



# 2.0

## Driving forces in the Auckland region

Population growth, economic growth and increased consumption are the three main forces at work in this region causing environmental pressures.



## Driving forces in the Auckland region

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Photo: Spaghetti Junction, Auckland. (Source: Shutterstock).

# Driving forces



## Introduction

Driving forces can be described in different ways and there are complex inter-relationships between them. For the purpose of this report, we group and discuss the driving forces that affect the Auckland region under the following headings:

- population growth and change
- economic activity and growth
- consumption and consumerism.

Forces of change and growth are inter-related and inter-dependent – they inform, create and shape each other. While this report focuses on the resultant pressures and impacts at the local level, the broad drivers of change and growth are part of a much wider national and global context, and are not necessarily unique to the Auckland region.

The links between population change, economic activity and environmental degradation are well recognised, and work is underway at the local and global level to separate the measurement of economic growth, consumption, environmental pressures and adverse environmental impacts. The strategies, policies and regulations of the Auckland Regional Council (ARC) are a key part of that effort in the Auckland region.

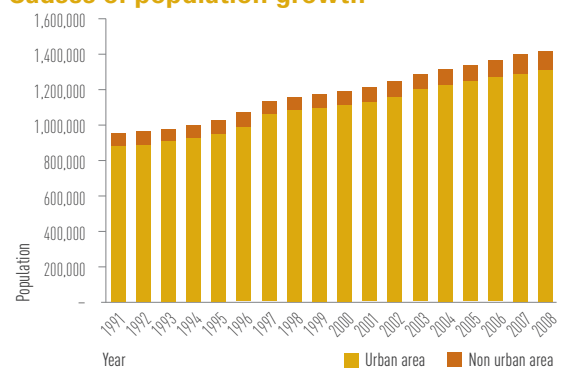
## Population growth and change

A primary driving force of change in the Auckland region is population growth.

The Auckland region has experienced consistent population growth for well over a century and is the fastest growing region in Australasia. Half of New Zealand’s population growth between 2001 and 2006 was in the Auckland region, which increased by 144,000 people to a total population of 1.37 million (one third of the national population) (Figure 1).

The majority of the population in the Auckland region (90 per cent) live in the urban area.

### Causes of population growth



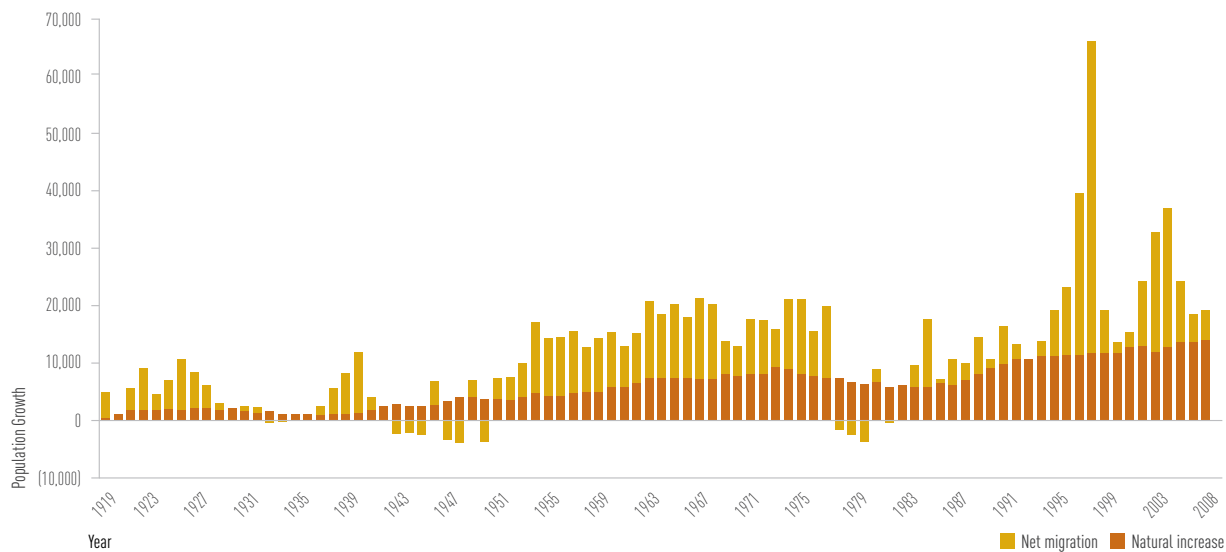
**FIGURE 1** Population growth in the Auckland region 1991-2008 (Source: Statistics New Zealand).

Growth and change in the population of the Auckland region has two sources:

- natural increase (births minus deaths)
- migration: both internal migration (when people move into and out of the Auckland region from elsewhere in New Zealand) and international migration (when people arrive from overseas to live here or leave the country to live overseas).

The contribution of these components to overall growth varies over time, as shown in Figure 2. Natural increase is a steady contributor while net migration patterns vary. Between 2001 and 2006, just over half (55 per cent) of the region’s population increase resulted from net gains in migration (both internal and international) and just under half (45 per cent) was due to natural increase.

# Driving forces



**FIGURE 2** Components of population growth in Auckland region (1919 – 2008).  
(Source: Statistics New Zealand: Census of Population and Dwellings, Births and Deaths).

Notes: The natural increase series presents December years prior to 1987, March years from 1987 to 1993 and June years after 1993. Net migration is calculated as the residual of total population less natural increase. The apparent large increase in contribution from net migration in 1997 is to be treated with caution as it emerges in part from the change in count from March to June years in 1997. Data before 2003 relates to the Auckland urban area only.

## Natural increase

Although population growth in the early years of European settlement was dominated by immigration, natural increase became a steady contributor to population growth as the population became established.

