



### 13. DRAFT CHRISTCHURCH TRANSPORT PLAN

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#### PURPOSE OF REPORT

1. To recommend that the draft Christchurch Transport Plan be approved by Council for consultation beginning in July 2012.

#### EXECUTIVE SUMMARY

2. The draft Christchurch Transport Plan (**Attachments 1 and 2**) outlines the Council's 30 year vision for the transport system, along with the goals, objectives and priority actions required to achieve this vision. The Plan updates Council's transport policy as it relates to recent strategic directions taken by the Greater Christchurch Urban Development Strategy (UDS), Central City Plan, Regional Land Transport Strategy, CERA Recovery Strategy and guides recovery planning for transport. The Plan also amalgamates a number of existing Council policies relating to transport. Ultimately, it will inform and provide strategic input into the growth of Christchurch's transport network and future funding decisions made through upcoming Long Term Plans and the Regional Land Transport Programme.
3. The vision of the draft Christchurch Transport Plan is to '*keep Christchurch moving forward by providing transport choices to connect people and places.*' The transport system will provide people and businesses with travel choices to make it easy to move around, do business and live. The Christchurch earthquakes have had a severe impact on the functioning of the whole transport system. There will be significant investment over the next ten years in the repair and recovery of transport infrastructure, especially roads. The draft Christchurch Transport Plan plays a role in shaping opportunities presented through the rebuild to improve the transport system in line with the 30 year vision.

The main challenges facing the transport system in Christchurch are:

- congestion: levels of congestion on the road network are increasing, by 2041 there could be 30 per cent growth in traffic from 2010 levels
- travel patterns: the predominant travel choice for all trips is by private vehicle
- earthquake damage and recovery: around 45 per cent of our roads have suffered significant damage since the earthquakes in 2010/11, there is now significant opportunity to improve the resilience of our network
- relocation and growth areas: land and property damage from the earthquakes has caused the relocation of households and businesses across the city. In response, the release of new housing areas in the south-west and north of the city has been accelerated
- demographics: the size, diversity and projected growth of the resident population has been affected by the earthquakes
- safety: the highest proportion of road crashes and injuries involve: crashes at intersections, young drivers, cyclist and motorcycles
- health and wellbeing: increasing obesity and reducing levels of physical activity is a growing 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 green house gas emissions in Christchurch are transport related
- peak oil: the availability and price of fuel is increasing, reducing the affordability of movement by car and truck.

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4. To achieve the vision and address these challenges the draft Christchurch Transport Plan focuses on four goals:

Goal 1: Improving Access and Choice: delivering resilient transport networks with an emphasis on efficient road use, public transport, walking and cycling. Introducing a new road classification which recognises both the road function and the environments that the road passes through.

Goal 2: Creating Safe, Healthy and Liveable Communities: adopting a safer systems approach. Transport actions to 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: Supporting Economic Vitality: local freight routes to improve access to the ports and freight hubs, a freight strategy to manage the growth of regional and national freight movement, parking and congestions management to support the growth of commercial centres.

Goal 4: Creates Opportunities for Environmental Enhancements: green infrastructure, adapting to climate change and peak oil prices by encouraging new technology and infrastructure enhancements.

5. The proposed document translates these goals across five key networks; strategic, freight, public transport, cycling, and walking, which collectively make up the transport and access functionality of the network. As a strategic discussion the plan seeks to communicate the concept of these networks, and how they can look when applied to the existing transport network in the city. The details of exactly how the principles and concepts will be given effect to is however not the purpose of this plan; these matters will be the subject of much more detailed analysis and debate by Council and its community once the CTP is finally adopted.
6. The CTP will establish a framework (as do the city's other strategic infrastructure documents) that will support Council to make consistent and timely decisions that move the city forward to a comprehensive future state.
7. Implementation will be phased over 30 years. The implementation will move through three distinct phases: recovery and rebuild, transition and achieving the vision. This recognises that in the immediate term fixing the city networks is a key priority, as well as ensuring that the city and its communities recover speedily and effectively. The short term, will however always be informed by the CTP's long term goals, and Council through its planning and prioritisation will be encouraged and challenged to take advantage of the short term needs to support long term goals. As was demonstrated in the CCP, the earthquakes have provided an opportunity to think boldly about transport, but also highlighted the need to act pragmatically in the early years. The CTP has a unique opportunity to enable Council and its strategic transport partners to move towards a transport system that is sustainable for the city in the long term, and the CTP provides the first real tool with which to have that conversation.
8. One of the key opportunities recognised by Council is in the area of cycling. The proposed CTP identifies a fully integrated strategic cycling network that links key destinations, local points of interest, and the city's major recreational nodes. These will be achieved through the development of both shared and dedicated routes, with a small number of key exemplar routes signalled. The specifics of these will be addressed through more detailed planning and design, but the document and the circumstances created by the earthquakes provides an opportunity to allow the community to really embrace this mode shift opportunity.
9. To inform the next Long Term Plan, priority actions have been identified for the next 10 years. Whilst the actions facilitate the rebuild and recovery phase they also include elements of the transition and vision phases. As with any strategy the funding, timing and delivery of these will be determined through the LTP and regular Annual Plans. The role of the CTP is to provide a comprehensive framework to allow more detailed planning and implementation to develop from priorities for the next 10 years and will include:

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- development of a new road classification (replacing the existing road classification) to guide the rebuilding and future design of roads and road corridors
  - continuation of road maintenance and renewals
  - building local connections to Christchurch's motorways and new growth areas and network improvements to neighbouring districts
  - public transport rapid transit investigations and 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 public transport services
  - investment in major cycle routes for high demand areas supported with facilities and education programmes
  - defining freight routes and protecting 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.
10. Staff began the process of developing an integrated transport plan for the City in 2009. Early input and advice from Councillors has been provided through the Regulatory and Planning Committee, Transport Committee and more recently through a series of Councillor Workshops. The draft Plan has also been prepared with engagement from each of the Greater Christchurch Urban Development Strategy (UDS) partners (Environment Canterbury, New Zealand Transport Agency, Selwyn District Council, Waimakariri District Council) and Canterbury Earthquake Recovery Authority. Completion of the plan has been disrupted by major earthquakes, however following recent engagement the plan is now suitably progressed for public consultation.
11. The draft Christchurch Transport Plan is submitted here for Council approval to commence public consultation on the Plan.

**FINANCIAL IMPLICATIONS**

12. The Plan aims to provide a vision and framework for the city's transport system that will provide guidance and priorities for budget preparations in future Long Term Plans and the Regional Land Transport Programme. The Plan has summarised the highest priorities for future implementation.
13. An Implementation Plan will be prepared subsequent to the adoption of the draft Christchurch Transport Plan to provide more specific actions and budget implementations in preparation for future Long Term Plan prioritisation processes. Adoption of the Plan is not a commitment to the delivery of any particular project. The detailed achievement of the plan will be determined through the LTP and Annual Plans, but will also be influenced by the government funding priorities for transport (Government Policy Statement) and the Regional Land Transport Programme.

**Do the Recommendations of this Report Align with 2009-19 LTCCP budgets?**

14. The Plan is part of the City and Community Long Term Policy and Planning work programme for the 2011/12 financial year.

**LEGAL CONSIDERATIONS**

15. The Plan is not a statutory requirement of any Act and the Council can choose what type of consultation it considers is appropriate for the Plan. Any consultation the Council decides to undertake in relation to a decision must be carried out in accordance with the principles in section 82 of the Local Government Act 2002. The consultation proposed in this report will meet the requirements of section 82. The Plan is aligned, in terms of its goals, with national legislation including the Land Transport Management Act, the Local Government Act and the Resource Management Act. As noted above, adopting the Plan does not create an obligation on the Council to deliver any project included within it, or to make provision for any projects in future Long Term Plans.

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The transport activities of Urban Development Strategy (UDS) partners have been integrated into the draft Plan to increase coordination whilst recognising that each activity is subject to planning and funding processes relevant to each organisation. There are a number of methods which will be used to implement these actions, including regulatory changes, District Plan changes, consents, designations, bylaws, changes to infrastructure design standards and setting new levels of service in activity management plans.

**Have you considered the legal implications of the issue under consideration?**

16. Yes.

**ALIGNMENT WITH LTCCP AND ACTIVITY MANAGEMENT PLANS**

17. Preparation of the draft Christchurch Transport Plan is in line with the "City Planning and Development" activity and "Streets and Transport" activity objectives in the current LTCCP (2009-19). The draft plan aligns with the draft 2013 Community Outcomes:

- **Liveable City:** providing a system that offers transport options to meet the needs of people and businesses; providing people with access to economic, social and cultural activities; promoting an increase in journeys made by foot, cycle and public transport; facilitating streetscapes that enhance the look and function of the city
- **Healthy Environments:** encouraging environmental enhancement and reduced emissions
- **Strong Communities:** improving the safety of the transport system and encouraging physical activity through active transport
- **Prosperous City:** providing infrastructure that supports sustainable economic growth.

**Do the recommendations of this report support a level of service or project in the 2009-19 LTCCP?**

18. The Draft Plan is closely aligned with implementation of the Urban Development Strategy. In the "city planning and development" activity there is the following level of service:

- *Council approves a work programme, based on the approved UDS Action Plan.*

The implementation of the Plan will assist in achieving a number of Council outcomes under the LTCCP and Levels of Service within the Streets and Transport activity.

**ALIGNMENT WITH STRATEGIES**

19. The plan is conscious that neither use of the network, nor its funding, are solely determined by the city and its community. For all users the transport network needs to operate seamlessly across boundaries and for a variety of users. Similarly parts of the funding programme, and the delivery of key public transport services rests outside Council, and the plan needs to be cognisant of this. Nevertheless the CTP should be a plan where national and regional objectives are integrated with local community aspirations, rather than being driven by any singular agenda.
20. The draft Plan sits within a framework of national, regional and local strategies and policies. The long term outcome is to create an integrated transport and land use system that aligns with, and delivers the Regional Policy Statement, Regional Land Transport Strategy (RLTS) and Greater Christchurch Urban Development Strategy. Greater Christchurch cross boundary activities have been integrated into the draft Plan to increase coordination whilst recognising that each activity is subject to planning and funding processes relevant to individual organisation.

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21. Particular regard has been given to the:

- Government Policy Direction and Statement for transport: sets out the Government's priorities for expenditure from the National Land Transport Fund over the next 10 years. It details how funding is allocated between activities such as road safety, state highways, local roads, active and public transport
- Canterbury Regional Policy Statement: has been amended to include Chapter 12A which provides direction for future growth by setting out land use distribution and identifying areas available for urban development. The Policy seeks to consolidate and intensify growth in certain areas so there is less reliance on private motor vehicles
- Canterbury Regional Land Transport Strategy: sets the strategic direction for land transport within Canterbury over a 30 year period. The vision is that Canterbury has an accessible, affordable, integrated, safe, resilient and sustainable transport system
- Canterbury Regional Land Transport Programme: a three year programme of activities which constitutes the Region's bid for funding support from central government
- Greater Christchurch Urban Development Strategy: a strategic direction for growth in the Greater Christchurch area, covering future housing areas, development of social and retail activity centres, new employment areas and integration with transport
- Draft Roads of National Significance Network Plan: is to identify key supporting projects for the Roads of National Significance and the role NZTA can play in development and funding of transport improvements within Greater Christchurch
- Canterbury Regional Passenger 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
- Greater Christchurch Metro Strategy: sets out a range of targets to improve public transport, based on community suggestions
- Greater Christchurch Travel Demand Management Strategy: a strategy for managing increasing traffic growth, by making the most of the existing transport network and increase the use of walking, cycling, public transport and car pooling
- Central City Recovery Plan: sets out how the Central City will recover from the earthquakes; it proposes a new transport network for the Central City which offers choice
- CERA Recovery Strategy: This overarching, long-term Strategy will guide the reconstruction, rebuilding and recovery of greater Christchurch
- Transport Strategies: integration of a number of existing City Council transport strategies, including the Metropolitan Transport Statement, Cycling Strategy, Pedestrian Strategy, Road Safety Strategy and Parking Strategy.

22. Many of these joint strategies and plans are under review as a result of the recent earthquakes. The Council is working with the UDS partners and CERA to assess the impacts on the transport system as a result of both the accelerated residential development schedules and to determine priorities for public transport and infrastructure development. Environment Canterbury is updating the Regional Passenger Transport Plan with planned completion in January 2013. The UDS partners are working on a passenger transport study for the Greater Christchurch area. This draft Plan is aimed to be flexible enough to work with any new thinking in transport and land use that will occur over its 30 year life.

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**Do the recommendations align with the Council's strategies?**

23. Yes, see above.
24. Under the Canterbury Recovery Act the Council's strategies and plans must not be inconsistent with the Recovery Strategy or any Recovery Plans. The Recovery strategy includes a specific objective in the Built Environment area : *'Develop resilient, cost effective, accessible and integrated infrastructure, buildings, housing and transport networks, by: developing a transport system that meets the changed needs of people and businesses and enables accessible, sustainable, affordable and safe travel choices'*. The draft Plan is not inconsistent with this goal and has close alignment with it.

**CONSULTATION FULFILMENT**

25. In order to strengthen the cohesiveness and comprehensiveness of the draft Christchurch Transport Plan a process of stakeholder involvement and collaboration has been ongoing, this has involved Councillors, Community Boards, Council staff, UDS partners, CERA and other key stakeholders. Dialogue has been productive and has informed the content and development of the draft Plan.
26. To strengthen UDS coordination of transport planning a number of workshops have been held with transport and planning staff from ECan, NZTA, CERA, SCIRT, Selwyn District Council and Waimakariri District Council. Between November 2011 and April 2012 workshops have been focused on network planning for roads, freight, walking and cycling. Regular updates on the development of the draft Plan have been made through the staff UDS Transport Group.
27. Two breakfast workshops for key stakeholders were held in December 2010, with the support of the Community Engagement Team. Thirty seven people attended representing the following disciplines: the ports, freight, cycling, walking, accessibility / disability, health, automobiles, freight, diverse communities, community organisations and sustainability. The attendees provided feedback on the transport challenges and high level approaches for each network (walking, cycling, freight, public transport). This was an effective element in the public participation process and provided good feedback. The feedback was assessed and where appropriate has been incorporated into the draft Plan.
28. A Health and Sustainability Impact Assessment has been undertaken. The assessment included workshops with key stakeholders (representatives from population groups including: older people, youth, disability, non-English speakers) in May 2010, internal staff (April 2010) and a Hui at Rehua Marae 28 May 2010. The workshops identified the key health and sustainability challenges for transport and identified the health and sustainability issues of different transport scenarios. Feedback from the workshops influenced the vision, goals and direction of the draft Plan.
29. To ensure staff engagement in the process, a number of internal workshops and presentations have been held. Feedback was requested in a series of discussions with staff from City Environment and Strategy and Planning groups. An important focus was the integration of the transport networks with land use and within the context of other strategies and policies, as detailed above.
30. Community Board members have been consulted during the early development of the draft Plan (19 October 2009) and at a joint community board meeting to be held 25 June 2012.
31. Council workshops and workshops with the previous Regulatory and Planning committee has guided the development of the draft Plan. Subsequent to recommendations from the 23 March and 22 May Council workshops further feedback has been incorporated especially to the development of the network plans and actions.
32. Subject to Council's approval, formal consultation on the draft Plan will be undertaken with stakeholders for six weeks from mid July 2012 to end of August 2012. Submissions will be reported back to a Council hearing panel in October 2012. Consultation will include production of a summary document and submission form. It will also be on the "Have Your Say" Web page, and media releases will publicise the consultation period.

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**STAFF RECOMMENDATION**

It is recommended that the Council approve the draft Christchurch Transport Plan for consultation.

Transport Plan Cover Page: graphic design to be completed before publishing,

# Council Meeting

## 28 June 2012

### ***Draft Christchurch Transport Plan 2012 – 2042***





## ***Draft* Christchurch Transport Plan 2012 - 2042**

June 2012

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## Foreword



**Bob Parker**  
Mayor of Christchurch

*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.*

*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 street environments; attractive cycleways; 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.*

*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 investments 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 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 the Christchurch Transport 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 Central City Recovery Plan. The Central City Recovery Plan places a strong emphasis on travel choice by establishing strong networks for all transport options during the next 20 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 have sustained significant damage during the 2010 - 2011 earthquakes and there is now significant 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 population decline 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 green house 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.

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

1. **Improving access and choice**: delivering resilient transport networks with an emphasis on efficient road use, public transport, walking and cycling. Introducing a new road classification which recognises both the road function and the environments each road passes through.
2. **Creating 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. **Supporting economic vitality: developing** local freight routes to improve access to Christchurch airport, Lyttelton Port and freight hubs, a freight strategy to manage the growth of regional and national freight movement, and parking and congestion management to support the growth of commercial centres.
4. **Creating 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**; the top four of which will make the greatest difference during the 30-year vision of this Plan are:

- establishing the role of rapid public transport in the Greater Christchurch area;
- a network of major, local and recreational cycle routes;
- a new road classification which places greater emphasis on street environments; and
- a freight strategy with associated improvements to enhance the reliability of freight movement and intermodal transfer.

The phased implementation of the Plan during the next 30 years is outlined in Figure 1.1. The implementation will move through three distinct phases: recovery and rebuild, transition and achieving the vision.

The **rebuild and recovery phase** will require investment to be focused on recovery planning, infrastructure replacement and road improvements to support the new housing developments being provided to accommodate households relocating as a consequence of the earthquakes.

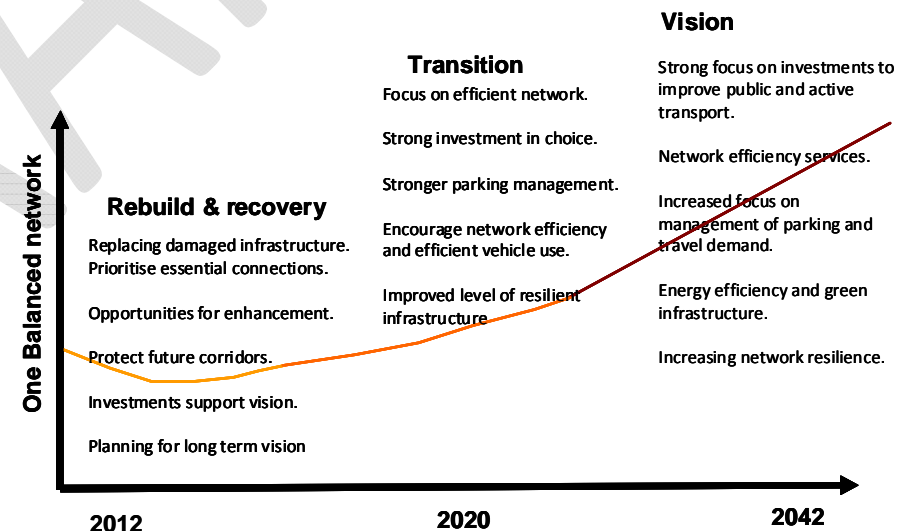


Figure 1.1: Transition to achieving the vision

In the medium term, there will be a **transition phase** to network improvements along public transport, freight, walking and cycling corridors.

In the long term and **vision phase**, the efficiency of the existing network being improved for the reliable movement of both goods and people. There will be an increased focus on parking management, transport information and education, energy efficiency and green infrastructure.

**Implementation of the draft Christchurch Transport Plan** will help the Council deliver its community **outcomes**, namely to create a liveable and prosperous city; strong community; and healthy environment. The Implementation Plan includes a list of prioritised transport actions for the next decade. While these actions support the rebuild and recovery phase, there are also a number of key elements related to the transition and vision phases. Features of the action during the next 10 years 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.
- Public transport rapid transit investigations and 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 public transport services.
- Investment in major cycle routes for high demand areas supported by facilities and education programmes.
- 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 long-term **commitment** are fundamental to achieving the vision. To deliver all the actions identified in the Draft Plan increased funding for transport will be needed during the next 30 years, with 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. Christchurch will compete for Government funding for its transport projects every three years, its projects being prioritised and weighted for funding alongside other council and Government projects.

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# 1 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, to build stronger communities and is essential for a vibrant economy. Our choice of travel 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 changed (i.e. 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 continues to be the major freight hub for the South Island (20 million tonnes of freight move through the city each year).

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 8900 or 2.4 per cent in the year to June 2011. The geographic distribution of households within the Christchurch area has also been affected as a result of temporary household displacement and permanent household relocations. Immediate travel patterns have also changed as the necessary relocation of businesses, homes and services has occurred. 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 long term there will be a return to the pre-earthquake growth patterns, there is a significant level of uncertainty underlying the planning and staging of the recovery and growth of the city. 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 repeatedly asked for a significant change in the current transport system<sup>1</sup>. The community indicated its preference to move towards a pedestrian and cycle-friendly city, where walking and cycling are enjoyable, safe and there are high-quality facilities for all users, as well as an affordable public

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<sup>1</sup> Indicated through the 'Share an Idea' consultation on the Central City Plan, and submissions to the Council's Long Term Plan 2009-2019.

transport network. 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 Draft Christchurch Transport 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. The Draft Plan sets out how land development and infrastructure will be sequenced and timed appropriately to ensure integrated planning and a desirable urban form is achieved. It draws together a collection of transport elements into a comprehensive plan, as illustrated in Figure 1.1. The Draft 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 Draft Plan details the transport actions for Christchurch City, including Banks Peninsula, that are required to create a transport system to support the city's growth and community aspirations over the next 30 years (2012-2041). The immediate role is to support the recovery and rebuild of the city and the wider region, including the recovery priorities under the Recovery Strategy and Draft Central City Recovery Plan, balanced with the need to achieve the long-term objectives for the network.

### Your Comments on the Draft Plan

This document provides an opportunity for public comment through the consultation process. **Comments** can be made online or by completing the public information leaflet 'Have Your Say' leaflet.

**HAVE Your SAY make a submission form is online**

[www.ccc.govt.nz/haveyoursay](http://www.ccc.govt.nz/haveyoursay)

Further information on the Plan including the Technical Appendices can be found on our website at:

[www.ccc.govt.nz/christchurchtransportplan](http://www.ccc.govt.nz/christchurchtransportplan)



Figure 1.1: Transport elements of the draft Plan



## 2 Strategic context

The Draft Plan has been developed through a process of stakeholder involvement and collaboration with the Urban Development Strategy (UDS) partners, central government, technical experts and others. It sits within a complex framework of national, regional and local strategy and policies as illustrated in Figure 2.1, which details 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 delivers the Regional Policy Statement, Regional Land Transport Strategy (RLTS) and Greater Christchurch Urban Development Strategy. Together, these documents set a direction for transport which supports an accessible, affordable, integrated, safe, resilient and sustainable transport system, within a consolidated urban form. The Draft 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 Draft Plan to increase coordination while recognising that each activity is subject to planning and funding processes relevant to individual organisations. Particular regard has been given to the:

- 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.
- Recovery Strategy - sets out the way forward for the, rebuilding and recovery of Greater Christchurch.
- Draft Central City Plan - sets the framework to guide the redevelopment of the Central City.
- Greater Christchurch Metro Strategy – sets out a range of targets to improve public transport, based on community suggestions.
- 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 Passenger 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 (CRETS) – 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 – is to identify key supporting projects for the Roads of National Significance and the role New Zealand Transport Agency (NZTA) can play in the development and funding of transport improvements within Greater Christchurch.
- The Council and NZTA are signatories to the Urban Design Protocol (MFE) which provides a platform to make New Zealand cities more successful through quality urban design.

All these joint strategies, plans and studies are currently under review as a result of the recent earthquakes. The Council is working with the Urban Development Strategy partners 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. Environment Canterbury is updating the Regional Passenger Transport Plan with planned completion in January 2013; and the UDS partners are working on a passenger transport study for the Greater Christchurch area. This Draft Plan is designed to be flexible enough to work with any new thinking in transport and land use that will occur of the life of the Plan.

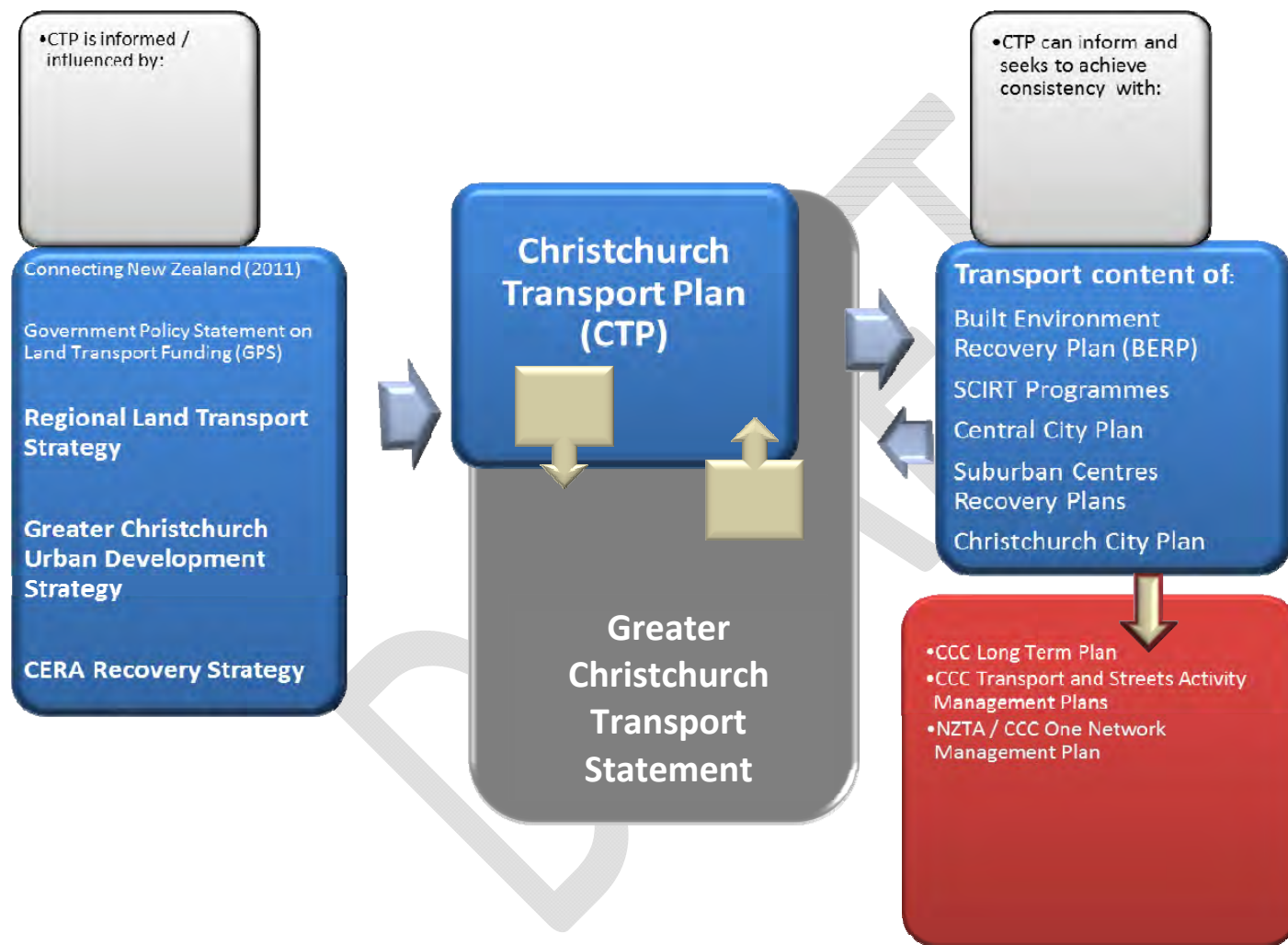


Figure 2.1: Strategic Context

### 3 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 repairs and improvements to the road network. Improvements will provide better access by ensuring there is a well-connected, accessible and efficient 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 neighbourhoods 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 efficient public transport corridors, strategic road corridors and clearly defined freight routes and hubs. Active travel will become an attractive alternative 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 Draft 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 Draft Plan focuses on four goals:

1. **Improving access and choice:** delivering resilient transport networks with an emphasis on efficient road use, public transport, walking and cycling. Introducing a new road classification which recognises both the road function and the environments that the road passes through.
2. **Creating 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. **Supporting economic vitality: developing** local freight routes to improve access to the airport, Lyttelton Port and freight hubs, a freight strategy to manage the growth of regional and national freight movement, and parking and congestion management to support the growth of commercial centres.

4. **Creating opportunities for environmental enhancements:** building green infrastructure and adapting to climate change and peak oil by encouraging new technology and infrastructure enhancements.

DRAFT

## Outcomes

The Draft Plan contributes to achieving a number of the draft 2013 Community Outcomes<sup>2</sup>. 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.

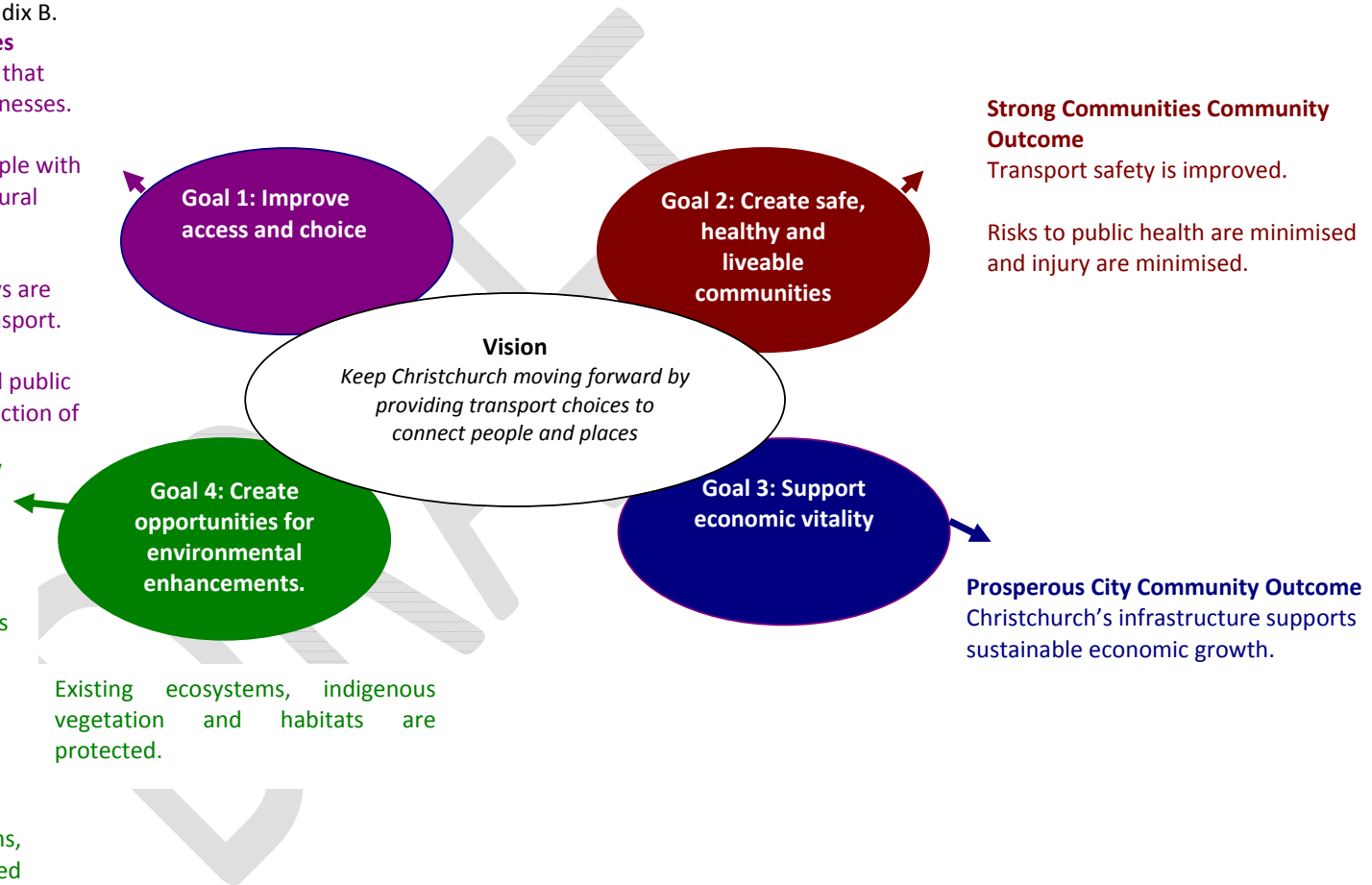
### Healthy Environments Community Outcome

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



<sup>2</sup> Draft 2013 Community Outcomes currently adopted in principle by the council and will be formally adopted in the next Long Term Plan.

## 4 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 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<sup>3</sup>.

