Transport Agency (2010) Safer Road Journeys Strategy

[17]New Zealand Transport Agency (2010) Road Safety Issues 2010

[18]Ministry of Transport National Freight Demand Study; NZTA South Island Freight Study; Greater Christchurch Transport Statement

[19]Christchurch City Council (2006) Quality of Life Survey

[20]Health Research Council of New Zealand, Ministry for the Environment, Ministry of Transport (2007) Health and Air Pollution in New Zealand

[21]Christchurch City Council (2009) Surface Water Strategy, p16, p.89

[22]Land Transport New Zealand (2010) Guidance Note: Managing land transport noise under the RMA

[23]Environment Canterbury (2006) Inventory of emissions to air in Christchurch.

[24]Christchurch City Council (2010) Climate Smart Strategy

[25]Christchurch City Council (2010) Climate Smart Strategy

[26]Statistics New Zealand (2007) Household expenditure survey

[27]McClintock (2002) The mainstreaming of cycling policy

[28]Ministry of Transport (2010) Christchurch Household Travel Survey 2009/10

[29]Ministry of Transport (2010) Christchurch Household Travel Survey 2009/10

[30]Land Transport New Zealand (2006) Research Report 294: Increasing Cycling and Walking: an analysis of readiness to change

[31]New Zealand Transport Agency (2011) Research Report 449 Assessment of the type of cycling infrastructure required to attract new cyclists

[32]Parsons Brinckerhoff (2011) Rapid Transit Economic Impacts Research (Unpublished research for Central City Plan)

[33]Christchurch City Council (2011) Activity Management Plan: Road Network

[34]For the purposes of this Plan, road space refers to the entire width of the road corridor

[35]Christchurch City Council (2010) Christchurch Transport Plan: Health Impact Assessment

[36]Christchurch Development Corporation (2010) Canterbury Economic Development Strategy

[37]New Zealand Transport Agency (2010) Frequently Asked Question Roads of National Significance online resource

[38]Ministry of Transport (2008) National Freight Demand Study

[39]Environment Canterbury (2005) Canterbury Regional Land Transport Freight Action Plan

[40]Environment Canterbury (2005) Canterbury Regional Land Transport Freight Action Plan and Regional Land Transport Strategy (2012–2042)

[41]Christchurch City Council (2008) Biodiversity Strategy 2008–2035, Goal 1

[42]Christchurch City Council (2010) Public Open Space Strategy, objective 1.5

[43]Christchurch City Council (2010) Climate Smart Strategy

[44]Christchurch City Council (2008) Biodiversity Strategy 2008-2035, Goal 1

[45]Environment Canterbury (2010) Wider Health and Wellbeing Impacts of Transport Planning

[46]Environment Canterbury (2010) Wider Health and Wellbeing Impacts of Transport Planning

Glossary

Active travel — modes of travel which involve a level of physical activity (walking or cycling).

Air Pollution — contamination of the atmosphere by gas, liquid or by-products that can endanger human health and the health and welfare of plants and animals.

Brownfield Site — a previous industrial or commercial site, often located within an urban area that has redevelopment potential.

Bus Borders — bus stops incorporating walkway build-outs into the traffic lane which allow buses to pickup and drop off passengers without having to leave the traffic lane.

Bus Gates — a signposted stretch of road, along which use is restricted to public transport.

Bus Lanes — a lane restricted to buses on certain days and times, used to speed up public transport that would be otherwise held up by traffic congestion.

Bus Priority Measures — measures used to give buses priority at areas of congestion, these include priority at intersections, bus signals, busways and bus lanes or any other measure that improves bus efficiency.

Bus Signals — traffic lights that have a separate signal to allow buses to go before all other traffic thus allowing bus priority at traffic lights.

Busways — a separated corridor for buses which excludes other traffic, permitting the maintenance of reliable schedules on heavily used corridors.

Canterbury Regional Land Transport Strategy — an Environment Canterbury statutory document which sets the strategic direction for land transport within the Canterbury region over a 30 year period.

Car Pooling — the sharing of car journeys so that more than one person travels in a car. This can be done on an informal basis or as part of workplace or residential scheme.

Christchurch Central Recovery Plan — a CERA document (2012) that sets out how the Central City will be rebuilt following the 2010 and 2011 earthquakes.

Christchurch Growth Model — a forecast of how Christchurch is likely to grow to 2041

Climate Smart Strategy — is a Christchurch City Council strategy giving direction for community and Council responses to the impacts and opportunities presented by climate change.

Commercial Centres — all commercial and retail centres in Christchurch.

Draft Community Outcomes — the community's aspirations for Christchurch adopted in principle and to be adopted formally through the 2013 Long Term Plan.

Connectivity — how well connected an area is, this relates to the transport link to and from the area and where those links serve.

Corridor — a geographical area usually defined by the route of a railway, motorway or road and its immediate surrounding area.

Cycling Streets — street that are designed to give cyclists priority.