In the Auckland region, natural increase in the population is sustained by the substantial proportion of people of working and family formation age, and by significant numbers of Pacific and Māori (who tend to have relatively higher fertility rates than other groups).

## External migration

Changes to the national immigration policy over the last few decades have resulted in a move away from a policy based on migrants from preferred source countries towards a policy that focuses on individual skills and experience. These policy changes partly explain the large increases in net migration that were recorded between 1996 and 1997.

The changed immigration policy also resulted in more migrants arriving from non-traditional source countries such as India, Taiwan, Korea, Fiji and, in particular, China. This diversity has transformed the ethnic and cultural makeup of the Auckland region. By 2006, the region was home to over 150 ethnic groups, and over a third of residents were born overseas.

Two thirds of New Zealand’s Asian and Pacific populations live in Auckland. This concentration has encouraged the growth of culturally-specific institutions and support services, which may continue to entice new migrants to settle in Auckland.

## Internal migration

Traditionally there been a net gain to Auckland from other regions as the population of New Zealand has ‘drifted northwards’. However, at the start of the twenty-first century the Auckland region experienced a net loss to other regions. Between 2001 and 2006, about 16,700 more people moved from Auckland to other parts of New Zealand than moved into the region. It should be noted however, that this loss is relatively small compared to the scale of all movements and the scale of overall population change (a 12.4 per cent growth overall), and was offset by a surge in international migration. The greatest net losses from Auckland were to the neighbouring regions of Northland, Waikato and Bay of Plenty.

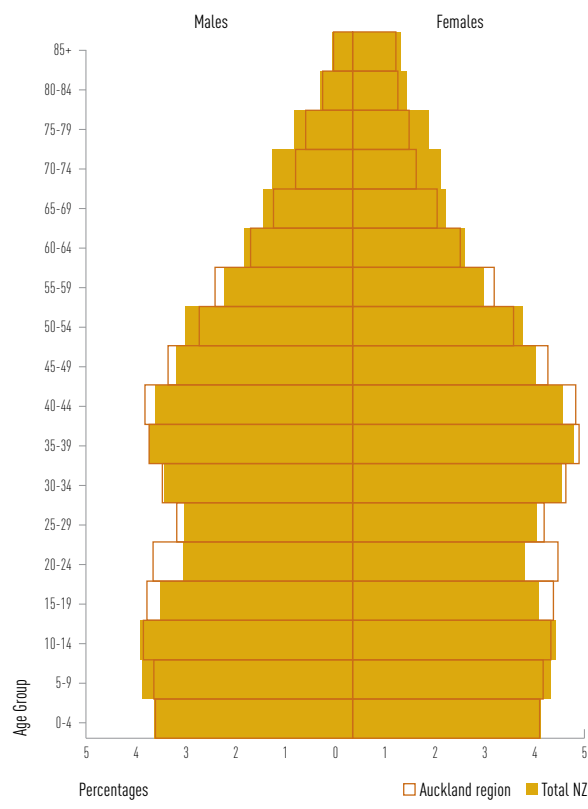
Internal migration patterns are age specific, and there is still significant migration of younger people into the region for education and employment opportunities.

In line with this, there has also been some concentration of movement into the central city following the intensification of high density apartments, and conversely movement to ‘countryside living’ areas on former rural land close to the urban fringe.

# Driving forces

## Age/sex structure

Figure 3 shows that although the age/sex structure of the population in the Auckland region is broadly similar to the national structure, all age groups between 15 and 49 years are over-represented, especially those between 15 and 30 years. This reflects the prominence of the Auckland region as a centre for immigration, study and employment, and as an attractive location for young families. This in turn, drives household composition patterns and housing demands.



**FIGURE 3** Age/sex structure of Auckland region compared with New Zealand (2006).  
(Source: Statistics New Zealand: Census of Population and Dwellings).

## Household size

The average number of people per dwelling in the Auckland region declined steadily from the 1950s to the mid 1980s (dropping from 3.6 persons per household in 1956 to 3 in 1986). This was driven by social changes including more people living alone, delays in the onset of childbirth, declining birth rates, increased life expectancy and more single-parent families.

Between 1986 and 2006 household size has remained consistently in the 2.9 to 3 persons per household range. Although many of the social trends driving smaller household sizes have continued, they have been offset by an increase in household size (to the point of overcrowding) in some parts of urban Auckland, particularly among Pacific communities – a trend attributed to cultural attitudes and economic conditions.

## Future growth

Population growth is anticipated to continue into the foreseeable future.

The latest ARC medium series population projections indicate that the regional population could reach two million by 2035 – an increase of around 500,000 people or 40 per cent more than our current population of 1.37 million. Predictions show that the rate of growth may slow if fertility rates remain below replacement ratio.

## Economic growth and resource efficiency

Another fundamental driving force in the region is economic activity (that is, the production and distribution of goods and services) and a co-related imperative for growth and cost efficiency. Auckland is a major centre of employment and commerce, and economic activity in the region is significant. The region is the nation's largest manufacturing base and it functions as a nationally strategic transport and distribution hub.