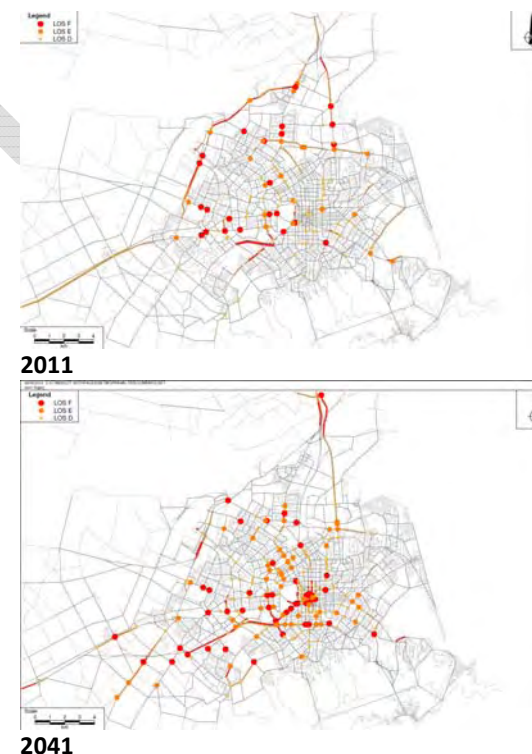
### Travel patterns

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<sup>4</sup>. The use of the private vehicles is the dominate travel option in Christchurch (72 per cent of all trips in 2009<sup>5</sup>) for the majority of people and businesses. Walking and cycling make up 24 per cent of all trips with public transport at three per cent of all trips.

<sup>3</sup> New Zealand Transport Agency (2010) [Frequently Asked Question Roads of National Significance](#) online resource

<sup>4</sup> Land Transport New Zealand (2007) [Research Report: Integrating Land Use and Transport Planning](#).

<sup>5</sup> Ministry of Transport (2009 /10) [Household Travel Survey](#)



**Figure 4.1: Predicted delay on roads in 2041 compared to 2011 levels, afternoon peak. (Christchurch Transport Model, 2011)**

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)<sup>6</sup>. 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<sup>7</sup>.

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 2 km in length, making these journeys ideal for walking and journeys of 1 to 5 km 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; 42kms 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 Red Zone includes land that is so badly damaged by the earthquakes it is unlikely it can be rebuilt on for a prolonged period. Further homes remain in an Orange Zone east of the City Centre and areas of white zone in the Port Hills and are awaiting a government zoning decision on 30 June 2012. Damage and closure of the Central City has affected the 6000 businesses which were based there<sup>8</sup>.

Accelerated growth of population and business activity has occurred in western Christchurch as people and businesses have, out of necessity, moved from the Central City and eastern suburbs where the earthquake damage has been most severe. An increase in business activity has been observed, particularly along Blenheim Road and in Addington, Riccarton, Hornby and at the airport. It is not yet known the extent to which such shifts will continue over the medium to longer term, or what the long-term impact of the earthquakes will have on the sub-regional economy and population growth. However, the settlement area (existing and planned) will not significantly change as, with the exception of Red Zone properties, most of the damaged homes are able to be repaired or rebuilt on their existing sites. Serious damage to land and built infrastructure has not been widespread and major parts of the Christchurch area are continuing to function well, although with heightened levels of activity.

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<sup>6</sup> Ministry of Transport (2009 /10) Household Travel Survey

<sup>7</sup> Statistics New Zealand (2006) Census Data

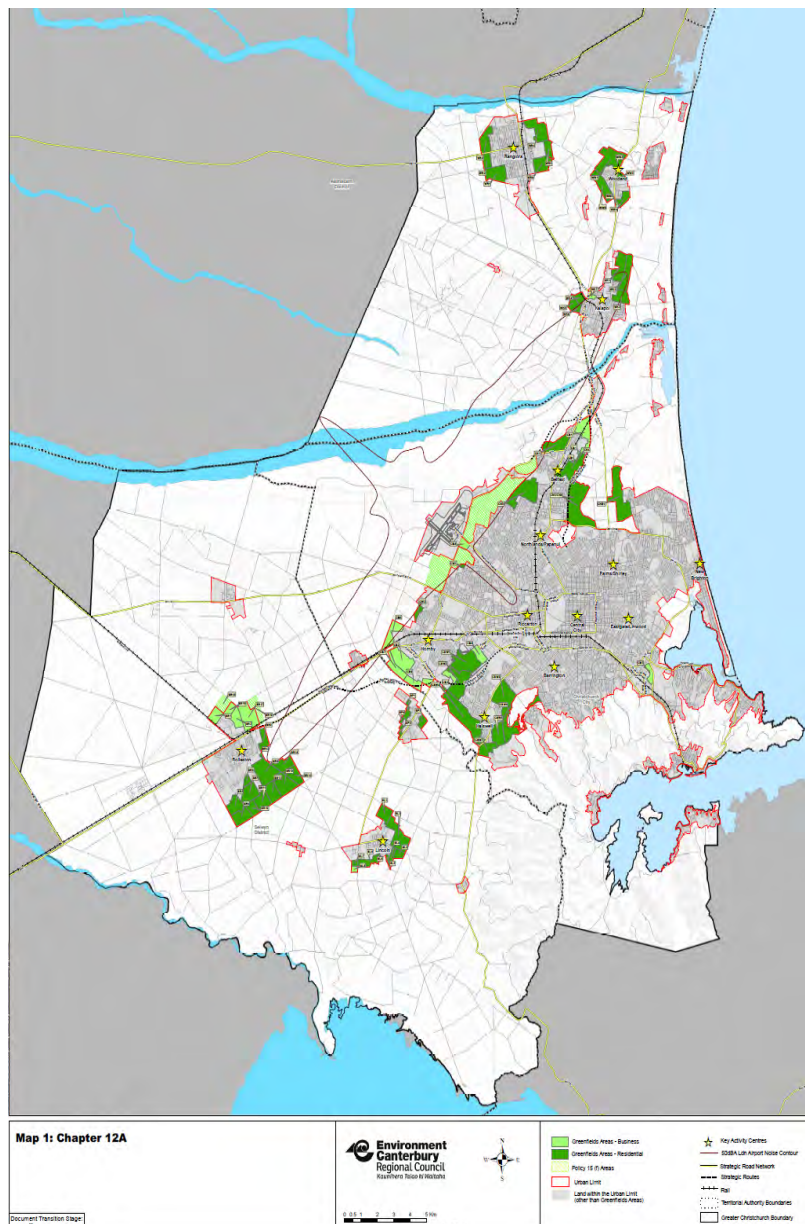
<sup>8</sup> Christchurch City Council (2011) Central City Plan

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.

Since the earthquakes, land for some 9100 households has been rezoned in Christchurch. The recently operative Chapter 12A (Figure 4.2) of the Regional Policy Statement (RPS) provides for further greenfield growth, specifically the development of 41,370 households in greenfield locations within Greater Christchurch during the next 30 years. Major new growth areas are primarily located in the north/north-east and south-west of Christchurch, Figure 3.4. A recent review of the Christchurch Growth Model (which underpins the Urban Development Strategy and Chapter 12A of the RPS) suggests that short-term permanent household demand within Greater Christchurch area may be more in the range of 4000 to 5000. However, there is a clear need to provide for displaced households, given the uncertainty around longer term household demand, there are inherent risks and costs associated with an over supply of serviced land. Investing in infrastructure for new greenfield growth areas must also be balanced against investment that supports intensification of the existing urban area, including brownfield sites and within the Central City.

The location and pace of development will change travel patterns in the city. Travel patterns are already influenced by the urban form especially: increasing consolidation, new developments (Greenfield areas); changes in the Central City; access to Key Activity Centres and commercial centres; and regional freight movement between industrial zones and the airport and Lyttelton Port.





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

### **Planning for changing demographics**

Christchurch's population and demographic composition is projected to change significantly during the next 30 years, which will present significant challenges to the transport system. Overall, the size and projected growth of the resident population has been affected by the earthquakes. Before the 2010-11 earthquakes, Christchurch's population was growing at a steady, although modest, rate. For example, in the four-year period ended 30 June 2010, Christchurch'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). The latest estimates for Christchurch indicate that the population has decreased by 8900 (2.4 per cent) in the June 2011 year (due to a net migration loss of 10,600, partly offset by a natural increase of 1700). The Waimakariri and Selwyn districts however continued to grow by 2 per cent and 3.9 per cent respectively. Overtime however, it is expected that the population growth and distribution will return to, or begin to head towards, the pre-earthquake projections.

Understanding the age structure of the city's population 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<sup>9</sup> (a 100 per cent increase). This will require changes to how the transport infrastructure and services are designed and provided, as with an ageing the number of people with disabilities is also likely to increase<sup>10</sup>.

Christchurch has a diversifying population – culturally, economically and socially, partly due to the effects of the earthquake, and also to pre-existing and ongoing demographic changes. Integrating new arrivals into the city, the shifting settlement patterns and the quality of life of its residents will be some of the issues that transport impacts on. 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<sup>11</sup>. 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<sup>12</sup>. 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<sup>13</sup>, Figure 4.3. In Canterbury, Māori (14 per cent) are more

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<sup>9</sup> Greater Christchurch Urban Development Strategy (2009) Demographic Update

<sup>10</sup> Christchurch City Council (2010) Health Impact Assessment: Christchurch Transport Plan

<sup>11</sup> Christchurch City Council (2010) Health Impact Assessment: Christchurch Transport Plan

<sup>12</sup> Environment Canterbury (2010) Market Research Report for the RLTS

<sup>13</sup> NZTA (2011) Briefing Note Crash Analysis Canterbury Region 2010

likely to be involved in road fatalities than non-Māori (9.7 per cent)<sup>14</sup>. In New Zealand fatalities and injuries are also disproportionately borne by those in lower socio-economic circumstances<sup>15</sup>.

In 2010 there were 855 reported injury crashes in Christchurch City, of which 222 were fatal or serious, on local roads. 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<sup>16</sup>:

- 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 have had more than five crashes resulting in injury over the last five years, including 30 sites with 10 or more injury crashes in the past five years<sup>17</sup>.
- Young drivers: (those aged from 15 to 24 years) represent 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 involve crashes at intersection where young drivers are at fault (35 percent 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% of cyclist crashes were on urban roads.

- Motorcyclists: casualties do not feature highly in the overall statistics with 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.



Figure 4.3: Injury Crash Trends (NZTA, 2011)

<sup>14</sup> Christchurch City Council (2010) [Health Impact Assessment](#)

<sup>15</sup> Christchurch City Council (2010) [Health Impact Assessment](#)

<sup>16</sup> Ministry of Transport (2010) [Safer Road Journeys Strategy](#)

<sup>17</sup> NZTA (2010) [Road Safety Issues 2010](#)

## Health and wellbeing

A Health and Sustainability Impact Assessment conducted for this Draft Plan, Appendix A, identified that the most significant issues for transport is physical inactivity. Active travel, such as cycling and walking, has significant benefits for health by increasing physical activity. In Christchurch, only 39 per cent of residents are active every day<sup>18</sup>. Physical inactivity accounts for almost 10 per cent of New Zealand's 20 leading causes of death. Physical inactivity increases the risk of many chronic diseases, especially type 2 diabetes, cardiovascular disease, colon cancer and depression. Together, obesity and type 2 diabetes together cost the health system more than \$500 million per year. A five percent increase in physical activity can net a reduction of \$25 million annually for health care cost (NZ Ministry of Health). Air and noise pollution from vehicles also have significant health impacts when people are exposed to them for long periods<sup>19</sup>.

## Environment

The use of vehicles and the development of transport infrastructure have significant impacts on the natural environment. Impacts include air pollution, dust, stormwater runoff, loss of productive land (soils), loss of flora and fauna, visual, noise and vibration intrusion. Vehicles are the largest emitters of carbon monoxide and nitrogen oxides. They also emit sulphur oxides, benzene and particulate matter, Figure 4.4. Given recent improvements in air quality as a result of reducing pollutants from home heating, in the future 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<sup>20</sup> after stormwater-run off. Transport-related noise is highest in the urban areas, prolonged noise exposure can impact on amenity values and health<sup>21</sup>. There are also significant opportunities for transport to enhance the environment, for example, to increase biodiversity transport corridors can also act as ecological corridors.

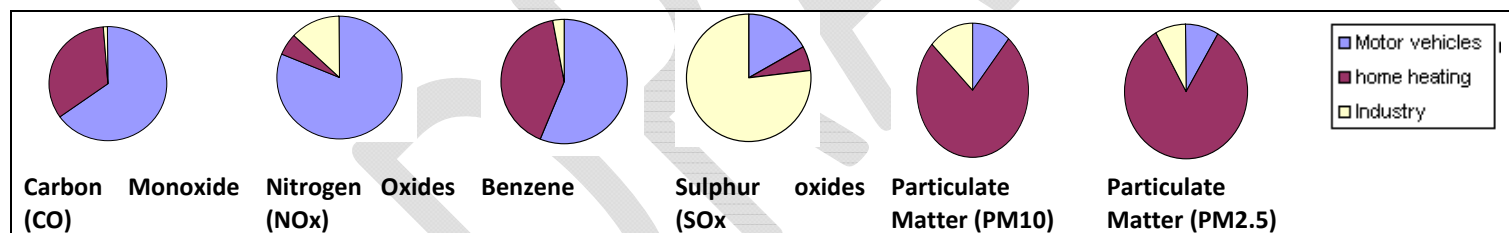


Figure 4.4: Percentage contributions to emissions by motor vehicles, home heating and industry on weekdays<sup>22</sup>.

<sup>18</sup> Christchurch City Council (2006) Quality of Life Survey

<sup>19</sup> Health Research Council of New Zealand, Ministry for the Environment, Ministry of Transport (2007) Health and Air Pollution in New Zealand

<sup>20</sup> Christchurch City Council (2009) Surface Water Strategy, p16, p.89

<sup>21</sup> Land Transport New Zealand (2010) Guidance Note: Managing land transport noise under the RMA

<sup>22</sup> Environment Canterbury (2006) Inventory of emissions to air in Christchurch.

### **Climate change**

New Zealand is one of the largest per capita emitters 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<sup>23</sup>. Changing the way we move around can make a significant contribution to reducing Christchurch's total greenhouse gas emissions. 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 significant 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<sup>24</sup>.

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<sup>23</sup> Christchurch City Council (2010) Climate Smart Strategy

<sup>24</sup> Statistics new Zealand (2007) Household expenditure survey

## 5 Achieving the 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 is to replace and repair the existing transport system to support earthquake recovery and our commitment to improve the efficiency of our strategic road network and support the Roads 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 that surrounds 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. Figure 5.1 demonstrates how the move from 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:** Use the transport network more efficiently

**Objective 1.2:** Balancing the networks

**Objective 1.3:** Delivery of high-quality information and education services

### Goal 3: Support economic vitality

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

### Goal 2: Create safe, healthy and liveable communities

**Objective 2.1:** Supporting recovery

**Objective 2.2:** Integrated transport and land-use planning

**Objective 2.3:** Safer Systems

### Goal 4: Create opportunities for environmental enhancement

**Objective 4.1:** Reduce emissions and invest in green and resilient infrastructure

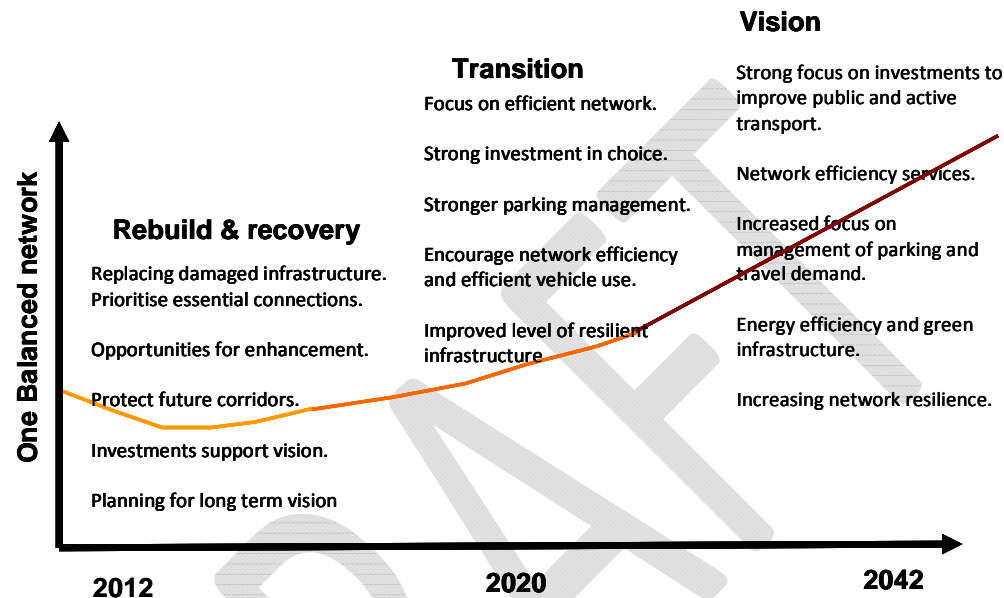


Figure 5.1: From recovery towards achieving the long term vision

Short term: Rebuild and recovery	Medium Term: Transition	Long term: Vision
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 Plans vision. Planning and investigation for larger projects to enable implementation in the medium term.	Stronger focus on improving the safety, functioning and efficiency of the existing networks, while increasing investment in a broad range of travel options. Increasing parking management coupled with network efficiency services. Encouragement of more efficient and sustainable energy use and green infrastructure.	Implementing improvements to public transport, walking and cycling. 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. Increasing focus on parking management, transport information and education, energy efficiency and green infrastructure.

The phasing of this transition also reflects the priorities identified in the Regional Land Transport Strategy and draft Central City Plan. The timing of actions for each phase will be informed by future monitoring and review of the Plan's implementation. Reviews will be scheduled to coincide with each Long-Term Plan.



## Goal 1: Improving access and choice

Outcome:  
Liveable City

*Increasing the availability of transport choices and carefully targeting improvements to strategic freight and traffic networks will improve the access and efficiency of the entire transport system.*

The transport network has been challenged with the recent changes in travel patterns and demand. To improve and maintain connectivity and access across Christchurch, all of the networks (freight, road, walking, cycling, and public transport) need to respond to changes in population and employment, potential retreat areas, new development, rising energy prices and limited road capacity. The approach in this Draft Plan is to move towards one integrated transport network which provides optimum connectivity, good access to land and services and better transport choice within the constraints of available budgets. The challenge is to gain optimum value from these budgets for existing and new transportation networks and assets. These approaches in turn will improve the resilience of the network to future local and global events.

Christchurch currently has road assets consisting of: 2283kms of roads, 413 bridges and 118 foot bridges<sup>25</sup>. This is a huge public resource which needs to be managed effectively. The strategic road network incorporates and connects the port, airport and existing and emerging distribution centres. To ensure the longevity and efficiency of this network, the key is to protect, maintain and enhance the existing asset and, where appropriate, reprioritise the use of road space. The public transport network is extensive; however at the time of the Draft Plan production, only two core corridors had bus priority measures to increase reliable bus journeys. To increase reliability and attractiveness, the protection of public transport corridors for both conventional bus and any future justified rapid public transport services, is critical.

Christchurch has a large cycle network (324kms of cycle lanes, ways and off-road paths); however there are gaps in the cycle network which can create conflicts with the needs of other transport options. To attract new and encourage existing users there is a need to improve connectivity by providing safe, continuous routes with increased separation from vehicles, off-road routes, slower speeds and quality facilities. This Draft Plan signals an intention to offer a higher standard of infrastructure safety and connectivity for cyclists city-wide over the Plan's implementation period.

The walking network in the past has been given a lower priority and is often of a lower quality than is desirable. More recently a greater importance has been placed on improving the quality of street environments, especially in the Central City, where evidence has shown the economic benefits of creating people-friendly environments. There is a significant opportunity to improve the connectivity and attractiveness of the network and improve accessibility of our commercial centres, services, schools and public transport.

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<sup>25</sup> CCC (2011) Activity Management Plan: Road Network



## **Objective 1.1: Use the existing road network more efficiently**

*One network for all users which uses road space more effectively*

A key focus for the Draft Plan is to find more efficient ways to use the existing road space to move more people and goods and services. Improving the efficiency of the entire road network will improve connectivity, access, choice and support economic vitality, while better recognising the importance of the communities which roads connect and sometimes pass through. 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 better accommodating public transport, cycling, walking and reflecting adjacent land uses. In these ways, 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<sup>26</sup> has a limited capacity for growing car-based travel in the future, as was 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:

- New road classification
- Priority tool
- Protect and enhance the road network

### **Action 1.1.1 New road classification**

A new road classification will be introduced to change the way the Council manages road space. New road designs and ongoing operational management will integrate better with the surrounding land use and recognise that roads and streets have a wider function than just moving vehicles. This will give greater priority to people in the design of new streets.

The new classification will replace the road classification in the District Plan, guiding the design of streets to reflect the local environment, and placing emphasis on both people and vehicle movement. Streets will be designed to reflect this relationship, balancing the different needs and demands that users place on them. For example, where streets pass through commercial centres, there will be an increased emphasis on people; street designs could also be used to reduce speed, increase crossing facilities and pedestrian priority measures.

The new classification will give guidance to how the network should function, be designed and used. Figure 5.2 is an example of what the new classification framework could look like when applied to the road network, more detail is provided in Appendix C. This example identifies both the link (movement

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<sup>26</sup> For the purposes of this Plan, road space refers to the entire width of the road corridor

function) and place types of streets in Christchurch. The classification would be used to influence the design and then operational management of road space, so that it reflects both the link and place types identified on the classification. The new road classification builds on the concepts already developed in the Draft Central City Plan. This introduces four extra local road categories to represent the local environment better. Similar road hierarchies have been developed overseas such as Link & Place in the UK and Smart Roads in Melbourne. Technical Appendix C provides more detail into the road classification and draft levels of service. The principles for the road classification are:



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



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



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



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



**Attractive cycling network, improving safety, connectivity, visibility and reducing conflict with all other modes**

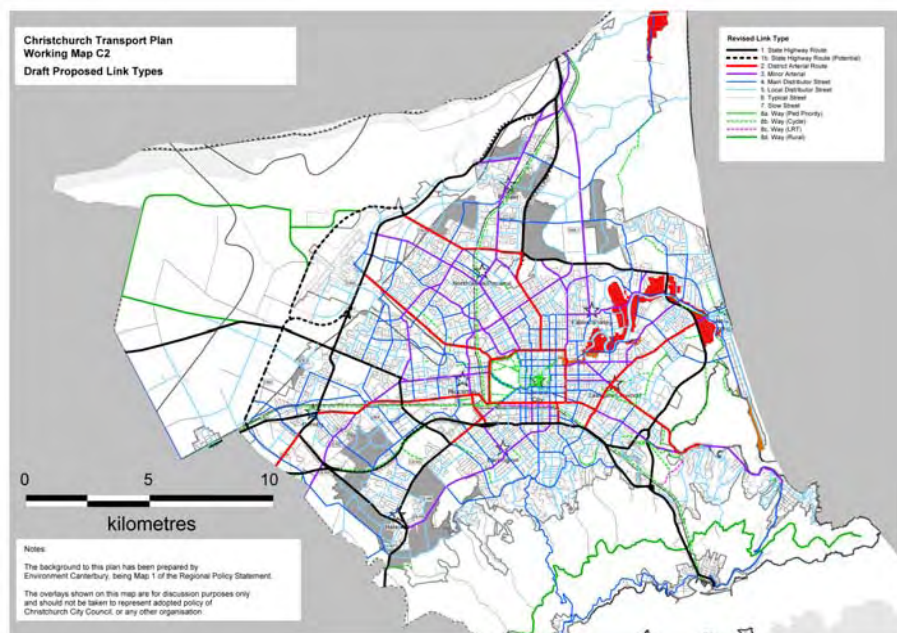


**Attractive commercial centres for people and business with good connections by all modes**

To make more of the existing road space the activities are to:

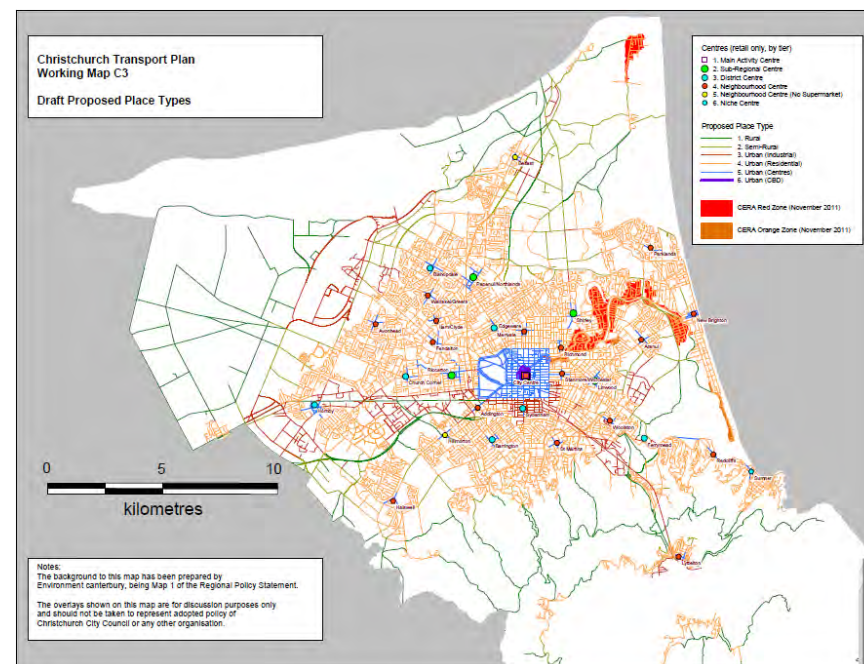
**Develop and adopt a new road classification:** a new road classification will be developed further and incorporated into the District Plan and Infrastructure Design Standards. This will ensure future developments recognise the new classification and give guidance for road and intersection operational management and renewals across the city. The draft Central City Plan has already adopted the concepts of the new classification in the associated plan changes.

**Streetscape Improvements:** the Council will take leadership in implementing the new classification during infrastructure planning, rebuild, renewal and improvements. Where appropriate, streetscape improvements will be prioritised in the Central City, activity centres, suburban centres and new growth areas.



Application of link type classification to road network

Figure 5.2: Example application of the new road classification



Application of place type classification to road network

### Action 1.1.2 Priority tool

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

The priority tool is a mechanism for network planning that helps to alleviate conflict by assigning a greater priority to one type of movement (freight, public transport, general vehicles or active transport) while recognising the importance of other demands on that road, Figure 5.3. The network plans (strategic road, freight, public transport, cycling and walking) in objective 1.2 of this Draft Plan, the aim is to identify priority corridors for each movement type. 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 corridor planning will determine the best design for these roads.

To manage conflict the activity is to:

**Develop and adopt a priority tool:** to assign a greater priority to one type of movement on busy corridors. The priority tool will be adopted to support the new road classification and changing road spaces on busy roads, and will be developed following adaptation of recognised international best practice approaches, such as Smart Roads in Victoria, Australia and Link and Place (Manual for Streets), United Kingdom.

**Shared priority streets studies:** further detailed corridor investigations will be undertaken to determine how a street should function to accommodate all of the user needs – public transport, cycling, people and vehicle movement.

### Action 1.1.3 Protect and enhance the road network

Maintenance and operational management of the road network in Christchurch is essential to make it easy to move around, maintain efficiency and connectivity and to improve resilience. Activities will continue to focus on:

**Road maintenance, rebuild, renewals and parking management:** road maintenance and renewals are essential to ensure the quality and level of service on the existing network is retained where it is consistent with the role of that road in the new road classification. Traffic control systems and parking controls will be reviewed to support the vision by gradually placing less emphasis on efficiency for vehicles on all roads across the hierarchy, but instead efficiency improvements will focus on the strategic road and freight networks. The management of parking on our busiest strategic roads has a significant role to play in the efficiency of our total network. Where appropriate, local parking is a key part of network management and essential for the economic vitality of our commercial centres; however this does need to be better balanced 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,

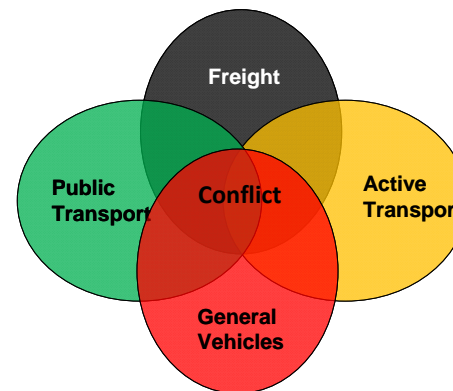


FIGURE 5.3: Conflicting demands on busy roads

commercial centres and at large community facilities. The new road classification and priority tool will be applied to change the way road space is managed, especially in commercial centres that adjoin key arterial routes. 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.

**Road upgrades:** to keep Christchurch moving, new infrastructure is essential to improve access to the airport and Lyttelton Port, cross boundary connections and to connect new commercial and residential growth areas in the city. 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. The need for new infrastructure in growth areas and to support growth is recognised within the Urban Development Strategy, Christchurch Rolleston and Environs Transportation Study, the South-West Area Plan and Belfast Area Plan and is reflected in the New Zealand Transport Agency (NZTA) Roads of National Significance (RONS) programme. Increasing electronic messaging on the road network will also help to improve efficiency of vehicle movement.

**Improving resilience and reducing risk:** a programme of natural hazard mitigation and improvements to the transport infrastructure will improve the future resilience of the network. The programme will identify the vulnerabilities of infrastructure and strategies for reducing risk, improving readiness, response and recovery.

## **Objective 1.2: Balancing the network**

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

The network will improve access and choice by rebuilding and maintaining our existing networks, adding to strategic network capacity for traffic and freight, while at the same time looking to capitalise on opportunities to improve the public transport, cycling and walking networks. Some of these improvements will happen on the state highway network, while many will take place on the Council-controlled local roads. During the 30-year implementation of this Plan, the aim is to create a more balanced network that offers travel choices and a greater efficiency for the movement of goods and services. Freight connections will be made more reliable between the airport and Lyttelton Port and the state highways. Christchurch will have a high quality, reliable and affordable public transport network, the increased reliability of services offering residents genuine choice. The Council will investigate the potential for rapid transport services to compliment bus-based services across the city and beyond. Christchurch will also become a top cycling city, offering a travel choice which is attractive, safe and an accessible transport choice. A culture of walking will develop with integrated, connected and inviting 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 easier for visitors to move around the city. The future network for roads, public transport, cycle and walking are in Figures 5.5 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 and subject to public consultation as part of the implementation of this plan.

The actions for one network are to integrate the:

- Strategic road network: state highways, arterials and freight

- Public transport network
- Cycle network
- Walking network

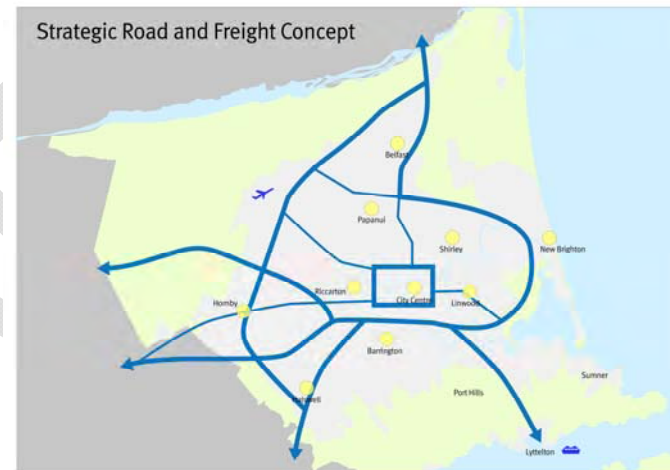
### Action 1.2.1 Strategic road network and freight network

*Journey reliability on strategic roads, reducing conflict with adjacent land uses and other modes. Freight journey reliability on designated freight routes reducing conflict with adjacent land uses.*

Christchurch has a strong strategic road and freight 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 ports, airport and commercial centres for the distribution and delivery of goods by air, sea and rail. The concept of the strategic network is illustrated in Figure 5.6. 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 5.7, are the state highways, which during the life of this Plan, are expected to undergo significant expansion and enhancement to the south, north and west of the city. To support the state highways, there will be accompanying enhancements to the local roads managed by the Council. Significant improvements are 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. The state highway network also has a focus on providing national and regional access to Lyttelton Port and the Christchurch international airport. The strategic freight network is shown in Figure 5.7. The actions for the freight network are in Goal 3: Supporting Economic Vitality.

The Government is investing in improvements to the state highways through the Roads of National Significance programme. The programme 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 management of the strategic road network between the Council, NZTA and UDS Partners. This will be founded on a one-network approach to network management.