Distribution Centres — sites where freight is transferred from the strategic freight network to local distributors for delivery.

District Plan — a statutory document produced by Christchurch City Council. The plan is a regulatory document outlining how the Council envisages the city developing in the future.

Ecological Corridors — areas which allow wildlife to travel between natural environments in safe and familiar surroundings. These are often strips of vegetation and plants.

Electronic Messaging — electronic signage to inform transport users of latest information, e.g. delays expected on roads or bus arrival times.

Environment Canterbury (Regional Council) — an organisation involved with monitoring and improving environmental issues in Canterbury, these issues include air, land and water quality, hazardous materials, waste etc. They are also the lead agency for the provision of public transport services.

Fauna — animals of a particular region, habitat, or geological period.

Feeder Streets — describes streets in the road hierarchy that are of lesser strategic importance, used by vehicles as a way of accessing the main arterial road network.

Flexible Price Mechanisms — a way in which parking charges can easily be changed and adapted in order to easily respond to local factors.

Flora — plants of a particular region, habitat, or geological period

Freight Hubs — a facility where a variety of goods are transported in and out by multiple vehicle types (both road and rail).

Freight Network – a dedicated freight network to access the port, airport and key freight hubs.

Greater Christchurch — comprises the Christchurch City Council area including Lyttelton Harbour but not the remainder of Banks Peninsula, and parts of Waimakariri and Selwyn District Councils.

Greater Christchurch Urban Development Strategy – a strategic direction for growth in the Greater Christchurch area, covering the location of future housing, development of social and retail activity centres, areas for new employment and integration with the transport system.

Green Corridors — an area of habitat connecting wildlife populations separated by human activities

Greenhouse Gas — the collective name for a variety of gases, such as carbon dioxide, methane, water vapour, nitrous oxide, ozone and halocarbons in the atmosphere, that trap heat from the sun and cause warming of the earth.

Green Infrastructure — infrastructure that limits the impact of urbanisation on the natural environment, examples of this include making traditionally hard, impermeable surfaces such as road more permeable in order to reduce the time it takes for storm water to reach the main waterways, thus reducing the risk of flooding.

Greenfield — an area of land outside the current urban boundary which is used for agricultural purposes and has potential for urban development.

Growth Areas — pockets of the city which have been earmarked to accommodate new development. The northern and south-western suburbs have been highlighted as major growth areas.

Growth Domestic Product (GDP) — the market value of all the goods and services produced by labour and property located in a region.

Heavy Rail — traditional high platform railways which usually have stations approximately every mile and are completely separated from all other modes.

High-Occupancy Vehicle — a vehicle carrying a high number of occupants, usually a driver with two or more passengers.

Infrastructure Design Standards — a Christchurch City Council document which outlines standards for the creation or enhancement of infrastructural assets in Christchurch City.

Integrated Planning — combining the disciplines of land use, environmental and transport planning in order to provide a coordinated, sustainable approach for infrastructure development.

Integrated Transport System — making sure that all modes of transport are integrated in a single network, this allows for better connectivity and allows people more choice when planning their journey.

Intelligent Transport Systems — the application of advanced information processing, communications, technologies and management strategies, in an integrated manner, to improve the safety, capacity and efficiency of the transportation system.

Interchanges — places where people or goods transfer between vehicles or from one mode to another.

Kaumatua — respected tribal elders within the Maori community

Key Activity Centres — the key commercial and retail centres in Greater Christchurch: Central City, Papanui/ Northlands, Shirley, Linwood, New Brighton, Belfast, Riccarton, Halswell, Barrington, Hornby, Kaiapoi, Rangiora, Woodend / Pegasus, Lincoln, Rolleston.

Level of Service — a qualitative measure that describes the operational conditions of a road or intersection.

Light Rail — a form of urban rail that has a lower capacity and lower speed than heavy rail, but higher capacity and higher speed than traditional street-running tram systems.

Link and Place — a project developed in the United Kingdom aimed at combining the needs of streets to be both transport corridors and places for people to shop, live and work.

Long Term — a 15 to 30 year planning timeframe.

Long Term Plan — a statutory Council document outlining the long term vision for how the Council envisages the city developing. The plan covers all aspects of Council responsibilities not only urban development.

Major Cycleways — routes which have been identified as being key routes for cyclists, linking residential areas with commercial centres. Routes will be direct, of high quality and where possible separated from traffic.

Medium Term — a 4 to 14 year planning timeframe.

Mode — A categorisation of transport methods, e.g. private motor vehicle, walking, cycling, rail, public transport.

Motorways — high capacity, high speed roads for traffic only.

Multi-Modal — used to describe travel or transport of goods and people involving more than one form of transport.

Multi-Modal Corridors — roads that are designated and designed to accommodate more than one form of transport.

Natural Increase — an area's total birth rate minus the total death rate.

Net Migration — the difference of immigrants and emigrants of an area in a period of time, divided per 1,000 inhabitants.

