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Foreword. . .

This is the second state of the environment monitoring report about Christchurch City providing information for the year to June 1995. It presents historical and current information about many aspects of the City.

Update '95, has been prepared to provide community representatives and decision makers with information on trends in the wider environment of Christchurch. It will help with the identification of issues that may require policy action and assist with monitoring the achievement of the objectives of the City and Annual Plans.

Update '95 is comprised of three major sections;

- *The City's People*
- *The Natural and Physical Environments*
- *The Economy*

These areas are addressed separately, however there is considerable overlap between them.

Where possible the information used in this report is collected on an annual basis. In some cases seasonal variations and longer term trends are shown. Some information is available less frequently such as the Census of Population and Dwellings and Valuation New Zealand data. In these cases the most up to date information is used.

Where appropriate the information is supplemented by the results of national surveys and comparisons between Christchurch, other local authorities and New Zealand wide trends. Some of the issues which residents may face if changes in the City continue to happen at their present rate are also highlighted.

Environmental monitoring is in its' infancy with the direction of subsequent monitoring reports evolving as appropriate standards for indicators are developed and our knowledge of our audiences needs increases.

Update '95 was prepared by the Information and Monitoring Section of the Environmental Policy and Planning Unit. Any questions or comments about the report should be directed to the staff in this section.

J G Dryden
Environmental Policy and Planning Manager
November 1995

Introduction

Christchurch City is the largest urban centre in the South Island and has the second largest population of all New Zealand's territorial local authorities. In March 1995, the City had an estimated resident population of 306,000 people. In the last four years the City's population has risen sharply. Current population growth is unprecedented since the early 1960's.

This rapid increase is the result of increased immigration from overseas and higher net migration from other parts of the country. This trend is partly attributable to recent central government policy which has attracted increasing numbers of immigrants to New Zealand and a strong local economy which has provided employment and business opportunities.

Over the next twenty years (1996-2016) the City's population is expected to increase substantially. The age structure of the City's population is also expected to undergo major change during this period. In particular, there will be fewer young people and increasing numbers of older residents. This is attributable to a reduction in fertility rates, improvements in life expectancy and the passage of the large post war baby boom generation into older age groups.

The growing population will have a major impact on the City's wider environment (ie social, physical, natural and economic). It is expected there will be increased demand for the use of existing natural resources such as water, land and energy. Parks, open spaces, and other natural and physical assets are also expected to face increased usage. Building activity and business development are forecast to grow while demands on infrastructure such as roads, transport, water and waste systems will increase to accommodate these activities.

The City's ageing population may also increase the demand for specialist services and facilities within the City. As more people survive to older ages, there is likely to be greater demand for suitable housing for the elderly and for appropriate health and social services. The ageing population may also influence the structure of families as they are increasingly required to take on the responsibility for care of elderly members. Alternatively this role may be per-

formed by public or private elderly persons homes.

The following discussion on the City's people is divided into two parts. The first part describes the City's current and projected population, its age structure and the factors which contribute to demographic changes. It also highlights the implications of projected population change, providing the human context for the subsequent discussion of trends in the natural, physical and economic environments.

The second part of this discussion examines other aspects of people's lives including personal safety, public health, education, housing, and culture and recreation.



Population Growth

In the first half of this decade there has been a dramatic increase in the number of people living in Christchurch. Since 1991, the City's population increased by just over 17,000 people. The annual rate of population growth has also increased sharply during this period (Table 1).

In the year to March 1995, the population of Christchurch grew by 6,100 people or 2 percent. Over the same period, the population of New Zealand increased by 1.5 percent (52,200 people) continuing the recent national pattern of steady population growth. The percentage growth in the City's population during 1995 was higher than that of a number of the larger territorial local authorities including Hamilton, Dunedin and those within the Wellington area. However, growth recorded in Christchurch was slightly lower than most of the Auckland metropolitan centres (Table 2).

The current rate of population increase is a significant departure from previous growth patterns in the city.

Key Points

- The City's population has increased sharply over the last two years.
- Recent population growth is the result of increases in overseas migration, including departing and returning New Zealand citizens and higher net migration from other parts of the country.
- The Government's recent moves to refine New Zealand's immigration policy may affect the City's future population growth.
- The majority of the population growth recorded has occurred on the fringes of the city.

During the period 1986-1991 for example, the City's residential population increased by 7,605 people or 0.5 percent annually while growth in the previous five years, from 1981-1986, was even lower at 5,802

Table 1: Christchurch City Estimated Usually Resident Population (March Years)

Christchurch City	1991*	1991/92	1992/93	1993/94	1994/95
Resident Population	288,891	291,200	294,700	299,900	306,000
Numeric Change Each Year		2,309	3,500	5,200	6,100
% Change Each Year		0.8	1.2	1.8	2.0
Numeric Change Over 4 Years					17,109
% Change over 4 Years					5.9

*1991 Census

Source: Statistics New Zealand, 1991 Census of Population and Dwellings and Annual Population Estimates

Table 2: Estimated Usually Resident Population of Major Urban Centres

Territorial Local Authorities	Estimated Population 1994	Numeric Increase 1993-1994	% Change	Estimated Population 1995	Numeric Increase 1994-1995	% Change
Christchurch	299,900	5,200	1.8	306,000	6,100	2.0
Auckland	321,000	6,600	2.1	329,800	8,800	2.7
Manukau	238,700	4,500	1.9	244,000	5,300	2.2
North Shore	160,700	3,600	2.3	165,200	4,500	2.8
Waitakere	145,300	2,600	1.8	148,300	3,000	2.1
Hamilton	103,400	1,500	1.5	105,000	1,600	1.5
Wellington	151,100	1,300	0.9	152,800	1,700	1.1
Lower Hutt	94,300	200	0.2	95,800	1,500	1.6
Porirua	47,700	500	1.1	48,400	700	1.5
Dunedin	117,900	1,400	1.2	119,200	1,300	1.1
New Zealand	3,497,100	47,200	1.4	3,549,300	52,200	1.5

Source: Statistics New Zealand, Annual Population Estimates

people, an average of only 0.4 percent annually.

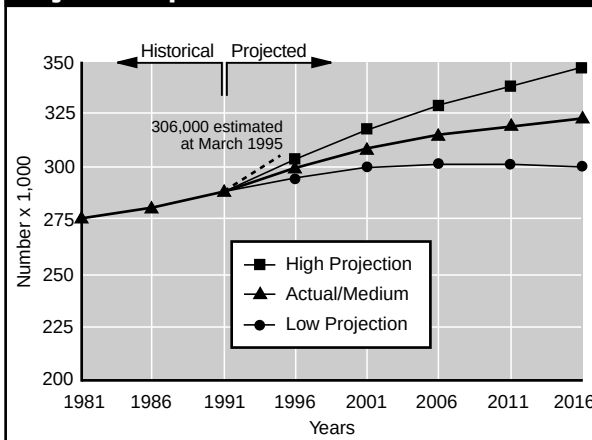
This population growth is a result of increased overseas migration, including departing and returning New Zealand citizens (external migration) and higher net migration from other parts of the country (internal migration). This surge is partly attributable to the success of central government policy in attracting immigrants to New Zealand and the strength of the local economy which has provided employment and business opportunities. The general ambience of the Garden City and its lifestyle must also receive some credit for encouraging increasing numbers of people to Christchurch.

In the four years to March 1995, net external and internal migration contributed just under 11,000 people to the City's population growth. This represents almost two thirds of the total growth recorded during this period (Table 3).

During the last 12 months net external migration¹ alone resulted in growth of 2,200 people. This accounted for 36 percent of Christchurch's total growth, the highest estimated contribution from external migration this decade. Nationally, the net population gain from external migration was around 20,400 people or about 40 percent of total growth during the same period.

Recent trends show that the City's population is growing at a considerably faster rate than expected. Statistics New Zealand's medium population projections (1991 base) suggested the City's population would reach 299,300 by March 1996, grow to 308,600 by 2001 and 322,600 by 2016. Estimates for the year to March 1995 show the City is already well ahead of this growth path. In fact, current levels of growth are now exceeding Statistics New Zealand's highest anticipated projections. On the assumption that the City grows for a further year at the current rate the population will exceed 312,000 by the next Census in March 1996 (Figure 1).

Fig 1. Christchurch City Resident and Projected Population



Source: Statistics New Zealand Census of Population and Dwellings, Population Projection and Population Estimates (see Appendix One for Detail).

In light of current trends, official population projections appear to have considerably underestimated the affect of net migration on the future population of the City. However, it is unclear whether current levels of overseas migration will be sustained in the long term given recent central governments moves to tighten New Zealand's immigration policy. It is also yet to be established whether the influx of residents from other regions of the country will continue at present levels. A more detailed discussion of this issue and revised population projections are contained in Appendix 1.

Where is Growth Occurring within the City?

Official information identifying the location of population growth within the City is not available between each Census. However, building consent information does provide an indication of how the City is expanding to accommodate it's growing population.

Table 3: Components of Population Change

	1992	1993	1994	1995
Natural Increase	1,712	1,314	1,528	1,600
Net Internal Migration From Other Parts of New Zealand	-200	1,300	1,990	2,300
Net External Migration From Overseas	700	1,000	1,700	2,200
Total Increase	2,212	3,614	5,218	6,100
Estimated Usually Resident Population	291,200	294,700	299,900	306,000

Source: Statistics New Zealand Population Estimates

¹ The figures quoted are Statistics New Zealand's estimates of settlement patterns by overseas immigrants. They differ from data on migration flows quoted later in the report which is taken from Arrival and Departure Cards which state people's intentions at the time of arrival/departure.

Since 1991, the number of building consents issued for residential dwellings and units has increased substantially from 1,866 in 1991/92 to 2,532 in 1994/95. This increase is consistent with the high population growth discussed earlier. The majority of this residential growth has occurred in the construction of new units. Often these units are built on sections where the existing home is retained or where the structure is removed and replaced by several new units. This process results in increasing population densities in the areas concerned.

During the last four years, the largest amount of building activity has occurred in areas on the residential fringe of the City including Oaklands, Parklands and Belfast (Figure 2).

There is a clear distinction between the location of new units and new dwellings within the City. As Figure 3 shows most single dwellings have been constructed in the outer areas of the City particularly in the new subdivisions of Oaklands, Hawthorndon, Parklands, Belfast, Marshland and Travis. There have also been a significant number of single dwellings built in the Templeton area. In most cases these suburbs are areas of lower population density.

In contrast, the majority of units or apartments have been constructed in the inner suburbs such as Riccarton, Avon Loop and Merivale (Figure 4). Other areas include Sydenham, Barrington North, and Belfast. It is likely the population density of these areas is also increasing as this form of construction grows in popularity.

Over the next twenty years, the Council, through its City Plan, intends to accommodate projected population growth mainly by encouraging urban consolidation. The aim of urban consolidation is to achieve a gradual rise in average household density per hectare.

This objective will be achieved by first utilising land within the City for development (ie redevelopment, infill and use of existing greenfield sites) in preference to allowing low density urban sprawl on the rural fringe of the City. An additional, 400 hectares of land has also been rezoned for residential purposes to help meet the expected demand for land. This strategy is considered a more energy efficient approach for managing urban growth and is believed to have the least adverse effects on natural resources such as water quality, versatility of soils and landscape values.

Population density is expected to increase in many suburbs as a result of infill housing and redevelopment of existing sites. This includes an inner ring of parts of St Albans, Merivale, Riccarton, Addington, Sydenham, Waltham, Phillipstown, Linwood, Richmond and Edgeware. Higher densities are expected around suburban focal points such as the New Brighton and Papanui shopping centres. It is also expected that rezoning in the new City Plan will result in significant population growth in the suburbs of Burwood and Mairehau in the northeast of Christchurch. Some smaller areas of new growth are also provided for in the northwest and on the Port Hills.

The recent emergence of a higher population growth path is being closely monitored by the Council. If the present trend persists for another two to three years, consideration may need to be given to the allocation of additional land for residential and possibly industrial and commercial use. The Council will be in a better position to consider this possibility following the release of results from the next Census of Population and Dwellings in mid to late 1996. In the meantime the City is very unlikely to "run out" of land in the next ten years, even if current high growth continues.

Fig. 2. Building Consents Issued for New Dwellings and Units, by Area Unit, July 1991 - June 1995

Fig. 3. Building Consents Issued for New Dwellings, by Area Unit, July 1991 - June 1995

Fig. 4. Building Consents Issued for New Units, by Area Unit, July 1991 - June 1995

The Reasons for Population Change

The demographic outlook for Christchurch has changed markedly in recent years in line with national trends. Major influences include lower birth rates, significant increases in life expectancy, continuing ageing of the population and changes in the migration balance. The following section provides information on the factors which are contributing to demographic change in Christchurch.

Natural increase and Total Fertility

Net migration rather than natural increase (the excess of births over deaths) has been the major cause of the City's recent population expansion. In a reversal of previous trends, natural increase accounted for only one quarter of total population change in 1994/95 compared to three quarters in 1991/92.

Despite contributing proportionately less to total growth, the level of natural increase has only fallen slightly during the first half of this decade. It is expected that the gradual reduction in the level of natural increase will continue until at least 2016 (see Appendix 1 for detailed projections). This decline is due to the re-emergence of the long term pattern of falling birth rates partially offset by a small rise in deaths.

Total fertility rates (TFR) in Christchurch underwent a minor resurgence in the late 1980s and early 1990s after many years of gradual decline. The fertility rate for Christchurch City in 1991 was 1.80 births per woman compared to 1.66 in 1982-86 and 1.63 in 1977-81. This slight "recuperation" was largely due to women of the baby boom generation, who had delayed childbearing, starting families. This period of increase now appears to be at an end with the long term trend of declining fertility rates re-establishing itself.

Overall, lower fertility will lead to progressively fewer children in the City's population next century. Between 1991 and 2001, Christchurch's TFR² is expected to be stable at 1.70 births per women, declining steadily thereafter to approximately 1.50 births per woman by the year 2016. These levels are well below the accepted rate of 2.1 births per woman required for population replacement. This trend highlights the importance of migration for Christchurch if the City is to continue to grow.

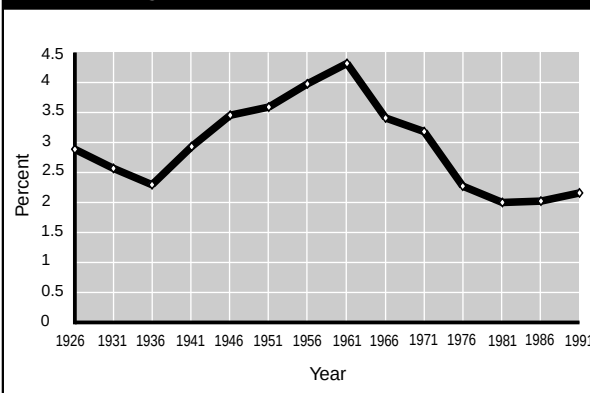
The TFR for Christchurch women continues to be lower than that for the country at large. In 1991, the national TFR was 2.16 births per women (Figure 5).

Key Points

- Net migration rather than natural increase has been the major cause of the City's recent population expansion
- Total fertility rates are again declining after a temporary resurgence during the late 1980s and early 1990s
- Lower fertility will lead to progressively fewer children in the City's population next century
- Lower mortality at late-working and retirement ages in addition to a reduction in mortality at younger age groups has led to a general improvement in life expectancy
- Increases in life expectancy and the movement of the large baby boom generation into retirement ages means there will be more elderly people living in Christchurch in the future
- While the majority of population movement is within the City, there are significant flows of residents to and from other parts of New Zealand
- In recent years, the largest net gain from migration has been from Malaysia

This was the second highest rate recorded since the mid 1970s but has subsequently declined. It is interesting to note that almost all developed countries, including Australia, England and the United States, have sub-replacement fertility rates.

Fig. 5 New Zealand Total Fertility Rate 1926-1991



Source: Statistics New Zealand Official Year Book 1995

² Total Fertility Rate values are taken from the revised unofficial population projections (Aug-95) in Appendix 1

A number of factors have directly or indirectly contributed to the current low level of fertility. These include changing methods of family planning, increased participation of women in the labour force and rising divorce rates. Patterns of marriage and family formation have also changed radically. There has been a shift away from the fifties model of early marriage and childbearing to a wider range of partnership arrangements and generally older childbearing.

Life Expectancy

At a national level, life expectancy at birth has increased substantially during this century. In 1991-93, life expectancy for a new born baby in New Zealand was 76 years. This compares with 69 years in 1950-52. Although the country's population is living longer as a whole, substantial variations remain in the life expectancies of men and women. In 1991-93, the life expectancy for males at birth was 73.1 years while females could be expected to live nearly six years longer (78.9 years of age). This gap has actually widened over time. In 1950-52 men were expected to live for 67.2 years and women for 71.3 years, a difference of 4.1 years compared to the current margin of 5.8 years.

Christchurch residents are also living longer than ever before. In 1987-91, life expectancy at birth for people living in the City was 75.4 years. This increased from 74.7 years in the period 1982-1986. The variation in the life expectancies between males and females is not available for Christchurch during this period. However, life expectancy in the Canterbury region in 1990-92 was 73.2 year for male and 79.4 for females.

Over the next twenty years the life expectancy of people born in Christchurch is expected to steadily improve. According to population projections, a male born in 2016 can expect to live to about 76 year's of age while a female could live to around 82 years (Figure 6).

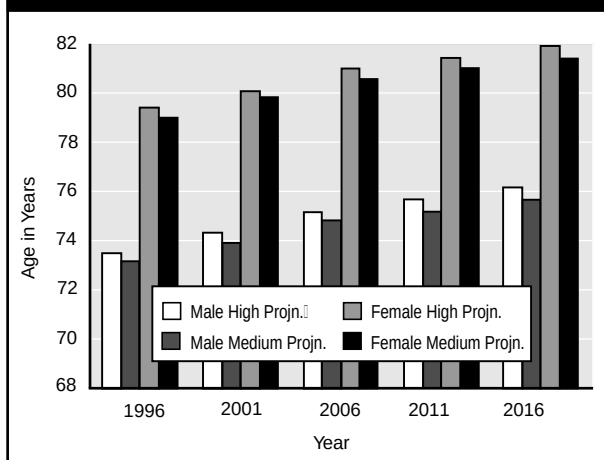
The general improvement in life expectancy, particularly in recent years, has been achieved through lower mortality at late-working and retirement ages and a reduction in mortality in younger age groups, especially from sudden infant death syndrome (or cot death). Increases in life expectancy and the movement of the large baby boom generation into retirement ages mean there will be more elderly people living in Christchurch in the future. In addition, age differentials between spouses mean there will be more women spending greater proportions of their later years on their own.

Changing Age Structure

Between 1991 and 2016, the age structure of Christchurch's population will undergo major change. Essentially, there will be progressively fewer young people in the population and generally more elderly people (Table 4 and 5). These changes will be reflected in the median age of the population (half the population is older than this figure) which will rise from 32.8 in 1991 to between 38 and 39 years by 2016.

The number of children aged under 15 years living in the City has been declining steadily over recent years. Between 1981 and 1991 this group dropped from 63,531 to 56,466 (Table 5). Proportionately, children also declined from 23 percent to 19.5 percent of the resident population during this period.

Fig. 6. Christchurch City Projected Life Expectancy at Birth 1996 to 2016



Source: Statistics New Zealand Population Projections (1991 Base)

Table 4. Population Projections by Age (High Assumption)

Year	0-14	15-64	65+	All Ages
1991	56,466	193,620	38,808	288,894
%	19.5	67.0	13.4	100.0
1996	62,530	198,920	42,530	303,980
%	20.6	65.4	14.0	100.0
2001	68,510	205,670	43,780	317,960
%	21.5	64.7	13.8	100.0
2006	70,210	213,840	45,450	329,500
%	21.3	64.9	13.8	100.0
2011	66,320	223,950	48,250	338,520
%	19.6	66.2	14.3	100.0
2016	62,380	229,880	54,310	346,570
%	18.0	66.3	15.7	100.0

Source: Statistics New Zealand, Population Projections (1991Base)

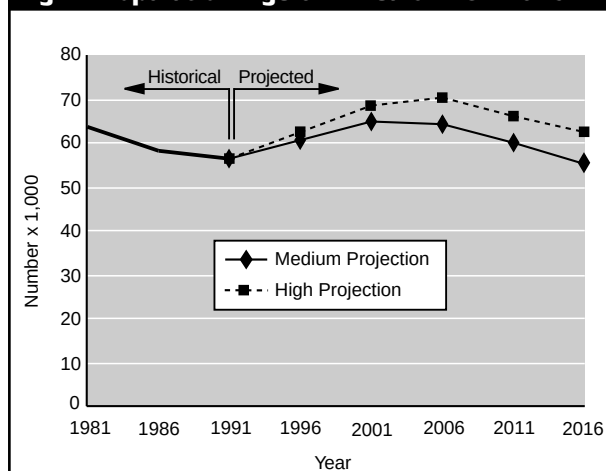
Table 5. Historical Data and Population Projections by Age (Medium Assumption)

Year	0-14	15-64	65+	All Ages
1981	63,531	179,889	32,070	275,490
%	23.1	65.3	11.6	100.0
1986	58,020	187,950	35,313	281,283
%	20.6	66.8	12.6	100.0
1991	56,466	193,620	38,808	288,894
%	19.5	67.0	13.4	100.0
1996	60,780	196,710	41,790	299,280
%	20.3	65.7	14.0	100.0
2001	64,850	201,390	42,370	308,610
%	21.0	65.3	13.7	100.0
2006	64,520	207,500	43,370	315,390
%	20.5	65.8	13.8	100.0
2011	59,830	214,190	45,520	319,540
%	18.7	67.0	14.2	100.0
2016	55,020	216,600	50,960	322,580
%	17.1	67.1	15.8	100.0

Source: Statistics New Zealand, Census of Population & Dwellings, Population Projections (1991 base)

Population projections (high and medium) indicate that the number and proportion of children in the City will fluctuate over the coming decades. As Figure 7 shows, the number of children is projected to increase initially and then decline through to the end of the projection period. These trends will largely reflect changes in the size of the population of childbearing age.