Economic activity is a driver of environmental pressure for several reasons:

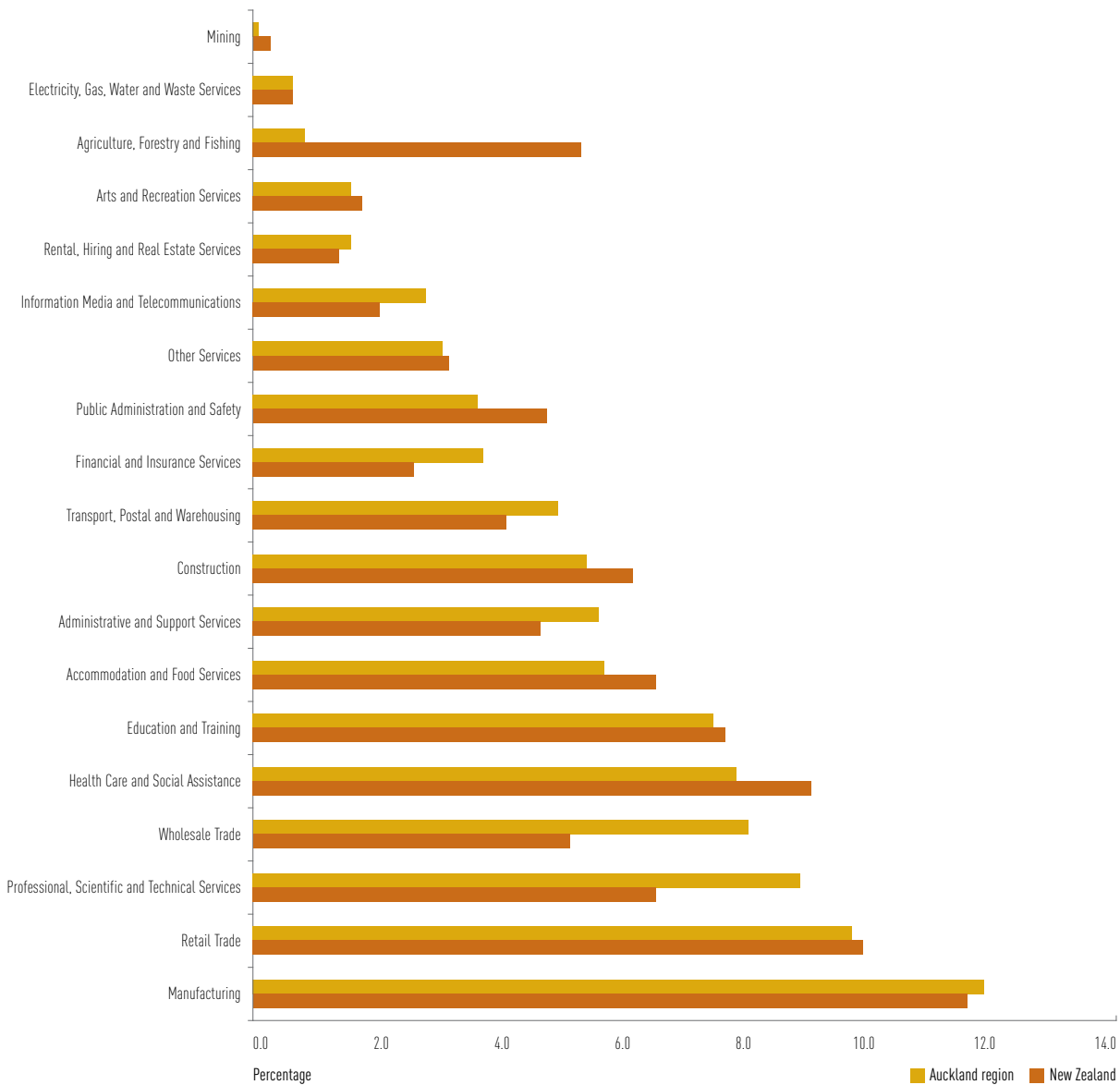
- the production of goods creates a demand for resources in the form of raw materials (e.g. wood, fibre, oil, aggregate, minerals and their derivatives) for manufacturing processes
- resource use and adverse environmental effects from air, road and rail transport around and through the region
- production and consumption inevitably generates various types of liquid, gaseous and solid wastes that need disposal (see Part 3).

Not all forms of economic growth produce the same level of environmental pressure because the nature of the economy can, to some degree, influence the extent of this pressure. For example, economic growth based on heavy industry is far more likely to produce a greater local environmental pressure than economic growth based on the provision of financial services. The nature of the urban economy in the Auckland region and the changes within it are, therefore, another factor that determines the nature and extent of environmental pressure.

## Centre of employment

At February 2008, manufacturing, retail trade, and professional, scientific and technical services were the three most significant industries in the Auckland region in terms of numbers employed (Figure 4). Manufacturing and retail trade were also the largest industries in New Zealand in 2008, reinforcing the fact that Auckland, as the largest city and region in the country, plays a significant role in the national economy.

# Driving forces



**FIGURE 4** Employment in the Auckland region and nationwide, by industry sector, February 2008. (Source: Statistics New Zealand: Business Demography data).

Auckland is home to a number of big firms and organisations – just over one third (33.8 per cent) of all employees in the Auckland region were working in businesses with 100 or more employees, particularly in electricity, gas and water supply, communication, health (District Health Boards) and government (council) sectors. However, small-size enterprises dominate the employment market. Almost four out of every five (87 per cent) business units had five or less employees (particularly those in the finance and insurance, and property and business sectors). This figure also includes a large number of business units (approximately 136,290) that had no employees (many of these will be self-employed).

### Growth areas

Auckland’s economy has experienced rapid growth in recent years and has consistently grown at a greater rate than the rest of New Zealand for much of the last ten years. Employment has been high, with labour force participation at 68.5 per cent to the year end December 2009, translating into a workforce of approximately 677,000 people.

Over 36,000 new businesses were established in the Auckland region between 2000 and 2008 (an increase of 29 per cent). The most significant sectors of growth were:

- rental, hiring and real estate services (+12,619)
- finance and insurance (+6,936)
- professional, scientific and technical services (+6,511)
- retail trade (+2,118).