**Figure 5.6: Strategic road and freight concept**



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 Roads of National Significance, 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 make maximum 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 Roads of National Significance. 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 Roads of National Significance 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
- Roads of National Significance 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 arterial roads 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.

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

**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 the economic vitality goal.

**Demand management:** the motorways and key arterial routes should be supported with measures to reduce the reliance on single occupancy vehicles. A programme of measures will be jointly established by the UDS partners and implemented to commence with the planned extensions and enhancement of the local motorways network. Measures may include both operational and infrastructure projects linked to behaviour change programmes: e.g. intelligent transport systems, variable messaging system, high-occupancy vehicle lanes, improved parking management, pricing, park and ride and area wide information services.

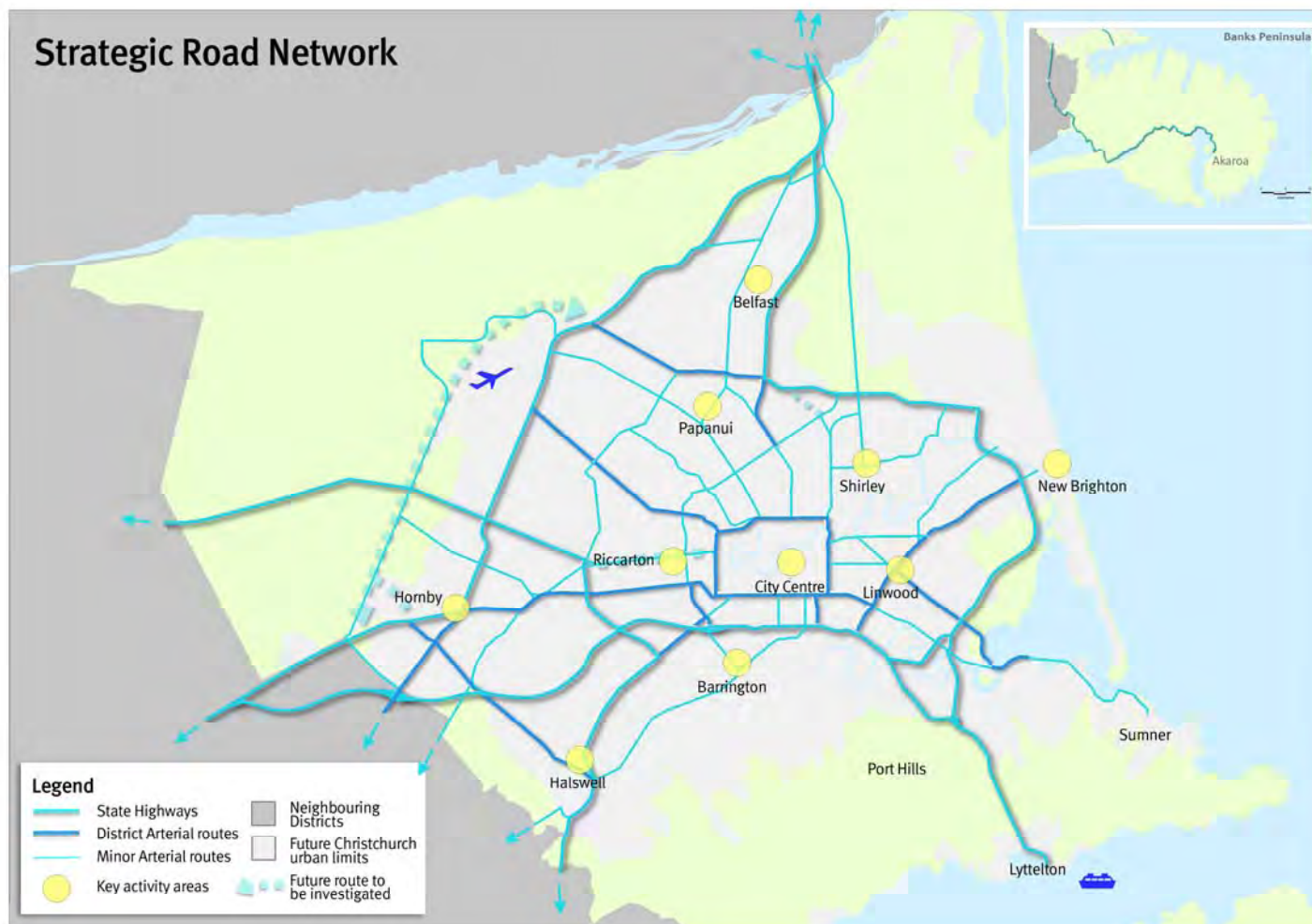


Figure 5.7: Strategic road network



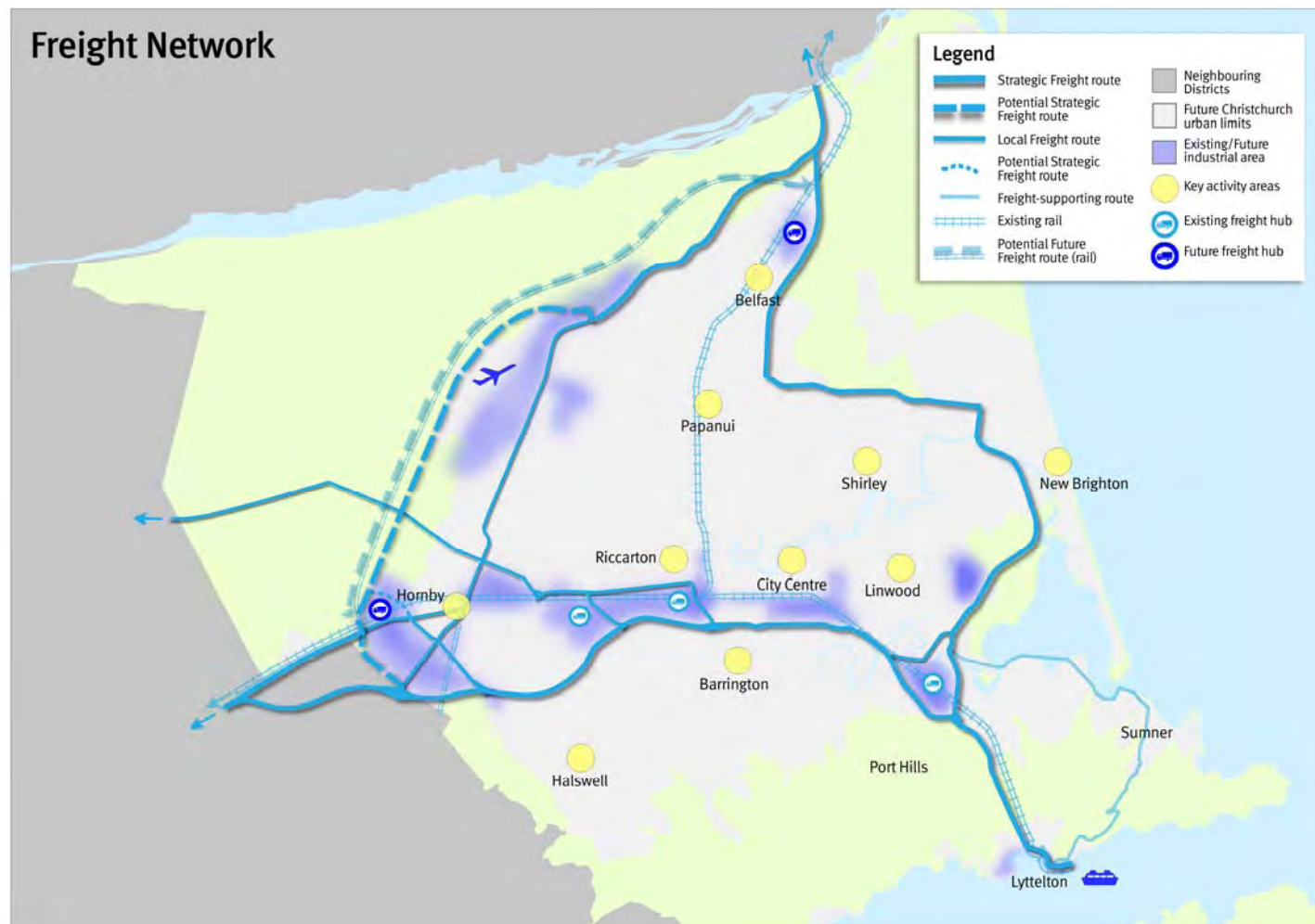


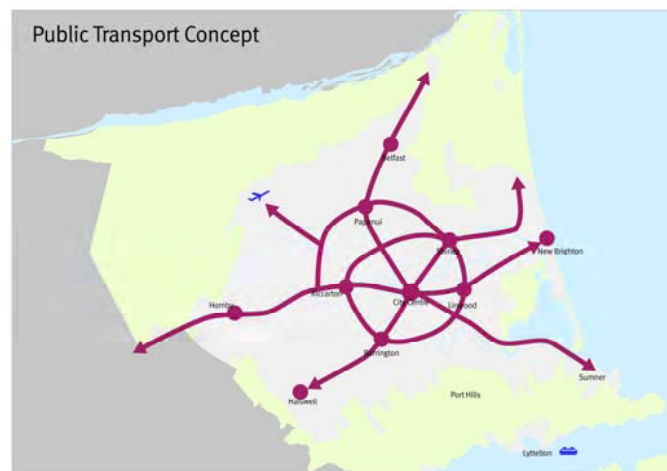
Figure 5.8: Strategic freight network

### Action 1.2.2 Public transport network

*Attractive and efficient public transport corridors to enable journey reliability and provide good connectivity with other modes.*

Making public transport more attract 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 services and patronage in 2011, the effect of this on the road network was evident in the severe congestion across the city as more people took to their cars. The 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.

To provide attractive public transport with good connections to Key Activity Centres, investment is needed in quality infrastructure which improves the priority and reliability of services and make it easier to change services. The concept of the public transport network is illustrated in Figure 5.9. The Regional Land Transport Strategy (2012-2042), the Regional Passenger Transport Plan (being updated in 2013) and Greater Christchurch Metro Strategy set a clear direction for public transport within Greater Christchurch. This recognises that public transport services will play a more significant, and increasingly important, role in the transport system. Focusing services and investment in developing quality infrastructure and priority measures along core corridors and strengthening 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.



**Figure 5.9: Public transport concept**

Integrated public transport and land use planning decisions can transform the development potential of cities. While it is difficult to measure the economic 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<sup>27</sup>. Increasing the reliability and attractiveness of public transport will boost patronage, lead urban regeneration and help to manage future congestion. Further analysis into these potential benefits in the Christchurch context is essential. Public transport corridors need to be protected early to provide space and certainty for future rapid transit. Public transport will be transformed through the use of rapid transit, public transport priority measures, high-quality interchanges and super stops. The network needs to be fully integrated with walking, cycling, taxis and parking facilities. Reliable and frequent public transport is critical to providing people with access and transport choice.

The introduction of quality public transport infrastructure, such as public transport priority, will improve travel time reliability for public transport, thereby increasing its attractiveness relative to private vehicle travel. Public Transport priority measures are techniques used to give priority over general traffic.

<sup>27</sup> Parsons Brinckerhoff (2011) Rapid Transit Economic Impacts Research (Unpublished research for Central City Plan)

To transform public transport the activities are:

**Rapid Transit:** the UDS partners will develop a Public Transport for Greater Christchurch Study, including heavy rail, light rail, bus ways and bus. 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 corridors:** identify and prioritise corridors to be designated and protected now to provide direct connection for rapid transit to the Central City, growth areas, commercial centres and to surrounding districts. The core public transport corridors are indicated in Figure 5.10. Once the rapid transit investigation has progressed, the next priority is to 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 that public transport services can be provided as new demand areas grow.

**Quality public transport infrastructure and priority:** the Council will work with Environment Canterbury (Regional Public Transport Plan) to support the recovery of frequent, reliable and attractive public transport services. Investment in quality measures, like public transport priority, will improve the reliability of cross boundary connections and connections to the Central City and other commercial centres. 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):** 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 5.10. 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, working with 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.

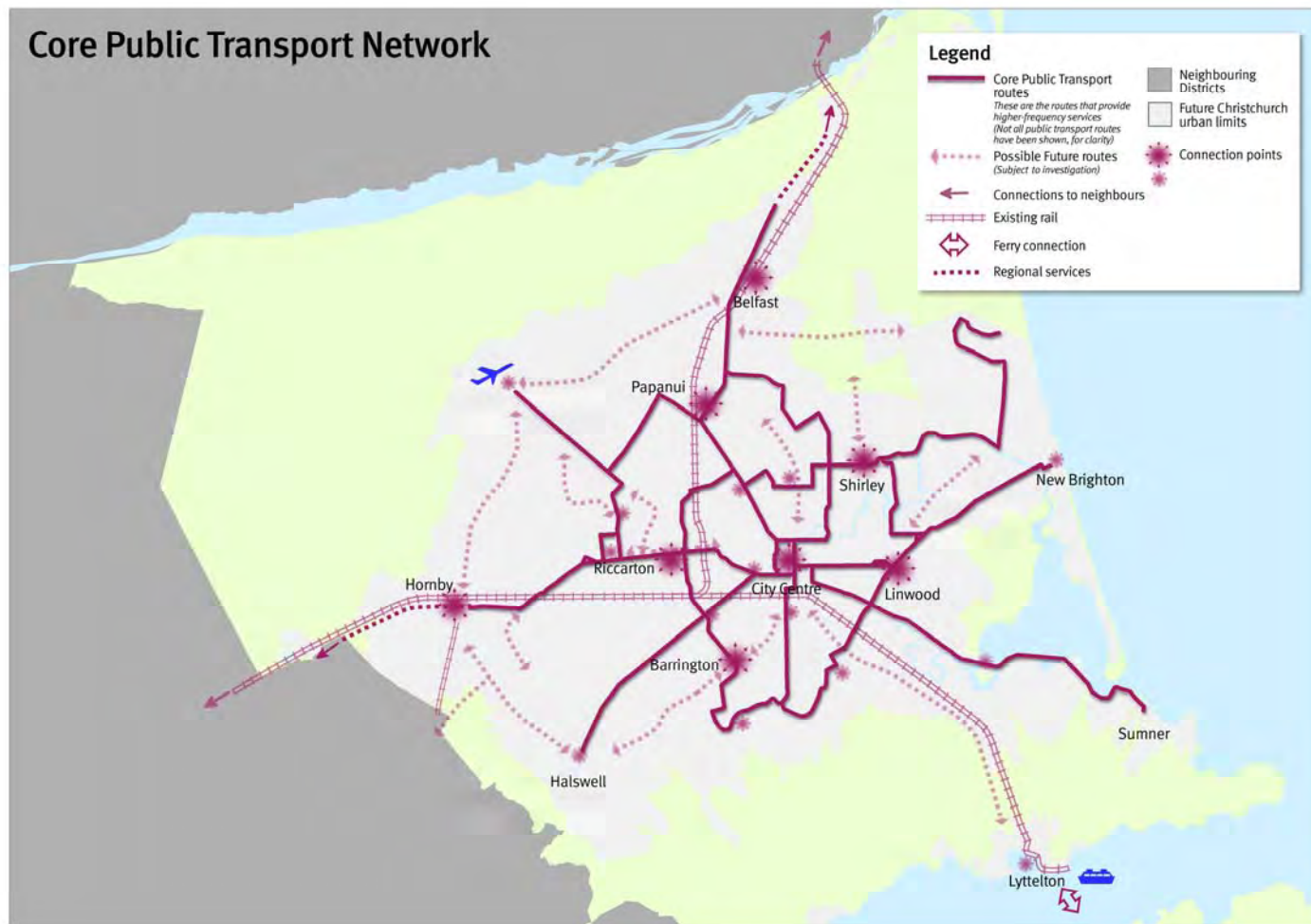


Figure 5.10: Core public transport corridors

### Action 1.2.3 Cycle network

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

The importance of cycling to the rebuild of Christchurch was a strong theme raised during public consultation on the draft Central City Plan. The Council recognises this and has placed a strong emphasis on making cycling more attractive across the city. The introduction of major cycle routes will raise the bar and dramatically improve the cycling experience in Christchurch, the development of these exemplar routes will be a key priority in the delivery of the network.

The rebuild of the road network presents a unique opportunity to improve the cycling infrastructure at a significantly lower cost than retrofitting. These opportunities will present themselves across the network as the rebuild takes place. It is vital that the Council works together with its UDS partners to identify and capitalise on these opportunities.

*“Driving a mile to the store for a quart of milk seems to me as much overkill as using a high-powered nail gun to hang a picture” Jeff Mapes author of Pedaling Revolution: How Cyclists are Changing American Cities.*

As a transport choice, cycling has a greater distance range than walking and can be faster and offer more reliable journey times than motorised transport for short journeys<sup>28</sup>. Fifty per cent of all car journeys in Christchurch are under five kilometres<sup>29</sup>. The Plan’s main focus is on improving connectivity and making cycling more attractive for short trips less than five kilometres.

There are many potential benefits for making it easier for Christchurch residents to cycle for short trips and for recreation, including: improved health and wellbeing, reduced congestion and energy dependence; roadway cost savings; reduced parking problems and costs; greater and more equitable transport choice; increased social interaction; and community resilience.

Around 2.2% of all household trips in Christchurch are by bicycle<sup>30</sup>. Figures show that 15% of people regularly cycle, and a further 32% are seriously thinking about cycling.<sup>31</sup> The Plan will primarily aim to encourage cycling by new and novice cyclists particularly for commuting, whilst also facilitating people who already cycle. In a nationwide study, potential utility cyclists stated a strong preference for cycle facilities with separation from motor vehicles and dedicated intersection facilities<sup>32</sup>. Improving the visibility of cycling and the provision of good cycling infrastructure is needed to achieve high levels of cycling. Other

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<sup>28</sup> McClintock (2002) The mainstreaming of cycling policy

<sup>29</sup> Ministry of Transport (2010) Christchurch Household Travel Survey 2009/10.

<sup>30</sup> Ministry of Transport (2010) Christchurch Household Travel Survey 2009/10.

<sup>31</sup> LTNZ (2006) Research Report 294: Increasing Cycling and Walking: an analysis of readiness to change

<sup>32</sup> NZTA (2011) Research Report 449 Assessment of the type of cycling infrastructure required to attract new cyclists.

factors also contribute to achieving more cycling in Christchurch, including encouraging recreational cycling, mixed land use, housing densities, legislation, enforcement, health promotion and national funding.

Internationally, cities have begun urban regeneration processes by reclaiming space from the car and encouraging walking and cycling as a means of social and economic revitalisation. Cities which have achieved measurable shifts to cycling have demonstrated significant value for money. For example, Sydney, Australia is investing in a Regional Bicycle Network, calculated to deliver minimum benefit cost ratios of 3.9 to 1<sup>33</sup>. Examples of other cities such as Copenhagen, Denmark; Tilburg and Amsterdam, Netherlands ; London, England; Portland and New York, USA; show similarly successful results<sup>34</sup>.

Providing safe, comfortable and connected cycle routes will optimise the efficiency of the overall transport network as demonstrated in cities around the world, with strong leadership, significant investment and ongoing commitment, cycling becomes a popular choice for short trips and recreation. The health benefits of active travel are well recognised and documented in the Health Impact Assessment (Appendix A).

Given the scale of the cycling network the implementation of the entire project will take many years. Despite this there are interim measures that can be put in place to improve safety in the short term. These temporary measures will include increased levels of separation where opportunities are available as a result of building demolition. These interim measures will also earmark specific routes, making people familiar and comfortable with new routes.

The approach to increase cycling numbers is to develop a connected cycle network that targets different user needs as illustrated in Figure 5.13. This will be supported by the application of best practice guidelines to deliver safe, comfortable facilities for a range of users. The cycle network will develop over the 30 year period of the plan. More detail regarding route priority will be provided at a later date following compressive studies, therefore any network detail in this plan may be subject to future change. To create an effective cycle network, will require implementing the three layers of cycle network, improved cycling facilities and a targeted approach for education and promotional campaigns, these activities are outlined below:

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<sup>33</sup> AECOM (201) Sydney Inner City Regional Bicycle Network Demand Assessment and Economic Appraisal

<sup>34</sup> I-CE (2000) The European Network for Cycling Expertise / The Dutch Cycling Embassy



### Major Cycle Routes:

These routes are designed for all bicycle users and a range of cycling abilities. New and novice bicycle users will benefit from the high level of safety on these routes as a result of increased road separation. Recreational users will be able to take advantage of Christchurch's many parks and picturesque surroundings as routes will capitalise on green spaces that offer direct routes, notable examples will be the City to Sumner, Northern and Avon River routes. This potential for creating cycling 'short cuts' will result in more direct routes, this coupled with the high volume capacity will make routes highly desirable for commuter users. These routes will offer direct links between popular origins and destinations including key activity centres and the University.

These will be exemplary routes with a large degree of separation from high volumes of traffic giving users a high actual and perceived level of safety. As part of the 'one network' approach, where it is appropriate, routes will avoid major arterial roads again increasing safety levels and providing better network management. All routes will be located on high-demand corridors and look to connect popular destinations such as key activity centres, tertiary institutions and schools. The concept for these cycle routes is illustrated in Figure 5.11. Given the layout of Christchurch's road network there will inevitably be places where routes will be required to cross arterial roads, on these occasions a high level of safety and priority measures will be implemented. A mix of designs may be applied throughout the major cycle route network depending on the route, for example increased pathway widths and introduced lighting on park paths, complete separation on busier roads or bicycle boulevards on quieter streets. These routes will include good signage that will directly target bicycle users. Exceptional bicycle parking facilities will be provided at all destinations. The major cycle route network will be dedicated to providing all bicycle users with a high level of comfort, making cycling in Christchurch a unique and enjoyable experience that people want to repeat again and again.

All major cycle route developments will include a targeted education and promotion package to ensure the maximum amount of people take advantage of the route. To signal a change to cycle priority in the short term, some routes may have transitional improvements which will start to increase the visibility of cycling on that corridor.



Comment [RF1]: All of these are sample images to be developed with comms team.

Figure 5.11: Cycle route concept



### Local Cycle Routes:

Local cycle routes will have a variety of purposes, primarily they will provide safe connections for people who want to access the major cycle routes. Although major cycle routes are targeted at all bicycle users, it is envisaged that some bicycle users who are confident cycling on the road and are not located within the immediate vicinity of a major cycle route will prefer to use the road network to reach their location, the local cycle network will allow them to do so safely. Schools offer a great opportunity for cycling, local cycle routes will serve the majority of schools in Christchurch offering pupils a safe environment in which to cycle. The application of the local cycle routes to the transport network is illustrated in Figure 5.12, the exact location of these routes are indicative and will be further investigated through the implementation of this plan.

Routes will be primarily on road with provision being provided by traditional cycle lanes. However, more thought will go into the design of the cycle lanes with greater consideration being given to international best practice standards, these include providing cycle lanes between footpaths and parked cars rather than between parked cars and carriageways, making cycle lanes more visual and where necessary placing intermittent rumble strips between cycle lanes and traffic to These measures are aimed at making traditional cycle lanes considerably safer for people. Junctions are the most dangerous environments for bicycle users therefore it is vital that they are well thought out and appropriate safety measure are put in place.

The one way system in Christchurch makes cycling in and around the city centre difficult therefore where it is safe to do so (for both bicycle users and pedestrians) shared pathways may present options to increase legibility. To cater for new people cycling all routes will have cycling specific signage.

Work will focus on the completion of existing cycle routes and filling in the gaps in the network, safety improvements at pinch points and upgrading sections with contemporary safety and design standards.



Figure 5.12: Local and key recreational route concept



Comment [RF2]: The photo's will be updated by comms team.



### Key Recreational Routes:

The recreational routes shown in Figure 5.9. will cater for two types of recreational user: sport orientated bicycle users who often travel at fast speeds and travel long distances and slower casual bicycle users, people who will use the routes for leisure purposes e.g. families, tourists etc. The needs of these people are different therefore it is vital that where appropriate recreational routes are wide enough and designed to accommodate both groups.

Recreational routes play an important role in improving peoples confidence, research<sup>35</sup> has suggested that recreational cycling is an important step for people making the transition from being a non bicycle user to a regular bicycle user. The main priority for recreational routes is that they are as safe as possible. Recreational routes will be delivered in a variety of ways, some will be major cycle routes that follow a route that is desirable for recreational cycling, some will be paths in parks or others may be cycle lanes on rural roads. Routes that will be highly desirable for leisure users will be off-road as much as possible, these will include shared paths through parks and along the coast, these will not necessarily be direct routes and will be more concerned with connecting recreational facilities via an attractive route. There are also recreational routes that will be accommodated on-road, Summit Road is one such instance, in these cases safety improvements will be provided and the needs of bicycle users will be taken into consideration for any future layout changes.



**Comment [RF3]:** Example photo's these will be updated by Comms.



**Facilities, Education and Promotion:** the provision of cycle parking, cycle hire schemes and other cycle facilities will be in line with the network development. A targeted education and promotion programme will complement the infrastructure improvements to raise awareness and promote the benefits of cycling.

**Infrastructure Design Standards and District Plan:** review the Infrastructure Design Standards and policies in the District Plan to reflect contemporary cycle standards. There will also be a focus on improving provision for cycling on non designated routes; this will mainly come in the form of improved road design. Improving maintenance levels of cycling infrastructure is important for enhancing the network's longevity.

<sup>35</sup> Department for transport (2011) [New Ways to Increase Cycling - Lessons from the Finding New Solutions Programme](#)



Figure 5.13: Strategic cycle network

#### Action 1.2.4 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 to spend time in. Twenty-two percent of all trips in Christchurch already involve walking. 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 concept for walking is illustrated in Figure 5.14.

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 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, safety, planning and programming. Priority will be given to improving connections between communities and schools, super stops, commercial centres and car parks.

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

**Design criteria and streetscape plan:** will be developed and used to identify where improvements to existing facilities are needed. The design criteria will enable walking to be embedded into the design of new growth areas and developments. A streetscape plan will be developed to guide streetscape improvements across the city, in line with the Central City Streetscape Plan.

**Walkable centres:** the Council will seek opportunities to lead innovative walking initiatives to create vibrant commercial centres. The focus will be to support the recovery of suburban centres. Commercial centres will be designed for people. Streetscapes will have attractive footpaths, traffic will be slowed and pedestrians will be 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 5.15. 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 network planning on walking. A map of existing core routes and quality information will inform the improvements

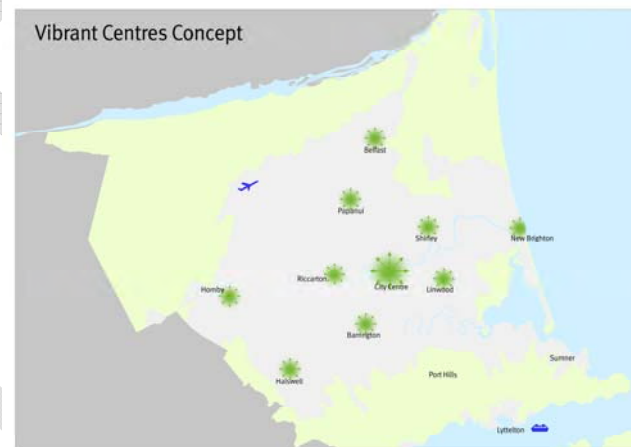


Figure 5.14: Walking in vibrant centres concept

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 and well lit to ensure pedestrian safety.

**Local safety improvements:** will focus on the safety of vulnerable road users, ensure ease of walking, especially to cross roads and identifying, improving and enforcing access for all, especially for those with lower levels of mobility. The first priority will be to improve local connectivity to bus stops, places of work and shops in the growing employment areas to the west of the city. The safe routes to school programme places emphasis on safe, convenient walking routes to schools to create a culture of walking at an early age.

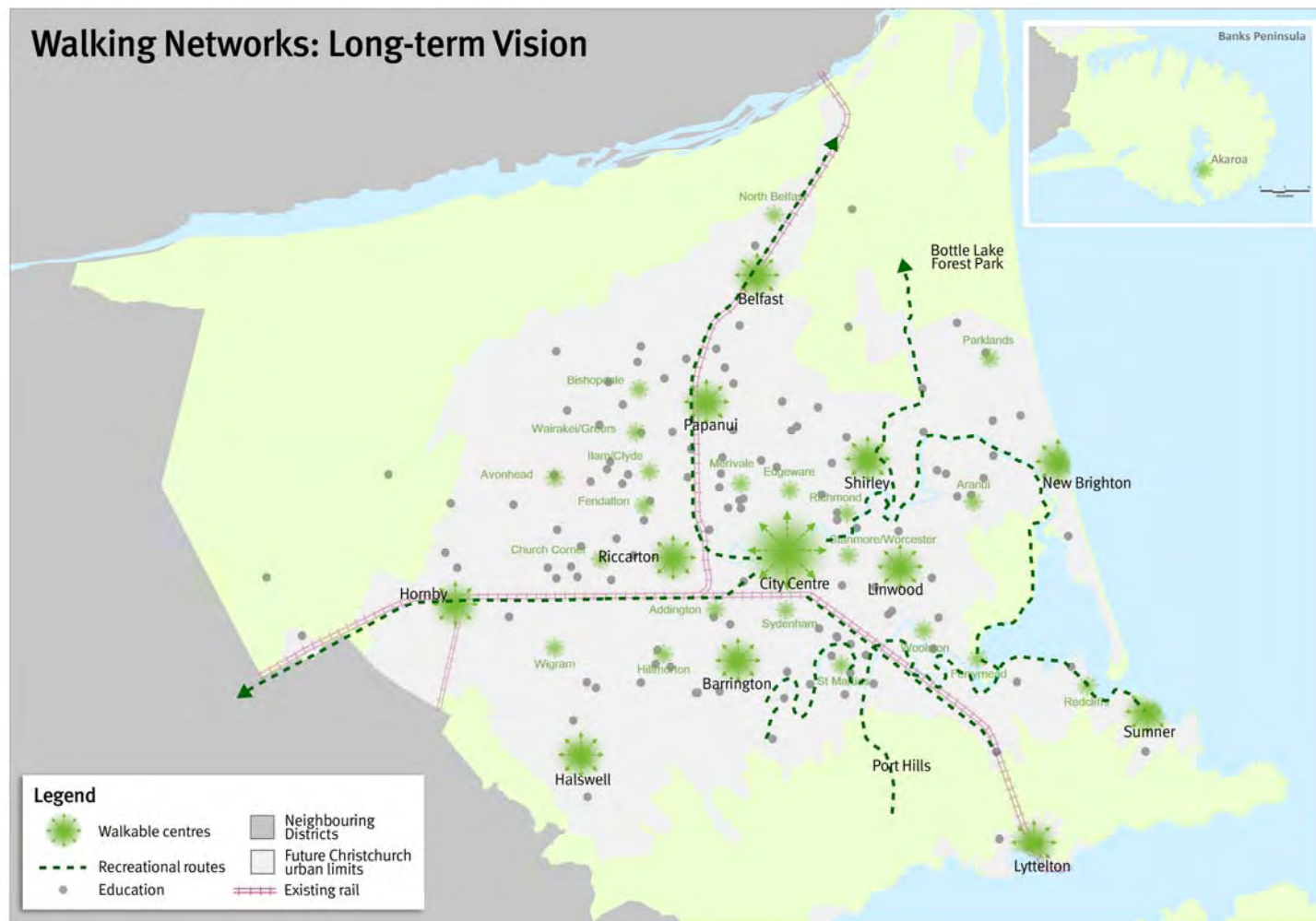


Figure 5.15: Strategic walking network

### **Objective 1.3: Deliver high-quality information and education services**

*Providing travellers with information and education to help them chose more efficient and healthier ways to travel*

A network which provides a variety 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 and options on how and when to travel. By encouraging people to travel differently - by public and active transport, car pooling, travelling at different times, and shortening or combining trips - the roads will carry more people with less congestion.

Access to accurate and up-to-date information and promotional services will 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. The delivery of these services is closely linked to the availability of travel choices and will leverage off and enhance network and service improvements to increase overall efficiencies.

Through the more immediate short-term recovery and rebuilding period, the primary focus for information and educational services is for a service-oriented approach to support travellers with the best available transport information in order to maximise access to businesses, institutions, shops and other key destinations.

Over time, as network and service enhancements take place and new infrastructure is established, information and educational services will play a greater role in encouraging people to think about the way and when they travel. There are many challenges facing the Christchurch transport network, along with an equal number of opportunities to deliver higher-value services. However, there are limited resources to tackle all opportunities at once. A key principle will be to focus on the delivery of these services to strategic geographical locations and achieve clear results rather than build momentum for future growth.