In contrast, the City's elderly population (65 years and over) increased substantially during the 1980s reflecting national trends. In 1981, people aged over 65 numbered 32,070 or 11.6 percent of the resident population. Ten years later the elderly numbered 38,808 people and comprised 13.4 percent of the

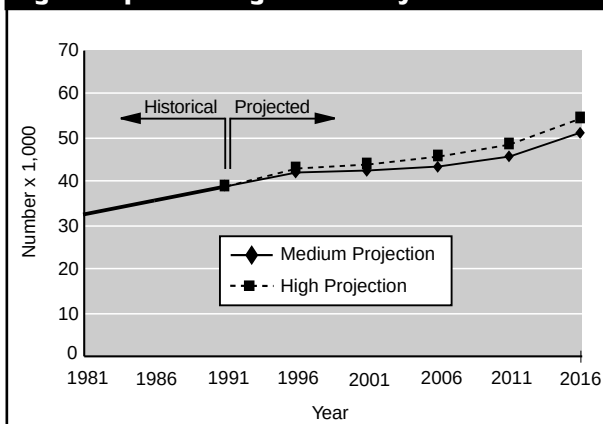
Fig. 7. Population Age 0-14 Years 1981-2016

Source: Statistics New Zealand, Census of Population & Dwellings, Population Projections (1991 base)

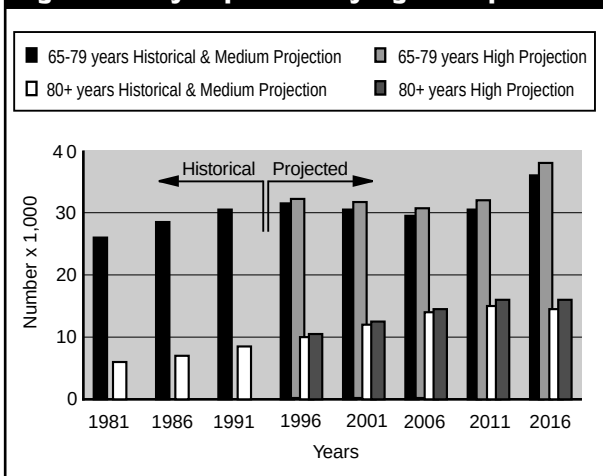
population. By 2016, the older age group is expected to increase to around 16 percent of the population and number from 50,960 to 54,310 people (Tables 4 and 5 and Figure 8).

According to demographers, the increase in the number of elderly will not be evenly distributed across all older age groups. There will be some fluctuation in the number and proportion of people aged 65-79 years during each intercensal period but the most consistent and startling increase will occur in the 'older elderly' age group (people aged 80 years and over). This is in part the result of this age group extending its upper limit as life expectancy increases (Figure 9).

There will also be more women than men in the City's elderly population. Although more males than females are born, females tend to live longer than males. This results in greater number of females in the population especially in the older age groups (Figure 10).

Fig. 8. Population Aged over 65 years

Source: Statistics New Zealand, Census of Population & Dwellings, Population Projections (1991 base)

Fig. 9. Elderly Population by Age Group

Source: Statistics New Zealand, Census of Population & Dwellings, Population Projections (1991 base)

The growing number of elderly in the population can be expected to increase the demand for public transport, better access to appropriate housing, medical and welfare facilities.

Ageing is associated with an increased risk of disability. As people age, they have a higher incidence of chronic disease, and a greater risk of injury as they become physically frail. With increasing life expectancy, the number of years free of disability may also increase. However, the rate at which gains are made in disability free life is not expected to be as great as that of total life expectancy. This means that while people may expect to be healthy for longer, they can also expect to live even longer still with some level of incapacity.³

The elderly have tended to live for most of their retirement years as couples or independently in private dwellings. The forecast improvement in life expectancy may pose a threat to this degree of independence. For the period of possible incapacity families may have to choose between the cost of institutional care or support within the family home. However, this choice will be complicated by the fact that many of the elderly's potential caregivers will themselves be elderly.

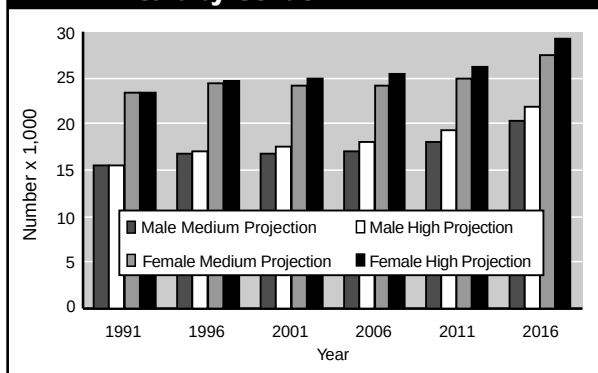
Internal Migration Patterns 1986-95

Internal migration is an important factor in the dynamics of population change in Christchurch. It directly affects the size of the population and also influences age structure and fertility levels. In general, Christchurch residents are a mobile group. While the majority of movement is within the City, there are significant flows of residents to and from other parts of New Zealand.

Annual population estimates for Christchurch provide the only official information relating to internal migration for the period since the last Census in 1991. Since 1991, net internal migration has increased significantly from a net loss of approximately 200 people in 1992 to a net gain of approximately 2,300 in 1995. During this period internal migration contributed approximately 5,400 people to the City or nearly one third of total growth. There is no information available detailing inter-regional migration for the 1991-95 period.

Between 1986 and 1991, 36,612 people moved to Christchurch from other parts of the country. At the same time the City lost 31,182 residents to other parts of the country. The resulting internal migration gain was 5,430 people.

Fig. 10. Projected Population Aged Over 65 Years by Gender



Source: Statistics New Zealand, Census of Population & Dwellings, Population Projections (1991 base)

Table 6. Christchurch City Internal Migration Flows 1986-1991

Area	Move to Chch City From Area (Inward Migration)	Moved out of Chch to Area (Outward Migration)	Net Gain to Chch
North Island	13,731	12,765	966
South Island	22,881	18,417	4,464
Total	36,612	31,182	5,430

Source: Statistics New Zealand, Census of Population & Dwellings, Internal Migration Data

12,765 people moved from Christchurch to North Island areas between 1986 and 1991, while 13,731 people shifted from the North Island to Christchurch. The resulting net gain to the City was 966 people. However, during this period Christchurch gained its greatest share of New Zealand residents from other parts of the South Island (Table 6).

Besides inward and outward internal migration there was considerable movement within the City. During the last intercensal period, nearly 88,000 residents changed their address within Christchurch boundaries.

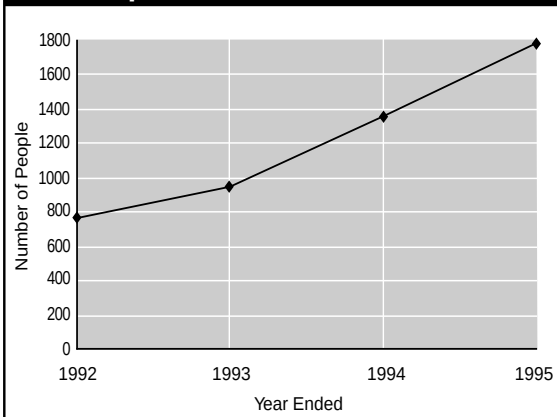
Migration from Overseas⁴

The net inflow of overseas residents into Christchurch more than doubled between 1992 and 1995. In the year to March 1992, the net gain for the City was only 770 people. By March 1995, this inflow had risen to 1,784 people (Figure 11). Over the last 4 years 19,356 people arrived in Christchurch on a long term or permanent basis while 14,487 people departed for an overseas destination. The net result for Christchurch was a gain of 4,869 residents.

³ Statistics New Zealand. *New Zealand Now 65 Plus*. p9

⁴ The data used in this section is based on information from Arrival and Departure cards. These cards outline people's immediate intentions but may not relate to their ultimate destinations. For this reason they differ from the estimates by Statistics New Zealand used earlier in the report.

**Fig. 11. Total Net Migration
April 1991-March 1995**



Source: Statistics New Zealand, External Migration Data

These figures include departing and returning New Zealand citizens.

Families with young children, and young adults make up the two largest groups arriving in the City in recent years. Between 1992 and 1995, 38 percent of arrivals to the City were aged 25-39 years and 18 percent were children aged under 14 years indicating a high proportion of families. A quarter of arrivals were aged 15-24 years, reflecting the growing number of overseas students attending Christchurch's secondary schools and tertiary institutions.

Although there have been a large number of arrivals aged 15-24 years, there has actually been an overall net migration loss of 280 people in this age group. This is attributable to the large number of young New Zealanders departing for overseas destinations, particularly the British Isles and Australia (38 and 35 percent of total departures in the 15-24 age group respectively).

The City is also losing slightly more elderly people to overseas destinations than is being gained. Since 1992, there has been a net migration loss of 47 people aged over 60 years. Recent statistics show that the 60 percent of people in this age group (290 people) departing the country on a long term basis intended to settle in Australia.

Country of Last/Next Permanent Residence

Malaysia has been the country of origin for the largest net inflow of migrants over the past four years. Japan, the British Isles, Taiwan and Korea have also been major sources of new immigrants.

Figure 12 illustrates the trend in migration for the five countries with the highest rates of net inflow. Of particular interest is the large increase in the number of migrants from Korea. In 1994, there were 139 migrants from Korea but this figure almost trebled to

394 people in 1995. The number of migrants from the British Isles also more than doubled between 1993 and 1994 (from 109 to 286). Generally migration from Malaysia has increased, although in the last 12 months the numbers have fallen slightly (Figure 12).

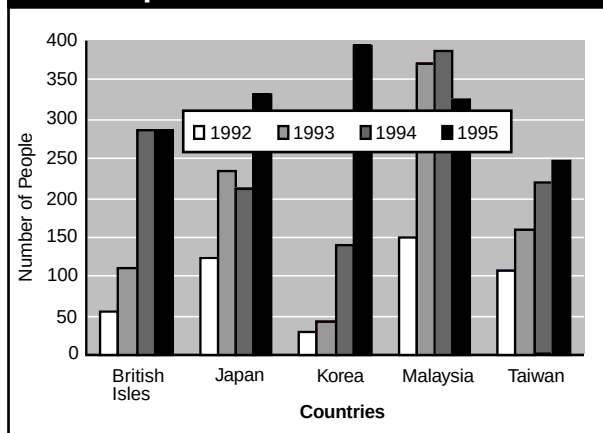
It is also interesting, if not particularly surprising, to note the high level of movement between Christchurch and Australia. The net result of this activity has been an overall loss of 778 people over the last 4 years (Table 7).

**Table 7. Migrant Arrivals and Departures By
Country of Origin 1991-1995**

	Arrivals	Departures	Net Migration
Australia	4,672	5,450	-778
British Isles	4,279	3,543	736
Canada	301	282	19
China	246	63	183
Hong Kong	414	120	294
Indonesia	141	93	48
Japan	1,734	831	903
Korea	641	37	604
Malaysia	1,470	238	1,232
Netherlands	232	172	60
Pacific Islands	367	327	40
Singapore	289	138	151
South Africa	242	61	181
Taiwan	772	42	730
Thailand	197	88	109
U.S.A.	905	921	-16
Other Countries	2,454	2,081	373
Total	19,356	14,487	4,869

Source: Statistics New Zealand, External Migration Data

**Fig. 12. Total Migration, Top Five Countries
April 1991 - March 1995**



Source: Statistics New Zealand, External Migration Data

Personal Safety

The hazards of crime or accident expose people to risk and undermine their sense of personal safety within the City. Official statistics on crime and vehicle accidents provide one of the main sources of information currently available on individuals personal safety and their risk of physical injury. Valuable information is also available on how safe people feel within their environment. The Council's Annual Survey of Residents already collects some of this information and may be used as a source of more detailed information in the future. Fear of crime, physical injury and victimisation can significantly impact on an individual's quality of life. This is particularly so for women and the elderly for whom this fear can act as a social control by significantly limiting mobility.

Crime Levels

The following statistics provide information on the number and type of crimes that have been reported within the Christchurch Police District.⁵ Generally speaking, crimes such as burglary, car conversion and damage to property are reported. However, many crimes, particularly those against people (most notably women) are not reported. For this reason official crime statistics are useful as a measure of personal safety for some categories of crime but of limited use for others.

The number of non traffic related crimes reported to police in Christchurch increased steadily in the early part of this decade. However, there has been a slight reversal of this trend during the year to December 1994. In this most recent period a total of 43,209 non traffic crimes was reported compared to 43,885 during the previous year (Figure 13). This decrease was largely due to a drop in dishonesty crimes during 1994. Although the overall crime rate has grown during the decade, the clearance rate for crime has also increased steadily from 32 percent in 1991 to nearly 46 percent in 1994 (Figure 13).

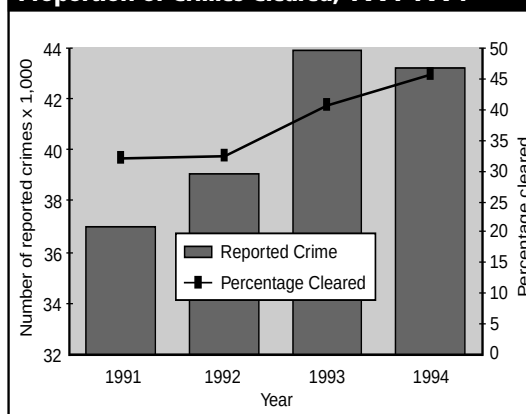
Instances of dishonesty offences, including burglary, vehicle theft and interference, theft, receiving stolen items and fraud have fallen from a total of 30,271 in 1993 to 28,269 in 1994. Despite this decline, dishonesty offences remain the largest crime group accounting for 65 percent of all reported offences in 1994 (Table 8).

One trend to emerge in recent years has been the dramatic increase in violent crime. Between 1991 and 1994, 33 known murders were investigated while overall, violent crime more than doubled (Table 8). This growth may be partially due to the increased reporting of offences such as domestic violence, as people respond to anti violence campaigns run by the police.

Key Points

- The number of reported non traffic offences fell slightly in 1994.
- The clearance rate for non traffic crimes continues to improve.
- Violent offending has more than doubled since 1991.
- In 1994, the majority of vehicle collisions occurred in areas where the speed limit was 50 kph or less.
- Crashes at intersections was the most common form of collision.
- The injury collision rate per 10,000 population in Christchurch has declined significantly although Christchurch still has the highest collision rate of all the main centres.
- The number of people killed on the City's roads in 1994 was the lowest recorded this decade.
- Males aged 15 to 24 years are most likely to be injured in crashes.
- Elderly people are over represented in driver, passenger, and pedestrian casualty statistics.
- The Central City is considered by many residents to be unsafe at night.
- Many residents believe travelling in a car around the City is safe but riding a bicycle is unsafe

Fig. 13. Number of Reported crimes and Proportion of Crimes Cleared, 1991-1994



(Christchurch Police District)

Source: New Zealand Police Crime Statistics (Year to December)

⁵ These statistics relate to a slightly different area to the Christchurch City local government boundary.

Table 8 Number of Reported Crimes by Year

Type of Crime	1991	1992	1993	1994
Violence	1,763	2,310	3,294	3,960
Sexual	291	357	459	433
Drugs/Anti-social	2,244	2,238	3,504	4,298
Dishonesty	29,218	30,140	30,271	28,269
Property Damage and Abuse	3,043	3,689	5,848	5,617
Administrative	424	366	509	632
Total	36,983	39,100	43,885	43,209

(Christchurch Police District)

Source: New Zealand Police, *Crime Statistics (Year to December)*

Vehicle Safety

In 1994, a total of 1,186 injury collisions (including motor vehicle, cyclist and motorcyclist) were recorded in Christchurch (Table 9). Nearly 90 percent of collisions occurred in areas where the speed limit was 50 kph or less. Crashes at intersections (including driveways), were the most common type of collision in both urban and rural parts of the City (52 percent).

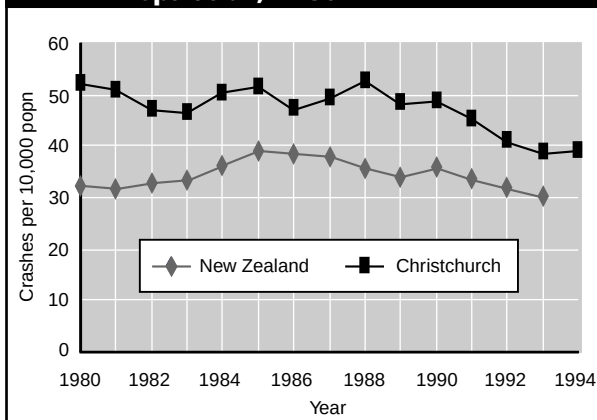
Table 9. Number of Reported Road Collisions in Christchurch 1990-1994

	1990	1991	1992	1993	1994
Fatal	30	26	27	32	19
Serious	266	278	236	250	261
Minor	1,123	983	946	874	906
Total Injury	1,419	1,287	1,209	1,156	1,186
Non-Injury	2,085	1,967	1,841	1,519	1,645

Source: Land Transport Safety Authority, *Road Safety Report for Christchurch City (July 1995)*

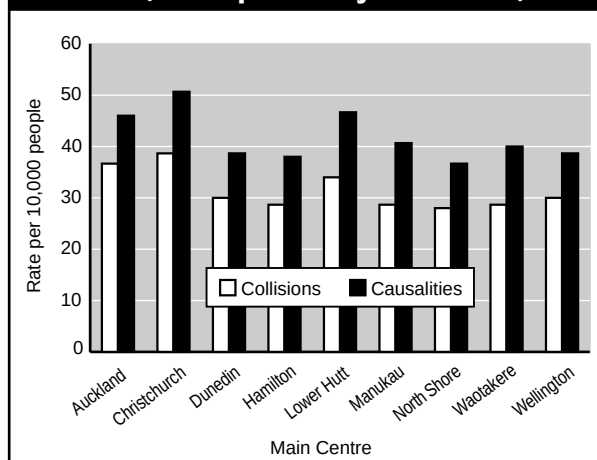
The injury collision rate per 10,000 population in Christchurch has been consistently higher than the national figure but has declined significantly from 51.9 to 39.3 per 10,000 population between 1980 and 1994 (Figure 14). Despite the overall decline in the collisions per 10,000 population, Christchurch still has the highest collision rate of the main centres (Figure 15).

The number of people killed on the City's roads in 1994 was the lowest recorded this decade. This is despite the overall casualty rate having increased slightly from the previous year (Table 10). According to the Land Transport Safety Authority, most casualties are drivers of cars and vans. Males aged 15 to 24 years are most likely to be injured in crashes. Elderly people, particularly those aged over 70 years are also over represented in driver, passenger, and pedestrian casualty statistics.

Fig. 14. Injury Collision Rate per 10,000 Population, 1980-1994

Source: Land Transport Safety Authority.

*1994 information for New Zealand was not available at the time of publication

Fig. 15. Injury Collision and Casualty Rates per 10,000 Population by Main Centre, 1994

Source: Land Transport Safety Authority, *Road Safety Report for Christchurch City (July 1995)*.

Table 10. Number of Reported Road Casualties in Christchurch 1990-1994

	1990	1991	1992	1993	1994
Fatal	33	27	29	38	20
Serious	306	319	255	279	293
Minor	1,496	1,263	1,295	1,170	1,239
Total Casualties	1,835	1,609	1,579	1,487	1,552

Source: Land Transport Safety Authority, *Road Safety Report for Christchurch City (July 1995)*.

In line with the collision rate, the number of casualties per 10,000 population in Christchurch in 1994 was higher than the other main centres (Figure 15). However, the increase in casualties per 10,000 people in the City between 1993 and 1994 was noticeably less than for the other major cities.

Public Perceptions or Sense of Safety

In 1994, nearly 70 percent of respondents to the Annual Survey of Residents indicated that they did not feel safe in the central city at night. In contrast, only ten percent indicated that they felt unsafe alone in the central city during the day.

The 1995 Annual Survey of Residents showed that almost half of the City's residents thought travelling around suburban roads in a car was safe (44 percent) or very safe (4 percent). However, 18 percent thought that suburban roads were not safe to travel on. Although travelling in a car was considered safe by many, the majority of respondents (cyclists and non-cyclists) thought travelling around the City on a bicycle was not a particularly safe activity. The survey found over half the City's residents believe riding a bicycle in Christchurch is dangerous (43 percent) or very dangerous (15 percent).

Residents were also asked about how safe they feel walking around the City in relation to traffic. The majority thought walking in the City was safe (51 percent) or very safe (6 percent).

Health

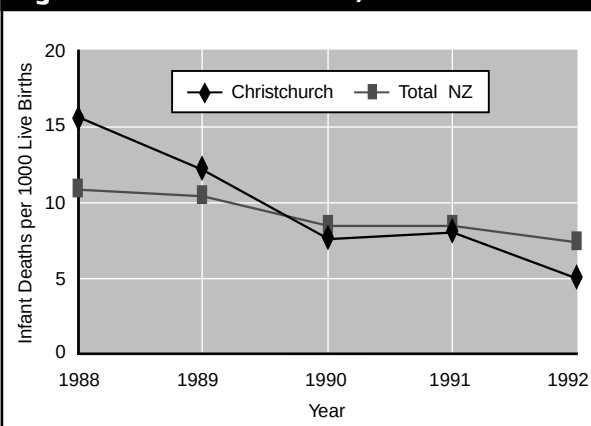
The following section provides information on the health of Christchurch residents. It focuses on two traditional quantitative indicators of health - infant mortality and total mortality. Trends in a third indicator, life expectancy, are discussed earlier in this report.

Infant Mortality

The infant mortality rate⁶ is recognised as being a sensitive indicator of social and economic conditions and is often used to make international comparisons, especially in less developed countries.

Infant mortality in New Zealand has steadily declined over the last three decades, from a rate of 22.6 per 1,000 total births in 1960, to 16.7 in 1970, 13.0 in 1980 and 7.3 in 1992. The infant mortality rate in Christchurch has declined even more rapidly than the national figure. In 1988, there were 15.7 infant deaths per 1,000 live births in the City. By 1992, the rate had fallen substantially to 5.1 deaths per 1,000 live births (Figure 16).

Fig. 16. Infant deaths Per 1,000 Live Births



Source: Ministry of Health Information Service, Mortality Data

The primary cause of infant mortality in Christchurch between 1988 and 1992 was sudden infant death syndrome (SIDS) also known as 'cot death' (Table 11). Despite being the major cause of infant death, the number of deaths due to SIDS declined significantly during this period both in Christchurch and at a national level (Figure 17). This decline coincided with a major educational campaign on known factors associated with SIDS.