# Driving forces

Although the Auckland region's economy has experienced growth in service-type industries (that is, businesses that service the needs of a growing population), it is more oriented towards high value-added manufacturing and the business and finance services sectors than the rest of the country. With respect to contributions to GDP, the following industries are more important to the regional economy than they are to the national economy:

- finance
- communication services
- air transport and services to transport and storage
- machinery and equipment manufacturing
- rubber, plastic and other chemical manufacturing
- sheet and fabricated metal production manufacturing.

In addition, air transport and services to transport and storage, as well as printing, publishing and recorded media provide comparatively high contributions to the regional economy in terms of regional GDP and employment. As would be expected, Auckland's regional economy is comparatively under-represented in the primary production sector.

In line with national trends, and driven in large part by international trends, Auckland is coming out of a period of sustained economic and population growth and is currently experiencing an economic slowdown. The longer-term nature and effects of this slowdown are yet to be realised, but in the shorter term there has been a particularly acute contraction in the construction, property and retail sectors and unemployment figures are beginning to rise.

The Auckland region's economy does not operate in isolation and is influenced by global and national socio-economic drivers including global 'boom and bust' cycles, international regulatory policies and initiatives, monetary systems, and competition from external markets.

## Auckland's role as an international hub and gateway

Auckland is the first port of entry for most international visitors and migrants. Faster and cheaper air travel has created a surge in international travel over the last few decades and a boom in the tourism industry, which has fed into the regional economy. In 2007, there were an estimated 2.18 million international visitors to the Auckland region and 16.3 million international visitor nights. Auckland International Airport in Mangere is the busiest port of entry for international passengers into New Zealand, with 69 per cent of all international visitors (in the year ended December 2008) arriving there.

Significant volumes of international trade also pass through Auckland and it is the country's third-largest export cargo port by value. In the year ended June 2007, \$4.4 billion of exports passed through Auckland International Airport, representing 81.5 per cent of New Zealand's air-freighted exports, while Ports of Auckland Limited is New Zealand's largest international seaport, handling 37 per cent of the total container trade and 840,993 TEU (Twenty-foot Equivalent Unit – the international standard of measure of containers) in 2007/08.

Around two thirds of New Zealand's imports and one third of its exports (by value) pass through the seven wharves operated by the Ports of Auckland. Six wharves are on the Waitemata waterfront near to the Auckland Central Business District and the other is at Onehunga on the Manukau Harbour. Container and freight handling is supported by road, rail, air and sea links to the rest of New Zealand, and about 14 per cent of employment in the Auckland region is in distribution (wholesale trade, transport and storage).

There has also been a renaissance in cruise ship holidays and Auckland is gearing up to become a major visitor destination as well as the busiest passenger exchange facility in New Zealand. In 2007/08, a record 73 cruise ships visited Auckland ports, accounting for about 6000 international arrivals. Plans are underway to develop additional passenger terminal facilities along the Waitemata Harbour's edges and to encourage visits to the Auckland region.

The overall growth in tourism across the region, both international and national, has led to the active promotion of some areas as tourist destinations, particularly in the coastal areas and to the north but also within Auckland city. Although this promotion will create local economic opportunities it also creates an increased demand for goods and services that may put pressure on resources.



# Driving forces

## Auckland's rural economy

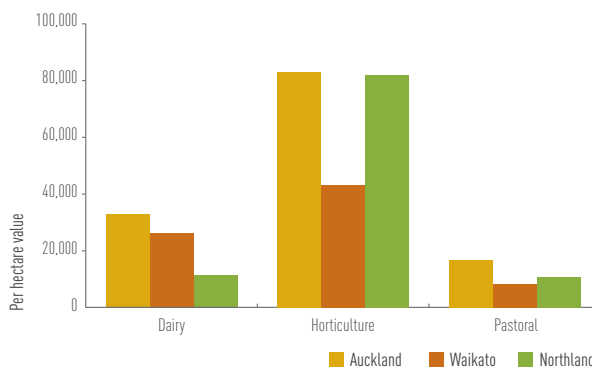
The majority (90 per cent) of the land area within the Auckland region can be described as rural. The Franklin lowlands, the areas immediately south-west of the Auckland urban area and much of the Auckland isthmus itself are naturally fertile with rich soils of volcanic loam, and the whole of the Auckland region has abundant rain and a mild climate.

These favourable characteristics meant that, traditionally, the Auckland region had a strong agricultural economy with particular emphasis on market gardening, horticulture and other types of intensive farming. Dairying and other types of pastoral farming were also major sectors. However, the agricultural sector has been in a long-term decline in both relative and absolute terms in the Auckland region, for example GDP from the agricultural sector decreased from \$419.6 million to \$399.7 million between 1994 and 2005 (in 1996 dollars). A similar trend was seen in the level of employment in the agricultural manufacturing sector (those businesses making machinery and equipment for agriculture) which declined by 48 per cent over the same period in the Auckland region.

These two declining trends contrast with a 154 per cent increase in employment in the rural servicing sector (those businesses offering services such as fertiliser spreading, crop harvesting and fencing to the agricultural sector) between 2000 and 2008 in the Auckland region, especially when compared with the national growth rate of just 77 per cent. The rural servicing sector now employs around 1420 people across the Auckland region and possibly reflects a decline in the traditional 'do-it-yourself' farming community and an increase in part-time, non-professional farmer/land owners who make more use of contractors.

Rural production tends to be highly dynamic, with changes being driven by the same forces that drive change in all commercial activities – the need to remain economically viable in evolving market conditions.

In the Auckland region, rural land users face high costs associated with land ownership, with the average pastoral (non dairy) farms typically selling in the 2002 to 2006 period for 2.6 times the cost of the national average for pastoral land. Sale prices of all categories of rural land are higher, not just in comparison to the national average, but also in comparison with neighbouring regions (Figure 5). The value of rural land (as determined by Quotable Value Limited) mirrors sale prices.