As the city evolves, there will be a continuous shift in the focus of these services to meet the needs of the city 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 adapt to meet new priorities as regional land use patterns change.

The delivery approach for these services includes city-wide information services and more in-depth educational programmes targeting strategic geographic locations, such as the Central City (offering proactive support for returning businesses, workers and shoppers), strategic corridors (within the transport network experiencing the greatest strain) and areas of new residential and commercial growth and recovery areas.

The actions for information and educational services:

- City-wide services



- Targeted geographical services :Central City services, strategic corridor services, area wide services

### Action 1.3.1 City-wide services

**Transport for Christchurch regional information tool:** The Transport for Christchurch website is a travel information tool that provides real-time, map-based updates on the status of the regional road network, such as road closures, current road works, roads re-opening and upcoming special events. Over time the information tool will evolve and expand its services to include:

- Real-time information updates on bus route and bus stop changes, current status of key cycling corridors, car park locations and status and more,
- Multi-modal journey planning to provide users with comparative information on ways to travel between point A and B, along with supporting resources, such as car pool matching tools; and
- Communication avenues beyond the website platform, such as real-time e-mail and/or SMS/phone apps with network information alerts sent to users of specific transport corridors.

The Transport for Christchurch regional Information tool will also serve as the foundation for the delivery of targeted geographical services.

**Technology services:** information technology offers tools to, reduce costs and improve decision-making. Smart cards, e-business portals and intelligent transportation systems are some of the existing technology available. These bring significant improvement in transportation system performance, including reduced congestion and increased safety and traveller convenience. More technology options will emerge over time and making better use of these is a key service to be delivered through this Plan.

**Wayfinding plan:** consistent signage and mapping will enable easy wayfinding around the city for all transport options. The wayfinding plan will be consistent with the Draft Central City 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 the places significant to Māori.

### Action 1.3.2 Targeted geographical services

**Central City services:** Support for returning business and workers returning or relocating to the Central City. Services will include location-specific guidance on building facilities for developers, property managers and businesses before the move, development of tailored information outlining all transport and parking options, on-site commute consultations with returning staff members, and a programme of promotions and events.

**Strategic corridor services:** Programmes involving travel choices information and marketing will be implemented to improve network efficiency and reduce congestion by highlighting travel choices on key transport corridors throughout Christchurch. This will include tailored information provided directly to

adjacent households and businesses outlining available public transport links and quality cycling routes to key destinations, as well as real-time alerts on network disruptions or enhancements for the corridor, delivered as part of the Transport for Christchurch regional information tool.

In addition, access planning services will be offered to major trip-generating destinations, such as universities, hospitals, large employers, and/or dense clusters of workplaces and schools. These access plans will be tailored to the requirements of each organisation and will include recommendations for improving walking and cycling facilities on site as well as corridor-wide promotions and linkages to Transport for Christchurch information services.

**Area-wide services:** Programmes involving information and marketing and travel planning to target specific residential and commercial areas will be implemented as new developments and transport infrastructure and services come on stream. The programmes will be targeted and the actions specific to the needs and opportunities for each geographical area.



## Goal 2: Creating safe, healthy, liveable communities

Outcome:  
Strong  
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 5km 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<sup>36</sup>.

To create vibrant, healthy, liveable communities the objectives are to:

- Objective 2.1: Support recovery
- Objective 2.2: Effective and integrated land use and transport planning
- Objective 2.3: Safer systems

### 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:

- Connecting and delivering Central City transport recovery
- Rebuilding suburban centres
- Supporting new growth areas and intensification

<sup>36</sup> CCC (2010) Christchurch Transport Plan: Health Impact Assessment

### Action 2.1.1. Connecting and delivering Central City transport recovery

The draft Central City Plan sets out how the Central City will be rebuilt following the earthquakes. The Plan gives the Central City a new look, vibrancy and confidence for increasing investment in the heart of Christchurch. A key principle of the Plan is that the Central City will be easier to get to and move around. To do this, the central transport network will be designed to create a safer and more pleasant environment in which to walk, cycle, use public transport or drive and park with ease. This will change the way people travel to and from the city, with a huge shift towards walking, cycling and public transport. Changes to the transport network are illustrated in Figure 5.16. The Central City Plan also supports residential growth in the Central City. Transport projects include: public transport investigations; bus and street stations; slow core; main streets; cycling streets; enhancing the avenues; one-way to two-way; parking and servicing; and wayfinding.

The activity will focus on:

**One transport system:** to improve access to the Central City a coordinated programme of city-wide network improvements (as outlined in Goal 1) are required. The programming of these will align with the implementation of transport projects in the Central City.

### Action 2.1.2 Rebuilding suburban centres

The recovery of the most damaged suburban centres is being supported in 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, Environment Canterbury and the Canterbury Earthquake Recovery Authority.

### Action 2.1.3 Supporting new growth areas and intensification

Recovery of the transport system will be undertaken in a manner that first identifies changes to short, medium and long-term travel demands created by changes in land-use patterns (through a re-run of the Christchurch Transport Model). This new understanding of travel demands will inform the short and



Figure 5.16: Central City Plan transport network

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 when and where possible, 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.

**Build Environment Recovery Programme:** The Council is working work with the UDS partners and Canterbury Earthquake Recovery Authority (CERA) to develop and implement a Built Environment Recovery Programme to support the Earthquake Recovery Strategy. Greater Christchurch transport programmes and plans play a key role in the recovery programme. An overarching strategic statement for transport has been developed:

*“The transport network and services will be developed and operated as a ‘one (balanced and integrated) system’ to offer travel choice for all people and businesses. Priority will be given to works that restore strategic transport links damaged by the earthquakes, provide access to affected communities and facilitate the development of land to meet short-term housing demands and business needs. A reduced level of service is to be accepted across the transport network until priority work is completed and funding becomes available to improve accessibility and travel choice.”*

In Christchurch, many residential suburbs have low densities of 10 households per hectare. The dispersed growth increases travel distances and the costs of providing infrastructure. Since the earthquakes, the UDS and Regional Policy Statement have been updated to take into consideration the needs of the rebuild along with future growth. Existing area plans for the south-west are being reviewed and area planning in the north is being expanded to incorporate new development areas that have been accelerated as a result of an update to Chapter 12A of the Regional Policy Statement. The reviews will look at how best to connect the transport infrastructure to the new developments and into the wider system, as well as providing local opportunities for cycling and walking and public transport. These growth areas, continued growth of the Central City, future plan changes and development in the Selwyn and Waimakariri districts must be connected by a resilient transport system with good public transport, and walking and cycling connections, coupled with travel demand management actions. These are essential to create sustainable communities which are not reliant on private vehicles, especially commuter trips.

## **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 to 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. All relevant policies, plans and programmes need to demonstrate consideration of the: right location, right design, right function and right time. As

well as demonstrating how opportunities for transit-oriented developments (mixed used development along core public transport corridors) have been considered and inequalities addressed.

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

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 **Regional Policy Statement**, specifically Chapter 12A, already reflects this approach, as do the Council's **Area Plans** (Belfast and South-West Christchurch) 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 will be integrated into the next full review of the **District Plan**. Changes should encourage the design of new urban development to promote local trip making with high-quality provision for walking, cycling, public transport and less space for private parking. Changes will promote mixed use development to achieve pedestrian-friendly environments and connected growth areas. **Outline Development Plans** prepared as part of greenfield land developments are also effective mechanisms to promote and achieve a wider choice and use of transport modes. **Integrated Transport Assessment:** NZTA Research 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-orientated development

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:** produce guidelines on good transport design integrated into developments.

**Land value capture, incentives and promotion of development or 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.

### **Action 2.2.3 Addressing inequality**

Transport is an important component of social inclusion and requires fair and equal access for all. Street designs can 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 needs of some population groups should be given greater consideration in transport planning, especially older people or Kaumātua; lower socio-economic groups; people with disabilities; ethnic groups and refugees; and children. To address inequality the activity focus is on:

**Access for all and non-motorised user audits:** Streets will be designed for all users. Audits of new infrastructure designs will be undertaken. Mobility improvements to existing streets will be made where issues arise. Through the audits major projects must consider:

- Those with greatest social and economic needs;
- Partnership principle of the Treaty of Waitangi and other needs of Māori;
- Accessibility for all, particularly for those that face the greatest difficulties;
- Whether transport disadvantaged people can access services and work; and
- Providing affordable transport options.

## Objective 2.3: Delivering safer systems

*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 Council activities requiring the coordination of a large cross section of people, including urban designers, engineers, educators, communicators, planners, academics and the community. Christchurch has priority safety issues that need to be addressed during the next three to five years: intersection safety, young drivers, cycling and motorcycle crashes. While these are issues today, the city's concerns will change over time and our priorities will be adjusted accordingly.

The actions to create a culture of safety are for a safer system.

### Action 2.3.1 Safer system

The framework for safety is set nationally by the Safer Journeys Strategy. The vision is for a safe system in which all components of safety contribute. For Christchurch, a safer systems approach involves addressing the components of:

**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 the levels of speed support the design, function and the level of safety of our transport 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 the design, reflect function and place to make them physically safer, particularly for pedestrians and cyclists. Safety improvements are targeted on hot spots, especially intersections where significant safety issues exist. Crime Prevention Through Environmental Design (CPTED) 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.

**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.

## Goal 3: Supporting economic vitality

**Outcome:**  
Prosperous City

### 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<sup>37</sup> 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 double by 2031<sup>38</sup>.

The rebuild presents a unique opportunity for the city to strengthen the roles of the airport and port; both have the potential to 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 contributing to productivity gains from a reduction in time and costs involved with transport. Investment in congestion management will assist the economy to recover and function more efficiently and help achieve economic growth and improved productivity<sup>39</sup>.

The actions to deliver easy movement and access are for:

- Freight reliability;
- Freight hubs; and
- Parking.

<sup>37</sup> CDC (2010) Canterbury Economic Development Strategy

<sup>38</sup> Christchurch City Council (2010) Freight Review and Study

<sup>39</sup> New Zealand Transport Agency (2010) Frequently Asked Question Roads of National Significance online resource

### 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 Roads of National Significance 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 Auckland and Christchurch. Coastal shipping is vital for the rebuild with the sustainable movement of construction material to the city. The growth in freight movements will increase the flow of goods through both the port and through the key warehousing and distribution centres. The freight task for commodities is expected to increase by about 70 to 75 per cent in terms of tonnes lifted by 2031<sup>40</sup> and a 100 per cent increase is likely by 2040. 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:** NZTA is currently working with airports, ports, freight organisations, KiwiRail and councils across the South Island to develop a picture of South Island Freight. The Council will assist NZTA to develop this picture and understand the impacts on Christchurch's network and what improvements are required to strengthen the roles of the ports and improve the movement of goods in Christchurch.

**Define and protect routes:** a dedicated freight network, as indicated in Figure 5.8, will be designed to encourage freight to travel through industrial, rather than residential areas. This will include the Roads of National Significance, 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 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.

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<sup>40</sup> Ministry of Transport (2008) *National Freight Demand Study*



**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.

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

**Local Freight Management Plans for commercial centres:** the development of Local Freight Management Plans will improve access for freight vehicles servicing commercial centres. Issues relating to queuing space and turning space for freight vehicles affect the efficiency of the freight task and create road safety and amenity (noise, visual) concerns. Similarly, the timing of freight movements has significant impacts on other activities in commercial centres.

**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 Council will encourage work with Kiwi Rail and CIAL to scope out a potential regional freight route west of the airport.

### Action 3.1.2 Freight hubs

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<sup>41</sup>. 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 key freight hubs<sup>42</sup> in Christchurch are: Lyttelton Port, Christchurch International Airport, Middleton Rail Yard, and the Sockburn and Woolston freight areas (Figure 5.8).

*Freight traffic is predicted to increase to 40 million tonnes by 2031*

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

<sup>41</sup> Environment Canterbury (2005) Canterbury Regional Land Transport Freight Action Plan

<sup>42</sup> Environment Canterbury (2005) Canterbury Regional Land Transport Freight Action Plan and Regional Land Transport Strategy (2012 – 2042)

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 e.g. resource consent applications, the Environment Court and High Court. A stronger District Plan is needed to protect our freight hubs.

**Establishing new freight hubs:** Chapter 12A of the Canterbury Regional Policy Statement has identified new greenfield business areas. These areas could be established as new freight hubs. There is a possibility that parts of these areas could be developed as inland ports – locations where goods are offloaded and then transferred to the port (usually by rail). This reduces heavy vehicle movements on the Christchurch roading network and improves freight reliability by enabling freight to bypass road traffic and congestion. Areas that are located at the entrance of city and have good road and rail access, such as Islington will be ideal locations for inland ports. The Council will further assess the feasibility of an inland port with freight organisations, NZTA, ECAN, Lyttelton Port and KiwiRail.

### 3.1.3 Parking

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 - reallocating 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:

**Reallocating on-street parking:** where a shared priority corridor (Goal 1 priority tool) is identified, 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:** more flexible process to increase the Council's ability to respond to change in supply and demand from the market place. The Council will continue to monitor parking supply and demand to ensure an appropriate level of parking is provided.

**Parking management plans:** the introduction of 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.

**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 the lost productive potential of the land. New pricing regimes supported by increased parking enforcement, will over time through mechanisms such as ticketing, gradually be introduced to match infrastructure improvements to 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:** Park and Ride sites provide parking solutions which increase accessibility to centres, while avoiding some of the traffic issues that can be created from having parking facilities within centres. The Council will 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 required.

## Goal 4: Creates opportunities for environmental enhancements

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

Outcome:  
Healthy  
Environments

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

Investing in green transport infrastructure 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<sup>43</sup>, 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<sup>44</sup>. 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 are to:

- Reshape travel demand to reduce emission; and
- Invest in green infrastructure and enhancements.

*67% of green house gas emission and 81% of nitrogen oxides emissions are from transport (Climate Smart Strategy, 2010)*

#### Action 4.1.1 Reshape travel demand to reduce emissions

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<sup>45</sup>” 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 increasing emphasis on increasing vehicle occupancy, developing intelligent transport systems, 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).

To reduce emissions, activities will focus on:

<sup>43</sup> Christchurch City Council (2008) Biodiversity Strategy 2008-2035, Goal 1

<sup>44</sup> Christchurch City Council (2010) Public Open Space Strategy, objective 1.5

<sup>45</sup> Christchurch City Council (2010) Climate Smart Strategy

**Energy innovation:** oil price volatility will increase uncertainty of fuel costs, especially for businesses. In the long term, this plan supports investment in infrastructure to increase the uptake of new technologies, new energy sources and more efficient use of fossil fuels. For example, all new public off-street parking facilities will have flexibility in design to adapt to meet the needs of future generations of electric vehicles.

**Invest in technology:** particularly information technology which will become an important part of our future network. 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 does need to be forward looking and progressive by considering how new technologies can be accommodated, where possible, in the existing network and new developments.

**Encourage increased vehicle occupancy:** more people sharing private vehicles will be encouraged by working directly with major employers. This could be through travel plans and supported by tools, such as a car pooling website and priority parking for car pooling. Priority actions for this are covered under the objective to: Deliver high quality information and education services (Goal 1).

#### **Action 4.1.2 Invest in green infrastructure and enhancements**

Green infrastructure is the living 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 which are comprehensively designed for people, as well as the environment 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 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 help 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<sup>46</sup>, 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.

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<sup>46</sup> Christchurch City Council (2008) Biodiversity Strategy 2008-2035, Goal 1

**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<sup>47</sup>. Decisions about transport affect 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<sup>48</sup>.

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<sup>47</sup> Environment Canterbury (2010) Wider Health and Wellbeing Impacts of Transport Planning

<sup>48</sup> Environment Canterbury (2010) Wider Health and Wellbeing Impacts of Transport Planning

## 6 Implementation

The actions identified in this Draft Plan have been prioritised for their contribution towards delivering the 30-year vision. There is a focus on those actions that are a priority for later funding consideration against the Council's next Long-Term Plan (2013-2022) and the draft 2013 Community Outcomes of that Plan.

The prioritisation process has also reflected the critical alignment of early activities and projects with CERA's recovery strategies, the Regional Land Transport Programme, and partnership projects with the NZTA and ECan. Each action identified has been prioritised against the Plan's Goals and Objectives by a multi criteria assessment.

This Draft Implementation Plan will be subject to submissions on the Plan and will take account of further detailed investigations and costings with partner agencies, notably CERA and the UDS Partners. The Greater Christchurch activities have been integrated into the Draft Plan to increase coordination whilst recognising that each activity is subject to planning and funding processes relevant to each organisation. There are a number of methods which will be used to implement these actions, including regulatory changes, District Plan changes, consents, designations, bylaws, changes to infrastructure design standards and setting new levels of service in activity management plans.

### Goal 1: Improve access and choice

**Objective 1.1:** Use the transport network more efficiently

**Objective 1.2:** Balancing the networks

**Objective 1.3:** Deliver high quality information and education services

**Outcome:** Liveable City

### Objective 3: Support economic vitality

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

**Outcome:** Prosperous City

### Goal 2: Create safe, healthy and liveable communities

**Objective 2.1:** Supporting recovery

**Objective 2.2:** Integrated transport and land use planning

**Objective 2.3:** Safer Systems

**Outcome:** Strong Communities

### Goal 4: Create opportunities for environmental enhancement

**Objective 4.1:** Reduce emissions and invest in green and resilient infrastructure

**Outcome:** Healthy Environments

**Priority actions for consideration in next Long Term Plan (2013)**

Action No.	Action	Activities	Timescale	Rough Cost \$ = < 1 million \$\$ = < 20 million \$\$\$ = > 20 million	Recovery project or relationship to other Plans
1.1.1 1.1.2	<b>New Road Classification and Priority Tool</b>	<b>Develop and adopt a new Road Classification and network prioritisation tool:</b> implement as opportunities arise through recovery plans. Apply classification to recovery projects and plans. Link to Action 2.2.1. <ul style="list-style-type: none"> <li>• Initiate a District Plan change and Infrastructure Design Standards amendments.</li> <li>• Develop a network prioritisation tool in partnership with NZTA and UDS partners.</li> <li>• Streetscape Improvements: apply classification to planning and design of Streets and Transport projects, recovery/rebuild projects and streetscape improvements</li> <li>• Apply classification as opportunities arise through other related plans and programmes</li> </ul>	2012 /13  2012 onwards 2012 onwards  2013 /14	\$	Built Environment Recovery Programme Greater Christchurch Transport Statement Central City Development Unit Suburban Master Plans Stronger Christchurch Infrastructure Rebuild Programme
1.1.2	<b>Priority Tool</b>	<b>Shared priority streets studies:</b> Corridor investigations where there is greatest conflict between different road users or with surrounding land uses. <ul style="list-style-type: none"> <li>• corridors to be determined based on the Networks Plans (in Section 5), shared priority streets are those which have more than priority mode identified.</li> <li>• Studies to deploy newly agreed network hierarchy prioritisation tool</li> <li>• Proposed corridor studies for Riccarton Road, Brougham Street, Halswell, Sydenham.</li> </ul>	2012 /13     2013 - 15	\$	Greater Christchurch Transport Statement Greater Christchurch Public Transport Investigation



Action No.	Action	Activities	Timescale	Rough Cost \$ = < 1 million \$\$ = < 20 million \$\$\$ = > 20 million	Recovery project or relationship to other Plans
1.1.3	Protect and Enhance the Efficiency of Road Network Assets	<p><b>Road maintenance, earthquake rebuild programmes, renewals, corridor traffic management practices and parking management</b> will apply Road Network Management Practices to:</p> <ul style="list-style-type: none"> <li>• Maintain level of service on the network for strategic roads and ensure freight routes are retained. Where possible maximise levels of service within existing corridor boundaries.</li> <li>• Review traffic control and parking management systems to support the Plans vision, goals and objective. Increased emphasis on enhancing the efficiency of existing transport network asset for all road users.</li> </ul> <p><b>Road upgrade programmes will be informed by:</b></p> <ul style="list-style-type: none"> <li>• <b>Local improvements:</b> prioritising, planning and constructing local road improvements to support the earthquake rebuild, new growth areas and economic growth priorities</li> <li>• <b>Rebuild:</b> maximise whole of life costings associated with recovery programmes by providing added value solutions that deliver against the Plans goals and objectives</li> <li>• <b>New Classification:</b> provide quality networks that reflect the new road network classification system and are informed by the forthcoming network prioritisation tool</li> <li>• <b>Resilience:</b> seek to improve network resilience to both emergency events and any future fuel supply shortages.</li> </ul>	2013 onwards	\$\$\$	<p>Greater Christchurch Transport Statement</p> <p>Built Environment Recovery Programme</p> <p>Area Plans</p> <p>Stronger Christchurch Infrastructure Rebuild Programme</p>
1.2.1	Strategic road network	<p><b>Development of strategic road network using a One Network Management Approach</b> working with the NZTA and UDS partners to agree a 'One Network' Approach to strategic network management (integrating</p>	2012/13	\$	Greater Christchurch Transport Statement

Action No.	Action	Activities	Timescale	Rough Cost \$ = < 1 million \$\$ = < 20 million \$\$\$ = > 20 million	Recovery project or relationship to other Plans
		motorways and local roads by all modes). This will include detailed network investigations and modelling analysis of the future networks identified in this Plan.			Roads of National Significance Network Plan
		<b>Local connections to the Roads of National Significance (RONS) programme and neighbouring Districts:</b> <ul style="list-style-type: none"> <li>• <b>Connections:</b> 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</li> <li>• <b>Cross boundary connections:</b> plan and align strategic network cross boundary connections in line with recovery plans and Christchurch Rolleston and Environs Transportation Study.</li> <li>• <b>Travel demand management:</b> improve the efficiency and whole of life value from strategic network investments by implementing demand management measures to reduce the reliance on single occupancy vehicles.</li> <li>• <b>Directional signage:</b> hierarchy of transport signage.</li> <li>• <b>Freight routes:</b> are included in Action 3.1.1</li> </ul>	2012 - 20	\$\$\$	Recovery Plans  Roads of National Significance: Northern Arterial package, Western Corridor, Southern Motorway.  Christchurch Rolleston and Environs Transportation Study
1.2.2	Public transport network	<b>Development and management of public transport by:</b> <ul style="list-style-type: none"> <li>• <b>Rapid transit:</b> the UDS partners will undertake a Greater Christchurch Public Transport Study, options to be consider all forms of public transport, including heavy rail, light rail, bus ways and bus. The study will inform network and corridor protection options.</li> <li>• <b>Protect core public transport corridors:</b> where justified, and as identified through a rapid transit investigation, designate and protect future strategic public transport corridors and infrastructure.</li> </ul>	2012 -14	\$\$	Central City Plan

Action No.	Action	Activities	Timescale	Rough Cost \$ = < 1 million \$\$ = < 20 million \$\$\$ = > 20 million	Recovery project or relationship to other Plans
		<ul style="list-style-type: none"> <li><b>Park and Ride:</b> investigate and plan necessary Park and Ride facilities connected to the core public transport network.</li> </ul>			
		<p><b>Quality public transport infrastructure and priority:</b></p> <ul style="list-style-type: none"> <li><b>Priority:</b> plan, design and implement infrastructure and corridor priority measures to support the core public transport services.</li> <li><b>Super stops and interchanges:</b> establish suburban super stops with interim facilities to support ECan's Public Transport Recovery Plan and Draft Regional Public Transport Plan (2012). Review location of future transport interchange sites and protect.</li> <li><b>Bus stop</b> improvements, renewals and replacements prioritised on core corridors (high frequency service routes).</li> <li><b>Information:</b> improve and extend real time passenger information services (talking and visual).</li> <li><b>Taxis:</b> take account of the needs of taxis at key destinations.</li> </ul>	2013 onwards	\$\$\$	ECan Public Transport Recovery Plan and Draft Regional Public Transport Plan (2012)
1.2.3	Cycle network	<p><b>Planning, development and management of:</b></p> <ul style="list-style-type: none"> <li><b>Major cycle routes:</b> develop a programme for the implementation of major cycle routes. For priority routes, complete detailed design through to implementation.</li> <li><b>Local cycle routes:</b> complete planned local cycle improvements, path maintenance and renewals to enhance safety and local connectivity</li> <li><b>Key recreation routes:</b> influence park plans to improve shared paths on the Avon River, Estuary edge, Heathcote River and links to Little River Rail Trail.</li> </ul>	2013 - 20	\$\$\$	Central City Development Unit "Blueprint" Built Environment Recovery Programme Stronger Christchurch Infrastructure Rebuild Programme

Action No.	Action	Activities	Timescale	Rough Cost \$ = < 1 million \$\$ = < 20 million \$\$\$ = > 20 million	Recovery project or relationship to other Plans
		<ul style="list-style-type: none"> <li><b>Facilities, education and promotion:</b> the major cycle routes are supported by end of journey facilities. Targeted education and promotion to encourage new users.</li> <li><b>Infrastructure Design Standards:</b> update to reflect new standards.</li> </ul>			
1.2.4	Walking network	<p><b>Plan, develop and manage an improved walking environment by:</b></p> <ul style="list-style-type: none"> <li><b>Walkable centres:</b> prioritising walking improvements in centres (commercial and retail) with investment in quality streetscapes incorporating pedestrian facilities. Priority recovery centres include: Central City, Woolston, Sydenham, Lyttelton, Linwood/Stammore, Linwood, Selwyn Street and Sumner.</li> <li><b>Design criteria:</b> all new pedestrian infrastructure meet enhanced standards of accessibility for all. Greater emphasis on management of vehicle speeds throughout the city, with priority placed on centres and streetscape enhancement.</li> <li><b>Local safety improvements:</b> prioritised to focus on safety and ease of walking, especially at busy intersections and as associated with routes to schools, bus stops and commercial centres.</li> </ul>	2014 onwards	\$\$	Central City Development Unit  Suburban Centre Programme
1.3.1 1.3.2	City-wide network efficiency services	<p><b>Develop and implement network efficiency services:</b></p> <ul style="list-style-type: none"> <li><b>City -wide information: Transport for Christchurch</b> regional information centre and website.</li> <li><b>Wayfinding plan:</b> develop a wayfinding plan.</li> <li><b>Central City information and education services:</b> services to support returning businesses and workers - develop, promote and implement - along with access plans for Central City workplaces.</li> </ul>	2013 onwards	\$\$	Greater Christchurch Travel Demand Management Strategy

Action No.	Action	Activities	Timescale	Rough Cost \$ = < 1 million \$\$ = < 20 million \$\$\$ = > 20 million	Recovery project or relationship to other Plans
		<ul style="list-style-type: none"> <li><b>Strategic corridor and area-wide information and education services:</b> promotion of public transport; walking; and cycling corridors. - develop, promote, implement and then expand.</li> <li><b>Develop, promote implement and provide ongoing support for</b> access plans for institutions, workplaces and schools.</li> </ul>			
2.1.1	Connecting and delivering Central City transport	<p><b>Draft Central City Plan:</b> deliver Central City Plan network and provide connections to the Central City.</p> <p><b>One transport system:</b> to improve access to the City Centre, a coordinated programme of city-wide network improvements (as outlined in Goal 1) are required. The programming of these will align with the implementation of transport projects in the Central City.</p>	2013 onwards	\$\$\$	Draft Central City Plan
2.1.2	Improving suburban centres	<b>Suburban recovery:</b> replace transport infrastructure in line with Liveable Streets hierarchy approach.	2014	\$	Suburban Master Plans
2.1.3	Supporting growth areas and intensification	<p><b>Built Environment Recovery Plan:</b> support Greater Christchurch transport planning for recovery.</p> <p><b>Area plans:</b> continue for new growth areas.</p>		\$	Built Environment Recovery Programme
2.2.1 2.2.2 2.2.3	Right location, right design	<p><b>District Plan:</b> road classification applied in recovery to assist integrating land use and transport.</p> <p><b>Integrated transport assessment:</b> guidelines required and applied for new developments.</p> <p><b>Transit- orientated development</b></p> <ul style="list-style-type: none"> <li><b>Developer guidelines:</b> develop guidelines and incentives for successful transit-orientated development.</li> </ul>		\$	<p>Draft Central City Plan</p> <p>Built Environment Recovery Programme</p> <p>District Plan</p>

Action No.	Action	Activities	Timescale	Rough Cost \$= < 1 million \$\$ = < 20 million \$\$\$= > 20 million	Recovery project or relationship to other Plans
		<ul style="list-style-type: none"> <li><b>Land value capture, incentives and promotion of transit orientated development:</b> protecting corridors.</li> </ul> <p><b>Addressing inequality, access for all users:</b> mobility audits and non-motorised audits (NMU) principles are considered in recovery planning. Continued use of quality tactile path markings to assist pedestrian movement for all. Provision for kaumātua (elders).</p>			
2.3.1	Safer systems	<p><b>Safe road use:</b> targeted pedestrian safety education programmes.</p> <ul style="list-style-type: none"> <li>Cycle Safe programme for schools and school safety improvements aligned with school travel plans.</li> </ul> <p><b>Safer roads and roadsides:</b> Targeted safety improvements on black spots and known issues.</p> <ul style="list-style-type: none"> <li>Local safety improvements: at priority locations, e.g. around school and super stops, to enhance accessibility.</li> <li>Develop and implement a Safety Management System.</li> <li>Crime Prevention through Environmental Design (CPTED) and audits on major infrastructure projects.</li> <li>Policing and penalties for offences as at present. Through the Regional Land Transport Strategy establish a regional position on penalties and fines for motoring offences to enable effective lobbying. Increase over time.</li> <li>Current speed and monitoring cameras.</li> </ul> <p><b>Safer speeds:</b> implement slow speed environments in the Central City and suburban centres. Liveable Streets classification adopted. Gradually new</p>	2014 onwards	\$\$\$	Safer Journeys

Action No.	Action	Activities	Timescale	Rough Cost \$ = < 1 million \$\$ = < 20 million \$\$\$ = > 20 million	Recovery project or relationship to other Plans
		designs recognising liveable streets classification.			
3.1.1	Freight reliability	<b>Development and management of freight routes for journey reliability by:</b> <ul style="list-style-type: none"> <li><b>Freight journey reliability:</b> and efficiency to the Port of Lyttelton, Christchurch International airport, freight hubs within Christchurch and neighbouring districts</li> <li><b>South Island freight picture:</b> assist NZTA to understand and meet the impacts on Christchurch's strategic freight and road networks and 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.</li> <li><b>Define, protect and sign freight routes:</b> through network signage and improved engagement with the freight sector.</li> <li><b>Management of freight:</b> in local neighbourhoods through measures to encourage freight to use the defined network. In commercial centres undertake Local Freight Management Plans to improve access of freight servicing commercial and commercial centres.</li> <li><b>Encouraging best practice:</b> update and distribute guidance on development layouts for handling freight.</li> <li><b>Encouraging sustainable freight choice:</b> freight fleet and product management 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.</li> </ul>	2014 onwards	\$ \$	South Island Freight Picture (NZTA)  Regional Land Transport Strategy
3.1.2	Freight hubs	<b>Protecting hubs:</b> protection from encroachment of urban development and	2014 onwards	\$	South Island Freight Picture (NZTA)

Action No.	Action	Activities	Timescale	Rough Cost \$= < 1 million \$\$ = < 20 million \$\$\$= > 20 million	Recovery project or relationship to other Plans
		<p>other land uses that could compromise their efficient operation. More effective District Plan policy.</p> <p><b>Establishing new freight hubs:</b> assess the feasibility of an inland port with freight organisations, NZTA, ECan , Lyttelton Port and KiwiRail.</p>			Regional Land Transport Strategy



Action No.	Action	Activities	Timescale	Rough Cost \$ = < 1 million \$\$ = < 20 million \$\$\$ = > 20 million	Recovery project or relationship to other Plans
3.1.3	Parking management	<p><b>Parking management to enable access to business while supporting the development of strategic roads, freight routes, public transport, walking and cycling streets through:</b></p> <ul style="list-style-type: none"> <li>• <b>Reallocating on-street parking:</b> 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.</li> <li>• Where there remains a need for parking in the area, parking could be reallocated to convenient nearby locations or in off-street car parks.</li> <li>• <b>Technology</b> improvements will be applied to maximise the efficiency of both on and off-street car parking infrastructure</li> <li>• <b>Flexible pricing</b> mechanisms introduced to encourage more efficient use of short-term car parking spaces and reduce demand for commuter parking.</li> <li>• <b>Monitoring</b> parking supply and demand to ensure that an appropriate level of parking is provided.</li> <li>• <b>District Plan changes to encourage</b> greater flexibility and use of off-street parking requirements for private developments through measures such as encouraging sharing of parking between developments.</li> <li>• <b>Parking management plans:</b> for localised planning and monitoring schemes for commercial centres and residential areas.</li> <li>• <b>Park and Rides:</b> 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.</li> </ul>	2014 onwards	\$\$	Suburban Master Plans  Draft Central City Plan
4.1.1	Reshape travel demand to reduce	<p><b>Energy innovation:</b> promote and encourage energy efficient travel choices.</p> <p>Encourage new developments to support uptake of alternative fuelled vehicles.</p>		\$	Climate Change Strategy

Action No.	Action	Activities	Timescale	Rough Cost \$= < 1 million \$\$ = < 20 million \$\$\$= > 20 million	Recovery project or relationship to other Plans
	<b>emissions</b>	<p>Work with the RLTS to lobby for increased national energy security through investment in local energy supplies and increased renewable electricity generation.</p> <p><b>Invest in technology:</b> investigate how new technologies can be accommodated (where possible) in the existing network and within new infrastructure projects.</p> <p>Transport network operators support rapid roll out of broadband/telecommunications infrastructure as an integral function of transport corridors.</p> <p><b>Encourage increased vehicle occupancy:</b> investigate value of associated infrastructure to support increasing vehicle occupancy such as HOV lanes. Implement initial car-pooling programme, including parking incentives for carpooling.</p>			
4.1.2	<b>Invest in green infrastructure and enhancements</b>	<p><b>Rain gardens, swales and permeable surfaces:</b> update Infrastructure design standards on green infrastructure. Green infrastructure in road renewals.</p> <p><b>Green corridors:</b> recognise transport corridors</p> <p><b>Waste management:</b> the construction, renewal and maintenance of assets should utilise reused or recycled materials.</p> <p><b>Effects on Papatūānuku (Earth) and recognition of the Treaty of Waitangi:</b> recognise that decisions about transport affect the sustainable use of natural resources and the inter-connection between the natural environment and people. Improve access to Papatūānuku these areas.</p>		\$	Draft Central City Plan

## 7 Funding and affordability

The short term implementation of this Plan (the Recovery phase) seeks to achieve consistency with the Government's Policy Statement on Land Transport Funding (GPS 2012/13 to 21/22), which primarily focuses investment on strategic road improvements to support economic efficiency and growth. Three of the Roads of National Significance (RONS) state highway projects are being developed in Christchurch and represent a strong commitment by the Government and NZTA to essential improvements of local strategic road and freight state highway networks. The Council, in turn, has made a commitments to improve strategically important local arterial networks intended to both complement and further improve the effectiveness of the RONS. Major schemes featuring in the Council's programme include such improvements as the proposed Wigram–Magdala Link, Northern Arterial Extension and improvements to Cranford Street. These key commitments by NZTA and the Council will deliver the enhanced freight and strategic vehicle corridors required to meet the 30-year vision of this Plan. Each project, however, represents significant funding commitments through both the National Land Transport Programme and the Council's own Long-Term Plan. This means the ability to significantly enhance the funding available for public transport, cycling and walking networks as outlined in this Plan will be heavily constrained for much of the early Plan recovery period.