Major Causes of Death

The major causes of death in Christchurch, as in the rest of New Zealand, are ischaemic heart disease, malignant neoplasm (cancer) and cerebrovascular

Key Points

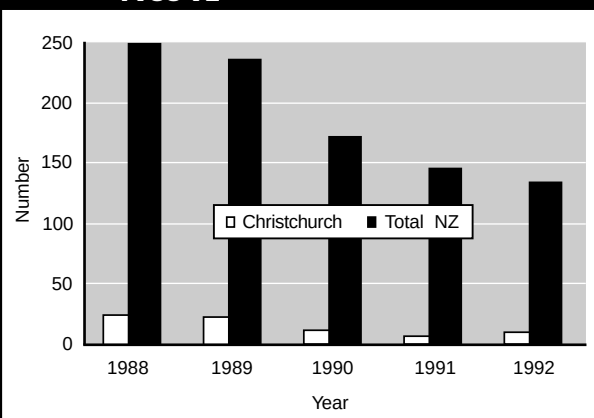
- Christchurch's infant mortality rate has declined rapidly in recent years.
- Sudden infant death syndrome or 'cot death' is the main cause of death for Christchurch infants. However this cause of death has declined significantly in recent years.
- Ischaemic heart disease, cancer and stroke are the major causes of death in Christchurch particularly amongst the older age groups.
- Accidental death and suicide (including self inflicted injuries) are the leading causes of Christchurch deaths in the 15-25 and 25-44 years age groups.
- The number of male deaths due to accidents and suicides in the City in the 15-24 and 25-44 age groups is significantly higher than female deaths.

Table 11. Infant Death by Major Cause 1988-92

	Christchurch	%	New Zealand	%
Congenital anomalies	44	21.4	664	24.9
Perinatal causes	71	34.5	750	28.1
SIDS	74	35.9	937	35.1
All other	17	8.3	320	12.0
Total	206	100.0	2,671	100.0

Source: Ministry of Health Information Service, Mortality Data.

Fig. 17. Number of Infant Deaths from SIDS 1988-92



Source: Ministry of Health Information Service, Mortality Data.

⁶ Death of children under one year per 1000 live births

disease (stroke). Collectively these conditions accounted for 63 percent of all deaths in the City in 1992 (Figure 18). At a national level, around 60 percent of deaths were attributable to these causes.

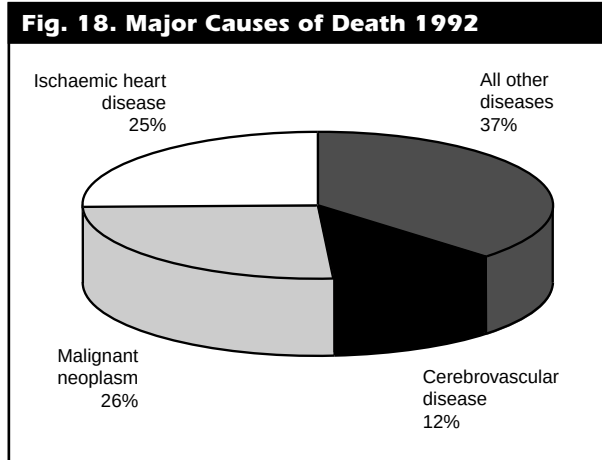
National trends over the last twenty years show that death rates⁷ from ischaemic heart disease have dropped substantially, while trends in death rates from cancer vary with the type of cancer. In both cases, male death rates remain higher than female rates.

Nationally, death rates from stroke are similar for men and women. Over the last twenty years, the rate of death from this cause has declined significantly. This reduction has been associated, at least in part, with improvements in the management of hypertension. Increasing community awareness of the consequences of alcohol consumption, smoking, diet and degree of fitness may also have had a positive effect.⁸

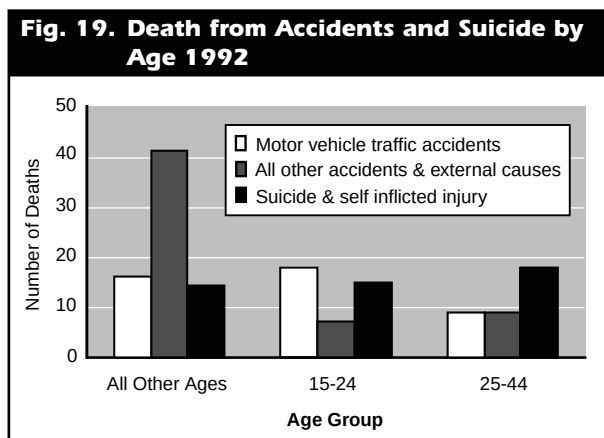
Each age group has its own characteristic health problems causing death. Accidental death and suicide (including self inflicted injuries) are the leading causes of death in the 15-25 and 25-44 year age groups (Figure 19). There are significantly more male deaths in these age groups than female from accidents and suicide (ie 70 percent of total deaths are male).

In contrast, incidents of death through ischaemic heart disease, cancer and strokes increase as people get older (Figure 20). For Christchurch residents aged 45-64 years ischaemic heart disease and cancer are the major killers. Heart disease in particular is a major cause of male deaths in this group.

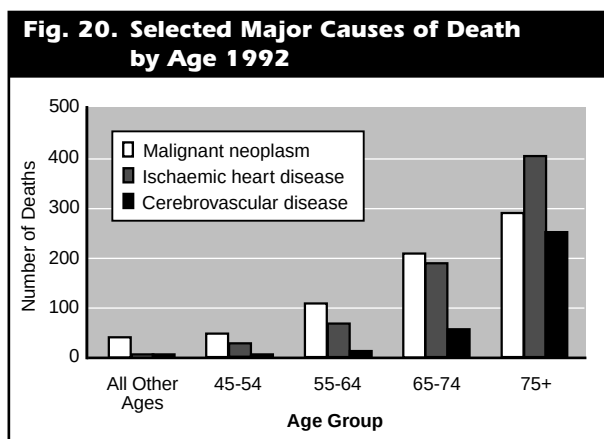
Heart disease and cancer are the main cause of death for people aged over 65 years, followed by strokes and respiratory and digestive disorders. Accidents are also a significant cause of death especially for the very elderly. The number of deaths from heart disease and cancer is higher for men in the 65-74 age group, but this trend is reversed in the 75 years and over age group reflecting gender differences in life expectancy.



Source: Ministry of Health Information Service, Mortality Data



Source: Ministry of Health Information Service, Mortality Data



Source: Ministry of Health Information Service, Mortality Data

⁷ Deaths per 1000 population

⁸ Statistics New Zealand and The Ministry of Health, *A Picture of Health* 1993

Education

The following section provides general information on the number of educational facilities and pupils within the City and also levels of education.

Education Facilities

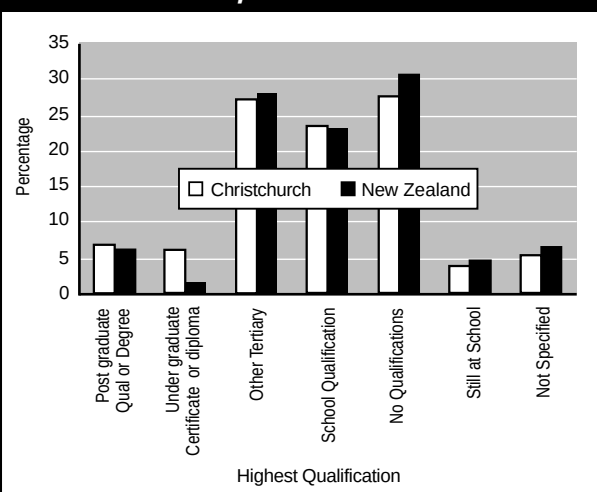
There are currently 145 primary and secondary schools in Christchurch catering for 49,528 pupils (Table 12). During the 1994 academic year, 25,679 pupils were enrolled either full or part-time at the four major tertiary institutions in or near the City (Table 13).

Within the City, there are now eleven private training establishments registered with the New Zealand Qualifications Authority who offer English language courses. This reflects the growth in overseas student numbers and external migration in recent years.

Formal Education Level

The general level of educational attainment in Christchurch appears to be very similar to that of the rest of New Zealand. In 1991, 40 percent of Christchurch residents over the age of 15 years had some form of tertiary qualification compared to 35 percent nationally. In contrast the proportion with no qualifications in Christchurch was slightly lower than the national figure (27 percent compared to 31 percent). The slightly higher level of tertiary education may reflect the presence of the four major tertiary institutions in or near the City (Figure 21).

Fig 21. Formal Education Levels, (Persons Aged 15 Years +) 1991



Source: Statistics New Zealand, 1991 Census of Population and Dwellings

Key Points

- There are currently 145 primary and secondary schools and 4 major tertiary institutions in Christchurch.
- 49,528 pupils attend primary and secondary schools while 25,679 pupils were enrolled in the City's tertiary institutions during the 1994 academic year.
- The general level of educational attainment in Christchurch appears to be very similar to that of the rest of New Zealand.

Table 12. Number of Schools and Number of Pupils Attending Schools in Christchurch March 1995

	Number of Schools	Number of Pupils
Primary and Intermediate Schools	117	28,765
Secondary Schools	24	19,007
Combined Primary and Secondary Schools	4	1,756
Total	145	49,528

Source: Ministry Of Education

Table 13. Major Tertiary Institutions in or Near Christchurch City

	Full Time Students	Part Time Students	Total Students*
Christchurch Polytechnic	3,150	4,429	7,579
University of Canterbury	8,358	3,020	11,378
Lincoln University	3,351	499	3,850
Christchurch College of Education	1,251	1,621	2,872
Total	16,110	9,569	25,679

*1994 Academic Year

Source: Ministry Of Education

Social Well-Being

In future environmental monitoring reports this section on social well-being will focus on the social circumstances of Christchurch residents. It is anticipated that information incorporated in this section will be both quantitative and qualitative in nature. It will include official statistics and selected findings from the City Council's social monitoring programme which is currently being developed.

Residents Groups

There are currently 79 residents groups in the City. The aim of these groups is to promote the interests of people within their immediate community. Around 30 percent of residents who participated in the 1995 Annual Survey of Residents knew of a residents group or groups within the City. Thirty one percent of residents who knew of a residents group had either contacted a residents group or had attended a meeting or function organised by a group. This was a slight decline of 4 percent during the year.

Key Points

- The City Council's social monitoring programme, which is currently being developed, will be an important source of information for future environmental monitoring reports.

Housing Provision

The changing population will have major implications for Christchurch's current and future housing needs. In particular, variations in the demographic makeup of residents will influence the type of housing construction and location of new developments within the City. These changes are already apparent when examining recent statistics on housing in Christchurch.

Type of Dwellings

In 1991, nearly 74 percent of dwellings in the City were separate houses or units, while 25 percent of dwellings were two or more flats or houses joined together within blocks (Table 14).

Tenure of Private Dwellings

Home ownership is a common aspiration for many Christchurch residents. In 1991, 39 percent of private dwellings were owned with a mortgage, while just over 35 percent were freehold. Nearly a quarter (23 percent) of private dwellings in the City were rented at the last Census. In addition, a small number (1.5 percent) of dwellings were provided rent free.

Table 14. Type of Dwelling (Private and Non Private) 1991

	Christchurch City	%	New Zealand	%
Separate House	79,128	73.5	950,646	80.2
Two Flats or Houses Joined Together	15,276	14.2	110,100	9.3
Three or More Flats or Houses Joined Together	11,820	11.0	91,179	7.7
Flat or House Joined to a Business or Shop	615	0.6	9,282	0.8
Bach; Crib or Hut (not in work camp)	126	0.1	6,876	0.6
Caravan; Cabin or Tent in a Motor Camp	201	0.2	4,728	0.4
Other (private)	39	0.0	2,466	0.2
Not Specified Private Dwelling	12	0.0	2,388	0.2
Hotel; Motel or Guest House	174	0.2	3,006	0.3
Boarding House	54	0.1	615	0.1
Home for the Elderly	87	0.1	735	0.1
Other (non-private)	165	0.2	3,375	0.3
Total	107,697	100.0	1,185,396	100.0

Source: Statistics New Zealand, Census of Population and Dwellings 1991

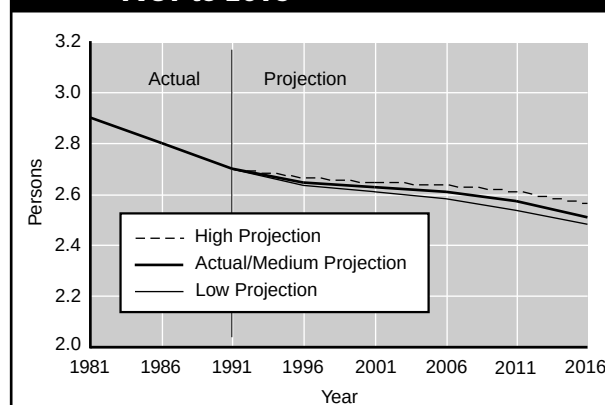
Key Points

- The vast majority of Christchurch dwellings are separate houses.
- 39 percent of private dwellings are owned with a mortgage.
- Nearly a quarter of private dwellings in the City are rented.
- The average number of people living in private households is declining.
- There has been a rapid increase in the number of units or apartments built in the City over recent years.
- Since 1990, there has been a significant increase in the number of unit developments which have occurred on sections with an existing house.
- Townhouse and apartment living is becoming an increasing part of inner-city Christchurch.
- Since 1991, the number of residential building consents issued for rural zones has remained relatively constant, ranging from 27 to 35 consents per year.
- There were approximately 1,020 hectares of vacant land zoned for residential use available in the City in June 1995.

Average Household Size Declines

The average number of people living in private households has been declining for many years and this trend is expected to continue in the future. In 1981, the occupancy rate in Christchurch was 2.9 persons per household. This declined to 2.7 by 1991 and is expected to fall to around 2.5 people per household early next century (Figure 22).

Fig 22. Average Persons per Household 1981 to 2016



Source: Statistics New Zealand, Census of Population and Dwellings, Population Projections (1991 Base)

The decreasing trend in household size is a result of the rate of household formation exceeding the rate of population growth. There are a number of social and economic factors which have contributed to the accelerating rate of household formation in recent years. These include:

- The increase in single person households. As the population ages and life expectancy increases, more people (particularly women) are living for longer periods on their own.
- The increase in non family households. Young people in particular are now more likely to set up households with others before starting families. They may also spend longer periods of time in flatting situations. In previous decades the norm was for young adults to stay in the family home until marriage and generally marry at earlier ages.
- The rise in divorce and separation which has the tendency to split households.

The expectation that household numbers will increase at a higher rate than population growth has implications for the overall growth and form of the City. It also suggests that the existing housing stock may not necessarily meet the demands of residents in the future who may be looking for smaller properties with less bedrooms. This may be particularly relevant for the growing number of elderly in the City. Recent building consent information suggests the market is already moving to meet these changing needs.

Households and Family Type

One family households remain the predominant household type within the City occupying 68 percent of private dwellings in 1991. This form was followed by one person households (23 percent) and non family households (7 percent).

There were around 990 multiple family households in the City in 1991 which translates to about 1 percent of all private households. Proportionately there were less households with two or more families than in some other local authorities such as Manukau City and Waitakere City where 4 percent and 3 percent of households contained two or more families. This may reflect the smaller proportion of Maori and Pacific Island families in Christchurch which are more likely to form larger extended family groups.

In the future there may be an increase in multiple family households as a result of the City's growing Asian population. Statistics show that Asian families are twice as likely as New Zealand families to share their homes.

A comparison of different family types shows:

- Two parent families comprised 45 percent of all Christchurch families. Sole parent families rep-

resent just under 20 percent, and couples only, a further 37 percent of the total number of families in the City.

- Ten percent of two parent families rented or leased their homes compared to 36 percent of sole parents and 15 percent of couples.
- The income of 65 percent of two parent families was more than \$30,000 while around 49 percent of couples and 20 percent of sole parents received incomes over \$30,000.

Substantial Growth of Units within the City

The most significant housing trend to emerge in recent years has been the rapid growth in the construction of units or apartments within the City. As Table 15 shows the number of units built annually in the City increased from 839 in 1986 to 1,822 in the year to June 1995. The total number of units built during this period was 9,184 or 62 percent of all residential construction compared to 5,727 separate dwellings or 38 percent of construction.

Table 15. Number of Building Consents Issued Year to June 1986-1995

Year to June	Separate Houses	Separate Houses %	Units	Units %	Total
1986	735	47	839	53	1,574
1987	524	46	622	54	1,146
1988	485	40	722	60	1,207
1989	589	47	669	53	1,258
1990	894	43	1,204	57	2,098
1991	562	34	1,116	66	1,678
1992	563	30	1,320	70	1,883
1993	611	31	1,343	69	1,954
1994	751	34	1,482	66	2,233
1995	710	28	1,822	72	2,532
Total	5,727	38	9,184	62	14,911

Source: Canterbury Regional Council and Christchurch City Council

Unit development falls into three major categories:

- units built on new sites;
- units built on sites where a house may have been demolished or removed (ie redevelopment) and
- units added to a section with an existing house (ie infill).

Since 1990, there has been a significant increase in the number of unit developments which have occurred on sections with an existing house (ie infill) (Figure 23)

The overall growth in the number of units in recent years reflects the general trend towards smaller households and the older age structure of the City's population. This shift also appears to be driven by an increasing demand for a particular lifestyle, often associated with inner city living.

Central City Residential Building Consents

Townhouses and apartments are increasingly becoming an integral part of inner-city Christchurch. This development is similar to trends experienced internationally and in other large New Zealand cities. Since 1991, 314 units have been built in residential zones within the four avenues of central Christchurch and an additional 90 units have been constructed in inner city commercial areas. In the year to June 1995 alone, a total of 57 units were built throughout the Central City (Table 16).

It is interesting to note that most of the redevelopment in central city commercial areas involves the construction of new buildings rather than the conversion of existing commercial sites. However, there have been some conversions such as the refurbishment of the P & D Duncan Foundry, the first floor flats in Colombo St opposite the South City Mall and the Old Port Authority building on the corner of Madras Street and Chester Street East.

Rural Building Consents

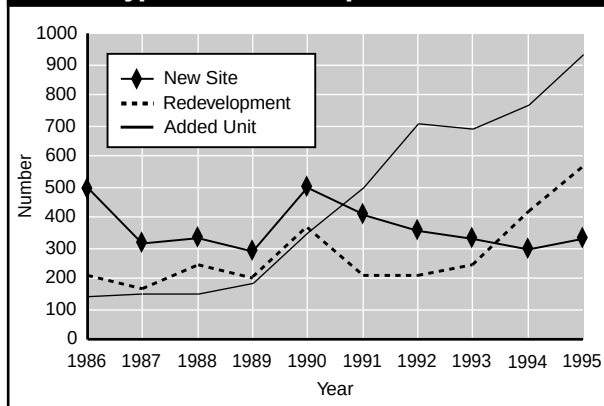
During the year to June 1995, 26 building consents were issued for residential dwellings and 6 for units within rural zoned areas of the city. Since 1991, the number of residential building consents issued for rural zones has remained relatively constant ranging from 27 to 35 consents per year.

Residential Property Values

Recent trends in the cost of residential property in Christchurch reflect the combined affects of an increasing population, rapidly expanding economy and a period of low inflation and interest rates. The real price of the average residential house in Christchurch increased from \$119,086 in June 1990 to \$140,920 in June 1995 (December 1993 dollars). This represents an 18 percent increase in the average price of a home in the city over the past five years.

A less pronounced increase has also been observed in the average price of ownership flats. The average real price of an ownership flat has increased from \$96,242 in June 1990 to \$106,753 in June 1995, an 11 percent increase over the period. Most of this increase occurred in the short period between June 1993 and December 1995.

Fig 23. Number of Building Consents Issued by Type of Unit Development 1986-1995



Source: Canterbury Regional Council and Christchurch City Council

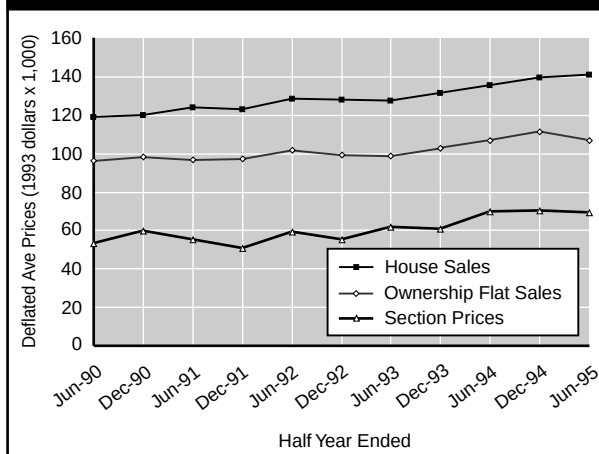
Table 16 Growth In New Residential Units Within The Inner City 1991-1995

Year to June	Residential Zones within four Avenues		Central City Commercial Business Zones	
	Developments	Units	Developments	Units
1991	12	75	-	-
1992	18	69	1	8
1993	8	39	5	41
1994	15	77	3	38
1995	11	54	1	3
Total	64	314	10	90

Source: Christchurch City Council

Section prices have also increased markedly, particularly since December 1993. Over the period June 1990 and June 1995 the average section price increased from \$53,095 to \$69,132, an increase of 30 percent in real terms (Figure 24).

Fig 24. Christchurch Residential Real Estate Trends 1990-1995



Source: Valuation New Zealand

It is interesting to note the stalling of this growth in the average price of all types of residential property sold in the first half of 1995. It seems likely that this cooling of the rate of increase in property prices is associated with the increase in interest rates during this period and the slowing of overall economic growth.

In assessing the implications of the increase in the real cost of housing affordability, changes in the level of household income during the period must be taken into account. To fully assess this issue we will need to await income data from the 1996 Census of Population and Dwellings.

Vacant Residential land

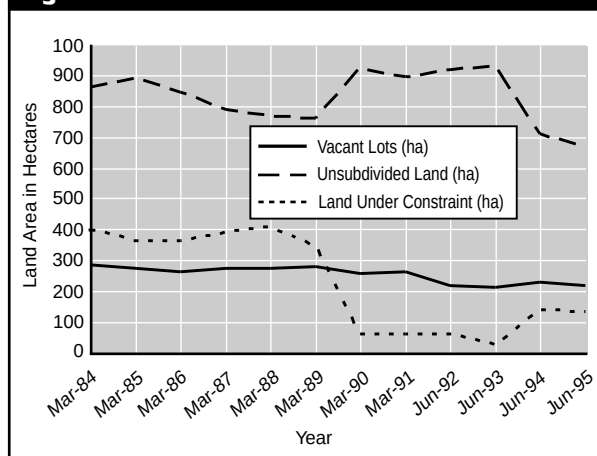
An analysis of vacant land in the city has shown that at June 1995⁹, there were approximately 1,020 hectares (ha) of vacant land zoned for residential use. Of this, 217 hectares has already been subdivided, (yielding 2,221 allotments), 667 hectares is capable of subdivision and 135 ha is under some form of constraint which limits immediate subdivision. At any one time not all this land would be available for development.

The total of 1,020 hectares does not include existing developed residential sections which are potentially available for infill development or redevelopment.