**FIGURE 5** Rural land values in Auckland, Waikato and Northland 2008. (Source: Enfocus Ltd., based on data from Quotable Value).

These high land values mean that rural producers in the Auckland region may need to produce their goods more efficiently, sell into high value niche markets and/or increase productivity per hectare by increasing inputs and/or by focusing on higher value products (such as intensive horticulture or factory farming) in order to earn a commercial rate of return equivalent to that achievable in other regions.

The alternative method of meeting the high cost of rural land ownership is to cross-subsidise rural production costs with off-farm income. This means that land owners hold or acquire land, knowing that it will not provide a commercial rate of return. This may not be problematic from a landowner's perspective if they have income from other sources (such as part-time employment or other business interests) to allow the property to be held as a non-independent unit.

Notwithstanding the potential for cross-subsidising the cost of land ownership, the high cost of land (coupled with the high demand for residential opportunities in rural areas) often creates a strong incentive for divestment of parts of farms through subdivision and sale of land.

The driving forces behind change in the rural economy and rural production translate into various environmental impacts, particularly as a result of changes in land use and fragmentation (see rural land use change in Part 3).

# Driving forces

## Resource efficiency and decoupling

The extent to which economic growth drives environmental pressure is also determined by resource efficiency (the amount of resources consumed to produce one dollar of GDP). If the growth rate in resource consumption is lower than the growth rate in GDP, the resource efficiency is improving (and vice versa).

The ratio of resource consumption to GDP is known as resource intensity. Ideally, from both an environmental and economic perspective, resource consumption would be decoupled (made independent) from GDP growth, meaning that an economy would grow but with less strain on the environment than it did in the past.

This section looks at energy intensity, water intensity and waste intensity. In each case, the intensity is an indication of how much of that resource is used (or how much waste is created) for each unit of GDP created.

A similar measure is the per capita consumption (the rate of resource consumption per person).

By looking at both the resource intensity and the per capita resource use over time, it is possible to determine the extent to which consumption is being driven by economic growth compared to population growth.

Figure 6 shows a steadily increasing trend in the amount of energy that is being consumed on an individual basis, within the Auckland region over time. This undoubtedly results from an increasing number of energy-consuming appliances and increased vehicle use. However, the energy intensity of the economy has shown a moderate decline on average over the past decade. This positive sign suggests the Auckland region is managing to increase its GDP without the same increases in energy use that were required in the past. This improvement is probably due to the changing nature of the economy and the fact that recent growth has come from service-related sectors such as property and business services rather than from energy intensive sectors such as heavy manufacturing.

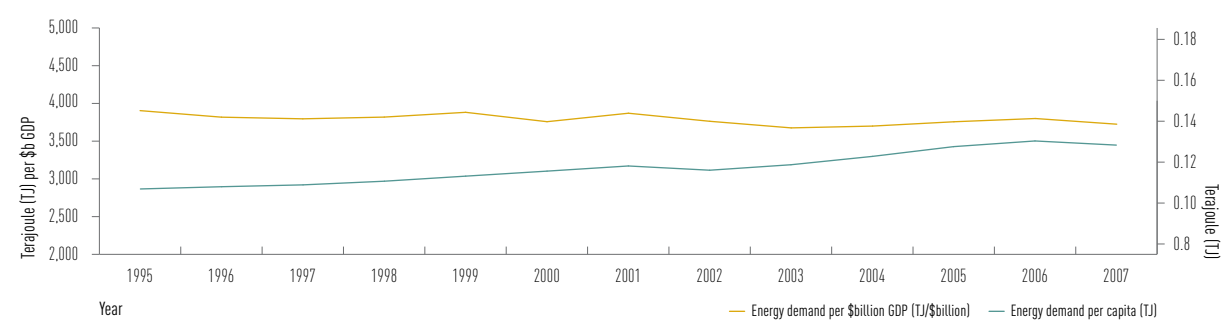


FIGURE 6 Regional energy demand 1995-2007. (Source: Enfocus Ltd., based on data from Market Economics Ltd.).

However, Figure 7 shows that the amount of solid waste produced has not decoupled from economic growth and is, in fact, increasing more quickly than either GDP growth or population growth.

