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Section 1: Introduction

Wellington is a small city on the periphery of the global economy, seeking to transition to industries based on knowledge and innovation. It has experienced some important successes in this transition with the growth of the ICT and film industries. Wellington is also the capital city of New Zealand, the location of many of the country's national institutions and a concentration of its public sector employees. The dominance of the public sector in the capital's economy has cushioned the city from the worst in periods of economic slowdown, but also softened the upside when the country's economy is growing strongly.

Between 2001 and 2004 the city is estimated to have added more than 3500 people per year to its population[1]. These are historically high levels of population growth and have placed new pressure on many parts of the city through infill housing in established suburbs, and in the Central Area where significant numbers of new apartments have been built. Unease is being expressed by some people at the impacts on amenity and sense of place from this accelerated pace of change.

Wellington's current growth and change is being shaped by the City's existing strategic documents. In some cases these do not explicitly articulate a vision for the future form of the City, rather they function as a de facto vision for the City. Many were prepared in a period when growth was slower, and did not anticipate the accelerated levels of change that are currently occurring.

Although it is unlikely that the annual growth rates experienced over the last 3 years will continue indefinitely, projections do indicate continuing growth in population for the City[2]. This will need to be accommodated in appropriate places, ensuring that infrastructure and transportation systems can meet the needs of communities and businesses, that the essential character and quality of place of the City is not significantly compromised and that social needs and issues are adequately addressed.

To manage the growth of the city, the draft Urban Development Strategy will provide a high level plan for the physical form of the city over the next 30 years. It will inform, influence and feed into other implementation focused documents such as the District Plan, Asset Management Plans and capital expenditure programmes across Council. It will be informed by the Wellington Regional Strategy and also identify areas where partnering with central government, key stakeholders and regional government partners is required.

[1] Estimated resident population change 2001 – 2004 as at 30 June. Statistics New Zealand, Wellington Quarterly Review.

[2] Statistics New Zealand, Wellington Quarterly Review, September 2004. MERA, Demographic trends indicative population and househould type projection scenarios, Wellington Regional Strategy, December 2004.

This document is part of the first stage in the process of developing a draft Urban Development Strategy. It presents a city profile and a stocktake of current city policy. The city profile and stocktake provide a snapshot of Wellington in 2004, providing a state of the city assessment from an explicitly "urban form" perspective. Where possible this is presented graphically in a series of maps, with accompanying narrative, covering the various layers of the urban form – natural environment, hazards and constraints, built environment, transport, population, economy, social infrastructure, infrastructure and sense of place values.

Key strategy and policy documents are also identified, their status noted and relevant objectives and provisions included. A SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis is undertaken for each resource area which helps identify some of the major issues for the city as it grows.

The Urban Development Strategy is expected to be completed by June 2006 and will invite various forms of public input. For more information on this project contact the Forward Planning Team at the Council, or look at the Council's website: www.Wellington.govt.nz

Section 2: Current Urban Strategy

Wellington's existing Long Term Council Community Plan contains five outcome statements relating to the Built Environment, and associated roles and activities. The outcomes are:

1. Liveable City – A great place to live and offers a variety of places to live, work and play within a high quality public environment.
2. Network City – Easy to get around, pedestrian friendly and has a high quality interconnected street system.
3. Memorable City – A memorable, beautiful city, celebrating its distinctive landmarks, defining features and heritage.
4. Compact City – A compact city with mixed land-use, structured around a vibrant city and suburban centres, and connected by major transport corridors.
5. Beautiful City – Wellington's form reflects the unique character and beauty of the harbour and hills.

Council's roles in achieving these outcomes are as a facilitator, service provider and regulator. Details of these are contained in the Built Environment Strategy Tree in the Annual Plan 2004/05.

Wellington City's key planning and strategic documents articulate a vision of a growing city contained within the existing urban footprint and intensifying across all neighbourhoods. They also focus the city on economic transformation - to an increasingly knowledge and innovation based economy. The documents assume modest population growth.

Key spatial elements of Wellington's existing strategy (implicit or explicit) are:

- A focus on containing the peripheral growth of the city,
- Maintaining a uni-nodal city, where the central area is the only intensively developed area supported by town-centres and neighbourhood centres,
- Growing public transport's modal share, while also avoiding congestion on roads,
- Enhancing the quality of the built environment through good urban design, heritage and character protection.
- Permissive approach to land use in the central area and suburban centres, and a restrictive approach elsewhere,

These elements are reflected in a number of existing strategic documents.

Containing the City

Wellington City Council operates a policy of containment within the existing urban footprint. This is reinforced by the provisions of all of the key high level strategy documents adopted by the City, including the District Plan, Transport Strategy, Capital Spaces and the Sense of Place study.

A. The District Plan

Relevant key objectives of the District Plan are to:

- Generally contain residential development within the established edges of the city (Policy 4.2.1.1):

The Outer Green Belt and other open or rural areas effectively establish clear edges to the city. The Council believes that the continual expansion of the city beyond these edges does not support sustainable management except where it builds on existing communities. So that the city remains compact, the District Plan rules promote more intensive building development. This will help reduce transport distances, make public transport more viable and result in better use of existing infrastructure. (The Northern Growth Area, although an exception to this at the city level, can be considered consolidation within the existing urban boundaries from a regional perspective.)

- Encourage more intensive development within existing residential areas (Policy 4.2.1.3)

To help contain urban development within the city's edges, the District Plan encourages subdivision and development of existing sites (known as infill subdivision or development) in the Residential Area. The District Plan seeks to manage infill to maintain the general character and amenity of such areas.

B. Transport Strategy

The relevant objective of the Transport Strategy is, to achieve:

- A stronger linkage between urban form and the transport needed to support it (principle in Transport Strategy 2004):

The Strategy seeks to support a compact urban form and "smart growth", which it defines as planned growth resulting in communities that function well, are easy to get around and enjoyable to live in. Future development is to be focused around transport nodes and along corridors, close to urban and suburban facilities where possible. The strategy also supports inner city living so as to minimise the need for additional transport infrastructure investment.

C. Capital Spaces

The relevant guiding principle from Capital Spaces is:

1. Council believes that open space is a key part of managing the city's urban form by containing the built environment and interweaving the natural with the built environment. (principle in Capital Spaces – Open Space Strategy for Wellington 1998)

The document goes on to say that "the central city and outlying suburbs have a natural tendency towards containment because of Wellington's topography. The containment helps to make the city more accessible and accentuates the identity of Wellington. Containment should be exploited where appropriate to strengthen the city experience, intensifying the inner city and restricting the sprawl of the suburbs. Containing the built environment helps to balance the natural environment which surrounds it, and enhances the features which make Wellington unique."

D. Sense of Place Study

The purpose of considering sense of place is to preserve, protect or enhance the things that make Wellington special. The Sense of Place Study provides a set of guidelines that include ten key characteristics that should not be compromised as Wellington grows. One of these characteristics relates to continuing the Council policy of containment.

2. The compact and integrated urban layout (from Wellington's Sense of Place report 2003)

A Uni-Nodal City

Wellington City's current strategic documents also articulate a de facto vision of a predominantly uni-nodal city, where the Central Area is the only intensively developed area. Although there is a programme of capital expenditure in town centres, this is more about supporting existing communities than seriously modifying the uni-nodal nature of the city. The importance of maintaining the dominance and vibrancy of the Central Area is reinforced in the District Plan, Sense of Place Study and Urban Design Strategy.

A. District Plan

The relevant key objective of the District Plan that focuses on a uni-nodal city is:

- Contain development within the Central Area (Policy 12.2.1.1)

The central city is physically contained in a natural amphitheatre between the hills and the inner harbour, making the Central Area compact, accessible and intensely 'urban'. Consistent with its sustainable management objectives, the Council aims to contain the Central Area within a defined boundary.

B. Sense of Place Study

Again the Sense of Place Study identifies key characteristics that should not be compromised as Wellington grows. The characteristic that relates to protecting and enhancing the central area is:

- The pivotal role – and diverse, vibrant character and pulse – of the central city

C. Urban Design Strategy (1994)

The conceptual basis for the Urban Design Strategy includes four principles. One of these principles is particularly relevant to the city's uni-nodal vision

- Centrality - The centre of a city involves the geographical concentration of its principal public and private institutions, its service infrastructure, its economy and its social life. It is often a major destination, or a point of arrival for visitors to the city, and is usually well connected to its wider setting of suburbs and hinterland. The idea and experience of the centre has particular potency as it is shared, in varying degree, by all of a city's inhabitants. It has the capacity to draw together and represent a city's public life in some of its most populous and intense forms. The physical location of a city centre may shift from time to time, although these shifts are usually ones of focus within a stable area, rather than a complete relocation of the centre from one part of the city to another. As such, a city centre is often imbued with some tangible evidence of the city's origins, and its historical development. While the idea and reality of the centre is particularly important for the city as a whole, there are also equally important local versions of centre attached to each of its districts and suburban areas. City centres are very vulnerable to change - physical, social and economic. The strength and clarity of a city's centre remains a tangible measure of its health. The appearance and use of its public environment has a major part to play in the quality of this self image, and requires the development of carefully conceived policies of management and physical improvement. Wellington's central area involves all of these issues in a particularly concentrated form - both physically, and by virtue of its role as the nation's capital. For these reasons the strategy concentrates on Wellington's central area, and that of one of its suburbs. It considers the connections between the centre and its outlying areas, and between it and the outside world. Both concentrations on "centre" have similar intent - the definition of the centre as a place shared by a great many people, the quality of its public environment, and the opportunities for intervention to improve or enhance those qualities for its users. (Urban Development Strategy 1994)

Supporting Public Transport and Avoiding Congestion

Provisions of Wellington's strategic documents relating to transport are focused on integrating transport and urban form. This involves ensuring that the built form supports and encourages the use of public transport, while also recognising the need for transport choice, and avoiding road congestion. Relevant

documents that articulate the city's transport vision include the District Plan, the Transport Strategy and Sense of Place Study.

A. The District Plan

Relevant key objectives of the District Plan are to:

- Generally contain residential development within the established edges of the city (Policy 4.2.1.1):

The Council believes that the continual expansion of the city beyond existing edges does not support sustainable management except where it builds on existing communities. District Plan rules promote more intensive building development to help reduce transport distances and make public transport more viable.

- Encourage a greater mix of uses within residential areas (Policy 4.2.1.2)

The character of Wellington's residential areas owes much to the many non-residential activities and community services that take place within. The District Plan encourages a diverse mix of activities, providing they are appropriately located and compatible with residential amenity. It particularly encourages people wishing to work from home, as this is a way to reduce travel and save energy. In the Plan, working from home is a Permitted Activity.

B. Transport Strategy

The City has developed a Transport Strategy that was adopted by Council in June 2004. The Council's vision for transport is:

- A transport system that enhances the city's vision and long-term sustainability.

The principles of the strategy are that transport should be integrated, accessible, efficient, affordable, safe and sustainable.

The most important objectives of the Transport Strategy as they relate to public transport and congestion are (objectives from Transport Strategy 2004):

- A stronger linkage between urban form and the transport needed to support it.
- Commitment to the Inner City Bypass as a key project that will reduce traffic pressure on the CBD an improve access to the Hospital and Airport.
- Greater emphasis on improved public transport along the spine of the CBD.
- Contributing to a modal shift away from the private car in order to improve the overall efficiency of the transport system in the city.

C. Sense of Place Study

The Sense of Place Study identifies key characteristics that should not be compromised as Wellington grows. The characteristic that supports good transport options is:

- Good accessibility, including public transport use and easy walking within and between parts of the city (from Wellington's Sense of Place report 2003)

Enhancing the Quality of the Built Environment

There is a commitment in Wellington's strategic documents to enhancing the quality of the built environment, particularly in the central area, where public space and the public-private interface are a strong focus. Relevant documents that articulate the city's vision for urban quality include the District Plan, Sense of Place Report and the Urban Development Strategy and its more recent version the Central City Public Space Plan.

A. The District Plan

There are a large number of relevant objectives:

Residential Areas of the city:

- Maintain a high standard of residential amenity (Policy 4.2.2)
- Protect and enhance character areas (Policy 4.2.3.2)
- Improve the quality of multi-unit development (Policy 4.2.3.3)
- Improve the quality of subdivision design and development (Policy 4.2.4)

The Central Area of the city:

- Apply special controls at the boundaries with residential areas (Policy 12.2.2)
- Improve the quality of new developments through design controls (Policy 12.2.3.2)
- Protect and enhance character areas through design guides (Policy12.2.3.3)
- Protect and enhance features which contribute to the public environment (Policy 12.2.3)

The Suburban Centres of the city:

- Manage the adverse effects of activities, especially at the interface with residential areas (Policy 6.2.2)
- Protect and enhance suburban centres with special character (Policy 6.2.3)

Institutional Precincts:

- Use design controls to better integrate new development with residential areas (Policy 8.2.3)

Heritage:

- Protect heritage values of buildings, areas, objects and trees (Section 20)

B. Sense of Place Study

Again the Sense of Place Study identifies key characteristics that should not be compromised as Wellington grows. The characteristics that relate to enhancing the quality of the built environment are:

- The high quality and diversity of public spaces, including the prominent streets, parks and squares
- The distinct character of communities, neighbourhoods, urban quarters and suburban centres – their people and buildings – and the city's confident, unpretentious personality
- The symbols, images, places and buildings that identify the people and places of Te Whanganui-a Tara and Wellington, and tell their history. (from Wellington's Sense of Place report 2003)

C. Urban Design Strategy (1994) and Central City Public Space Plan

The Urban Design Strategy was prepared in 1994 to help give effect to the Council's Strategic Plan of the time, which included priorities around:

- Improving the design and appearance of new buildings,
- Preserving important parts of the City's heritage,
- Enhancing the vibrancy and diversity of Wellington's character and setting, and
- Integrating public and private spaces and enhance peoples' use and enjoyment of the city.
  The more recent draft Central City Public Space Plan updates these same ideas and focuses on the central city.

Flexible Approach to Land Use Planning

In the central area and suburban centres there is a flexible, permissive approach to land use planning, with a focus on managing adverse effects of activities and not the activities themselves. In other parts of the city – residential and rural areas - there is a more traditional approach that constrains land use options in these areas. The relevant documents are the District Plan and Sense of Place Report.

A. The District Plan

There are a number of relevant key objectives:

The Central Area of the city:

- Encourage a wide range of activities within the Central Area by allowing most uses and activities (Policy 12.2.1.2)

The Suburban Centres of the city:

- Encourage a wide range of activities by allowing most uses and activities within a Suburban Centre (Policy 6.2.1.2)

B. Sense of Place Study

Again the Sense of Place Study identifies key characteristics that should not be compromised as Wellington grows. The characteristics that relate to wide mix of activities are:

- The pivotal role – and diverse, vibrant character and pulse – of the central city (from Wellington's Sense of Place report 2003)

Section 3: City Profile and Policy Stocktake

3.1 Wellington's People and Housing

Highlights:

- Estimated resident population growth in recent years has been high – equating to more than 3,500 people per year over the last three years (171,100 in 2001 to 182,600 in 2004). [3]
- Latest medium series population projections from Statistics NZ suggest that Wellington's population is expected to grow by approximately 33,400 between 2001 and 2026. [4]
- Ageing population, but higher percentage of working age adults than NZ average.
- Wellington City is most ethnically diverse area in the region. Predominant but declining NZ European population, growing Maori, Pacific Islands and Asian populations.
- Gradual decline in average household size – currently 2.55 people per household, set to decline to approximately 2.4 by 2021.
- According to medium projections, approximately 17,000 additional households will be required in Wellington City between 2001 and 2026. [5]

Historic Population Change

Anchoring a region of approximately 457,000 people, Wellington City had an estimated usually resident population of 182,600 in June 2004. This followed a number of years of higher than average population growth for the city due to increased immigration and inter-regional migration into the city. Estimated growth for the year June 2003 to June 2004 was 3,600 or 2.0%, a decline from the previous year's estimated population gain of 4,500, but still well above historical levels of growth. This period of higher than average growth is likely to be a short term anomaly that should not be taken as a signal of a long term trend. [6]

Total estimated population increase for the year to December 2004 is not yet available from Statistics New Zealand, but the following data is available:

[3] Base from which estimates are derived is 2001 Census but includes adjustments for NZ residents temporarily overseas and residents 'missed' by the Census – equates to an additional 7,276 residents in 2001. Projections are medium series. Statistics New Zealand, *Wellington Quarterly Review, September 2004*.

[4] Sub-national Population Projections, Statistics NZ, Februrary 2005.

[5] MERA Population and Household Type Projections Update, Wellington Regional Strategy, March 2005.

6 Two drivers behind recent population growth: surge in net migration post September 11 effect, and a strengthening Wellington labour market, *MERA, Demographic trends, indicative population and household type projection scenarios*, Wellington Regional Strategy, December 2004

Table: Wellington City Population Data for year ended September 2004

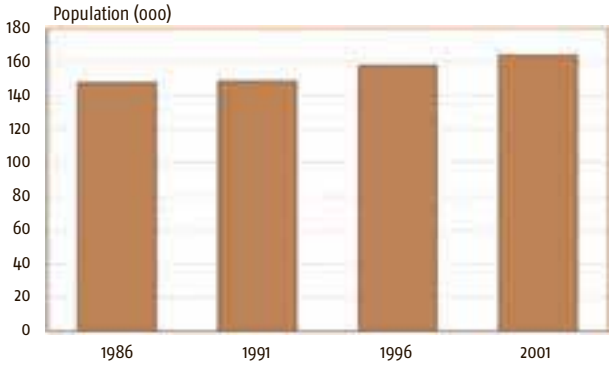
	Total Number of People
Permanent and Long-term Arrivals	+4685
Permanent and Long-term Departures	-3596
Births	+2498
Deaths	-880
Population Increase (excluding internal migration)	+2707

Source: Statistics New Zealand, Wellington Quarterly Review, September 2004

This data does not include inter-regional migration into and out of Wellington from other parts of the country. Given the growth of the government sector over the last few years this could be a significant contributor to an increase in population.

The last accurate count of population occurred in the March 2001 Census, where population was recorded as 163,824. This was an increase of 6,105, or 3.9% over the 5 years since the 1996 census. This rate of growth was higher than the national average of 3.3% but considerably lower than growth experienced in Auckland (6.4%), Kapiti (10%) or Manukau (11.4%). More recent growth rates for the City show annual increases of 0.53% at June 2000, 0.76% at June 2001, and 2.05% at June 2002 and 2.6% at June 2003 and 2.0% at June 2004. Census population counts for the last 18 years are shown on the following graph. [7]

Census Usually Resident Population Count - Wellington



Source: Statistics New Zealand, Wellington Quarterly Review, September 2004

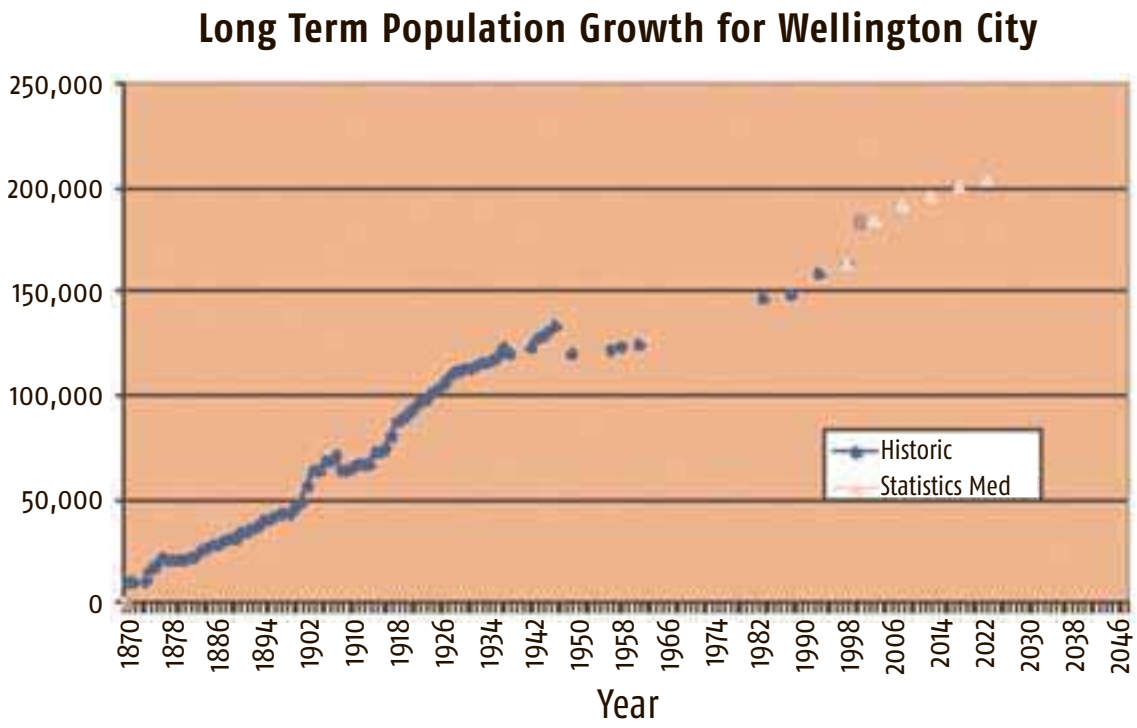
[7] Statistics New Zealand, *Wellington Quarterly Review*, September 2004

Population Projections

Latest long term population projections suggest a healthy rate of population growth for the city.

Under the medium series projections produced by Statistics NZ in February 2005, the estimated population of Wellington City is expected to grow by 19% between 2001 and 2026.[8] This represents an increase of approximately 33,400 people over this period which is considerably higher than the earlier projection produced by Statistics NZ in 2002. Rises in the fertility rate and expected higher rates of net migration are the main factors behind the more recent higher projections.

The following graph places the Statistics NZ projections in the context of historic population changes.



Source: Historic Population, Wellington City Archives, Sub-national Population Projections, Statistics NZ, February 2005.

[8] Subnatural Population Projections, Statistics New Zealand, February 2005.

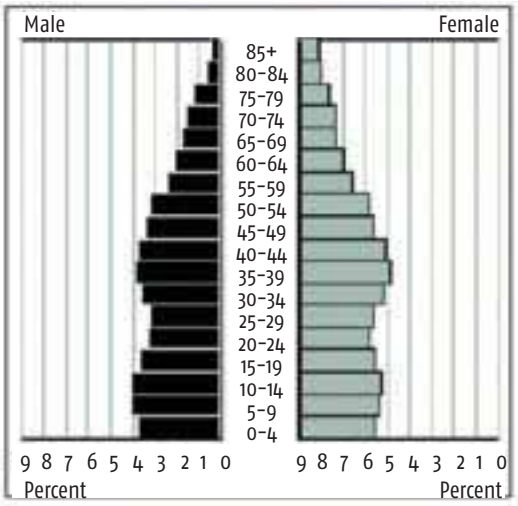
Population Density

Wellington's topography and development policies have encouraged a relatively intensive urban footprint, when compared to other New Zealand cities. The inner ring of suburbs from Thorndon through Mt Cook to Mt Victoria and Oriental Bay are the most intensively settled areas of the city, illustrated on the following Population per Hectare map in yellow and pink. Other higher than average areas of population density are found in Newtown and Kilbirnie and Hataitai.