Network Efficiency — how effective the transport network is at moving people. It can be measured in a number of ways with time and volume numbers often being the key factors.

Network — infrastructure or services that are connected to enable the transition of people and goods from one piece of infrastructure or service to another.

Noise Disturbance — Annoying levels of noise from a variety of sources, including traffic and rail.

Noise Pollution — harmful levels of noise from a variety of sources including, traffic, aeroplanes, rail industry.

Non-Statutory — not required by law. Not all documents Council produces are required by law but are still of importance and relevance.

Off-Street Parking — parking which is provided away from the street environment either behind buildings or in multi-storey car parks.

One Network — the concept of planning Christchurch's entire transport network for all modes in a concerted manner. In the past different forms of transport were planned in separation, by planning all modes together it creates solutions to problems on the network which previously would have been overlooked e.g. allows particular streets to be prioritised for certain modes.

On-Street Parking — parking which is provided just off the main road carriageway by the side of the road.

Orbital Corridors — routes which connect peripheral areas of the city without going through the city centre.

Over-Dimension — routes which are designed to accommodate unusually large freight movement.

Park and Ride — a facility where people can park their private vehicles and then travel by public transport to their final destination.

Parking Management — policies and infrastructure management measures aimed at managing the supply of and/ or demand for on-street and/or off-street parking. Can include time limits, pricing, space availability, location of parking or priority treatments for certain users e.g. disabled drivers, taxis or high occupancy.

Particulate Matter — extremely small objects or mass which are found in gas and can affect air quality.

Partner Agencies — organisations that the Council works alongside to develop strategies and plans for the area.

Peak Oil — the point in time when the global production of oil will reach its maximum rate, after which production will gradually decline.

Permeable Surfaces — consist of a variety of types of pavements, pavers and other devices that provide storm water infiltration while serving as a structural surface.

Pressure Points — parts of the transport network where there is a high level of congestion and multiple conflicts between modes.

Private Vehicle — motor vehicles owned, leased or hired for sole use by an individual, household or organisations.

Public Transport — passenger transportation services available to the public on a regular basis using vehicles, including buses, trains, trams, ferries and taxis, that transport people for payment of a fare, usually but not exclusively over a set route or routes from one fixed point to another.

Radial Corridors — routes which flow out from the city centre to the city periphery in a relatively direct manner.

Rain Gardens — a planted area that allows rainwater runoff from impermeable urban areas like roofs, driveways and walkways the opportunity to be absorbed. This reduces rain runoff by allowing storm water to soak into the ground.

Rapid Transit — high speed, frequent urban passenger transport system.

Real-Time Information — a system that provides current information on one or more aspects of a changing environment.

Recovery Strategy — a CERA document outlining how recovery of the Greater Christchurch area will occur following the 2010/11 earthquakes.

Regional Public Transport Plan — a statutory Environment Canterbury document (2012) which sets out the policy framework of all public transport services in the region.

Regional Policy Statement — an Environment Canterbury document provides an overview of the resource management issues of Canterbury. It sets out how natural and physical resources are to be managed in an integrated way with the aim of sustainable management.

Residential Red Zone — areas severely affected by the 2010/11 earthquakes that will be demolished and not rebuilt.

Resilience – the ability to deal with significant disruption and changing circumstances

Retreat Areas — areas of Christchurch in the CERA Red Zone.

Roads of National Significance — an NZTA programme which highlights seven essential state highways which are vital for New Zealand's economic success. The Christchurch motorway project is part of the programme, and it will link Lyttelton Harbour, Christchurch International Airport and the city centre.

Separated Cycleways — cycle paths which are completely separated from the road. They may be located on the same road corridor or may follow a different route.

Shared Priority Corridor — transport routes which is used by more than one mode of transport.

Short-Term — a 0 to 4 year planning timeframe.

Slow Core — an area within the city centre where vehicle speeds will be dramatically reduced in order to give create a safer environment for pedestrians.

Stakeholder — an individual or organisation who has an interest in or concern about an issue.

State Highway — a strategically important road managed by the New **Zealand Transport Agency.**

Statutory Plans — documents which are required by law. The Council has a legal obligation to produce certain plans.

Strategic Road Network – a vehicle network for medium and long distance trips into and around the city

Street Stations — public transport stops that are provided for on street.
Streetscape — the visual elements of a street, including the road, adjoining buildings, street furniture, trees and open spaces etc, that combine to form the street's character.

Suburban Recovery Centres — commercial centres which were heavily damaged as a result of the 2010/11 earthquakes and are now being redeveloped.

Super Stops — facilities where public transport passengers can transfer from one service to another (smaller than an interchange).

Te Reo — language of the Maori.

Transport Disadvantaged — people who have a difficulty accessing transport as a result of cost, availability of services or poor physical accessibility.

Travel Demand Management — a variety of methods that influence whether, when, how and where we travel, with the aim to improve the effectiveness, efficiency and affordability of the transport system as a result of a change in people's travel choices.