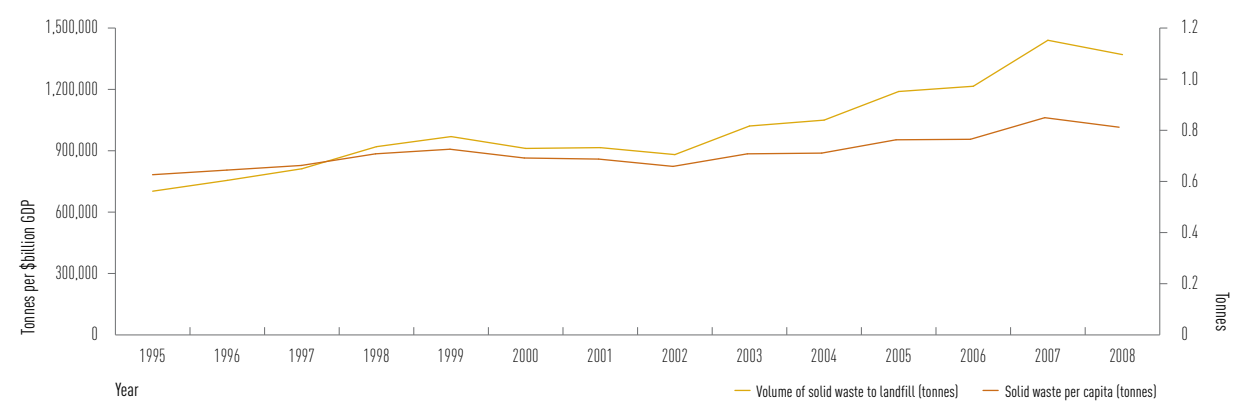
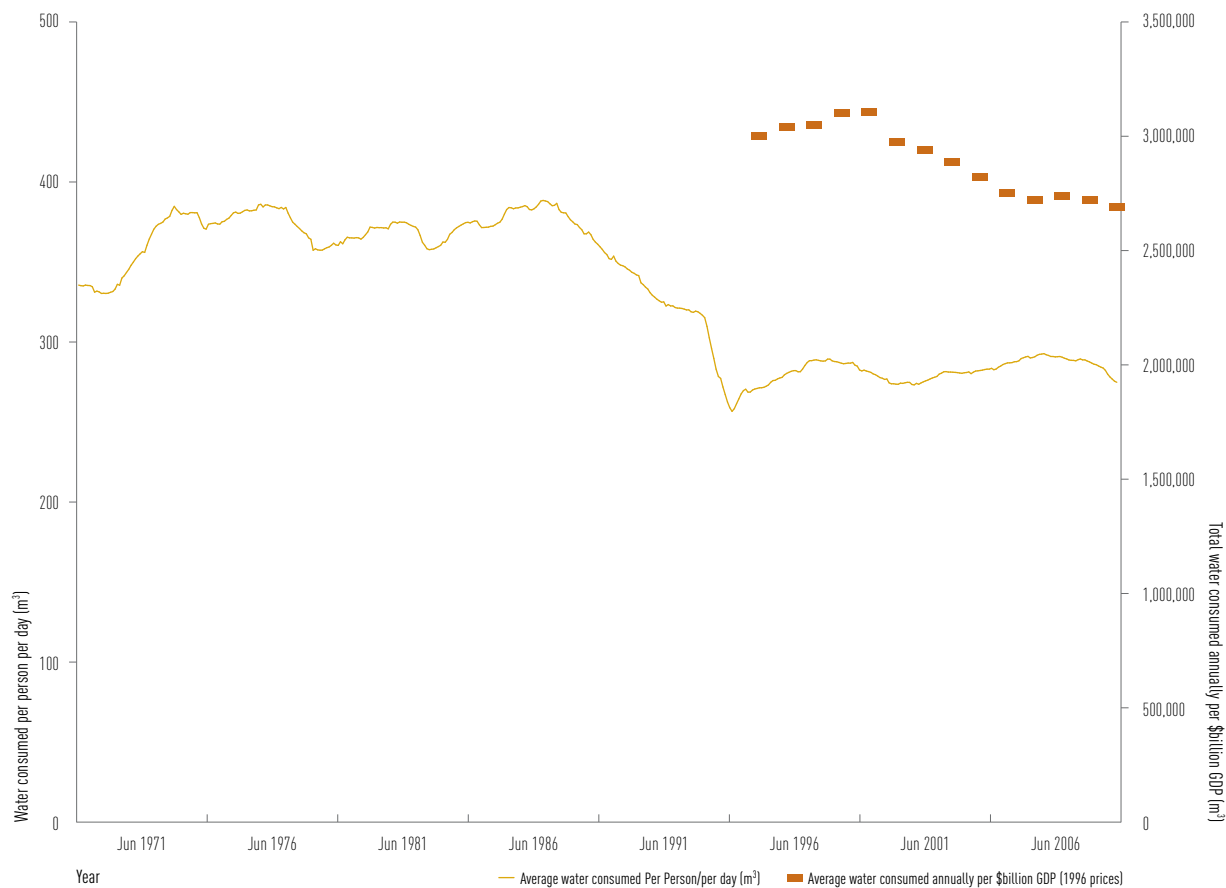


FIGURE 7 Regional solid waste sent to landfill 1995-2008. (Source: Enfocus Ltd., based on data from territorial authorities).

# Driving forces



**FIGURE 8** Average water consumption per capita between 1971-2006. (Source: Enfocus Ltd., based on data from Watercare Services Ltd.).

The trends for bulk water supply are more encouraging. Figure 8 shows that the amount of bulk water consumed on a per person basis dropped significantly during the early 1990s due to drought events, and the introduction of water meters. Since then per person consumption has remained relatively steady at around 300 litres per person per day over the decade to 2008. This means that the reticulated water consumed in the Auckland region has increased at the same rate as the population since the mid 1990s.

Water consumption on a per unit of GDP basis ('water intensity') has also decreased steadily over the past seven years. That decrease reflects a decline in water intensive industries (such as meat works) and a relative increase in low water consuming industries such as retailing and services.

The decline in water consumption per person over the past three years reflects gains made in reducing leaks in the water reticulation infrastructure as a result of investment in leak reduction.

## Consumption and consumerism

In any fast-growing metropolitan area such as Auckland, population and economic growth results in greater overall consumption demands, at the individual, household, business and industry level. For example demand rises for water, energy, fuel, resources and food. In the Auckland region, much of these resources and products are imported into the region from other regions or overseas, and must be distributed, creating even more demand for energy and infrastructure. These goods and products must also be disposed of, creating ongoing demand for waste services.

Further to this, the rise of 'consumerism' in the post-war years has exacerbated general consumption levels – that is, the purchase of goods and services in excess of basic needs, often fuelled by a perception that the acquisition and possession of material goods equates to personal happiness. This perception is driven by advertising and marketing and the availability of mass-produced, affordable goods.

# Driving forces

Within the New Zealand context the underlying drivers of consumerism are diverse but, for the purpose of this report, we have highlighted four:

- high rates of employment
- the wealth effect
- availability of credit
- price reductions in consumer goods and services.

These are discussed briefly below.