At the same time, and largely as a consequence of the earthquakes, there is also significant pressure on funding in the short term for the renewal, replacement and repair of the city's damaged transport infrastructure. Where supplementary funding is available, opportunities will be sought to enhance the transport infrastructure as part of the earthquake rebuild programme, ensuring maximum value for money, improved whole of life benefits and the delivery of some short-term Christchurch Transport Plan priorities. Such measures might include achieving better use of road space in reconstructed carriageways, and enhancing pedestrian, cycleway and public transport opportunities where feasible in the short term. In some cases, these changes might not add significantly to overall costs but simply maximise opportunities to improve whole of life benefits by early implementation of strategic network enhancement and travel choice opportunities signalled by this Plan.

### Setting priorities to inform the Long-Term Plan

This Plan takes into account the public funding that is likely to be available for implementation during the 30 years. There are many uncertain factors influencing both the sources and available funding for transport over that timeframe. The purpose of this Plan is not to outline in any detail individual transport programmes for given years or expected funding allocations from a number of sources. A key role of this Plan is to offer clarity about funding implications, over the short (recovery), medium (transition) and longer term (vision) of this Plan, with programmes that are both realistic and affordable. At this time, it has been assumed that the total amount of transport funding available to the Council on an annual basis will not change significantly from the historical annual levels received in recent years, as detailed in the Council's Annual Plan and Long-Term Plan *Streets and Transport Programmes*.

The Council's current annual capital and operational funding proportions for transport infrastructure as reflected in the Long Term Council Community Plan (LTCCP pre-earthquake), is shown in Figure 7.1. The figure shows that road renewals and new infrastructure were almost two thirds of annual spend. These activities were mostly made up of road widening and intersection improvements, as well as signs, signal optimisation, landscaping and lighting upgrades. Renewals were the next highest spend, largely made up of carriageway and footpath resurfacing, kerb and channel replacement and bridge renewals. Active

travel and public transport take a roughly equal share, representing about a third of annual budget spend and mostly rating to new cycleways, bus stops, and bus priority measures. Only a small proportion of funding was specifically targeted at primarily safety justified projects.

The main sources of funding for transport infrastructure are provided from Government subsidies and the Council (rates and development contributions). Every three years, the priority of individual transport projects must be weighed by the Council against other Council priorities in the Long Term Plan before local funding is secured. A key role of this Plan is therefore to inform that Annual Plan and Long-Term Plan funding prioritisation process, not to replace it. The delivery of the Plan's vision will only be achieved with a long-term commitment (including adequate funding) from both the Council and UDS partner agencies to the Plan's objectives, goals, networks and priority actions as outlined in this Plan. With this expected annual funding, there will need to be a significant shift in the way transport funding is prioritised. The commitments that exist in the early Plan period to strategic roading network capacity and the Central City mean the change to funding proportions will increase over the medium to long term. Figure 7.2 shows the transition from current spending priorities to a new *proportions* of transport spend over the full Plan period of 30 years.

In the short term there will be a large focus on funding for safety related infrastructure, primarily from the roading allocations. Funding for both earthquake rebuild activities and the transport projects contained in the Draft Central City Plan (2011) would be over and above the previous quantity of annual transport budget allocations typically made by the Council. However, there may be some reduction in the required renewals and public transport projects where these might offer efficiency savings when implemented as part of recovery programmes. In the medium term there will start to be a significant shift in funding towards active travel. Roding budgets will focus much more on network management by making better use of existing infrastructure rather than adding to network assets. Significant Draft Central City Plan transport projects would be expected to be largely complete and the earthquake rebuild would be nearing completion. Extra funding would, however, be required if the future public transport network of rapid public transport services, possibly including rail based options, were to begin to be implemented. In the long term, the funding share would stabilise, with the largest slice for renewals as the earthquake rebuild will completed. Any future rapid public transport system costs to support a possible rail solution would continue to require substantial extra funding over and above typical transport funding levels.

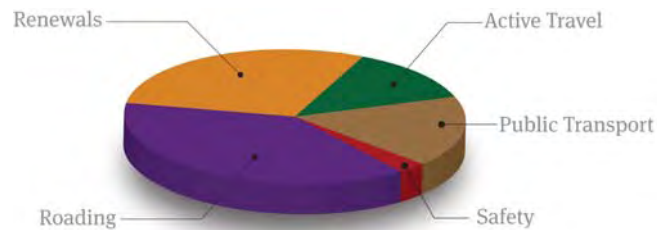
### **Securing additional funding support**

The main sources of public funding are:

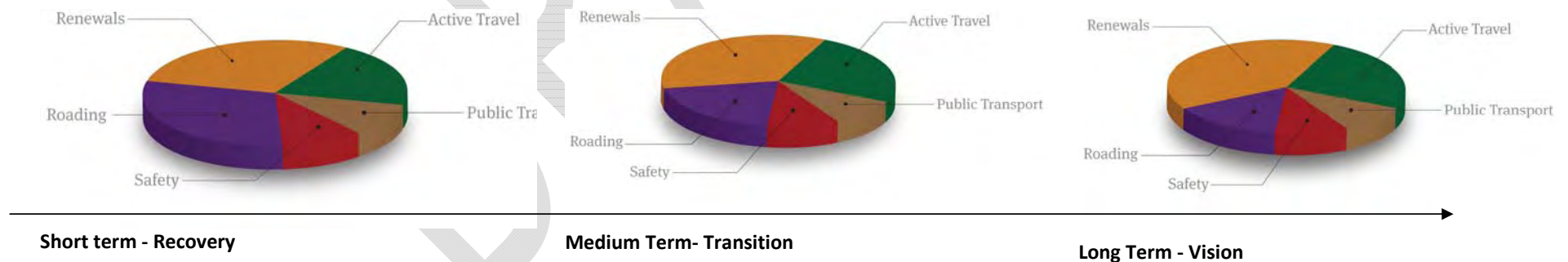
- Local government (principally rates and development contributions)
- Central government through the National Land Transport Fund – either directly or through guarantee
- Any separate central government support for rapid transit through Treasury
- CERA funding for the recovery plan.

In the short term, there is a marked funding gap between aspirational and growth programme costs and likely levels of available transportation funding. Early programme affordability is heavily influenced by the costs of Central City transport projects, excluding light rail which is shown as a separate programme. Significant early progress in achieving the 30-year vision and delivering an alternative shape of transport networks will be curtailed because of

affordability issues in the early/mid stages. Therefore, securing adequate funding over the life of this Plan is a potentially significant barrier to its full delivery (i.e. achieving all the framework networks). Funding decisions on the implementation of priorities in the Plan will be influenced by the Government's Policy Statements on Land Transport Funding (as a major contribution to the delivery of those networks) and, in turn, by the Council's ability to allocate additional local transport funding. In order to deliver across all of the desired outcomes during the 30-year timeframe, the Council will work with ECan to advocate to the Government for a change in the distribution of central Government funding, with more emphasis in the longer term National Land Transport Plan for public transport, active travel networks and network operational priorities when early commitments to the strategic roading network asset (state highways, RONS and other strategic road and freight network enhancements) near completion.



**Figure 7.1: Historical funding proportions**



**Figure 7.2: Proposed funding proportion to achieve the vision.**

## 8 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:

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

### 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 Table 6.1. 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.

**Table 6.1: Outcomes, Targets and Measures.**

CTP Goals	Draft 2013 Community Outcomes	RLTS outcome	Example Performance Indicator
<b>1: Improve access and choice</b>	<b>Liveable Cities</b> There are a range of travel options that meet the needs of people and businesses	Connectedness is enhanced.	Percentage of households within a 10-minutes 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.

CTP Goals	Draft 2013 Community Outcomes	RLTS outcome	Example Performance Indicator
	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.
<b>2. Create safe, healthy and liveable communities</b>	<b>Liveable Communities</b> 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.

CTP Goals	Draft 2013 Community Outcomes	RLTS outcome	Example Performance Indicator
<b>3. Support economic vitality</b>	<b>Economic Prosperity</b> 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).
<b>4. Create opportunities for environmental enhancements</b>	<b>Healthy Environments</b> Energy is used more efficiently.	Increased energy efficiency per trip.	<p>Total petrol sales per capita.</p> <p>Total diesel sales per regional GDP.</p> <p>Number of alternative fuel supply sites (e.g. retail sites offering low biofuel blends or wholesale sites with high biofuel blends).</p> <p>Number of vehicles which can use high biofuel blends.</p> <p>Number of electric vehicles.</p> <p>Percentage of single occupancy vehicle trips in Greater Christchurch.</p>
	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 <sub>2</sub> from domestic land transport per capita.

### 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.



## 9 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 traffic lane. The being that it allows buses to pickup up 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** - buses steered for part or all of their route by external means, usually on a dedicated track. This track, which often parallels existing roads, excludes other traffic, permitting the maintenance of reliable schedules on heavily used corridors.

**Canterbury Regional Land Transport Strategy** - an Environment Canterbury 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.

**Central City Recovery Plan** - a Council plan to guide the rebuild in Christchurch central city after the 2010/11 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 communities 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 legally required document that the Council is obliged to produce. 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).

**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.

**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 subways 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.

**Kaumātua** - respected tribal elders within the Maori community

**Key Activity Centres** - The key commercial and retail centres in Greater Christchurch. These are constitute the Key Activity Centres within 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 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 Cycle Routes** - 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 urban passenger transport system, usually consisting of a rail based mode.

**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 Passenger Transport Plan** - an Environment Canterbury document 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 2010/22 earthquakes that will be demolished and not rebuilt.

**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 apart of the programme, it will link Lyttelton Harbour, Christchurch International Airport and the city centre.

**Separated Cycle Routes** - 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 or concern about something.

**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.

**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 in comfort (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** - 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.

**Urban Design** - the arrangement and design of buildings, public spaces, transport systems, services, and amenities.

**New Zealand Urban Design Protocol** - a Ministry for the Environment document which aims to promote urban design principals in towns and cities across New Zealand.

**Urban Form** - refers to the physical layout and design of the city (similar to urban design).

**Variable Messaging System** – electronic signage which can keep people up to date with the latest transport information.

**Vehicle Occupancy** - the number of people in a vehicle.

**Vision** - an overarching statement of what the strategy is seeking to achieve.

**Wayfinding** - signs, maps and other methods put in place to make people familiar with their surroundings.

**White Zone** - areas which are still un-zoned following the 2010/11 earthquakes.



# ***Draft* Christchurch Transport Plan 2012 – 2042**

## **TECHNICAL APPENDICES**



## **Technical Appendices**

**Appendix A: Health Impact Assessment**

**Appendix B: Relationship between the vision, goals, objectives and outcomes**

**Appendix C: draft New Road Classification, Road Classification Principles, draft priority tool and draft Levels of Service**

## Appendix A: Health Impact Assessment

This Appendix contains the Health Impact Assessment (HIA) which was undertaken as a partnership project between Christchurch City Council, Canterbury Public Health and Environment Canterbury.

The HIA reports can be found at:

- Health Impact Assessment Report: in this appendix and posted on Christchurch Transport Plan website
- Literature review – *Wider Health and Wellbeing Impacts of Transport Planning, 2010*  
<http://ecan.govt.nz/publications/General/HIA%20Literature%20Review%20June%202010.pdf>
- Regional health profile: <http://www.cph.co.nz/About%20DUs/Health%20Impact%20Assessment/>
- Appraisal workshops summary: <http://ecan.govt.nz/publications/General/Appraisal%20Workshops%20Report.pdf>



## Health and Wellbeing Impact Assessment

# **Christchurch Transport Plan** 2012 - 2041

**Canterbury**  

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District Health Board  

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Te Pōari Hauora o Waitaha



## Ruth and Garry: An Access Story

Ruth and Garry both have physical disabilities, meaning that careful planning must go into all of their activities. *"It's never a case of grabbing a quick sandwich and hopping in the car on the spur of the moment for us."* They have recently returned to live in Papanui in Christchurch from Wellington and find the terrain and facilities here make it possible to get around in more ways than was possible in Wellington. One way they are able to see a movie at Riccarton Mall is by using their mobility scooters on the path which runs alongside the railway line.

Both have individualized funding packages which help to provide the support that is required to live, work and play. They spend the first hour and a half of their day being supported to rise, shower, dress and breakfast. They request that their support workers have their own cars to get to work and are well aware that this requirement does eliminate some people from the work but, as they pointed out, *"if our support workers don't get to work then we don't get up."*

Both have worked within the disability sector for many years. Air travel is required for their current work. If they need to be in Wellington by 10am, they like to take the 8am flight. *"Our support workers story is important in this too - for us to catch the 8am then we need to rise at 5.30am, this means our support workers need to be up an hour earlier."* Travelling the day prior to the meeting is an option, however the extra costs associated with taking support has to be weighed up.

*"I tried the red-eye flight once but it was too tough...needing to be up at 4.30am."*

For the journey to the airport, Ruth and Garry generally use a mobility taxi; their Total Mobility Vouchers cover 50% of the trip cost. Because these taxis do school and work runs they are not always available between 7 and 9am; this affects when they can fly. Ruth will fly with either her wheelchair or mobility scooter. Check-in with a scooter takes more time with a battery of questions to answer which makes it more difficult for them. They said that flying is easier than it once was with facilities like chair to gate, lifts and the skinny aisle chair, but they think that attitudes to a person with disabilities who is travelling have not really improved. During the interview Ruth reinforced the view that the journey is better if they are known and have been able to build relationships with staff.

Garry has a car that has been adapted for him. He spoke of the sense of freedom it gives him driving with his favourite music blasting, en route to bowls in Lyttelton. He plays in Lyttelton as there are supportive family members who belong to the club.

*"I am seen as a bowler and not a disabled person".*

Garry said it was good to find a flat entrance at the rear of the bowling hall which makes it easier for him to go in and out. This is now the preferred entranceway for many of the bowlers. He drives 17km to the club, a big improvement on the 30km he had to travel when they lived in Wellington.

Although having a car has improved life for Garry it is not the solution to all of his travel needs. For instance, he can't use public car parks which have ticket machines without a support person with him as he cannot reach the ticket himself. He has been assessed and provided with an Operation Mobility card which means he can use designated disability car parks – as long as they have not been taken by able-bodied people.

They acknowledged the work of Alexia Pickering in the 70s in improving access for people with disabilities within Christchurch; she lobbied for such things as better street crossings and building access. She was pivotal in making sure that Ruth's journey to school was accessible including improvements to curb cuts so the gutters could be negotiated by her wheelchair.

Ruth noted that a big part of her *“accessible journey”* has been about living in close proximity to shops, work and other facilities; it has not been about the public transport system. They noted that the low-floor buses are good for wheelchairs but not for the scooter, and good driver assistance is important. When they went to Sydney they found it was excellent to get around by scooter on the trains and ferries.

During the interview Ruth advised that the issues of access are similar for both older people and for the disabled, *“if we have it right for the disabled then it will be ok for the elderly”*. We will all be better off if these two communities work together on accessibility issues.

Garry spoke about *‘the disability dollar’* which he has calculated to be about \$10 billion per year in New Zealand. This is about the loss to our economy if disabled people are preventing from participating. He said *“if we can’t get into a shop, café, theatre etc then we don’t spend. Those businesses we can access get the dollar”*

*“To lead a good life we need to plan our day well in advance, we need to think ahead making sure there are people at our destinations that will help us out”*

## **Acknowledgements**

This Health Impact Assessment (HIA) has been led by a project team comprising representatives from a range of organisations including Alison Bourn, Dr Anna Stevenson, Hector Matthews, (Canterbury District Health Board), James Ryan (Environment Canterbury), Ruth Foxon, Siobhan Storey, Trudy Jones (Christchurch City Council) and Martin Ward (independent consultant).

The development of this HIA has been made possible through the support of the Health Impact Assessment Project Officer for Canterbury. This position has been funded by Environment Canterbury, the Christchurch City Council, Partnership Health Canterbury and the Canterbury District Health Board to build the capacity of the partner organisations to undertake Health Impact Assessment work.

The literature review was led by Susan Bidwell and the evaluation process led by Dawn Gourdie from the Canterbury District Health Board. Expert advice on Māori engagement was provided by Bob Tai (Environment Canterbury), Lee Tuki, Theresa Rongonui and Ted Te Hae from the Canterbury District Health Board. Additionally, there have been a range of other staff from Environment Canterbury, the Christchurch City Council, Partnership Health Canterbury, Canterbury District Health Board and the Ministry of Health who have supported the process.

The project team is particularly grateful to the members of the community who have given their time and expertise to contribute to this HIA.

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## EXECUTIVE SUMMARY

In late 2009, a Health and Wellbeing Impact Assessment (HIA) was initiated by the Christchurch City Council focusing on the Christchurch Transport Plan (CTP). Health Impact Assessment (HIA) was the chosen process to assess links between transport, health determinants and health outcomes for the CTP 2011 - 2041. The primary purpose of this report is to outline the key findings and recommendations of the HIA.

There are many ways in which transport and health are linked. Health promoting effects of transport are:

- Transport enables access to employment, shops, recreation, social support networks, health services and the countryside;
- Transport can be used for recreation and exercise; and
- Transport facilitates economic development.

Health damaging effects of transport include:

- Road traffic injuries;
- Pollution – particulates, carbon monoxide, nitrogen oxides, hydrocarbons, ozones, carbon dioxide and lead;
- Reduced physical activity and consequent increase in prevalence of obesity;
- Constraints on mobility access and independence;

The HIA identified three focus areas for consideration:

- Making transport safe for people;
- Creating real transport mode choice; and
- Building healthier environments.

The health impacts of these focus areas were subsequently explored in more detail during an appraisal process involving a literature review and internal and external stakeholder workshops

The recommendations of the HIA are designed to enhance the positive impacts, and reduce the negative impacts, of the Christchurch transport system for public health and wellbeing.

### Key Recommendations

1. The CTP direction supports a transport system based on high levels of active and public transport; that understands and reflects the needs of people rather than having a focus on moving vehicles; and provides guidance on the transport priorities for each mode.
2. That the objectives of the Christchurch Transport Plan provide the guiding principles to all transport projects and programmes in Christchurch. They should be easily transferable to project briefs and equally weighted. The HIA recommends that a new public health objective be added to CTP.
3. Land use planning and transport planning are well integrated to enhance active lifestyles for Christchurch people.
4. Undertake further research to increase understanding of the public health costs of transport in Canterbury. Lobby the Ministry of Transport for improved acknowledgement of health in transport funding decisions.
5. Undertake education and marketing to increase public and staff awareness of the links between public health and transport.
6. Improve mobility for the transport disadvantaged and work with Māori by providing opportunity to provide feedback on the draft plan prior to it being released.
7. Prioritise transport projects which support good health and wellbeing outcomes.

# 1 CONTEXT

## 1.1 Introduction

Transport decisions have significant impacts on the health and wellbeing of our communities. This report focuses on the outcomes of a health and wellbeing impact assessment process to support development of the Christchurch Transport Plan. [The intention of the HIA was to](#) ensure the integration of issues of health and wellbeing into the development of the CTP.

In addition to this report, there are a number of companion documents that detail particular elements of the HIA. It is anticipated that these will be included on the Christchurch City Council website as part of the information available for the CTP. However at the time this report was finalised this was not available.

- A detailed literature review – *Wider Health and Wellbeing Impacts of Transport Planning, 2010*  
<http://ecan.govt.nz/publications/General/HIA%20Literature%20Review%20June%202010.pdf>
- A report on the scoping process
- A regional profile report <http://www.cph.co.nz/About%20DUs/Health%2DImpact%2DAssessment/>
- A summary of the appraisal workshops held in Christchurch  
<http://ecan.govt.nz/publications/General/Appraisal%20Workshops%20Report.pdf>
- An evaluation report (due Feb 2011).

## 1.2 [What is Public Health?](#)

The aim of public health is to improve the overall health of the population by having a particular focus on those with the poorest health outcomes.

Public health acknowledges that the factors which have the greatest effect on people's health and wellbeing lie outside and beyond the control of the health sector. Transport is one of these factors or determinants of health. This concept is acknowledged by the inclusion of public health considerations in legislation, such as the Land Transport Management Amendment Act 2003.

The diagram below is a classic representation of the different influences on health and wellbeing, ranging from genetic and behavioural factors, through to familial and environmental factors (Dahlgren & Whitehead 1991). The further the influences are from the individual, the less control the individual has over these factors. In this sense, an important value of HIA is the potential to influence broader policy and planning processes that shape the environments in which people live healthy or unhealthy lives. In the model below, transport clearly fits within the environmental context that affects the health and wellbeing of people and communities.



### 1.3 What is Health Impact Assessment?

Health Impact Assessment is a tool to support the development of healthy public policy. Policy level HIA is a relatively new field and is entrenched in the idea that health at a population level is often affected by policy decisions made in sectors outside of the “health portfolio”. The focus of policy level HIA is on how a particular policy, in this case the CTP, affects actual health outcomes for people and the determinants of those health outcomes.

HIA offers the opportunity to systematically explore potential health effects of the proposed policy. HIA considers the distribution of health effects by identifying which populations bear disproportionate effects on their health. It gives the community and affected populations a voice. The evidence base of HIA is drawn from both expert advice and/or the published literature as well as community knowledge of an area or issue.

An HIA does not attempt to make the necessary policy decisions, but highlights areas of particular policy which may affect the health of a population. It provides recommendations to mitigate negative effects and make suggestions for improvements. The HIA process assists policy writers and decision makers to understand the health impacts and to make informed decisions.

HIA is a structured yet flexible process that follows a well defined series of stages:

- (0) **Screening** – the initial selection process to assess an initiative’s suitability for HIA;
- (1) **Scoping** – highlighting the key issues needing to be considered to define and shape the HIA;
- (2) **Assessment** - identifying the relevant determinants of health and using specific tools to identify potential health impacts, then assessing the significance of these impacts
- (3) **Reporting and Recommendations** – Reporting on the assessment findings and recommending practical changes to the policy; and
- (4) **Evaluation** – assessing how the process was undertaken and the extent to which the recommendations were taken up by the policy-makers.

### 1.4 Aims and Objectives of the HIA

The aim of this HIA is to ensure issues of health and wellbeing are integrated into the development of the CTP. The objectives of this HIA are to:

- Undertake HIA to assess the effects of the CTP objectives and approaches on health and wellbeing;
- Use the planning guide ‘Health Promotion and Sustainability through Environmental Design’ (HPSTED) which comprehensively identifies the factors that determine our health and wellbeing;
- Integrate the various stages of the development of the CTP with the stages of the HIA;
- Provide evidence and recommendations to enhance the health and wellbeing benefits of the CTP. Communicate recommendations to staff and councillors.
- Assist in building ‘Health in All Policies’ capacity within the Christchurch City Council, so that future policy development can embed this approach into good practice.

### 1.5 Christchurch Transport Plan

The Christchurch Transport Plan (CTP) is a long term plan which details the priorities for the city’s transport system over the next 30 years (2011-2041). The immediate output of the Christchurch Transport Plan is a list of projects and programmes of work. These priorities will feed directly into CCC’s Long Term Council Community Plan (LTCCP) 2012-2022. The longer term outcome of the CTP is an integrated transport and land use system. To achieve an integrated approach the CTP brings together and replaces a number of existing

transport strategies in Christchurch, including the Cycling Strategy, Pedestrian Strategy, Road Safety Strategy and Parking Strategy. The CTP covers all of the Christchurch City Council territorial area including Banks Peninsula.

There are two parts to the CTP. The first is the main document which introduces the plan, sets out the overarching vision for the transport system and outlines the main approaches for transport. The second aspect is the Action Plan which will translate the vision and approaches into specific projects and packages of work. The Action Plan will feed directly into CCC's Long Term Council Community Plan.

The CTP is strongly influenced by the Canterbury Regional Land Transport Strategy (CRLTS). The CRLTS is guided by the Land Transport Management Amendment Act 2008 (LTMAA). One of the core objectives of the LTMAA is to contribute towards "*protecting and promoting public health*". The Local Government Act 2002 (LGA) also charges territorial authorities with the responsibility of promoting social, economic, environmental and cultural wellbeing of communities. It is within this context that Christchurch City Council has commissioned this policy-level HIA to ensure that health and wellbeing considerations are integrated into the development of the CTP. Concurrent with this HIA is the CRLTS HIA. The two projects are linked, with Christchurch City Council, Community and Public Health, a division of the Canterbury District Health Board (CDHB) and the regional council, Environment Canterbury (ECAN) working together.

## **1.6 How are transport and health linked?**

There are many ways in which transport and health are linked. The Transport & Health Study Group, a UK network of professionals and academics which promotes the study of and research into the relationship between transport and the health of the population, has provided a summary of the health impacts of transport. The summary is as follows:

### Health promoting effects of transport

- Transport enables access to employment, shops, recreation, social support networks, health services and the countryside;
- Transport can be used for recreation and exercise; and
- Transport facilitates economic development.

### Health damaging effects of transport

- Road traffic injuries
- Pollution – particulates, carbon monoxide, nitrogen oxides, hydrocarbons, ozones, carbon dioxide and lead;
- Noise;
- Stress and anxiety;
- Danger;
- Loss of land and planning blight;
- Severance of communities by road;
- Constraints on mobility access and independence;
- Reduced physical activity and consequent increase in prevalence of obesity; and
- Reduced social use of outdoor space due to traffic and streets.

## 2 METHODOLOGY FOR THE HEALTH IMPACT ASSESSMENT

### 2.1 Introduction

The HIA has been led by a project team comprising representatives from the Canterbury District Health Board, Environment Canterbury, and Christchurch City Council. In addition, Martin Ward an independent consultant and Adrian Field from Synergia have supported and influenced the work.

The timeframe for the development of the CTP and the stages of the HIA have been run in parallel and are depicted in the following table.

**Table 1: HIA Stages and timeframe**

HIA Stage	HIA Task	Timeframe	Christchurch Transport Plan
1. Scoping	Literature Review Scoping Workshop Scoping Report Profile Report Evaluation Plan	December 2009 - February 10	Setting the draft vision, objectives and targets  Engage stakeholders on these
2. Assessment	Assessment workshops: CTP objectives (March) Approaches (April/ May) Māori (April/ May)	March - May 2010	Drafting CTP: draft approaches, project's spatial considerations (central city, hubs, communities)
3. Reporting & Recommendations	Final Report and Recommendations	December 10	Internal Draft CTP (December 2010)
4. Evaluation	Ongoing – Evaluation Report (February 2011)	January 2010 - ongoing	LTCCP project recommendations Prioritisation of transport actions for LTCCP Plan Adoption & Monitoring Council adoption of Plan

### 2.2 Literature Review

A review of the literature was undertaken by the Canterbury District Health Board. It was conducted prior to the scoping workshop and used to inform the subsequent stages of the HIA.

The framework for considering the health impact of transport planning was taken from the Christchurch City Council's *Health Promotion and Sustainability Through Environmental Design: a Guide for Planning*. Thirteen aspects of the wider physical and social environment in relation to transport were considered covering safety, active lifestyles, access to goods and services, natural capital, sustainability, equity, cultural diversity, housing, social and community capital, amenities, sustainability, community resilience, food security and economic development. Briefing papers based on a review of the international and New Zealand literature were drawn up.

The review was posted on a limited access website. Access was made available to experts in relevant fields across New Zealand for the peer review process. This website has an interactive component whereby peer reviewers could make comments and post additional documents. Some reviewers provided feedback directly to the HIA project officer.

The literature review provides a key evidence base for the links between transport and health, and provides a basis to validate or critique the issues and potential actions raised through the appraisal workshops. A

summary of the literature review is detailed in Section 3.1. The full report, *Wider Health and Wellbeing Impacts of Transport Planning, 2010*, is available at the Environment Canterbury website

<http://ecan.govt.nz/publications/General/HIA%20Literature%20Review%20June%202010.pdf>

## 2.3 Area Profile Report

This report is available as a companion document available at <http://www.cph.co.nz/About%20DUs/Health%2DImpact%2DAssessment/>

It provides information on key regional health and transport issues as is entitled *Regional Profile Report: Supporting the CTP HIA*.

## 2.4 Scoping

A key stage of an HIA is the scoping phase, in which stakeholders discuss and decide on the key issues and populations of interest that the HIA should focus on. A joint scoping workshop for the CTP and the Regional Land Transport Strategy was held in December 2009, with representatives from a range of agencies and organisations (Appendix 1).

### 2.4.1 Focus Areas

Three key issues were identified for detailed exploration in this HIA:

1. **Making transport safe for people:** including increasing safety for all road users and creating environments where active transport (walking and cycling) can be fostered.
2. **Creating real transport mode choice:** including planning and delivering urban design and transport options that make active and public transport safe and more appealing; increasing travel choices for commuters; and increasing travel choices in rural areas.
3. **Building healthier environments:** including reducing environmental effects of the transport system (air and water quality, and noise emissions).

### 2.4.2 Key Populations of Interest

Consistent with longstanding public health approaches, equity and social inequalities are underlying issues of importance for the HIA. HIAs have proved effective in reducing inequalities in health by ensuring that policies do not exacerbate or continue existing inequalities for particular population groups (Public Health Advisory Committee 2007). As part of the HIA for the CTP, this concept encompassed:

- Consideration of those with greatest social and economic needs;
- Enabling accessibility for all, particularly for those that face the greatest difficulties;
- Ensuring transport disadvantaged people can access services/transport to work; and
- Providing affordable transport options.

The following groups were suggested as key populations of interest for the HIA.

#### Older People

Older people are potentially more at risk of being transport disadvantaged by virtue of their stage of life which generally results in slower reaction times, weakened vision and physical ability, loss of confidence, and concerns about personal safety. Older people can face significant mobility barriers including loss of the ability

to drive and difficulty with physical access to public transport. It is noteworthy that the numbers and proportion of Canterbury's population aged 65 or older is expected to grow, from approximately 76,000 (14%) in 2006 to approximately 154,000 (24%) in 2031 (Statistics New Zealand, 2006).