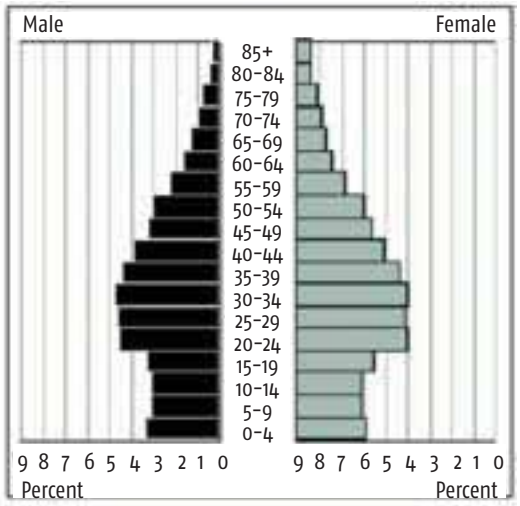
Age Profile

The median age of Wellington City's population has increased from 29.1 in 1981 to 32 in 2001. Wellington's age profile differs markedly from the New Zealand average. Wellington has a high proportion of working population , aged 15 to 54 (65 percent compared to NZ average of 53 percent) In the 2001 Census more than 28% of the city's population was in the 20-34 age group compared with 20.5% for the country as a whole. 18.5% of people were aged under 15 (22.7% for all of New Zealand) and only 8.6% of people were aged 65 and over compared with 12.1% for all of New Zealand. [9]

New Zealand Age – Sex Structure 2001



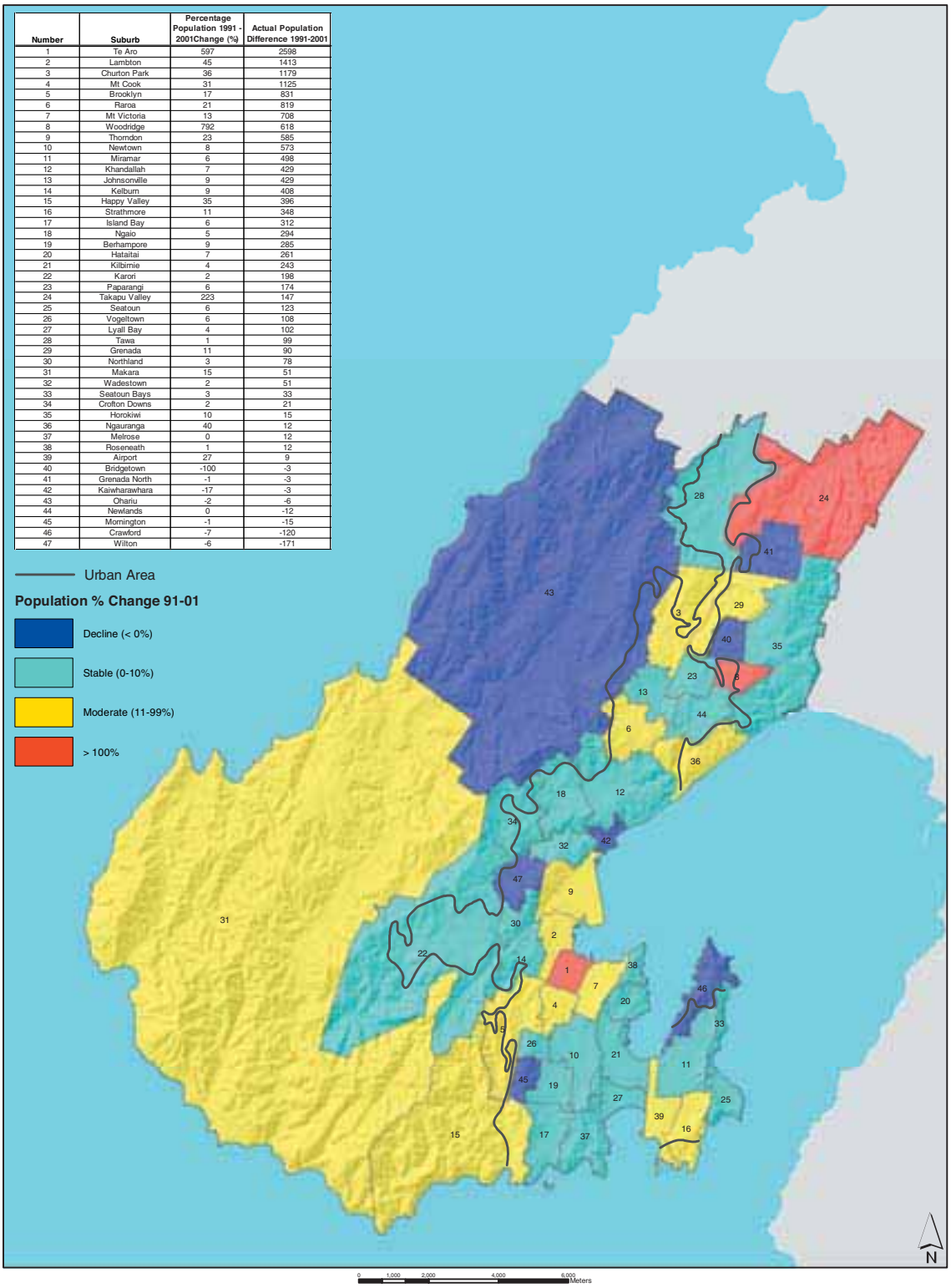
Wellington City Age – Sex Structure 2001



Source: 2001 Census: Wellington City Profile

[9] *2001 Census: Wellington City Profile*, prepared by the Policy and Planning, Performance and Research Group of Wellington City Council using Statistics New Zealand Census 2001 data.

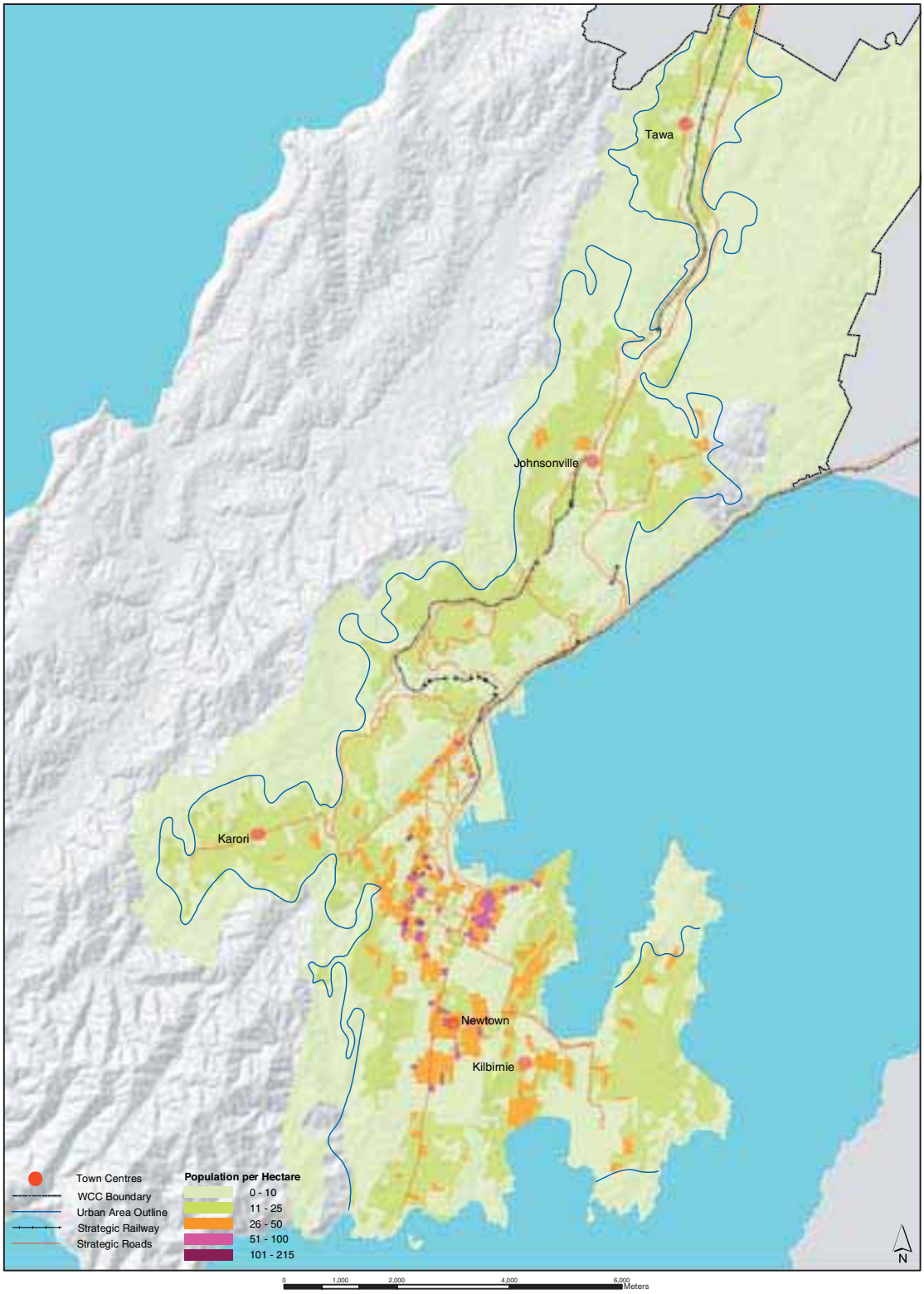
Number	Suburb	Percentage Population 1991 - 2001Change (%)	Actual Population Difference 1991-2001
1	Te Aro	597	2598
2	Lambton	45	1413
3	Churton Park	36	1179
4	Mt Cook	31	1125
5	Brooklyn	17	831
6	Raroa	21	819
7	Mt Victoria	13	708
8	Woodridge	792	618
9	Thorndon	23	585
10	Newtown	8	573
11	Miramar	6	498
12	Khandallah	7	429
13	Johnsonville	9	429
14	Kelburn	9	408
15	Happy Valley	35	396
16	Strathmore	11	348
17	Island Bay	6	312
18	Ngaio	5	294
19	Berhampore	9	285
20	Hataitai	7	261
21	Kilbirnie	4	243
22	Karori	2	198
23	Paparangi	6	174
24	Takapu Valley	223	147
25	Seatoun	6	123
26	Vogeltown	6	108
27	Lyall Bay	4	102
28	Tawa	1	99
29	Grenada	11	90
30	Northland	3	78
31	Makara	15	51
32	Wadestown	2	51
33	Seatoun Bays	3	33
34	Crofton Downs	2	21
35	Horokiwi	10	15
36	Ngauranga	40	12
37	Melrose	0	12
38	Roseneath	1	12
39	Airport	27	9
40	Bridgetown	-100	-3
41	Grenada North	-1	-3
42	Kaiwharawhara	-17	-3
43	Ohariu	-2	-6
44	Newlands	0	-12
45	Mornington	-1	-15
46	Crawford	-7	-120
47	Wilton	-6	-171



1:135,000

Population % Change 1991-2001

(Census data used:1991 & 2001 census of population and dwellings, census usually resident population count, sex:total.)



1:85,000

Population per Hectare

(Census data used: 2001 census of population and dwellings, census usually resident population count, sex:total.)

At the time of the 2001 census there had however been a decrease in the percentage of people aged between 20-34 years from 31.0% to 28.8%. At the same time there was an increase during this period in the percentage of people aged 35-49 years (22.6% to 23.5%) and 50-64 years (12.2% to 13.8%). [10]

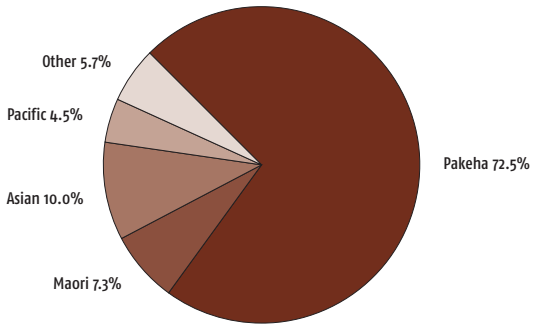
In addition to an ageing population, Wellington will also need to consider the long term effects of 'baby boomer' generation (peak just under 40 in 2001) which is expected to reach retirement age in around 2021. The 'baby boomer bubble' (peak at 10 in 2001) evident in the above left table is not so evident in the current age profile for Wellington.

Ethnicity

Changes in self-definition of ethnic origin, especially between 1991 and 1996, make it difficult to track recent changes in ethnic composition of the population.

Ignoring the effect of this discontinuity, it appears Wellington is slowly becoming more ethnically diverse, with the percentage of the population that identify as Pakeha declining between 1996 to 2001 from 73.8% to 72.5%. Wellington has a lower percentage of Maori in the population (7.3%) than the national average (14.1%). There is a higher percentage of Asian people 10.0% and a lower percentage of Pacific people (4.5%) than the national averages (6.1% Asian and 5.4% Pacific). [11]

Wellington Ethnicity – 2001 Census



[10] *2001 Census: Wellington City Profile*, prepared by the Policy and Planning, Performance and Research Group of Wellington City Council using Statistics New Zealand Census 2001 data.

[11] *2001 Census: Wellington City Profile*.

Households & Household Size

The number of households in Wellington City has increased in the last decade by 6,327 (55,482 in 1991, 58,713 in 1996 and 61,809 in 2001).[12] One family households are still the most common form of household at 61 percent, but proportionally lower than the rest of New Zealand. This corresponds to the higher proportion of one person and multi-person households found in Wellington. [13]

Average household size for Wellington City is decreasing in line with the national trends. The historical mean occupied private [14] household size for Wellington City has changed from 2.72 in 1981 to 2.55 in 2001. This is expected to be 2.42 in 2021.

Declining household size plus an increasing population necessitates an increase in the number of buildings available to accommodate everybody. Under latest medium projections approximately 17,000 additional households will be required in Wellington City between 2001 and 2026.[15]

Housing Changes

In June 2001 there were 62,733 occupied dwellings in Wellington City. Current housing composition is approximately two thirds stand alone dwellings and one third terrace/unit or apartment dwellings. [16]

New houses entering the market over the last few years have been approximately one third stand alone dwellings and two thirds terraces/units or apartments. This trend is a reflection of both the decreasing availability of land (especially larger parcels of land) and the growing demand for smaller affordable housing, and more generally, an increasing acceptance of this form of housing. The locations of new dwellings entering the Wellington market have been spread across the city. However, a large proportion of new dwellings have been in the Central Area – reflecting the popularity of apartments, terrace and units. As would be expected, new stand alone dwellings tend to be located in the fringe suburban areas (reflecting the scarcity of larger parcels of land in the more central areas.) [17]

[12] Statistics New Zealand, 1991, 1996 and 2001 Census.

[13] *2001 Census: Wellington City Profile*.

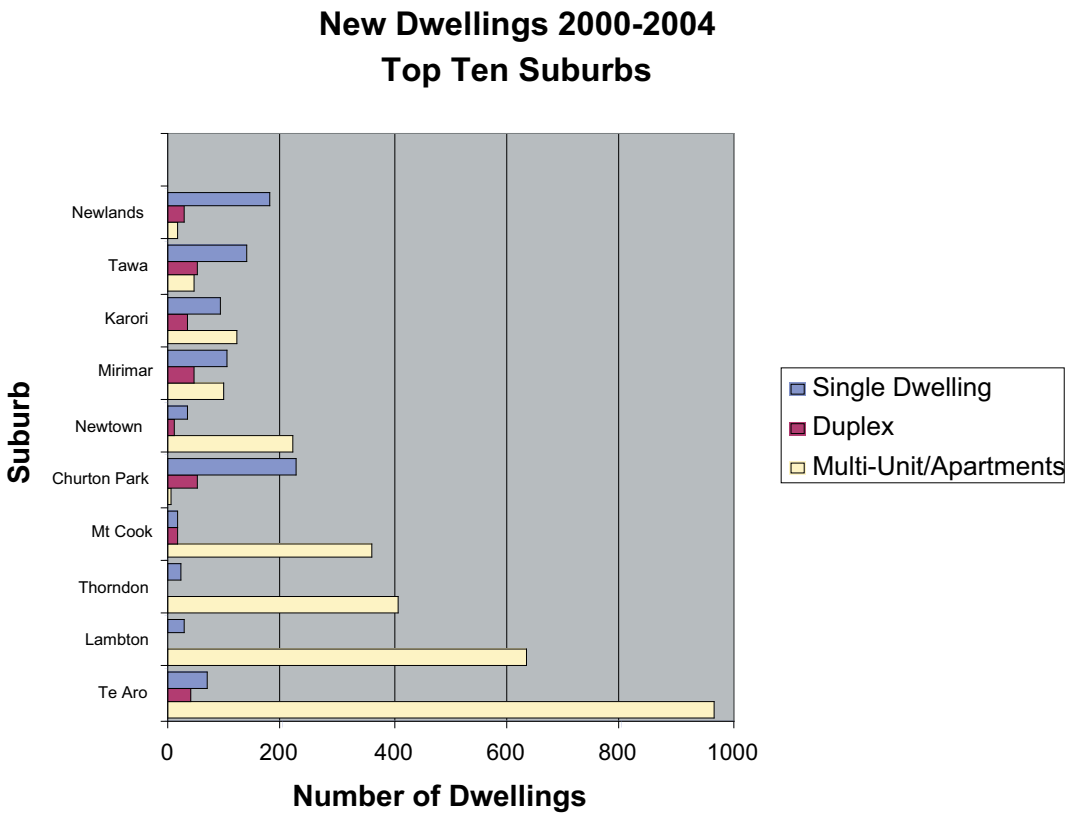
[14] As opposed to public and private which is the basis for national comparisons quoted earlier.

[15] MERA, *Demographic trends, indicative population and household type projection scenarios*, Wellington Regional Strategy, December 2004.

[16] *2001 Census: Wellington City Profile*.

[17] MERA, *Demographic trends, indicative population and household type projection scenarios*, Wellington Regional Strategy, December 2004.

These trends are illustrated in the following graph showing the suburbs that have had the greatest number of new dwellings constructed, either stand alone dwellings, duplex dwellings or unit/apartment developments.



Source: Wellington City Council Building Consent data 2000-2004

Some specific data that further illustrates changes in housing types includes:

- In 2002, 40 percent of all new dwellings were for apartments – second only to Auckland with 53 percent. The majority of these are located in the Central Area.[18]
- In 2003, 925 out of a total of 1269 new dwellings were units. This represents a very high rate (73%) of urban housing intensification when compared to other cities. [19]
- By December 2003 there were approximately 4450 apartments in the CBD, an increase of 1000 units during 2003.[20]

[18] *Quality of Life in New Zealand's Eight Largest Cities 2003*, p 76

[19] Wellington City Council Building Consent data 2003.

[20] Projected figures from Bayleys Research: Residential, 2003.

Strengths	Weaknesses
• Growing population • Higher proportion of working age population than NZ • Increasingly multi-ethnic population, (with potential for business linkages to other countries)	• Recent higher than average growth not an indication of a longer term trend – low population growth is most likely future scenario • No policy on sustainable or desired population growth for Wellington
Opportunities	**Threats**
• Seek greater proportion of new immigrants to settle in Wellington • As significant provider of housing Council can influence provision of housing directly to respond to demographic change, if appropriate	• Declining population and the ability to finance infrastructure and maintain regional and city quality of life • Transient nature of parts of population, who lack long-term commitment to the city.

3.2 Natural Environment

Open space sharply defines the urban boundaries of Wellington. Threaded through the urban environment are corridors and ridgelines of protected open space that contribute to the city's distinctive sense of place. The Central Area's major open space is around the Waterfront. Unlike other cities established in the same period the Central Area possesses few formal squares and spaces.

Wellington's natural and physical environment dramatically frames the city. The natural cover of the city has been radically modified since the establishment of Wellington with the replacement of most of the original vegetation of the area. Bush remnants and current open space provision are illustrated in the following maps, including the location of sports fields.

Situation Analysis

The Natural Environment map, that follows, illustrates the current vegetation cover of the city, including the urban area, bush remnants, exotic planting and scrubland. Overlaid on this is also the location of all Town Belt, conservation and open space land identified in the District Plan (coloured with blue outlines) and the Outer Town Belt (coloured with red outlines).

A more detailed map of open spaces in the city is illustrated in the Open Spaces Network map.

A number of strategic documents define the city's open space vision, both citywide and within the Central Area.

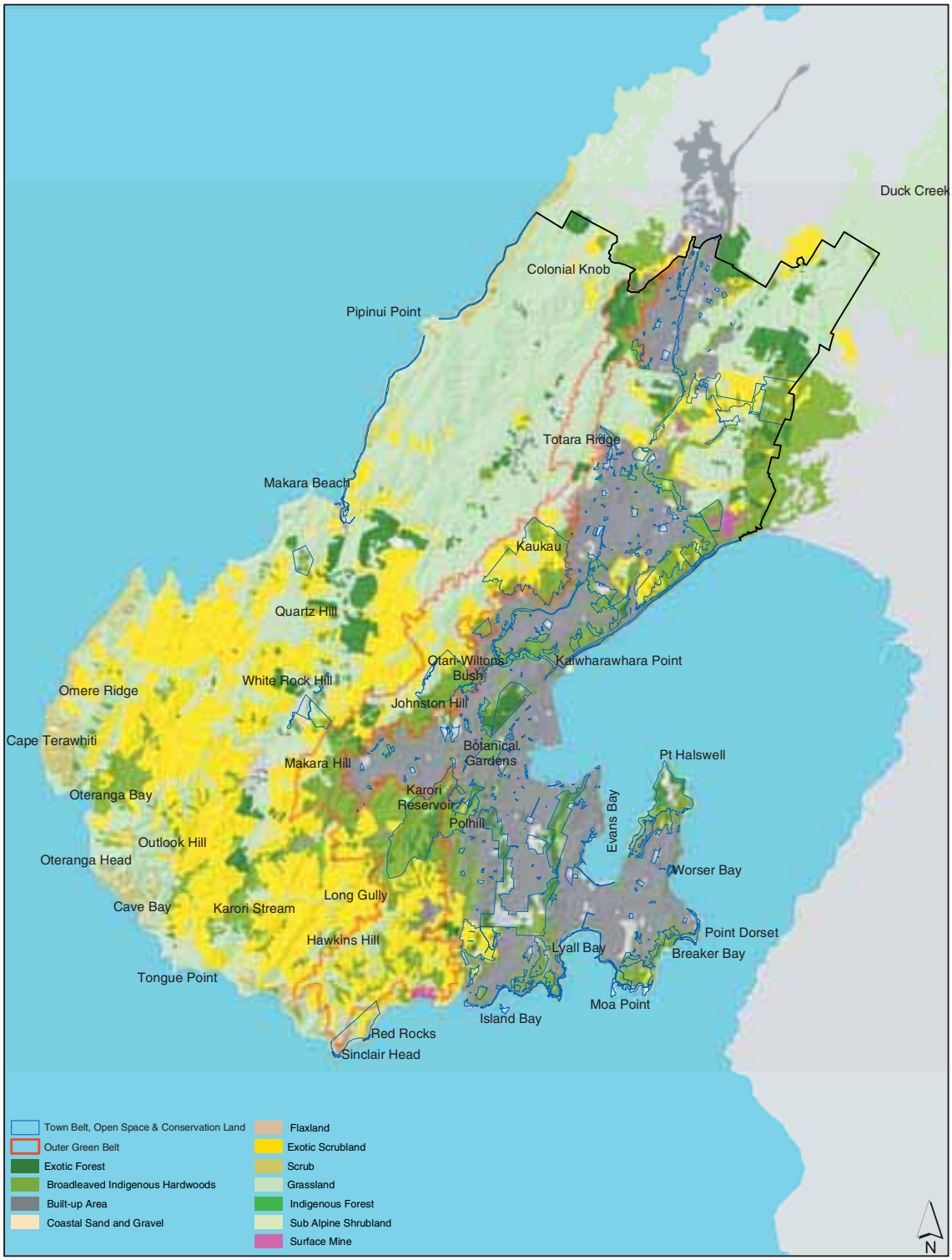
Capital Spaces

The key strategic document that articulates Wellington's open space vision is Capital Spaces. Adopted in 1998 it provides a set of guiding principles that focus on:

- protecting and enhancing important open space elements such as the coastline, watercourses and ridgelines,
- protecting and enhancing biodiversity by creating green networks & corridors
- containing the city's urban form , and
- encouraging public use of open space.