## High rates of employment

Auckland has enjoyed relatively high rates of employment during the recent economic boom. Labour force participation was 68.5 per cent at the year end December 2009 (this has contracted with the global economic recession) and employment has been full.

The median annual household income increased from \$47,892 in 2000 to \$65,780 in 2007. This 37 per cent increase in dollar value represents an actual increase of 15 per cent after adjustments for inflation.

## The wealth effect

The 'wealth effect' refers to an increase in spending that accompanies an increase in perceived wealth. This perception encourages people to spend and consume goods and services at greater rates than they would otherwise. In Auckland, as in other parts of New Zealand, this effect has been strongly associated with the over-reliance of investment in housing as a long-term savings and investment strategy.

The recent boom in the Auckland housing market saw house prices double between March 2003 and 2008, rising at a rate of around 20 per cent per year at the peak in late 2003 and early 2004.

## Availability of credit

It is only possible to act on the perception of increased wealth, and to spend and consume goods and services, if people have access to cash or credit facilities.

The Reserve Bank reported in December 2008 that the outstanding total debt of households for the whole of New Zealand had increased more than six times in dollar terms since 1990. As a percentage of households' disposable income, household debt peaked at over 160 per cent early in 2008, nearing three times the level in December 1990.

Increasingly easy access to credit has been noticeable over the past decade and has only been checked recently by the 2008/09 global credit crisis.

Prior to this recent check, banks were offering 100-per-cent-plus mortgages which helped fuel the housing market. This encouraged speculation in both property development and property investment. These factors encouraged increased housing consumption (often in second, holiday or investment property) and increased the amount of land used for residential development (with associated increased pressures on the environment).

The availability of credit also had a more pervasive influence. Many mortgages were allowed to operate as flexible credit

facilities, encouraging people to purchase household goods and other items 'on the mortgage'. New types of financial institutions sprang up to cater for poorer credit risks. Major retail chains encouraged debt-funded consumption by offering cheap in-store credit deals ('buy now, pay later'). Aggressive marketing and social pressure to acquire the latest goods and services were also factors in encouraging high levels of consumption.

## Price reductions

The final driver behind the rise in consumption is the relative decline in the cost of many consumer goods. In New Zealand, this decline can be traced back to the removal or reduction of import restrictions in the late 1980s and early 1990s that opened up the economy.

As a result, many local manufacturing businesses disappeared under competition from overseas manufacturing centres (particularly in Asia) with their economies of scale and lower labour and production costs. This enabled a wide range of much cheaper products to flood into the New Zealand market.

Opening up the economy has, undoubtedly, made a new range of goods affordable for many more households and has provided benefits in terms of enhanced comfort, entertainment, personal satisfaction and well-being. However, this increased level of consumption has also increased pressure on the environment. Notable pressures are the increase in solid waste that requires disposal (as cheaper goods are discarded and replaced more rapidly) and the increase in energy use associated with greater ownership and use of motor vehicles and electrical appliances.

The increased affordability of consumer goods and services has also been driven by major global factors such as technological innovation, new and more efficient business models, the emergence of China as a global manufacturing centre, globalisation and free trade, and the extended period of relatively cheap oil since the mid 1980s (despite a price spike between 2006 and 2008).

## Rate of household consumption

These drivers of consumption combined over the past decade to accelerate the growth in household consumption to such an extent that it overtook the growth rate of New Zealand's GDP in 2005. In other words, the rate at which households increased spending on consumer items exceeded the rate at which the economy grew. This growth in consumption only tailed off in 2009, following the arrival of the global recession in 2008.

Household consumption expenditure data presented by the Ministry for the Environment indicate that spending by the average New Zealander between 1997 and 2008 had risen 47 per cent (after adjustments for inflation). Major growth in spending occurred on household goods (53.7 per cent), clothing and footwear (45.5 per cent), and food and beverages (30.1 per cent). Spending in all categories had risen over the past decade but the sharpest rises occurred since 2002/03 (although there has been modest reduction in the growth rate since 2006).

Table 1 over the page shows that the average household in the Auckland region spends 9 per cent more, each week, on goods and services than the average New Zealand household.

# Driving forces

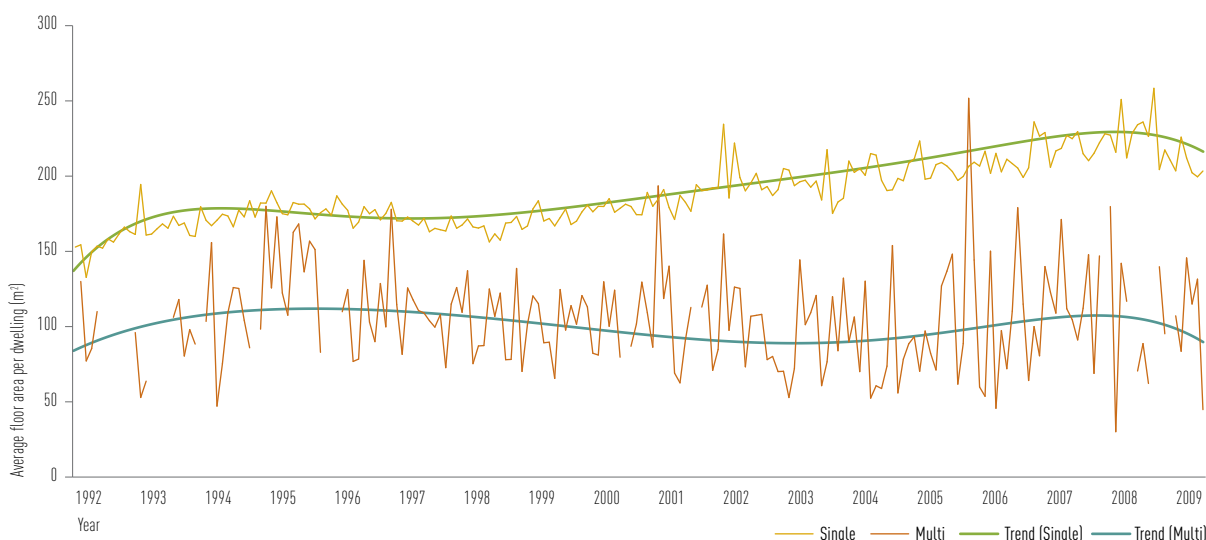
**TABLE 1** Comparison of average weekly household expenditure in Auckland and New Zealand (figures are rounded). (Source: Statistics New Zealand: Household Economic Survey 2007).