### **Lower socio-economic populations**

As the transport system is largely designed around vehicle mobility, people that cannot afford the costs associated with the purchase and operation of a vehicle are more likely to be disadvantaged. In New Zealand the burden of fatalities and injuries is disproportionately borne by those in lower socio-economic circumstances (Public Health Advisory Committee, 2005).

### **People with disabilities**

People with disabilities are more likely to be transport disadvantaged because they face intellectual or physical barriers to accessing and using the transport system. In addition, people with disabilities may be dependent upon others providing support to meet their needs. It is expected that the numbers of people with disabilities will increase, particularly as the population ages (Human Rights Commission, 2005).

### **People living in isolated rural areas**

People living in isolated rural areas may be more likely to be disadvantaged because they have a lack of transport choice, other than the private vehicle. There is a risk that those living in rural areas, including lifestyle blocks, become increasingly disadvantaged as a result of increases in fuel prices.

### **Māori**

*"In New Zealand, Māori at all socioeconomic levels have worse health status than non-Māori. Persistent ethnic disparities suggest that there are other features in our society that produce ill-health in Māori..."* (Ministry of Health, 2006).

Although Māori living in Canterbury tend to have better health than Māori nationally, they are in a worse position than non-Māori in Canterbury including in terms of cardiovascular disease, respiratory disease and diabetes (Canterbury District Health Board, 2010). In Canterbury, Māori (14%) are more likely to be involved in road fatalities than non-Māori (9.7%) (Canterbury District Health Board, 2010).

### **Children and Young people**

Young people, including children, are more likely to be transport disadvantaged because they have not gained the experience, or developed the cognition, to use the transport system safely, and they are often highly reliant upon others to meet their accessibility needs.

## **2.5 Appraisal**

The appraisal stage examined the key issues and populations of interest that the scoping workshop identified. Three workshops were held between December 2009 and May 2010. The workshops held were:

- i) A workshop to review the draft objectives of the CTP against the themes of the literature review. This was attended by transport planners and health personnel.
- ii) A workshop to consider the health impacts of two future transport scenarios.
- iii) A hui at Rehua Marae for Māori to consider the health impacts of two future transport scenarios.

Each workshop sought participants' feedback on the health and wellbeing impacts of the transport system, and key actions that could be taken to enhance the positive impacts and reduce the negative impacts. A wide range of representatives attended from the health, transport, local government and community sectors (a list of those participating is detailed in Appendix 1).

## **2.6 Reporting and Recommendations**

This report synthesises the key findings of each of the stages and components of the HIA. Reports have been prepared for each of the stages of the HIA and are available as companion documents.

## **2.7 Evaluation**

Evaluation has been ongoing throughout the HIA. An evaluation report will be completed by February 2011 and will report on the HIA process, achievement of the HIA objectives and whether the recommendations of the HIA have been included in the CTP. The evaluation is being lead by the evaluation co-ordinator at Community and Public Health and administered by a team of four people from ECAN, C&PH and CCC.



## 3 KEY FINDINGS FROM THE HIA PROCESS

### 3.1 Introduction

This section details the key findings from the HIA process, involving the:

- Area Profile
- Literature review
- Appraisal workshops

These inputs have been used to arrive at the HIA recommendations detailed in section 4.

### 3.2 Area Profile – Key Findings

The area profile report is available as a companion document available at <http://www.cph.co.nz/About%2DUUs/Health%2DImpact%2DAssessment/>

The following is extracted from this report.

#### 3.2.1 Key Health Trends

Approximately 3,500 people die in Canterbury each year. Diseases of the circulatory system, including ischaemic heart disease and cerebrovascular diseases such as heart attack and stroke, account for the majority of deaths. Cancers are the second most common cause of death followed by diseases of the respiratory system. Diabetes is an underlying causative factor and leads to medical complications such as renal failure. National data shows full renal treatment per patient costs \$250,000.

#### 3.2.2 Active/Sedentary Lifestyles

- Thirty minutes of exercise each day is enough to decrease the risk of obesity, type 2 diabetes, cardiovascular disease, colon cancer, respiratory disease, depression and stress.
- Physical inactivity accounts for almost 10% of New Zealand's 20 leading causes of death. It is a contributor to obesity and type 2 diabetes, which together cost the health system over \$500 million per year. The NZ Ministry of Health states a 5% increase in physical activity can net a reduction of \$25 million annually for health care costs.
- 39% respondents reported they were active every day in the Christchurch City Council 2006 "Quality of Life" survey. In the Canterbury District Health Board geographic area 50.8% adults reported they were regularly physically active. In Canterbury the rate of Māori doing regular physical activity appears higher than non-Māori.
- In New Zealand 47% of children aged 5-14 years usually use active transport to get to and from school (walking, biking, skating or using other forms of physical activity). Common reasons given by parents for what stops their children walking, biking or skating to school – live too far from school, busy traffic/main road, too dangerous for reasons other than traffic, takes too long.

#### 3.2.3 Health behaviours and risk factors

The negative health outcomes associated with poor health behaviours present an opportunity to improve health and wellbeing. Physical inactivity increases the risk of many chronic diseases; especially type 2 diabetes, cardiovascular disease, colon cancer and depression.

## Diabetes

The self-reported diabetes prevalence is 3.6% of people aged 15 years and over in Canterbury DHB, this is lower than the national rate of 4.2%.

*Age-standardised prevalence of self-reported diabetes, adults 15+ years, 2006/07 NZHS.* (Age standardisation takes into account differences in the age distributions of the CDHB and New Zealand populations so that differences in age distribution cannot distort the comparison between CDHB and the whole of New Zealand).

		<b>Total (%)</b>
<b>Canterbury DHB</b>	Female	3.2
	Male	4.0
	Total	3.6
<b>New Zealand</b>	Female	3.7
	Male	4.7
	Total	4.2

The diabetes hospitalisation rate in Canterbury DHB was significantly lower than the national rate. Males had a significantly higher rate than females.

*Diabetes hospitalisations, 15+ years, age-standardised rates per 100,000, 2005-07*

		<b>Total</b>
<b>Canterbury DHB</b>	Female	151.1
	Male	174.3
	Total	161.4
<b>New Zealand</b>	Female	184.6
	Male	221.6
	Total	201.7

## Impact on inequalities

There are significant disparities in prevalence and outcome of diabetes in New Zealand. The prevalence of diabetes in Māori and Pacific populations is around three times higher than among other New Zealanders. Prevalence is also high among South Asian populations. Incidence and mortality rates for type 2 diabetes are expected to increase over the next 20 years (along with pre-diabetes, insulin resistance, and obesity) with the biggest impact being on Māori, Pacific people, and those living in deprived neighbourhoods. Although family history, particularly in a parent or a twin, is one of the strongest risk factors for developing Type 2 diabetes, genetic explanations in groups disproportionately affected by the disease can lead to misinterpretation of ethnic health disparities as genetic, and therefore, natural in origin, rather than recognising such disparities as being due, largely or solely, to social disadvantage.

## Cardiovascular disease

The cardiovascular disease mortality rate in Canterbury DHB was significantly lower than the national rate. Males experienced a significantly higher mortality from cardiovascular disease than females.

*All cardiovascular disease mortality, all ages, age-standardised rates per 100,000, 2003*

		<b>Total</b>
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<b>Canterbury DHB</b>	Female	121.1
	Male	173.3
	Total	145.5
<b>New Zealand</b>	Female	123.5
	Male	184.8
	Total	152.2

*All cardiovascular disease hospitalisations, all ages, age-standardised rates per 100,000, 2005-07*

		<b>Total</b>
<b>Canterbury DHB</b>	Female	712.1
	Male	1145.9
	Total	915.1
<b>New Zealand</b>	Female	837.0
	Male	1372.4
	Total	1090.4

#### *Impact on inequalities*

Mortality from all cardiovascular diseases is significantly higher among Māori than the general population. A higher proportion of Māori under the age of 65 die from ischaemic heart disease and Māori are also younger on average at the time of first stroke. Heart failure death rates for Māori between 2000-2004 were approximately 2.3 times the age and sex standardised rates for non-Māori. Mortality for Pacific peoples are lower than rates for Māori but higher than other non-Māori, but Pacific people have higher rates of stroke than any other groups. Mortality rates for coronary heart disease are higher among all people from lower socioeconomic groups. In Canterbury Pacific people and Māori had significantly higher rates of cardiovascular disease mortality than European other.

#### **Colorectal Cancer**

##### *Cancer Registration*

Data from 2009 and 2010 shows that Canterbury has higher age standardised cancer registration rates than nationally for colorectal cancer. (Age standardisation takes into account differences in the age distributions of the CDHB and New Zealand populations so that differences in age distribution cannot distort the comparison between CDHB and the whole of New Zealand).

##### *Colorectal Cancer*

*Colorectal cancer registration, 25+ years, age-standardised rates (WHO) per 100,000, 2008 and 2009. ICD-10 codes C18-C21*

		<b>2008</b>	<b>2009</b>
<b>Canterbury DHB</b>	Female	41.5	39.9
	Male	53.6	48.9
	Total	47.1	44.3
<b>New Zealand</b>	Female	39.6	39.4
	Male	49.7	49.3
	Total	44.3	44.1

#### *Mortality*

Age standardised cancer mortality rates in Canterbury did not differ significantly from the national age standardised mortality rates in 2003-05. Males had a significantly higher rate than females. Māori and Pacific people had significantly higher rates than European people. In 2007, the age standardised cancer mortality rates for colorectal cancer were higher in all New Zealand than in Canterbury DHB.

*Lung and Colorectal cancer mortality, 25+ years, age-standardised rates per 100 000, for Canterbury DHB and New Zealand, 2007*

Cause of death	Canterbury DHB population			Total New Zealand Population		
	Total	Female	Male	Total	Female	Male
Colorectal cancer	18.4	15.7	21.6	19.4	16.8	22.6

#### *Impact on inequalities*

The age standardised total cancer registration rate for Māori in Canterbury was lower than for non-Māori, however the age standardised mortality rate was higher for Māori. Cancer incidence and mortality rates for Māori in Canterbury were lower than for Māori nationally. The data suggests poorer cancer outcomes for Māori than non-Māori. Some disparity can be explained by the relative socioeconomic disadvantage amongst minority ethnic groups and differences in, for example, smoking rates and obesity.

#### **Depression**

In Canterbury DHB, 4.9% of males and 6.5% females had a high or very high probability of having an anxiety or depressive disorder, adjusted for age.

*Age-standardised prevalence of having high or very high probability of having an anxiety or depressive or depressive disorder, adults 15+ years, 2006/07 NZHS*

<b>Canterbury DHB</b>	Female	6.5
	Male	4.9
	Total	5.7
<b>New Zealand</b>	Female	7.7
	Male	5.8
	Total	6.8

### **3.3 Literature Review – Learnings for the focus areas of the HIA**

The full literature review is contained in a companion document entitled the *Wider Health & Wellbeing Impacts of Transport Planning*. It is available at <http://ecan.govt.nz/publications/General/HIA%20Literature%20Review%20June%202010.pdf>

Transport planning is one of the urban and social planning processes that has an impact on health and its role is a critical one, with many opportunities to influence people's lives and wellbeing. Moreover, the wider determinants of health are interlinked so that improvements in one area are likely to have positive benefits in others. Measuring the impact of interventions is not easy as the full effect may take a relatively long time to become apparent. However, robust methods of calculating the benefits in health, social, and economic terms are increasingly being devised and evidence is building on the contribution that transport infrastructure can make if the health impact is considered in planning.

The following paragraphs incorporate what was learned from all the chapters of the literature review, applied to the three focus areas of the HIA.

#### **3.3.1 Making transport safe for people**

##### **Positive impacts on health**

- A safe environment and one that is perceived as safe will create opportunities for active transport to local destinations.

- A safe environment will assist our growing population of older people to feel safe walking in public places and using public transport and therefore help to maintain their health and independence.

#### **Negative impacts on health**

- Fatalities and injuries: Canterbury reflects the New Zealand trend over the past decade which has seen the number of road traffic fatalities falling but both serious and minor injury crashes increase.
- Safety of walkways, cycle ways, and public transport from harassment or attack by other users is an important consideration in transport planning. New Zealanders are generally more worried about the safety of walking to, or waiting for, public transport particularly after dark, than the safety of the trip itself.

#### **Actions to enhance positive health impacts and mitigate negative health impact:**

- Enhance the understanding of traffic engineers about the wider determinants of health so that the local environment is pleasant and safe for nearby residents, pedestrians and cyclists and opportunities for active transport to local destinations are supported.
- Provide interventions such as widening footpaths, narrowing streets at pedestrian crossings, installing speed bumps and altering road alignments to slow or discourage vehicular traffic, make streets safer for pedestrians and cyclists and increase physical activity both for routine transport needs and for leisure activities.
- Encourage cross-sectoral collaboration on road infrastructure, positioning of schools, and pick up and drop off areas to make walking and cycling safer for children travelling to school, reduce traffic congestion around schools, and provide a daily level of physical activity that contributes to reducing obesity.
- Provide appropriate environmental changes such as good street lighting, red light cameras, speed enforcement devices and traffic calming to reduce traffic fatalities and injuries.
- Provide good lighting, security cameras, and emergency alarms at waiting points for public transport services to improve public perceptions of safety and encourage use of services.
- Integrate transport planning with other social and urban planning so that the growing population of older people can feel safe walking in public places and using public transport so they are helped to maintain their health and independence for as long as possible.
- Provide familiarisation programmes for public transport services to assist people with limited mobility no matter what their age.
- Increase the safety of boarding and alighting through good design to assist people with limited mobility no matter what their age.

### **3.3.2 Creating real transport mode choice for all people**

Creating real transport mode choice for all will make public transport, walking and cycling safe and more appealing; foster active transport initiatives in urban centres; enhance access to goods, services and amenities; integrate transport initiatives; enhance environmental sustainability; provide more mode choices for commuters; and more mode choices in rural areas.

#### **Positive impacts on health**

- 30 minutes of cumulated exercise each day is enough to decrease the risk of obesity, type 2 diabetes, cardiovascular disease, colon cancer respiratory disease, depression and stress.
- There are economic benefits from increased productivity, reduced mortality and morbidity and health sector costs when an inactive person becomes physically active.
- Results of long term outcomes from transport interventions to encourage physical activity are starting to become available. One five year study in the United States for example, was able to show a lower incidence of type 2 diabetes in areas where neighbourhood resources made physical activity easily accessible. The same type of research is currently going on in both Australia and New Zealand.

- The personal motor vehicle as a means of transport has a number of benefits for individuals in allowing them to access a wide range of opportunities.
- New and improved roads to enhance traffic flow do benefit some people but they can also create physical barriers for nearby residents that reduce their access to services, facilities and social activities.
- Mode choice is important to enable access to safe, nutritionally adequate, and personally acceptable food and hence maintain good health.
- Access to attractive open spaces is associated with higher levels of walking and physical activity, and with health benefits such as reduced stress, a lower risk of obesity, and enhanced mental and physical wellbeing. Benefits may be derived not only from formal use of the facilities but from the overall pleasantness of areas that make them more appealing for walking and other activities. Green spaces retained around cities that are used for food production provide amenity value as well as improving access to fresh produce.
- Ready access to cultural facilities and events allows diversity to be promoted and celebrated and heritage to be conserved. It encourages participation, partnership and innovation and supports the mental health and wellbeing of people individually and collectively, thereby promoting a healthy society and community.
- Transport is an important component of social inclusion and requires fair and equal access. Affordability, availability and accessibility are key issues in planning.
- Transport provides an important means of contact between family members, friends, members of voluntary organisations, and other recreational activities.

#### **Negative impacts on health**

- People who have inactive lifestyles are at increased risk of obesity, type 2 diabetes, cardiovascular disease, colon cancer, respiratory disease, depression and stress.
- The health impacts of a poor diet are well documented. Food access includes being able to afford to buy and transport food, the mobility to get to the food source and the time to do so.
- Roadways and traffic can act as physical and psychological barriers to social contact. Roads bearing high levels of traffic which cut through housing areas can limit or disrupt interpersonal networks and reduce social contact. The impact is greater on those who have limited access to the range of transport options, including older people, people who are unemployed, people with young children and people with disabilities. An increase in traffic density can result in families moving out of an area and a withdrawal from community participation by those who are unable to leave.

#### **Actions**

- Encourage people to build exercise into a daily routine by walking, cycling or using public transport to get to their destinations.
- Encourage people to use active transport rather than drive their cars by connecting routes, and making sure pedestrian and cycle infrastructure is safe and pleasant to use.
- Ensure public transport is convenient and safe to increase uptake by both adults and children.
- Encourage mixed land use so destinations such as workplaces, schools and retail businesses are fairly close to where people live to encourage active transport.
- Encourage children's use of active transport to school by providing good footpaths, safe crossings at intersections, traffic calming measures and low speed limits.
- Promote parental supervision of walking school buses or cycle trains.
- Encourage effective cross sector measures that combine school policies, parental education about the benefits of active transport with provision of cycling and walking infrastructure that are matched to age and community context.
- Increase transport system diversity so there are more travel options; design transport systems so they accommodate the broadest range of users; support more compact development rather than urban sprawl; collect information needed for evaluating transport equity; and give a diverse range of stakeholders more influence on transport planning.

- Undertake transport planning that increases options for refugee groups and is integrated with other urban and social planning to support social capital and promote wellbeing. Make special efforts to resolve language difficulties and increase communication with the various migrant and refugee communities; provide programmes to educate marginalised communities about the availability of walkways, cycleways, and public transport and how to access them.
- Give public transport priority over other road traffic on main routes.
- Ensure transport policies take the needs of all users into account to improve access to, and use of, local resources such as supermarkets and other sources of healthy food, primary health services, schools, community centres, parks, open spaces and cultural amenities.
- Develop national policy, indicators and monitoring and apply these at a regional and local level in an integrated approach to land use, transport, and social needs to improve the life chances of all New Zealanders.
- Consider the impact of transport on food security in all transport policy and planning; ensure planning is not focused on the private motor vehicle as the dominant mode of access; ensure roads do not displace local business that provide existing food sources or take land being used for local food production; and promote policies that encourage local distribution of food within the city and urban fringe so that access to fresh food with the minimum of transport and packaging is available.
- Combine policy and planning decisions across transport, land use, and other relevant sectors in the management of automobile traffic and create walkable, safe neighbourhoods with mixed land use, public transport options and recreational facilities to encourage people of all ages and abilities to participate.

### 3.3.3 Transport and Healthy Environments

#### **Positive impacts on health**

- A healthy environment supports a good state of health for people, such as reduced risk of respiratory illness.
- Living in less dense housing environments has benefits for some people in increased living space and privacy.
- Improving environmental sustainability.

#### **Negative impacts on health**

- Vehicle emissions contribute to the risk of allergies and increase morbidity and mortality from respiratory disease. New Zealand studies have estimated that mortality in people aged over 30 is an “invisible road toll” equal to the number of fatalities caused by road crashes. Environmental pollutants from road transport are influenced by the composition of vehicle fuels, type of engine, particles from tyre tread, brake wear and road dust, driving conditions and driver behaviour.
- People become exposed to traffic pollutants from living or working in locations close to roadways, in-vehicle exposure, and exposure while walking or cycling. The level of exposure depends on the traffic density, the type of vehicle, particularly heavy vehicles with diesel engines, whether the environment is fairly enclosed or more open, and whether the traffic is congested or flowing freely. Recent research in both Australia and New Zealand has found that in-vehicle exposure may be higher than exposure for walking or cycling of the same duration especially in heavily congested traffic or when travelling behind a smoky vehicle.
- Traffic noise and vibration have an effect on health. Long term exposure to traffic noise has been associated with annoyance and stress which in turn are linked to increased risk of heart attacks, poor educational and work performance, aggression, and depression.
- Traffic noise and vibration disturb sleep, which affects sleep quality and daytime activities. They have been linked to a broad range of negative health effects such as high blood pressure and heart conditions.
- Other environmental impacts from land transport are the leaching to groundwater of industrial by-products used in road construction or the release of contaminants to air from dust and fumes, the impact

- Low density housing can provide some benefits for people in increased living space and privacy but there are also negative economic, social and environmental effects. Thinly spread development makes walking or cycling to workplaces, services and schools difficult or impossible, and public transport services less viable. As oil production peaks and starts to decline, people living in outer suburbs or the rural areas around cities become very vulnerable to pressures from increased fuel costs.
- More compact cities with higher residential density supports access to better public transport, better access to public facilities, and reduced social segregation but there are also negative impacts in a lack of affordable housing, reduced living space and fears about crime.

### **Actions**

- Use a combination of legislative and regulatory measures in combination with incentives and education to reduce the current and future environmental impact of transport related pollution. Legislative and regulatory measures cover areas such as technical and engineering improvements in vehicle engines, fuels, and road construction materials; integrated land use planning to separate freight corridors from residential areas, schools, and neighbourhood amenities; taxation and restrictions such as road-user and congestion charges, noise restrictions, and standards for fuels.
- Use incentives that make public transport safer, more affordable and more convenient; design urban areas so residents find it is safe, pleasant and more convenient to walk or cycle to utilities; and ensure amenities are located within a short distance.
- Build and foster relationships with Māori through such tools as memoranda of understanding or partnerships with iwi; foster the development of Māori capacity to contribute to land transport processes; and work to achieve better understanding of Māori principles within their own organisations.
- Develop “smart growth” policies which favour mixed land use, and provide medium to high density housing with good community facilities, high quality open spaces and good street connectivity to encourage development which is economically and environmentally sustainable.
- Use interventions that tax or restrict travel options simultaneously with incentives that make other modes of travel cheaper and more convenient. Restrictions range from policies that focus on increasing residential density where active transport is feasible; providing exclusion zones for certain types of traffic; reducing speed limits; preserving rural land on the outskirts of cities; and imposing taxes or charges on emissions, fuels, congestion, and parking. Incentives include boosting the convenience and safety of public transport and designing residential areas as pleasant safe environments with good connectivity to services and facilities so that walking and cycling are an easier choice than driving. Before implementing measures that affect core services, however, it is important to consider potential unintended effects on disadvantaged groups, for example, the impact of removing parking on people with disabilities, older people or those with young children.

#### **3.3.4 Specific population groups to consider**

The literature review confirmed that some population groups are more vulnerable than others. It particularly identifies the following:

- All people including children who are not regularly exercising for 30 minutes per day
- A study in Christchurch using geographically detailed and accurate estimates of vehicle air pollution found that more socially deprived areas with a greater proportion of Māori, Pacific peoples, and migrant groups had significantly higher levels of traffic-related pollution than high income areas.
- Economically and socially disadvantaged groups to ensure that the adverse impacts of accident risk and pollution are mitigated.



- The elderly population, people with physical mobility restrictions and those with disabilities require additional consideration in planning as do parents with young children Economically and socially disadvantaged people with disabilities.
- People with limited mobility
- Māori, who are over-represented in low income and the most deprived areas.
- Our grandchildren, so that they don't bear the long term negative environmental effects.
- The 161 ethnic groups in Christchurch of which the Chinese, Samoan, and Korean communities are the largest.
- The refugee communities of Afghanis, Somalis, Kurds, and Ethiopians who have high rates of unemployment and who are considerably disadvantaged in comparison to the rest of the population.

### 3.4 Appraisal workshops – key findings

#### 3.4.1 Workshop to assess the draft Objectives of the Christchurch Transport Plan

The CTP has nine draft objectives and these were assessed against the health themes of active lifestyles, equity, social capital, cultural diversity, access, housing, safety, healthy environments, community resilience and food security. The original intention was to assess each objective against each of the health themes of the literature review. However, the time frame meant it was not possible to discuss all of these and both amenity and economic development were not considered. The housing theme was only partially completed as the links between transport planning and housing are complex. The workshop was split over three separate meetings, held in March 2010. Attendees were the CTP HIA project team, transport planning staff and staff from the CDHB.

#### The main recommendations from the workshop are:

- Separate the Safety and Health objective to create a new objective for Public Health;
  - To achieve the CTP vision it must be recognised that all the CTP objectives are interlinked;
  - The CTP Objectives must lead all transport projects; this could be achieved through Project Initiation Briefs;
  - Provide guidance to project designers about priorities for each transport mode.
  - CTP supports the delivery of objectives in other plans such as the Greater Christchurch Travel Demand Strategy, the Greater Christchurch Urban Development Strategy and the City Plan;
  - Re-word some of the objectives as shown below. The original objective is given first, with the recommended reworded objective beneath it in bold.
1. Choice: The transport system enables people and their businesses to make choices as to when and how they travel.  
**Sustainable Choice: The transport system and land use enables people to make choices as to when and how they travel and when and how they move freight.**
  2. Safety and Health: The transport system enables safe travel and is designed to ensure the good health and well-being of our community.  
**Safety: The transport system and land use enables safe travel for everyone.**
  3. Accessibility: The transport system enables access to opportunities and social activities, for people of all abilities, to business, community and recreational areas.  
**Accessibility: The transport system and land use enhances access to opportunities and social activities, for all people, to business, community, cultural and recreational areas.**

4. **Efficient and Effective:** The transport system enables the efficient movement of people and goods, and transport facilities are designed to operate effectively.

**Efficient and Effective:** The transport system and land use enables the efficient and effective movement of people and goods, now and in the future.

5. **Economic:** The transport system is affordable for the community now and in the future, and ensures it is easy to do business and live. *No Change*
6. **Environment:** The transport system is designed to reduce its impact on the environment.

**Environment:** The transport system will reduce its impact on the environment.

7. **Amenity:** The transport system is well-designed ensuring that the Cities urban and rural areas are attractive and liveable, and the history and character of the City is maintained.

**Amenity:** The transport system and land use ensure that the City's urban and rural areas are attractive and liveable, and the history, cultures and character of the City is enhanced.

8. **Legibility:** The transport network is clearly understood and enables easy navigation between streets, landmarks and key activities.

**Legibility:** The transport system is clearly understood and easy to use.

9. **Public Health:** The transport system ensures good health and well being for all (new objective)

3.4.2 Workshop to consider the health impacts of two future transport scenarios.

The workshop used two scenarios of future transport systems (set in 2041) to promote discussion on the potential health impacts and key actions that the CTP could foster. The two scenarios are:

**Scenario A: Private Vehicle Mobility.**

- Improved roads, particularly key arterial links
- Targeted improvements to the road freight network
- Ample cheap or free parking
- Limited new investment in public transport, cycling and walking.

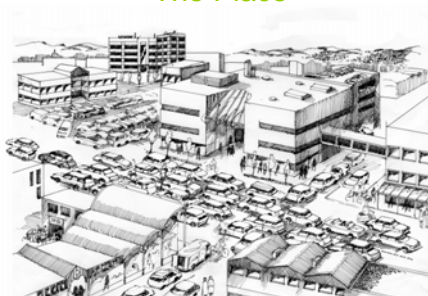
Home



The Journey



The Place



## Scenario B: Active and Public Transport

- High frequency public transport services, including to some outlying rural areas
- More mixed-use land use development
- Excellent cycling and walking facilities
- Ride sharing measures, park & ride facilities, lanes for vehicles carrying multiple passengers
- Marketing campaigns to encourage walking, cycling and public transport use
- Investment to enhance the movement of freight by truck, rail and shipping
- Road infrastructure maintained with limited or no new investment
- Increased parking charges.

Home



Place



The Journey



Workshop participants were asked to identify and prioritise the issues and actions required to enhance the positive health impacts and reduce the negative health impacts of each scenario. Appendix 2 details the workshop findings for each of the scenarios. Across both scenarios, there was much commonality in the priority issues and actions.

## Priority Issues

- Improved marketing to increase understanding of the full costs of personal vehicle use.
- Concerns with affordability of continued road investment.
- Futility of induced demand - build roads and they will be used therefore exacerbating congestion
- Lost generation of cycling, particularly amongst young people
- Need for good parenting/education to encourage cycling/walking
- Economic trade-offs from investment in roads rather than other sectors
- Need for education around mode choice and the links to wellbeing
- 'Tyranny of convenience' – travel to local shops by vehicle without taking into account the full costs and impact on personal health
- Importance of high quality urban design and land use planning which considers a range of health impacts.
- Land use planning and the location of industry/employment/housing
- Abilities of government agencies to affect change
- Need for greater inter-sectoral collaboration

### Priority Actions

- Inverting the priority pyramid to prioritise the needs of people rather than vehicles;
- Fostering interconnections across sectors to ensure that transport systems encompass planning and design, urban form, accessibility, road safety and not just engineering;
- Investing more significantly in active and public transport ( infrastructure and services);
- Improving urban design to improve active lifestyles
- Education and promotion for safety and transport choice;
- Enforcement and regulation, such as lower speed limits;
- Seeking broad engagement and new ways of engaging to foster more democratic participation in transport decision-making;
- Making use of technological solutions, such as talking bus stops and more fuel efficient or electric vehicles;
- Using the CTP to advocate to local and central government for increased funding for active and public transport and more effective regulation.
- Moving away from silos in the health/transport debate so that health and social wellbeing are considered work as normal in transport decisions.
- Workshop participants identified the need to influence decision makers. Some suggestions were as follows:

Workshops/seminars to educate and raise understanding of key issues Working with health professionals e.g. to better understand economic benefits, and to support recommendations Developing supporting images and models to provide evidence and support. Using international speakers to raise understanding of the issues. Widely sharing reports and recommendations such as through project launch event(s) Lobbying MPs and other decision-makers. Utilising lobby groups effectively. Use and influence other consultation exercises to promote awareness such as health promotions. Developing funding strategies to support implementation of improvements. Working with funders.
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#### 3.4.3 Māori Engagement – key findings

An important component of undertaking HIAs in New Zealand is to ensure that the principles of the Treaty of Waitangi are upheld. In addition, local government has the responsibility to provide opportunities for Māori to contribute to decision making processes.

A hui to engage the local Māori was held at Rehua Marae. The three key findings are described below, with more information on the hui in appendix 3.

##### 1. Provision for Kaumātua

One of the key themes to be discussed at the hui was the need to ensure that there is specific and special provision for kaumātua (elders) in the transport system. Specific concerns were raised about the ability and convenience for kaumātua to access and use the public transport system. Apprehension was raised around ensuring that community vans for kaumātua use were included in the same classification as the bus system.

In addition, there were concerns raised about etiquette for public transport users particularly where rangatahi (youth) no longer adhere to what was regarded as traditional ethical values, such as rangatahi giving up their seat for kaumātua. It was felt that a concerted effort should be applied to educating youth around the use of public transport.

## **2. Effects on Papatūānuku (Earth)**

It was noted that 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. There was discussion about the development of more open, green spaces and areas that signify cultural significance for Māori which provide a connection between place and people.

## **3. Recognition of the Treaty of Waitangi**

There was discussion about the importance of increasing access to Reo Māori through signage, in particular ensuring Māori place names are used including for example 'Pahi Kura' signs available for Kura Kaupapa and Kohanga Reo buses. There was discussion about the opportunity for Māori to provide feedback on the Draft CTP prior to it being released, to ensure that whakaaro Māori (Māori thoughts) are visible in and influence the CTP.

## 4 RECOMMENDATIONS AND ACTIONS FOR THE CHRISTCHURCH TRANSPORT PLAN

### 4.1 Introduction

This section details the recommendations and actions of the HIA for consideration as the CTP is developed and implemented. It draws on the evidence gathered from the literature review, area profile and appraisal workshops described in section 3. The recommendations and actions are designed to enhance the positive health impacts and reduce the negative health impacts of the transport system for public health and wellbeing.

It is important to recognise the recommendations and actions are closely linked. As such, they are not reported separately against the original three focus areas. For example, by providing high quality cycling facilities, such as separated cycle paths with increased separation from traffic, cycling becomes both safer and the facilities attract new people into cycling. Creating an environment where more people can cycle will encourage healthier and more active lifestyles.

### 4.2 Key Recommendations and Actions

#### 1 The Christchurch Transport Plan Direction

- Supports a future based on high levels of active and public transport.
- Supports a transport system that understands and reflects the needs of people rather than having a focus on moving vehicles.
- Provides guidance on the transport mode priorities.

Overall the HIA found that there were more health benefits from scenario B - high levels of active and public transport rather than a transport future based on high level of private mobility. Overall transport needs to focus on the movement of people rather than vehicles.

