

## Transportation

Key Information	Why is this Useful?	What is Happening?
Number of registered motor vehicles.	Higher levels of car ownership are generally associated with lower levels of public transport use and greater pressures on the transport infrastructure and the environment.	↑ Between 1997 and 1999 the number of registered vehicles in the Christchurch postal area increased by around 10 per cent to 336,296.
Traffic volumes.	Changes in the volume of traffic in the City can highlight pressures on the transport infrastructure and the impact of other transport-related environmental effects, such as air quality.	↑ Average annual traffic volumes on selected radial and orbital arterial roads in 1999 increased by 1.8 and 3.7 per cent respectively.
Number of people cycling to work.	Cycling is a form of personal transport which has fewer adverse environmental effects than motor vehicles.	↓ The number of people travelling to work by bicycle declined by 1,050 between 1991 and 1996 to 9,633.
Bus patronage.	Public bus networks provide a means of moving people with less environmental effects than low occupancy private motor vehicles. They also provide transportation for residents who do not have access to other forms of transport.	↑ The number of bus trips per year in the City has been increasing since 1992.
Ease of travel in the City.	This provides a measure of people's perceptions of the congestion and functionality of the road network in the City.	● Sixty per cent of residents found the City easy or very easy to travel around in 1999.

**Other Related Sections:** Population Growth, Personal Safety, Air Quality, Land Use, Built Environment, Urban Amenity, Energy, Part 3: The City's Economy.

Christchurch is accessible by all conventional means of transport. Road and rail networks link Christchurch to the rest of the South Island, while the airport and Port of Lyttelton link the City with the rest of New Zealand and the world. Within Christchurch, the main modes of transport are road-based through the use of motor vehicles, bicycles or walking. Public transport in the City is provided by a bus network, covering much of the City, and taxis and shuttles.

A survey<sup>46</sup> carried out in June 1999 by the Christchurch City Council's City Streets Unit found the percentage of people who used the following types of transport:

- 92 per cent used cars
- 52 per cent walked
- 22 per cent used buses
- 20 per cent cycled
- 20 per cent used taxis.

The road network of Christchurch is generally radial with orbital roads connecting the radial branches, forming a strong grid pattern. The road network at June 1999 consisted of 1,533.5 kilometres of roads and 2,191 kilometres of footpaths. There were also 161 kilometres of cycleways, made up of designated (quiet) streets (81 kilometres), on-road cycle lanes (29 kilometres), and off-road paths (51 kilometres).

Other transportation infrastructure in the City includes

<sup>46</sup> Measuring and Monitoring the City Streets Performance Outcomes. Prepared for City Streets Unit, Christchurch City Council by Opinions Market Research, June 1999. Survey sample 301 residents.

40 kilometres of railway corridors and 720 hectares of land zoned for domestic and international airport activities. Although around 230 hectares are zoned at Wigram for aviation purposes, this does not provide a significant transportation function.

### Motor Vehicles

There were 336,296 motor vehicles registered in the Christchurch postal area at June 1999 (Table 2.26). Cars made up the majority of registered vehicles (70 per cent), with trucks accounting for 12 per cent (around 40,000 vehicles). Since 1971 the number of cars registered in the Christchurch postal area has almost doubled (95 per cent), while the number of

	Number	Percentage
Cars	234,576	69.7
Trucks	39,665	11.8
Motorcycles and mopeds	6,130	1.8
Buses and Coaches	3,536	1.0
Rental Cars	1,356	0.5
Taxis	858	0.3
Tractors	2,674	0.8
Trailers and Caravans	44,658	13.0
Others	2,748	0.8
<b>Total</b>	<b>336,296</b>	<b>100</b>

Source: Land Transport Safety Authority.

registered trucks increased by 80 per cent during the same period.

The growth in car numbers has been greater than population growth since 1971. Generally, the number of people per registered car in Christchurch has decreased by around 60 per cent since 1971, from 2.2 people per car to 1.4 people per car in 1999. Over half of this growth in car numbers relative to population occurred during the 1970s. Twenty per cent of the increase occurred between 1997 and 1999 as a result of population growth starting to slow and the rate of vehicle registration remaining relatively constant.