Capital Spaces broadly discusses what eight different categories of open space should look like as the city moves ahead. These are:

- The City – streets, parks, squares and waterfront form a network of safe, functional, stimulating spaces
- The Bays – accessible urban coastline, rich in recreational opportunities and cultural meaning, while emphasising natural character



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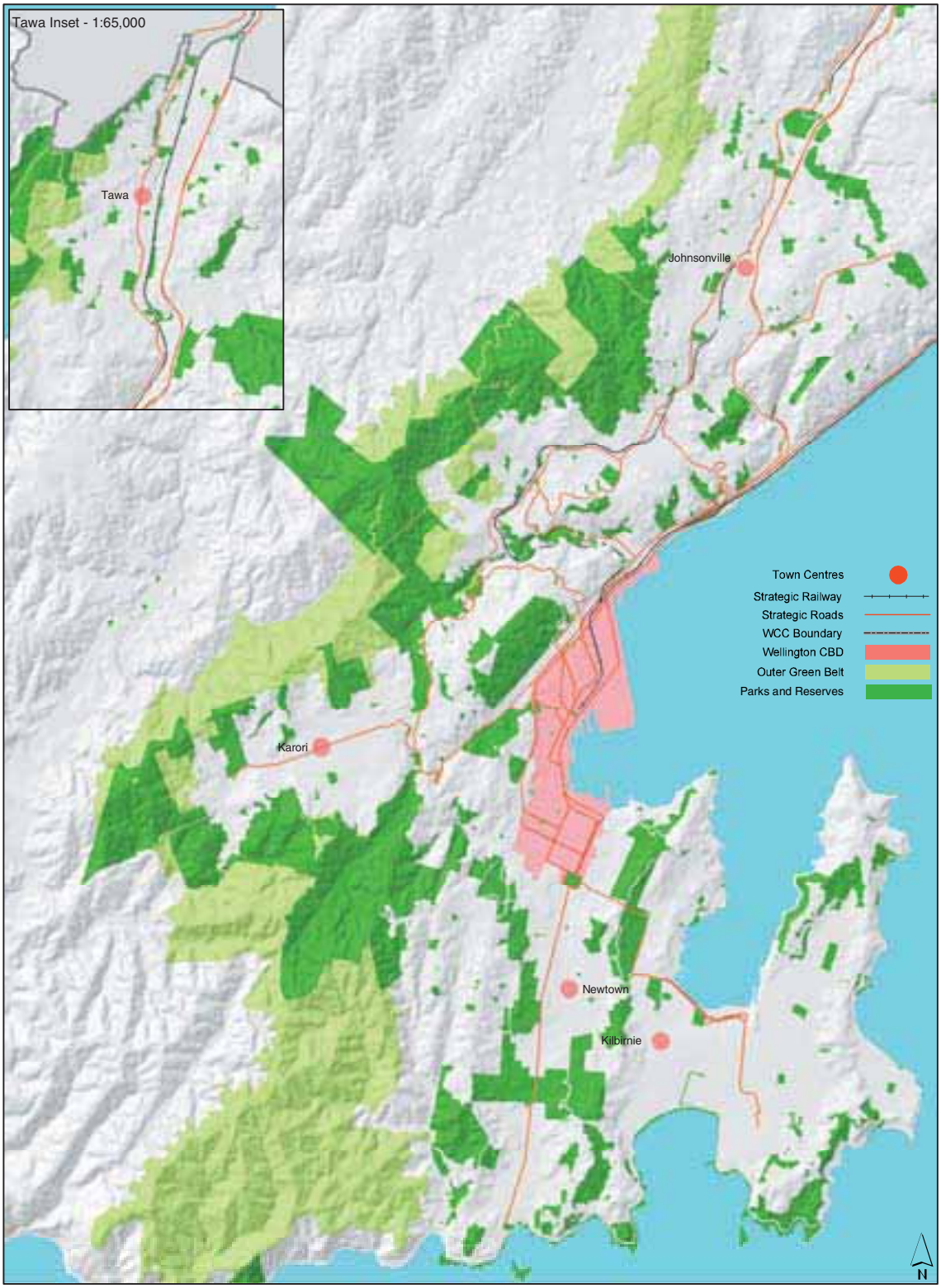
Natural Environment

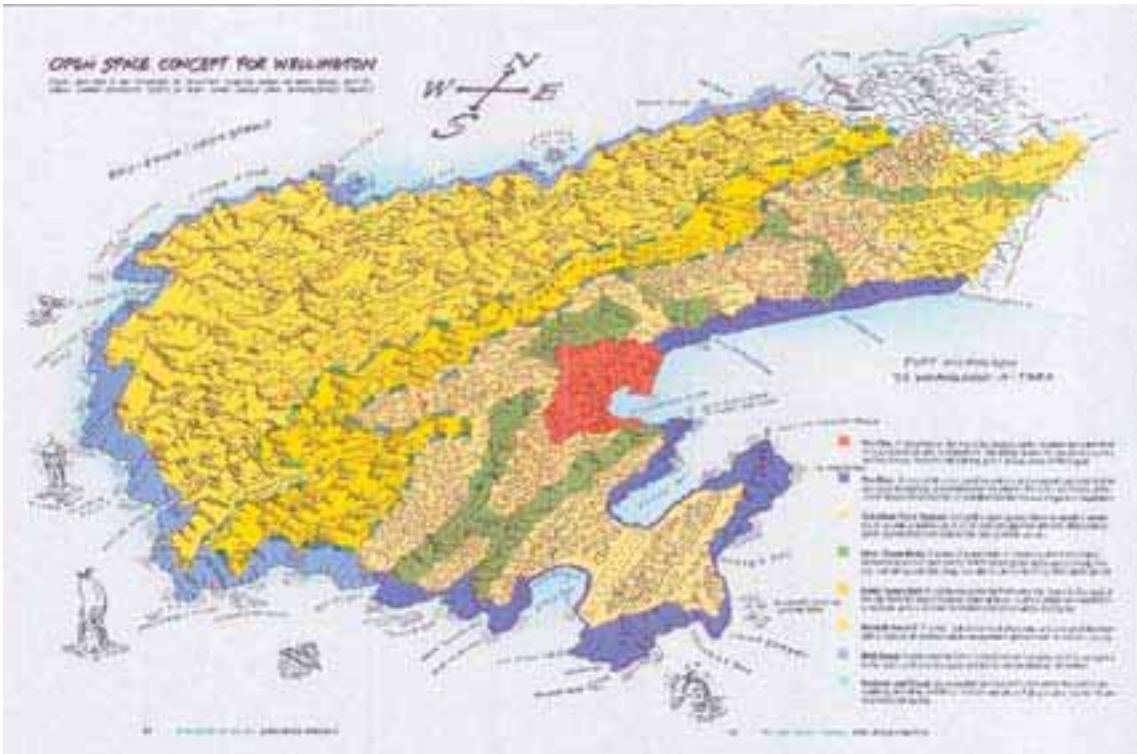


Open Spaces Network

- Suburban Open Spaces – accessible open space close to people's homes which provide a range of recreational opportunities, contributing to local identity
- Inner Green Belt – series of green corridors weaving through the city, containing and identifying suburbs – rich in heritage, culture, recreation
- Outer Green Belt – continuous green corridor following ridges west of city, indigenous vegetation restored
- Rural Hinterland – rural land uses interwoven with a network of restored natural areas
- Wild Coast – coastline with a rugged natural character
- Harbour and Coast – accessible, clear and clean water with abundant marine life.

The high level open space concepts in the document are illustrated in the following map.

Map: Open Space Concept for Wellington



Source: Capital Spaces 1998

The Implementation Plan of Capital Spaces is now dated, with most of the initiatives either completed or superseded by newer policy documents that focus on specific areas of the city. Additional open space documents are summarised in the following table and illustrated in the following policy map.

Table: Natural Environment Policies and Plans

Document	Current Status	Operative Timeframe	Process of Implementation
South Coast Management Plan	Adopted October 2002	Prepared under the Reserves Act – must be reviewed every 10 years	CAPEX/OPEX projects
Town Belt Management Plan	Adopted 1995	Prepared under the Reserves Act – must be reviewed every 10 years	CAPEX/OPEX projects
Town Belt Reinstatement Policy	Adopted 1998	Ongoing	Ongoing reinstatement as opportunities arise
Outer Green Belt Draft Management Plan	Adopted April 2004, awaiting Department of Conservation sign-off	Prepared under the Reserves Act – must be reviewed every 10 years where land is reserve land	As opportunities arise Not necessarily through acquisitions
Wilton-Otari, Botanical Gardens Management Plans	Adopted by Council	Prepared under the Reserves Act – must be reviewed every 10 years	CAPEX/OPEX projects
Other green space management plans clustered – North, South, West, East	North – draft underway East – programmed for development South & North - future	To be prepared under the Reserves Act – must be reviewed every 10 years	CAPEX/OPEX projects
Greening Suburban Wellington	Not signed off by Council - internal guideline document	No explicit timeframe	CAPEX/OPEX projects
Greening Central Wellington	Not signed off by Council - internal guideline document	No explicit timeframe	Document should feed into Central City Urban Design Strategy. Not effectively taken up by implementing Business Units to date. Implementation should occur through: • CAPEX projects • Advocacy –internal/ external

Wet and Wild

The biodiversity elements of Capital Spaces were further elaborated in the Wet and Wild – Bush and Streams Restoration Plan adopted by Council in October 2001. The vision of this plan focuses on:

- Restoring native ecosystems on the Outer Green Belt and wilder parts of the city
- Increasing indigenous planting on the Town Belt and in city parks
- Developing an ecological corridor from the South Coast to the Tararua Ranges
- Re-vegetate stream edges

This document had a number of limitations in scope and structure, and was not widely integrated into Council work programmes. A new Biodiversity Strategy is under development, which will be more comprehensive, considering all ecological zones of the city.

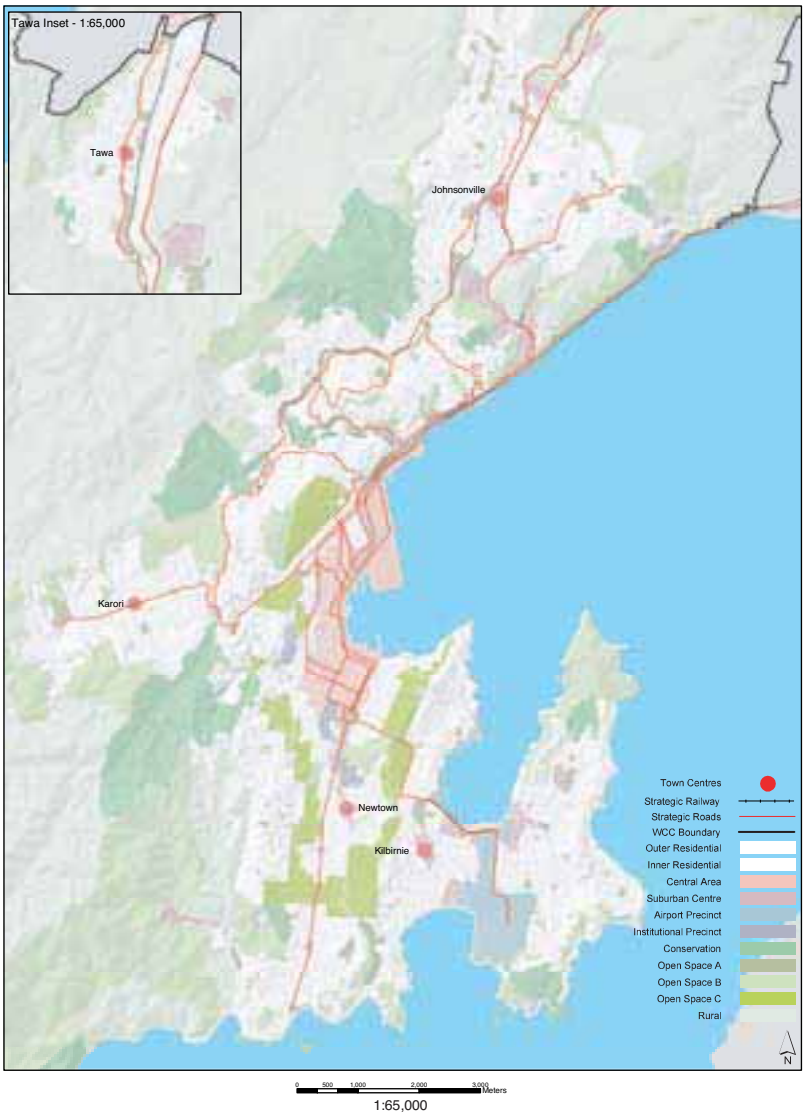
District Plan

Identification and protection of open space is primarily achieved through District Plan mechanisms. The Town Belt also has specific legislation that identifies and protects it from encroachment. Parts of the Outer Town Belt are held in private ownership and have no statutory ownership per se, mainly in rural areas. Three zones in the District Plan define open space for the city.

Table: District Plan Open Space Zones

Zone	Percentage of City Land Area	Description
Conservation Area	4%	Areas that require particular protection for important ecological values
Open Space	13%	Includes coastal areas, hills, bush areas, playing fields and parks
Rural Area	74%	Limited subdivision is permitted and the open character of the landscape is maintained

Source: Data from District Plan



District Plan Activity Map

Source: *Data from District Plan*

In addition to zoning, the District Plan specifically protects important hilltops and ridgelines from development, maintains identified view shafts and protects notable trees.

The key open space and rural area objectives of the District Plan are:

- Protect open space and ecological values – including the open, natural character of open spaces, while also providing facilities and structures essential for active recreation
- Encourage a wide range of rural activities – maintaining the primarily rural character
- Control subdivision to limit housing – so as to maintain rural amenity and help contain the city within the existing urban area
- Protect ridgelines and hilltops.

Open Space and Public Space Capital Expenditure

In addition to Council's plans and policies regarding open space, the Annual Plan 2004/05 commits more than $49.8 million in capital expenditure to the natural environment and open space, over the next five years. This

includes all CAPEX for the Natural Environment Key Achievement Area (KAA) as well as CAPEX on sports fields and playgrounds (in the Recreation and Leisure KAA), and public spaces and the Waterfront development of open space (in the Built Environment KAA). A more detailed breakdown is provided in the following table.

Table: Projected Expenditure – Annual Plan Year 04/05 to Year 08/09

CAPEX Expenditure ($000's by KAA)			**Year**		
	04/05	05/06	06/07	07/08	08/09
Natural Environment	3,824	3,101	2,908	2,364	3,041
Recreation and Leisure (playgrounds and sports fields)	1,131	3,622	1,175	1,119	938
Built Environment (Public space and centre development)	3,363	5,212	4,860	2,395	890
Built Environment (Waterfront development)	5,531	3,026	–	1,526	–

Key projects over this period include:

- Completion of the public spaces on the Waterfront
- Upgrade of the Golden Mile
- A new park in Te Aro or Thorndon
- Aotea/Jervois Quay improvements
- Cog Park redevelopment

SWOT Analysis of Open Space in City

Strengths	Weaknesses
• Comprehensive identification and protection of open space throughout city • Excellent provision of playgrounds and sports fields • Progressive completion of management plans for all reserves and parks • Upgrade of pedestrian environment throughout the Central Area – beginning with Golden Mile	• Inadequate open space in Central Area, particularly Te Aro and Thorndon • Uneven implementation of Greening Central Wellington and Greening Suburban Wellington • Pedestrian environment in many parts of the Central Area is unattractive • Some central area open space has poor amenity due to location, sunlight, wind exposure • High costs of maintaining existing open/public space • Inconsistent policy on provision of street trees, especially in Northern suburbs
Opportunities	**Threats**
• New open space in Thorndon, Te Aro and City Gateway area • New mechanisms for achieving private protection of open space • Restoring streams and green corridors • Enhancing accessibility of open space for all Wellington's residents and visitors	• Development impacts on the coastal environment • Loss of natural ecosystems on private land • Loss of stream environments from excessive urbanization of catchments • Survival of key natural ecosystems • Biodiversity losses from climate change • Stream erosion from extreme precipitation events. • Impacts of climate change including sea level rise

3.3 Environmental Hazards and Constraints

Highlights:

- Environmental constraints are significant in Wellington, particularly:
  Topography including slope stability
  Earthquake hazard zones
  Potential impacts from climate change
- Flooding does not represent a significant constraint for most of the city – exceptions include Tawa/Porirua Stream system and central area flooding risks.

Wellington lies on the edge of Cook Strait and is characterised by a series of steep north/south valleys, many of them running along fault lines. These are interspersed with some very limited relatively flat areas, some created through reclamation, where initial development occurred.

Topography

The characteristics of the region's physical form have shaped Wellington's character significantly. The strong physical form has resulted in a number of very positive attributes for the city, including the:

- emergence of strong, distinctive local centres throughout the city;
- creation of a relatively successful public transport system, supported by the location of linear communities along the routes;
- development of a network of open/ green space along the hill tops and ridgelines, including the Town Belt and Outer Green Belt;
- city having harbour and hill views that contribute significantly to the amenity of the region;
- emergence of a very urban environment, which is also very close to natural systems and forces;

This landform has also meant that there are significant constraints on the transport network choices and constrained development choices and land availability. Parts of the city are relatively isolated or have restricted access routes, creating pinch points in the transport network. The city as a whole is also subject to this, with all major transport infrastructure channelled through the Kaiwharawhara – Ngauranga corridor, which is also subject to significant earthquake risk.

The topography and natural hazards in turn have lead to higher land development costs, restricted land-use and locational choices. Flat land suitable for industrial uses is scarce and generally is priced out of the market by competing, higher value uses. In general flooding risks are low, with the exception of the Porirua Stream in Tawa. There are however significant stormwater management issues in the central area where high volume, high velocity stream systems have required heavy investment in inner city stormwater management.

Natural Hazards

The following map Natural Hazards, illustrates the locations of the main hazards in Wellington City. Key natural hazard issues for the city include:

- large areas classified with slope stability risks;
- major active fault lines cross the region. The Wellignton Fault (travels through Karori, Thorndon and along the side of the harbour and up the Hutt Valley), is capable of causing most significant damage;
- significant transport routes and bulk water supply systems are located along faultlines;
- an earthquake of more than 5 on the Richter Scale could trigger landslides on any of major faults. Strike slip movements on faults and liquefaction of marine fill in the railyards are also risks from earthquakes;
- exposure on the south coast and areas in the harbour to Tsunamis generated near South America and locally in Cook Strait;
- Some scrub areas of the city adjacent to residential communities are at high to extreme risk from wildfire.

Climate Change

The Climate Change Office predicts the impacts of a moderate rate of climate change for Wellington will include changes in average temperature, sea level rise, rainfall and wind patterns. In general, the region will be warmer and the west of the region, including Wellington, may become wetter.

Climate scientists estimate that temperatures in Wellington could be up to 3°C warmer over the next 70-100 years. This compares to a temperature increase in New Zealand during last century of about 0.7°C. The City could be up to 20% wetter and is likely to experience more varied rainfall patterns, and flooding could become up to four times as frequent by 2070. [21] There may also be an increase in the mean westerly windflow across New Zealand, with the possibility of a doubling of the frequency of winds above 30m/s.[22]

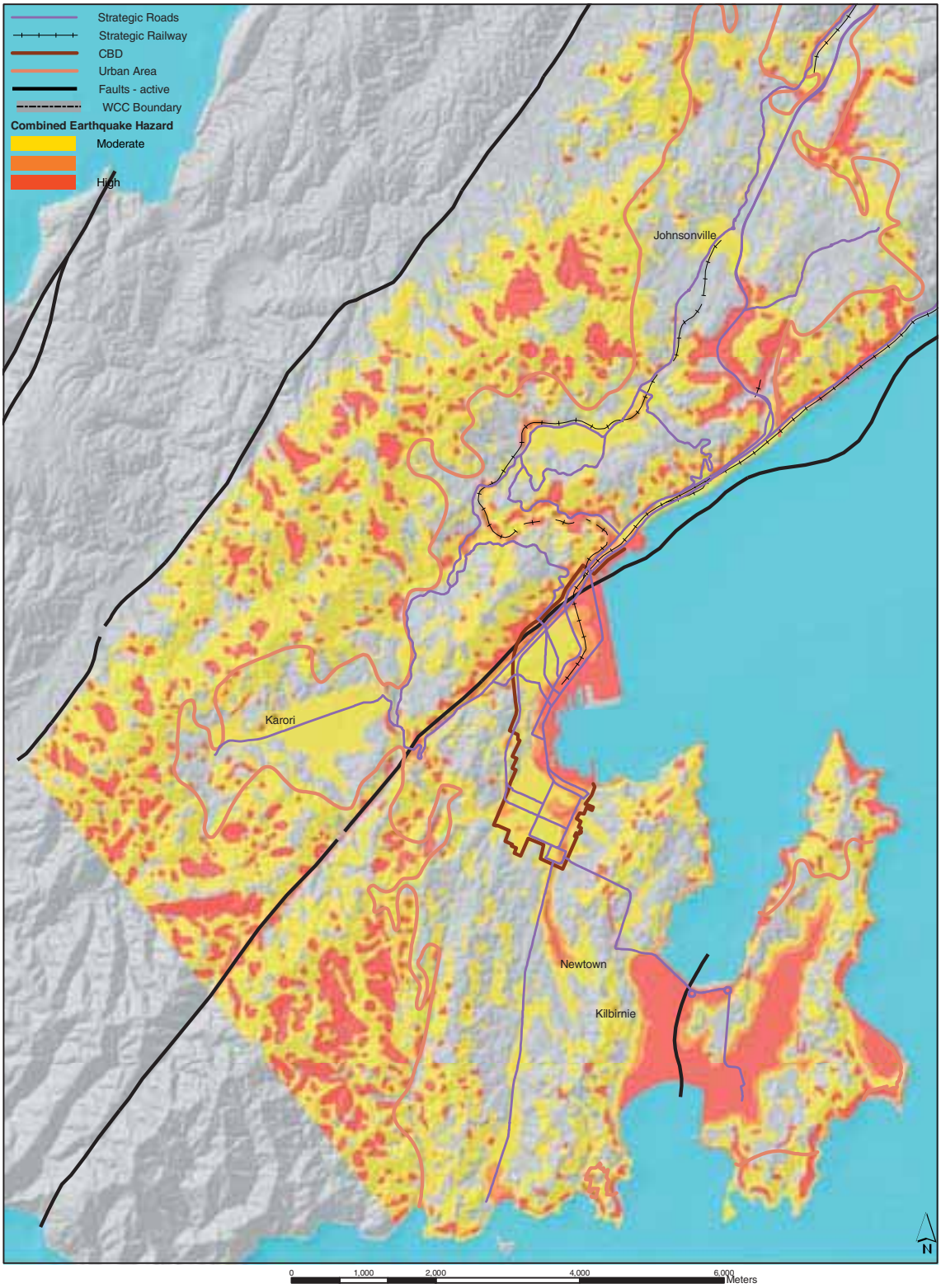
The effects of climate change are likely to bring significant costs to the community. If extreme weather events become more frequent or severe, the costs and damage associated with them are also likely to increase. A summary of impacts is presented in the following table.

[21] New Zealand Climate Change Office, www.climatechange.govt.nz, *Climate Change in Wellington, Kapiti and Wairarapa*.

[22] Minsitry for the Environment, *Preparing for Climate Change – A Guide for Local Government*, p6.

