

# PUBLIC TRANSPORT

## What is this?

**Public transport is a shared passenger transportation service available for use by the general public. It is often funded by government subsidies and fares paid by passengers. In Christchurch buses provide the main form of services.**

There are numerous routes servicing central Christchurch, its suburbs and satellite towns in Selwyn and Waimakariri districts. A ferry service also operates across Lyttelton Harbour linking the Diamond Harbour settlements with Lyttelton, thereby giving this area access to public transport throughout the city.



## Why is it important?

In an efficient transport system, public transport provides basic mobility for non-drivers, efficient urban travel, and a catalyst for more efficient land use development. Public transport provides people with an affordable and safe means of transport.

Safe, affordable and convenient bus networks encourage bus patronage, which can provide the following benefits<sup>1</sup>:

- 1) reduces demand on road infrastructure meaning there is less wear and tear on the roads
- 2) has cost savings in the provision road and parking facilities as demand will decrease
- 3) increases fitness and health, enabling people to more easily reach their daily physical activity targets as bus patrons are more likely to combine bus travel with walking or cycling as part of their commute
- 4) reduces the need for individuals to own personal vehicles thus
  - reduces vehicle emissions that affect respiratory health and contribute to greenhouse gases and climate change which will improve our air quality.
  - reduces congestion, and creating a safer and more efficient road network.
- 5) enables those who are for whatever reason unable to own and/or drive a car to access employment, education and family and friends.<sup>2</sup>

Public transport in Christchurch is accessible to those living in the city and most of its suburbs, although frequency of buses and their routes does vary between suburbs. Many urban areas, however, have been planned around the availability of private transport which has given rise to the necessity of having a private vehicle to fully participate in society.<sup>3</sup> People who live in outlying areas from the city where it is impractical to walk or cycle to most destinations or where buses are infrequent or not available are particularly dependent on private vehicles. The increasing use of cars however is creating congestion pressures for

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<sup>1</sup> Victoria Transport Policy Institute. 2013. Evaluating Public Transit Benefits and Costs: Best Practices Guidebook. <http://www.vtpi.org/tranben.pdf> Accessed 20.05.13.

<sup>2</sup> Environment Canterbury. 2010. Wider health & wellbeing impacts of Transport Planning. <http://ecan.govt.nz/publications/General/HIA%20Literature%20Review%20June%202010.pdf> Accessed 20.05.13.

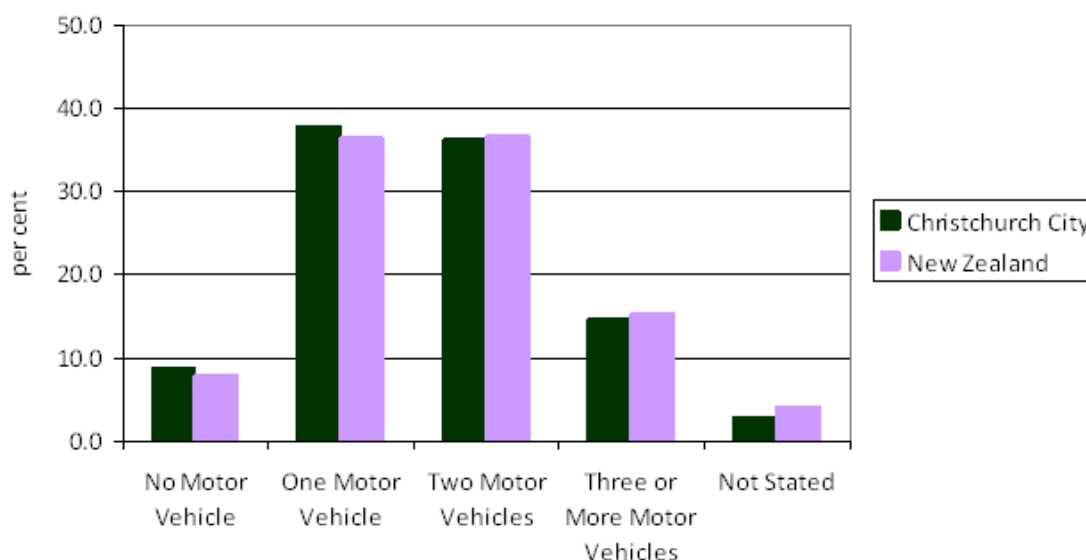
<sup>3</sup> Public Health Advisory Committee. 2010. Healthy places, healthy lives: urban environments and wellbeing. Wellington: Ministry of Health. [http://www.phac.health.govt.nz/moh.nsf/pagescm/7693/\\$File/urban-environments-apr10.pdf](http://www.phac.health.govt.nz/moh.nsf/pagescm/7693/$File/urban-environments-apr10.pdf) Accessed 13.10.10.