#### 2 The Objectives of the Christchurch Transport Plan

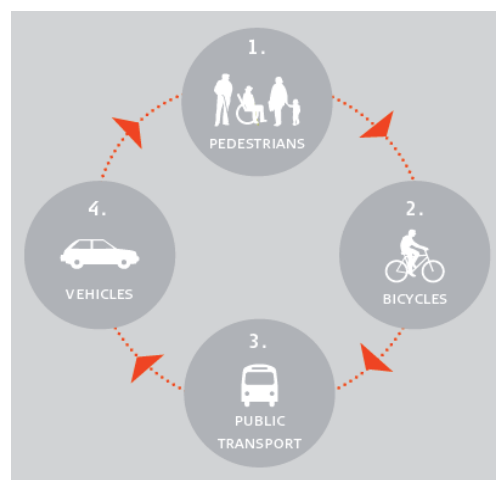
The CTP objectives should provide the guiding principles for all transport projects and programmes in Christchurch. They should be easily transferable to project briefs. To achieve good health outcomes it is important to recognise that they are all interlinked and must be weighted equally. The HIA recommends that a new objective is created for public health to give a stronger emphasis and transparency to health. This recommendation aligns with the CRLTS and enables public health to be embedded in transport projects and considered alongside other priorities. A number of wording changes (section 3.4.1) are recommended for eight of the objectives.

	<b>Actions</b>	<b>Influence</b>	<b>Responsibility</b>
1.	The objectives are reviewed to incorporate the suggested revised wording or the principles of health and sustainability that underpin these suggestions.	Relevant CCC personnel	CCC
2.	A new public health objective is developed	Relevant CCC personnel	CCC

### 3 Land use planning and transport planning are well integrated to enhance active lifestyles for Christchurch people

There is a need to integrate land use planning and transport to create connected communities and invest more significantly in active and public transport infrastructure and services.

The CTP should provide clear guidance on the transport priorities for each mode. It was found that current transport priorities are often conflicting. The application of the road user hierarchy (see diagram) could be used alongside the objectives to help communicate the priorities. Clearly defining the road user hierarchy will enable CTP to support projects which integrate land use and transport with improvements to walking, cycling and public transport.



	<b>Actions</b>	<b>Influence</b>	<b>Responsibility</b>
3.	Apply the road user hierarchy (see diagram) alongside the objectives to help communicate the transport mode priorities.	Relevant CCC personnel	CCC

### 4 Undertake further research to increase understanding of the public health costs of transport in Canterbury.

There is growing local and international evidence which demonstrates that road users do not bear the full costs of using the transport system including externalities such as air pollution, climate change, safety and traffic congestion. Consequently users undertake travel choices which impose costs on the environment, economy and health of the population that are not accounted for (Johansson O, Pearce D and Maddison D 1996).

Recent research undertaken for the New Zealand Transport Agency (2008) concluded that the public health benefits of active and public transport are often underestimated, or not taken into account, by traditional economic evaluation methods. Further research is needed to establish the external costs of transport for all modes so that decisions can be made which support public health, economic and environmental outcomes.

	<b>Actions</b>	<b>Influence</b>	<b>Responsibility</b>
4.	Undertake further research to increase understanding of the public health costs of transport in Canterbury. (see Appendix 5)	Local and Central Government	CDHB CCC ECan
5.	Use the Regional Transport Committee to communicate findings to lobby the Ministry of Transport and advocate for improved acknowledgement of health in transport funding decisions by Government.	Central Government	ECan
6.	Use research to influence consultation on transport policy and funding programmes.	Policy	CCC CDHB

### 5 Undertake Education and Marketing to increase public and staff awareness of the links between Public Health and Transport.

The HIA process included education about the links between health and transport. It became evident that these links are generally not well understood. It is anticipated that such education will encourage people to increase their physical activity, reduce car dependency and understand the true costs of transport.

	<b>Actions</b>	<b>Influence</b>	<b>Responsibility</b>
7.	Carry out education and marketing campaigns to <ul style="list-style-type: none"> <li>• Increase public understanding of the real costs of different travel choices.</li> <li>• Widely communicate the knowledge and understanding of health and transport built through the HIA.</li> </ul>	Christchurch residents	CCC
8.	Use local, national and international speakers to raise understanding of health and transport issues to local Council and staff.	Council CCC staff	CCC ECan CDHB
9.	Provide workshops and seminars on the benefits of evaluating health in transport, integrating land use and transport, of healthy street design.	CCC staff	CCC
10.	Share the HIA reports and recommendations widely to share methods, knowledge and information. Involve advocacy groups.	All	CCC
11.	Investigate how the full costs of the transport system and travel choices should be accounted for and considered by decision makers.	Local and national funding	CCC
12.	Ensure local funding decisions for transport recognise the importance of public health.	Local funding	CCC

## **6 Improve mobility for the transport disadvantaged**

It is recognised that supporting positive health outcomes for all people is important. However the HIA has identified particular groups of people as having particular priority with respect to either their poorer health outcomes or specific needs. These include those who are not regularly exercising for at least 30 minutes per day, Māori, Kaumātua (older people), people with physical mobility restrictions, those with disabilities, parents with young children, economically and socially disadvantaged groups, ethnic groups and refugee communities.

The HIA process has found evidence that advocacy planning, where representatives are appointed to advocate for a particular sector's interests, can provide social and decision-making benefits. Additionally, The Land Transport Management Act 2003 provides specific opportunities for Māori to participate in land transport decision-making processes.

	<b>Actions</b>	<b>Influence</b>	<b>Responsibility</b>
13.	Providing opportunities for Māori to provide feedback on the draft plan prior to it being released.	Local Decisions	CCC
14.	Work on improving engagement with Māori (building on the HIA hui example) and recognising the Treaty of Waitangi across transport projects.	Staff	CCC

## **7 Christchurch City Council Transport Projects**

Through the HIA workshops a number of transport projects were recommended in Christchurch which would improve health and sustainability outcomes.



	<b>Actions – to prioritise projects which:</b>	<b>Influence</b>	<b>Responsibility</b>
15.	Promote interconnectivity between other disciplines and population groups	Staff	CCC
16.	Integrate land use and transport planning to create safe, attractive, connected communities which are easily accessible by active and public transport	Council	CCC
17.	Educate youth around the use of public transport	Youth	CCC ECan
18.	Give special provision for kaumātua (elders) in the transport system	Transport professionals	CCC ECan
19.	Consider supporting the use of community vans	Council	CCC ECan
20.	Recognise and evaluate the effects of transport projects on access to Papatūānuku.	Transport professionals	CCC
21.	Provide education and promotion for safety and transport choice	Christchurch Residents	CCC
22.	Improve enforcement, especially for lower speed limits	Police / Christchurch Residents	CCC CDHB Police
23.	Support technological solutions, such as talking bus stops, fuel efficient vehicles and electric vehicles charging points.	Christchurch Residents	CCC

## 5.0 EVALUATION

The HIA has included an evaluation element from early in the process. A full evaluation report on the HIA process and how it has influenced the CTP is expected alongside the Consultation Draft Christchurch Transport Plan in 2011. The CTP HIA has been an excellent case study on the application of HIA and HPSTED to Transport planning.

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## Appendix 1

## HIA Participants

### Scoping Workshop - 9 December 2010

Susan Bidwell	Community and Public Health, CDHB.
Vincie Billante	Christchurch City Council
Alison Bourn	Community and Public Health, CDHB.
Ruth Foxon	Christchurch City Council
Adrian Field	Synergia
Alistair Humphrey	Community and Public Health, CDHB.
Trudy Jones	Christchurch City Council
Hector Mathews	Canterbury District Health Board
James Ryan	Environment Canterbury
Richard Shaw	New Zealand Transport Agency
Korine Stewart	Community and Public Health, Timaru CDHB.
Siobhan Storey	Christchurch City Council
Jill Waldron	Waimakariri Health Advisory Group

### Objectives workshop - Various days

Alison Bourn	Community and Public Health, CDHB
Ruth Foxon	Christchurch City Council
James Ryan	Environment Canterbury
Siobhan Storey	Christchurch City Council
Anna Stevenson	Community and Public Health
Trudy Jones	Christchurch City Council
Eynon Philips	Christchurch City Council
Mo Kachfi	Christchurch City Council
Simon Ginn	Christchurch City Council
Steve McNeil	Christchurch City Council

### Christchurch Appraisal Workshop - 7 May 2010

Paul Durdin	Ableys
Lisa Logan	Christchurch Resettlement Services
Brian Woolsey	Walking Group, Kaiapoi
Toni Durham	Ashburton District Council
Dirk de Lu	Spokes
Fiona Whero	Living Streets Canterbury
Simon Atkinson	Disabled Advisory Group
Ciarán Fox	Mental Health Foundation
Gloria Weeks	Disabled Advisory Group
Stephen Phillips	Age Concern
Joy Kingsbury-Aitken	Christchurch City Council
Maureen Bishop	Environment Canterbury
Tony Francis	Francis & Cambridge
Susan Cambridge	Francis & Cambridge
Edith Ieremia	Community and Public Health - Pacific Communities
Wendy Everingham	Project Lyttelton
Taz Mukorombindo	CPIT and Central City Business Association
Ric Hyden	Ministry of Social Development
Lisa Clifford	Dunedin City Council
Laila Cooper	Canterbury Community PHO
Meg Christie	Community and Public Health
Adrian Field	Synergia
Alison Bourn	Community and Public Health

James Ryan	Environment Canterbury
Ruth Foxon	Christchurch City Council
Anna Stevenson	Community and Public Health

### **Rehua Marae Hui - 28 May 2010**

Nick Te Paa  
Sue Tipene  
Doug Couch  
Hector Matthews  
Marlene Kamo  
Shadrach Rolleston  
Henare R Tai  
Mita Te Hae  
Maria Tait  
Jo McLean  
Lee Tuki  
Theresa Rongonui  
Alison Bourn  
Ruth Foxon  
James Ryan

## Appendix 2

## Assessment Workshop Findings

The following table records the workshop findings of the scenarios on the focus areas (safety, travel choice and healthy environment).

### Scenario A: High Car Dependence

	Safety	Transport Mode Choice	Healthy Environments
<b>Positive health implications</b>	<ul style="list-style-type: none"> <li>▪ New roads and car technology will be designed to be safer.</li> <li>▪ Freight trucks may be less inclined to travel on residential and local roads making smaller urban streets easier for others to use.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Convenience of vehicles for providing mobility and participating in society.</li> <li>▪ Provide efficient freight movement which supports economic development, employment with the resulting health benefits.</li> <li>▪ If this scenario meets the needs of vehicles, then driving would be a less stressful experience, particularly if there was investment in key arterials reducing 'rat-running'. However, this would be undermined if significant levels of congestion grew.</li> </ul>	<p>A limited number of potential benefits were identified from this scenario.</p> <ul style="list-style-type: none"> <li>▪ Improved access to rural areas could lower land prices and make housing more affordable.</li> <li>▪ Other benefits are more convenient parking facilities, and journey time savings.</li> </ul>
<b>Negative health implications</b>	<ul style="list-style-type: none"> <li>▪ Increased risk of injuries and fatalities, particularly for pedestrians and cyclists.</li> <li>▪ Adverse affects on perceptions of safety, thus undermining physical activity</li> <li>▪ Increase in stress arising from traffic congestion.</li> <li>▪ Increased number of car and truck crashes i.e. more deaths and injuries.</li> <li>▪ Increase in social costs from vehicle crashes.</li> <li>▪ More traffic conflicts with heavy vehicles.</li> <li>▪ Exacerbation of community severance with fewer people willing to go out on to the streets, creating 'dead zones' of public life. With fewer eyes on the streets, a negative cycle may emerge of ever greater unwillingness to use urban streets on foot, heightening the sense of isolation and lack of safety.</li> <li>▪ Older people may be more inclined to drive to an age beyond their capabilities</li> <li>▪ The long-term affordability of the road investment model was questioned, with no obvious investment in</li> </ul>	<ul style="list-style-type: none"> <li>▪ Supporting the needs of vehicle drivers does little to support physical activity.</li> <li>▪ The ongoing growth in the numbers of vehicles on the road was seen to make other travel modes (walking, cycling and public transport) less attractive.</li> <li>▪ Less pleasant for walking and cycling.</li> <li>▪ Increased congestion.</li> <li>▪ Those who are already transport disadvantaged i.e. unable to afford or drive cars are likely to be further disenfranchised.</li> <li>▪ Increased exposure to fuel price volatility.</li> <li>▪ Decreased journey time reliability.</li> <li>▪ Would result in a 'lost generation' of young cyclists to the region.</li> <li>▪ If fuel costs continue to rise how sustainable is this scenario?</li> </ul>	<ul style="list-style-type: none"> <li>▪ Increase in health problems associated with higher emissions (such as respiratory conditions), noise (including mental health), congestion and vibrations.</li> <li>▪ Less amenable for people.</li> <li>▪ Increased urban sprawl.</li> <li>▪ Community severance.</li> <li>▪ Loss of productive land to low density development.</li> <li>▪ Loss of urban amenity to parking and road space.</li> <li>▪ Reduced amenity value of urban environments, through being less pleasant to spend time in, and less land available for recreation;</li> <li>▪ Potentially adverse economic impacts associated with the loss of business space due to the need for more land associated with vehicles and parking;</li> <li>▪ Less permeability which adversely affects storm water run-off.</li> </ul>

	<ul style="list-style-type: none"> <li>alternative technologies</li> <li>Pressure on traffic management caused by ongoing road investment</li> </ul>		
<b>What actions are needed to reduce the negative implications and enhance the positive implications?</b>	<ul style="list-style-type: none"> <li>Increase road safety budget proportional to road spending.</li> <li>Increase road space for walking or cycling.</li> <li>Segregated cycle lanes.</li> <li>Provide dedicated freight network.</li> <li>Integrate walking, cycling and public transport with all roading projects.</li> <li>Implement restricted speed zones in residential areas.</li> <li>Use urban design principles and traffic calming measures to encourage activity.</li> <li>Make driver testing harder.</li> <li>Actively support the increase of pedestrians in the central city.</li> <li>Implement disincentive measures for car use such as congestion charges.</li> <li>Use travel demand management strategies to give priority to active transport modes.</li> <li>Limit the speeds of cars for example at Governors Bay.</li> <li>Driver education and marketing.</li> </ul>	<ul style="list-style-type: none"> <li>Develop park and ride facilities.</li> <li>Encourage active transport at schools and workplaces.</li> <li>Encourage mixed use development to support greater travel choice.</li> <li>Provide walking and cycling infrastructure eg bridge clip-ons.</li> <li>Pursue travel demand management more aggressively.</li> <li>Improve bus fleet accessibility.</li> <li>Support Gold card and other subsidised public transport initiatives.</li> <li>Support car clubs.</li> <li>Cycling marketing eg to encourage recreational cyclists to become commuter cyclists.</li> <li>Enhance public transport integration eg rail/buses and feeder services.</li> <li>Off-street cycle lanes.</li> <li>Expand bus services.</li> <li>More bike festivals</li> <li>Incentivise active and public transport use.</li> <li>Encourage ridesharing.</li> <li>Regional fuel tax.</li> <li>Compulsory travel plans.</li> <li>Congestion charging.</li> <li>Increase parking costs.</li> </ul>	<ul style="list-style-type: none"> <li>Use land use planning such as district plans to achieve goals.</li> <li>Work more closely with developers to ensure high quality outcomes.</li> <li>Ensure high quality urban design which enhances active transport.</li> <li>Enhance public transport.</li> <li>Mitigate traffic noise including through improved road surface conditions.</li> <li>Tougher emission rules.</li> <li>Improve the vehicle fleet.</li> <li>Restrict the supply of parking (business and residential).</li> <li>Require cycle parking in commercial developments.</li> <li>More bus priority lanes.</li> <li>High occupancy vehicle lanes.</li> <li>Encourage ridesharing.</li> <li>Improve walking and cycling infrastructure.</li> <li>Encourage more fuel efficient and electric vehicles.</li> <li>Fuel tax.</li> <li>Support more rail freight and coastal shipping.</li> <li>Education and marketing eg health benefits calculator.</li> <li>Ensure road users pay full costs.</li> <li>Ensure natural buffers and amenities in road development.</li> </ul>

## Scenario B: Increased Active and Public Transport

	<b>Safety</b>	<b>Transport Mode Choice</b>	<b>Healthy Environments</b>
<b>Positive health implications</b>	<ul style="list-style-type: none"> <li>Safer environment for people to undertake physical activity</li> <li>Improved health outcomes due to increased physical activity.</li> <li>Safety in numbers for cycling.</li> <li>Possible lower infrastructure &amp; medical costs, through reduced reliance on road network expansions and fewer people presenting with injuries.</li> <li>Less vehicle crashes.</li> <li>Improvements in mental and physical health.</li> </ul>	<ul style="list-style-type: none"> <li>Provides a range of transport choices</li> <li>Additional travel options for some population groups such as school children;</li> <li>Supports physical activity as part of daily life for more people, such as through walking and cycling to destinations, and walking to public transport stops;</li> <li>Economic benefits of transport choices (including the potential for reducing traffic congestion and more efficient use of the transport network), and</li> </ul>	<ul style="list-style-type: none"> <li>Improved health outcomes.</li> <li>More healthy school children: improved education.</li> <li>Improvements to air and water quality as a result of fewer emissions.</li> <li>Less noise emissions.</li> <li>Reduced expenditure on roading.</li> <li>More disposable income – local spending.</li> <li>Better access to local shops and community facilities.</li> <li>Supporting more intensive land use development</li> <li>Improved population health and reduced health system costs over</li> </ul>

		<p>reducing the need for road investment;</p> <ul style="list-style-type: none"> <li>▪ Accessible buses;</li> <li>▪ Improving access to services, facilities and amenities;</li> <li>▪ More disposable income (through less household expenditure on transport)</li> <li>▪ Social and economic benefits of travel choices.</li> </ul>	<p>time.</p> <ul style="list-style-type: none"> <li>▪ Savings on road maintenance, with less need to build and maintain roads.</li> </ul>
<b>Negative health implications</b>	<ul style="list-style-type: none"> <li>▪ This scenario poses the challenge of a cultural shift from all users of roads and footpaths. The challenges that planners seeking to create such a scenario would need to contend with include:</li> <li>▪ Shared path conflicts between different users; for example, older people and people with disabilities may be less inclined to use footpaths and public transport stops if they are more worried about being knocked over by a cyclist;</li> <li>▪ Shift in current driver attitudes and behaviours;</li> <li>▪ Improving cyclist skills and responsibilities (including use of bells);</li> <li>▪ Potential for jaywalking.</li> <li>▪ Ensuring personal security for public transport users.</li> <li>▪ Potential for increase in walking and cycling injuries.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Safety fears associated with walking, cycling or using public transport. Lack of understanding on walking, cycling safety.</li> <li>▪ Social pressure not to cycle or bus. (bus seen as the “looser cruiser”)</li> <li>▪ Challenge to achieve culture change. The level of investment required to achieve changes in mode choice would be significant.</li> <li>▪ Potential for adverse economic impacts upon the local car industry.</li> </ul>	
<b>What actions are needed to reduce the negative implications and enhance the positive implications?</b>	<ul style="list-style-type: none"> <li>▪ Enhance shared path design.</li> <li>▪ Education for all users.</li> <li>▪ Ensure parking enforcement.</li> <li>▪ Improve tactile paths, street lighting and full road crossings.</li> <li>▪ Reduce vehicle speeds.</li> <li>▪ Remove street clutter eg sandwich boards.</li> <li>▪ Marketing to raise awareness and promotion of health benefits.</li> <li>▪ Self explaining roads – know type of speed from design.</li> <li>▪ Enhance urban design.</li> <li>▪ Talking bus stops.</li> <li>▪ Ensure high quality customer training for bus drivers.</li> <li>▪ Promote safety and benefits of change to employers.</li> <li>▪ Need to improve cycle skills and safety.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Enhance the availability and quality of cycle parking.</li> <li>▪ Provide park and ride facilities.</li> <li>▪ Encourage the use of cycles on buses.</li> <li>▪ Provide safe cycle infrastructure eg cycle lane on Waimakariri bridge.</li> <li>▪ Enhance walking, cycling and public transport infrastructure.</li> <li>▪ Ensure high standards of urban design in new developments.</li> <li>▪ Make better use of rail network to regional towns.</li> <li>▪ Move stations – centre of town or free shuttles – same ticket.</li> <li>▪ Improve public transport to hospitals.</li> <li>▪ Leverage business and tourist opportunities for cycling improvements.</li> <li>▪ Improve public transport information.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Ensure funding to support active and public transport improvements through for example Regional Land Transport Programme.</li> <li>▪ Use savings from reduced road spending to invest in improving safety on rural roads.</li> <li>▪ Travel plans.</li> <li>▪ Education and behaviour change campaigns.</li> <li>▪ Lower speeds around schools.</li> <li>▪ Bike racks on school bus.</li> <li>▪ Safe cycle parking.</li> <li>▪ Ensure political support for initiatives.</li> </ul>

## Appendix 3 Engagement with Māori

This appendix provides a report about the hui held on 28 May 2010

### Background

An important component of undertaking HIAs in New Zealand is to ensure that the principles of the Treaty of Waitangi are upheld. In addition, local government has the responsibility to provide opportunities for Māori to contribute to decision making processes (mandated by legislation including the Local Government Act 2002).

*'In New Zealand, Māori at all socioeconomic levels have worse health status than non-Māori. Persistent ethnic disparities suggest that there are other features in our society that produce ill-health in Māori and other groups such as Pacific peoples. Institutional racism, and the effects of colonisation and land confiscations (eg, by narrowing the Māori economic base and reducing Māori political influence) may play an important part in contributing to inequalities.'* (Ministry of Health 2006).

Social indicators in Canterbury demonstrate the need of targeted consideration for Māori. Despite a number of specific health and social programmes to lift the status of Māori in Canterbury, social indicators continue to exhibit poor success and increased negative statistics in relation to health, education, standard of living and income (Canterbury District Health Board, 2010).

The rate of death from all causes is significantly higher for Māori than for non-Māori in Canterbury. The five leading causes of death for Māori in Canterbury are ischaemic heart disease, lung cancer, chronic obstructive pulmonary disease, type 2 diabetes and transport accidents.

Transport accidents (most of which were motor vehicle related) is the one of the leading causes of death for Māori in Canterbury. Māori (14%) are more likely to be involved in fatalities than non-Māori (9.7%) (Canterbury District Health Board, 2010). While mortality by way of transport accidents is shown to be slightly more prevalent for Māori, it is less frequent in Canterbury than for Māori on a national scale (21.5%) and was closer to the national non-Māori (11.4%) rate of mortality by transport accidents.

The opportunity for Māori to contribute to the development of this HIA has occurred through a number of approaches:

*Community engagement* through a hui at Rehua Marae in May 2010. An invitation was distributed to a wide-ranging group of representatives of the community;

*Participation of Māori in the project team:* in addition to the guidance afforded by Hector Matthews (*Executive Director of Māori and Pacific Health, CDHB*), expert assistance in relation to the relationship between urban design and Māori knowledge was offered by Shadrach Rolleston (Policy Adviser). Lee Tuki (health promoter for CDHB) and Theresa Rongonui (Consultant, Kaa Te Rama Consultancy) provided support in the engagement and subsequent writing of this report. Ted Te Hae and Bob Tai.

### Māori perspectives of the Environment and urban design

Māori have a unique relationship with the environment that is demonstrated in the traditional knowledge systems and the spiritual, cultural, economic and social importance Māori place on the environment.

To date, urban planning and design have not taken Māori perspectives of the environment into account and urban development has often eroded the relationship that Māori have with the environment. Many 'concrete jungles' now replace areas that previously offered an opportunity to reconnect with Papatuanuku (the Earth Mother), effectively taking away the ability to ensure that spiritual, cultural and social opportunities that formerly took place, can no longer occur. The connection with people, places and spaces is a concept that Māori have traditionally lived by. Rolleston (2010) recognises a particular set of principles that create an on-going relationship with the environment. These are:



• <i>kāitiakitanga</i>	<i>guardianship and stewardship;</i>
• <i>kotahitanga</i>	<i>collaboration;</i>
• <i>mana</i>	<i>authority and control;</i>
• <i>mauri</i>	<i>life principles;</i>
• <i>mātauranga</i>	<i>knowledge, expertise;</i>
• <i>tapu and rāhui</i>	<i>sanctions and restrictions;</i>
• <i>rangatiratanga</i>	<i>autonomy;</i>
• <i>tikanga</i>	<i>protocols and regulations;</i>
• <i>whakapapa</i>	<i>genealogical connections and</i>
• <i>whanaungatanga</i>	<i>relationships.</i>

The sustainable nature of these concepts positively contribute to environmental management and urban design. Ongoing build up of urban development allows places of cultural significance to be forgotten about as each layer of urban design that is added presents another barrier to connection to whakapapa and traditional Māori ways of living.

### **Māori consultation**

There were three key recommendations identified at the hui.

#### **1. Provision for Kaumātua**

One of the key themes to be discussed at the hui was the need to ensure that there is specific and special provision for kaumātua (elders) in the transport system. Specific concerns were raised about the ability and convenience for kaumātua to access and use the public transport system. Apprehension was raised around ensuring that community vans for kaumātua use were included in the same classification as the bus system.

In addition, there were concerns raised about etiquette for public transport users particularly where rangatahi (youth) no longer adhere to what was regarded as traditional ethical values, such as rangatahi giving up their seat for kaumātua. It was felt that a concerted effort should be applied to educating youth around the use of public transport.

#### **2. Effects on Papatūānuku (Earth)**

It was noted that the intensification of urban areas has contributed to decreased access for Māori to Papatuanuku. This situation was exacerbated by ongoing development of roads, highways and other transport infrastructure. There was discussion about the development of more open, green spaces and areas that signify cultural significance for Māori which provide a connection between place and people.

#### **3. Recognition of the Treaty of Waitangi**

There was discussion about the importance of increasing access to Reo Māori through signage, in particular ensuring Māori place names are used including for example 'Pahi Kura' signs available for Kura Kaupapa and Kohanga Reo buses.

There was discussion about the opportunity for Māori to provide feedback on the Draft RLTS prior to it being released, to ensure that whakaaro Māori (Māori thoughts) are visible in and influence the RLTS.

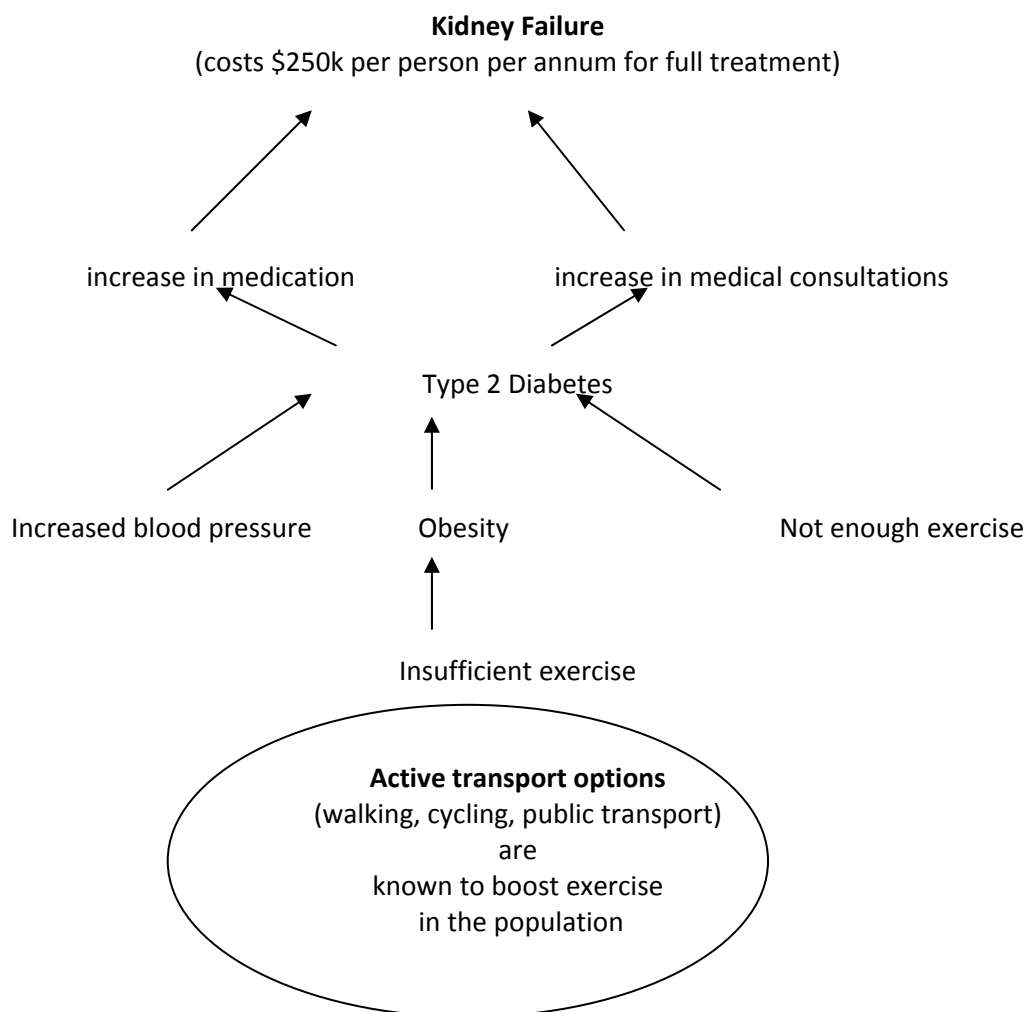
## Appendix 4

## How are Transport Planning and Health linked?

Dr Alistair Humphrey, Canterbury Medical Officer of Health presented about this HIA to the Canterbury Regional Transport Committee on August 2010. This is extracted from his talk.

### From Renal Failure to Active Transport

*Although causal relationships between transport interventions and health outcomes from increased physical activity have been difficult to measure and prove in individual studies, evidence of positive effects is now building from longitudinal studies. Natural experiments that are taking place at the moment will add to the accumulating evidence.*



**Cautionary Note:** In drafting this causal pathway it is acknowledged that there are many interrelated factors that determine an individual's health. The point of this pathway is to demonstrate a logical link between a health outcome and physical activity.

## Appendix 5      Quantifying The Economic Benefit Of Increasing Physical Activity

A paper to contribute to action 4 was prepared during the writing of this report. The summary follows. The full paper is available on <http://www.cph.co.nz/About%2DUUs/Health%2DImpact%2DAssessment/>

### Key points




- Inactivity has significant costs for the health system. For example, an Australian report estimated the direct gross cost of physical inactivity to the Australian health budget in 2006/2007 was \$1.49 billion.
- Cost benefit analyses of existing interventions in pedestrian and cycling infrastructure along with social campaigns to encourage people to use them have shown that the benefits far outweigh the costs and are a “best buy” for personal health, the health system, and the transport sector.
- The New Zealand Transport Agency Economic Evaluation Manual has calculated a benefit for a new pedestrian facility (such as a footpath or walkway) of \$2.70 for each kilometre of pedestrian use of the new structure. For new cycle facilities, the benefit is calculated at \$1.45 for each kilometre of cyclist use of the new structure. These benefits are applied for all users, as it is assumed that a facility that enhances the walking or cycling environment will encourage existing pedestrians and cyclists to continue using that mode of transport.
- The same manual has also calculated that infrastructure improvement and/or subsidies combined with travel plans for workplaces and schools can achieve benefits valued between \$58.21-\$196.51 per employee per year for workplaces in Christchurch in the CBD, and benefits of \$74.83 per pupil for primary and \$77.97 for secondary schools. The benefits are the average annual benefit for *all* people in the workplace or school whether or not they move to more active transport modes.
- A three year intervention funded by Cycling England and local authorities in six cycling demonstration towns returned £2.59 for every £1 invested in decreased mortality alone, without taking any other benefits into account. It was estimated that £45 million would be saved over 10 years in reduced all-cause mortality in adults aged 20-60 years and £1-3 million in absenteeism. Based on the initial success of the initiative, eleven additional towns and one city were added to the scheme as well as a further investment of £140 million for the next three years.
- A systematic review of sixteen economic evaluations of the health effects of transport interventions that increased walking and cycling found that the mean benefit-cost ratio was 5:1. and even at the most conservative estimate the value for each new cyclist or walker would be at least €127.
- Aside from reduced all-cause mortality, and health care costs, there are measurable benefits in decreased morbidity, pollution, absenteeism, and traffic congestion.
- Better methods of valuing indirect benefits to economic productivity and social connectedness are needed as well as more longitudinal studies to provide a sounder evidence base on which to base projections of future impact for planned interventions.



## Appendix B: Vision, Goals, objectives and Outcomes

This table illustrates how the Plans objectives and goals achieve multiple outcomes through both direct and indirect relationships.