Issue	Main Points
Higher Temperatures	• There is likely to be an increase in demand for air-conditioning systems and therefore for electricity in summer • Conversely, there will be a reduction in demand for winter heating meaning less costs for bill payers and reducing stress on those who cannot afford electricity
Flooding	• More frequent intense winter rainfalls are expected to increase the likelihood of flooding by rivers, as well as flash flooding when urban drainage systems become overwhelmed
Water Resources	• Water demand will be heightened during hot, dry summers • Longer summers with higher temperatures and lower rainfall will reduce soil moisture and the chances to replenish groundwater supplies • River flows are likely to be lower in summer and higher in winter • Lower river flows in summer will raise water temperatures and aggravate water quality problems
Health	• Higher levels of mortality related to summer heat are expected • Higher winter temperatures would be likely to lead to a reduction in winter related mortality and illnesses such as colds and flu
Biodiversity	• Warmer weather would favour conditions for increased competition from exotic species as well as the spread of disease and pests, affecting both fauna and flora • Increased summer drought will cause stress to dry lowland forests • Earlier springs and longer frost-free seasons could affect the timing of bird egg-laying, as well as the emergence, first flowering and health of leafing or flowering plants
Built Environment	• Increased temperatures will reduce comfort of occupants in domestic, commercial and public buildings, and could lead to business disruption
Transport	• Hotter summers may damage elements of transport infrastructure, causing buckled railway lines and rutted roads, with associated disruption and repair costs
Business and Finance	• Lower income households may find it more difficult to access adequate insurance cover in the face of increased flood risk • Fruit and vegetable growers may find it more expensive to insure against weather related damage eg hail • The risk management of potential climate change impacts may provide significant opportunities for business

Source: New Zealand Climate Change Office



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Natural Hazards

Ecological Constraints

Ecological constraints are also being identified as part of the regional stocktake process, including the location of:

- Riparian areas,
- Catchments with threatened native fish,
- Streams with a probability of rare native fish, and
- Inanga spawning points.

SWOT Analysis of Hazards

Strengths	Weaknesses
• Earthquake hazard zones included in District Plan • Upgrading of stormwater system in Central Area to reduce risk of flooding • Low flood risk in much of city	• Adaptation to, and mitigation of, climate change impacts not currently adequately integrated into long-term urban form or infrastructure planning or Council policy documents • Mitigation of risks from tsunami not adequately addressed
Opportunities	**Threats**
• Incorporate mitigation of natural hazards and climate change into long-term urban form planning	• Impacts of climate change including sea level rise, increased rainfall, extreme events and wind

3.4 Land Use

Highlights:

- Wellington's effects based approach means permissive current policies focus on containing future growth within existing urban footprint
- Infill is occurring throughout the city, driven by opportunity and the market
- Limited greenfield sites exist, and these are focused in the Northern Area (9,000 people over 20 years)
- Some suburban centres are undergoing conversion from mixed commercial/light industrial to increasing residential uses

Wellington's compact urban form is not typical of most new world cities. A product of its topography and physical constraints, the urban form of the city has been reinforced by planning policies designed to maintain a clear urban boundary and encourage land uses that support existing transport and other infrastructure.

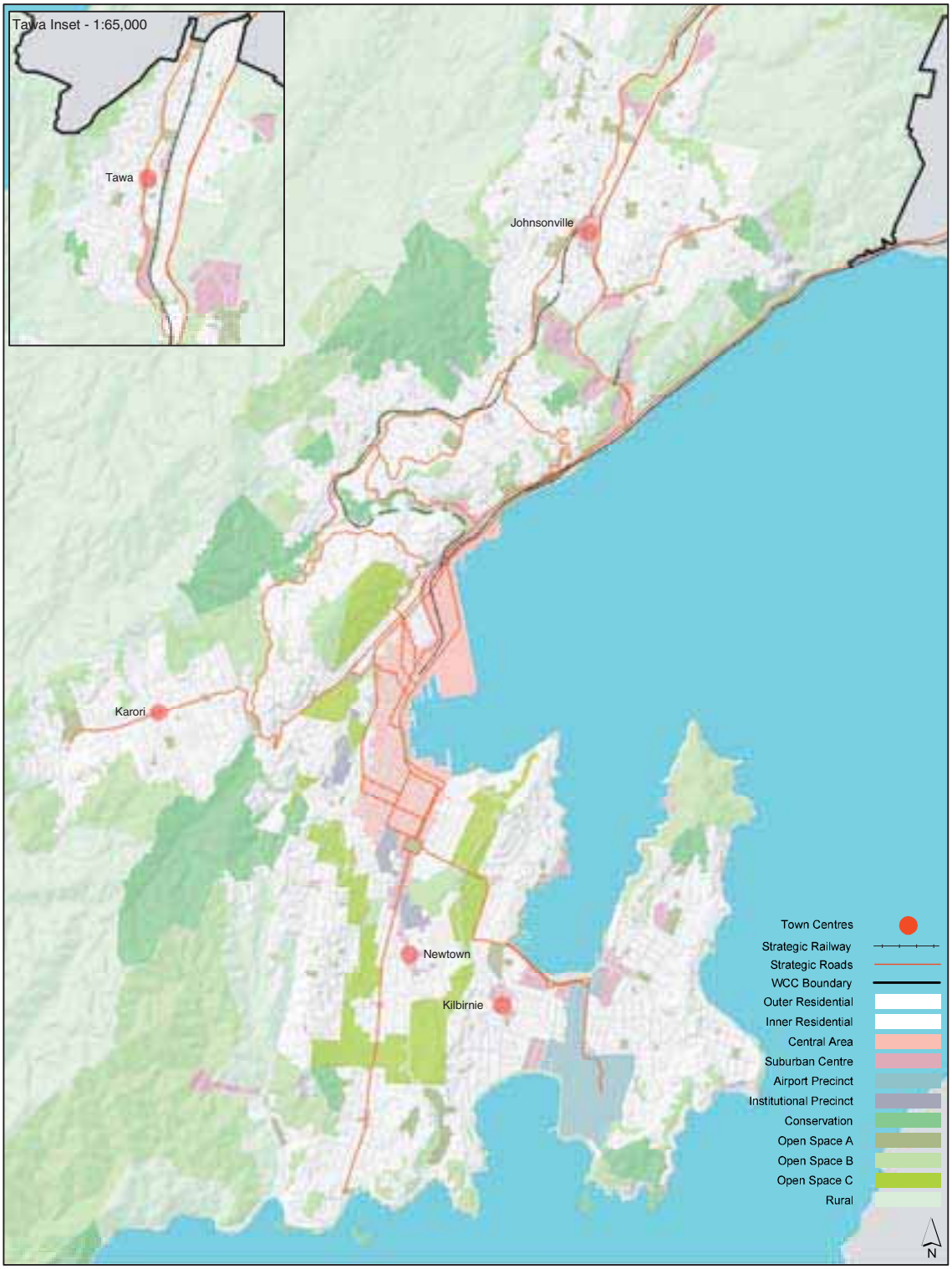
Land use and activities in the city are strongly influenced by the type of economy and employment opportunities that exist. Wellington has changed from a manufacturing and public sector centre to a service/public sector/knowledge and creative industry/tourism centre. It is reasonable to assume that these economic and employment patterns will continue to evolve through the next 50 years. Growing demand for inner-city apartment living is also expected to continue along with development of suburban townhouses and an ongoing demand for 3-4 bedroom houses on suburban sections.

While the Council can influence land uses and activities in particular areas by District Plan zoning and investments, ultimately the market determines the rate of growth that occurs. Past attempts by Council to take a highly prescriptive approach to uses and activities have generally been unsuccessful. The city has a permissive approach to the central area and suburban centres, but retains a more restrictive approach to the rural and residential parts of the city.

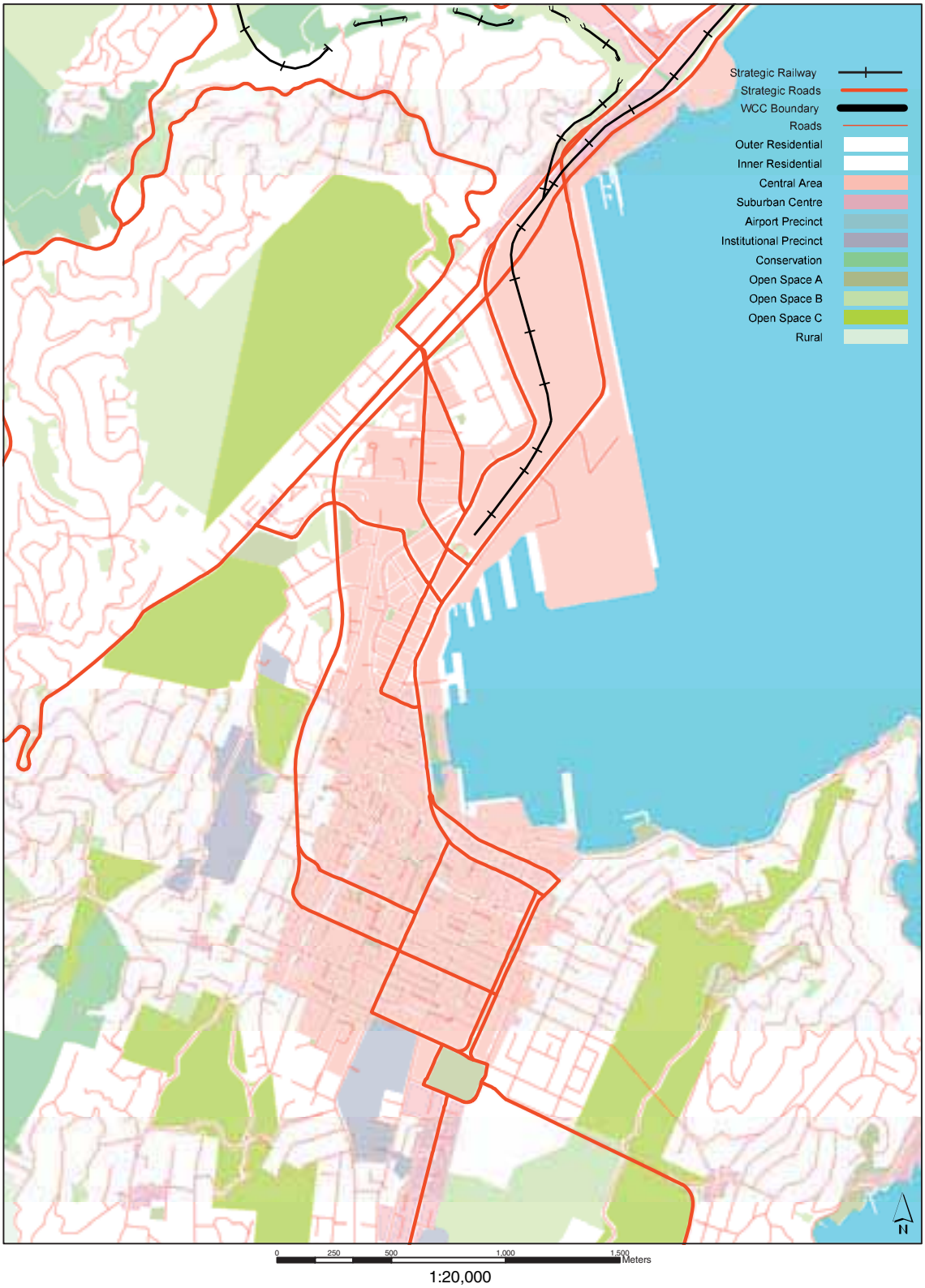
Although planning legislation changes over time, there will continue to be some element of regulatory planning and that planning process will continue to be a public process. Given that the community is generally slower and more resistant to new ideas about how the city should grow, public attitudes will remain an important consideration in future land use changes.

Situation Analysis

Land use in the city is regulated through the District Plan. The following District Plan Activity and District Plan Activity – Central Area maps illustrate current activity zones in the city and the CBD.



District Plan Activity Map



District Plan Activity Map - Central Area

The key types of land zoning in the District Plan are :

1. Residential Areas (shown in white on the maps) which are divided into inner residential and outer residential. Inner residential areas adjoin the central city and are generally within the inner townbelt. They are characterised by high population densities and large numbers of multiple unit dwellings. The outer residential areas contain houses of varying character, generally on larger sections. Possible uses tend to be more restricted in the residenital areas of the city.
2. Suburban Centre land (shown in purple on the maps) contains the more significant retail and industrial centres in Wellington's suburbs. The District Plan does not differentiate between industrial or retail uses, and has a higly permissive approach to use in these areas. In desirable areas this is leading to some conversion of suburban centres into residential developments. Suburban centre land is unevenly distributed across the city. Karori and Tawa town centres both have very limtied areas of land zoned as suburban centres. This contrasts with Johnsonville, Kilbirnie and eastern parts of the city in general, where provision for suburban centre uses is more generous.
3. Open Space and Conservation Sites (shown on the maps as shades of green) are protected from development for their recreational, conservation, landscape or ecological values.
4. Rural Areas (shown in light green on the map) represent 74% of the city's total area, with only a small proportion of the city's population. Most of the land is used for pastoral farming and a number of small settlements. Subdvision is limited, requiring resource consent.
5. Airport and Institutional Precincts are areas occupied by key institutions in the city, Massey University, Victoria University, Wellington International Airport and the Wellington Hospital. Retail development is becoming a significant presence in the Airport precinct.
6. Central Area (shown in red on the maps) is Wellington's business and commercial heart, with an increasing number of residents. The District Plan has a highly permissive approach to use within this area, generally seeking only to control the adverse effects of development. In this area there are land use conflicts developing. These relate to the encroachment of residential uses and the resulting reverse sensitivity issues, and the possibility of Port bulk retail uses impacting on the CBD retail area. [23]

[23] The land value of any suplus Port land will tned to preclude use by many low-cost bulk retailers who generally look for sites on city frignes. Other areas of rail land are subject to liquefaction and would need dynamic compacting of foundation soils which would add to costs. Most likely use is destination bulk retail for high cost, high margin items.

District Plan

The District Plan is the regulatory mechanism for managing land use in Wellington City. It became operative in July 2000 and has a 10 year time frame. Council has a rolling review approach to updating the Plan. The land use objectives of the District Plan are summarized below:

1. Managing Residential Growth

General Strategy

- Generally contain residential development within the existing urban edges of the city (exception being Northern Growth Area).
- Provide for 'smart' greenfields development in Northern Growth Area.

Residential Areas

- Encourage intensification by allowing residential infill to occur as a permitted activity throughout residential areas – subject to conditions on parking, bulk & site coverage. Requirement for an offsite park is the key constraining condition.
- Discourage land uses that are not compatible with residential land use (ie industrial, large commercial).

Suburban Centres

- Allow for residential intensification by permitting a wide range of activities, including residential activities – subject to conditions on bulk. No requirements for parking (unless over 120 proposed), 100% site coverage possible.

Central Area

- Allow for residential intensification by permitting a wide range of activities, including residential activities – subject to conditions on bulk. No requirements for parking (unless over 70 proposed), 100% site coverage possible.

Rural Areas

- Discourage residential intensification by limiting subdivision (30ha min generally).
- Allow some rural residential intensification in some eastern urban fringe areas.

2. Providing for Commercial, Office and Industrial Uses

Central Area and Suburban Centres

- Generally encourage commercial, office and industrial uses to occur as of right in the Central Area and Suburban Centres (subject to conditions to manage effects). The permissive approach is designed to allow building owners and developers to respond readily to changing market needs and new technologies.

Institutional Precincts and Airport Precinct

- Some scope for commercial, office and industrial uses within Institutional Precincts (Victoria

University, Massey University & Wellington Hospital) & Airport Precinct. Activities are permitted as long as they are related to the primary functions of the precinct (which would include, commercial, office, and some industrial) – stricter controls on the form and scale of the particular development. Note: the Rongotai retail complex in the Airport precinct was not considered to be related to the primary function of the airport – hence consent applied for.

3. Protecting the Environment

- Primary method of protection is via protective land use zoning as Open Space (A – Recreation Land, B – Open Space, C – Inner Town Belt) and Conversation Sites
- Ridgelines and Hilltops are given additional recognition & protection within the Rural Zone.

4. Protecting Heritage & Character Areas

- Primary method of protection of specific sites is via a listing of places of cultural heritage value, Maori heritage sites, notable trees. Additional rules to these sites.
- Character Area Design Guides have been prepared for:
  i. Courtenay Place
  ii. Cuba Street
  iii. Civic Centre
  iv. Thorndon
  v. Mt Victoria north
  vi. Newtown mainstreet
  vii. Shelly Bay

5. Urban Design and key elements of Built Form

Urban Design

- The Wellington District Plan has a particularly strong focus on urban design – there are currently 15 statutory design guides (covering precincts, character areas, subdivision and muli-unit housing) and 2 non-statutory design guides (wind & safety). Statutory Design Guides are assessed via a "controlled activity rule" – ie conditions may be imposed but only in relation to matters specified in the rule.

Built Form

- Building height, site coverage and sunlight access are some of the key elements used in the District Plan to define overall built form. In general, our strategy for built form is:
  i. Preserve the existing 'High City/Low City in the Central Area. This is defined primarily via building height controls. Generally 100% site coverage.
  ii. Inner Residential – building height generally 10 metres, site coverage max 50%

iii. Outer Residential – building height generally 8 metres, site coverage max 35 %

iv. Suburban Centres generally 12 metres, 100% site coverage.

In addition to the general provisions of the District Plan there are a number of other documents that have been developed by Council to shape and influence land use across the city. These are summarized in the following table:

Table: Land Use Strategy and Policy Documents

Document	Status	Status	Implementation
Northern Growth Management Plan	Adopted October 2003. To be incorporated into District Plan March 2005	Development driven responding to growth – intended 20 year timeframe	Implementation Plan of 59 initiatives, implemented in accordance with the LTCCP
Horokiwi Rural Community Plan	Adopted by Council November 2002 Non-statutory	Three year timeframe 2002-2005	District Plan Change 33 Community Board CAPEX Link into Northern Growth Framework
Makara Rural Community Plan	Adopted by Council February 2002 Non-statutory	Up to Makara-Ohariu Community Board to determine when review required	District Plan Change 33 Community Board CAPEX
Ohariu Valley Rural Community Plan	Adopted by Council February 2002 Non-statutory	Up to Makara-Ohariu Community Board to determine when review required	District Plan Change 33 Community Board CAPEX
South Karori Rural Community Plan	Adopted by Council July 2001 Non-statutory	Up to Makara-Ohariu Community Board to determine when review required	District Plan Change 33 Community Board CAPEX

The District Plan is subject to a rolling review. Rural areas have been reviewed with the changes recommended in the Rural Community Plans prepared over the last few years now incorporated into the District Plan. Residential provisions are to be reviewed and the heritage provisions are currently being assessed. A major review of the Central Area provisions is to occur in the coming year. Among the key issues that this review will consider are issues concerning height limits in the central city including the sensitive area of Te Aro.

SWOT Analysis of Land Use

Strengths	Weaknesses
• Permissive approach to management of uses/activities in the Central Area and suburban centres • Intensification and sustainability of urban form • Enhanced urban life due to the vitality of city centre and neighbourhoods because of catchment make-up. • Rural land and open spaces protected from urban sprawl	• Loss of land for certain uses (light industrial) leading to a loss in present diversity • Congestion if no significant additional transport investments made • Affordability of housing decreasing for many residents • Reverse sensitivity issues due to permissive approach • Intensification of catchments without onsite stormwater retention will damage streams
Opportunities	**Threats**
• Increased densities in areas of the city make additional public and private investment in infrastructure viable – for example social, transport, community infrastructure • Greater diversity of services and shops provided due to specialization • Improve protection of amenity through better design, in intensifying areas of the city • Intensification makes new urbanist, mixed use neighbourhoods viable	• Conflict between uses becomes more apparent. • Public opposition to further intensification across large areas of the city • Poor design in multi-unit developments • Loss of particular services that can't afford land values • Pressure on sensitive sites (natural amenity/ vegetation/ escarpments/ coastal areas) • Pressure on open space in intensified areas

3.5 Built Environment

Highlights:

- Infill is occurring across all suburbs and is driven by market demand and opportunity
- Heritage is coming under pressure from inner city residential developments and commercial developments
- Design quality is an issue for some new developments, particularly the public-private interface

Wellington's unique built environment is a result of human responses to the topography and landscape of the city. Patterns of human habitation, the street pattern, the open space network and the buildings and structures of the city have combined to give Wellington a particular built character and urban form.

Variety in the interplay of these factors across the city means that the built environment of the city also varies significantly in different places. In recent decades a great deal of resource and focus has been given to understanding, recognizing and where appropriate protecting the longest settled parts of the city. This has resulted in design guidelines for many areas of the central city and inner suburbs, and protection of heritage buildings.

Providing new public space and enhancing existing public space has also been a focus for the Council. Focused in the CBD, this work has partly been driven by a desire to create and maintain the vibrancy and diversity of Wellington's central city as a place for people to live, work and play.

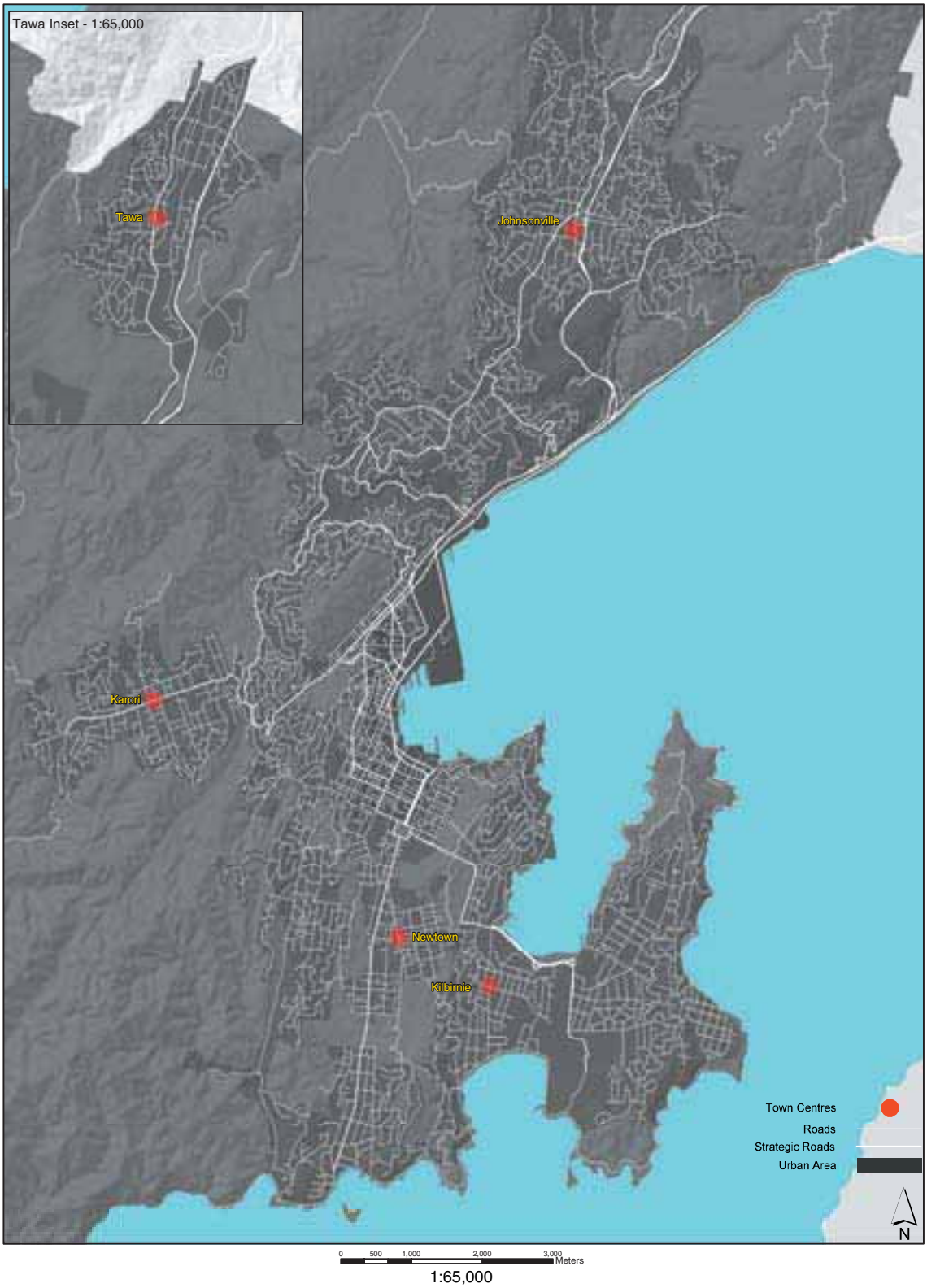
Situation Analysis

The built form of the city is a product of the:

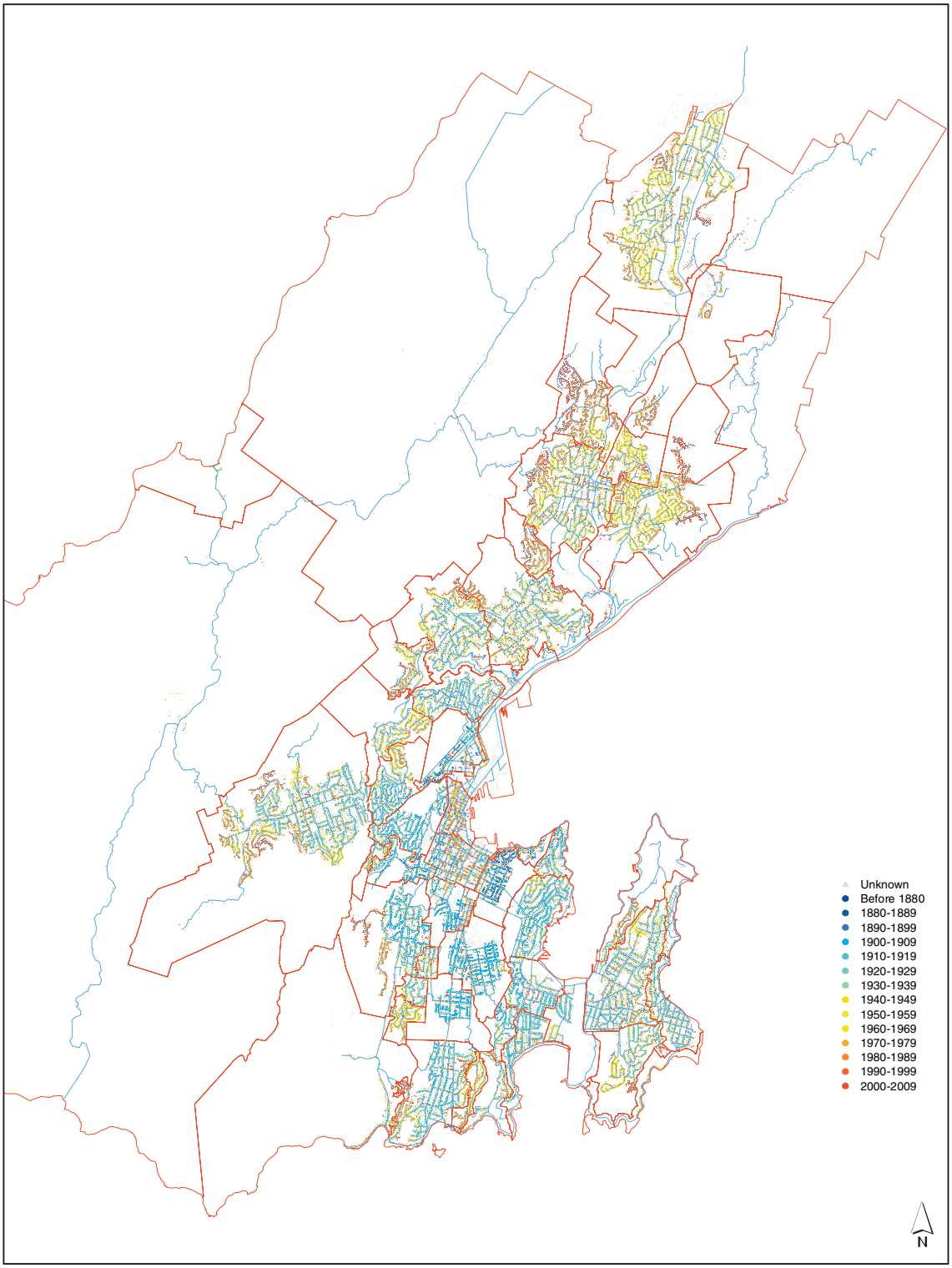
- topography of the city,
- street pattern,
- regulatory regimes over the decades that have allowed certain types of development to occur,
- technology making building on certain sites possible, and
- demands from the market for certain types of buildings.

In addition to the District Plan provisions which are discussed in the Land Use section of this Report, Council also has specific policies that relate to the built environment. Historically this has tended to focus on the Central Area (where development and the built form is most intense), and most often around the issues of public space and heritage, both important elements of the human experience of a city.

The following maps illustrate each of these elements city-wide and in the CBD.



City Blocks Map



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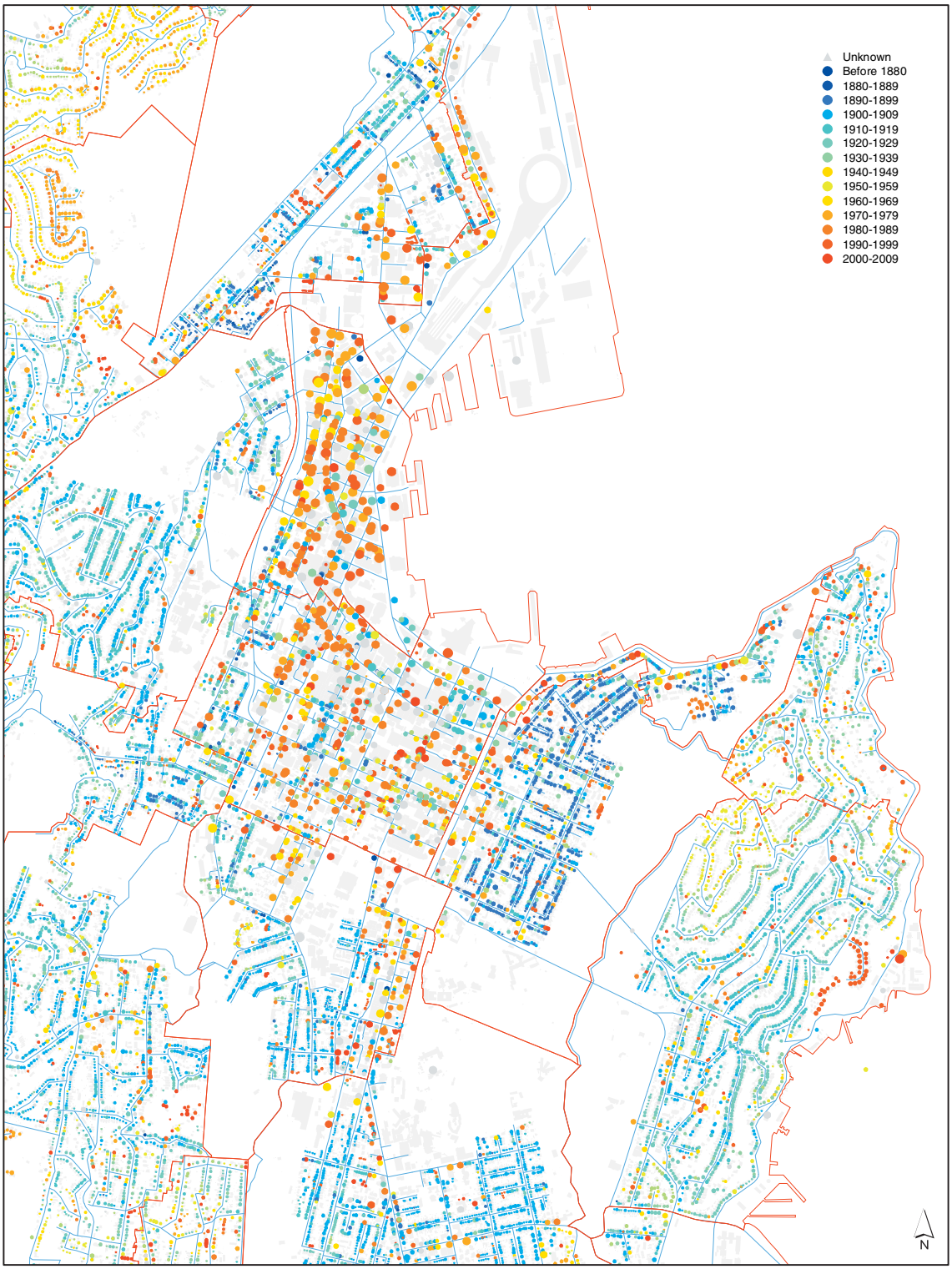
Age Profile of Existing Buildings



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Age Profile of Existing Buildings - Central Area

Street Pattern

In the older, flatter parts of the city, a traditional grid pattern, or modified grid pattern to accommodate topography is evident (see the following City Blocks map).

Te Aro, Mt Victoria, Kilbrinie, Seatoun and Miramar all exhibit this street pattern. Hataitai also demonstrates a grid pattern modified to accommodate its challenging topography. These parts of the city have a strongly connected roading network where streets provide an integrated & connected community.

Newer parts of the city have street patterns with a greater number of dead-end cul-de-sacs that are poorly integrated into the broader roading network, and limit the permeability of the city.

Urban Areas and Infill

From its beginnings, in what is now the Lambton area of the CBD, the city has grown in periods of intense expansion and growth followed by intervening periods of slower growth. It now occupies the area illustrated on the following Age Profile of Existing Buildings map, which also shows the age of existing buildings and expansion of the urban footprint over time.

The newest parts of the city are shown in red and orange, concentrated on the periphery of the urban area, particularly in the north. Older parts of the city are shown in blue and green. Some suburbs show an extremely consistent age profile, including Mt Victoria, Beramphore, and parts of Newtown.

Progressive infill development in most residential parts of the city is also evident across many decades as new technologies open up sites previously not easily built on, and market demand increases the attractiveness of development. (If land values justify it there is some potential for the repositioning or demolition of existing buildings on their lots to make other infill opportunities available). The only areas where infill has been less pronounced are those areas with character protection or areas where the original development pattern was so intense that new developments were severely constrained (for example Berhamphore). In the newest parts of the city, future infill is likely to be very limited, as the initial settlement pattern is maximizing house sizes on small lots, with little opportunity for subdivision.

The CBD (as the oldest, most intensively developed part of the city), contains a building stock of diverse ages, as the area has been repeatedly rebuilt. The Age Profile of Existing Buildings – Central Area map, following, illustrates the scale of the building boom and redevelopment that occurred in the Lambton area during the 1980's.

As the CBD has been rebuilt, average building height in the area has increased. Today, the District Plan

divides the central area into two distinct parts, the core high rise buildings, the "High City" and the low-rise development towards the outer boundaries. Current building heights and form are illustrated in the following three dimensional depiction of central city. Buildings coloured red are heritage buildings listed in the District Plan.

Heritage

Heritage recognition and protection has also become increasingly important. Since the Built Heritage Policy of 1995 a number of initiatives have been implemented to protect heritage. These include the listing of over 525 buildings, and the preparation of a Non-Residential Building Inventory, the introduction of rules in the District Plan that pertain to listed heritage buildings, the establishment of a Building Strengthening Fund and Heritage Fund to assist owners of listed heritage buildings and the purchase by Council of some significant heritage buildings. (Current heritage listings in the CBD are shown on the 3D depiction following). A new policy is currently in development and is discussed later in this section.

New development threats to heritage have appeared over the last 5 years. The apartment boom in Te Aro and infill housing in some of the residential suburbs are impacting on the historic character of these areas. Rooftop additions and facadism are transforming some important heritage buildings and rules introduced through the District Plan have not always provided a level of protection in keeping with growing community expectations.

Public Space

Council has considerable control over public space. Public spaces are the 'glue' that binds the central city together. As part of a larger network, individual spaces – the streets, lanes, street intersections, parks and squares – all have their own specific characteristics and serve multiple functions, including moving through the city, meeting shopping, and being entertained.

The CBD Open Space map below shows the public open space in the Central Area.Major open space in the central area is focused around the Waterfront. Unlike other cities established in the same period the Central Area possesses few formal squares and spaces. As the population of the central city increases there is an increasing need for public open space, and currently there is an obvious deficit in Te Aro and Thorndon.

The quality of street frontages (surveyed by the Gehl Study, City to Waterfront) is also illustrated on this map because streets are an important public space in cities. Measuring the quality of the frontage can be considered a proxy for the quality of the street as an open space. A significant portion of the CBD's street frontages are not attractive, reducing the quality of the pedestrian experience in the central city.

3D Depiction of Heritage Resources

CBD Open Space

There are a number of policy and strategy documents developed to articulate aspects of the city's built environment vision. These are summarized in the following table:

Table: Built Environment Policies and Plans

Document	Status	Timeframe	Implementation
Urban Design Strategy 1994	1994	Number of past attempts to review principles, but not completed. Central City Public Space Plan is elaborating on it.	No specific plan, implementation has been loose. Has influenced CAPEX and process projects.
Central City Public Space Plan	Council sign-off of Principles August 2003 Intend to sign-off by October 2004	Builds on Urban Design Strategy from 1994, but focused on implementation – principles, objectives, initiatives.	Implementation to occur through CAPEX projects and process projects (Streetscape, Lighting, Furniture, Greening strategies) Provide process for programming work
Built Heritage Policy	Current Policy 1995	New Built Heritage Strategy out for consultation September 2004	10 year Implementation Plan in development. 5 levers: • Identification & inventory • Rules through District Plan • Incentives – change structure of funds • Advocacy • Council as owner – reflect Government's policies.
Wellington Waterfront Framework	Adopted April 2001	Ongoing until waterfront project completed in 2008.	Annual Development Plan, approved by Waterfront Sub-Committee, which feeds into Wellington Waterfront Ltd.'s Business Plan
City Gateway Plan	Partners yet to sign-off Plan	50 year vision for Gateway	80% non-Council owned land. • Advocacy • Asset Management Plans – transport/roading – new roads required • District Plan change required • Design guide to be developed for Port land, rail land already covered by Te Haukawakawa Precinct
Development and Financial Contributions Policy	Policy under development, into 05/06 Draft Annual Plan for consultation	Intention to renew in line with Asset Management Plan revisions	Go live June 05, implemented through mechanism modelled on RMA contributions
Building Safety Policy	1998	On-going	Building Safety Process & WCC Earthquake Prone Buildings Safety Fund

Documents of particular interest and importance for the city's current built form include the District Plan (discussed in detail in the Land Use section), the Central City Public Space Plan (that supersedes the 1994 Urban Design Strategy), the Wellington Waterfront Framework and the Built Heritage Strategy recently released for consultation.

Central City Public Space Policy

The 1994 Urban Design Strategy provided a vision, principles and a series of initiatives to improve the city's public environment. Many of these initiatives have been implemented or circumstances have changed that make others less relevant. While significant funds have been and continue to be invested in the public spaces of Wellington, there is often no clear prioritisation or connection between projects that leads to an understanding of how they contribute to a wider picture of the city.

The new Central City Public Space Policy builds on the earlier Urban Design Strategy. The content of the CCPSP includes:

- Urban Design Principles – which are widely accepted principles of urban design that guide the provision and maintenance of public space – accessibility, orientation and legibility, diversity and character, integration of the public and private realm, quality of design, city management, and adaptability, continuity and change.

They are universal and applicable to all parts of the city. They form the basis for determining initiatives and projects in conjunction with objectives developed specifically for improving Wellington's public spaces. They are supported by the New Zealand Urban Design Protocols (developed by the Ministry for the Environment) principles of choice, character, context, collaboration, connections, custodianship.

- Objectives - which provide a framework for the delivery of the principles and are specific to Wellington and provide the context for delivering the City's vision. These objectives relate to the Creative Wellington Innovative Capital vision, making the city walkable and providing high quality public spaces.
- Initiatives – which are specific areas (thematic and physical) that deliver the principles and objectives of the plan. These include projects already programmed, process projects and initiatives to be programmed in accordance with criteria in order for them to be prioritised as projects.

The City to Waterfront – Wellington Public Spaces and Public Life Study by Gehl Architects was completed in 2004 and looks into public spaces and public life in the Central Area. It is an important contribution to effectively understanding the dynamics of the pedestrian environment in the central area and implementing the vision of the CCPSP.

Built Heritage Policy

A new Built Heritage Policy is in development. It defines a vision for the city's heritage as:

> Wellington is a creative and memorable city that celebrates its past through the protection conservation and use of its built heritage for the benefit of the community and visitors now and for future generations.

The Council, which itself owns and manages a number of the city's significant heritage buildings, has prepared a Built Heritage Strategy to convey its renewed commitment to the city's built heritage to current owners, the community, visitors to the city and to future generations.

The Built Heritage Strategy has the following draft principal outcomes:

- Wellington's built heritage is recognised as contributing to our understanding of our cultural diversity and awareness of sense of place
- Wellington's unique character is enhanced by the protection, conservation and use of its built heritage
- Wellington's built heritage is acknowledged as contributing to a vibrant economy.

The Built Heritage Strategy 2004 sets out a range of existing and new initiatives, including:

- Strengthening the heritage rules in the District Plan to reflect changes to the RMA 2003
- Flexible use of a single heritage fund
- Adding more heritage places to the District Plan with particular emphasis on individual buildings in areas that are under development pressures as well as creating more heritage precincts

Wellington Waterfront Framework

The Wellington Waterfront Framework lays out a plan for the redevelopment of the waterfront from the Overseas Passenger Terminal to the area opposite the New Zealand Post Building on Jervois Quay. The plan's vision is:

> Wellington's Waterfront is a special place that welcomes all people to live, work and play in the beautiful and inspiring spaces and architecture that connect our city to the sea and protect our heritage for future generations.

The Framework contains a set of themes, values, principles and objectives as well as plans for each part of the waterfront site. These are being progressively implemented, with the entire development to be completed by 2008.

The development will contribute significant new public open space to the city and provide a series of low-rise buildings around the waterfront, with public uses at ground level.

Built Environment Capital Expenditure

In addition to Council's plans and policies for the built environment, the Annual Plan 2004/05 commits more than $39.4m in capital expenditure to the built environment over the next 5 years. This includes CAPEX for waterfront development, heritage development, urban planning and public space and centre development. A detailed breakdown is provided in the following table:

Table: Projected Expenditure for the Built Environment KAA – Annual Plan Year 04/05 to Year 08/09

CAPEX Expenditure ($000's)			Year		
	04/05	05/06	06/07	07/08	08/09
Urban Planning	3,685	4,850	2,500	600	-
Heritage Development	-	663	-	-	-
Public space and centre development	3,363	5,212	4,860	2,395	890
Waterfront development	6,011	3,026	-	1,526	-
Total	13,059	13,751	7,180	4,521	890

Key city council projects for the built environment include:

- Wellington Waterfront completion
- Golden Mile upgrade
- City/Waterfront Connections
- Identification and design of two inner city parks
- Parliamentary Centre Framework
- City Gateway Concept Plan
- Chews Lane Precinct
- Civic Centre Redevelopment
- Lighting the central city

Some key future projects include:

- Improving the public environment in Tory Street, Taranaki Street, Kent and Cambrige Tces
- New Public Spaces in Thorndon and the City Gateway area
- Repair of the city following construction of Te Aro Inner City Bypass
- Developing an inner city covered market

SWOT Analysis of the Built Environment

Strengths	Weaknesses
• Wellington Waterfront Framework and implementation • Development of a new Built Heritage Policy, Central City Public Space Plan and Development Contributions Policy • Existing heritage protection mechanisms to build on • Intensive urban form of the city	• Ongoing loss of heritage – building heights and heritage protection provisions not consistent • Poor additions to heritage buildings, and into heritage areas • Poorly designed public/private interfaces on privately developed sites • Current lack of residential development on the waterfront – although this is proposed
Opportunities	**Threats**
• New protections for heritage and character in new parts of the city • Changes to built form requirements in the CBD and suburban centres to encourage or direct growth • Use of the Contributions Policy as a tool in directing growth	• Increasing public backlash to infill • Windswept open space on the waterfront • Impacts of climate change and likelihood of extreme weather events on the built form of the city

3.6 Employment and the Economy

Highlights:

- Strongly performing economy across all indicators – workforce participation, unemployment, growth, inflation
- Currently 113,000 FTE jobs in Wellington and expect 13,000 more by the end of the decade
- Weaknesses in infrastructure provision – roading, Airport, ICT (broadband in non-CBD areas of the city)
- Limited supply of industrial land in the region and city

Wellington is seeking to transition to industries based on knowledge and innovation. It has experienced some important successes in this transition with the growth of the ICT and film industries. Wellington is also the capital city, the location of many of the country's national institutions and a concentration of its public sector employees.

The city's established drivers of economic growth, particularly the role of central Government in the city, are strengths as well as weaknesses. For instance, a change of Government may impact significantly on the size of the public service. Almost 40% of the 34,400 people employed in the core public service are based in Wellington and Government tenants currently occupy about 30% of Wellington's total CBD office space. [24]

The economy of Wellington cannot be considered in isolation from a range of issues including urban development, built form and urban design as the city grows and changes. The city's priorities for economic development are set out in the Economic Development Strategy adopted by Council September 2003. The overriding goal of the Strategy is to improve quality of life.