our transport system and is affecting ease of travel around Christchurch. Increasing vehicle emissions are also adversely affecting our city's air quality.

### Data

The majority of Christchurch households (more than 90%) have access to at least one motor vehicle as can be seen in the Figure below from data collected during the 2006 census.

**Figure 1 Household access to motor vehicles, local and national comparison, 2006 Census<sup>4</sup>**



The average New Zealander in 2007 spent 14% of their income on transport related expenses.<sup>5</sup> For Christchurch households this proportion of income would consume \$6748 of the median household income of \$48,200 reported in data from the 2006 census.<sup>6</sup> According to Christchurch City Council's transport planning research, in 2008 an average of \$2000 per person was spent in Christchurch on transport fuels and a similar amount again in buying new and used cars.<sup>7</sup>

Although there has been an increase in access to motor vehicles, older residents (aged 65 years of age and over) are less likely to have access to a motor vehicle than those less than 65 years of age. For the older population, access to private motor vehicles can assume far greater significance by providing a sense of independence and self-sufficiency<sup>8</sup> especially if the public transport available is seen to be costly and time consuming to use. Older people with the lowest proportion of motor vehicle access were those aged 85 year and over.

Bus patronage has also increased over the last 10 years. This could be due to a variety of factors including improved bus service (more buses and routes) as well as increasing costs of

<sup>4</sup> Statistics New Zealand. 2006. 2006 census: regional tables. <http://www.stats.govt.nz/census/about-2006-census/regional-summary-tables.aspx> Accessed 21.10.10.

<sup>5</sup> Field, A., Jayasekera, N. 2009. Auckland Regional Land Transport Strategy health impact assessment: literature review. Auckland: Synergia.

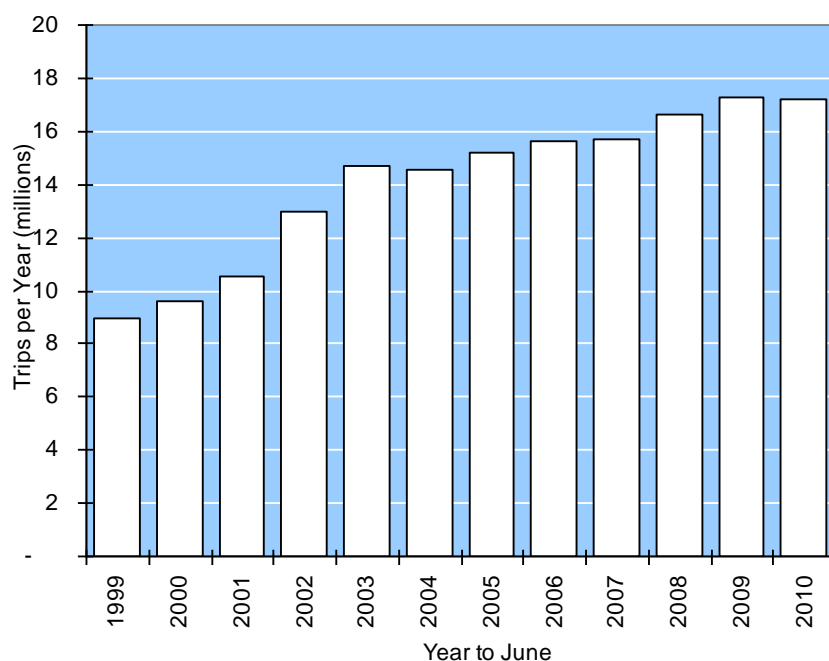
<sup>6</sup> Christchurch City Council. 2007. Economic standard of living: household income and expenditure. <http://www.ccc.govt.nz/cityleisure/statsfacts/statistics/economicstandardofliving.aspx> Accessed 13.10.10.