| Category                        | All regions \$/2007 | Auckland region \$/2007 | % Auckland region spend exceeds national average |
|---------------------------------|---------------------|-------------------------|--|
| Food and beverages              | 182                 | 202                     | 11   |
| Clothing and footwear           | 33                  | 36                      | 9  |
| Housing and household utilities | 224                 | 247                     | 10   |
| Household goods and services    | 51                  | 51                      | 0  |
| Transport                       | 136                 | 149                     | 9  |
| Communication                   | 31                  | 34                      | 10   |
| Recreation and culture          | 97                  | 95                      | -2   |
| Other goods and services        | 214                 | 241                     | 13   |
| <b>Total net expenditure</b>    | <b>956</b>          | <b>1,046</b>            | <b>9</b>   |

## House size

Another indicator of increasing consumption is the growth in average house size across the Auckland region. Figure 9 shows that the average floor area of single dwellings built in Auckland since 1992 has grown steadily from about 140m<sup>2</sup> in 1991 to a peak of 220m<sup>2</sup> in 2006.

In contrast, the size of multi-unit dwellings has not increased on average (and actually decreased for a period) but these type of dwellings made up less than a third of new dwellings built over this period and are a relatively minor proportion of new housing.



**FIGURE 9** Changes in the floor area of single dwellings and multi-unit dwellings in the Auckland region 1992-2009. Gaps in the multi-unit dwelling data show periods when no consents were issued. (Source: ARC, based on data from Statistics New Zealand: Building Consents).

## Mobility

The level of car ownership has increased across the Auckland region, with 17 per cent of households now having three or more vehicles compared to 14 per cent just five years earlier. In addition, vehicle engine sizes and fuel consumption are both trending upwards (see Indicator 18 and Transport in Part 3).

We are also driving more. In 2007 the average Auckland resident drove an extra 275km a year compared to 2000. This increased driving distance was additional to a higher general use of public transport.

## Conclusion

The Auckland region has recently experienced a period of high population growth, high employment, a strong economy and a booming housing market. Although rates of growth have slowed in the last 12 months as a result of the global economic crisis, the region continues to be a magnet for residents, migrants, tourists and business, all of which continue to drive environmental impacts and pressures, as will be discussed in the next section.

Many of these impacts and pressures are related directly to land use, housing development and transportation. They arise from the need to develop, maintain and extend the transport infrastructure (roads, rail, sea ports and airports) and include the associated exposure to new pest species arriving as a result of overseas trade and tourism.

Auckland's continued role as the country's dominant manufacturing base, particularly for high value goods, also has a range of environmental impacts associated with the production and disposal of liquid, gaseous and solid wastes (including hazardous waste) although these pressures are small by international standards.

Trends in population growth, and in the urban and rural economies are driving environmental changes. For example the drive to increase productivity often means an increase in farm inputs (e.g. fertiliser and irrigation). Diversification into more intensive, higher value production creates similar environmental pressures, often in the form of increased discharges of contaminants to land, air and water. The alternative – allowing subdivision and development of rural land – can have its own impacts and can reinforce and amplify the causal problems of the high costs of land ownership.

## How the ARC recognises the driving forces

### Auckland Sustainability Framework

The Auckland Sustainability Framework (ASF) was developed in 2007, a collaborative venture led by the ARC but involving all the region's councils, government agencies, mana whenua and academic, business and community sectors.

Acknowledging the forces driving change in our environment, the ASF sets out a long-term (100 year) vision, eight goals and eight acknowledged "shifts" (from the way we have been doing things) that need to be made to promote the sustainable development of the region. The framework sits above, guides and integrates all other policies for the region. It is aimed at ensuring all the region's agencies and change agents see – and hopefully share – a common goal that serves as a touchstone for the development and implementation of their various individual strategies and plans.

The five key challenges identified are:

- the need to respond to climate change
- the need to do more with less (reducing consumption and resource use)
- capitalising on global economic change
- managing population growth and demographic change
- addressing social disadvantage.

The goals focus on economic, social and environmental matters including the desire for a unique and outstanding environment but, consistent with the notion of sustainability, environmental considerations are woven throughout all goals. Emphasis is placed on social dimensions and sustainable economic development in the belief that these dimensions are interdependent with environmental quality.

From a purely environmental perspective the ASF emphasises reducing our ecological footprint, building a carbon neutral future and creating prosperity based on sustainable practices. Ten priority "strategic responses" are identified including building a compact urban form, integrating public transport and land-use, developing an emissions free transport system and implementing sustainable building methods.

The ASF has no legal status but all the region's councils supported its development and support its implementation which is to be assisted by the Regional Sustainable Development Forum (a committee of the ARC with representatives from the region's councils and central government) and demonstrated through One Plan (pg 86). In addition, an ASF Tool Kit has been developed to help guide other organisations to apply the framework to their projects.

The ASF contains a range of indicators to gauge how successful implementation is across each of the eight goals. The ARC published a headline indicator report in 2008.

# Driving forces



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## References and further reading

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