There are a number of urban form implications embedded in this goal. They include:

- Enhancing quality of place - which creates confidence in a city, thereby attracting investment and further development. It also attracts talented workers, and the organisations that employ these workers. The quality of jobs and opportunities for career development within Wellington City is also key and as the international labour market becomes increasingly competitive for talented workers maintaining the city's quality of place is a baseline.
- Quality infrastructure is critical to economic growth. Infrastructure can increase productivity levels (e.g. by increasing the speed of communication) and improve the utilisation of the

[24] Government FTEs from Statistics New Zealand, *Wellington Quarterly Review*, September 2004, Government occupancy of CBD buildings from *Regional Outlook Update*, August 2004, Positively Wellington Business.

labour market (e.g. by increasing people's access to workplaces). Increasing productivity levels and labour utilisation growth are both fundamental drivers of economic competitiveness and growth. Airport, port, other regional infrastructure, ICT infrastructure, and research facilities and institutions are four types of infrastructure found to have the most significant positive impact on economic development. Research has found that cities with close proximity to well connected international airports (and ports) do better in their economic development than cities with access to only smaller airports. [25] The future availability of broadband in the city may create opportunities for some of the economic activity that is currently concentrated in the CBD to move to other parts of the city. [26]

- The ageing workforce presents some challenges. The ageing population, and the non-replacement of the working age population, will see older workers becoming an increasingly important component of the labour force. Ensuring that older workers are able to access general services in the city with ease, will be an important component in Wellington city retaining this resource.
- Tourism is an increasingly important industry for Wellington and the country as a whole. Tourism is amongst New Zealand's top four foreign exchange earners. Increased growth has been a key feature of the tourism sector over the past 10 years and is a trend that is forecast to continue for the foreseeable future. Quality infrastructure, quality of place, and quality events and attractions are all critical to retaining and growing tourist numbers (domestic and international). [27]

Situation Analysis

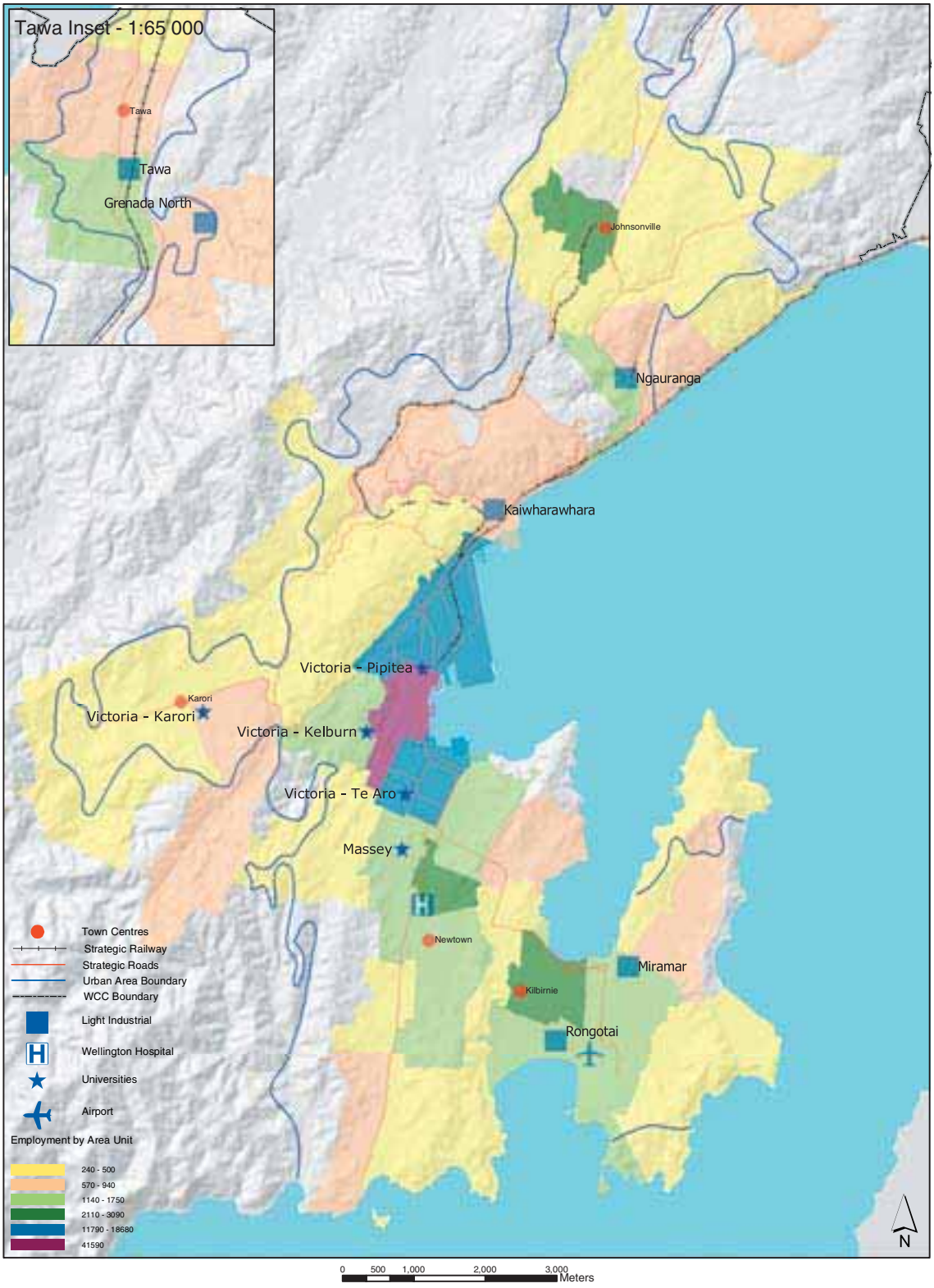
Wellington City has approximately 113,000 full-time equivalent (FTE) positions with an expectation that a further 13,000 FTEs will be created in the city by the end of the decade.[28] Currently the geographical distribution of jobs is strongly weighted toward the Central Area. As the following map of Employment illustrates, highest concentrations of jobs are found in the Lambton area shown in purple and the adjacent areas of Thorndon and Te Aro. Combined these three areas of the city contain more than 72,000 FTEs or 63.7% of the city's employment. The next most significant locations of employment are found in Johnsonville, Newtown and Kilbirnie where there are between 2000 and 3000 jobs in each area.

[25] Begg, I.; B. Moore & Y. Altunas (2002) "Long-run trends in the competitiveness of UK cities" in *Urban Competitiveness* edited by I. Begg, Bristol: The Policy Press and Johnson, J.H. (2002) "A conceptual model for enhancing community competiveness in the new economy" *Urban Affairs Review*, 37 (6): 763 – 79, July.

[26] *The Dominion Post*, "WCC wants fibre for the suburbs", Monday August 16, 2004.

[27] *New Zealand Tourism Strategy 2010*.

[28] FTEs from Statistics New Zealand, *Wellington Quarterly Review*, SEptember 2004, projected future FTE from BERL FTE growth "business as usual" to 2010 (2003 base) in *Economic Development Strategy Update Report*, July 2004, Wellington City Council.



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Employment

Over the last few years job growth has been strongest in building and construction, government and business services, with ongoing declines in manufacturing as the city transforms into a service and creative industries economy. As at February 2003, the breakdown of jobs by industry for Wellington was: [29]

- 22.2% property and business services
- 13.8% government administration and defence
- 8.4% finance and insurance
- 8.2% retail trade
- 8.2% health and community services industry

The workforce participation rate is 68.9% – slightly higher than the national average of 67.7 % which reflects the higher than average percentage of the Wellington population that are of working age. [30]

At the regional level unemployment is low by international standards. For the December 2004 quarter unemployment was 3.9% for Wellington and 3.6% for the country as a whole. [31]

A total of 19,272 businesses were located within Wellington City as at February 2003, representing 6.0 percent of all the businesses in New Zealand. 51% of these businesses are located in the CBD. The principal industry within Wellington City was the property and business services industry, which accounted for 39.2 percent of all businesses within the city. The next most significant industry within the city was the finance and insurance industry. [32]

Significant population growth has also seen increasing residential development in areas zoned as suburban centres. Anecdotal evidence suggests this is pushing light industrial uses out of these areas, as less land becomes available, land values increase in these areas and reverse sensitivity issues appear. Across the Wellington region there is also a shortage of industrial land. In Wellington City the vacancy rates for industrial land are between 4–7%. [33] Total areas of vacant industrial land by location are illustrated in the following graph.

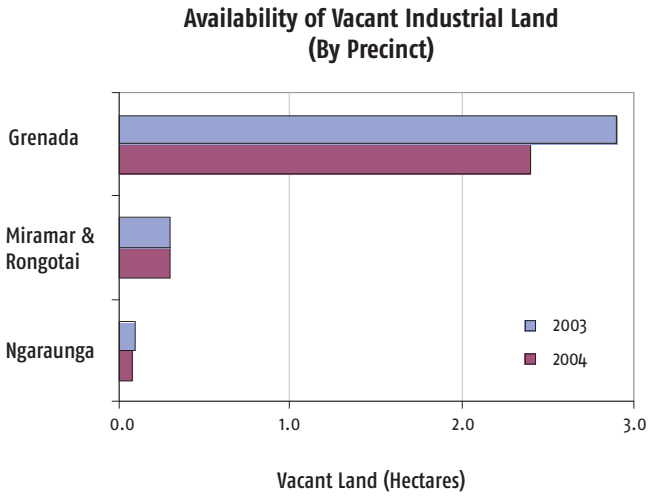
[29] Statistics New Zealand, *Wellington Quarterly Review*, September 2004.

[30] Statistics New Zealand, *Household Labour Force Survey,* September 2004.

[31] Statistics New Zealand, *Household Labour Force Survey,* December 2004

[32] Statistics New Zealand, *Wellington Quarterly Review*, September 2004.

[33] Bayleys Research: Industrial. Wellington, **www.bayleys.co.nz**, Second Half 2004.



Source: Data from Bayleys Research: Industrial. Wellington

Non-residential consents for new construction are at $189.2m for the year to September 2004, an increase of 41.1% from the September 2003. [34]

Economic Development Strategy

Council agreed key elements of the Economic Development Strategy in September 2003. The key elements agreed are:

- Attraction, development and retention of talented people and talented jobs,
- Recognition of, and partnership with, the established drivers of economic growth in the city,
- Wide spectrum of jobs,
- Workforce Development, and
- Business Attraction and Retention

Implementation of the strategy is to occur through a broad range of projects delivering on a variety of issues including, migrants, ongoing funding of Positively Wellington Business and Positively Wellington Tourism, incentives policies, and the events strategy.

The EDS also explicitly recognises the important linkages to the Urban Development Strategy and the role that urban development plays in attracting and maintaining mobile capital and workers in a globalised economy.

[34] Statistics New Zealand, *Wellington Quarterly Review*, September 2004.

Retail Strategy

In addition to the Economic Development Strategy there are implications for urban form in the Retail Strategy. This was adopted by Council in October 2003.

This Retail Strategy aims to facilitate the attractive retail choices and environment that create a great city experience. A high quality retail sector with a full range of offerings – in particular a vibrant downtown – is seen as a critical component of Wellington's economic development.

The Retail Strategy establishes the following principles to provide consistent guidance on decisions that impact on retailing.

- Availability – The right shops open, in the right place at the right times.
- Experience – A high quality physical environment and entertainment.
- Access – The ability to get to shopping locations, move around and park with ease.
- Brand and status – A clearly differentiated premium product.
- Awareness – Strong consumer understanding of the Wellington retail offering.

The strategy seeks a balanced approach to meeting suburban, necessity based, shopping needs and Downtown Wellington's role as an experience based shopping and entertainment destination.

The Strategy identifies two areas that require significant attention:

- Facilitation of large format retailing (another competing use of commercial land) - designed to complement rather than compete with Downtown Wellington. The City Gateway location is considered to have significant potential to affect the central business district. Given that Wellington City is likely to see increased large format development regardless of Council actions, the Strategy favours a facilitative approach rather than a playing a passive or opposing role when confronted with such developments.
- Access and easy parking - in particular is a critical factor for retailing. The free weekend Council parking offer has been successful to the point where on-street parks are congested and off-street parking buildings are at capacity. The strategy proposes exploring changes to public transport and the parking policy to improve access and increase turnover and supply of parking spaces.

ICT Strategy

Two important reports have gone to Council during 2004, relating to ICT and economic development. Broadband provision has potentially important urban form implications.

The first report Council Role in ICT for City Economic Development was considered in February 2004, and looked at the role for Council in ICT infrastructure provision. It concluded that broadband is the key ICT infrastructure that Wellington should focus on, because of its ability to provide very fast and high capacity digital communications channels between businesses and individuals. It also noted that Citylink provides this in the CBD, but "non-CBD areas ...are not so well provisioned and broadband infrastructure is limited in speed and availability."

The second report, ICT Strategy: Economic Development – Strategies and Options went to Council in August 2004. Four strategies were agreed by Council. The most important for urban form is:

- Strategy 1: Facilitating access to reliable and affordable broadband in non-CBD areas of the City.

As key infrastructure, the availability of high-speed service in certain areas of the city could be a factor in shaping the development of Wellington's suburban growth and also impact on the CBD, (in terms of where businesses establish). Anecdotally the impact of Citylink on ICT business location, in the CBD, is thought to be important, but to date no formal economic impact analysis has been completed.

SWOT Analysis of Employment and the Economy

Strengths	Weaknesses
• Strong existing drivers of economic growth – government, growing creative sector, property and services, finance and insurance • Quality of place and intensity of urban form • Citylink and ICT Strategy considering extension to non-CBD areas • Higher than average workforce participation	• Dependency on government sector • Small job market with limited employment choices in many sectors • Limited international airport connectivity • Urban form implications of ICT Strategy not well understood • Limited range of research facilities • Poor understanding of functioning of suburban centres and uneven provision of this zone across the city • Constrained transport corridors and small footprint create cost pressures due to availability of industrial land and congestion
Opportunities	**Threats**
• Strengthening quality of place – indoor/all weather facilities • Rolling out broadband access into the suburbs, as tool to encourage business/employment growth along spine	• Downsizing of government sector • Impact of bulk retail on downtown shopping district • Loss of light industrial uses out of suburban centres land • Impact of City Gateway on existing CBD, depending timing of development • Loss of port as a viable operation

3.7 Transport

Highlights:

- Current transport system operates effectively, with high levels of public transport usage and walking, and modest road congestion (compared to other Australian and New Zealand cities)
- Approaching peak volumes on key access routes into the city
- Car ownership and use is growing
- Access to regional destinations is threatened – Airport, CentrePort, Hosptial
- Weekend traffic volumes are increasing significantly, with lower public transport use than weekdays
- Significant constraints to the East, South and West of the city for public transport and roading – the tunnels and John St/Adelaide Rd intersection
- Transport Strategy links transport and urban form
- Current Airport size and location may be a constraint to growth

Wellington is linked to the region and broader North Island land transport network by two road and rail corridors that converge at the Wellington CBD. They support a pattern of settlement along corridors – communities along the valleys and among the hills are features of the city's topography.

This basic framework is a major strength for Wellington's transport and urban form. It has produced and sustains a strong public transport system, a business heart located in Wellington's CBD, and a strong sense of identity in individual communities. The topography of the region also presents important constraints for the future development of the transport system, with severely limited opportunities for improving access between the suburbs and CBD of the city, and between the city and its wider region.

The current Transport Strategy, adopted in June 2004 expects moderate growth for the region, which can be accommodated through incremental improvements and enhancements that reinforce the existing urban form of the city.

The transport system is currently operating relatively well. Wellington has modest, but increasing, levels of congestion, compared to other cities, and high levels of travel by public transport and walking. [35]

Wellington does however face a number of challenges to its transport system going forward: [36]

- Overall population and travel growth is placing more pressure on all transport infrastructure.

[35] Wellington City Council, *Transport Strategy 2004*.

[36] Wellington City Council, *Transport Strategy 2004*.

The city is promoting a high level of activity in the CBD and Waterfront areas and this will result in particular stress on inner-city transport. At the same time trends toward inner-city living are mitigating these pressures.

- The movement of goods and services is increasing in line with increased economic activity.
- Peak hour traffic volumes are close to or at the capacity of the road network along key routes into the city.
- Wellington International Airport a key travel destination and one of the busiest airports in the country, has experienced substantially increased levels of passenger traffic.
- Good access to important regional destinations such as the Airport, Port and Wellington Hospital is threatened by increasing traffic volumes on key routes.
- Access to the suburbs, including public transport access, is constrained at key points.

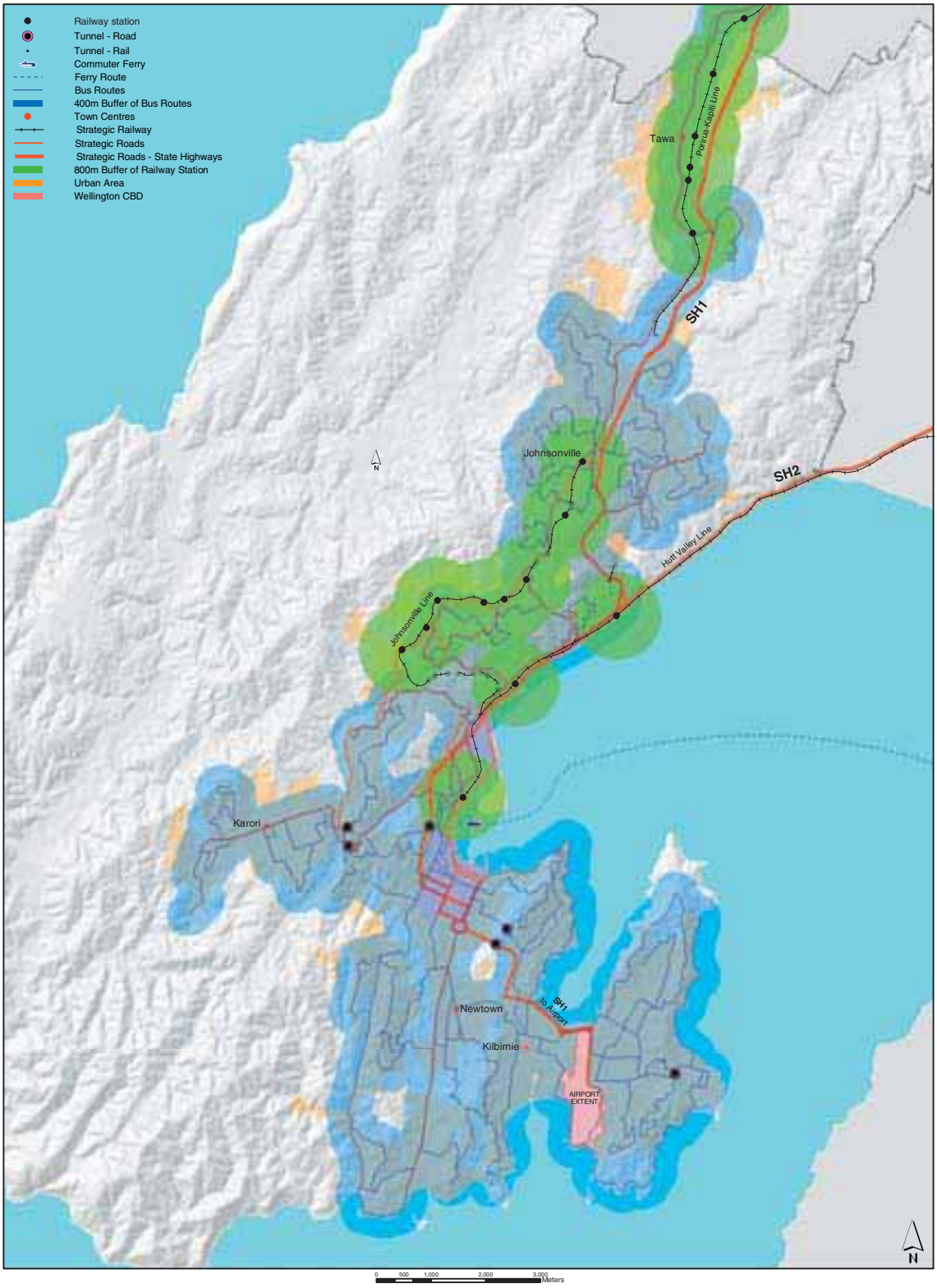
Situation Analysis [37]

Although Wellington performs well when compared to other cities in Australia and New Zealand, travel times are increasing because growth in travel is rapidly consuming any spare road capacity, and projections indicate a steady decline in the performance of the system. Current strategic transport infrastructure is depicted on the following Transport Network map, which illustrates the:

- Strategic roading network that enters the city from the north connecting the region to the Port and Airport, as well as the suburbs to the CBD,
- Bus and rail public transport routes, with pedestrian catchments illustrated – 400m for bus routes and 800m for railway stations. This clearly shows a very high level of proximity to public transport across the city, with the exception of parts of Karori, and Tawa,
- Key pinch points in the transport system – most importantly the tunnels – Karori, Mt Victoria, Terrace and Seatoun, the capacity of the Ngauranga Interchange and the highly congested intersection at John St and Adelaide Rd in Newtown through which most of the southern traffic must travel to enter or pass through the CBD,
- Regional transport infrastructure such as the Port, Ferries and Airport.

Performance indicators for the network focus on peak time weekday travel, which is heavily influenced by commuter travel, since this is generally the period of greatest demand. The following Peak Hour Traffic Flows into CBD (7am to 9am) map shows the weekday morning peak time travel flows between 7-9am in the morning.Illustrated are flows from public transport and private vehicle trips. Increasing weekend activity is also putting pressure on the network, and the pattern of this movement is more dispersed than the tidal flow of the weekday peak.

[37] All data in this section comes from the Wellington City Council *Transport Strategy 2004*, except where otherwise referenced.



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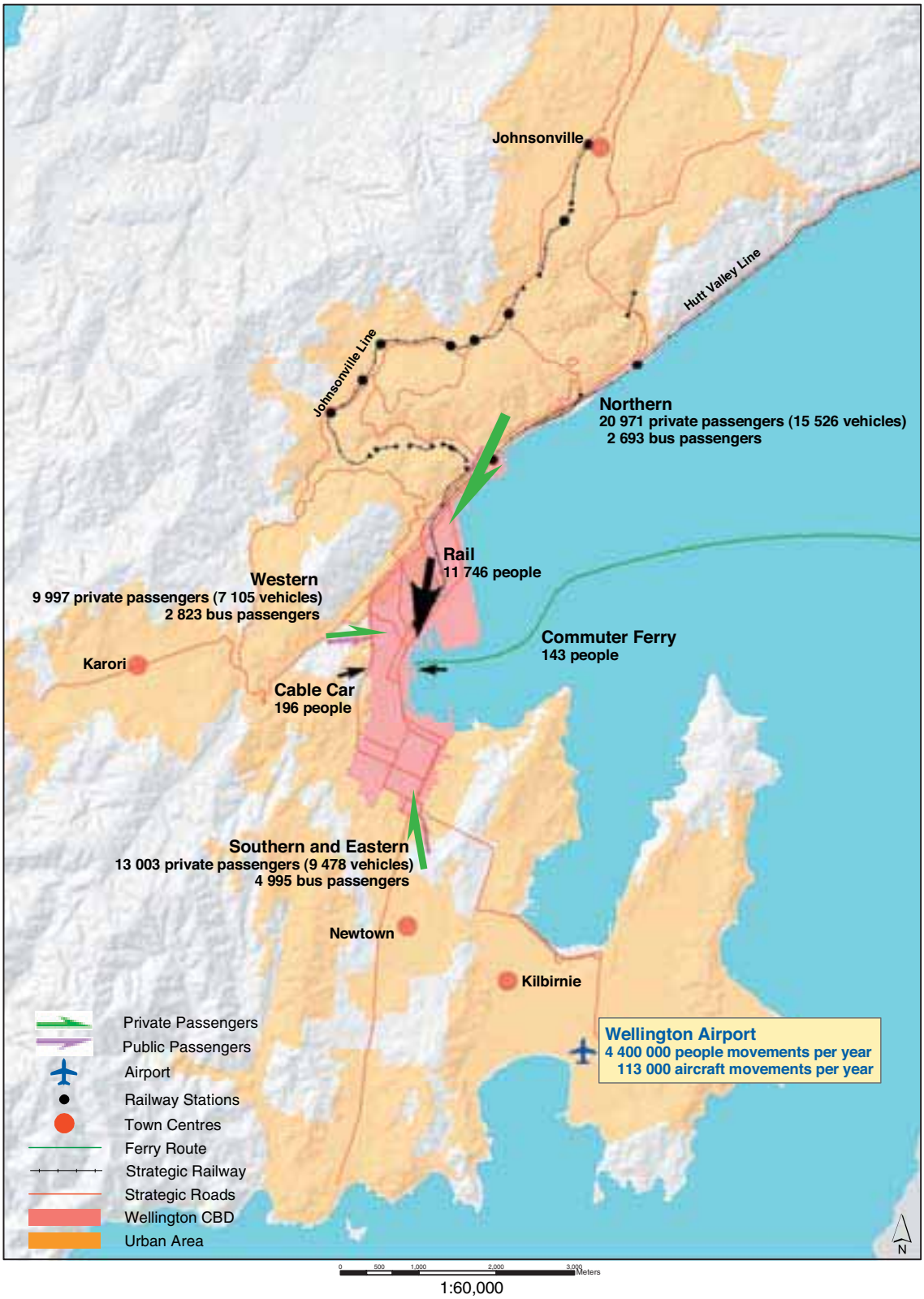
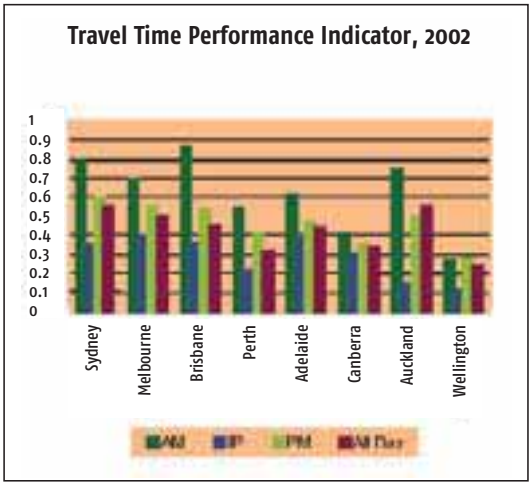
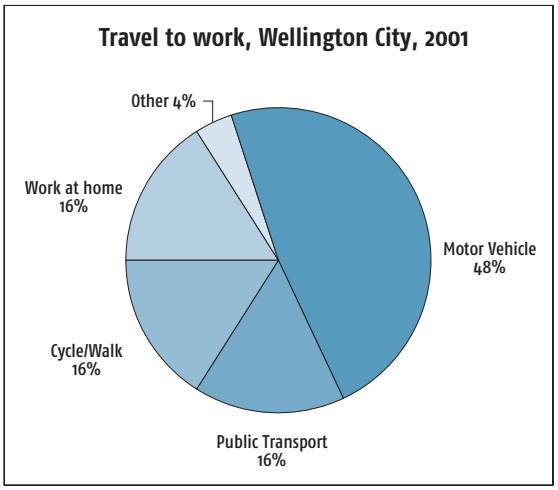
Transport Network



Peak Hour Transport Flows into CBD (7am to 9am)

The following graphs show the standardised travel performance indicator on the road network for Australasian cities (source: Transit NZ), and the primary means of travel to work on Census day 2001 (source: Statistics NZ).