Changes in the amount of vacant residential land in the City since 1984 are outlined in Figure 25 and Appendix 2. During the June 94/95 Year there was a net reduction of almost 60 hectares of vacant land. 80 hectares were used for the development of houses, roads and reserves, while 20 hectares of vacant land were added to the register through rezoning of land and the uplifting of designations.

In 1995, the greatest amount of vacant residential land was concentrated around the Port Hills and in north eastern parts of the City. In contrast there is very little vacant land available in many areas close to the central city.

Fig. 25. Vacant Residential Land 1984-1995



Source: Christchurch City Council and Canterbury Regional Council

⁹ Vacant land figures were calculated prior to the notification of the New City Plan for Christchurch. It is anticipated that a further 300 to 400 hectares of vacant residential land will be added to the vacant land register when the City Plan becomes operative.

Culture, Recreation and Leisure

Range of Attractions and Facilities in Christchurch

Christchurch is regarded as a cultural and entertainment centre for both the South Island and New Zealand and possesses numerous attractions and facilities to offer visitors and City residents. Some of these are unique in national and international terms. Examples of attractions within Christchurch include:

- **Museums and Art Galleries:** Canterbury Museum, Wigram Air Force Museum, Robert McDougall Art Gallery, Ferrymead Historic Park, Yaldhurst Transport Museum.
- **Historic Buildings:** The Anglican and Catholic Cathedrals, Arts Centre, Provincial Chambers Building, Riccarton House, Mona Vale and the Sign of the Takahe.
- **Open Space:** Hagley Park, Cathedral Square, Victoria Square, Botanic Gardens, and Deans Bush.
- **Sport and Recreation:** QEII Park, Lancaster Park, Pioneer Stadium, Cowles Stadium, Sumner and New Brighton beaches, Avon River and surrounds, city and coastal walks, Bottle Lake Forest and Port Hills/Summit Road.
- **Entertainment:** Mt Cavendish Gondola, Science Alive!, the International Antarctic Centre, Court Theatre, Christchurch Casino.
- **Wildlife:** Orana Park, Willowbank.
- **Other:** Nga Hau E Wha Marae.

According to the Annual Survey of Residents, there was little change in the proportion of residents visiting most selected facilities in the 12 months to March 1995 (Table 17).

SummerTimes - 1995

SummerTimes is an annual festival of free outdoor entertainment that is organised and managed by the City Council. This festival consists of a wide variety of events which take place between the 31st December and the last week in February each year. Over the last five years the festival has grown both in size and popularity.

Research commissioned by the Christchurch City Council showed that this year's festival attracted large numbers of people. For example, it is estimated that over 100,000 people attended the Classical Sparks presentation. The majority of those attending events were residents of Christchurch, however the festival also attracted a substantial number of people who were visiting the City (Table 18).

Key Points

- Christchurch possesses numerous attractions and facilities to offer visitors and City residents.
- The majority of people who attended SummerTimes festival events were residents of Christchurch however the festival was also attended by large numbers of visitors to the City.
- Christchurch residents' favourite sporting activities include swimming, cycling, aerobics, running and general sports.
- Residents favourite non-sport leisure activities include gardening, reading, watching or listening to the TV/radio, visiting family or friends and walking.

Table 17 Proportion of Christchurch Residents Who Visit Selected Major Attractions and Facilities 1991-1995

	1991	1992	1993	1994	1995
Botanic Gardens or Mona Vale	73	71	67	77	79
Hagley Park	47	58	52	66	68
A Library	66	68	66	60	64
McDougall Art Gallery	40	42	36	38	36
The City Centre	95	95	93	92	95
The Civic Offices, Tuam Street	32	36	31	33	35
A Council Service Centre	40	41	48	52	48
A Major Council Stadium	34	36	34	37	34
Town Hall	60	56	52	63	64

Source: Annual Survey of Residents 1991-1995, Christchurch City Council

Other events included in the SummerTimes programme were After 5 Concerts, The Cathedral Square Lunch Time Concerts, Trust Bank Canterbury Showcase, Municipal Bands Concert Series and Mr Moon's Amazing Games Team.

Recreation

The Life in New Zealand Survey carried out between 1989 and 1990 by Otago University showed that 51 percent of the New Zealand adult population are physically active. The remainder reported either that they undertook light activity only (22 percent) or consider themselves to be inactive (27 percent).

It was also found that 57 percent of adult New Zealanders would like to be more physically active. The main reasons for inactivity were a lack of time, money or self-motivation. Family or job commitments, a limited range of activities, stereotypes about age or sporting ability and the discomfort of embarking on physical exertion were other reasons given for lack of physical activity.

A survey on leisure within Christchurch commissioned by the City Council in 1992 asked respondents to list up to 10 favourite activities they were involved in during September 1991. Activities listed were then classified as sporting and non-sport activities. The ten favourite sporting activities were general sport, swimming, cycling, aerobics, running, bowling, golf, gym, boating/fishing and outdoor pursuits. While in the non-sport category gardening, reading, watching or listening to the TV/radio, visiting family or friends, walking, listening to music, art/craft/hobbies, dining out, socialising, and doing nothing/relaxing were the most popular activities.

Walking has also become a popular activity in Christchurch. Currently there are 65 walking clubs operating in the City. These are mainly catering to older adults.

Community Activities

According to the latest Annual Survey of Residents, 60 percent of residents took part in a community based activity in the last 12 months, a 7 percent decline since 1994. The most popular venues were schools (21 percent) and clubrooms (19 percent). Nine percent of residents said their activities took place in a community centre with 11 percent saying they took place in a community hall. Other places used for community activities included church facilities and private homes.

Table 18 Number of People Who Attended the 1994/95 SummerTimes Festival

Events	Estimated Christchurch Residents Attending	Estimated Visitors Attending	Total Number Attending Each Event
New Year's Eve Party	30,471	6,171	36,642
Teddy Bears Picnic	37,214	3,633	41,492
Candlelight Opera	43,021	7,908	50,929
Summer Shakespeare	31,586	10,583	42,169
Summer Rock	54,656	14,811	69,467
Valentines Day Dance	7,646	1,840	9,486
Mellow Yellow Sixties Concert	17,942	3,509	21,451
Classical Sparks	84,690	21,069	105,759

Source: Christchurch City Council

Introduction

This section focuses on the City's natural and physical environments. It is divided into two parts. The first briefly describes the City's natural and physical resources while the second examines the effects of human activity on the environment and looks at residents' perceptions of both the built environment and heritage features.

Area of the City

Christchurch City covers an area of 45,249 hectares. It is roughly circular in pattern with a radial network of roads. The City is bounded by the Port Hills to the south and the Pacific Ocean to the east. The northern boundary of the City is defined by the Waimakariri River.

Geology and Soils

Christchurch is comprised of two distinct geological areas, the Port Hills and the Canterbury Plains. The Port Hills are part of a series of large eroded volcanoes, the vents of which now form the harbours of Banks Peninsula. The main rock type of the Port Hills is basalt, covered by a layer of loess (windblown dust) originating from the Southern Alps and Canterbury Plains.

The Port Hills soils are yellow-grey or yellow-brown earth derived from basalt or loess and generally of low fertility. Most of the soils are susceptible to erosion, particularly soil creep in gully erosion.

The Canterbury Plains have been formed by outwash gravel deposited by rivers originating in the Southern Alps. The majority of the City is located on the coalescing shingle fans of the Waimakariri River. Sand dunes and coastal sandflats border the plains to the north east. A low lying peaty area occurs between the dunes, flats and plains.

There are a range of soil types found within the City. These include the fertile and versatile Waimakariri and Selwyn silt loams and sandy loam textures, soils

which have natural drainage problems, and soils which are stoney to very stoney, poorly drained and susceptible to wind erosion.

The Alpine Fault lies approximately 100 km west of the City and the Porters Pass fault zone only 50 km to the west. Both of these faults are active and capable of generating major earthquakes.

Vegetation

There are very few remnants of native forest remaining within the City. Some pockets do exist on the Port Hills (largely in gullies) while Riccarton Bush is the last example of wetland podocarp forest in Christchurch.

Indigenous grassland (albeit modified), with scattered scrubland and trees are located in areas south of the Waimakariri River and on the Port Hills. Other habitats include exotic forestry plantations, urban parks and gardens. The largest of these are the centrally located Hagley Park and Botanic Gardens.



Climate

Two micro-climates exist in the Christchurch area. The Port Hills, with a higher humidity and a greater seasonal variability of rainfall, and the plains, which are drier and have more evenly distributed rainfall. The Plains are affected by the dry, strong north westerly winds which dry out the soils, increasing their erosion potential and placing limits on forestry and agricultural productivity.

A summary of the City's main climatic features are as follows:

Temperature

Mean daily maximum	January	22°C
	July	11.7°C
Mean daily minimum	January	12°C
	July	1°C
Mean annual maximum		32°C
Mean annual minimum		4°C

Sunshine

Mean average bright sunshine	1,985 hours per annum
------------------------------	-----------------------

Rainfall

Average rain days 1mm or more	85 per annum
Average rain days 5mm or more	37 per annum
Average annual rainfall	658 mm

Relative Humidity

Average relative humidity	January	3am	83%
		3pm	57%
	July	3am	88%
		3pm	70%

Frost

Average days of screen frost (minimum air temps. less than 0°C)	37 per annum
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Winds

Average number of days with gusts reaching 63km/h or more	54 per annum
Average number of days with gusts reaching 96km/h or more	2.8 per annum

Surface Water and the Coastline

The catchments of the Avon, Heathcote, Styx and Halswell Rivers lie within the City boundaries. The waters of the Avon and Heathcote flow through the urban area of the City and reaches the sea at the Avon-Heathcote Estuary. The Styx River flows through rural land and reaches the sea at Brooklands Lagoon. All these rivers are spring fed. The Halswell River originates within Christchurch, but flows out to the south, eventually discharging in Lake Ellesmere.

The Waimakariri River, which forms the northern

boundary of the City, has large braided channels fed by rainfall in the Alps and in the west. The river is important for recreation and provides the region with a number of important natural habitats and resources.

The Pacific Ocean lies to the east of the City, while to the south, the coast is defined by rocky headlands and sandy bays from Godley to Sumner Heads. From Sumner, the Avon-Heathcote Estuary forms approximately 8 km² of open space bounded almost entirely by urban development. The beach foreshore then continues from Southshore up to the northern boundary of the City at the Waimakariri River. The beach dune system is approximately 20 km long with foredunes up to five to six metres high. The dunes form an important buffer area between the sea and the adjacent urban area.

Current Land Use

Nearly 17,000 hectares of Christchurch City is currently in urban use while around 27,000 hectares remains rural. Although nearly two thirds of the City is outside the urban area, 97 percent of the City's population is concentrated within the urban fence.

Within the urban area, nearly 70 percent of land is used for housing while industrial and commercial usage accounts for a further 13 percent. In both urban and rural areas a substantial amount of land is used for recreation and open space. These areas include public parks, reserves and facilities and also private facilities such as golf and race courses (Table 19).

Transport

The Christchurch roading network consists of 1,507.75 km of roads, 25.1km of which is unsealed. Roads within the City are classified as follows:

	km	Percent
Major arterials	87.33	5.8
Minor arterials	233.56	15.5
Collectors	194.59	12.9
Local	992.27	65.8
Total	1,507.75	100.0
(excludes state highways)		

Each year around 5-6 km of roads are added to the roading network. Christchurch residents have a high level of dependence upon the roading network which is reflected in growing vehicle use and ownership within the City. Currently some 85 percent of households have access to at least one vehicle and 41 percent to two or more vehicles.

Other major transport related resources include Christchurch International Airport which comprises 560 hectares of land and a further 660 hectares held

for airport purposes and the City's rail network comprising some 80 kilometres of main line and several hundred kilometres of sidings.

Utilities

The City's water services include 78 pumping stations, 37 reservoirs, and 1,300 kilometres of watermains. Similarly, sewerage services extend for an equal distance and include 100,000 lateral connections and 73 pumping stations. In addition to these services there are a range of other utilities supplying energy and telecommunications throughout the City.

Table 19 Provisional Land Use Information by Zone June 1995

Urban Zones	Hectares	Percent of Total	Percent of Urban
Suburban Living	9,488	21.0	56.2
Inner City Living	2,110	4.7	12.5
Central City Commercial	127	0.3	0.8
Suburban Commercial	164	0.4	1.0
Industrial	1,862	4.1	11.0
Recreation/Open Space/Conservation	2,534	5.6	15.0
Cultural	606	1.3	3.6
Sub Total Urban	16,891	37.3	100.0
Rural Zones	Hectares	Percent of Total	Percent of Rural
Rural Zones	19,839	43.8	73.7
Recreation/Open Space/Conservation	4,581	10.1	17.0
Coastal	1,549	3.4	5.8
Rural Industrial	185	0.4	0.7
Rural Quarry	639	1.4	2.4
Rural Living	117	0.3	0.4
Sub Total Rural	26,910	59.5	100.0
Miscellaneous	1,448	3.2	
Total	45,249	100.0	100.0

Source: Christchurch City Council

Air, Noise, Water, Soil and Waste

Air Quality

Air pollution is generated by a combination of industrial, commercial and domestic activities and vehicle emissions. The most common air pollutants are sulphur dioxide (SO₂), nitrogen dioxide (NO₂), carbon monoxide (CO), ozone (O₃), lead and suspended particulate matter (PM₁₀) ie smoke.

Christchurch City is particularly susceptible to air pollution. Cold air draining from the Southern Alps and the Port Hills collects in the Christchurch "basin". This forces the air of normal temperature upward. The warm layer then traps polluted air, preventing it from dispersing and concentrating air pollution over the City.

Air pollution can have a major impact on the environment and its people. For example, short term exposure to pollutants can lead to health problems such as lung and eye irritations, while long term exposure has the potential to cause permanent damage to the respiratory and nervous systems. Air pollution can damage buildings and plant life. It can also dissolve and wash into drains, contaminating rivers and streams.

The Canterbury Regional Council (CRC) undertakes extensive air quality monitoring within Christchurch. Results of the monitoring programme carried out over the period 1988-1994 have been published in the CRC's Annual Regional Environment Report 1993-1994 and are summarised below.¹⁰

Sulphur dioxide, nitrogen oxide, nitrogen dioxide, carbon monoxide and smoke have been measured at a continuous monitoring site in St Albans since 1988. Wind speed, wind direction and air temperature at ground level and at three metres are also continuously measured at this site. Some monitoring has also been carried out on visibility and humidity.

Short term monitoring has been undertaken by the CRC at various sites around Christchurch for smoke, carbon monoxide and sulphur dioxide. The Ministry of Health has also measured levels of lead at three sites around the City.

Monitoring Results of Sulphur Dioxide, Nitrogen Dioxide, Carbon Monoxide and Suspended Particulate (Smoke) - St Albans monitoring site

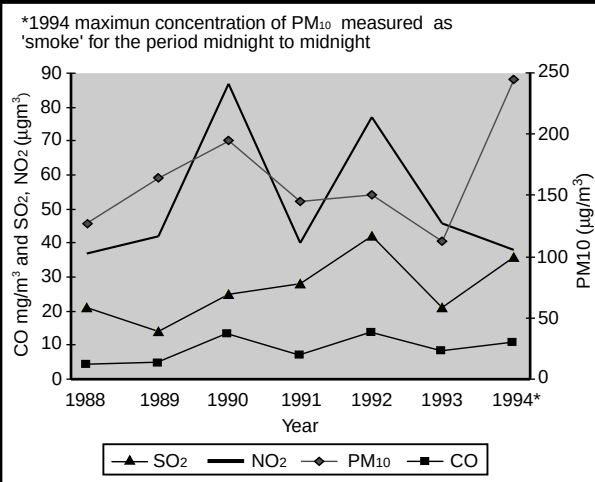
Air quality is highest around midday while peaks in contaminant concentrations generally occur from

Key Points

- Air pollution is generated by a combination of industrial, commercial and domestic activities plus vehicle emissions.
- The geography of the City makes it particularly susceptible to air pollution.
- Smoke levels in the City exceeded the 24 hour guideline (120 µg/m³) during 5 day in 1994.
- In recent years the number of days when the 24 hour smoke guideline has been exceeded is low compared to the early 1980s.
- Over the last few years there has been a steady increase in the number of noise complaints.
- Approximately 50 million cubic metres of water are abstracted annually from the Christchurch-West Melton aquifer system by the City Council and pumped through the City's reticulation system.
- The City's water demand per head of population has been fairly constant in the past and is expected to continue at or near existing usage.
- Water drawn from all wells feeding the City's supply complies with the "Drinking Water Standards for New Zealand 1995" without being treated.
- There are approximately 8,000 hectares of high quality soils within the City.
- Christchurch produced 249,336 tonnes of refuse in the year to June 1995. Of this figure 241,533 tonnes was landfilled at the Burwood landfill site, while 7,804 tonnes went to the City's composting facility.
- In 1991 approximately 47,000 tonnes of material was collected for reuse or recycling.
- There has been an overall reduction of 66 percent in the total amount of litter recorded in the City since 1990.

8pm to 12pm. Concentrations reduce to low levels during the early morning and peak again with morning traffic flows. The maximum 24-hour average concentration of sulphur dioxide and nitrogen dioxide at the St Albans monitoring site have been consistently lower than the relevant guidelines (Table 20 and Figure 26). Annual and hourly concentrations of sulphur dioxide and hourly concentrations of nitrogen dioxide have also been well within guidelines.

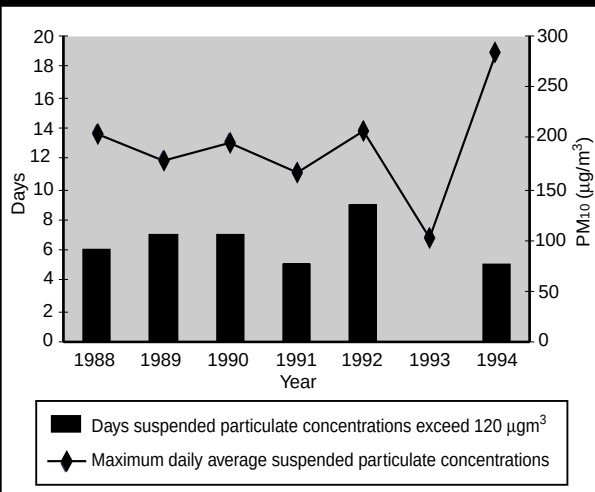
¹⁰ The Canterbury Regional Council is the primary source of more detailed information and analysis.

Fig 26. Annual Maximum 24 Hour Average Concentrations of SO₂, NO₂, CO and PM₁₀ (Smoke) - St Albans Site

Source: Canterbury Regional Council

However, 24-hour guideline concentrations for PM₁₀ (smoke) have been exceeded in most years since 1988. The number of days since 1988 when the maximum level for smoke (ie 120 µg/m³) was exceeded are outlined in Figure 27. The current average of about 6 days per annum is considerably lower than the levels recorded in the early 1980's when there were several years when guidelines were exceeded on more than 20 days per annum.

Concentrations of carbon monoxide have also exceeded the 8 hour guideline concentration during most years since 1988. The frequency and maximum levels of exceedence are summarised in Figure 28.

Fig 27. PM₁₀ (Smoke) Monitoring Results for St Albans, May to August 1988-1994

Source: The Canterbury Regional Council

Table 20 Summary of the Ministry for the Environment Guidelines for Ambient Air Quality

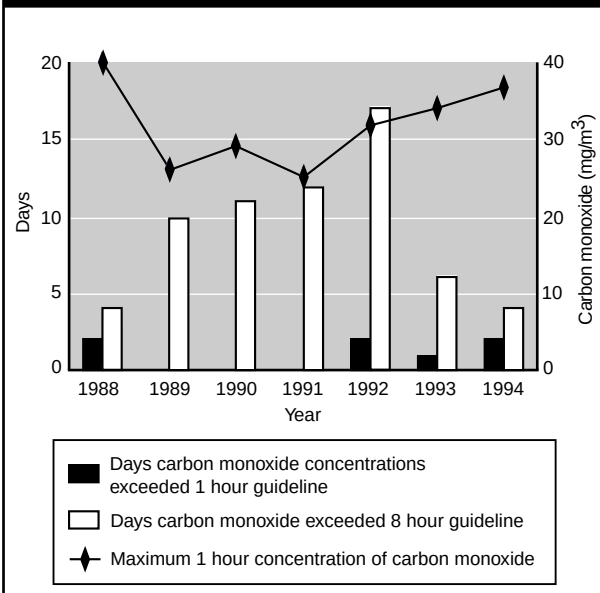
	Average Period	Concentration
Particulates (PM ₁₀)	24 hours	120 µg/m³
	Annual	40 µg/m³
Sulphur dioxide	10 min	500 µg/m³
	1 hour	350 µg/m³
	24 hour	125 µg/m³
	Annual	50 µg/m³
Carbon Monoxide	1 hour	30 mg/m³
	8 hour	10 mg/m³
Nitrogen dioxide	1 hour	300 µg/m³
	24 hour	1 00 µg/m³
Lead	3 month	0.5-1.0 µg/m³
Fluoride		
• Special land use	12 hour	1.8 µg/m³
	24 hours	1.5 µg/m³
	7 days	0.8 µg/m³
	30 days	0.4 µg/m³
	90 days	0.25 µg/m³
• General land use	12 hours	3.7 µg/m³
	24 hours	2.9 µg/m³
	7 days	1.7 µg/m³
	30 days	0.84 µg/m³
	90 days	0.5 µg/m³
• Conservation areas	90 days	0.1 µg/m³
Hydrogen sulphide	30 min	7 µg/m³

mg = milligrams, i.e grams/10³

µg = micrograms, i.e grams/10⁶

* Ambient air quality is air quality in a general area, i.e away from the influence of a specific contaminant discharge.

Source: Canterbury Regional Council

Fig 28. CO Monitoring Results for St Albans, May to August 1988-1994

Source: The Canterbury Regional Council

Most of the guideline concentration exceedences for smoke and carbon monoxide occurred in June and July with only occasional breaches either side of the main winter months.

Overall, the monitoring results available from the St Albans site for then period 1988-1994 do not indicate any significant trends of increasing or decreasing concentrations of contaminants. Yearly variations are largely influenced by the frequency and extent of the winter temperature inversion which occurs on days of low wind speed.

Lead Monitoring

There has been no exceedence of the guideline of 0.5-1.0 µg/m³ (3 monthly average) at either the St Albans or Manchester monitoring sites since the winter of 1989.

Air Pollution Complaints

The City Council and the Canterbury Regional Council are jointly responsible for investigating complaints about air quality in the City ie odours, fumes, dust and smoke. In the year to June 1995, 258 complaints relating to air quality were made to the City Council. While an additional 1,596 complaints were received by the Canterbury Regional Council.