<sup>7</sup> Eynon Phillips [personal communication March 2010]

<sup>8</sup> Statistics New Zealand. 2006. Older people's access to motor vehicles. Wellington: Statistics New Zealand. [http://www.stats.govt.nz/browse\\_for\\_stats/people\\_and\\_communities/older\\_people/older-peoples-access-to-motor-vehicles-2006.aspx](http://www.stats.govt.nz/browse_for_stats/people_and_communities/older_people/older-peoples-access-to-motor-vehicles-2006.aspx) Accessed 13.10.10.

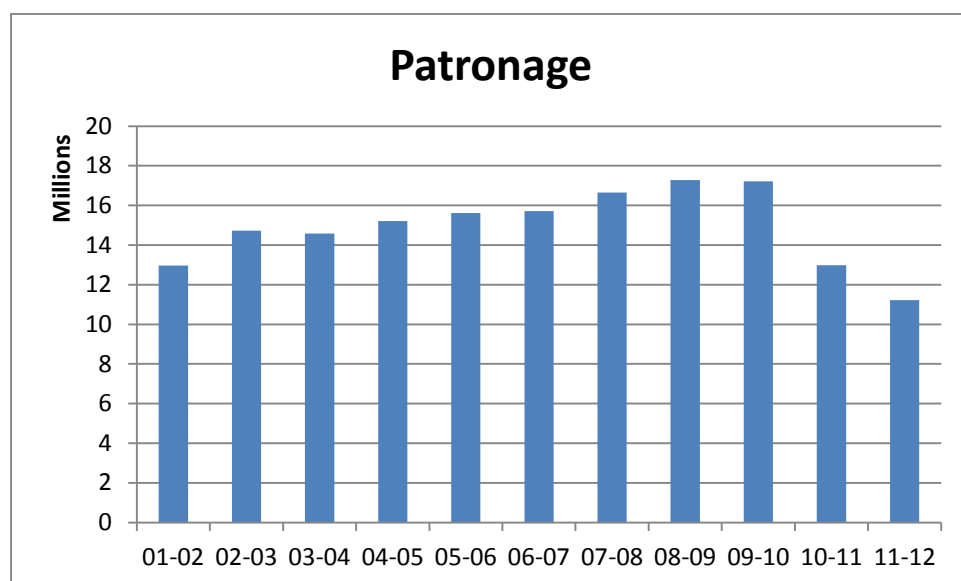
fuel. Figure 2 shows the total number of passenger trips in the greater Christchurch area from 1999 to 2010.

**Figure 2: Bus Patronage 1999 to 2010<sup>9</sup>**



Since the earthquakes in 2010 and 2011, and the resultant disturbance to the central city and some suburban areas (particularly in the east) travel patterns throughout Christchurch have changed. As Figure 3 overleaf shows, public transport patronage has been adversely affected. The mainly radial focus of the bus network in Christchurch saw a considerable decline in patronage, as the central city had suffered severe earthquake damage. Commuter and retail trip generators have been forced to relocate and the bus network was no longer as convenient an option for many trips.

<sup>9</sup> Christchurch City Council. 2010. Bus Patronage City Plan Monitoring Indicator Reporting Sheet. Christchurch City Council, Christchurch

Figure 3 Bus Patronage 2001 to 2012<sup>10</sup>

### Impact on inequalities

Using more active forms of transport can contribute towards healthy, physically active lifestyles, resilience and independence. However, this is closely linked to individuals' incomes, where they live and work and how accessible other forms of transport are. For example, transport costs occupy a greater percentage of total income for low income families compared to high income families.<sup>11</sup> Cycle commuters are more likely to be older males earning over the average salary.<sup>12</sup> Those who rely on active transport or public transport as their sole mode of transport to get to school or work may be restricted on where they choose to live. People need to weigh up either they will pay more for accommodation close to key locations, or choose to pay for low quality housing further away and pay more for transport costs.

Public transport allows people who do not have access to a private motor vehicle, and/or are unable to use active forms of transport such as walking or cycling, to get to the places and the services they need.

An analysis of data from the 2001 census by Statistics New Zealand showed that approximately twice as many of those earning \$15,000 a year or less took the bus to work than drove a car, whereas more than 70 per cent of those who drove a car to work earned \$20,000 or more.