Vision: Christchurch is easy to move around								
Council Outcome	CTP Goals							
	1. Improving Access and Choice			2. Create Vibrant, Healthy and Liveable Communities			3. Support Economic Vitality	4. Leaving a Positive Impact on the environment
Objective	1.1 Use the transport network more efficiently	1.2 Balancing the networks	1.3 Deliver high quality information and education services	2.1 Supporting recovery	2.2 Integrated transport and land use planning	2.3 Safer Systems	3.1 Easy movement of and access to goods and services	4.1 Reduce emissions and invest in green and resilient infrastructure
<b>Liveable City</b> There are a range of travel options that meet the needs of people and businesses.	?	?	?	*	*	-	?	?
An increased proportion of journeys are made by foot, cycle and public transport.	?	?	?	-	?	?	*	?
The transport system provides people with access to economic, social and	*	*	?	?	?	-	?	*
Streetscape, public open space and public buildings enhance the look and function of	-	-	-	*	*	*	*	*
<b>Strong Community</b> Transport safety is improved.	*	-	?	-	*	?	-	-
Risks to public health and injury are minimised	-	-	?	-	*	?	-	*
<b>Prosperous City</b> Christchurch's infrastructure supports sustainable economic growth.	?	*	-	*	?	-	?	?
<b>Healthy Environments</b> Energy is used more efficiently.	?	?	*	-	?	-	*	??
Christchurch is prepared for the future challenges and opportunities for climate	?	?	*	-	?	-	*	?

Direct relationship		Indirect relationship		No direct relationship	
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## Appendix C: Draft Road Classification System, the Liveable Streets Approach

### Introducing the Liveable Streets approach

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#### Introduction

A proposed new road classification system, called 'Liveable Streets' is being developed to replace the existing road classification. The Liveable Streets classification system combines and adapts a number of existing approaches. These include a Liveable Arterials Plan - developed by Auckland City Council 2009, the Living Streets Charter - adopted by Christchurch City Council in 2000, and New Zealand Standard 4404:2010 which is the national standard for land subdivision. The following document explains the Liveable Streets classification system further.

#### Background

**The Liveable Streets classification system builds on Christchurch's existing link-based road classification system.**

The existing road hierarchy classification system for Christchurch has been used as an important planning tool since the late 1950's. It is integral to the City Plan and sets out how roads are managed and improved. Whilst the existing four level hierarchy (Major Arterial/Minor Arterial/Collector/Local Road) is attractive for its relative simplicity, it would retain a coarseness that would be a significant impediment to reflecting the true diversity of (existing and aspirational) movement functions. Additional 'levels' have been added where it is considered that a distinction would be helpful (e.g. an anticipated range of traffic volumes and/or where an appropriate cross-section to cater for the needs may be distinguishable from an adjacent level). Most terminology has been changed to distinguish the Liveable Streets classification system for the existing system and herald this new approach. The Liveable Streets classification system consists of eight main road types that reflect the link function. The classification for the link function of a road segment is analogous to the existing four-level hierarchy approach. It is however, defined by three main levels, that of Routes, Streets and Ways, which is outlined further in Section 3 of this appendix

**The Liveable Streets Classification system encourages better integration of road network with land use.**

The existing road hierarchy classification system primarily focuses on private vehicle travel, it seldom takes sufficient account of the communities and environment that surround our streets. The Liveable Streets classification system presents a more balanced view of the 'place' (land use) function of streets along with their movement or 'link' function. Six categories that reflect the different 'place' requirements are introduced (Rural, Semi-Rural, Industrial, Residential, Centres and Central City). In reality there are many more dimensions, beyond these six place types however, land use types have been simplified into this six place types in order to avoid the Liveable Streets classification system becoming overly complicated

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 (refer to Section 4 for more detail). More detail on the place types is outlined further in Section 6 of this appendix.

**The Liveable Streets Classification system recognises priority routes for each mode, to reduce conflicts.**

The Liveable Streets classification system also recognises the modal networks (freight, cycling, walking, public transport and strategic roads) outlined in the Christchurch Transport Plan. Further information on the principles of the modal networks can be found in Section 5 of this appendix.

## Objectives

The Liveable Streets classification system also has the following objectives:

1. **Improved amenity and context sensitive design and management:** The design and management of each road segment considers the surrounding conditions and circumstances of each road corridor in order to determine the most appropriate appearance/layout and the appropriate operational management (speed limits, parking restrictions etc).
2. **Self explaining roads:** The principle of self explaining roads is that drivers are encouraged to naturally adapt their driving style and speed with the design and function of the road/street. The aim being that different classes of roads should be distinctive, and within in each class features such as width of carriageway, road markings, signing, and use of street lighting will be consistent throughout the network. Drivers will perceive the type of road and instinctively know how to behave. The environment effectively provides a 'label' for the particular type of road resulting in less need for separate traffic control devices such as additional traffic signs to regulate traffic behaviour. Such an approach uses simplicity and consistency of design to reduce driver stress and driver error.

Table 1 shows how the Liveable Streets classification system achieves the Christchurch Transport Plan's goals.

Draft Christchurch Transport Plan Goals	How the Liveable Street classification achieves the CTP's goals
Improving access and choice	Provide greater access and modal choice, by defining networks for alternative transport modes.
Creating safe, healthy and liveable communities	Recognising the communities that surround the road corridor, through identifying place types.
Supporting economic vitality	Continuing to recognise that transport has the important economic role of moving goods and people, by categorising transport links in terms of their movement function through recognising link types.
Creating opportunities for environmental enhancements	Encouraging greater use of more sustainable modes (such as walking, cycling and public transport).



## Link and Place Classification

The classification system proposes that there are Eight road classifications to represent the 'link' requirements and six area classifications to represent the 'place' requirements.

			PLACE					
			Rural	Semi-Rural	Urban (Industrial)	Urban (Residential)	Urban (Centres)	Urban (CBD)
LINK	Routes	State Highway Route	NZTA					
		District Arterial Route						
		Minor Arterial						
	Streets	Main Distributor Street	Local Authority					
		Local Distributor Street						
		Typical Street						
		Slow Street						
	Ways	Way						

## Link Types

The classification for the link function of a road segment is defined by three main levels: Routes, Streets and Ways.

**Routes** are those corridors that are most important for movement function, particularly at a national, regional and metropolitan level. Routes comprise of 3 main types:

- **State Highway Routes** are the corridors of most strategic importance (National, Regional and Sub-regional). These corridors are under the control of the New Zealand Transport Agency. The principle role of state highway routes is the efficient distribution of goods and people. In most cases they will be designed for higher-speed travel. Within urban areas speeds will reflect a balance between the route function and the needs of the surrounding area.
- **District Arterial Routes** reflect the next level of through-travel movement. They reflect high demand for longer-distance travel, at a metropolitan (city) level.
- **Minor Arterials** do not have a particular strategic importance, nevertheless are important for trips throughout the city. They also have more of an access function than District Arterial Routes. Minor Arterials are considered to be both routes and streets.

**Streets make up the remainder of the road network, streets are considered to be more intimate and people friendly environments.** Streets comprise of 4 types:

- **Main Distributor Streets** are corridors that reflect a lower (through-travel) movement function than arterials but are important in the distribution of trips around the city. They will however also tend to have a higher access function than Arterial Routes.
- **Local Distributor Streets** are important for distribution of travel demand at the local, neighbourhood level. This type will generally have traffic volumes higher than a 'typical street' as a result of this function.
- **Typical Streets** are characterised by relatively low traffic volumes and less through-traffic movement. Their principal movement role is to provide access to properties, be it a business site or residential area.
- **Slow Streets** have low traffic volumes and/or a very high place function. They will most typically be found in places with high pedestrian demand and where the role of pedestrians is considered a priority over traffic.

**Ways** are in effect 'special cases' where it is deemed that a road should be given a unique classification. Reasons for a 'way' designation could relate to access-control, tourist routes, recreational routes etc.

## Place Types






'Place' has been defined using 6 classifications:

- **Rural:** Agricultural and undeveloped areas
- **Semi Rural:** the transition between rural and urban and peri-urban
- **Urban Industrial:** Industrial areas and suburban office parks
- **Urban Residential:** Built up area within the city limits including urbanised settlements on Banks Peninsula. Excludes the central city
- **Urban Centres:** Key Activity Centres, retail or commercial centres, significant public facilities (such as the University of Canterbury), and the central city (within and including the four avenues, except for the central business district).
- **Urban Central Business District:** The Compact Central Business District, as defined in the draft Central City Recovery Plan (bounded by Manchester Street, Lichfield Street and the Avon River).

## Transport Networks

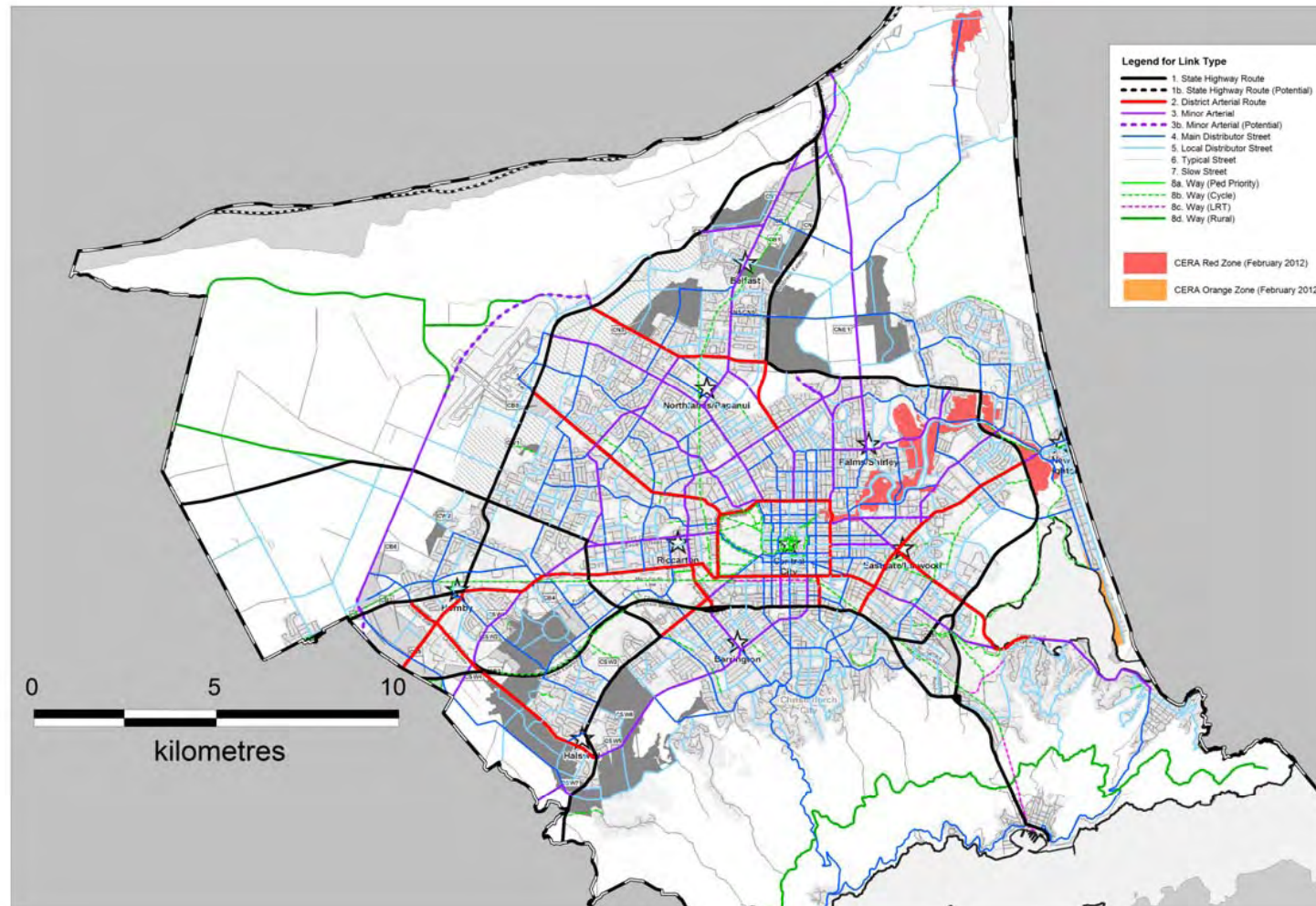
The following five transport networks are proposed in the Christchurch Transport Plan:

- Strategic roads
- Freight routes
- Public transport routes
- Walking centres
- Cycling routes

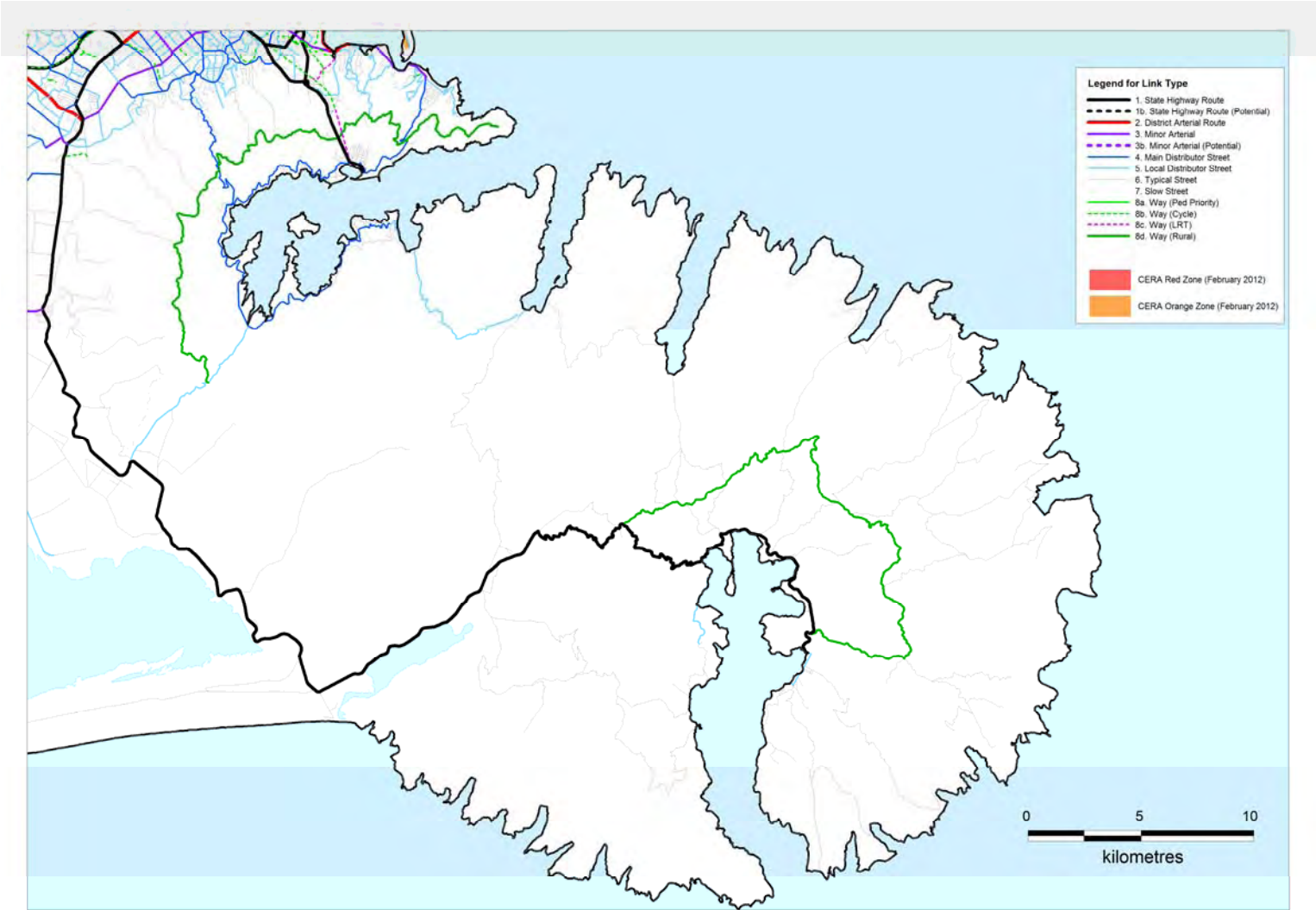
	<b>Transport Network Principles and Criteria</b>
 Strategic roads	<b><i>Journey reliability on strategic roads, reducing conflict with adjacent land uses and other modes</i></b> <ul style="list-style-type: none"> <li>- State Highway: Roads that form a nationally strategic purpose in moving people and goods nationwide. State highways provide for longer distance traffic movement, connecting regional centres and are a preferred route to other arterials which have more conflict with adjacent land uses.</li> <li>- District Arterials: Provides for traffic travelling across the city and connections to the state highway.</li> <li>- Minor Arterials: Provides for access to key activity centres and connections to district arterial and state highways.</li> </ul>
 Freight	<b><i>Freight journey reliability on designated freight routes reducing conflict with adjacent land uses</i></b> <ul style="list-style-type: none"> <li>- Strategic Freight Routes: Provide for national and regional freight movement linking freight hubs, the port and airport to the national network. Routes have been designated to give direct links to the hubs whilst where possible avoiding residential areas.</li> <li>- Local Freight Routes: Provides for local freight access connecting industrial areas to the strategic freight routes.</li> <li>- Supporting Freight Route: Increases resilience on the network by providing for safe, occasional movement of hazardous goods, as an alternative to the Lyttelton tunnel.</li> </ul>
 Public Transport	<b><i>Attractive and efficient public transport corridors to enable journey reliability on core routes and provide good connectivity with key destinations and other modes</i></b> <ul style="list-style-type: none"> <li>- Core Route: Provides for high patronage and high frequency services connecting key activity centres with local services.</li> <li>- Connection Points: Located where there is the ability to safely and efficiently transfer between core and local services. Connection points are located to enable easy transition to other modes and provide quality infrastructure.</li> </ul>
 Walking	<b><i>Attractive streetscapes for walking, improving safety and reducing conflict with all other modes</i></b> <ul style="list-style-type: none"> <li>- Central City: provides for the highest pedestrian demand. Good pedestrian connections, following desire lines, to surrounding areas within a 20 min walk.</li> <li>- Centres: Provide good pedestrian access in areas of high pedestrian demand, especially in key activity centres and other commercial and retail centres. Good pedestrian connections, following desire lines to surrounding areas within a 10 min walk.</li> <li>- Safe routes: Within 15 min walk to schools and other key destinations to achieve high level of safety and amenity (applying access for all and CPTED principles).</li> <li>- Recreational route: Off road or quiet routes of recreational value, linking key destinations and recreational areas.</li> </ul>
 Cycling	<b><i>Attractive cycling network, improving safety, connectivity, visibility and reducing conflict with all other modes</i></b> <ul style="list-style-type: none"> <li>- Major Cycle Routes: exemplar facilities where cycling is the highest priority. Routes follow high demand cycle corridors (by commuter, education and recreational users) providing efficient, continuous and comfortable connections to urban centres, the University and CPIT. Routes are separated from other modes, connect to the local cycle routes, have safe crossing facilities, lighting and good signage.</li> <li>- Local Cycle Routes: Provide local cycle connections to major cycle routes, schools, tertiary education and other places of interest (community centres, parks, recreational routes). Local cycle routes are often on quieter streets, with greater emphasis on speed management, signage, safety and improving cycle lane connectivity.</li> <li>- Recreational Routes: Safe routes designed for both leisure and sports cyclists, linking places of interest and recreational areas.</li> </ul>

## Street Classification

**Figure 1:** illustrates the Liveable Streets link type classification system applied within Christchurch.

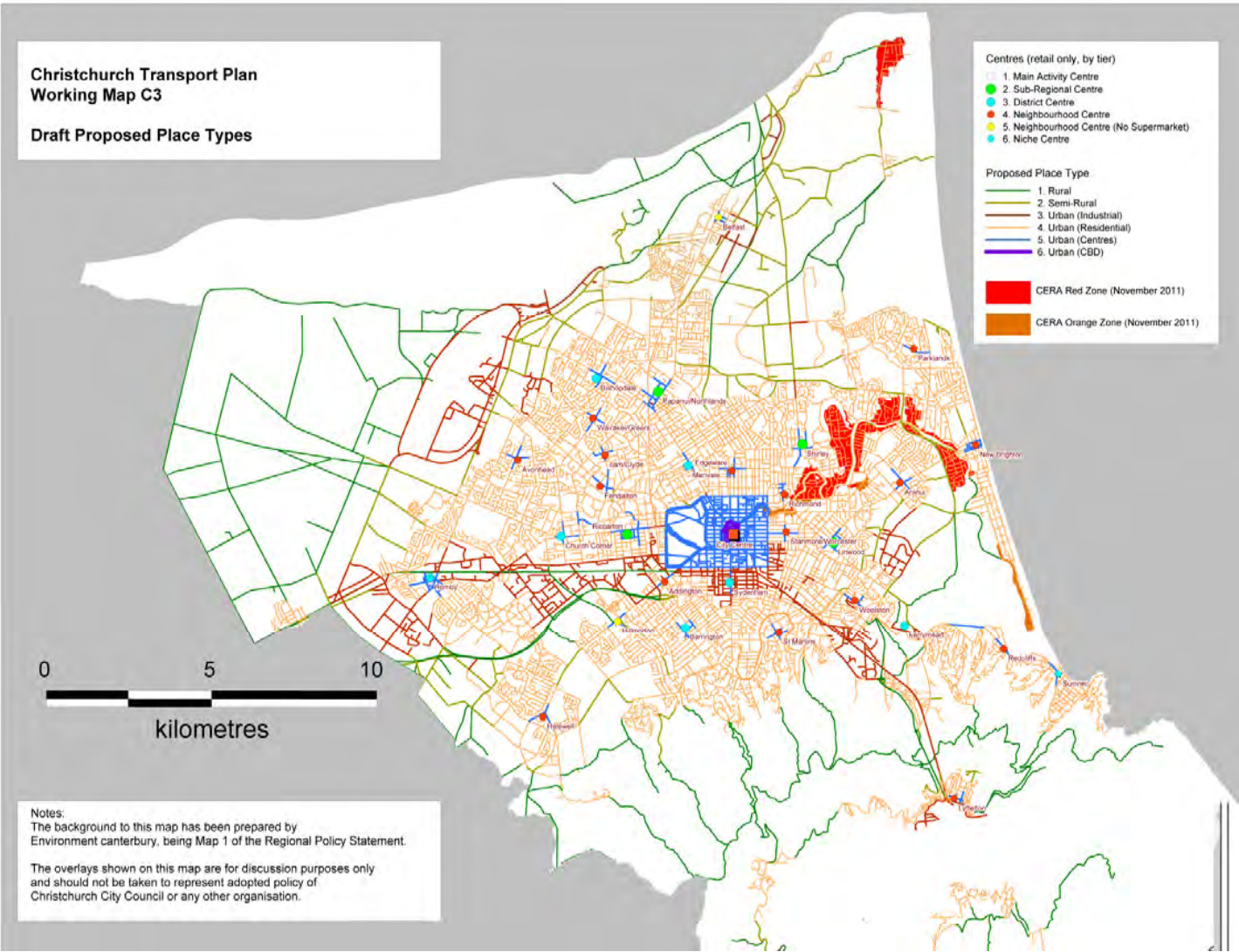


**Figure 2:** illustrates the Liveable Streets link type classification applied within Banks Peninsula.

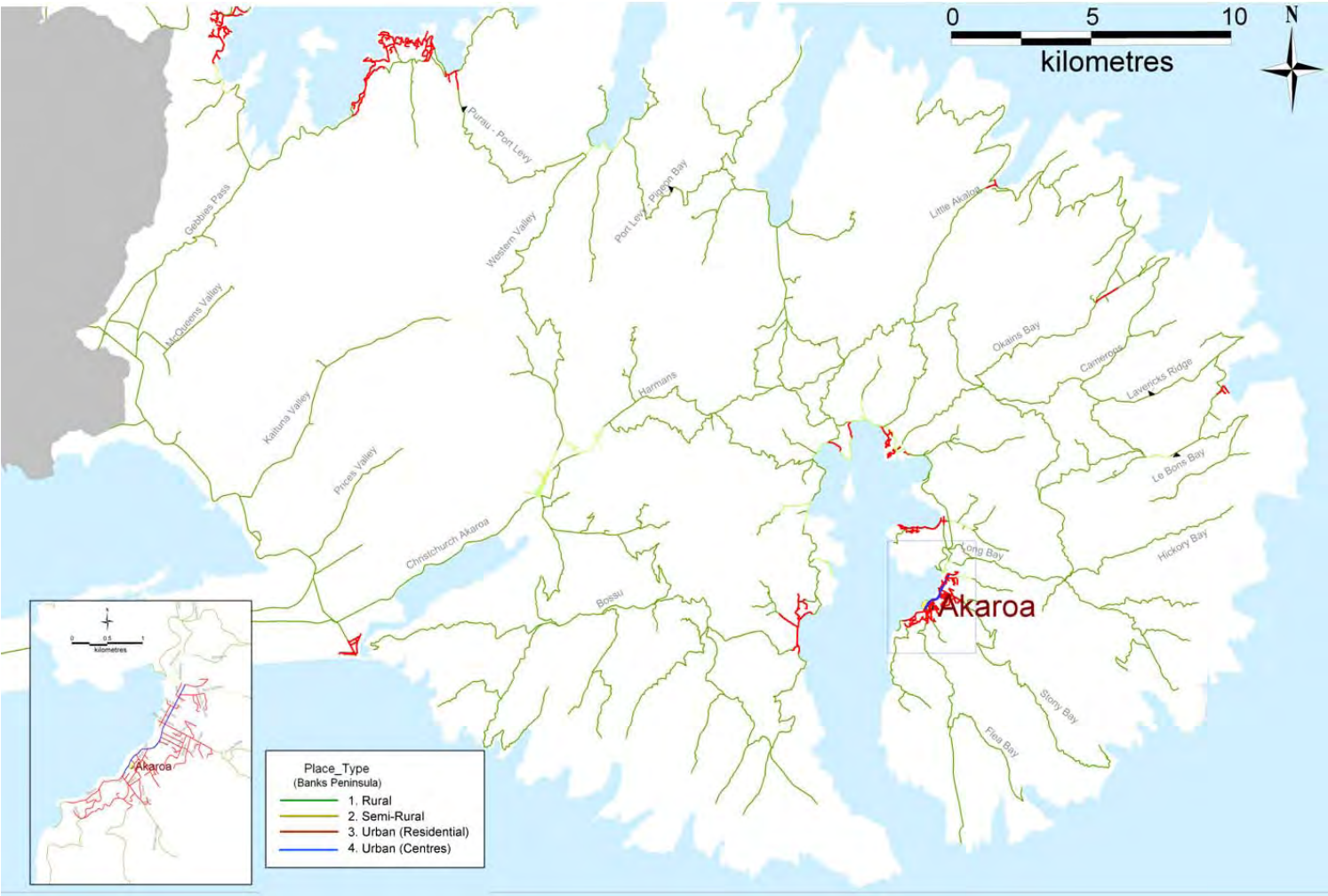




**Figure 3:** illustrates the Liveable Streets place type classification applied within Christchurch.



**Figure 4:** illustrates the Liveable Streets place type classification applied within Banks Peninsula.





## Levels of Service

In order for the Liveable Streets classification system to operate it is important to identify the levels of service across the network for each transport mode (walking, cycling, public transport, freight and private vehicles). The level of service will be determined for each intersection or street and will be measured by the network operating gap for each mode, the larger the gap, the greater the issue that needs to be addressed. The network gap for each mode will be compared and the mode(s) with the largest gap will require the most improvements in order to achieve the Christchurch Transport Plan's objective of a balanced network.

This tool is largely based on VicRoads 'Smart Roads' approach with some alternations to fit it to the Christchurch Transport Plan's Liveable Streets classification system, and the addition of factors for both safety and accessibility as shown in the equation below.

### Level of Service x Safety x Accessibility x Efficiency x Priority x Growth

- **Levels of Service (Mobility):** This is similar to the Smart Roads Levels of Service (LoS), which is based on delay and provision at intersections (see Table 1). However, unlike Smart Roads there is an additional table of LoS which looks at the provision for the various modes between intersections (Table 2). This is primarily concerned with lane widths and degree of separation from other modes. It is important to note that an 'A' LoS is not necessarily better than a 'B' LoS, but that a particular LoS will be appropriate to each link and place. This tool will then measure how far from the target LoS a particular intersection or street is.
- **Safety:** A measure of crash rates at an intersection or street, taking into account form, speed, environment and traffic volume.
- **Accessibility:** A measure which rates locations by the time it would take to reach areas with high place function, i.e. urban centres and the central city, by various modes.
- **Efficiency:** This is a Smart Roads measure which multiplies people, or goods, per hour that are moved by each mode within a single lane by a monetary delay value per person, and divides it by a base case value.
- **Priority:** Another Smart Roads measure, prioritising certain modes on particular routes or at particular times of day, depending on the place function of the route, the link function of the route and whether the route is located on a modal network.
- **Growth:** The final Smart Roads measure, this factors in the expected/targeted growth for each mode. This recognises the Christchurch Transport Plan's vision for increased walking, cycling and public transport, as well as the expected increase in freight movements with population and economic growth.

<b>TABLE 1: INTERSECTION LEVELS OF SERVICE</b>	<b>Walking</b>	<b>Cycling</b>	<b>Public Transport</b>	<b>Freight</b>	<b>General Vehicle</b>	<b>Delay</b>
<b>A</b>	Little to no delay, uses on call/sensor system or default to pedestrian green phase, exclusive crossing phase.	Little to no delay, uses on call/sensor system or default to cycling green phase, exclusive crossing phase.	Little to no delay, part of green wave, exclusive turning phase.	Little to no delay, part of green wave, exclusive turning phase.	Little to no delay, part of green wave, exclusive turning phase.	=
<b>B</b>	Short delay, moderate chance of being stopped, crossing head start provided.	Short delay, moderate chance of being stopped, advanced stop box provided.	Short delay, moderate chance of being stopped, bus priority provided.	Short delay, moderate chance of being stopped.	Short delay, moderate chance of being stopped.	Average waiting time
<b>C</b>	Moderate delay, and/or stopped at every signals.	Moderate delay, and/or stopped at every signals.	Moderate delay, and/or stopped at every signals.	Moderate delay, and/or stopped at every signals.	Moderate delay, and/or stopped at every signals.	+
<b>D</b>	Long delay, and/or multiple crossing conflicts.	Long delay, and/or multiple crossing conflicts.	Long delay, and/or not all traffic cleared within single phase.	Long delay, and/or not all traffic cleared within single phase.	Long delay, and/or not all traffic cleared within single phase.	Chance of being stopped
<b>E</b>	Very long delay, and/or no crossing provision.	Very long delay, and/or no crossing provision.	Very long delay, and/or not all traffic cleared within two phases.	Very long delay, and/or not all traffic cleared within two phases.	Very long delay, and/or not all traffic cleared within two phases.	+
<b>F</b>	Extreme delay, and/or barriers to crossing.	Extreme delay, and/or barriers to crossing.	Extreme delay, and/or traffic backed up to previous intersection.	Extreme delay, and/or traffic backed up to previous intersection.	Extreme delay, and/or traffic backed up to previous intersection.	Provision

TABLE 2: LINK LEVELS OF SERVICE	Walking	Cycling	Public Transport	Freight	General Vehicle	Space
A	Pedestrian only (ie Car Free) street.	Exclusive and wide separated cycleway or Cycling permitted on a Car free street	Full time and continuous Public Transport Priority lane.	Full time and continuous exclusive Freight Vehicle lane.	Very wide traffic lane, no driveways or parking access.	=
B	Shared Space with a low speed environment	Wide marked on-street cycle lane or a narrow separated cycleway or a Shared Space with a low speed environment.	Full time and continuous High Occupancy Vehicle lane.	Full time and continuous Freight Vehicle lane (shared with High Occupancy Vehicles).	Very wide traffic lane, limited driveways or parking access.	Lane width
C	Wide footpath, separation from traffic by landscaping.	Narrow marked on-street cycle lane.	Part time and discontinuous High Occupancy Vehicle lane.	Part time and discontinuous Freight Vehicle lane (shared with High Occupancy Vehicles).	Wide traffic lane.	+
D	Narrow footpath, little separation from traffic.	Unmarked on-street cycle lane.	Wide shared lane.	Wide shared lane.	Wide shared lane.	Degree of separation
E	Narrow footpath, provided on one side of the street only.	Shared traffic lane within a low speed environment.	Narrow shared lane.	Narrow shared lane.	Narrow shared lane.	+
F	No footpath provided.	Shared traffic lane within a high speed environment.	Very narrow shared lane.	Very narrow shared lane.	Very narrow shared lane.	Interrupted

## **Next Steps**

Further development is needed to complete the road classification. Future work on the principle elements appropriate for each link / place type will include:

- Indicative speed environment;
- Level of appropriate access–control; and
- Road widths including cycle infrastructure.