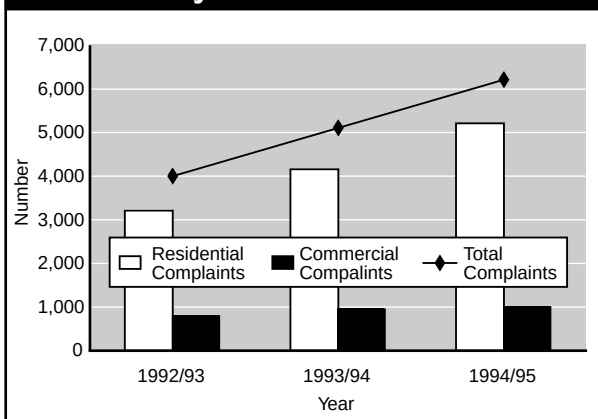
Noise

Controlling noise is an important aspect of environmental management in the urban area because of the major impact noise can have on public health and well-being. At high levels and over prolonged periods noise damages hearing. While low levels of environmental noise affect well-being by interfering with activities such as sleep and communication. The City Council is responsible for controlling noise in the City's environment. As part of its function the Council receives and investigates noise pollution complaints.

Over the last few year there has been a steady increase in the number of noise complaints made to the Council. Between July 1994 and June 1995 the City Council received 6,206 noise related complaints. Latest figures are 22 percent and 56 percent higher than those recorded during 1993/94 and 1992/93 respectively (Figure 29).

The majority of noise complaints in 1995 originated in residential areas (5,208). The major causes of complaints in the case of residential premises was 'music' including bands, radios, stereos, party noise and musical instruments. This source accounted for nearly 90 percent of residential noise complaints. In industrial/commercial areas, 54 percent of complaints refer to music as the source.

Fig 29. Number of Noise Complaints Made to the City Council 1992/93-1994/95



Source: Christchurch City Council

While there has been an increase in the number of recorded noise complaints, according to the Annual Survey of Residents, the majority of residents do not find noise from neighbours, industry/commerce or traffic a problem. Table 21 shows that the proportion of residents who have not experienced problems with the following types of noise has remained relatively high over the past five years.

Table 21. Percentage of Residents Who Have Not Had Problems with Types of Noise

	1991	1992	1993	1994	1995
Neighbourhood Noise	81	79	78	82	78
Industrial & Commercial Noise	91	90	92	91	90
Noise From Traffic	—	—	—	78	76

Source: Christchurch City Council Annual Survey of Residents.

Ground Water Use

The groundwater resource beneath Christchurch is currently the sole source of potable water for the City's inhabitants. It is relied on to continuously provide high quality water for which no treatment is required. Christchurch obtains its water supplies via groundwater bores ranging in depth from 25-180 m. Groundwater aquifers are recharged in the inland plains and later flow eastward towards the coast, finally discharging offshore.

Approximately 50 million cubic metres of water are abstracted annually from the Christchurch- West Melton aquifer system by the City Council and pumped through the City's reticulation system. This water is allocated approximately as follows:

Residential	59%
Commercial/ Industrial	19%
Non-Rateable (Schools, etc)	1%
Rural	1%
Unaccounted	20%

It is estimated that around 20 percent of water is lost from the system through leakage. This figure compares reasonably well with typical figures world-wide of between 13 and 39 percent. The City Council is constantly working to reduce leaks in its reticulation network, as well as assisting private property owners to identify and remedy leaks.

The amount of water abstracted by the Council by month since 1992/93 is shown in Table 22. Typically production is highest during the summer period.

The difference between summer and winter aquifer levels has increased significantly over the years. However abstraction currently appears to be within sustainable levels, with full recharge occurring over the winter months.

Variations in water demand over the past twenty years have been due to climatic conditions and growth in both population and commercial demand. The City's water demand per head of population has been fairly constant in the past and is expected to continue at or near existing usage (Figure 30).

Table 22. Water Production by month 1992-1995

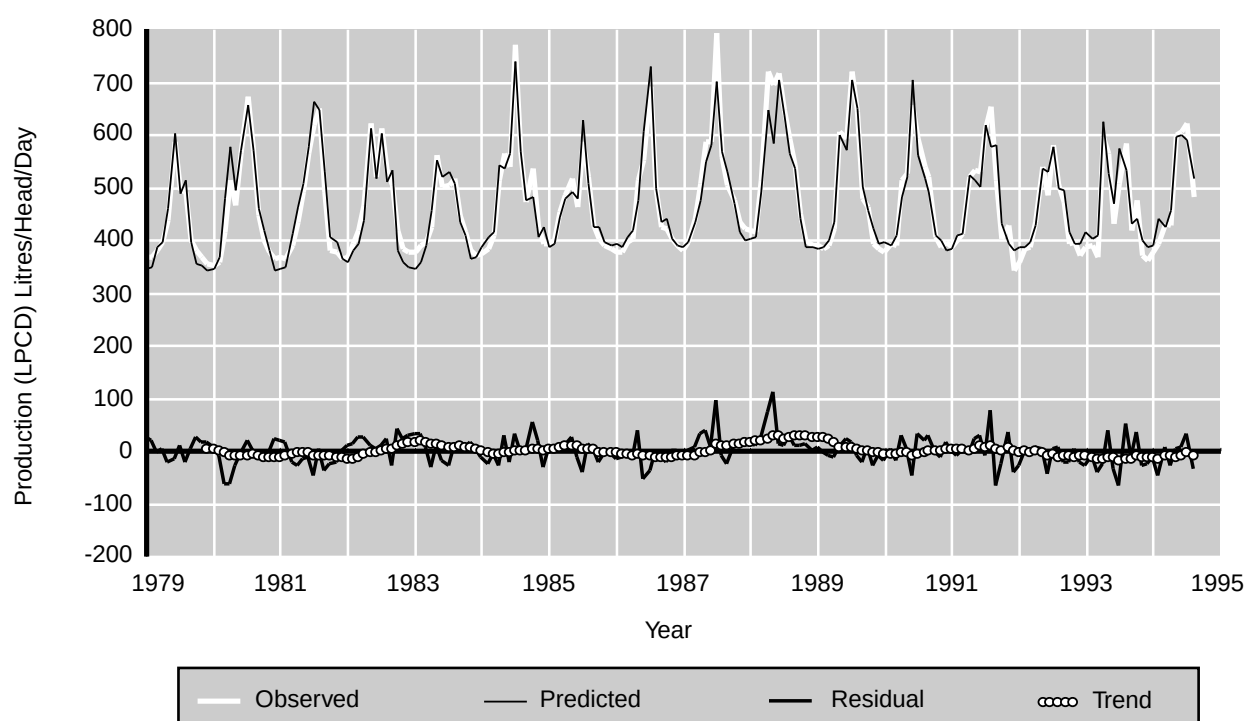
Month	5 year average	1992/93	1993/94	1994/95
July	3,709,000	3,671,687	3,537,196	3,688,000
August	3,789,000	3,857,874	3,903,221	3,772,000
September	3,815,000	4,013,034	3,390,438	4,016,000
October	4,876,000	4,539,117	5,521,109	4,164,000
November	5,132,000	5,057,428	5,139,725	5,327,000
December	5,144,000	4,810,959	4,066,535	5,316,000
January	5,551,000	5,599,348	4,679,647	5,794,000
February	4,922,000	4,687,380	5,257,563	4,360,000
March	4,600,000	4,668,640	4,005,353	4,423,000
April	3,811,000	3,828,927	4,328,751	3,442,000
May	3,582,000	3,845,828	3,487,794	3,254,000
June	3,375,000	3,480,899	3,304,974	3,096,000
Total	52,306,000	52,061,121	50,622,306	50,652,000

Source: Christchurch City Council

The abstraction required for the municipal supply is therefore likely to increase at the same rate as the population, although the following may reduce demand:

- An effective pricing policy for water has the potential to reduce residential water demand by approximately 25 percent.
- A proactive leak detection programme has been

Fig 30. Water Production Trends per Head of Population (Central Zone Only)



Source: Christchurch City Council

initiated and has the potential to reduce abstraction by up to 7 percent approximately.

- A continuing programme of education may reduce demand per head of population in the longer term.

Quality of Water drawn from the Aquifers and Contamination Issues

Water drawn from all wells feeding the City's supply comply with the "Drinking Water Standards for New Zealand 1995" without being treated. Water from several wells in the northwest zone is however dosed to increase pH levels, to reduce the risk of corrosion of metal fittings.

The Regional Council carries out tests quarterly for hydrocarbons from various wells throughout the city. Incidences of groundwater contamination in the shallow (unconfined) aquifers, including the recharge area for the City's supply, have occurred on numerous occasions over the past few years. Where these have been detected, concentrations have remained static, indicating that such contamination is long lived.

The effect of increasing demand on groundwater quality is significant for the City. Isotope investigations have shown that water from the deepest of the City's wells is thousands of years old. As this water is abstracted, the danger is that water of lower quality will replace it.

So far, the quality of groundwater extracted by the City Council has not shown a significant degradation trend. However the Regional Council are now using improved analytical techniques and higher sampling frequencies which may show a trend in future.

High Quality Soils

There are approximately 8,000 hectares of Land Capability Class I and II soils, plus those of Class 111 capable of moving to class 11 with drainage, in the City. This represents about 30 percent of Christchurch's total rurally zoned land. These soils are limited in occurrence both regionally and nationally and are valued for their productive potential. They have traditionally been used in Christchurch for market gardening, berryfruit production and town supply dairying. Horse breeding and training has also been of particular significance. In recent years the range of crops produced has increased dramatically. The most obvious expansion has been in the growing of apples.

City Refuse

The production of solid waste is an inevitable consequence of most human activity. Christchurch residents and businesses are able to dispose of refuse via the City Councils weekly bagged refuse collection service. Alternatively, refuse can be taken to one of the City's three transfer stations by private vehicles or it can be collected by one of a number of private refuse collection companies.

Currently there are three refuse station in the City - Metro Place, Parkhouse Road, and Styx Mill Road. Domestic and commercial refuse from these stations is landfilled at Burwood, the City's only landfill site. Sorted clean green garden waste can be dropped off by the public at either the Metro Place or Styx Mill transfer stations. This waste is then composted at the City's composting plant at Bromley.

During the year to June 1995, Christchurch produced 249,336 tonnes of refuse (excluding hardfill). Of this figure 241,533 tonnes was landfilled at the Burwood landfill site, while 7,804 tonnes was composted. Table 23 shows the origins of the City's refuse.

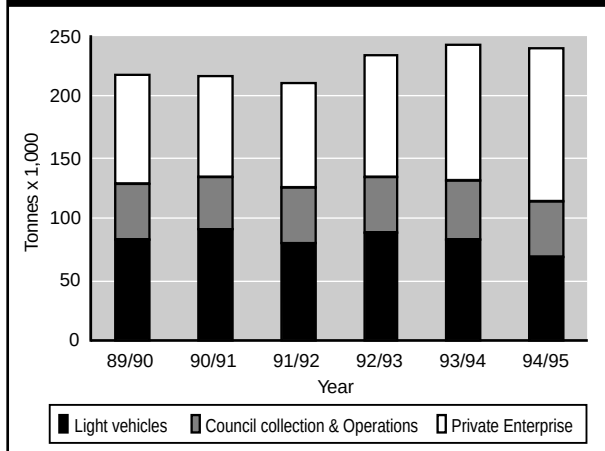
Table 23 Origins of City Refuse

Origins of Waste	Tonnes
Light Vehicles Refuse	67,658
Domestic Collection Refuse	37,856
Council Operations Refuse	9,729
Commercial Operators Refuse	126,289
Total Refuse to Burwood Landfill	241,533
Light Vehicles (Clean Green Waste)	5,289
Commercial Operators (Clean Green Waste)	2,514
Total Composting Plant (Clean Green Waste)	7,804
Total Refuse	249,336

Data subject to rounding

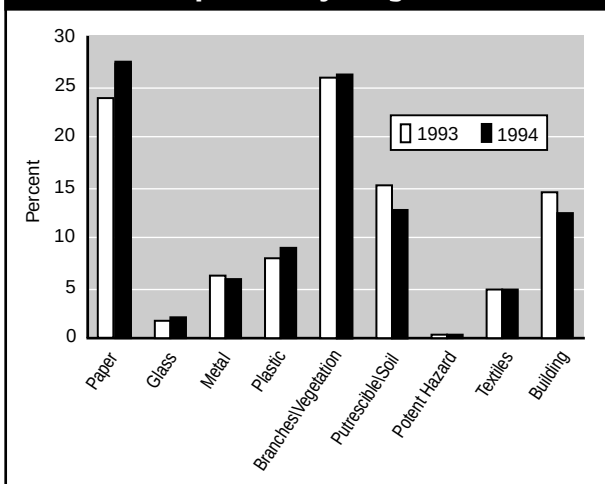
Source: Christchurch City Council

Since 1989, the amount of landfilled waste in the City has increased by just over 10 percent from 218,778 tonnes to 241,533 tonnes reflecting the growing population and to some extent the up turn in the economy in recent years. The decline in landfilled waste during the 1994/95 year is attributable to the reduction in landfilled 'clean green waste' which is now taken to the Councils composting plant (Figure 31). In recent years the amount of landfilled waste delivered by light vehicle has declined however there has been a corresponding growth in the waste from private enterprise.

Fig 31. Origins of Landfilled Waste (Excluding Hardfill)

Source Christchurch City Council

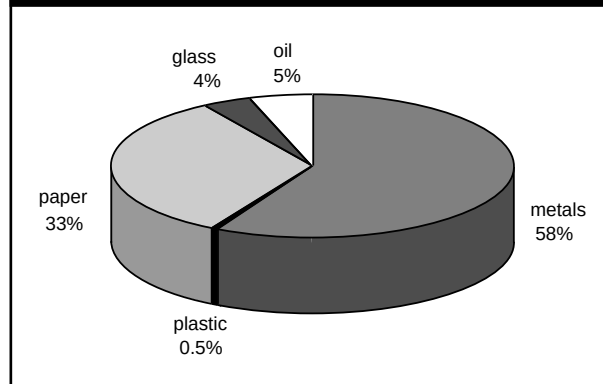
Results from the 1993 and 1994 waste audits show that paper and branches/vegetation comprise the greatest proportion of refuse by weight, taken to transfer stations (Figure 32). Both types of refuse have increased slightly in recent years.

Fig 32. Total Waste to the Transfer Stations % Composition by Weight

Source: Christchurch City Council

Recycling

Recycling is a way of reducing the need for landfill disposal of solid waste. There are a number of recycling schemes operating within Christchurch. These include recycling centres at the transfer stations, a small number of multi-material 'drop off' points, Comalco 'Cash for Cans' collection centres and ACI Glass bottle banks. There are also a number of private recycling companies in the City collecting metals, glass, paper and plastic from predominantly commercial/industrial sources for the transfer station recycling centres. In 1991 approximately 47,000 tonnes of material was collected for reuse or recycling. Figure 33 shows the type and proportion of materials recycled.

Fig 33. Recycled Materials 1991

Source: Christchurch City Council

The Council's 1995 Annual Survey of Residents shows that many respondents had recycled various materials and items in the 12 months prior to the survey. Newspapers were recycled by 83 percent, clothing or shoes by 79 percent and glass by 58 percent of respondents.

The proportion of residents recycling glass and aluminium cans in 1995 was the lowest recorded since the Annual Residents Survey was first carried out in 1991. Since 1992 the proportion of residents recycling all other materials and items listed below have remained relatively constant (Table 24).

Table 24 Percentage of Residents Recycling Various Material and Items 1991-1995

	1991	1992	1993	1994	1995
Recycled glass	59	70	67	63	58
Recycled newspapers	72	82	83	83	83
Recycled aluminium cans	43	53	50	45	38
Recycled plastic	21	36	40	36	35
Recycled engine oil	14	18	18		20
Recycled clothing or shoes	84	85	84	—	79
Recycled scrap metal or old appliances	19	18	18	—	26

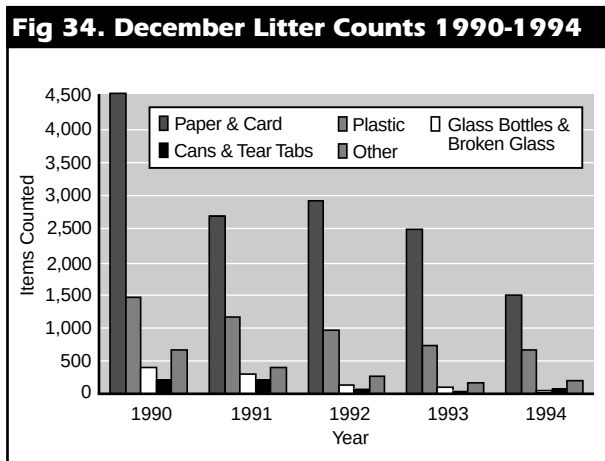
Source: Christchurch City Council, Annual Survey of Residents

Land-Based Litter Counts

Twice each year a physical count of litter in 111 sites throughout the City is undertaken by the Keep Christchurch Beautiful Campaign. Since counting began there has been an overall reduction of 66 percent in the total amount of litter recorded from 7,259 items in December 1990 to 2,449 in December 1994. Although paper and card continue to be the main type of litter collected, this type of litter has

decreased significantly (Figure 34). There has also been a notable decline in:

- **aluminium cans**, attributed partially to the introduction of “Cash for Cans” schemes.
- **tear tabs** - attributed to the new aluminium drink can design. Once the newly designed cans are opened the tear tabs no longer become detached.
- **glass** - attributed to less glass packaging and the introduction of recycling drop-off centres and increased public education on waste minimisation.



Source: Keep Christchurch Beautiful Campaign

Significant Natural Features and Parkland

Natural Habitats

There are relatively few 'natural habitats' within the City. Those which do exist provide a unique habitat for different plants and animals and a contrast to the built environment. Natural habitats within the City are shown in Figure 35. These include tussock land on the Port Hills and water based habitats such as areas of the coastline, estuaries, rivers and wetlands. The scarcity of these resources makes it increasingly important that those that do remain are protected and enhanced where possible.

Public Recreational Open Space

In a growing City such as Christchurch, the role of public recreational open space is one of vital importance. The City's areas of public recreational open space make it a more attractive place to live and visit. They contribute to Christchurch's garden city image and are important areas for all types of recreation.

Christchurch City has 565 public parks plus Bottle Lake Forest on the north east of the City. Overall there are 3,472 hectares of parkland in the City. While the majority of parks in the City are small and local, catering for local needs, the greatest land area is taken up by ecological or conservation parks situated in areas like the Port Hills and along rivers or the coastline (Table 25).

Recreational open space is generally acquired by the City in four ways:

- it is given to the Council;
- it is set aside in a new subdivision;
- it is acquired by the Council using development levies accumulated from past subdivisions; or
- it is bought by the Council using general funds

Most local and district parks are acquired when new subdivisions are laid out, while metropolitan facilities are usually built on land bought specifically for this purpose. During the year to June 1995, there has been an increase of 13 parks within the City. This translates to an additional 79.2 hectares of parkland.

The total provision of public recreational open space in the City is currently considered to be adequate¹¹ but there is considerable variability in the distribution of open space throughout the City. There are also particular deficiencies in terms of, local and district parks in various areas of the City.

Key Points

- Christchurch City has 565 parks plus Bottle Lake Forest, totalling some 3,472 hectares.
- During the last year, there has been an increase of 13 parks within the City.
- 79.2 hectares of public recreation open space has been added to the City since July 1994.

Table 25 Total Number and Hectares of Parks 1995

Type of Park	Total Parks	Total Hectares
Local Park	317	150
• Small neighbourhood facilities generally less than 1 hectare, local in character, generally containing few buildings and often with play equipment		
District Park	101	992
• Larger parks, usually larger than 2 hectares, serving a district function, with sports grounds and associated facilities		
Metropolitan Park	15	277
• Facilities which serve residents from all over the City, usually a major sporting facility or Central City park.		
Ecological/Conservation Park	132	1,223
• Those parks which are important for ecological conservation or historical reasons and cemeteries		
Sub Total	565	2,642
Bottle Lake Forest		830
Total		3,472

Source: Christchurch City Council

¹¹ see Christchurch City Council *Parks Deficiency Study 1993*

Figure 35 Map Potential and Significant Natural Habitats

Amenity of the Built Environment

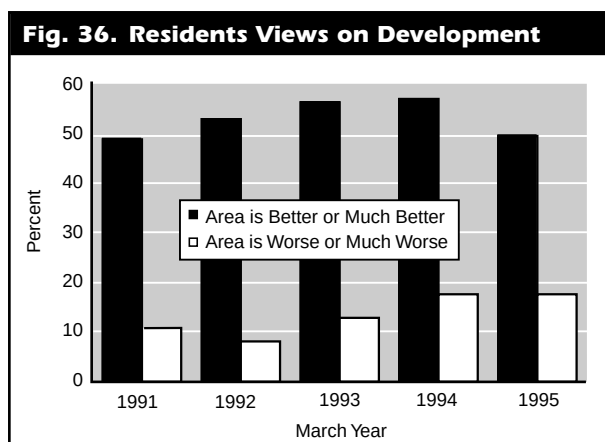
Local Development

According to the latest Annual Survey of Residents, 54 percent of residents were aware of new residential building, alterations, extensions or developments in their local area during the past 12 months.

Figure 36 indicates slightly more than half the residents, who were aware of local developments, approved of the work undertaken. However, a steadily growing group disapproved (increased from 10 percent in 1991 to 18 percent in 1995). Twenty two percent of residents who were aware of local development felt there were examples of activity in their area which should not have been allowed. These included:

The cross leasing and subdivision of existing sections. This issue generated the most criticism for the fourth year in a row. Criticism included, houses being built too close together and too close to boundaries, too many properties on one site, overloading of existing infrastructure and community facilities, lack of privacy, loss of views and outdoor space, subdivided sections too small, two storied houses being constructed on back sections and general criticism of the increasing population density resulting from this process.

Associated with the criticism of infill housing and urban redevelopment were a number of comments on the lack of character and poor quality of some new housing. There were also objections to the placement of garages on the street frontage of properties and the impact this has on the character of some suburbs.