Easy access to motor vehicles, while providing an increase to some aspects of community wellbeing (such as allowing for independence), can have adverse impacts such as more traffic congestion, which reduces mobility around the city and can lead to increases in stress levels, exacerbate air and noise pollution, and increase greenhouse gases. Environment Canterbury (ECan) data shows that despite increasing fuel prices, carbon dioxide emissions are generally trending upwards and moving away from the regions' 2011 transport strategy target of emissions no greater than 10 per cent of 2001 levels. Although motor vehicles are not the sole contributor to carbon dioxide emissions, the trend has implications for the

<sup>10</sup> Data provided by Passenger Transport Services at Environment Canterbury.

<sup>11</sup> Auckland Regional Council. 2009. RLTS 2010 Health Impact Assessment. Auckland Regional Council, Auckland.

<sup>12</sup> Brockman, R. Fox, K.R. 2011. Physical activity by stealth? The potential benefits of a workplace travel plan. *Public Health* 125. 210-216.

impact of increased motor vehicle access on carbon dioxide in the air. These effects together with rising energy costs and peaking of global oil production mean that current private vehicle use is unsustainable and will be increasingly expensive – sooner rather than later we need more environmentally and socially sustainable travel options.<sup>13</sup> Cheaper houses may be located closer to industrial areas or motorways resulting in those living in those areas may be adversely affected by their constant exposure to pollutants.

### Solutions

Land use and urban planning have an influence on the viability of public transport. A World Health Organisation report recommended minimum walking distances should be planned for in all new developments and that public transport should have priority over other road traffic in main routes.<sup>14</sup> A New Zealand Transport Agency report recommended adopting accessibility planning to allow an integrated approach to land use and transport, and using indicators to assess the accessibility of health care, education, employment, food shopping, and social services.<sup>15</sup> Increasing safety on public transport and the walking/waiting process, particularly after dark, using Crime Prevention Through Environmental Design approaches so that users do not feel vulnerable to personal attack or harassment is also an important factor in uptake of public transport.<sup>16</sup>

Boosting the affordability, convenience and accessibility of public transport is also likely to reduce traffic congestion, pollution from vehicle emissions, and to provide more opportunities for incidental activity as most people will have a short walk to and from the transport stop. More frequent and reliable services, supportive infrastructures such as safe waiting places and walkways with good connectivity, integrated ticketing and timetabling, subsidies for disadvantaged groups, and services to meet the needs of the disabled and parents with children are known to increase uptake of public transport. The Super Goldcard for senior citizens allows for free travel outside of peak travel times, with Super Goldcard users consistently making up 10 percent of the total public transport usage.<sup>17</sup>

Interventions that get more people using active transport options and reduce private car travel have quantifiable health and economic benefits for society as a whole. A New Zealand Transport Agency manual for evaluating the economic benefits of integrated interventions calculated that a well-designed workplace travel plan for Christchurch employees could produce economic benefits ranging from \$58.21 to \$196.51 per employee per year. Schools could also benefit with primary schools benefiting by \$74.83 and intermediate and secondary schools benefiting by \$77.97 per student per year. These figures were calculated based on 55% of trips being in peak periods.<sup>18</sup>

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<sup>13</sup> McCartney, G. Hanlon, P. 2008. Climate change and rising energy costs: a threat but also an opportunity for a healthier future? *Public Health* 122, 653-657.

<sup>14</sup> Barton, H., Tsourou, C. 2000. Healthy urban planning. Copenhagen: WHO Regional Office for Europe.

<sup>15</sup> Chapman, S. Weir, D. 2008. Accessibility planning methods: Research Report 363. Wellington: NZTA. <http://www.nzta.govt.nz/resources/research/reports/363/docs/363.pdf> Accessed 04.10.10.

<sup>16</sup> Kennedy, D.M. 2008. Personal security in public transport travel in New Zealand: problems, issues, and solutions. Research Report 344. Wellington: Land Transport New Zealand. <http://www.nzta.govt.nz/resources/research/reports/344/docs/344.pdf> Accessed 04.10.10.