**Table 2.27 Number of Vehicles per Household**

	1986		1991		1996	
	No.	%	No.	%	No.	%
No Motor Vehicles	14,634	14	14,022	13	14,448	12
One Motor Vehicle	47,262	47	46,923	44	47,049	40
Two Motor	27,837	28	32,613	30	36,993	32
Three or More	9,192	9	11,640	11	13,818	12
Not Specified	2,316	2	2,028	2	3,861	3
Total Households	101,241		107,226		116,169	
Average Household Size (people per)	2.66		2.58		2.57	

Source: Statistics New Zealand.

### Motor Vehicles per Household

The 1996 Census of Population and Dwellings found that 84 per cent of households had at least one car (Table 2.27). This was only one per cent more than in 1986 (83 per cent). However, the proportion of households which had two or more cars increased by seven per cent from 37 per cent to 44 per cent between 1986 and 1999. This could reflect the increased affordability of motor vehicles as a result of the importation of used Japanese cars since the mid-1980s.

Although the proportion of households without cars has been decreasing, the actual number of households without cars did not change significantly in the 10 years between 1986 and 1996. The distribution of vehicles per household in Christchurch was very similar to figures for New Zealand.

### Traffic Volumes

Traffic counts are taken on a number of roads throughout the City on a regular or semi-regular basis. Table 2.28 shows traffic volumes for a selection of radial and orbital arterial roads in the City. Average daily traffic volumes on selected two lane arterial roads in 1999 ranged from 11,000 vehicles per day on Rutherford Street to 26,000 vehicles per day on Papanui Road. Four lane roads with median strips, such as Blenheim Rd and Johns Road, had on average 27,000 and 31,000 vehicles per day, respectively.

Figures 2.41a to 2.42c show the change in traffic volumes on the selected radial and orbital roads between 1985 and 1999, and forecast volumes for 2000. All these sites have shown increases in traffic volumes over this 14 year period. On the radial roads increases in traffic volumes ranged from 15 per cent on Colombo Street to 120 per cent on Ferry Road.

Orbital roads show a much larger increase in traffic volumes over this period. Much of this can be

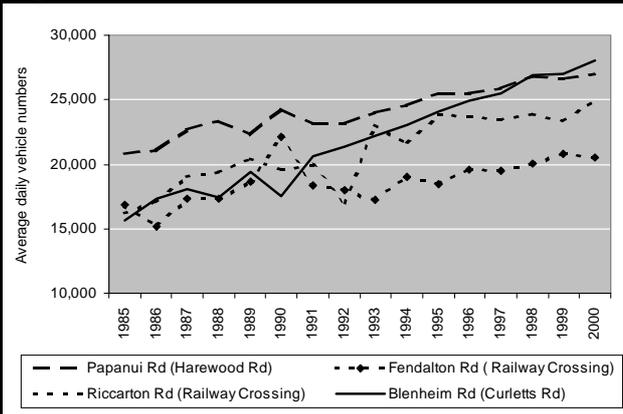
**Table 2.28 Traffic Volumes at Selected Arterial Roads in the City**

	Average Daily Traffic Volumes in 1999	Annual Percentage Increase at 1999
<b>Radial Arterial Roads</b>		
Papanui Rd (Harewood Rd)	26,603*	1.3%
Fendalton Rd ( Railway Crossing)	20,776	2.0%
Riccarton Rd (Railway Crossing)	23,342	0.6%
Blenheim Rd (Curletts Rd)	26,967	2.8%
Lincoln Rd (Railway Crossing)	18,078*	2.0%
Colombo St (Hastings St / Brougham St)	19,726*	0.9%
Ferry Rd (Humpreys Drive)	16,176*	3.1%
Marshland Rd (Mitre PI)	14,992*	2.1%
<b>Orbital Arterial Roads</b>		
Carmen Road (Waterloo Rd)	21,788*	5.2%
Russley Rd (Ryans Rd)	20,430*	4.8%
Johns Rd (Groynes)	13,108*	4.2%
Main North Rd (Johns Rd)	31,087*	3.1%
Northcote Road (Railway Crossing)	21,031	3.9%
Northcote Expressway (Grimseys Rd)	18,074	4.9%
QEII Drive (Marshlands Road)	17,268	3.3%
Travis Road (Burwood Rd)	18,626	3.3%
Dyers Road (Breezes Rd)	11,048	2.6%
Rutherford Street (Ferry Rd)	12,901	3.5%
Curletts Road (Nth Blenheim Rd)	19,671*	3.6
* Estimated for 1999 based on analysis of previous traffic volume trends.		