Source: Christchurch City Council Annual Survey of Residents

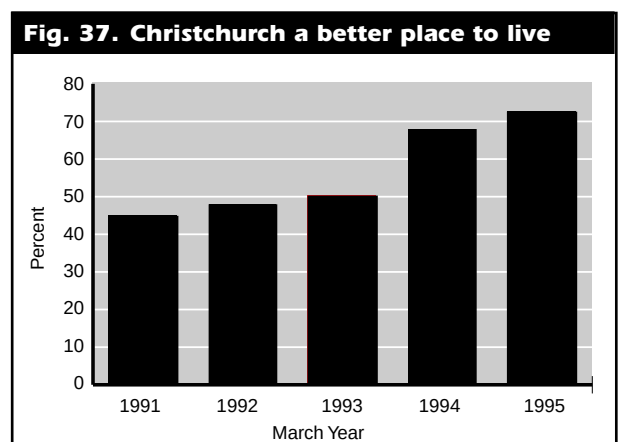
Key Points

- According to the latest Annual Survey of Residents, the majority of residents were aware of developments having taken place in their local area.
- Most residents who were aware of development indicated that they approved of the work undertaken. However, a steadily growing group disapproved.
- Nearly all residents (95 percent) had visited the Central City some time during the year.
- 73 percent of residents were happy with the range of things to do in the Central City.

City-Wide Development

There was an increase to 72 percent in the proportion of residents who thought development throughout the City had made Christchurch a better place to live. This approval rating has increased substantially from the 46 percent identified in 1991 (Figure 37)

Only 8 percent of residents thought new City wide developments had made the City a worse place to live. The main criticisms concerned the process of infill housing and cross leasing. A number of residents opposed policies resulting in increased population density. Increasing traffic congestion in the Central City and Riccarton Mall area also received comment. Concerns were expressed about the unappealing nature of new high rise buildings, the loss of character and historic buildings, the Casino complex and the noise and impact on traffic of the Trams.



Source: Christchurch City Council Annual Survey of Residents

The Central City

Nearly all residents (95 percent) had visited the Central City some time during the year. Eighty eight percent of those working in the Central City had also visited for non-work purposes. The frequency of non-work visits was also high with 44 percent visiting *once a week or more* and a further 32 percent visiting *once a month or more*. Nearly three quarters (73 percent) of residents expressed satisfaction with the range of things to do in the Central City. Only 7 percent expressed any level of dissatisfaction with the range of opportunities available.

Of the small group (6 percent) who did not visit the city in their spare time, 40 percent stated that they could do all they wanted without going into the city centre. A further 17 percent preferred to spend their spare time in other parts of the City

Heritage Features

Retention of Historic Buildings

Increasing business development in the City and the trend toward central city living has placed many older City building at risk. Since 1985, approximately 23 historic buildings places or objects listed in the six transitional district schemes have been demolished or partially demolished (Table 26). Around 58 applications for alterations, additions and relocations of listed buildings, places or objects have also been made during this period. At present, buildings under threat of demolition include, the former Kaiapoi Woollen Manufacturing Company building (Manchester Street), the former Lyttelton Times building (Cathedral Square), the former Lyttelton Times/Star building (Gloucester Street), the Arthur Barnett building (Cashel Street) and the Coachman Inn building (Gloucester Street).

Key Points

- 23 historic building have been demolished or partially since 1985.
- Christchurch City residents strongly supported Council's involvement in the preservation of historic buildings.

The Preservation of Historic Buildings - Public Perceptions

The 1995 Annual Survey of Residents indicated residents strongly supported Council's involvement in the preservation of historic buildings. Fifty nine percent of residents supported the continuation of current levels of expenditure while 35 percent supported an increase in spending. Only 5 percent of residents indicated they wanted a reduction in Council expenditure.

Those 35 percent of residents who supported an increase in Council funding were then asked how this additional finance should be raised. Thirty six percent said funding should be transferred from other activities while 42 percent favoured an increase in rates. The remaining 22 percent supported a range of options including the charging of entrance fees or other user charges, general fund raising activities or charges on developers. The residents who supported a rates rise were then asked how large an increase they would sanction. Table 27 summarises their response.

Table 27 Percentage of Residents Supporting a Rates Rise by Dollar range to Preserve Historic Buildings.

Rates Increase	Percent Support
\$1-\$5 per year	46
\$6-\$10 per year	37
\$11-\$15 per year	5
\$16-\$20 per year	7
More than \$20 per year	3
Don't know	2

Source: Christchurch City Council Annual Survey of Residents

Table 26. Demolition of Historic Buildings, Places, or Objects (Listed in the Six Transitional Schemes)

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	Total
Demolitions	5	5	2	1	1	2	1	0	2	3	1	23

Source: Christchurch City Council

Overview

Christchurch has recently experienced a strong period of real economic growth which has now lasted for over three years. Indicators suggest the Canterbury economy, of which Christchurch forms a major part, led the country out of recession in early 1992.¹² The City's association with the large rural economy of Canterbury, its export orientated manufacturing sector and a substantial involvement in tourism combine to produce an economy with a distinct outward orientation. As a consequence the economy appears to recover or decline ahead of many other areas.

This view has been reinforced by the experience of Christchurch manufacturers' over the last six to nine months. The Reserve Bank's tighter monetary stance has resulted in an environment of higher interest and key exchange rates. This policy stance appears to have had an uneven influence on the local economy impacting more severely on the tradable goods sector than on services. For example, manufacturers' exporting to Australia or the US have been faced with very rapidly appreciating exchange rates in the first half of 1995 and higher finance costs which have impacted directly on the profitability of their operations. This has been reflected in some staff cuts and a general fall in confidence in the sector.



Despite the more difficult trading conditions experienced during 1995 it is believed the local economy has continued to grow, if at a somewhat slower rate. Local commentators believe the underlying economy remains well positioned to take advantage of the expected improvement in conditions in 1996. Signs that the period of deceleration may have reached an end are contained in recent improvements in inflation and the subsequent fall in interest rates and some key exchange rates.

Overall the long term prospects for the City's economy remain very positive.

¹² Information on trends in the Canterbury region has been used in this section when specific information has not been available for the City.

Business Activity and Employment

Economic Activity

Trends in the level of business activity can also be presented using regional estimates of Gross Domestic Product. GDP is equal to the total market value of goods and services produced after deducting the cost of goods and services used in the process of production but before deducting allowances for the consumption of fixed capital. The Christchurch estimate is calculated by weighting official industry GDP statistics using regional employment weights¹³ (Figure 38a).

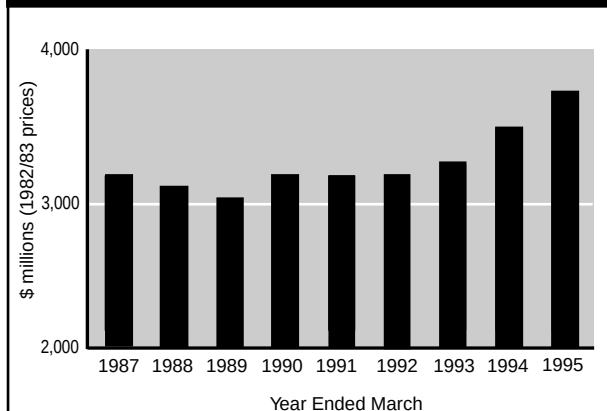
In real terms, the Christchurch economy is estimated to have grown by 18 percent in the last three years. This compares to growth of 15 percent nationally. As Figure 38b shows, the local economy is estimated to have grown at a slightly faster rate than the national economy in each of the last three years. In the year to March 1995 alone, Christchurch's Gross Regional Product (GRP) is estimated to have increased by 7 percent compared to 6 percent growth for New Zealand. The extent of this real economic expansion is in marked contrast to the stagnation and recession of the late 1980's and early 1990's. In current dollar terms, the value added in local production is now estimated at over 8.4 billion dollars per annum.

The National Bank of New Zealand has also recently produced an alternative measure of regional activity. The composite index of economic activity summarizes trends in a selection of regional economic data and can be used to measure comparative economic performance between regions. For the year to June 1995, the index for Canterbury increased by

Key Points

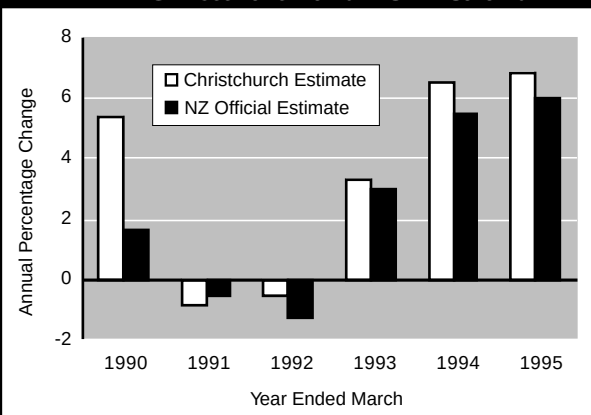
- Business numbers and employment have increased strongly since the recession of 1990/91.
- The local economy is estimated to have grown by 18 percent in the three years to March 1995.
- Christchurch's GRP for the year to March 1995 grew by approximately 7 percent.
- Growth is expected to have slowed in the year to March 1996.
- Business confidence is low but may be returning.
- Recent indicators suggest employment growth has slowed significantly in the first half of 1995.
- Registered unemployment has fallen sharply in the last 12 months and is expected to continue to decline.
- The majority of the decline in unemployment has occurred in the ranks of the long term unemployed.
- Youths aged 15-24 years, Maori, and Pacific Islanders are all still heavily over represented among the unemployed.

Fig. 38a. Christchurch Gross Regional Product Estimate



Source: Statistics New Zealand; GRP Estimate - Christchurch City Council

Fig. 38b. Trends in Gross Domestic Product - Christchurch and New Zealand



Source: Statistics New Zealand; GRP Estimate - Christchurch City Council

¹³ The 1995 estimates presented in this section are preliminary as they relied upon employment weights from the 1994 Business Directory.

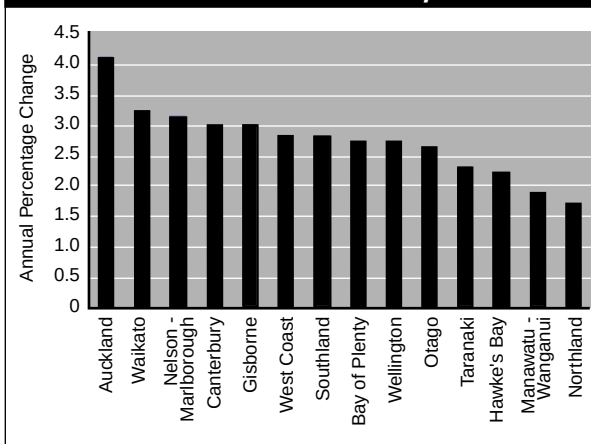
3 percent. This was the fourth highest increase recorded for the country (Figure 39).

While Canterbury has performed well in comparison with other regions, the National Bank's commentators have noted a general decline in the annual rate of growth across the country in recent quarters. For example, Canterbury's year on year growth for March stood at 3.8 percent compared to 3 percent in June. This pattern has been identified nationally with a quarterly increase of only 0.1 percent in June in the North Island and no change in the South Island. This represents the lowest quarterly rate of change for both islands since March 1991. This suggests the slow down in growth recorded in recent quarters may have been more severe than many anticipated. Despite these concerns the medium term outlook for both the national and regional economy still appears favourable.

National forecasts of GDP to the year 2000 have recently been released by the New Zealand Institute of Economic Research (NZIER). These figures have incorporated allowances for progressive tax cuts in 1996 and 1997 as outlined in this year's central government budget. Forecasting of medium term economic activity is always difficult but is particularly so at this time given the uncertainty regarding the outcome of the country's first election under the Mixed Member Proportional (MMP) system. Significant policy differences remain among the major political parties and the outcome of the election may alter the prospects for growth outlined below. It should also be emphasized that these are national growth figures which may not always reflect local conditions. They are presented as a starting point for assessing future prospects rather than a definitive picture of expectations for the Christchurch economy (Figure 40).

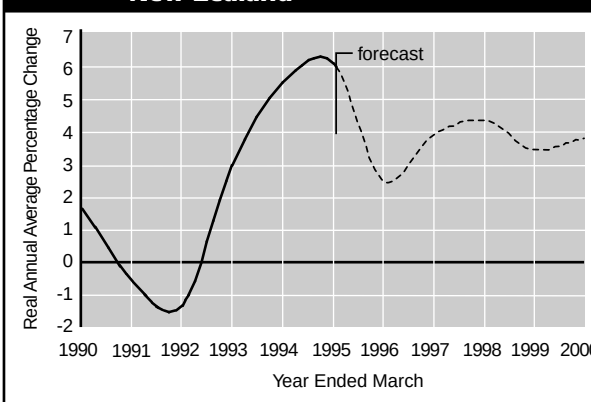
The slow down in economic growth to 2.5 percent, forecast for the March 1996 year, is attributed to a number of influences. Consumer spending, particularly on durable items such as whiteware, furniture and other household goods, experienced substantial cyclical growth following the recession of the early 1990's. Spending has now slowed as households have caught-up on expenditure deferred in the recessionary period. This downturn in the cycle of consumer spending has been reinforced by two factors. Firstly, the impact of higher interest rates has increased the cost of financing consumer purchases. Higher interest rates have also cooled the new home market reducing the demand for a wide range of goods which would have been purchased for these dwellings. Secondly, the level of wage increases over the past 12 months have been insufficient to offset the higher level of inflation recorded. Both these factors have effectively reduced households' real spending power.

**Fig. 39 Index of Regional Economic Activity
Year on Year Growth,
12 months to June 1995)**



Source: The National Bank of New Zealand Ltd

**Fig. 40. Forecast Economic Growth (GDP)
- New Zealand**



Source: Statistics New Zealand (Actual); New Zealand Institute of Economic Research (Forecast)

Business spending on capital investment is also expected to ease during the current financial year. This slowdown results from an end to the catch-up phase in the investment cycle and the impact of high interest rates on domestic demand (particularly in the area of residential construction) and on the profitability of exporting in the face of appreciating key foreign exchange rates.

To an extent this cooling of consumer and business expenditure is also an outcome of individuals' expectations regarding economic conditions. The decline in consumer and business spending and the high profile given to the Reserve Bank's tighter monetary stance have combined to reduce people's expectations regarding future growth. At the same time these expectations affect people's decisions regarding consumption, investment, wages and employment.

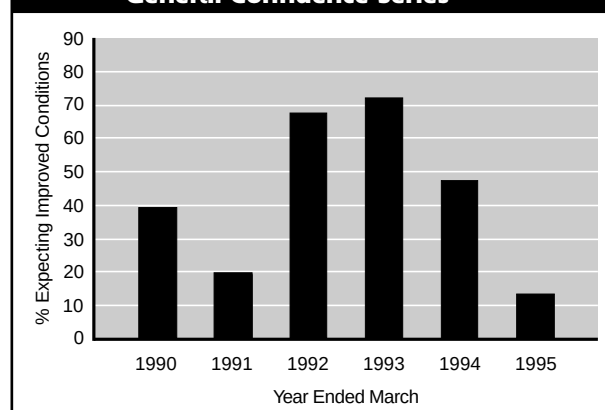
Despite this short term decline in the rate of growth, the medium term prospects from 1997 to the year 2000 remain strong. In response to the economic stimulus of tax cuts and a generally favourable international outlook, growth is expected to increase to 3.9 in 1997 and 4.3 percent in 1998. Growth among New Zealand's key trading partners is expected to average 3.7 percent pa over the forecast period. Annual growth for New Zealand is forecast to settle within the 3-4 percent range for the remaining two years of the decade.¹⁴ These are still very high levels of growth compared with the average rate of less than 1 percent experienced in the ten years prior to this most recent recovery.

Business Confidence

Business confidence indexes are considered to be valuable leading indicators of economic activity. They are particularly useful for identifying turning points in the cycle of business activity. Business confidence in Canterbury has declined sharply since the middle of 1994. The National Bank's index of general business confidence for the Canterbury region has now fallen for five successive quarters. The index has declined from a March 1994 peak, when 80 percent of businesses expecting an improvement in trading conditions, to a June 1995 low of only 13 percent. This index has yet to identify any marked improvement in local business sentiment. This indicates local businesses have yet to accept the commentators' view, the economy is merely slowing in response to the Reserve Bank's tightening of monetary conditions and that they can expect improved trading conditions in 1996. This may indicate that the downturn in economic activity currently occurring is more pronounced than anticipated (Figure 41).

The Canterbury Manufacturers' Association survey reveals a similar pattern of high business confidence followed by a pronounced decline. It is interesting to note that this survey has recorded an increase in confidence for the last three months suggesting, at least in the manufacturing sector, that a turning point may have been reached (Figure 42). It should be noted however that the Association continues to emphasize the detrimental impact tight monetary conditions are having on manufacturers' through high interest and exchange rates.

Fig. 42. Canterbury Manufacturers' Association General Confidence Series

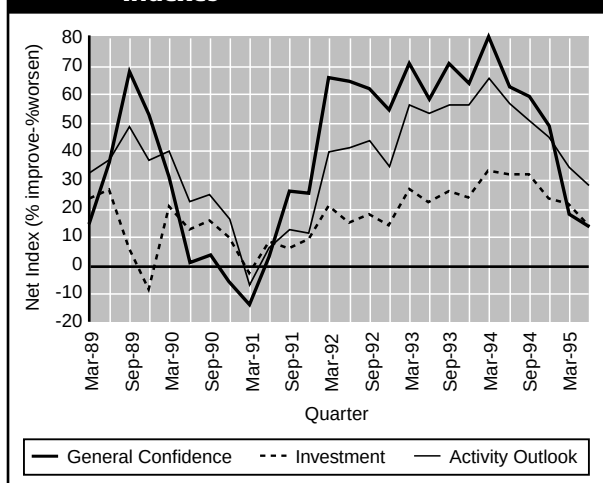


Source: Canterbury Manufacturers Association

Inflation, Interest Rates and the Dollar

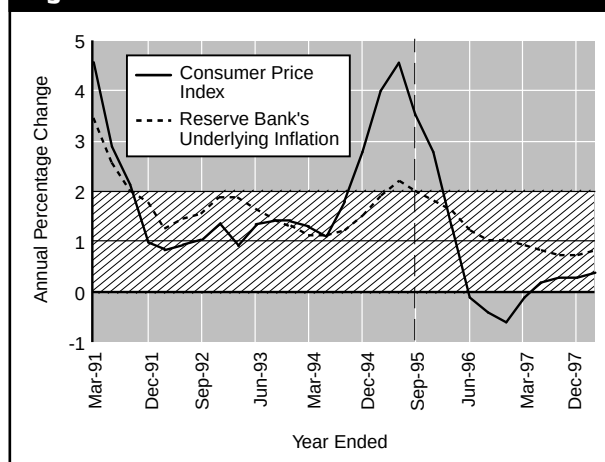
Figure 43 summarizes recent trends in the two most widely used measures of inflation -the Consumer Price Index and the Reserve Bank's index of underlying inflation.

Fig. 41. Canterbury Business Confidence Indexes



Source: The National Bank of New Zealand Ltd

Fig. 43. Consumer Price Inflation



Source: Statistics New Zealand, Reserve Bank of New Zealand

¹⁴ NZIER Sectoral Projections and; Quarterly Predictions, Sept 1995

The Consumer Price Index (CPI) measures changes in price levels as they affect households' expenditure. The CPI for June 1995 increased by 4.6 percent compared with June 1994. This is the highest annual increase recorded since December 1990. However, in the September quarter the index increased by only 0.2 percent resulting in an annual increase of 3.5 percent. Commentators believe inflation peaked in June 1995 and will fall through to late 1996. The expected tax cuts proposed by the Government will place some upward pressure on the CPI although this is not expected to be sufficient to cause major concern.

The Reserve Bank's measure of underlying inflation is used for monetary policy management. The index adjusts the CPI for:

- significant changes in the terms of trade;
- an increase or decrease in GST, or other significant indirect taxes;
- a crisis such as natural disaster;
- a significant price level impact resulting from changes in government charges; and
- interest rate effects.

The Reserve Bank is currently required to maintain underlying inflation within the 0-2 percent range. The rate reached 2.2 percent in June 1995 exceeding the upper limit set in the Bank's Policy Targets Agreement. However, action taken over the previous 9 months is believed to have been successful in relieving any further inflationary pressure. In September 1995 the underlying rate fell to 2 percent and is forecast to continue within the target range for the remainder of the forecast period (Figure 43).

Exchange rate and interest rate levels are both key elements in the Reserve Bank's monitoring of monetary policy and major influences on the profitability of many local businesses, particularly those involved in exporting. Table 28 outlines recent movements in key exchange rates for local exporters and the trade weighted exchange rate index (TWI).

The TWI continues to follow an upward trend. For the first eight months of 1995 the index appreciated by 2.3 percent which represents a reasonably modest increase. However, movements in individual bilateral exchange rates have been more volatile. For example, the New Zealand dollar appreciated by 11 percent against the Australian dollar in the first six months of this year and by 5 percent against the US dollar over the same period. It is the scale of these increases which has caused manufacturers and other exporters concern during the first half of 1995.

Recent falls in short and medium term interest rates have been reflected in an easing of exchange rates, although in the long term the trend remains positive. The NZIER is forecasting the TWI to appreciate by approximately 2.2 percent per annum between now and the year 2000.

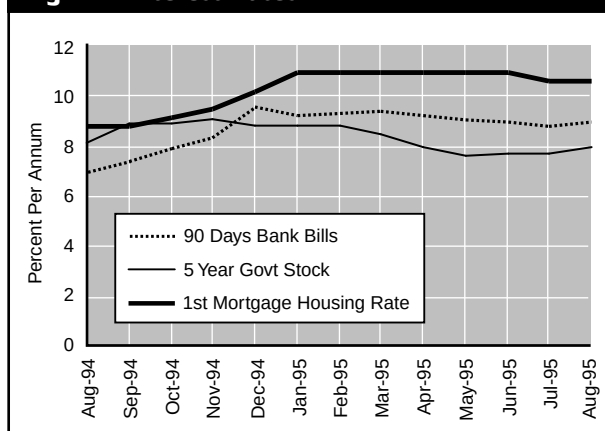
The interest rate profile from August 1994 to August 1995 is outlined in Figure 44.

Ninety day bills have now fallen well below the 9 percent barrier which was until recently seen as the lower margin acceptable to the Reserve Bank. This fall has been accompanied by a decline in first mortgage lending rates to about 10.25 percent (November 1995).