Vehicle ownership is expected to increase to 0.65 cars per person (saturation levels are considered to be 0.6 cars per person). Increased access to cars will result in increased trip rates per person.

Source: Transport Strategy 2004

This map shows the "volume capacity ratios" along the main routes in the CBD. Roads are measured, then modelled, according to their designed volume limits and experienced traffic volumes. A ratio of 0.8

indicates possible significant delays mainly caused by driver behaviour. The green routes show 0.8 to 1 VCR and the red routes show greater than 1.
Already significant increases in trips are being observed in the regular cordon counts of cars entering the CBD during the AM peak. Between 2002/03 and 2003/04 AM peak car volumes increased 10%.

Specific issues for the city's roading network include:

- During peak periods the city's road network is close to or at capacity and congestion is experienced at key points in the city including: SH1 – Aotea Quay; the Quays route; SH1 through Ghuznee and Victoria streets to the airport; CBD and Golden Mile (especially Manners/Victoria/ Dixon streets area); and arterial routes to the western, eastern and southern suburbs.
- Possibilities for significant increases in capacity are limited by topography and the existing layout of the city.
- The existing Transport Strategy supports limited roading projects in the future (nothing beyond what is currently committed), e.g. Inner City Bypass, Northern Growth Management Framework, RLTS projects, e.g. Basin Reserve, Tunnels).
- Proactive consideration of traffic demand management, given the city's limited ability to build its way out of congestion.

Specific issues for the city's public transport infrastructure include:

- Increasing population in the city, increasing numbers of people coming to the city from the region to work and congestion in the city places pressure on the public transport system
- Increased pressure on public transport network through
  - o Increased demand for additional services
  - o Increased bus delays and impacts on PT reliability, e.g. Golden mile
  - o Inadequate penetration into CBD by rail
  - o Rolling stock capacity and quality potentially a major issue
- Public transport reliability and affordability
- Linkages from the North and implications for the Northern Growth Area
- Suburb–CBD PT linkage issues to ensure that suburban centres have good access to the city.

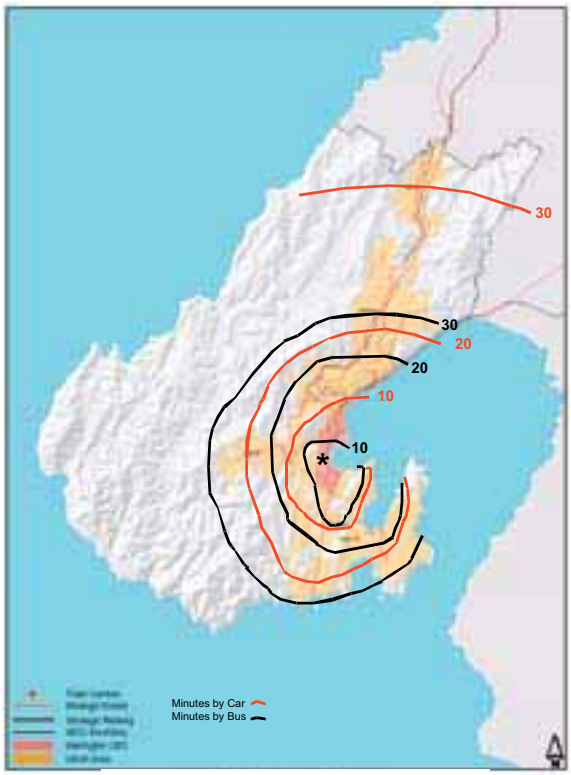
There are also important issues for the active modes of transport (cycling and walking). The major issues relating to the future urban form of the city with respect to active modes are pedestrian access between the railway station and the CBD, and the Waterfront and the CBD, whether to provide dedicated cycling infrastructure or integrate cyclists with general traffic flow and where these routes should be located.

In December 2004 a study was completed comparing journey to work travel times by car and bus from suburbs to the CBD of Wellington. The following map and table illustrate the findings. [38]

Average Travel Times to CBD from Wellington Surburbs

Origin of Trip	By Car (minutes)	By Bus (minutes)
Karori	21	28
Johnsonville	26	31 (bus) 31 (train + walk from station)
Newlands	25	32
Seatoun	24	26
Island Bay	17	24
Tawa	29	25 (train +walk from station)

Source: Commuter Travel Time Study, Forward Planning



Travel Time to CBD (8-9am Weekdays)

[38] Because data was collected during the university/secondary school cummer holiday period students' traffic volumes are likely to have been lower than during the semester and travel times shorter. It is unclear how this may impact on the relatie time differences between the car and public transport.

Access to key regional destinations, such as the Airport, Port and Hospital, is becoming more difficult. As major drivers of economic growth, easing access to all three regional facilities is an important issue for the region.

Although freight volumes through Centreport are currently increasing, the future of container traffic is by no means secure. The current 13 container ports are expected to be rationalised to 3-5, one of which may or may not be Wellington. The proposed City Gateway project will also significantly change traffic flows in the port area. [39]

Passenger movements through the Airport are projected to grow to more than 7 million a year by 2026. For the Airport there is the additional issue of the size and location of the Airport. Knowledge and innovation workers are more frequent users of air travel than other types of workers. [40] Wellington's focus on growing its knowledge and innovation sectors, and the need to secure and develop international export markets for these industries, raises questions about the constraint that the current Airport places on the quantum of future growth. Other than limited extensions to accommodate safety requirements, there are no plans to extend the current runway in at the Airport to allow for long haul flights.

Wellington Transport Strategy

Adopted in June 2004, the Transport Strategy articulates a vision for Wellington's transport system:

A transport system that enhances the city's vision and long term sustainability.

The principles underlying the vision are transport should be integrated, accessible, efficient, affordable, safe, creative and sustainable.

To meet these principles, key elements of the Strategy for Wellington's transport are:

- Recognising the respective roles of all types of transport – car, bus, train, cable car, ferries, commercial vehicles, walking and cycling.
- A stronger linkage between urban form and the transport needed to support it.
- Working with other agencies to lift the level of transport infrastructure investment and investigate road pricing measures.
- Commitment to the Inner City Bypass as a key project that will reduce traffic pressure on the CBD and improve access to the Hospital and Airport.

39 "Ports D-Day Looms; the players" and "Wellington next step in masterplan", *The Dominion-Post*, February 5, 2005.

40 "Mid-size cities get hip to attract young professionals; Behind the art and music festivals, an economic incentive", *USA Today*, Oct 10, 2003.

- Greater emphasis on improved public transport along the spine of the CBD.
- Encouragement of ways to reduce pressure on the network, such as peak spreading, more flexible work and school hours, organisational travel plans, higher vehicle occupancies, ridesharing and car pooling.
- Contributing to a modal shift away from the private car in order to improve the overall efficiency of the transport system in the city.
- A new, area based, approach to road safety.

The linkage between transport and urban form is fundamental for the Transport Strategy and the Urban Development Strategy. The Transport Strategy recognizes that the city is focused on policies that support compact urban form, "smart growth" and intensification around key transport nodes.

This adds up to an overall strategy of reinforcing existing patterns of settlement and continuing to improve the long-term sustainability of the city. Because the city is compact, most destinations and places of interest are within easy reach by car, public transport or walking.
In addition to the city's Transport Strategy there are relevant regional and national level documents when setting the agenda in many areas including funding. These include the New Zealand Transport Strategy, which sets the direction for transport in the country as a whole; The Transit 10-year Plan for State Highway expenditure; the Regional Land Transport Strategy, which plans at the regional scale for all types of transport (including public transport which is funded regionally); Getting There – on Foot, by Cycle: A Strategy to Increase Walking and Cycling in New Zealand Transport; the Sustainable Development Programme of Action; and the National Energy Efficiency and Conservation Strategy.

District Plan

The District Plan also has an important role to play in ensuring that the urban form of the city evolves in a way that continues to support the goals of the Transport Strategy. There are a number of objectives of the Plan where transport is considered. Of particular relevance are the following objectives:

Residential areas:

- Generally contain development within the established edges of the city (Policy 4.2.1.1)
- Encourage greater mix of uses within residential areas (Policy 4.2.1.2)

These are intended to help reduce transport distances between work and home, and make public transport more viable.

Central Area:

- To enable efficient, convenient and safe access for people and goods within the Central Area (Policy12.2.8)

This focuses on managing demand by controlling the number of parking spaces in the central area, by placing maxima on parking provision for new developments, and supporting the inner City Bypass to remove through traffic from central city streets.

Transport Capital Expenditure

In addition to Council's plans and policies regarding Transport outcomes for the city, the Annual Plan 2004/05 commits $97.2m in capital expenditure on transport outcomes, over the next five years. A more detailed breakdown is provided in the following table.

Table: Projected Expenditure – Annual Plan Year 04/05 to Year 08/09

CAPEX Expenditure ($000's)			Year		
	04/05	05/06	06/07	07/08	08/09
Vehicle Network	8,084	8,517	8,582	8,367	8,690
Corridor Infrastructure	3,379	3,489	3,489	3,489	3,489
Pedestrian Network	3,828	4,502	4,664	5,136	5,556
Safety	4,388	5,817	5,382	5,309	4,660
Cycleway Network	68	68	68	68	68
Parking	2,827	65	395	65	404
Passenger Transport Network	376	238	238	238	238
Network Control and Management	589	591	591	591	591
Total	23,539	23,287	23,409	23,263	23,696

SWOT Analysis of Transport

Strengths	Weaknesses
• There is a diverse set of transport choices for residents • Strong success in increasing public transport mode share • Urban form is supportive of strong public transport use • A Transport Strategy for the city has beenadopted • Current congestion levels are modest compared to other Australian and New Zealand cities • Increased inner city living is mitigating inner city transport pressures	• PT infrastructure in many areas is degraded after low levels of investment over many years (rail in particular) • Overall population and travel growth is placing more pressure on all transport infrastructure, with a high level of activity in the CBD and Waterfront areas resulting in particular stress on inner city transport • Peak hour traffic volumes are close to, or at the capacity of the road network along key routes into the city • Wellington International Airport has limited scope for growth because of runway length • Access to important regional facilities, such as the Airport, CentrePort and Wellington Hospital is threatened • Access to the suburbs, including public transport access, is constrained at key points
Opportunities	**Threats**
• Upgrading rolling stock, buses and passenger facilities • Improving freight access to major regional destinations – Port, Airport and industrial areas • Enhancing access to the CBD and region from the eastern and southern suburbs of the city, including Airport and HospItal • Improving linkages between Hutt Valley and SH1 through the Petone to Grenada Road. • City-Waterfront access, by boulevarding the Quays, role of the Railway Station as more than a transport/interchange	• Transport infrastructure vulnerable to earthquakes • Rapid growth in car ownership and use • Potential negative impacts on Wellington's urban form from Transmission Gully and electrification to Waikanae • Land availability through Te Aro to expand capacity through to the Airport.

3.8 Social

Highlights:

- Social and Recreation Strategies both have urban form implications for the city, particularly traffic implications from recreation/leisure related trips
- Concentrations of social infrastructure, provided by the Council, are found in Kilbirnie, Karori, Johnsonville, Newlands and Tawa
- Concentration of Council affordable housing in Newtown and Mt Cook
- Health impacts from increasing rates of sedentarianism, obesity and associated health conditions, that are partly related to urban form and transport options
- Given the population and growth of the Central City and immediate ring of suburbs, they are relatively poorly served by Council provided social infrastructure

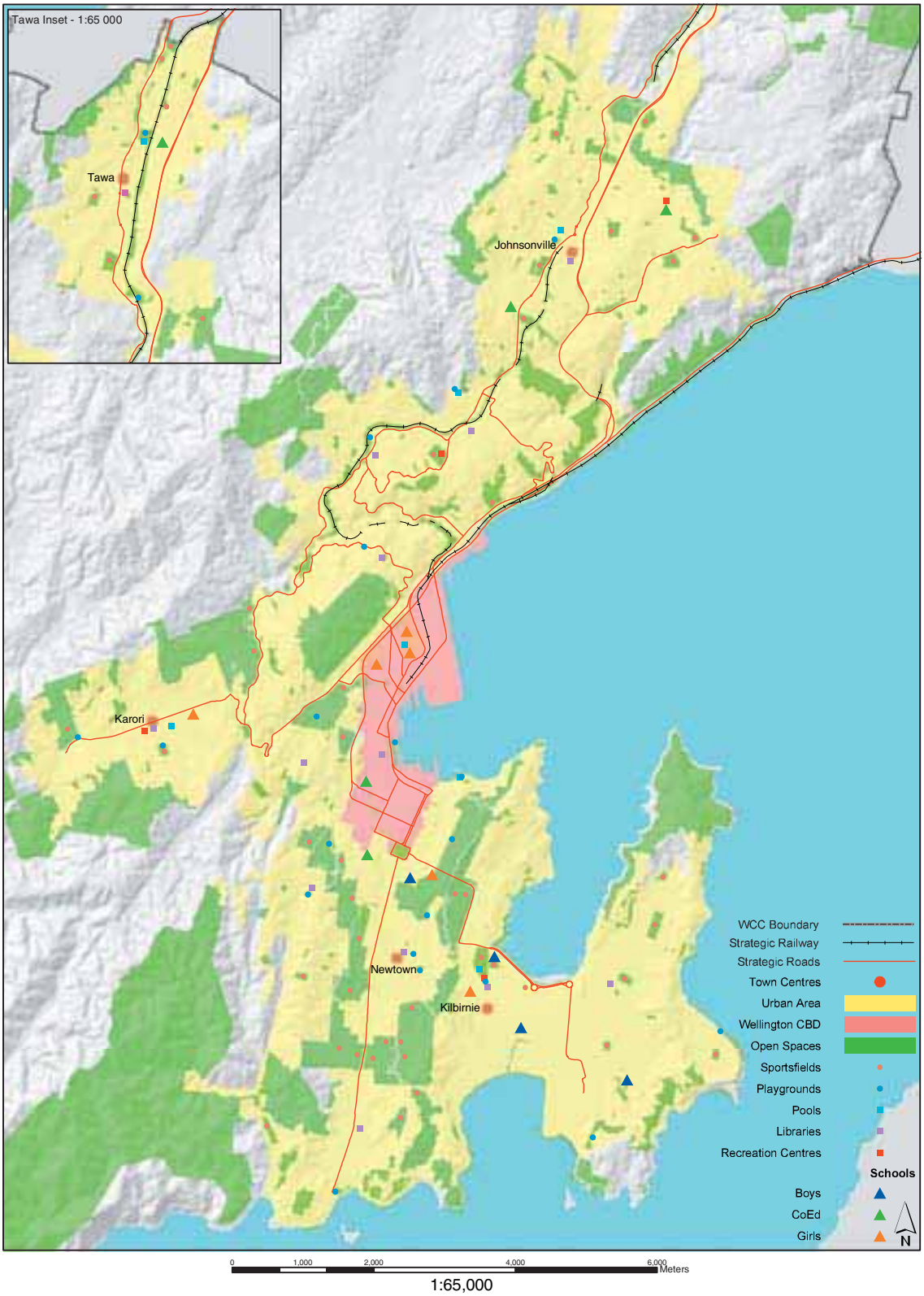
Council has an important role as a provider of community infrastructure. This includes the provision of open space including sportsfields and playgrounds, as well as community centres, libraries, pools and recreation centres. Council also provides more than 2300 units of affordable housing concentrated in Newtown and Mt Cook, but with other locations across the city.

Recreation is also an important issue to consider. Wellington is well provided for with recreational infrastructure – built and natural amenity across the city (although there are some issues about access for people with mobility issues). The most pressing urban form issues relating to recreation are the traffic movements generated by coastal recreation on weekends and the threat to coastal values from more intensive development. The Miramar Peninsula and South Coast are both important city wide as recreational destinations, and likely to experience increasing levels of traffic on weekends, as the city's population increases.

Situation Analysis

A snapshot of Wellington's population is provided in the section on People and Housing earlier in the report.

Focusing on social infrastructure the following Social Infrastructure map illustrates the location of all pools, community centres, libraries, centralised and community playgrounds and sportsfields.Secondary schools are also plotted as their reputation and location can be important influences in families housing choices. An unusual aspect of Wellington is the large number of single-sex secondary schools and the relative geographical separation of boys schools to the east of the city and girls schools to the west of the city. This has potential impacts on traffic movements as parents drive students to school across the central city.
It is also noteworthy that there are significant concentrations of community facilities in Kilbirnie, Karori, Johnsonville, Newlands and Tawa



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Social Infrastructure

There are three key strategy documents developed by Council that have a bearing on the urban form of the city – the Social Strategy, Recreation Strategy and the Framework for the Provision of Housing.

Social Strategy

The Council's Social Strategy was developed and adopted in 2001. Its focus is on building strong communities. Although the linkages to urban form are not explicitly made there are a number of outcomes and objectives in the Strategy that potentially impact on urban form.

A number of factors influence the strength of communities. Those that have an urban form relevance are in italics:

- access to essential resources and services such as housing and health care
- recognition of diversity and the way in which it contributes positively to the strength of communities
- community members whose participation and ability to reach their full potential is not limited by things such as lack of education or employment opportunities, or inadequate income
- involvement in community networks, activities and decision-making
- the safety of community members, including perceptions of safety.

The outcomes and objectives the Council wishes to achieve through this strategy that relate to the city's urban form are:
Outcome 3. Participation:
People are encouraged to participate in community networks.
Objective:

- To ensure that adequate recreation, leisure and learning opportunities exist for all members of the community, and encourage participation and "bringing people together" in a wide range of activities.

Outcome 4. Access to resources:
All residents are able to access community resources and public services.
Objectives:

- To ensure that all residents have access to basic requirements of housing, health care and other services, including the natural environment.
- To enable all to function as full members of the community by maintaining access to community facilities and public services, including the natural environment.
- To ensure that all members of the community have access to information and advocacy services.
- To develop a range of venues that meet the needs of Wellington's youth.

Recreation Strategy

The Council first adopted the Recreation Strategy in 1998. In 2002 the Strategy was reviewed and updated.

The Recreation Strategy is underpinned by a philosophy that quality recreation and leisure opportunities enhance the city as a place to live and visit. Recreation and leisure activities also contribute to the wellness and vitality of the city.

The strategy aims to:

- Offer an abundance and a diverse range of sport, recreation and leisure activities;
- Ensure these activities are easily accessed, affordable and available year round;
- Enhance the contribution of sport, recreation and leisure events to the city's economic prosperity;
- Encourage participation in a way that increases overall well-being.

There are clear linkages between the Recreation Strategy and the provison of open spaces and community infrastructure such as Recreation Centres, playgrounds and sportsfields. The physical provision of these is an important urban form issue. Equally important is the emphasis of the Recreation Strategy on participation and provision of a wide variety of recreational opportunities. In a predominantly car dependent culture, there is likely to be a correlation between increased recreation and increased traffic, particularly on weekends. Location and promotion of recreational opportunities has urban form implications for the city.

The most pressing urban form issue relating to recreation are the traffic movements generated by the uneven distribution of coastal land in the city and the powerful attraction this has for recreation. The Miramar Peninsula and South Coast are both important city wide as recreational destinations, and likely to experience increasing levels of traffic on weekends, as the city's population increases.

In the 2002 revision of the policy a public health outcome was added, reflecting the concern about sedentarianism that is increasing in all developed countries. Recent US research has suggested that there is an important correlation between urban form and the incidence of obesity, hypertension and diabetes. [41] In suburbs that are exclusively residential, where all journeys to shops, work and recreational locations must be by car, the incidence of obesity is considerably higher than in those areas where more intensive mixed uses

[41] "Surburban sprawl connected to waistline sprawl", *The New Zealand Herald*, 1 November 2004; *Measuring the Health Effects of Urban Sprawl – A National Analysis of Physical Activity, Obesity and Chronic Disease*, Smart Growth America Surface Transportation Policy, September 2003; *Report on Public Health and Urban Sprawl in Ontario – A review of the Pertinent literature*, Ontario College of Family Physicians, January 2005.

exist, so that more journeys can be active. In the Wellington context this is the difference between people who live in Te Aro and those who live in Woodridge. This will become an increasingly important issue for the health care system.

Framework for the Provision of Housing

Council's Framework for the Provision of Housing was adopted by Council in April 2000. The Council's objectives are to:

- provide quality housing that responds to genuine need,
- assist people with low-incomes and special needs,
- give priority to groups most in need of housing, and
- offer support to people until they can participate in the private rental market

The portfolio of properties has been assessed in the Housing Asset Reconfiguration Study as part of the Asset Management Planning process.

Social Infrastructure Capital Expenditure

In addition to Council's plans and policies regarding Social outcomes for the city, the Annual Plan 2004/05 commits $73m in capital expenditure on social outcomes, over the next five years. This includes relevant CAPEX for the Community Health and Safety KAA (community halls and centres, community housing, public conveniences, burials and crematorium services) the Recreation and Leisure KAA (swimming pools, sports fields, playgrounds, recreation centres, libraries network, Zoo and Marinas) and the Arts and Culture KAA (Galleries and Museums, Arts partnerships, Community arts). A more detailed breakdown is provided in the following table.

Table: Projected Expenditure – Annual Plan Year 04/05 to Year 08/09

CAPEX Expenditure ($000's by KAA)			Year		
	04/05	05/06	06/07	07/08	08/09
Community, Health and Safety (excluding city safety initiatives, emergency management and public health)	6,273	4,332	5,145	1,867	2,148
Arts and Culture	1,940	375	25	25	25
Recreation and Leisure (excluding Access support)	9,674	12,245	11,419	9,130	8,383
Total	17,887	16,952	16,589	11,022	10,556

SWOT Analysis of Social

Strengths	Weaknesses
• Generally good provision of community facilities, playgrounds, pools, community centres, recreation centres, libraries and open space • Large portfolio of affordable housing	• Increasing pressure on sportsfields during traditional sporting times – Saturday AM, including parking in the vicinity of these parks • Single sex secondary schools are generally geographically segregated, boys in east, girls in west, resulting in increased cross-CBD travel for parents dropping students at school, or on public transport • Access to outdoor recreation for people with limited mobility is weak in parts of the city, due to the topography of the open space • Inadequate provision of community infrastructure in the central city and inner ring of suburbs, given high population growth in these areas
Opportunities	**Threats**
• Provision of community infrastructure in Waitangi Park to meet inner city needs, also other green spaces proposed for central area –Thorndon and Te Aro • Reconfigure affordable housing portfolio to support population growth objectives in suburban centres • Expand Council role to target need for quality affordable housing in greenfield areas.	• Traffic impacts around the south coast and Miramar Peninsula on weekends • Greenfield urban sprawl further contributes to car dependency, which contributes to increased levels of obesity, other health impacts on costs to the health system.

3.9 Sense of Place

Highlights:

- Protecting and enhancing Sense of Place is a strategic priority for Council
- Many existing plans and policies already protect resources that contribute to Wellington's sense of place, but more can be done in key areas
- Challenge to ensure that Sense of Place does not impede necessary growth and change

Wellington has prioritized the protection of its sense of place as an important strategic objective. This is in recognition of the importance of quality of place as a unique differentiator from other cities around the world that are competing for talent and investment. It is also in recognition of the inherent concern that the Wellington community has for the unique and special character of the city.