Source: Christchurch City Council.

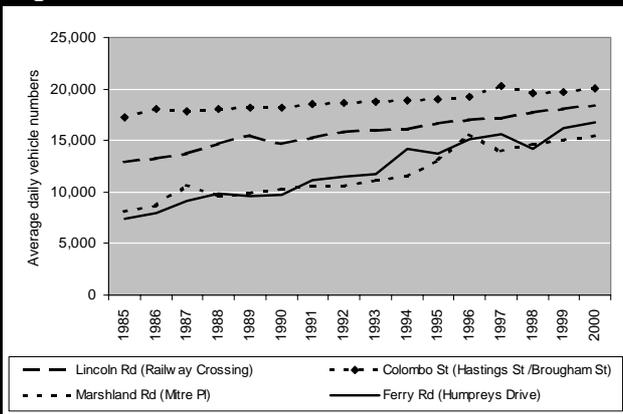
## PART 2. THE CITY'S NATURAL AND PHYSICAL ENVIRONMENTS

**Fig 2.41a Radial Road Traffic Volumes**



Source: Christchurch City Council.

**Fig 2.41b Radial Road Traffic Volumes**



Source: Christchurch City Council.

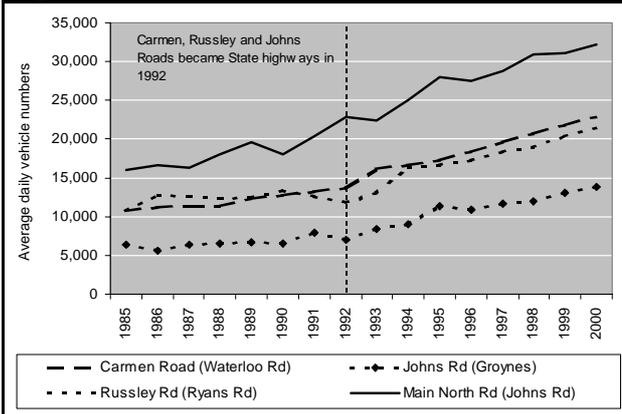
explained by the linking of orbital routes and the creation of expressways to remove through traffic from local roads. Increases in traffic volumes on the orbital roads ranged from 76 per cent on Curletts Road to 700 per cent on Travis Road. The large increase in traffic on Travis Road is the result of it being converted from a local road to part of an expressway in 1994.

The annual percentage increase in traffic volumes at 1999 are shown in Table 2.28. Generally on the radial routes traffic volumes increased by an average of 1.8 per cent per year. On orbital routes the annual growth in traffic volumes in 1999 was on average 3.7 per cent.

Population growth was in the order of 15 per cent between 1986 and 1999. The most recent annual rate of population growth for the City was 0.5 per cent for the year June 1998 to June 1999. Both long-term and short-term rates of population growth were considerably less than increases in traffic volumes on the selected arterial roads. The increase in traffic volumes in the City can only partially be explained by changes in the resident population. For many of the arterial roads the rate of increased volume is significantly greater than the growth in population.

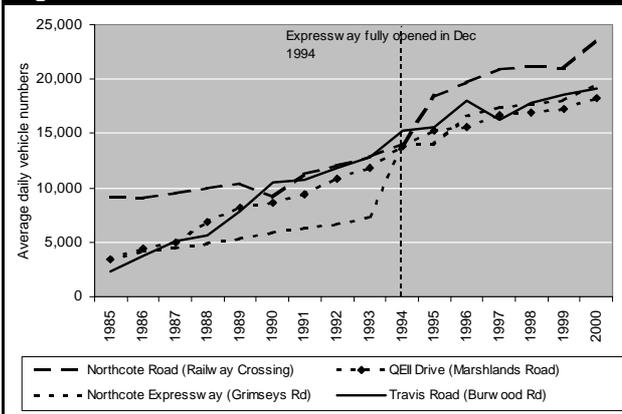
<sup>47</sup> Journey to work information is based on a question in the Census of Population and Dwellings asking how people travelled to work on the day the census was carried out (ie. Tuesday 5 March 1996).