Table 28 Exchange Rates and Trade Weighted Exchange Rate Index

Monthly Mid Rates	Trade Weighted Exchange Rate Index	Australia (A\$/NZ\$1)	USA (US\$/NZ\$1)	West Germany (DM/NZ\$1)	Japan (Yen/NZ\$1)
Aug-94	57.2	0.8089	0.6023	0.9495	59.96
Sep-94	57.1	0.8151	0.6030	0.9343	59.44
Oct-94	57.7	0.8287	0.6153	0.9305	59.96
Nov-94	58.6	0.8186	0.6244	0.9805	61.78
Dec-94	60.0	0.8276	0.6426	0.9986	64.04
Jan-95	59.9	0.8431	0.6401	0.9637	62.99
Feb-95	59.7	0.8597	0.6359	0.9308	61.73
Mar-95	59.9	0.8900	0.6500	0.9159	58.24
Apr-95	60.9	0.9226	0.6738	0.9295	56.40
May-95	60.6	0.9250	0.6674	0.9284	55.33
Jun-95	61.2	0.9365	0.6695	0.9238	56.50
Jul-95	61.7	0.9153	0.6750	0.9312	59.48
Aug-95	61.3	0.8625	0.6505	0.9611	64.45

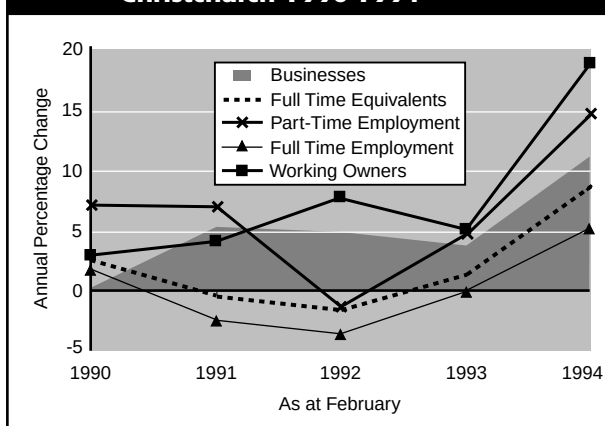
Source: Reserve Bank of New Zealand

Fig. 44. Interest Rates

Source: Reserve Bank of New Zealand

Employment

The strength of Christchurch's recent economic recovery has been reflected in a substantial increase in business numbers and employment. The total number of businesses in the City increased by 11 percent between February 1993 and 1994. Total employment also increased strongly during the 1993/94 year growing by nearly 9 percent¹⁵ (Figure 45 and Table 29).

Fig. 45. Business and Employment Trends Christchurch 1990-1994

Source: Statistics New Zealand, Annual Business Directory.

This growth has been accompanied by a significant shift in the type of employment offered within the local economy. While total employment has continued to increase the majority of this growth has occurred in self-employment and part time work. Interestingly, by February 1994 the number of full time jobs had still not recovered to the level first recorded in February 1990.

It appears this pattern of strong employment and business growth continued from February 1994 until early in 1995. While reliable information on employment for the 1994/95 year is not yet available for the Christchurch area, a pattern of continuing expansion can be inferred from trends in employment for the Canterbury region (employment in Christchurch comprises approximately three quarters of total employment in Canterbury). Statistics New Zealand survey results for Canterbury indicate total employment for the region grew by 7 percent in the year to March 1995. This trend is also supported by data released by the Canterbury Manufacturers' Association which shows a steady increase in employment in this sector until early 1995.

However, the latest indications are that this period of rapid employment growth has passed, at least for the moment. Employment in Canterbury declined by 2 percent during the June 1995 quarter although this appears to be partly attributable to seasonal factors. While Canterbury Manufacturers' Association figures indicate that employment in this sector has fallen for the last four months in succession. This general slow down in employment growth has also been felt nationally. The majority of commentators are attributing this slow down to the impact of a tightening in monetary conditions by the Reserve Bank during late 1994 and the first half of 1995.

The trend in business numbers between February 1991 and 1992 outlined in Table 29 raises an interesting issue. At first glance, the growth in the number of businesses in the City in 1991 and 1992 appears to contradict the accepted picture of business hard-

Table 29 Business and Employment Trends 1990-1994

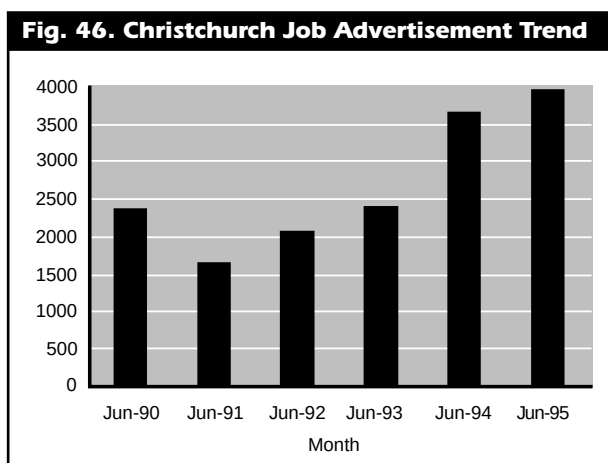
As at February	Number of Businesses	Working Owners	Full Time Employment	Part-Time Employment	Full Time Equivalents
1990	14,966	16,212	83,358	26,344	112,742
1991	15,764	16,883	81,374	28,193	112,354
1992	16,558	18,205	78,542	27,871	110,683
1993	17,193	19,143	78,581	29,201	112,325
1994	19,132	22,767	82,662	33,542	122,200

Source: Statistics New Zealand, Annual Business Directory.

¹⁵ A change in survey coverage between the 1993 and 1994 Business Directory updates has boosted these increases by approximately 2 percent however the growth identified remains substantial irrespective of these adjustments.

ship and recession during these years. This view is certainly supported by movements in employment which fell in both 1991 and 1992. The explanation of this apparent contradiction lies in the growth in the number of working proprietors. Anecdotal evidence suggests a substantial group of workers who found themselves out of work in the early 1990's then established themselves in self employment. This explanation is supported by the growth in the number of working proprietors throughout the first half of this decade.

Information on the number of jobs advertised in Christchurch collected by the ANZ Bank also provides a useful indicator of employment and business activity (Figure 46).



Source: ANZ Banking Group (New Zealand) Ltd

This graph illustrates the pattern of recession and recovery which has occurred in the first half of this decade. Recent monthly data reveals that growth in the number of jobs being advertised has now all but stopped. Despite this slow down in the rate of growth, the level of job advertisement remains high. For example, 2,342 vacancies were advertised locally in June 1990 compared to 3,949 vacancies in June 1995. ANZ Bank commentators believe:

"...the recent declines in the trend job ads series have been nowhere near as marked as the 1990-91 episode and the level of advertising remains at a high level. Even with some fall in the level of job ads, we feel that employment can continue to grow slightly over the next few quarters, consistent with a view of further activity growth."¹⁶

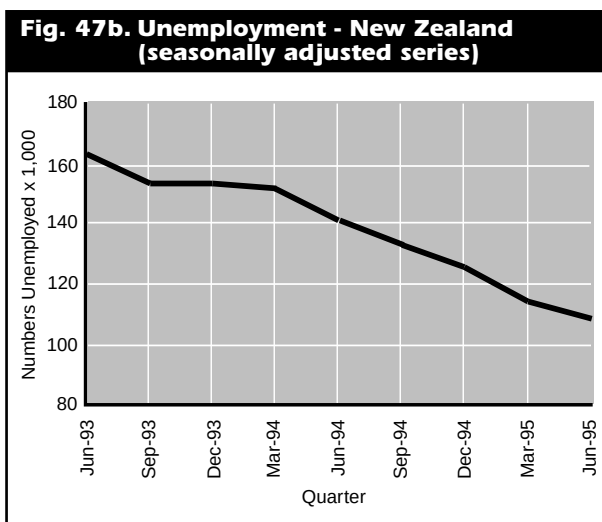
Unemployment

Unemployment across the country has continued to decline over the past 12 months. In the June quarter 1995 the official unemployment rate fell to 6.3

percent. This rate is the lowest recorded since September 1988 when unemployment stood at 6.1 percent. The current rate of unemployment is down substantially from the peak of approximately 11 percent recorded in March 1992. At a national level the substantial growth in employment and subsequent decline in unemployment are well illustrated in Figures 47a and 47b. In the past 12 months 76,000 new jobs have been created while the number of people recorded as unemployed has declined by 32,000.

The high level of error associated with comparable estimates for Christchurch means this information cannot currently be provided for the City. However, data on registered unemployment from the New Zealand Employment Service does provide valuable insights into local trends.

In line with the national trend, the level of registered unemployment in Christchurch has fallen rapidly in



Source: Statistics New Zealand

¹⁶ New Zealand Job Ads -ANZ Focus. October 1995

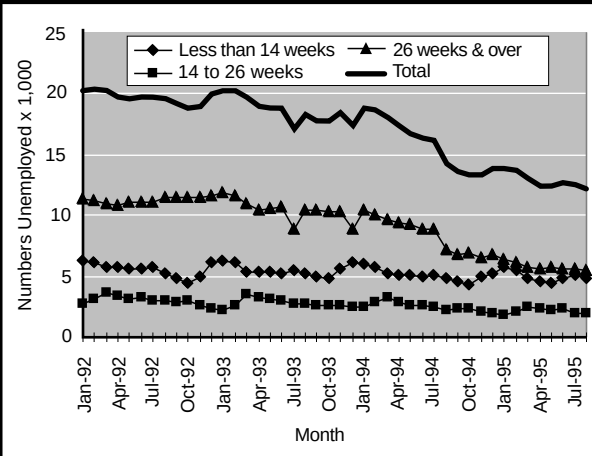
the last year. In total, the number of registered unemployed has declined from 16,453 in June 1994 to 12,734 in June 1995, a fall of more than 20 percent in 12 months. This trend has continued in July and August with the total number of people now registered as unemployed falling to 11,805 (September 1995).

The majority of this decline has occurred in the ranks of the long term unemployed who have been registered for a minimum of 26 weeks and often for much longer periods. The number of long term unemployed has fallen from 8,914 in June 1994 to 5,563, a fall of 38 percent in one year. In contrast, the number of short term unemployed (registered for less than 14 weeks) and medium term unemployed (registered for 14 to 26 weeks) has only fallen marginally (Figure 48).

The downward trend in unemployment has been experienced across all age groups. The most pronounced drop has occurred for the comparatively large group aged 20-24 years. Registered unemployment for this group has fallen from a recent peak of 4,876 in December 1993 to 2,923 in August 1995. In the last June year unemployment for this group fell by over 20 percent (Figure 49).

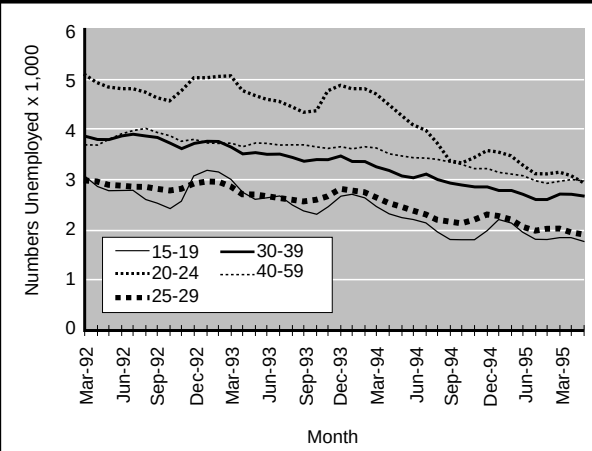
Despite the general improvement in the level of unemployment in the City, particular groups are still heavily over represented on the unemployment register. For example, young people generally are over represented in the unemployment figures. People aged between 15-24 years represent about one quarter of the City's working age population¹⁷ but 38 percent of the registered unemployed. Maori aged 15-64 years represent about 5 percent of the City's working age population but 14 percent of those currently registered as unemployed. A similar picture is evident for Pacific Islanders who represent approximately 1.5 percent of the working age population but 3 percent of the registered unemployed.

**Fig. 48. Registered Unemployment
Christchurch Jan 1992- Aug 1995**



Source: New Zealand Employment Service

**Fig. 49. Registered Unemployment By Age
Christchurch Mar 1992 - Aug 1995**



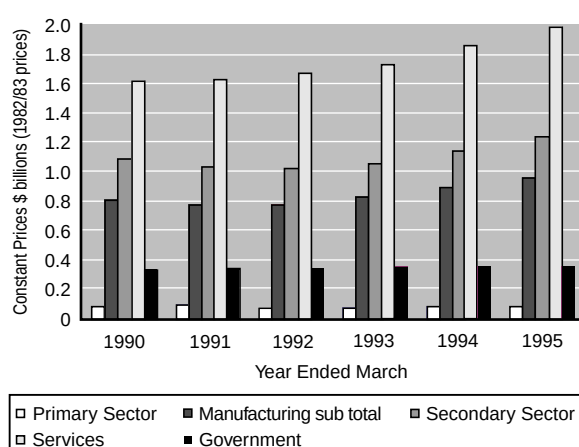
Source: New Zealand Employment Service

¹⁷ Defined as people aged 15-64 years.

Industry Trends

The following discussion provides a broad overview of developments in the major sectors of the local economy. The following graph summarizes sectoral growth patterns for the major industry groups within the local economy (Figure 50).

Fig. 50. Christchurch Gross Regional Product Estimate By Sector



Data Source: Statistics New Zealand; GRP Estimate - Christchurch City Council

The Primary Sector¹⁸

There is only limited economic activity in the agricultural, hunting, forestry and fishing industries within Christchurch City. It is estimated that primary production in the Christchurch area represents less than 2 percent of national activity for these industries. Only 709 people were estimated to work in the sector in February 1994, with 141 of these being in part-time employment. Despite the limited level of activity it would be incorrect to conclude the sector is not important to the economy of the City. Substantial primary production is undertaken in the wider Canterbury area representing approximately 12 percent of national agricultural activity and about 10 percent of total primary production. This production has significant flow on effects for economic activity within the City.

Despite recent increases in activity in other industries, agriculture remains the mainstay of primary production in Canterbury representing over 80 percent of primary GRP. Animal husbandry and arable farming remain the predominant form of farming in the area. This activity is now being complemented by a small but increasing level of horticultural production. Much of this production is destined for export markets. The agricultural industry alone is estimated to provide nearly 90 percent of Canterbury's export income.

With some exceptions, the medium term outlook for the primary sector is considered positive. Concern remains regarding some short term commodity prices (particularly for beef and sheepmeats) but this is

Key Points

- The medium term outlook for agriculture and other primary sector industries remains positive
- The flow on effects of the GATT agreement and subsequent changes in agricultural subsidies and trade policies in the European Union and the United States are expected to boost prospects for local agriculture.
- Expected growth in the economies of our major trading partners, particularly in Asia, is also expected to increase demand for New Zealand's primary products.

balanced by the positive outlook for groups such as dairying. The sector is expected to be boosted by the flow on effects of the GATT Uruguay Round and subsequent changes in agricultural subsidies and trade policies in the European Union and the United States. The expected growth in the economies of our major trading partners, particularly in Asia, is also expected to increase demand for New Zealand's primary products.

¹⁸ For detailed information on the prospects for the primary sector see either - *Situation and Outlook for New Zealand Agriculture, MAF 1995* or *NZIER Sectoral Projections Sept 1995*

The Secondary Sector

The secondary sector is comprised of the manufacturing industries, utilities such as electricity, gas and water, and construction. Over the three years to March 1995 the sector is estimated to have grown by over 20 percent. In the year to March 1995 alone secondary production is estimated to have increased by 9 percent. The sector produces over a third of Christchurch's total economic output and employs just under 30 percent of the local work force.

Despite this record of substantial annual growth the sector has experienced a significant slow down in recent quarters. Since early 1995 the combined impact of higher interest rates and rapidly increasing exchange rates has effectively stalled expansion in large areas of the sector.

Manufacturing

Until late 1994 the Canterbury Manufacturers' Association survey was identifying strong domestic demand supporting high levels of export sales. This growth was accompanied by an increase in employment and expectations of further expansion (Figure 51).

This picture changed sharply in early 1995. The combination of high interest and exchange rates (particularly in relation to the Australian and US dollars) impacted directly on the profitability of manufacturers. Business confidence in the sector fell sharply and little growth was recorded in domestic sales. This downturn has resulted in firms cutting jobs rather than expanding in recent months. Job losses have been particularly heavy in the apparel and textile industries.

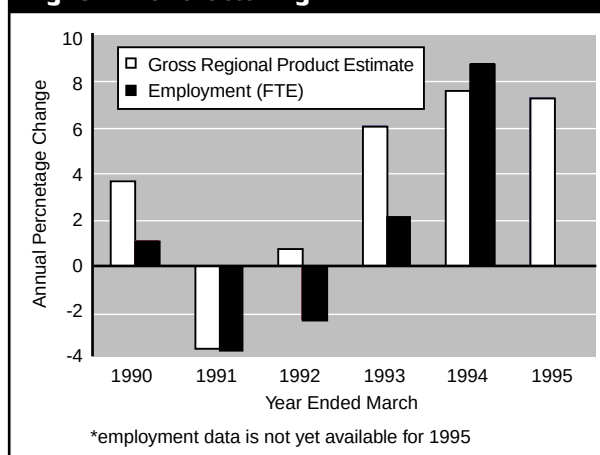
The continued growth in employment in electronics and electrical manufacturing has provided a notable exception to this short term contraction. Employment in these industries has actually increased by 20 percent between August 1994 and August 1995.

Despite the short term deterioration in trading conditions experienced by manufacturers in the first nine months of this year, medium to long term prospects appear good. The recently released quarterly inflation figure of 0.2 percent for the September 1995 quarter and subsequent announcements by the Governor of the Reserve Bank that underlying inflation is now within the Bank's target range of 0-2 percent are positive news for manufacturers. Short term interest rates are already beginning to ease and this appears to have relieved any immediate upward pressure on exchange rates. At the same time the international competitiveness of local manufacturers means they are well placed to take advantage of expected growth in the economies of our trading partners. Domestic sales should also be boosted by higher household disposable incomes resulting

Key Points

- In general, the secondary sector has grown rapidly in the last three years
- Growth in the last nine months has been curtailed by the impact of tighter monetary conditions
- Medium to long term prospects for the sector remain favourable

Fig. 51. Manufacturing



Data Source: Statistics New Zealand; GRP Estimate - Christchurch City Council

from expected tax cuts and lower inflation. This increase in spending will be supported by the strong population growth currently being experienced in the region.

Construction

Activity in both residential and commercial construction has expanded strongly in the past three years. Production is estimated to have increased by 46 percent since 1992 while employment increased by nearly 20 percent in the two years between February 1992 and February 1994. In part, the scale of this recovery must be attributed to the depth of the recession in the industry in 1990/91 and 1991/92 (Figure 52).

There is every indication employment growth continued during the remainder of 1994 before slowing in the first half of 1995. Once again this slow down is attributable to the tighter monetary conditions prevailing during the last 9 months.

Commercial Construction

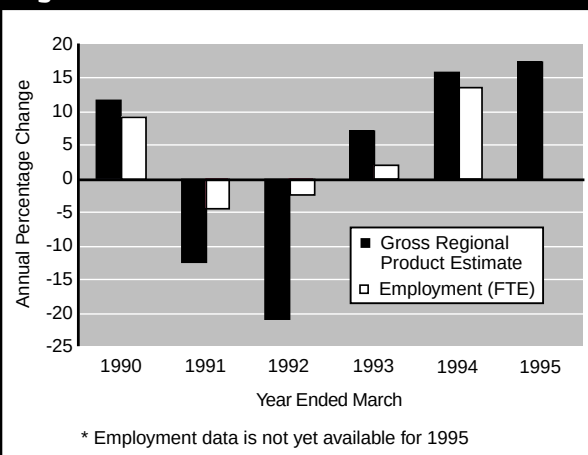
The wider Canterbury area has recorded a very strong recovery in the value of commercial construction during the last three years. In fact, the value of work put in place has grown by nearly 50 percent in both the 1994 and 1995 March years (Table 30).

In addition, much of the pool of vacant commercial floorspace which resulted from the mid 1980's building boom is now being utilized. The 1995 Fright Aubrey Investment Review indicates that the level of vacancies in the central business district of Christchurch have decreased dramatically in recent years. The survey found the overall vacancy rate now stands at 19 percent, a substantial reduction from the 26 percent recorded in 1994 and 31 percent in 1993. This reduction has been aided by a number of conversion projects which have seen office blocks transformed to hotels and to a lesser extent apartments. Currently Christchurch's CBD has a total stock of office space of 404,000 square metres, 76,000 squares metres of which remains vacant.

In Christchurch, building consents were issued for 174,004m² of new floorspace within the commercial and industrial areas in the year ending June 1995. This compares with 178,147m² in the previous year and approximately 71,000m² in 1992 and 1993. High profile developments have included the Moorhouse Centre, Riccarton and Northland Mall redevelopment and a variety of industrial projects in the Hornby area.

Commercial property consultants, Colliers Jardine believe prime city office space will remain in demand for at least the next five years. Colliers point out however that increases in rentals in Christchurch are

Fig. 52. Construction



Data Source: Statistics New Zealand; GRP Estimate - Christchurch City Council

**Table 30 Value of Work Put in Place*
Canterbury Statistical Area**

Year ended March	Non-Residential \$ million	% change	Total \$ million	% change
1991	177.4	-	509.1	-
1992	121.2	-32%	453.8	-11%
1993	129.9	7%	494.3	9%
1994	192.7	48%	590.9	20%
1995	280.7	46%	778.0	32%

*includes alterations and additions

Source: Statistics New Zealand

not expected to be nearly as marked as those seen in Auckland or Wellington. There is a suggestion in the industry that Christchurch is unlikely to see the development of an additional prime office building until gross rentals exceed \$300/m². This has not been forecast to occur before the end of this decade.

A recent international survey of 164 world business districts found that Christchurch has the fourth cheapest business centre at \$174.48/m², closely followed by Wellington in fifth place at \$180.62/m² with Auckland being slightly dearer at \$187.72/m² in ninth place. Prospects for industrial sites are also considered favourable with a healthy demand for well situated properties.

Residential

Residential construction in Canterbury has also grown strongly since 1992. The pace of growth has accelerated with the value of residential construc-

tion increasing by 25 percent in the 12 months ended March 1995. However, the impact of higher interest rates is also believed to have slowed residential building activity in recent months (Table 31).

Christchurch, which forms the largest urban centre in the region, has been at the forefront of this expansion. The number of consents issued for residential building has increased from 1,866 in 1991/92 to 2,532 in 1994/95. However, the number of single dwelling consents has actually decreased over the last year from 751 in the 1993/94 year to 710 for 1994/95. This is mainly due to a drop in the number of dwelling consents issued in the suburban residential zone. There has continued to be an increasing trend in the number of consents issued for units, with the 1994/95 year showing the biggest increase from 1,482 in 1993/94 to 1,822. The preference for new units rather than single dwellings has been particularly pronounced in the inner city suburbs.