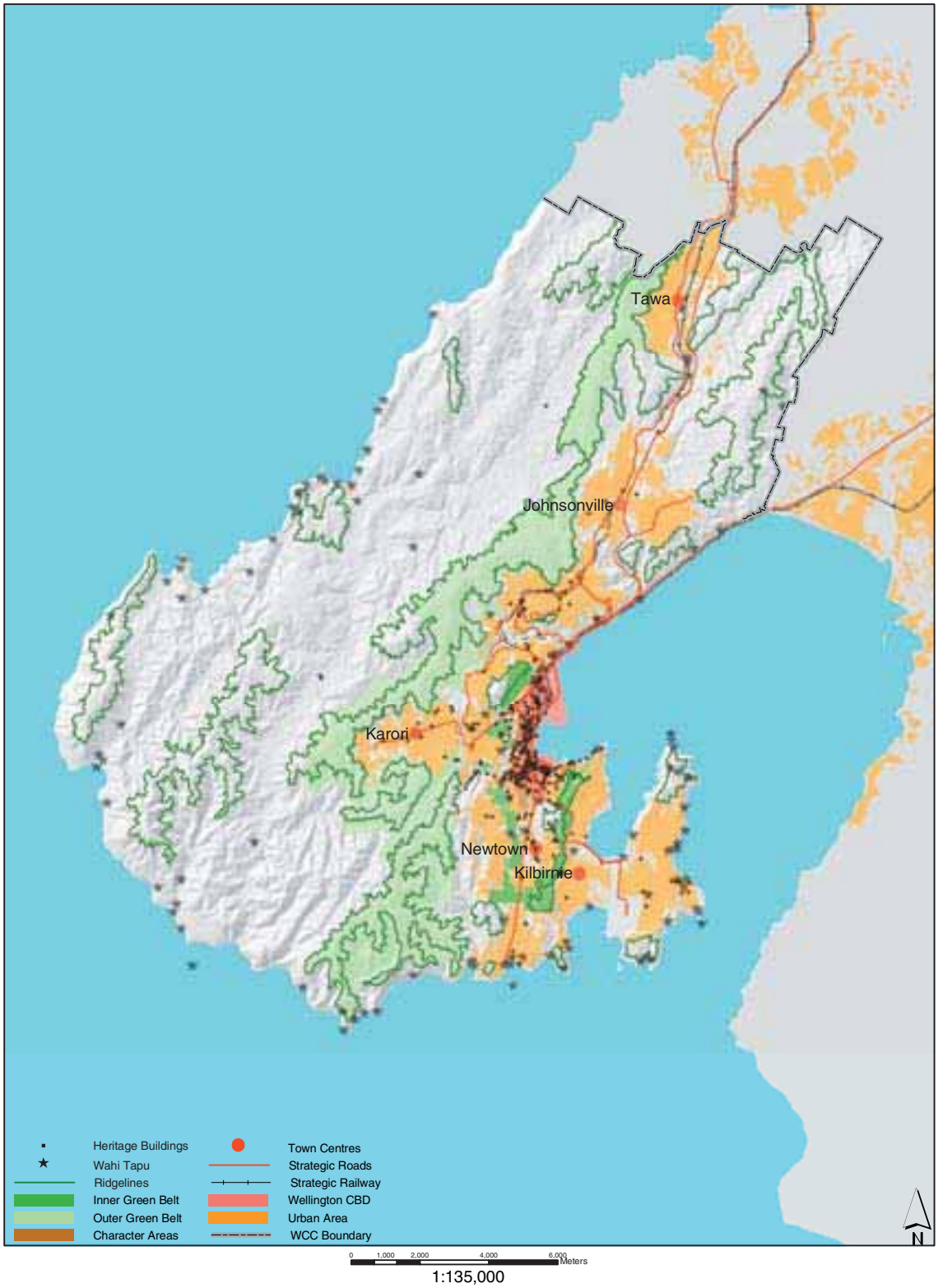
Sense of place has both tangible (heritage buildings, landforms, parks, views) and intangible (buzz, style, creativity) attributes. For an Urban Development Strategy, focused on physical urban form, it is tangible, physical attributes tied to specific places that are the key focus. The tangible attributes are also important in creating an environment in which the intangible attributes of Sense of Place can flourish and thrive, but an Urban Development Strategy necessarily focuses on the physical.

Situation Analysis

Although work has been done by Council in defining the characteristics of Wellington's sense of place at a high level across the city, no attempt has yet been made to drill down to specific suburbs and communities, or to define the characteristics spatially.

Given that sense of place is in part created by Wellington's particular mix of landform, natural environment and the built environment, there are a number of policies and plans that already protect and enhance important contributors to sense of place. These include the District Plan and its character areas, heritage lists, view protection, hill top and ridgeline protection and waahi tapu list, the Built Heritage Policy, Urban Design Strategy, Wellington Waterfront Framework, Wet and Wild, Capital Spaces and management plans for green spaces and parks. Many of these items are shown on the city-wide and CBD Sense of Place maps following.

The maps illustrate the high level of knowledge about the central, older parts of the city, where character areas are in place, heritage protection is significant and sense of place is relatively well understood. In suburbs outside the Inner Townbelt there is a relative absence of knowledge about, and protection of, items that contribute to sense of place.



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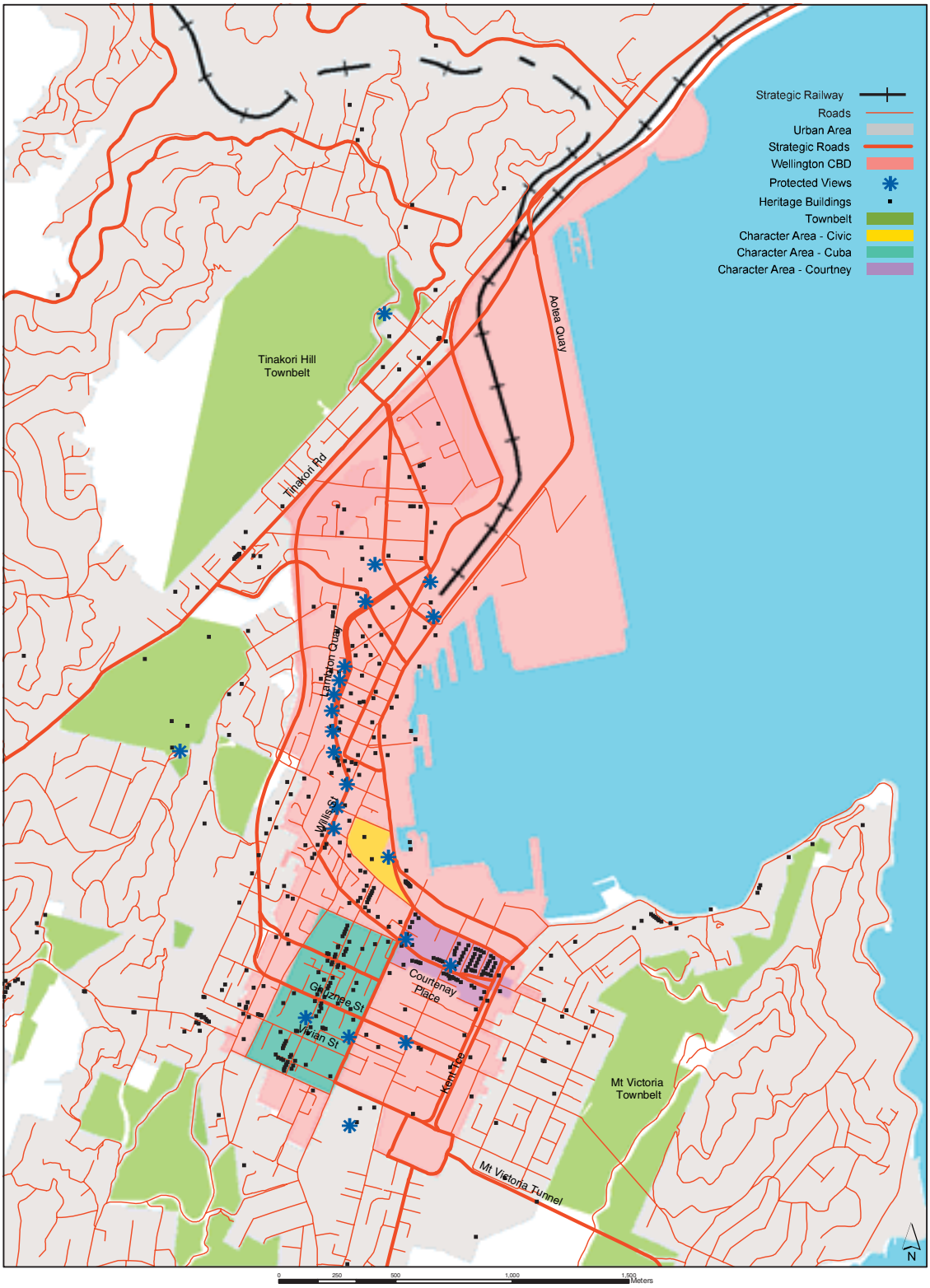
Sense of Place



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CBD Sense of Place

Stages 2 and 3 of the Sense of Place Project will focus on defining and protecting sense of place in specific parts of the city including where possible mapping and spatially expressing the attributes of sense of place.

The key document that articulates the City's sense of place priorities is the Sense of Place Report that was presented to the Economy and Arts Committee in December 2003.

Sense of Place Report

The Sense of Place Report identifies guidelines that will underpin all of the Council's strategic policy and planning processes and documents. Through this the Council intends to work to ensure that all new growth preserves and enhances the following ten key characteristics. All items have relevance for the built form of the city, but items in italics are particularly important for built form and urban development.

1. Good accessibility, including public transport use and easy walking within and between parts of the city
2. The compact and integrated urban layout
3. The pivotal role – and diverse, vibrant character and pulse – of the central city
4. The natural character of the significant ridgelines and hilltops and the coastline, and the significance of the Town and Green Belts
5. The role as centre of the nation – a successful host of the government and Treaty of Waitangi negotiation and management
6. The growing range, size and economic success of the creative and cultural sectors
7. The range of events and recreation activities, both outdoors and indoors
8. The high quality and diversity of public spaces, including the prominent streets, parks and squares
9. The distinct character of communities, neighbourhoods, urban quarters and suburban centres – their people and buildings – and the city's confident, unpretentious personality
10. The symbols, images, places and buildings that identify the people and places of Te Whanganui-a-Tara and Wellington, and tell their history."

SWOT Analysis of Sense of Place

Strengths	Weaknesses
• Helps protect and enhance Wellington's quality of place, thereby enhancing competitive advantages of the city when attracting migrants and investment • Significant elements of sense of place are protected through design guidelines, heritage protection and other existing policies	• Currently poorly defined at a suburb level, particularly parts of the city beyond the inner Town Belt • Not well integrated into plans and capital expenditure programmes that impact on tangible components of the sense of place • Limited consultation when original sense of place research was completed
Opportunities	**Threats**
• Identify and understand Sense of Place at a community level, and implement new initiatives to protect and enhance key attributes	• Potential for SOP to become a lever used by opponents of necessary growth and change in specific parts of the city

3.10 Infrastructure

Highlights:

- City faces significant costs to replace aging water infrastructure
- Water supply, wastewater and storm water infrastructure is not a constraint on growth if city-wide growth remains modest
- Plans to make Southern Landfill primary regional landfill will have transport implications and neighbourhood impacts.

Infrastructure underpins everything the city does. Infrastructure maintenance, upgrades and redevelopment are managed through the mechanism of Asset Management Plans for each of the key infrastructure systems.

At current rates of growth no major infrastructure constraints relating to water or waste are anticipated. Growth rates are mostly accommodated through the normal programme of maintenance and renewal that is constantly underway in the City. [42]

Situation Analysis [43]

The current status for each of the infrastructure systems (the three waters (water supply, waste water and storm water) and solid waste) is outlined in the following sections.

Water

Water is delivered from Greater Wellington's bulk supply system into the Wellington City storage and distribution network at 18 separate supply points. The City's main trunk from Thorndon to the 20ML Macalister Park reservoir delivers approximately 90% of Wainuiomata head works output directly into Wellington City.

Wellington City has historically had low population growth. Assuming growth is as predicted, the extra demands on the water system will not be substantial. The adoption of the Northern Growth Management Plan has given certainty to enable the planning of infrastructure needs in that area. The Council has approved a means whereby the planned construction of reservoirs and associated works can proceed.

Condition of Pipes

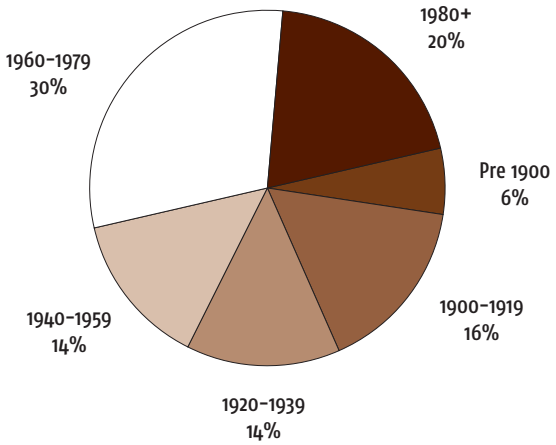
A study of the condition of the pipes was carried out in 2000. Improving the condition of existing infrastructure is an important issue for the Council. The forward renewal expenditure forecast was adjusted as a result of the study and will increase to a maximum of $6.3 Million in 2006.

42 However, if stormwater continues to be hard-piped into streams, the streams will be significantly degraded.

43 All data and diagrams sourced from Wellington City Council *Asset Management Plans* 2003.

The indicative age of the pipe network is as follows:

Age Distribution



Reservoirs

Council has 76 reservoirs and tanks scattered throughout the city. Twelve of these reservoirs do not provide the required storage of 600litres/person/day, especially in the older suburbs. On the basis of requiring 24 hours storage, the city requires some extra 30 ML. The reservoir at Macalister Park has 20ML and there is a need to provide a further 10 ML in the Southern and Eastern Suburbs

The reservoir in the Eastern Zone is programmed for 2003/04/05 and in the Southern Zone for 2004/05/06. Rationalisation of reservoirs should improve the pressure problems and Council is working with some of the developers for the installation of larger reservoirs and getting rid of some smaller reservoirs. Council is also investigating other means of increasing the pressure to the affected properties where the rationalisation of reservoirs will not make the required pressure at the point of supply.

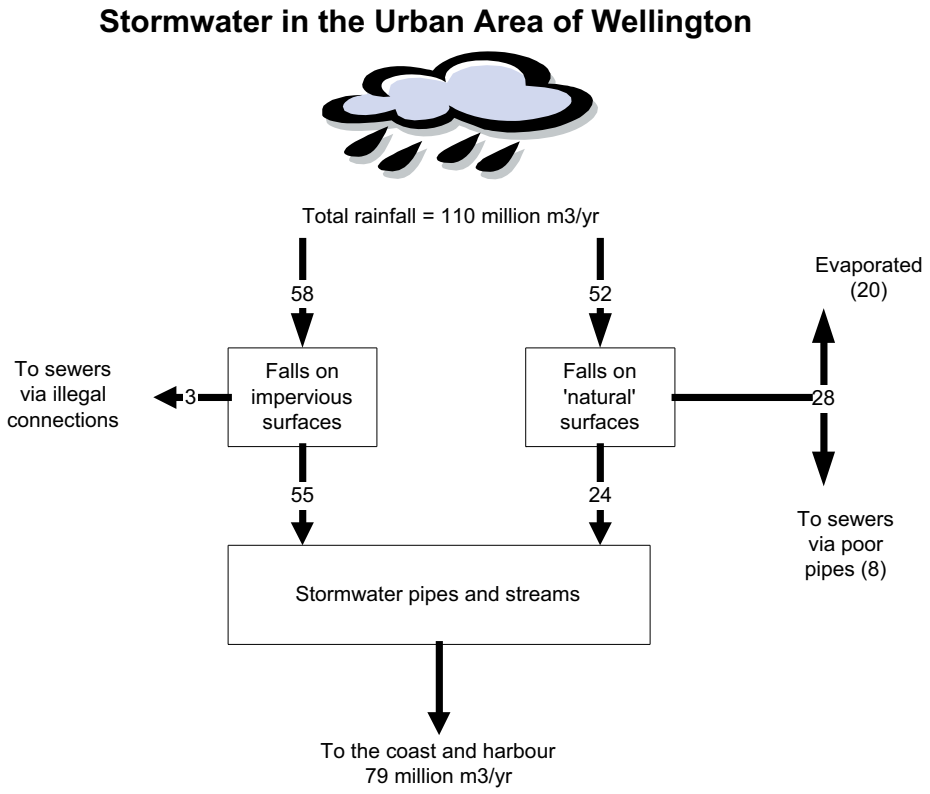
Council has recently approved the raising of a $4.5Million loan to fund the construction of reservoirs and pumping stations in the areas affected by the Northern Growth Management Plan. The pump station and reservoir on the eastern side of the motorway north of Grenada Village will be big enough and in the best location to serve the northern area. Two further reservoirs will be developed off this base. Water will be pumped to a second reservoir in Horokiwi which is likely to be required in the future to serve an expansion of Woodridge. A third reservoir would be constructed to serve Stebbings Valley and replace the smaller existing reservoirs in Tawa.

There is also an investigation pending for a similar solution to the Ngaio West area where there is a current and potential development, to ensure that the resultant reservoir configuration is the most efficient and effective.

Storm Water

The stormwater pipe network totals some 683 km of pipes and tunnels. Stormwater is discharged directly into the city's streams and harbour. The Council stormwater system is divided in terms of streams and piped infrastructure. Roading infrastructure includes the kerb, channel, sumps and secondary flow paths.

The following diagram shows the quantities of stormwater experienced in an average year.

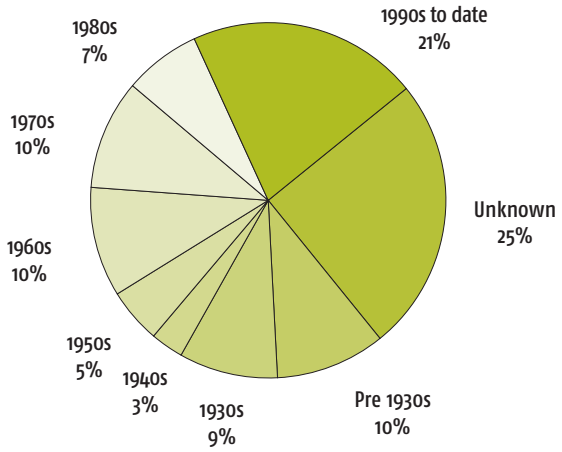


The Council stormwater system services the current estimated population of 182,600.The extra demand on the stormwater system due to estimated population growth is not considered to be a substantial issue for the capacity of the system. There are water quality issues however. If water quality in streams is to be improved on-site retention of stormwater will become more important, as will minimum permeability requirements for catchments. This will have cost and urban form implications.

Condition of Stormwater Pipes

The following figures show the age, size and material distribution of the pipes in the network.

Age Distribution



In 2000, Beca Asset Management Services were commissioned to provide expenditure forecasts for the replacement of the pipe services due to loss of structural integrity (condition). The condition grading shows a fairly robust condition for the system (1 being excellent, 5 being poor):

1	2	3	4	5
28%	34%	32%	5%	2%

Performance & Upgrading

The performance of the asset relates primarily to its capacity to cope with single high volume events. A desk top investigation into all the larger stormwater catchments was carried out in 1995/6 to identify those catchments at most risk. This study confirmed that much of the stormwater network in Wellington City is under capacity and that some $60-80 million of work was probably required to enable the stormwater systems in these catchments to be upgraded to current design flood protection standards. Further investigations completed also support this estimate.

Waste Water

The WCC sewer drainage system consists of:

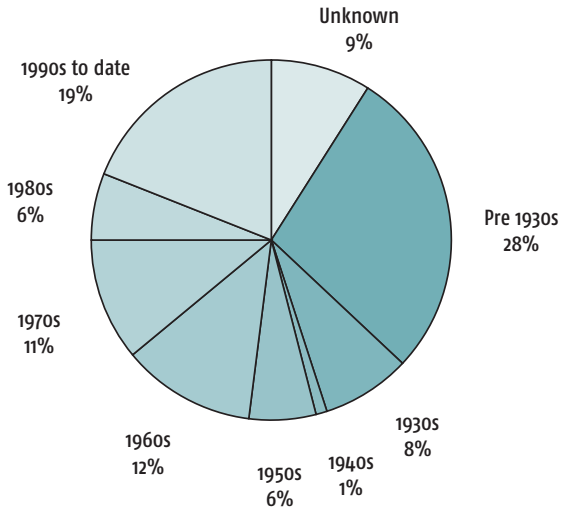
- 1,048km pipe network
- 62 pumping stations
- Western Treatment plant at Karori.

- Moa Point Treatment Plant
- Carey's Gully Sludge Plant
- Porirua Treatment Plant (27.6% share)

A study into the condition of the pipes was carried out in 2000, resulting in the average condition as set out in the table below. The forward renewal expenditure forecast was adjusted as a result of the study and will increase to a maximum of $8.4 million per year in 2021.

The age of the pipe system is as follows:

Age Distribution



As with water supply and stormwater, the extra demands on the sewerage system due to the growth and development of Wellington City will not be substantial in the short term. The development potential of the northern suburbs will have an effect on future requirements.The adoption of the Northern Growth Management Plan has given certainty to enable the planning of infrastructure needs in this area.

In terms of infill, it is not considered that current developments will have a significant effect on the peak flows of sewage. However the gradual incremental increase could ultimately have a sufficiently significant effect to trigger an investigation

Solid Waste

Wellington has two landfills – a northern landfill off State Highway One, 2km north of Johnsonville and a southern landfill off Happy Valley Road between Brooklyn and Owhiro Bay. The current consent for the northern landfill expires in 2006 but it is expected that the landfill will close in June 2005.

The southern landfill has considerable capacity and is expected to have a life of approximately 100 years. The southern landfill is proposed to operate as the primary regional landfill once existing smaller landfills in the region have closed. This has significant implications for the transport routes to and from the landfill and the communities adjacent to them.

Further detail on all aspects of Infrastructure is available in each of the Asset Management Plans.

Infrastructure Capital Expenditure

In addition to Council's plans and policies regarding infrastructure for the city, the Annual Plan 2004/05 commits $155.9m in capital expenditure on Resources and Waste, over the next five years. A more detailed breakdown is provided in the following table.

Table: Projected Expenditure – Annual Plan Year 04/05 to Year 08/09

CAPEX Expenditure ($000's)			Year		
	04/05	05/06	06/07	07/08	08/09
Water network	13,655	15,353	10,451	9,463	8,617
Water conservation	384	384	384	384	384
Stormwater collection and disposal	5,718	4,705	5,489	4,804	5,883
Sewage collection and disposal	8,693	13,928	11,132	13,403	11,106
Solid waste landfills	1,376	1,807	1,807	92	6,507
Total	29,826	36,177	29,263	28,146	32,497

SWOT Analysis of Infrastructure

Strengths	Weaknesses
• Infrastructure is not a significant constraint on growth for the city • Strong knowledge of the current state of infrastructure and the programme of works required to upgrade it	• Significant costs to replace ageing systems • No explicit link between long term growth planning and Asset Management Planning for the city • Impacts on communities adjacent to the Southern Landfill access routes if it becomes the regional landfill • Treatment capacity held by Wellington City is approaching capacity • Potential for stormwater to degrade urban streams
Opportunities	**Threats**
• Link Asset Management Planning with long term growth planning • Place some of the costs of infrastructure upgrades onto developers through Developer Contributions	• Reduction in number of regional landfill sites will have an impact on transport costs for disposal of waste • Impacts of climate change on the supply and disposal of water • Vulnerability of the water supply system to earthquake

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