**Fig 2.42a Orbital Road Traffic Volumes**



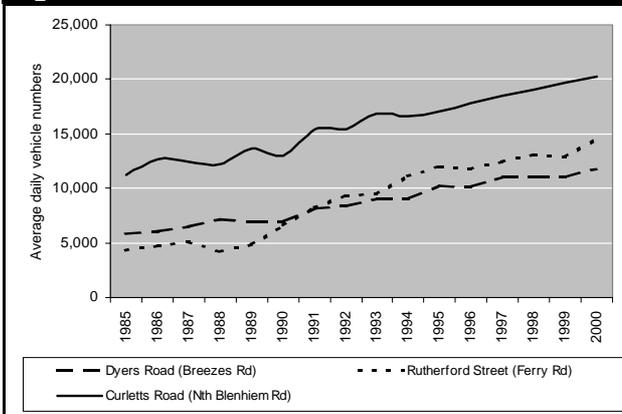
Source: Christchurch City Council.

**Fig 2.42b Orbital Road Traffic Volumes**



Source: Christchurch City Council.

**Fig 2.42c Orbital Road Traffic Volumes**



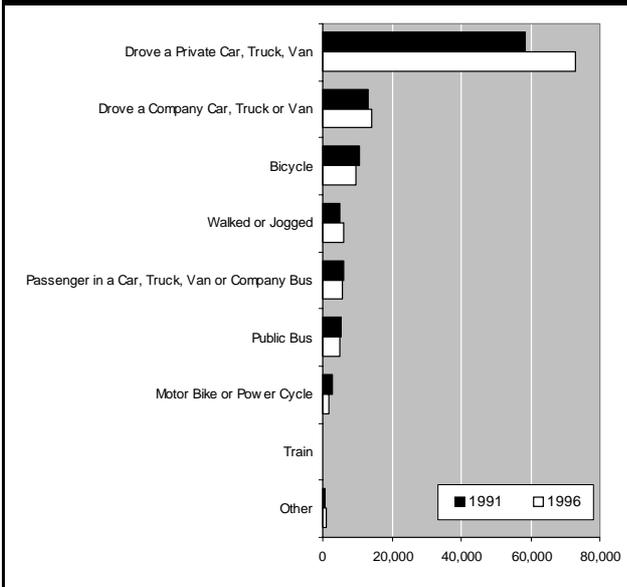
Source: Christchurch City Council.

### Journey to Work<sup>47</sup>

Figure 2.43 shows how people travelled to work on the day of the 1991 and 1996 Censuses of Population and Dwellings. People who drove private cars, trucks or vans dominated, with 56 and 60 per cent of the total respectively. If company vehicles are included, 15,600 more people drove vehicles to work in 1996 than 1991.

The number of people using more environmentally sustainable forms of transport to travel to work, such as cycling, public transport and walking, declined between the census periods. Cycling was the third most popular mode of travel to work behind driving private and company vehicles, with 8 per cent of

Fig 2.43 Journey to Work



Source: Statistics New Zealand.

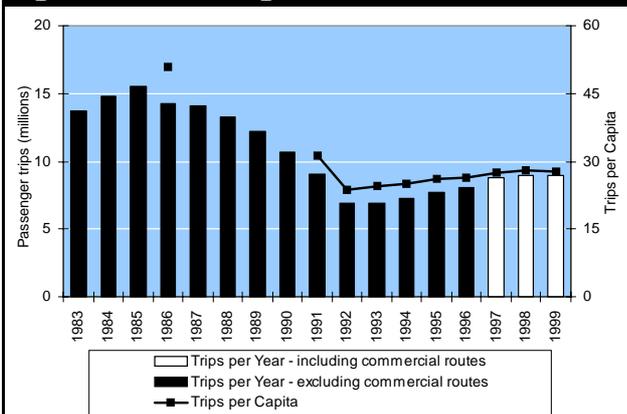
people travelling to work on a bicycle in 1996. The number of cyclists declined by 1,050 people from 10,863 to 9,633 between 1991 and 1996.