The recent growth in residential construction has been supported by the expansion of the City's population which has been discussed earlier in this report. This underlying upward pressure on demand combined with recent falls in interest rates and inflation can be expected to encourage residential building activity in 1996. This positive outlook will receive further support if tax cuts are introduced in 1996 and 1997.

**Table 31 Value of Work Put in Place*
Canterbury Statistical Area**

Year Ended March	Residential \$ million	% change	Total \$ million	% change
1991	331.7	-	509.1	-
1992	332.6	0%	453.8	-11%
1993	364.4	10%	494.3	9%
1994	398.2	9%	590.9	20%
1995	497.3	25%	778.0	32%

*includes alterations and additions

Source: Statistics New Zealand

Services

The service sector incorporates a wide range of industries including wholesale and retail trade, restaurants and hotels, transport, communication, finance and community and personal services. In total this group accounts for over half of all economic activity in the City. Estimated GRP for the sector increased by 7.5 percent in the year to March 1995 and by more than 20 percent since 1992. This economic growth has been accompanied by substantial increases in employment. The latest figures show service sector employment increasing by 4 percent in 1992/93 and a further 11 percent in 1993/94. The expectation is that this growth has continued throughout 1994 and into 1995 (Figure 53).

Activity across the sector has been boosted by the general increase in production occurring in other sectors, by increases in employment and subsequent growth in disposable income within the local economy, and by the flourishing tourism market.

While retail spending has grown rapidly since 1991 the industry has been affected by the recent economic slow down. Retail figures for Canterbury reveal that real spending per head has actually declined in recent quarters. This slight downturn has apparently resulted from consumer spending entering a period of cyclical decline which has been reinforced by the impact of higher interest rates.

The major impact of higher interest rates on retailing occurs in two ways. Firstly, they directly increased the cost of financing more expensive purchases such as whiteware or electronic goods. And secondly, as they slow the growth in the number of new homes built, they lower the demand for a variety of goods which would have been purchased for these dwellings.

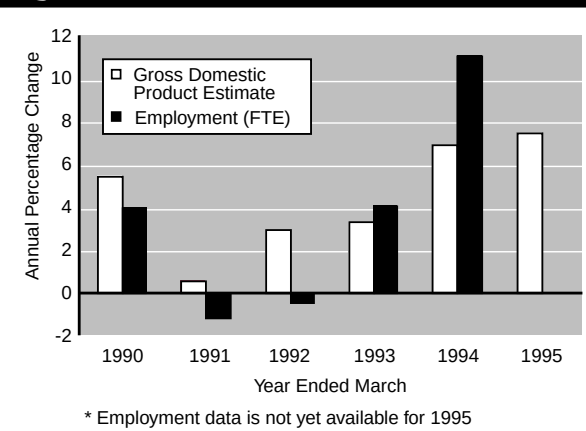
Despite the slight 2 percent fall in spending/head since September 1994 the level of spending is still 22 percent higher than its recessionary low of June 1991 (Figure 54).

The City remains well positioned to take advantage of the expected improvement in economic conditions forecast for the remainder of this decade. The NZIER predicts retail sales will rebound sharply in 1996/97. Strong population and tourist growth combined with rising disposable income as a consequence of higher employment and tax cuts will boost retail activity in 1996/97. As the Reserve Bank now seems satisfied that underlying inflation is again within its 0-2 percent target these influences will be supported by falling interest rates and lower inflation.

Key Points

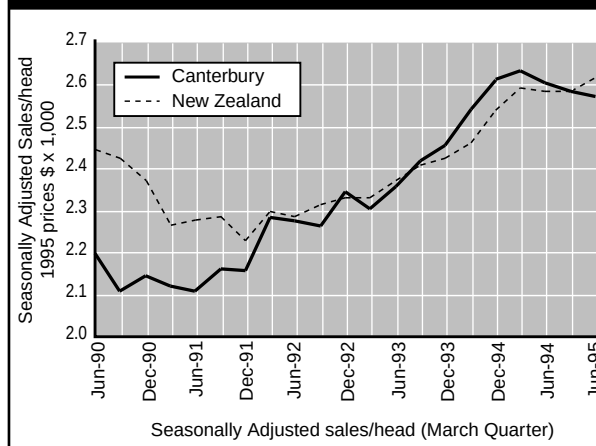
- Service Sector industries have also grown strongly in the last three years.
- The recent slow down in activity has had an uneven impact across the sector. Retailing has been particularly effected but the tight trading conditions.
- Medium to long term prospects remain favourable for all sections of the group.

Fig. 53. Service Sector



Data Source: Statistics New Zealand; GRP Estimate - Christchurch City Council

Fig. 54 Retail Sales -Canterbury and New Zealand



Source: Statistics New Zealand

Transportation

Vehicle Numbers

The number of new cars registered in Christchurch has increased steadily since May 1993 when annual registrations fell to a low of 12,579. For the year ended September 1995 annual registrations had risen to 17,432, an increase of 38 percent in less than 2½ years. This steady increase reflects the improved economic performance of the local economy, and the higher employment and population growth recorded in recent years (Figure 55).

Surprisingly, new commercial vehicle registrations have been extremely stable throughout the first half of this decade. Approximately 3000-3200 new commercial vehicles have been registered annually with no sign that numbers have been effected by the ebb and flow of the business cycle.

Bus Patronage¹⁹

Use by Christchurch residents of the scheduled bus system is low. In 1994 only 23 boardings/person per year were recorded for each resident in the urban area. On a typical weekday, about 3 percent of all trips made by residents are made by bus. Only 10 percent of residents (over 15 years) are regular users and half the population never use the bus system.

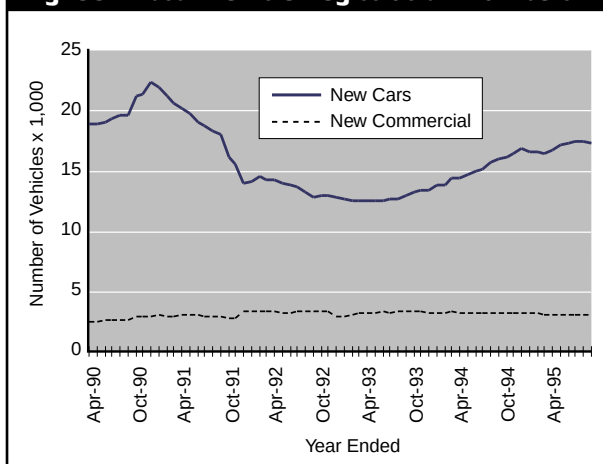
For the year ended June 1995 the bus system catered for 7.8 million passengers. Patronage has recently begun to increase after a long period of decline (Figure 56).

It is unclear whether this growth represents a change in the preferences of residents between forms of transport, or is the result of an overall increase in the level of travel within the City. It is possible the underlying trend in bus patronage may still be nega-

Key Points

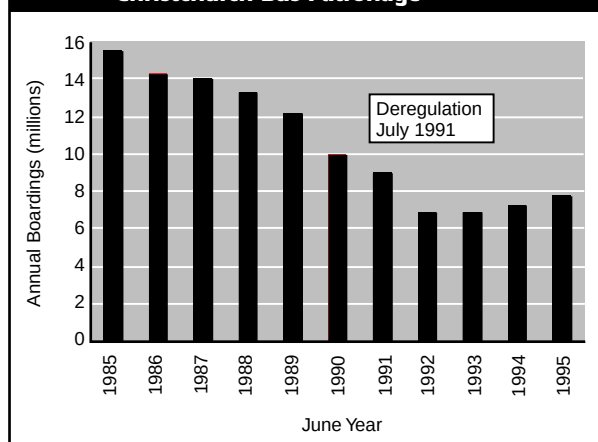
- 17,432 new vehicles were registered in the City in the year ended September 1995. This is an increase of 38 percent in less than 2½ years.
- Residents' use of the bus system is low. Only about 3 percent of all trips are currently made by bus.
- The bus system catered for 7.8 million passengers in the year to June 1995. Patronage has recently increased although it is unclear whether this indicates a trend towards bus usage.
- Both domestic and international passenger numbers at Christchurch airport increased by about 10 percent in the year to March 1995.

Fig. 55. Motor Vehicle Registration Numbers



Source: Land Transport Safety Authority

Fig. 56. Medium Term Trend in Christchurch Bus Patronage



Source: Canterbury Regional Council

¹⁹ For a detailed discussion of changes in bus patronage refer to "Public Passenger Transport in Christchurch and The Role Of The City Council" CCC, 1994.

tive and the recent increase simply represents cyclical growth due to a recovery in employment and the expansion of social/leisure opportunities in the central city. If the present trend continues patronage is expected to reach 10 million trips per year by mid 1997.

Airport Passenger Numbers

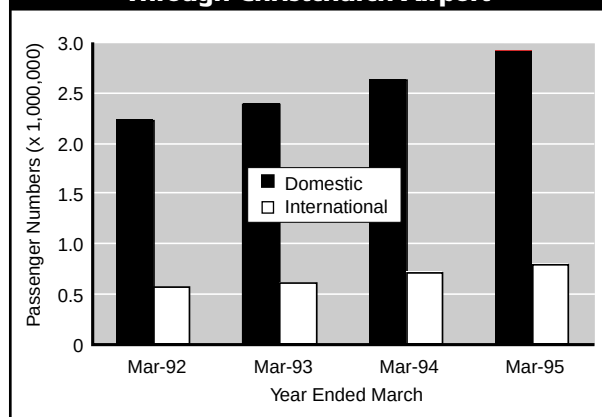
Both domestic and international passengers numbers at Christchurch International Airport continue to increase rapidly. In the year to March 1995 domestic numbers increased by 11 percent to 2.9 million persons while the number of international passengers increased by 10 percent to a total of 778,200 (Figure 57).

The main reasons for this sizable increase in domestic travel include the large number of international visitors who use internal air services, the improved economic environment and higher business confidence, and the very competitive promotions currently being offered by airlines for domestic travel.²⁰

These figures indicate Christchurch is continuing to benefit from the growth in tourist numbers occurring across the country. Airport figures indicate that there has been a large increase in the number of Taiwanese visitors to the City. In the 12 months to March 1995, 20,500 Taiwanese arrived at Christchurch on international flights. This means that Taiwan now has the fourth highest number of international arrivals to the City behind Australia, Japan and just behind the United States. The number of Taiwanese visitors is estimated to have grown at an average rate of 50 percent per annum over the last three years.

Stage One of a major twenty year development programme for the airport has recently been finalized. Tenders for the 80 million dollar, two year project are to be let in early 1996 with work expected to commence in the latter half of the year. The first stage of the project will largely focus on the international terminal building. In a recent informal survey of local business associations the freedom of operation for Christchurch International Airport and the Port of Lyttelton were consistently listed as one of the major strategic assets which the City needed to protect.

Fig. 57. Passenger Movements Through Christchurch Airport



Source: Christchurch International Airport Ltd "Flight Path"

²⁰ Airport Scene, Christchurch International Airport Ltd

Appendix 1

Official Population Projections - September 1993

Table 1. Christchurch City Population Projections (High and Medium Assumptions)												
Year Ending 31 March	Usually Resident Popltn	Popltn Change Number	Popltn Change Average Annual Rate(%)	Births Number	Births Annual Rate	Deaths Number	Deaths Annual Rate	Natural Increase	Median Age	TFR (Total Fertility Rate)	Life Exp At Birth Male	Life Exp At Birth Female
1991	288,894	6,690	0.5	20,636	14.5	13,369	9.4	7,267	32.8	1.7		
High projection : Assuming high fertility, Low mortality and High migration												
1996	304,000	15,100	1	24,170	16.3	13,090	8.8	11,080	33.8	2	73.5	79.4
2001	318,000	14,000	0.9	23,900	15.4	13,890	8.9	10,010	34.7	2	74.3	80.1
2006	329,500	11,500	0.7	21,930	13.5	14,410	8.9	7,520	35.9	1.9	75.2	81
2011	338,500	9,000	0.5	20,190	12.1	15,190	9.1	5,000	37	1.8	75.7	81.4
2016	346,600	8,100	0.5	19,910	11.6	15,830	9.2	4,080	37.9	1.75	76.2	81.9
Medium projection : Assuming Medium fertility, Medium mortality and Medium migration												
1996	299,300	10,400	0.7	22,760	15.5	13,360	9.1	9,400	33.9	1.9	73.2	79
2001	308,600	9,300	0.6	22,240	14.6	13,920	9.2	8,320	35.1	1.9	73.9	79.8
2006	315,400	6,800	0.4	20,030	12.8	14,240	9.1	5,790	36.4	1.8	74.8	80.6
2011	319,500	4,100	0.3	18,000	11.3	14,840	9.3	3,160	37.8	1.7	75.2	81
2016	322,600	3,100	0.2	17,350	10.8	15,330	9.5	2,020	39	1.65	75.7	81.4

Source: Statistics New Zealand

As discussed in the body of this report recent population estimates suggest Christchurch's actual population growth path is substantially higher than that projected for the first intercensal period 1992-1996 Revised Projections - August 1995

Revised Projections - August 1995

Revised population projections were requested from Statistics New Zealand following the release of the March 1995 population estimates for the City. Annual estimates since the last Census in 1991 have shown a significantly higher growth path for the City's population than that contained in the official population projections which were used in the development of the new City Plan. It was apparent from these estimates that the difference between officially projected growth and estimated growth was the higher level of net migration recorded. The additional growth is equally split between increasing migration to Christchurch from other parts of New Zealand and a higher than expected inflow from overseas. This growth has been partially offset by a lower than expected birth rate.

In order to better understand the possible implica-

tions of this growth a revised set of unofficial projections was commissioned from Statistics New Zealand. In general it is believed that estimates of births and deaths are likely to be more reliable than those for migration. This is because the rate of births and deaths in a population relate to social attitudes and lifestyles which tend to change slowly over time. This is demonstrated by New Zealand's gradual decline in TFR¹ since 1961 (Figure 5 in main text). As a result these components tend to be more predictable. In contrast, net migration is a comparatively small residual figure, resulting from the difference between large inflows and outflows of population overtime. As a result, a comparatively small change in either the inflow of people to the region or outflow of people from the City can substantially alter the net population change. The current surge in population is attributable to such a change.

Given the inherent volatility of the migration factor it is difficult to accurately predict its impact one to two decades into the future. As a result it was felt a range of projections, using a variety of net migration forecasts, would provide decision makers with alternative population parameters against which to test their work. The following table summaries the revised projections:

¹ Total Fertility Rate for a particular year indicates the average number of births a woman would have during her reproductive life if she is exposed to the age specific fertility rates for that year.

Table 2. Christchurch City Summary of Usually resident Population Projections, 1996-2016 ; 1991 Census-base

Year Ending 31 March	Usually Resident Popltn	Popltn Change Number	Popltn Change Average Annual Rate(%)	Births Number	Births Annual Rate	Deaths Number	Deaths Annual Rate	Natural Increase	Median Age	TFR (Total Fertility Rate)	Net Migration	Life Exp At Birth Male	Life Exp At Birth Female
1986	282420	6450	0.5	18273	13.1	12722	9.1	5552	31.7	.	940	.	.
1991	288891	6471	0.5	20638	14.4	13359	9.4	7279	32.8	1.75	-790	.	.
SERIES 1													
1996	310400	21500	1.4	20720	13.8	13170	8.8	7550	34.2	1.7	14000	73.5	79.4
2001	331500	21100	1.3	21260	13.2	14260	8.9	7000	35.6	1.7	14000	74.3	80.1
2006	350200	18700	1.1	19890	11.7	15120	8.9	4770	37	1.6	14000	75.2	81
2011	366900	16700	0.9	18980	10.6	16320	9.1	2660	38.5	1.55	14000	75.7	81.4
2016	382100	15200	0.8	18680	10	17440	9.3	1240	39.8	1.5	14000	76.1	81.9
SERIES 2													
1996	310400	21500	1.4	20720	13.8	13170	8.8	7550	34.2	1.7	14000	73.5	79.4
2001	331500	21100	1.3	21260	13.2	14260	8.9	7000	35.6	1.7	14000	74.3	80.1
2006	350200	18700	1.1	19890	11.7	15120	8.9	4770	37	1.6	14000	75.2	81
2011	362800	12600	0.7	18840	10.6	16270	9.1	2570	38.6	1.55	10000	75.7	81.4
2016	367700	4900	0.3	18090	9.9	17180	9.4	910	40.1	1.5	4000	76.1	81.9
SERIES 3													
1996	310400	21500	1.4	20720	13.8	13170	8.8	7550	34.2	1.7	14000	73.5	79.4
2001	331500	21100	1.3	21260	13.2	14260	8.9	7000	35.6	1.7	14000	74.3	80.1
2006	346100	14600	0.9	19750	11.7	15060	8.9	4690	37.1	1.6	10000	75.2	81
2011	352500	6400	0.4	18380	10.5	16050	9.2	2330	38.7	1.55	4000	75.7	81.4
2016	357100	4600	0.3	17470	9.8	16810	9.5	660	40.3	1.5	4000	76.1	81.9
SERIES 4													
1996	310400	21500	1.4	20720	13.8	13170	8.8	7550	34.2	1.7	14000	73.5	79.4
2001	327400	17000	1.1	21110	13.2	14200	8.9	6910	35.6	1.7	10000	74.3	80.1
2006	335800	8400	0.5	19260	11.6	14840	9	4420	37.2	1.6	4000	75.2	81
2011	338700	2900	0.2	17610	10.4	15640	9.3	1970	38.9	1.55	1000	75.7	81.4
2016	340100	1400	0.1	16550	9.8	16250	9.6	300	40.5	1.5	1000	76.1	81.9
SERIES 5													
1996	310400	21500	1.4	20720	13.8	13170	8.8	7550	34.2	1.7	14000	73.5	79.4
2001	318200	7800	0.5	20790	13.2	14070	9	6720	35.7	1.7	1000	74.3	80.1
2006	323200	5000	0.3	18550	11.6	14470	9	4080	37.3	1.6	1000	75.2	81
2011	325900	2700	0.2	16840	10.4	15160	9.3	1680	39	1.55	1000	75.7	81.4
2016	327100	1200	0.1	15860	9.7	15710	9.6	150	40.6	1.5	1000	76.1	81.9

Net Migration

The assumed net migration figures used above are based on a range of values which fall between the levels used in the official population projections (Table 1 above) and the actual migration levels estimated since the 1991 Census.

The following table outlines the assumed net migration values for the alternative scenarios:

Table 3. Assumed Net Migration Levels

5-year interval	Series 1	Series 2	Series 3	Series 4	Series 5
1991-1996	14000	14000	14000	14000	14000
1996-2001	14000	14000	14000	10000	1000
2001-2006	14000	14000	10000	4000	1000
2006-2011	14000	10000	4000	1000	1000
2011-2016	14000	4000	1000	1000	1000

All the series have been altered to include the higher net migration which has been estimated between 1992 and 1995. The 14,000 person inflow recorded for this period compares to an original estimate of 1,000 persons under the medium scenario of the official projections. This figure may still prove to be slightly conservative if the growth seen in the year to March 1995 continues for a further twelve months' ie an actual value of 16,000 persons appears feasible.

Series one assumes the recent upsurge in net migration will continue throughout the period of the projections. For this to occur the current national immigration policy of allowing for up to 25,000 persons per year to enter New Zealand permanently would need to be retained. Immigrants' preferences regarding New Zealand as a destination and possible alternative destinations within New Zealand, will also affect the outcome. In addition, the recent inflow of New Zealand residents from other locations within the country would need to continue.

Series five assumes the growth seen in recent years is a temporary aberration and includes a minimal net inflow of 1000 persons over the remaining intercensal periods of the projections. This could occur if, for example, central government policy was substantially altered following the next election with a new government totally discouraging overseas immigration. The scenario might also occur if Christchurch, for whatever reason, was suddenly perceived to be an unattractive location for either internal or external migrants. It is conceivable, if unlikely, that this could halt the recent inflow or even reverse it. Scenarios 2-4 provide variations on these two principle themes.

It should be emphasised that the recent inflow is a major departure from our long term migration pattern and it is quite possible this surge will prove to be a temporary phenomenon. To provide a context for the extent of this departure it can be noted that in the last 25 years New Zealand's total net gain from migration has only been in the order of two to three hundred persons.

The highly subjective nature of the assumptions required to estimate net migration mean no definitive answer can be provided on the actual level of population growth that will occur over the next two decades. It would seem advisable for decision makers to test their work against a range of possible outcomes to identify the sensitivity of their projects to possible population outcomes.

Fertility

The TFR's used in the revised projections are identical for all the revised series ie 1-5 above. The projection used is the latest New Zealand wide medium scenario which assumes the TFR for 1997-2001 remains at the 1992-1996 level and then decreases for the remainder of the projection period. It is believed this is the most likely scenario given our current state of knowledge. The current values are considerably lower than all those contained in the official Christchurch projections contained in Table 1. There is a possibility that the decline projected in the revised forecasts may not be as marked in Christchurch as this scenario suggests. This is possible as the current TFR for the City is already considerably lower than for the country at large.

Deaths

The mortality rates used in the revised projections are identical for all series ie 1-5 above. The projection used is the latest New Zealand wide medium scenario which assumes steadily decreasing mortality rates throughout the period. This assumption is evident in the increasing life expectancy shown for males and females in the above table. The mortality rates used in the latest projections are at the lower end of the scenarios outlined in the official projections in Table 1.

Appendix 2

Table One : Summary of Vacant Residential Land 1984 - 1995

Year	No. of vacant lots	Area of vacant lots (ha)	Area of unsubdivided land (ha)	Area of land under constraint (ha)	Total vacant land (ha)	Reduction in vacant land p.a. (ha)
31.3.84	3,587	283.0	858.2	404.5	1545.7	6.9
31.3.85	3,222	271.7	889.9	365.0	1520.6	58.9
31.3.86	3,096	263.4	842.5	361.8	1467.7	17.4
31.3.87	3,272	271.0	787.3	392.0	1450.3	5.2
31.3.88	3,291	271.1	765.0	409.0	1445.1	61.3
31.3.89	3,158	280.9	757.5	345.4	1383.8	141.2
31.3.90	2,855	254.6	924	64.0	1242.6	21.6
31.3.91	2,900	262.1	892.6	64.0	1221	25
30.6.92	2,638	217.7	914.3	64.0	1196	31
30.6.93	2,562	210.1	928.8	26.1	1165	86.8
30.6.94*	2,3761	228.7	710.5	139.1	1078.2	57.8
30.6.95	2,221	217.9	667.5	135.1	1020.45	

*During 1994 the register was audited, the figures reported here are the audited figures.

Source: Canterbury Regional Council 1984-1991, Christchurch City Council 1992-1994

Note: Land under constraint has fluctuated between 1990 and 1994 due to the changing status of land at Travis Swamp.

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