<sup>17</sup> Quigley, ER., Cunningham, R., Ward, M., de Boer, M, Conland, C. 2006. Greater Wellington Regional Land Transport Strategy: health impact assessment. Wellington: Transfund New Zealand.

<sup>18</sup> New Zealand Transport Agency. 2010. Economic evaluation manual. Volume 2. Wellington: New Zealand Transport Agency. <http://www.nzta.govt.nz/resources/economic-evaluation-manual/volume-2/docs/eem2-july-2010.pdf> Accessed 24.09.10.

Christchurch City Council, in conjunction with Community and Public Health and Environment Canterbury, has developed a Christchurch Strategic Transport Plan which brings together elements from previous strategies such as the Pedestrian, Cycling and Metro Strategies. In light of the earthquakes, changes to the Plan are likely in the areas of provisions for, public transport and increased support for cycling. In February 2013, An Accessible City, the new draft chapter of the Christchurch Central Recovery Plan was released and this document focuses on how people travel into and around the city, and how the streets will look as the central city redevelops.

Travel demand management (TDM) can be used to encourage people to travel differently, by walking, cycling, using public transport and car pooling. TDM does not require people to completely stop using their cars. If every household in Greater Christchurch made one fewer trip by car each week this would stop traffic growth<sup>19</sup> allowing for further spending for different infrastructure. The preliminary Land Use Recovery Plan has indicated that transport efficiency initiatives such as TDM should be investigated further to rejuvenate commercial areas.

### **Data limitations**

The data in Figure 1 from June 2006 onwards includes the population of Banks Peninsula, which amalgamated with the Christchurch City Council in March 2006. Patronage figures are totals for the greater Christchurch area which includes services to Burnham, Lincoln, Lyttelton, Rangiora and Templeton.

Information on motor vehicle access has not been explicitly categorised with respect to income in the 2006 census data available from Statistics New Zealand.

### **Connections with other issues**

Active Transport, Activity Levels and Exercise, Age Friendly City, Income, Public Transport, Employment, Air Quality, Social Connectedness

### **Impact of the earthquakes**

*As time passes and these papers are updated the initial sections on the impact of the earthquake are going to be kept as an archive of what we thought the situation was at the time. Updates are provided where possible.*

#### **As at March 2013**

Work is progressing on refocusing public transport services to find a better fit to ongoing travel needs, and public transport operation and growth has been highlighted as a pressing strategic transport issue as the rebuild continues.

Planning for a new central city public transport interchange had also stalled following the earthquake; with much of the central city still within the “red zone” and thereby inaccessible. The Central City Development Unit has recently announced plans for the redevelopment of the central city and a new transport interchange is part of that mix.

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<sup>19</sup> Environment Canterbury. 2010. Greater Christchurch Urban Development Strategy. <http://www.greaterchristchurch.org.nz/TDM> Accessed 20.05.13.

The draft Land Use Recovery Plan has indicated that the rebuilt transport network in and between centres will need to deliver opportunities for a range of transport modes including public transport and rail in and between town centres and residential areas.<sup>20</sup>

Concerns around new schooling options in Christchurch and the impact on children's ability to use to public transport have been expressed.

#### **As at November 2011**

Planning for a new interchange was stalled due to the earthquake; the site is currently within the "red zone". It is not clear how plans will be progressed within the redesign of Christchurch's central business centre.

As a short-term earthquake response Environment Canterbury (ECan) has relocated terminals to Hagley and Bealey Avenue with shuttle buses linking the two. Because of not having a central interchange point, many services are still running at reduced frequencies and a few are still suspended completely.

Bus patronage is currently running at around half of pre-earthquake levels. This is driven by two principal reasons:

- Loss of the Central City as a the key destination of a largely radial network; and
- The lack of a single central interchange point to allow customers to access new destinations through seamless transfer between services.

A temporary central interchange is, however, being planned, with an opening date of late September being targeted. This, together with contractual changes, that ECan is planning will allow most services to return to pre-quake frequencies and also see some new services added to improve access to non-central employment destinations.

Prepared by Community and Public Health, and Environment Canterbury

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<sup>20</sup> Environment Canterbury. 2013. Preliminary Draft Land Use Recovery Plan. <http://www.developingchoices.org.nz/land-use-recovery-plan.html> Accessed 20.05.13.