Between 1991 and 1996 the number of people who walked or jogged to work increased by 840, to make up five per cent of the total number of people travelling to work. The number of people working at home increased by approximately 80 per cent to a total of 7,200 people between the two censuses.

### Public Transport

Public buses, taxis and shuttles are the main forms of public transport in Christchurch. Between 1991 and 1996 the proportion of workers who used the bus to travel to work declined from 5 to 4 per cent (Figure 2.43). However, annual bus patronage trends shown in Figure 2.44 have been increasing from a low point in 1992, even though the number of trips was less in the year to June 1996 compared with the year to June 1991. By the year ending June 1999 the number of passenger trips had still not recovered to the June 1991 level. Trips per capita have also been

Fig 2.44 Bus Patronage



Source: Canterbury Regional Council.

increasing, but at a slower rate than total trips. In the year to June 1999, trips per capita were approximately 28 trips per person per year.

The bus network provides a good coverage of the City's residents. Up to 90 per cent of the resident population in the City lived within 400 metres of a bus stop into the City (as the crow flies) at September 1998.

Eight hundred and fifty taxis were registered in the Christchurch postal area in June 1999. This number had increased from just over 300 at June 1986 as a result of the taxi industry being deregulated in 1989. The Canterbury regional office of the New Zealand Taxi Federation estimates that around 5.5 million person trips are made by taxis each year in Christchurch.

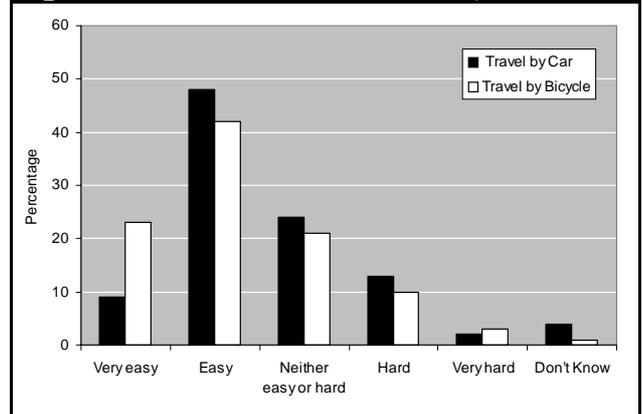
### Ease of Travel within Christchurch

The 1999 Annual Survey of Residents asked how easy or difficult residents found travelling in Christchurch by car or bicycle (Figure 2.45). Generally, 60 per cent of residents found Christchurch easy or very easy to get around by car, with less than 20 per cent of residents finding the City hard or very hard to get around by car. These percentages remained at these levels between 1995 and 1999.

Residents were also asked whether they had ridden a bicycle in the last 12 months. In 1995, 41 per cent of respondents had used a bicycle in the previous 12 months, whereas in 1999 this percentage dropped to 32 per cent of total respondents. Of the residents who cycled in 1999, 65 per cent found Christchurch easy or very easy to travel around. This was a small increase compared with 1995 when 59 per cent of cyclists found the City easy or very easy to travel around. Between the 1995 and 1999 surveys the percentage of cyclists who found the City hard or very hard to travel around declined from 25 to 13 per cent. This may indicate that some people who found it difficult to cycle in the City in 1995 may have stopped cycling.

The Annual Survey of Residents also asked questions

Fig 2.45 Ease of Travel in Christchurch, 1999



Source: Christchurch City Council.

on how safe residents felt travelling around the City by car, bicycle or walking. These results are reported in the Safety section of this report.

### **Airport Noise**

Airports can generate a considerable amount of noise as a result of aircraft taking off and landing, and other activities such as aircraft engine testing. For this reason airports tend to be located away from residential areas. As the urban area of Christchurch has grown, the rural buffer between residential properties and the airport has been gradually reducing. During this time, the size and power of aircraft, as well as the frequency of flights, have also contributed to adverse effects from the airport.

The number of people who live in areas directly affected by airport noise can be estimated using the 55 decibel (dba) noise contour around the airport. At the 1996 Census of Population and Dwellings approximately 5,100 residents lived within the 55 dba noise contour. This was an increase of around 300 people since the 1991 census.